

**TECHNICAL MANUAL**

**DIRECT SUPPORT AND GENERAL SUPPORT**

**MAINTENANCE MANUAL**

**SMALL ARMS AMMUNITION TO 30  
MILLIMETER INCLUSIVE  
(FEDERAL SUPPLY CLASS 1305)**

**DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.**

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**HEADQUARTERS, DEPARTMENT OF THE ARMY**

**APRIL 1994**

## **WARNINGS**

**DO NOT ATTEMPT TO SEPARATE THE PROJECTILE FROM THE CARTRIDGE CASE DURING THESE OPERATIONS.**

**EXTREME CARE MUST BE EXERCISED IN THE HANDLING OF ROUNDS THAT HAVE POINT DETONATING FUZES.**

**ELECTRICALLY-PRIMED AMMUNITION CAN FIRE IF EXPOSED TO HIGH-POWER RADIO FREQUENCY FIELDS. AVOID CONTACT OF ANY KIND WITH THE PRIMER, ESPECIALLY METAL OBJECTS. SEE TM 9-1300-206 FOR AMMUNITION HANDLING INSTRUCTIONS.**

**PROTECT PRIMER AT BASE OF CARTRIDGE CASE FROM ACCIDENTAL IMPACT BY CUTTING OUT A PIECE OF CARDBOARD SLIGHTLY LARGER THAN PRIMER'S EXPOSED SURFACE AND SECURING IT OVER THE PRIMER WITH MASKING TAPE.**

**LOADED AMMUNITION ITEMS SHALL NOT BE ELECTROSTATICALLY PAINT SPRAYED OR DETEARED [REMOVAL OF EXCESS DRIPS (TEAR DROPS) FROM A PAINTED SURFACE].**

**DO NOT USE STEEL WOOL ON STEEL CARTRIDGE CASE. USING STEEL WOOL ON THESE CASES CAN PRODUCE A SPARK.**

**WEAR RESPIRATOR DURING SPRAY PAINT OPERATIONS.**

CHANGE )  
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NO. 3

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**Direct Support and General Support Maintenance Manual  
for  
Small Arms Ammunition to 30 Millimeter Inclusive  
(FSC 1305)**

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MAINTENANCE MANUAL  
FOR  
SMALL ARMS AMMUNITION TO 30 MILLIMETER INCLUSIVE  
(FSC 1305)**

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TECHNICAL MANUAL )  
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HEADQUARTERS  
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**DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL  
 (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)  
 FOR  
 SMALL ARMS AMMUNITION TO 30 MILLIMETER INCLUSIVE  
 (FSC 1305)**

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes or know of a way to improve the procedures, please let us know. You may mail, e-mail, or FAX your response. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander, U.S. Army TACOM, Armament Research, Development and Engineering Center, ATTN: AMSTA-AR-LSB, Picatinny Arsenal, NJ 07806-5000. E-mail address is LSB @PICA.ARMY.MIL. FAX number is Commercial (201) 724-4633, DSN 880-4633. A reply will be furnished to you.

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**CHAPTER 1**  
**INTRODUCTION**

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**Section I. GENERAL**

**1-1. Scope**

a. This is one of a series of manuals on maintenance of small arms ammunition. (Federal Supply Class 1305 which includes ammunition through 30 millimeter.) Information in this manual is limited to the responsibilities of direct and general support maintenance personnel.

b. Operating instructions and operator-level maintenance are covered in the appropriate weapon manuals. Unit level maintenance is covered in TM 9-1305-201-20&P which also contains the Maintenance Allocation Chart (MAC). Authorized procedures for each level of maintenance, including direct and general support, are specified in the MAC.

**1-2. Forms, Records, and Reports**

a. Forms generally applicable to units maintaining this materiel are listed in appendix A. A current listing of all forms is maintained in DA Pam 25-30. DA Pam 738-750 contains instructions on applicability and completion of forms.

b. Ammunition Data Cards will be annotated to reflect major maintenance operations in accordance with TM 9-1300-250.

c. A record should be kept of each inspection job undertaken on an Ammunition Condition Report (ACR).

**Section II. DESCRIPTION AND DATA**

**1-3. General**

Description and data on this ammunition are contained in

TM 43-0001-27. Refer to the applicable operator and unit maintenance manuals for detailed operating instructions.

**Section III. SAFETY, CARE, AND HANDLING**

**1-4. General**

a. For general information on safety, care, and handling of ammunition, refer to TM 9-1300-206, TM 9-1300-25, and TM 9-1305-20120&P.

b. Specific information on safety, care, and handling is contained in the applicable operator's and unit maintenance manuals.

c. Specific safety precautions, warnings, and cautions relating to the maintenance operation are

incorporated with the maintenance procedures for the ammunition item.

d. The cartridge 25MM APFSDS-T M919 utilizes Depleted Uranium (DU) that emits very low level radiation. Care must be taken when handling this round to limit direct contact with the DU penetrator.

e. The U.S. Nuclear Regulatory Commission sets standards/conditions, and issues licenses for the safe use, storage and possession of radioactive material.

Current copies of title 10, parts 19, 20, and 21, as well as licensed operating procedures, are maintained by the HQ IOC, Health Physicist and may be examined at HQ IOC, Rock Island, IL 61299-6000. The NRC source material license for the radioactive material contained in the manual is maintained by HQ IOC, Rock Island, IL 61299-6000. Users of this material may request further information from Cdr, IOC, ATTN: AMSIO-DMW (RPO), Rock Island, IL 61299-6000.

f. Loss or unauthorized firings of M919 rounds must be reported through the chain of command as soon as discovered. All transmissions regarding incidents of this nature must be marked FOUO (For Official Use Only). IOC Headquarters must be notified within 24 hours of discovery. Report to Cdr., IOC, ATTN:

AMSIODMW (RPO), Rock Island, IL 61299-6000, DSN 793-0338/2969, Commercial (309) 782-0338/2969. After normal duty hours contact SDO (Staff Duty Officer), DSN 793-6001, Commercial (309) 782-6001.

g. Exposure to 25MM APFSDS-T M919 ammunition results in exposure to low level radiation. The amount of radiation the soldier receives is proportional to the amount of time spent in the vicinity of APFSDS-T M919 ammunition. Although the radiation exposure received is low and considered safe, avoid unnecessary contact with packaged APFSDS-T M919 ammunition, within mission constraints.

**Change 1 1-2**

## CHAPTER 2

TOOLS AND EQUIPMENT

---

**2-1. General**

a. Tools and equipment having general application to this materiel and used by direct support and general support organizations are authorized for issue as required by tables of allowances (TA) and tables of organization and equipment (TOE).

b. Tools and equipment required for ammunition maintenance will usually be available in the direct support tool set (SC 4940-95-CL-A11) and the general support shop equipment (SC 4925-95-CL-A03) or another tool set authorized under TOE's for the organization.

**2-2. Packing Materials, Accessories and Tools**

Refer to appendix B for the packing materials, accessories, and tools lists.

**2-3. Fabricated Tools and Equipment**

Local fabrication of tools and equipment is only permitted when required to perform an authorized maintenance function. When approved drawings and specifications are not available, design must meet all safety requirements and be approved by local safety officer.

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## CHAPTER 3

## INSPECTION REQUIREMENTS

## Section I. GENERAL

**3-1. Inspection and Purpose**

a. Inspection is the determination of service-ability of an item by comparing its physical and mechanical performance to determine whether the material to the technical requirements.

b. Inspection criteria contained in this publication are provided to assure at all maintenance performed will restore the item(s) to an acceptable quality level.

c. This chapter prescribes the procedure for the inspection of packaging, packing, and marking of small ammunition. It specifies the extent of the inspection of the container contents, the containers themselves and overpack of such containers. It also supplies classification of defects, acceptable quality levels and furnishes visual defect standards when necessary. See SB 742-1 and TM 43-0001-27.

**3-2. Ammunition Surveillance Program**

Surveillance includes those actions necessary to evaluate the current degree of serviceability of ammunition. See AR 702-6, AR 742-9, and SB 742-1 for policy, responsibilities and procedures applicable to the Ammunition Surveillance and Quality Evaluation Program.

**3-3. Inspection Methods**

a. Visual Inspection. Careful observation of item, noting listed defects and any other abnormalities.

b. Manual Inspection. Movement by hand of specified area of item to determine if listed defect(s) exists (e.g., incorrect or loose part).

c. Gage Inspection. Checking an item with a measuring instrument or a standard mating piece to

determine if its size is acceptable in certain critical areas. Defects are derived from either predetermined standards or on a "go" - "no go" basis (e.g., chamber gage).

**3-4. General Inspection Procedure**

a. Inspection shall be performed on a class basis using the applicable sampling plans and criteria of MIL-STD-105, inspection level I.

b. For sampling and inspection purposes, units of the several packaging and packing phases shall be:

(1) Phase I--Contents of container--A unit shall consist of the complete contents of a single packaged container shown on applicable drawings.

(2) Phase II--Packaged and sealed container--A unit shall consist of a single packaged and sealed container; this could be a sealed envelope when used as a container.

(3) Phase III--Overpack and overpack contents--A unit shall consist of single overpack complete with containers, separators, fillers, etc., shown on applicable drawings. An overpack could be a wirebound wooden box or metal outer box.

**NOTE**

**Manufacture's identification and year of manufacture will be embossed on container. If the container has been reconditioned, the words "REHAB," month and year of reconditioning, and activity performing reconditioning will be stenciled on the container.**

c. Provided no destruction to the inspection unit is entailed, unless this is not feasible, the various phases

may be inspected simultaneously. However, during the inspection of the several phases, the sample size for each phase may be different. Should this be the case, the required sample size shall be used for each inspecting phase.

d. Defective containers or overpacks, as defined in the applicable item specification, found during sampling inspection or Government verification of packaged or packed ammunition, shall be replaced by acceptable units.

e. Occurrence of damaged packaging and packing material attributed to the packing process shall be reported on DA Form 2415 and forwarded to U.S. Army Armament Materiel Readiness Command, ATTN: AMSMC-QA, Rock Island, IL 61299-6000.

**3-5. Inspections**

a. Serviceability.

(1) Ammunition items will be inspected by a Quality Assurance Specialist (Ammunition) or a MOS

055X40 under the guidance of a Quality Assurance Specialist (Ammunition) to determine serviceability or unserviceability according to SB 742-1 and other pertinent SB's.

(2) Required maintenance for unserviceable materiel will be indicated on the inspection report.

b. Pre-Maintenance. At the unpack operation, prior to rework, ammunition items will be screened 100 percent. DS and/or GS personnel will perform screening, which will include the following:

(1) All items with critical nonfunctional defects will be separated from the quantity to be maintained and disposed of as directed in the SOP.

(2) All items with defects, as listed in table 3-1, will be corrected during maintenance.

(3) Other evidence of poor workmanship or defects that could cause accelerated deterioration or adversely affect the function of the items will be corrected.

**Section II. CLASSIFICATION OF MATERIAL DEFECTS**

**3-6. Method of Classifying Defects**

A classification of defects is the enumeration of possible defects of the unit of product classified according to their seriousness. A defect is any nonconformance of the unit of product with specified requirements. Defects will normally be grouped into one or more of the following classes; however, defects may be grouped into other classes, or into subclasses within these classes. See table 3-1.

a. Critical Defect. A critical defect is a defect that judgment and experience indicate is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon the product; or a defect that judgment and experience indicate is likely to prevent

performance of the tactical function of a major end item such as a ship, aircraft, tank, missile or space vehicle. Critical defects will be removed and demilitarized in accordance with applicable Standing Operating Procedures (SOP) or Depot Maintenance Work Requirements (DMWR).

b. Major Defect. A major defect is a defect, other than critical, that is likely to result in failure, or to reduce materially the usability of the unit of product for its intended purpose.

c. Minor Defect. A minor defect is a defect that is not likely to reduce materially the usability of the unit of product for its intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the unit.

### 3-7. Acceptable Quality Level (AQL)

a. The AQL is the maximum percent defective (or the maximum number of defects per hundred units) that, for purposes of sampling inspection, can be considered satisfactory as a process average.

b. Ammunition and packaging defects are listed table 3-1. This table also provides the methods of inspection and categories of defects. An acceptable quality level established for each defect is provided in table 3-1 for evaluations during final acceptance inspection.

c. Material Defects. Specific defects for 25MM ammunition (identified as accept or reject) and inspection criteria for 25MM ammunition are outlined in table 3-2. In addition, figures 3-3 through 3-7 detail the entire family of 25MM ammunition to be used in conjunction with table 3-2 in determining 25MM ammunition serviceability. 25MM APFSDS-T M919 ammunition that is found to be unserviceable should be containerized in the original pack, tagged unserviceable, and returned through normal ammunition supply channels.

### 3-8. In-Process and Final Inspection

a. All items (ammunition and packing materials) processed will be subject to in-process and final inspection to assure acceptability.

b. In-process and final inspections will be included as an integral part of all maintenance procedures.

### 3-9. Disposition of Lots

a. Each lot that meets the Acceptable Quality Level (AQL) in table 3-1 is acceptable for issue and use. Critical defective(s) will be removed from otherwise acceptable lots and destroyed.

b. Lots found with major or critical defects will be inspected 100 percent and reworked within the capability of the unit, as specified in the Maintenance Allocation Chart (MAC). If required maintenance is beyond the capability of the unit, request disposition instruction through ammunition maintenance channels.

c. Any maintenance operation which results in a change to the information on the Lot Ammunition Data Card requires the addition of an alphabetic suffix to the lot number. Lot suffixes for each lot or operation will be obtained through ammunition maintenance channels.

#### NOTE

**Depleted uranium ammunition must not be destroyed/burned. Contact Radiation Protection Officer, render-safe procedure authorized to Explosive Ordnance Disposal (EOD) units only.**

d. Disposition Of Irreparable Items. For disposition of irreparable ammunition or rejected 25MM ammunition, contact the next higher maintenance level. Contact EOD personnel for disposition of ammunition items considered to be hazardous.

Change 1 3-2.1



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Table 3-1. Classification of Material Defects

Item	Method of inspection	Major	Minor	A.Q.L.	Reference
PHASE I-CONTENTS OF CONTAINER					
Carton package defects					
1. Improper packaging of carton(s) in container (bullet points face primers).	Visual	X		0.40	
2. Improper packaging of carton(s) in container other than defect 1.	Visual		X	0.65	
3. Missing or improper fillers, separators, or removal tape	Visual		X	0.65	TM 9-1305-201-20, MIL-STD 644A and SB 742-1
4. Short or missing resealing tape (when required).	Visual		X	0.65	TM 9-1300-250
5. Missing label or improperly sealed carton (including label printed in wrong position on carton).	Visual		X	0.65	
6. Torn or ripped carton or label.					
7. Incorrect, illegible or missing ammunition lot number.	Visual		X	0.65	
8. Incorrect or illegible identification of carton contents (type, caliber, etc.).	Visual		X	0.65	
Envelope package defects					
1. Torn, ripped or improperly sealed envelope	Visual	X		0.40	
2. Improper packaging of envelopes in container	Visual		X	0.65	
3. Missing or improper fillers or separators	Visual		X	0.65	TM 9-1300-250, TM 9-1305-201-20, MIL-STD 644A and SB 742-1
4. Incorrect or illegible identification of envelope contents (type, caliber, etc.)	Visual		X	0.65	
5. Incorrect, illegible or missing ammunition lot number.	Visual		X	0.65	
Bulk package defects					
1. Missing or improper fillers, tubes or separators	Visual		X	0.65	TM 9-1300-250, TM 9-1305-201-20, MIL-STD 644A and SB 742-1
2. Improper packaging of cartridges in container	Visual		X	0.65	
3. Missing cartridge(s)	Visual			0.65	
Clip package defects					
1. Missing cartridge(s)			X	0.65	
2. Rusty, excessively oiled or otherwise defective clips.*		X or	X	0.40 or 0.65	TM 9-1300-250, TM 9-1305-201-20, MIL-STD 644A and SB 742-1
3. Missing or torn carton (when required)			X	0.65	
4. Missing or improper fillers or separators			X	0.65	
5. Improper packaging of clipped ammunition in container.			X	0.65	
*Defect is major if clip will not function as intended; otherwise minor. If questionable, functioning test shall be made in appropriate service weapon or magazine, whichever is applicable.					
Metallic linked belt package defects					
1. Ammunition packaged in wrong direction in box (Where applicable).	Visual	X		0.40	
2. Double loop of link on wrong end of linked ammunition in container (Where applicable).	Visual	X		0.40	
3. Improper packaging of belt(s) in container other than defects 1 and 2.	Visual		X	0.65	

Item	Method of inspection	Major	Minor	A.Q.L.	Reference	
4. Incorrect linking sequence	Visual		X	0.40	TM 9-1300-250, TM 9-1305-201-20, MIL-STD 644A and SB 742-1	
5. Stretched, broken or "frozen" belt	Visual	X		0.40		
6. Foreign material, oil or grease; other than required.	Visual		X	0.65		
7. Defective protective finish or rust on link(s)	Visual		X	0.40		
8. Malformed link(s)	Visual	X		0.40		
9. Improper number of cartridges in belt(s) (exceeding 2 cartridges per belt). 20mm shall container the specified amount.	Visual		X	0.65		
10. Missing or improper fillers	Visual		X	0.65		
11. Improper depth of insertion of cartridges in link(s).*	Visual & manual		X	0.40		
*Defects are major for linked 20mm cartridges, except that a "frozen" link in M17 linked belt is classified as critical.						
12. Missing, broken or malformed metallic belt end (when required)	Visual		X	0.65		TM 9-1300-250, TM 9-1305-201-20, MIL-STD 644A and SB 742-1

**NOTE**

- The twist inspection and pull inspection shall be performed to detect broken or soft links in the belt of linked cartridges. Links that fail these inspections shall be dismantled and scrapped and the cartridges visually inspected prior to re-belted.
- The twist inspection: (fig. 3-1) with the belt extended full length on a table, grasp one end and flip at 180 degrees to the other side. The twisting action which progressively moves along the belt to the free end has enough snap to cause failure on weak links. After the inspection, the belt shall be examined for any fractural or broken links that may be present.
- The pull inspection: One end of the belt shall be attached to a suitable hook on a horizontal table and the load indicated below applied to the other end; the belt being in contact with the table during the application of the load.

<i>Caliber</i>	<i>Load</i>
7.62mm	25 lb
.50	*100 lb
20mm	115 lb

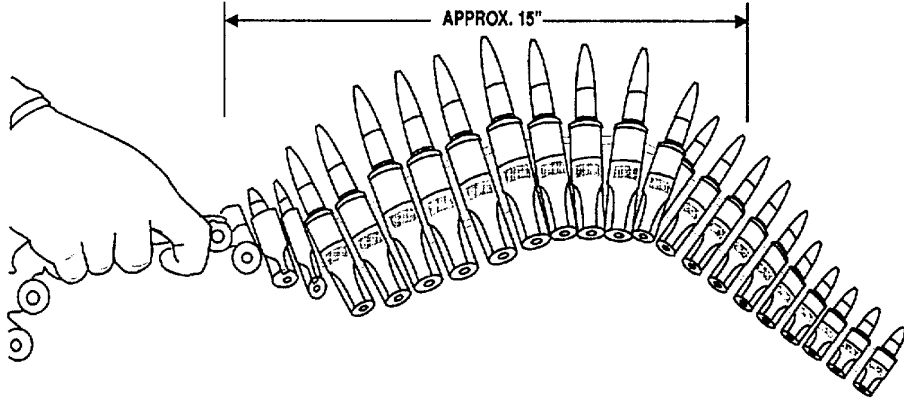
\*When linked with M2 Link load is only 80 lb.

**NOTE**

When 20mm cartridges are belted using the M17 link, a "frozen" link shall be detected by a means of a flexibility inspection. The belt shall hinge freely and fold over smoothly without kinking when the belt is pulled over itself until belt is completely reversed. This procedure shall then be repeated after the belt has been reversed to assure full motion of the belt when flexed from either side and in either direction.

NOTE

- A minimum of twenty-five (25) cartridges per belt shall be used for this inspection. If packing instructions require belts of greater length, the connecting links used to lengthen the belts shall be flexed after assembly in both directions to assure free hinging.
- A "frozen" M17 link detected by mean of this flexibility inspection is critical and will be cause for inspection of the entire lot.



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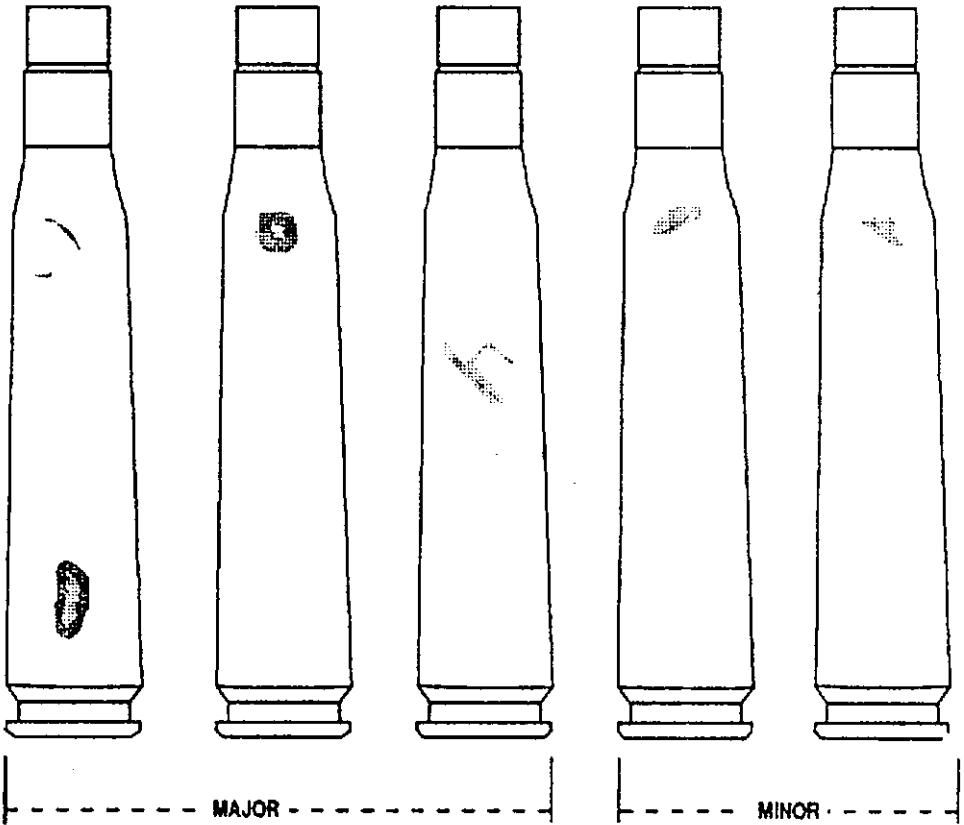
Figure 3-1. Twist inspection.

Table 3-1. Classification of Material Defects - Continued

Item	Method of inspection	Major	Minor	A.Q.L.	Reference
Defective cartridges					
1. Critically defective cartridges, as defined in paragraph 3-4, found during sampling inspection or Government verification, shall be cause for rejection of the lot of ammunition	Visual				MIL-STD 651, MIL-STD-636, MIL-STD 644 and TM 9-1300-250
2. Major or minor defective cartridges, as defined in paragraph 3-4, found during sampling inspection or Government verification, shall be replaced by acceptable cartridges from the same cartridge lot.					
3. Occurrence of damaged cartridges attributable to linking, clipping or other packaging operations shall be brought to the attention of US Army Armament Materiel Readiness Command, ATTN: AMSMC-QA, Rock Island, IL 61299-6000.					
Bullet or Projectile Defects					
Distorted or out of round	Visual	Critical		1.0	MIL-STD 636 and MIL-STD 651
Cartridge Case Defects					
1. Cracked or split cartridge case.	Visual	Critical		1.0	MIL-STD 636 and MIL-STD 651 TM 9-1305-201-20
2. Severe case dents (see fig. 3-2)	Visual	Major		0.65	
3. Rust or corrosion that penetrates base plate	Visual	Critical		1.0	
4. Corrosion on cartridge case and/or primer	Visual	Major		0.65	

Item	Method of inspection	Major	Minor	A.Q.L.	Reference	
<b>Bandoleer package defects</b>						
1. Incorrect or illegible identification of bandoleer contents (type, caliber, and clip).	Visual	X		0.40	TM 9-1300-250, TM 9-1305-201-20, MIL-STD 644A and SB 742-1	
2. Incorrect, illegible or missing ammunition lot number.	Visual		X	0.40		
3. Torn, ripped or otherwise defective bandoleer.	Visual		X	0.65		
4. Missing cartridge(s) or clip(s).	Visual		X	0.65		
5. Rusty, excessively oiled or otherwise defective clips.*	Visual	X or	X	0.45 or 0.65		
6. Missing or torn carton.	Visual		X	0.65		
7. Missing or improper fillers or separators.	Visual		X	0.65		
8. Improper packaging of clipped ammunition in bandoleer.	Visual		X	0.65		
9. Improper packaging of bandoleer(s) in container.	Visual		X	0.65		
10. Missing magazine filler (when required).	Visual		X	0.65		
11. Missing safety pin (when required).	Visual		X	0.65		
*Defect is major if clip will not function as intended; otherwise minor. If questionable, functioning inspection shall be made in appropriate service weapon or magazine, whichever is applicable.						
<b>PHASE II - PACKAGED AND SEALED CONTAINER</b>						
<b>Envelope defects</b>						
1. Torn, ripped, or improperly sealed envelope.	Visual	X		1.0	TM 9-1300-250, TM 9-1300-201-20, MIL-STD, 644A, and SB 742-1	
2. Incorrect paint or ink illegible or missing ammunition lot number.	Visual	X		1.0		
3. Other markings incorrect, missing or illegible.	Visual		X	0.65		
<b>Gasket sealed ammunition box defects</b>						
<b>Physical Characteristics</b>						
1. Incorrectly closed and secured box.	Visual	X		0.40	TM 9-1300-250, TM 9-1305-201-20, MIL-STD 644A, and SB 742-1	
2. Severe dents, buckles, or other damage.	Visual		X	0.65		
3. Scratches or abrasions exposing bare metal.	Visual		X	0.65		
<b>Markings</b>						
4. Incorrect, illegible, or missing ammunition lot number.	Visual	X		0.40		
5. Other markings, incorrect, missing, or illegible.	Visual		X	0.65		
6. Incorrect paint or ink.	Visual		X	0.65		
<b>Gasket sealing</b>						
7. Leaker as defined.	Ball jar	X		0.40		
<b>PHASE III - OVERPACKS AND OVERPACK CONTENTS</b>						
<b>WIREBOUND BOXES</b>						
<b>Assembly and seal</b>						
1. Unfastened outside binding wire.	Visual	X		0.40	TM 9-1300-250, TM 9-1305-201-20, MIL-STD 644A, and SB 742-1	
2. Unfastened inside binding wire.	Visual		X	0.65		
3. Missing end.	Visual	X		0.40		
4. Side, top or bottom extending beyond end cleat more than 1/8 in.	Visual		X	0.65		
5. End cleat extending beyond side, top or bottom more than 1/8 in.	Visual		X	0.65		

Item	Method of inspection	Major	Minor	A.Q.L.	Reference
6. Gap larger than 1/4 in. between end of batten and cleat.	Visual		X	0.65	
7. Gap larger than 1/4 in. between side of batten and cleat.	Visual		X	0.65	
8. Gap larger than 1/4 in. between diagonal ends of more than one pair of cleats per box.	Visual		X	0.65	
9. Reversed or inverted end.	Visual		X	0.65	
10. Missing or incorrectly attached seal. (Box contents removable.)	Visual	X		0.40	
11. Incorrectly attached seal. (Box contents not removable.)	Visual		X	0.65	TM 9-1300-250, TM 9-1305-201-20, MIL-STD 644A, and SB 742-1
12. Exposed sharp edge or silver, outside surface.	Visual	X		0.40	
13. NSN, DODIC or LOT - all missing or illegible or incorrect.	Visual	X		0.40	
14. DODIC or LOT - one missing or illegible.	Visual		X	0.65	
15. Markings other than above incorrect, missing or illegible.	Visual		X	0.65	
16. Marking touched up or repaired with non-permissible material (crayon, chalk, etc.).	Visual		X	0.65	
Box contents					
17. Missing separator.	Visual	X		0.40	
18. Incorrect, missing or illegible ammunition lot number.	Visual	X		0.40	
19. Improper packing other than 17 and 18.			X	0.65	
20. Packed ammunition not in accordance with NSN.		X		0.40	
Metal box defects					
Marking					
1. NSN, DODIC or LOT - all missing or illegible or incorrect.	Visual	X		0.40	
2. DODIC or LOT - one missing or illegible.	Visual		X	0.65	
3. Markings other than above incorrect, missing or illegible.	Visual		X	0.65	
4. Marking touched up or repaired with non-permissible material (crayon, chalk, etc.).	Visual		X	0.65	TM 9-1300-250. TM 9-1305-201-20, MIL-STD 644A, and SB 742-1.
Workmanship and assembly					
5. Box not properly closed and secured.	Visual	X		0.40	
6. Severe dents, buckles or other damage.	Visual		X	0.65	
Box contents*					
7. Missing separator.	Visual	X		0.40	
8. Incorrect, missing or illegible ammunition lot number.	Visual	X		0.40	
9. Improper packing other than 7 and 8.			X	0.65	
10. Packed ammunition not in accordance with NSN.	Visual	X		0.40	
*When the metal box is the packaged and sealed container as well as the overpack, inspection of box contents shall be in accordance with the applicable contents of container paragraph outlined herein.					



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Figure 3-2. Case defects.

**WARNING**

Evidence of Depleted Uranium (DU) corrosion is visible in the form of a yellowish or white powder or stain seen on the outer surfaces of the projectile and can become a hazard to personnel. If corroded (yellow or white corrosion) APFSDS-T M919 ammunition is encountered, ammunition must be handled with gloves. The ammunition must be placed in the original pack, tagged unserviceable, and returned through normal supply channels. Avoid getting DU corrosion on hands. Flush hands before eating or touching face. Dispose of gloves in accordance with AR 385-11.

**CAUTION**

In general, when handling any material contaminated by DU, avoid touching the corrosion by wearing gloves. Regardless if gloves are worn, always flush hands before eating or touching face. Dispose of gloves in accordance with AR 385-11.

**NOTE**

When handling sabot ammunition with an exposed penetrator (with no indication of corrosion, M919 DU round) wear gloves. Regardless if gloves are worn, always flush hands before eating or touching face. The gloves do not have to be disposed of as radioactive waste



Table 3-2. Inspection Criteria for 25MM Ammunition.

	M791 APDS-T	M919 APFSDS-T	M792 HEI-T	M793 TP-T	M910 TPDS-T
<b>CARTRIDGE CASE</b>					
Dented or scratched	Accept	Accept	Accept	Accept	Accept
Perforated or cracked	Reject		Reject	Reject	Reject
Pierced or perforated primer	Reject	Reject	Reject	Reject	Reject
Corroded primer	Accept	Accept	Accept	Accept	Accept
<b>PROJECTILE ASSEMBLY</b>					
Projectile loose within cartridge case	Reject	Reject	Reject	Reject	Reject
Nose cap split or missing	Accept	Accept			Accept
Cracked, gouged or missing sabot segment	Reject	Reject			Reject
Windscreen bent, cracked or missing	Reject	Reject	Reject	Reject	Reject
Loose M758 Fuze (M792)			Reject		
Loose penetrator (M919)		Reject			
Corroded penetrator if cap is off (M919)		Reject			
Loose obturator (M919)		Accept			
Missing or damaged obturator (M919)		Reject			

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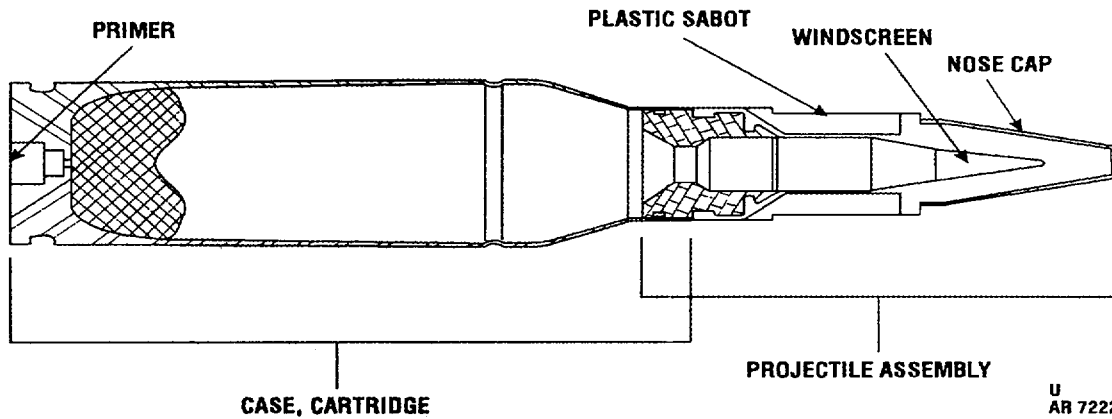


Figure 3-3. M791 APDS-T ammunition.

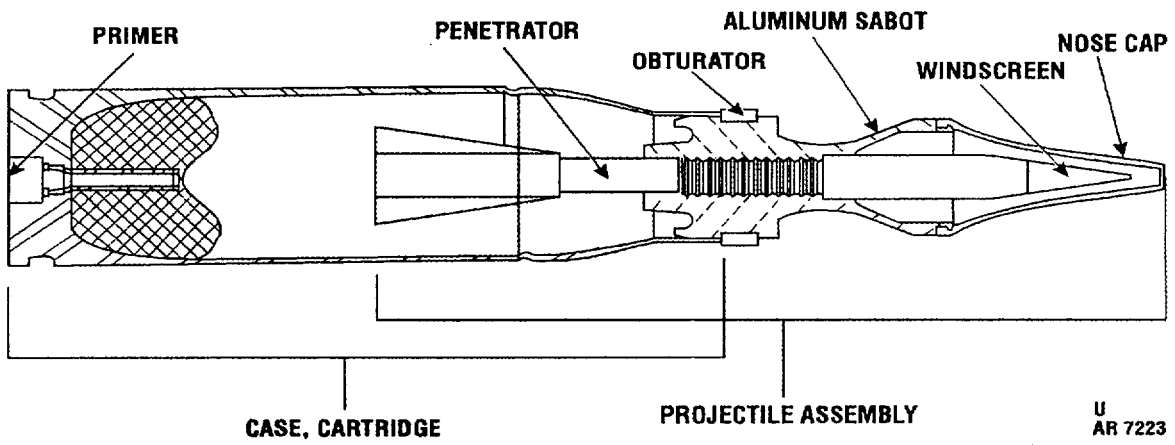


Figure 3-4. M919 APFSDS-T ammunition.

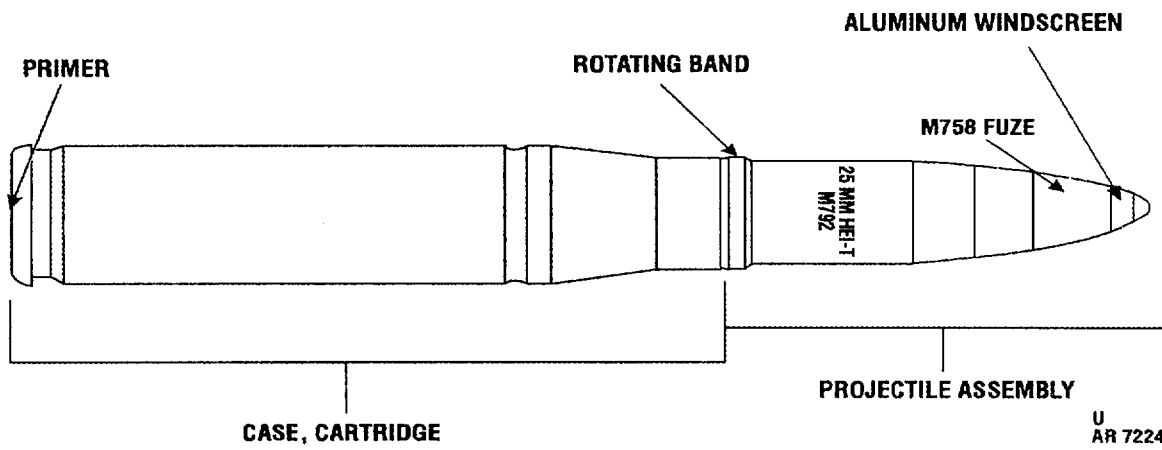


Figure 3-5. M792 HEI-T ammunition.

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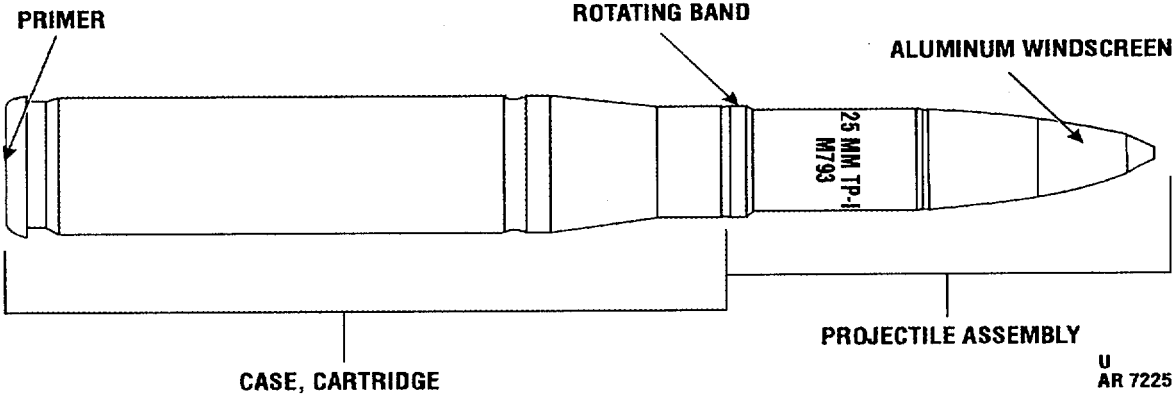


Figure 3-6. M793 TP-T ammunition.

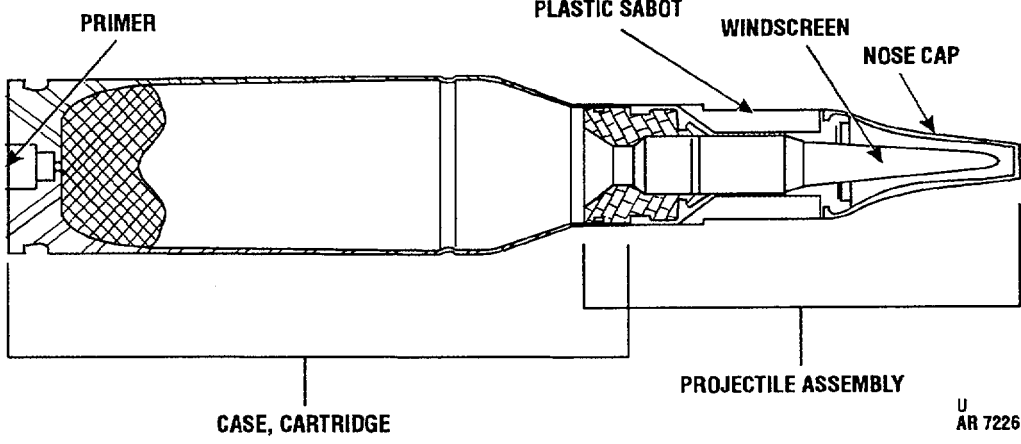


Figure 3-7. M910 TPDS-T ammunition.

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## CHAPTER 4

### MAINTENANCE PROCEDURES

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#### Section I. INTRODUCTION

##### 4-1. General

a. Direct Support (DS) and General Support (GS) maintenance operations are restricted to procedures in this manual and in TM 9-1305-201-20&P as indicated in the Maintenance Allocation Chart (MAC).

b. The required packing materials and the expendable and durable items (appendices B and C) needed by DS and GS units will be locally stocked. The DS and GS units also have the responsibility for receiving and storing packaging materials that were salvaged from expended ammunition and for providing technical assistance to operator and unit levels.

c. Before beginning maintenance operations, a line layout and Standing Operating Procedures (SOP) are required. Guidelines for organizing the line and writing the SOP are contained in TM 9-1300-250.

##### 4-2. Direct Support Maintenance

Direct support maintenance is that maintenance performed by conventional ammunition companies and includes surveillance and limited maintenance of stocks under their control. Ammunition companies assume more responsibility for maintenance when operating in a rear, semipermanent installation where time, equipment, and personnel are usually readily available. Maintenance operations at Ammunition Supply Points (ASP) are performed on a job lot rather than an assembly line basis. Maintenance performed consists of, but is not limited to, the following:

a. Cleaning and protection of individual items and/or packing material.

b. Removal of light rust.

c. Minor repair of boxes, containers, and crates.

d. Spot painting and restenciling.

##### 4-3. General Support Maintenance

a. General support maintenance is performed by conventional ammunition maintenance detachments. They can be deployed forward to the army service area to perform certain tasks.

b. General support maintenance units are responsible for accomplishing that portion of the maintenance mission that is beyond the capability or capacity of the DS ammunition company. Specifically, GS maintenance consists of, but is not limited to:

(1) Servicing actions comprising removal of extensive rust and/or corrosion; painting and stenciling Class V materiel; and major repairs to, or fabrication of, boxes, containers and crates.

(2) Renovation/modification comprising the replacement of either internal or external components which require the use of operational shields or barricades.

##### 4-4. Unpacking and Repacking

Unpacking and repacking procedures are given in TM 9-1305-201-20&P.

##### 4-5. Inspection

Pre-maintenance, in-process, and final inspection requirements are defined in chapter 3.

## Section II. CLEANING

**4-6. Ammunition of Caliber .50 and Less**

a. General. Cartridges of ammunition of caliber .50 and less that have light rust should be cleaned with corrosion removing compound such as a solution containing 10% citric acid. Where heavy rust or corrosion is encountered, the ammunition must be demilitarized.

b. Method. To remove dirt, mud or other foreign material use rags or scrub brushes. Use rags dampened with alcohol or acetone to remove grease.

c. Tools and Equipment.

- (1) Disposable flammable waste can.
- (2) Plunger type safety can.

d. Expendable Supplies.

- (1) Alcohol.
- (2) Acetone.
- (3) Corrosion removing compound.
- (4) Rags.
- (5) Sandpaper.

**4-7. Ammunition Above Caliber .50**

a. Cleaning Light Rust. When cleaning light rust on cartridges above Caliber .50, care must be exercised that the markings not be removed. Acetone can smear the markings, or remove the primer varnish seal on 20mm cartridges, so keep this solvent away from them, if possible. If a nonsparking wire brush is used, do not use the wire brush near the primer, the fuse or the rotating bands.

b. Cleaning Corrosion. Clean corrosion from aluminum or copper-based metals by first brushing with a nonsparking wire brush and then removing residue with rags and corrosion removing compound.

**WARNING**

**Evidence of Depleted Uranium (DU) corrosion is visible in the form of a yellowish or white powder or stain seen on the outer surfaces of the projectile and can become a hazard to personnel. If corroded (yellow or white corrosion) APFSDS-T M919 ammunition is encountered, ammunition must be handled with gloves. The ammunition must be placed in the original pack, tagged unserviceable and returned through normal supply channels. Avoid getting DU corrosion on hands. Flush hands before eating or touching face. Dispose of gloves in accordance with AR 385-11.**

**CAUTION**

**In general, when handling any material contaminated by DU, avoid touching the corrosion by wearing gloves. Regardless if gloves are worn always flush hands before eating or touching face. Dispose of gloves in accordance with AR 385-11.**

**Rags shall be stored in noncombustible self-closing containers. Used rags shall be placed in water-filled containers. Areas will be well ventilated where solvents and paints are used.**

**NOTE**

**Only alcohol must be used on aluminum cartridge cases. Corrosion removing compound on aluminum causes adverse reaction.**

**Clean only as necessary to remove bad paint, rust or corrosion. Wipe all derusted surfaces with alcohol dampened rag to remove all residue of the operation.**

c. Inspection. Inspect cleaned item for cracks or other damage or deterioration.

**NOTE**

**Allow solvent-cleaned surfaces to dry thoroughly before painting.**

d. Tools and Equipment.

- (1) Disposable flammable waste can.
- (2) Nonsparking wire brush.
- (3) Plunger type safety can.

e. Expendable and Durable Items.

- (1) Alcohol.
- (2) Acetone.
- (3) Corrosion removing compound.
- (4) Rags.

(5) Sandpaper.

**NOTE**

**If heavy rust or corrosion is encountered, especially in the fuse, case mouth or primer area, the ammunition will be designated for demilitarization.**

**4-8. Components**

a. When links are bent or split, and clips cannot accommodate the cartridge, these components will be discarded for scrap.

b. When light rust is encountered, components will be cleaned using these same methods as the ammunition.

c. When heavy rust or corrosion is encountered, the components will be sent to the Property Officer for disposal.

**Section III. REPAIR**

**4-9. Packaging Materials**

a. General. Detailed procedures for authorized repair of most packaging materials are given in TM 9-1305-201-20&RP. Procedures authorized at DS or GS level are stated below.

b. Wirebound Box Loops (DS and GS levels).

- (1) Tools and equipment.
  - (a) Tin snips.
  - (b) Pliers.
  - (c) Hammer
  - (d) Sallee fastener

(2) Expendable and durable items. Wire.

(3) Procedure. A broken wire loop on a wirebound box may be repaired if both legs of broken loop are securely fastened to box.

(a) Cut off broken loop even with top edge of box.

(b) Using pliers, bend remaining wire legs back one-half inch, forming half circles.

(c) Cut a 6-inch length of wire to replace a broken loop.

(d) Bend repair wire in half to form U-shape. Then, bend about one-half inch of each leg outward above 150°.

(e) Hook bent legs of repair wire into half circles of box wires.

(g) Place box panel on hard surface or place a steel bar under repair area.

(f) Twist ends of repair wire around ends of box wires.

(h) Secure the repair by hammering the twisted wires together against the box panel (see fig. 4-1).

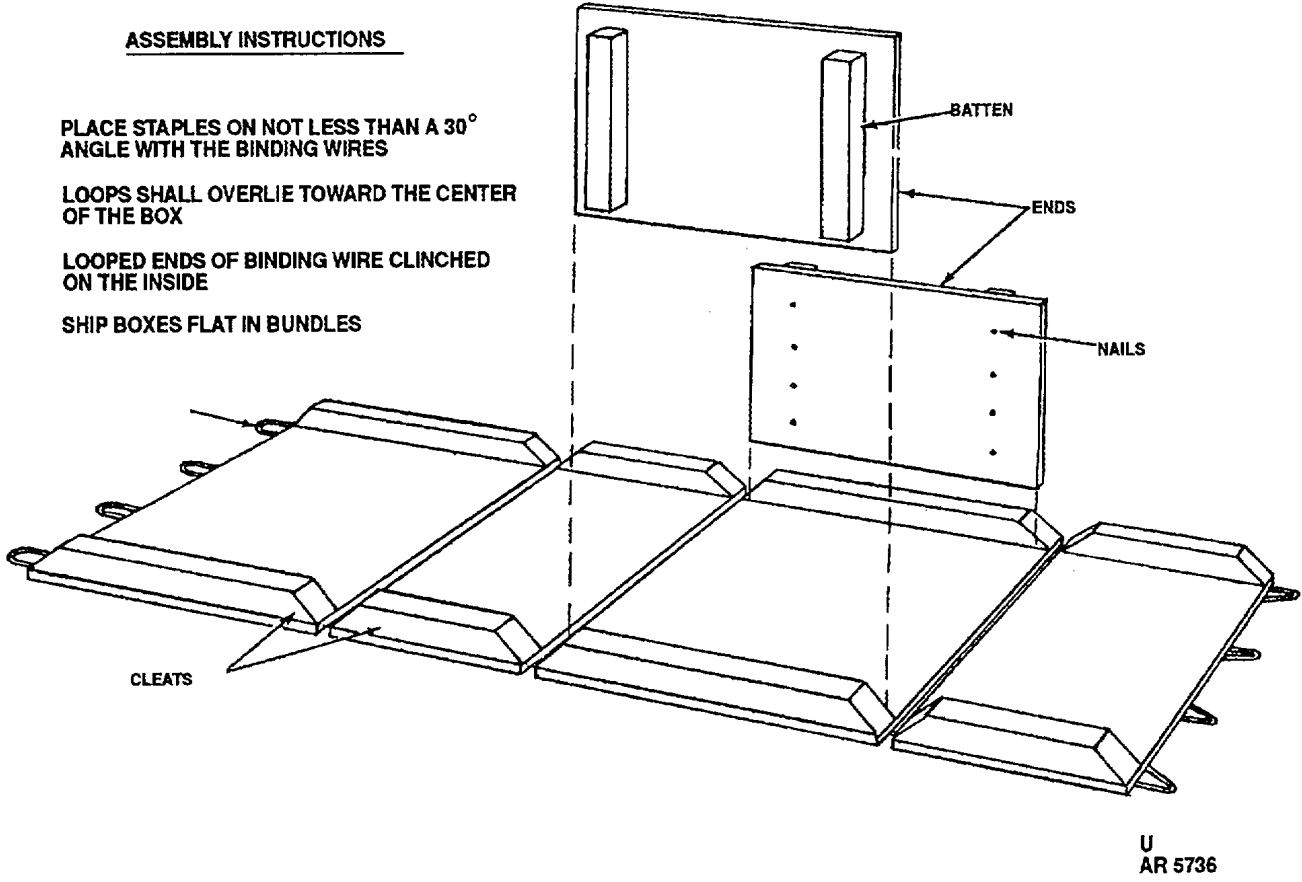


Figure 4-1. Box, wirebound.



- (b) Pliers.
- (c) Hammer.
- (d) Sallee fastener.

(2) Expendable supplies. Wire.

(3) Procedure. A broken wire loop on a wirebound box may be repaired if both legs of broken loop are securely fastened to box.

(a) Cut off broken loop even with top edge of box.

(b) Using pliers, bend remaining wire legs back one-half inch, forming half circles.

(c) Cut a 6-inch length of wire to replace a broken loop.

(d) Bend repair wire in half to form U-shape. Then, bend about one-half inch of each leg outward above 150°.

(e) Hook bent legs of repair wire into half circles of box wires.

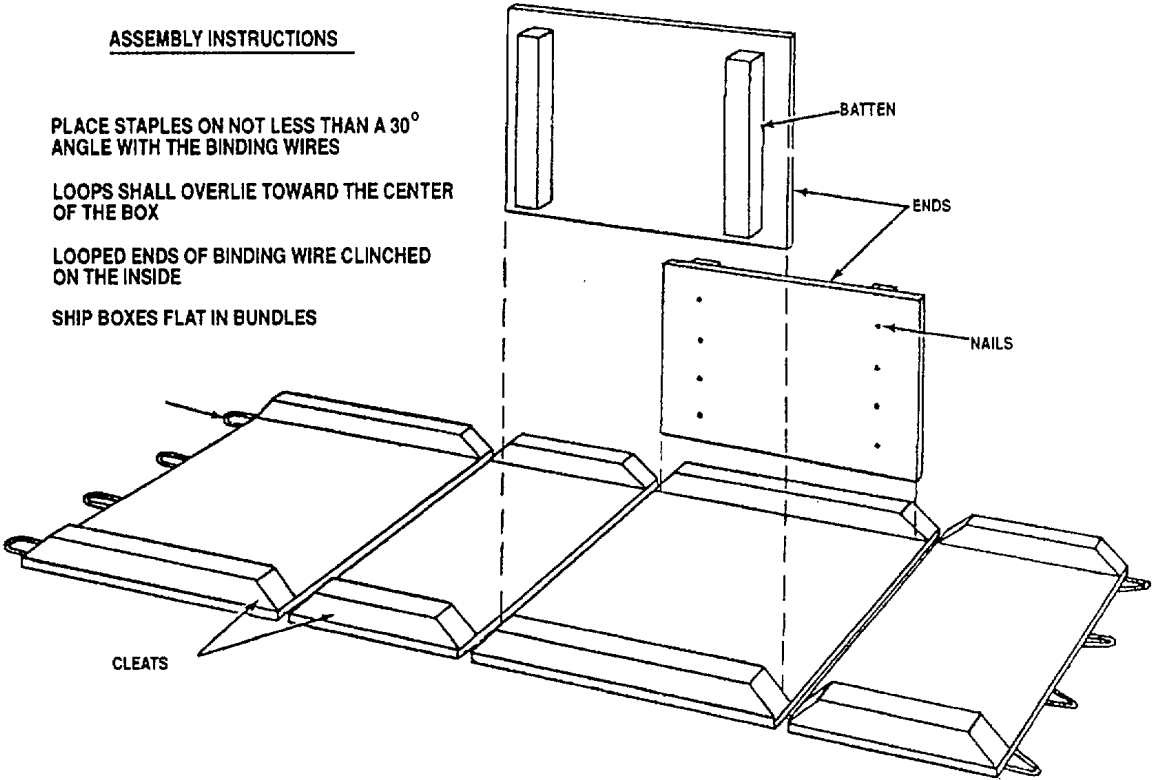
(f) Twist ends of repair wire around ends of box wires.

(g) Place box panel on hard surface or place a steel bar under repair area.

(h) Secure the repair by hammering the twisted wires together against the box panel (see fig. 4-1).

ASSEMBLY INSTRUCTIONS

- PLACE STAPLES ON NOT LESS THAN A 30° ANGLE WITH THE BINDING WIRES
- LOOPS SHALL OVERLIE TOWARD THE CENTER OF THE BOX
- LOOPED ENDS OF BINDING WIRE CLINCHED ON THE INSIDE
- SHIP BOXES FLAT IN BUNDLES



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Figure 4-1. Box, wirebound

## Section IV. TOUCHUP, PAINTING AND MARKING

### 4-10. General

Touchup, painting and marking in the small arms ammunition applies only to the 20mm, 25mm and 30mm cartridges.

#### WARNING

- **DO NOT ATTEMPT TO SEPARATE THE PROJECTILE FROM THE CARTRIDGE CASE DURING THESE OPERATIONS.**
- **EXTREME CARE MUST BE EXERCISED IN THE HANDLING OF ROUNDS THAT HAVE POINT DETONATING FUZES.**
- **EXTREME CARE MUST BE EXERCISED WITH ELECTRIC-PRIMED CARTRIDGES. AVOID CONTACT TO THE PRIMER WITH METAL OBJECTS.**
- **PROTECT PRIMER AT BASE OF CARTRIDGE CASE FROM ACCIDENTAL IMPACT BY CUTTING OUT A PIECE OF CARDBOARD SLIGHTLY LARGER THAN PRIMER'S EXPOSED SURFACE AND SECURING IT OVER THE PRIMER WITH MASKING TAPE.**
- **LOADED AMMUNITION ITEMS SHALL NOT BE ELECTRO-STATICALLY PAINT SPRAYED OR DETEARED, [REMOVAL OF EXCESS DRIPS (TEAR DROPS) FROM A PAINTED SURFACE.**

### 4-11. Touchup

a. General. For general touchup operations use the following procedure. However, for special procedure for cartridge cases, see b below.

- (1) Tools and equipment.
  - (a) Brush, paint.
  - (b) Spray gun.
  - (c) Small brush.
  - (d) Stencil kit; rubber type set.

- (e) Can, disposable flammable waste.
- (f) Safety can, plunger type.
- (g) Respirator.

#### (2) Expendable supplies.

- (a) Masking tape.
- (b) Abrasive paper.
- (c) Primer, zinc chromate.
- (d) Paint, ammunition.
- (e) Ink, marking stencil.
- (f) Alcohol, denatured.
- (g) Rags.

#### (3) Procedure.

- (a) Clean item according to section II.
- (b) Sand cleaned bare metal area(s) and surrounding paint lightly with fine sandpaper. The purpose of sanding is to provide better paint adhesion.

#### NOTE

**Do not use sandpaper or emery paper to remove corrosion.**

- (c) Cover rotating band, legible markings with masking tape.
- (d) Wipe off surface of projectile with clean rag dampened with alcohol to remove all loosened paint particles.

#### WARNING

**WEAR RESPIRATOR DURING SPRAY PAINT OPERATIONS.**

- (e) Using spray gun, spray can or brush, cover bare metal with thin coat of zinc chromate primer and allow to dry.
- (f) Using spray can, spray gun, or brush, paint primed area with two thin coats of proper color paint according to TM 9-1305-20120. Allow first coat to dry thoroughly before applying second.

- (g) After paint has dried, remove masking tape.
- (h) Touchup markings using small paint brush or re-stencil, as required.

b. Cartridge Cases.

(1) Tools and equipment.

- (a) Scissors.
- (b) Small brush.
- (c) Can, disposable flammable waste.
- (d) Safety can, plunger type.

(2) Expendable supplies.

- (a) Masking tape.
- (b) Steel wool.
- (c) Corrosion removing compound.

**WARNING**

**DO NOT USE STEEL WOOL ON STEEL CARTRIDGE CASE. USING STEEL WOOL ON THESE CASES CAN PRODUCE A SPARK.**

**NOTE**

**Use care when using steel wool on brass or aluminum so that material removal can be minimized.**

(3) Procedure.

- (a) Use steel wool to remove light rust spots and smooth out scratches in varnish surface.
- (b) Feather edges of cleaned areas to blend with adjacent surfaces.
- (c) Touchup all cleaned areas with ammunition varnish using a clean small brush.
- (d) Allow surface to dry until surface is no longer tacky.
- (e) Inspect and touchup or replace markings.
- (f) Remove masking tape and 4-6 primer protector.

(1) Ammunition and ammunition components which have been cleaned extensively or to degree that large areas of metal surface are bare will be repainted in accordance with procedures below.

(2) Temperature of both paint and ammunition must be between +50°F and +100°F for paint to adhere and dry properly. Also, surrounding temperature must be above +50°F.

b. Tools and Equipment.

- (1) Scissors.
- (2) Chamber gage.
- (3) Respirator.
- (4) Paint sprayer.
- (5) Can, disposable flammable waste.
- (6) Safety can, plunger type.
- (7) Paint rack (locally fabricated).

c. Expendable Supplies.

- (1) Rags.
- (2) Masking tape (2 inches).
- (3) Kraft paper.
- (4) Primer zinc chromate.
- (5) Paint ammunition.

d. Procedure.

(1) Clean projectiles thoroughly (chapter 4, section II).

(2) Sort out projectiles that do not require repainting and those with major damage to rotating band or otherwise unserviceable. Dispose of unserviceable projectiles per SOP.

(3) Remove as much of the paint as possible with cleaning materials furnished. Completely strip paint off bourrelet.

(4) Wipe off surface of projectile with clean rag dampened with alcohol to remove all loosened paint particles.

## 4-12. Painting

a. General.

(5) After cleaning, check diameter of projectile with chamber gage. Projectiles which do not pass chamber gage test by reasons of other than painted surfaces will be classified as unserviceable and reported on DA Form 2415 in accordance with DA Pam 738-750.

(6) If possible, obtain or improvise a rack or fixture approved for supporting several cartridges at a time.

**WARNING**  
**WEAR RESPIRATOR DURING SPRAY**  
**PAINT OPERATIONS.**

(7) Spot prime any bare metal on component with a thin, sprayed coat of zinc chromate primer. Do not primer over good paint, but do not worry about over spray from spot priming. Assure that all bare metal is primed.

(8) Air-dry 30 to 60 minutes, or until surface is no longer tacky.

**NOTE**  
**A longer drying time may be required**  
**at lower temperatures and/or high**  
**humidity.**

(9) Spray paint component with a thin coat of appropriate body color, according to TM 9-1305-201-20. Assure that coverage is complete.

(10) When thoroughly dry, remove masking tape and kraft paper. Check bourrelet diameter with appropriate chamber gage.

e. Wood Packing Box. The normal reason for painting wooden boxes will be obliteration of old markings.

- (1) Tools and equipment.
  - (a) Paint sprayer.
  - (b) Can, disposable flammable waste.
  - (c) Safety can, plunger type.
- (2) Expendable supplies.
  - (a) Masking tape.
  - (b) Paint, ammunition.
  - (c) Lacquer, obliterating.

(3) Procedure.

- (a) Assure that box is clean and dry.
- (b) Cover valid markings, if legible, with masking tape.

**WARNING**  
**WEAR RESPIRATOR DURING SPRAY**  
**PAINT OPERATIONS.**

(c) Spray with applicable paint or marking obliterating lacquer as required to obliterate unwanted markings.

(d) Air-dry until surface is no longer tacky.  
 (e) Inspect to assure complete coverage. Repaint spots if necessary.

(f) Remove masking tape.

(g) Mark as required, in accordance with instructions in paragraph 4-13.

f. Metal Packing Box or Tubular Container.

(1) Clean containers in accordance with section II.

(2) Paint containers using the preceding procedures:

- (a) Small items may be suspended to allow complete coverage (e above).
- (b) Large items may require two separate sprayings (one for sides and top, and one for base) to completely cover surface.

g. Fiber Tube Container.

- (1) Tools and equipment.
  - (a) Paint brush.
  - (b) Paint sprayer.
  - (c) Can, disposable flammable waste.
  - (d) Safety can, plunger type.
  - (e) Respirator.
- (2) Expendable supplies.
  - (a) Rags.

- (b) Kraft paper.
- (c) Masking tape.
- (d) Coating Compound, bituminous.
- (e) Paint (black), ammunition.
- (f) Primer, zinc chromate.
- (g) Coating compound.

(3) Procedure.

- (a) Clean container and cap (section II).

(b) After cleaning, inspect and reject components with penetrating damage or rust which cannot be removed.

(c) Cover metal ends and unpainted inner tube with paper and masking tape.

**WARNING**

**WEAR RESPIRATOR DURING SPRAY PAINT OPERATIONS.**

(d) Brush-paint or spray outer surfaces of fiber tube and cap with coating compound.

- (e) Air-dry until surface is no longer tacky.

(f) Inspect to assure complete coverage. Repaint spots as necessary.

(g) Remove masking tape and paper from cap and inner tube.

(h) Cover fiber surfaces with masking tape and paper.

**WARNING**

**WEAR RESPIRATOR DURING SPRAY PAINT OPERATIONS.**

(i) Spray metal ends with zinc chromate primer.

- (j) Air-dry until surface is no longer tacky.

(k) Spray metal ends with black paint.

- (l) Air-dry until surface is no longer tacky.

(m) Inspect to assure complete coverage. Repaint as necessary to cover spots.

- (n) Remove masking tape and paper.

**4-13. Color Coding of Boxes with Light Loads**

a. General. Organizations will apply this procedure only when boxes with less than full contents are to be returned to storage area or transported to new location. When painting of boxes is required, re-markings (except quantity) may be avoided by applying masking tape on markings prior to painting box.

- b. Tools and Equipment.

- (1) Paint brush.
- (2) Paint sprayer.
- (3) Can, disposable flammable waste.
- (4) Safety can, plunger type.
- (5) Stencil kit, rubber type set.
- (6) Respirator.

c. Expendable Supplies. Orange paint, and masking tape.

d. Procedure. Boxes with less than full contents will be painted orange as follows:

(1) Check contents with markings on box to verify that nomenclature and lot number are correct.

(2) Make diagram of markings on box and record all markings except quantity figure.

**WARNING**

**WEAR RESPIRATOR DURING SPRAY PAINT OPERATIONS.**

(3) With brush or paint sprayer apply orange paint to all outer surfaces of box. If enamel is not available use orange lacquer.

(4) When box is dry, re-mark box, from diagram according to d(2) above.

(5) Count quantity of items in box and mark number on box in the same position as original quantity figure.

(6) Stencil words "LIGHT BOX" on each side of box, using approximately same size letters as original markings.

**4-14. Marking**

a. General.

(1) Assure that all incorrect markings are obliterated.

(2) Clean all marking equipment as often as necessary and at end of each shift or termination of job, whichever comes first.

b. Tools and Equipment.

- (1) Rubber type set.
- (2) Stencil kit.
- (3) Fountain stencil brush.
- (4) Worktable.
- (5) Can, disposable flammable waste.
- (6) Safety can, plunger type.

c. Expendable Supplies.

- (1) Rags.
- (2) Stencil ink.
- (3) Solvent, trichloroethane.
- (4) Disposable gloves.
- (5) Masking tape.
- (6) Stencil board (GS level).

d. Procedure for Packaging Materials.

(1) Unless otherwise specified, markings will be of a color which contrasts with color of packaging material.

(2) For specific markings see ammunition data card or copy from old package.

(3) 4-2 thru 4-9.

(4) Re-marking is not required on waxed surfaces; however, inner pack must be marked with

information usually found on item. If items have no inner packs, information must be stenciled on cardboard and included in repacked box.

(5) Apply markings by either rubber type or stencil method outlined in f below.

e. Procedure for Ammunition.

(1) See TM 9-1305-201-20 for color coding. Generally colors used in repainting or marking will be the same as those colors originally found on the ammunition.

(2) For specific markings, see ammunition data card or another item from same lot.

(3) For location and size of markings, refer to appendix D. Note that sizes may not be the same as they were originally because only a limited number of size stencils are available at DS and GS levels.

(4) Apply markings by either rubber type or stencil method outlined in f below.

f. Methods.

(1) Rubber-type method.

(a) Set type in holder giving required information.

(b) Apply a small amount of ink to ink plate.

(c) Roll brayer back and forth on ink plate to distribute ink on brayer.

(d) Roll inked brayer lightly across face of rubber type to apply light film of ink to type.

(e) Place item in position to receive marking, then roll carefully across face of rubber type to apply ink marking.

(2) Stencil method.

(a) Make a stencil giving required information.

(b) Apply small dab of ink to ink plate.

(c) Rub brush in ink to apply ink to bristles.

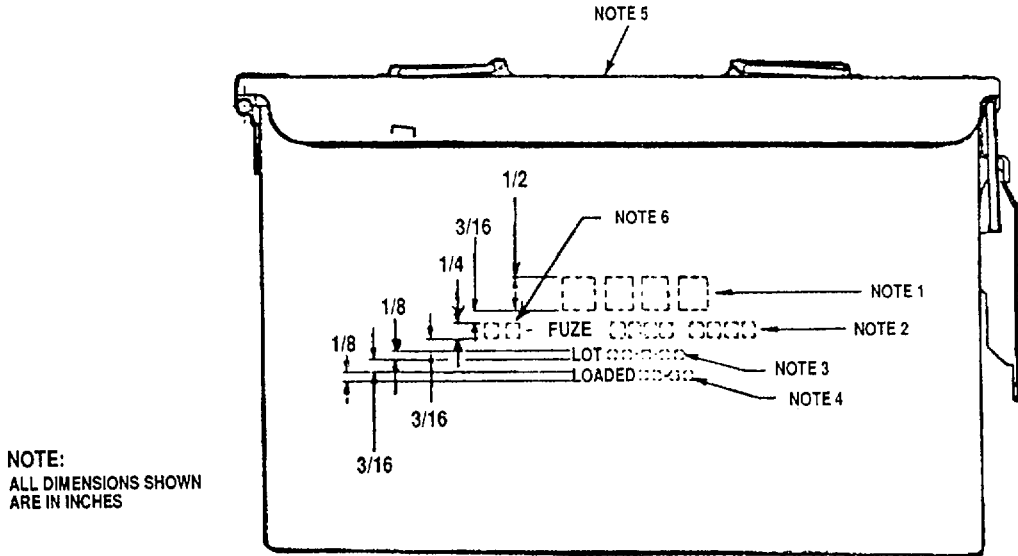
(d) Position stencil over location on item to receive marking.

(e) While holding stencil firmly against item (using masking tape if required), rub bristles of brush over stencil to apply inked marking to item. (A spray gun or can with paint of proper color may be used as an alternate.)

(f) Remove stencil and/or masking tape.

(g) Check markings to make sure they are correct, neat, and legible.

- NOTES:
- 1 - INSERT DEPARTMENT OF DEFENSE IDENTIFICATION CODE.
  - 2 - INSERT DESCRIPTIVE NOMENCLATURE.
  - 3 - INSERT LOT NUMBER.
  - 4 - INSERT DATE (MONTH AND YEAR) LOADED.
  - 5 - MARK "PACKAGED WITH DESICCANT - DO NOT OPEN UNTIL READY FOR USE OR INSPECTION" ON TOP OF BOX IN ANY CONVENIENT UNOBSTRUCTED LOCATION. SIZE OF LETTERS TO BE APPROX 1/4 INCH HIGH.
  - 6 - INSERT "8," "10" OR "12".



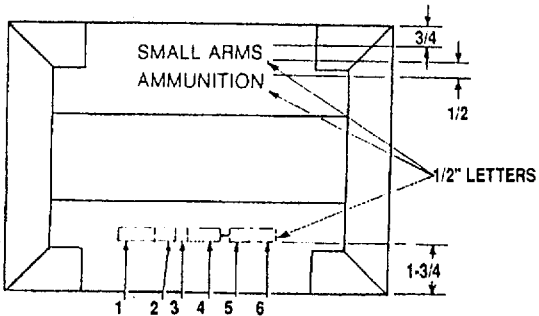
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AR 5737

Figure 4-2. Typical markings on a metal packing box.

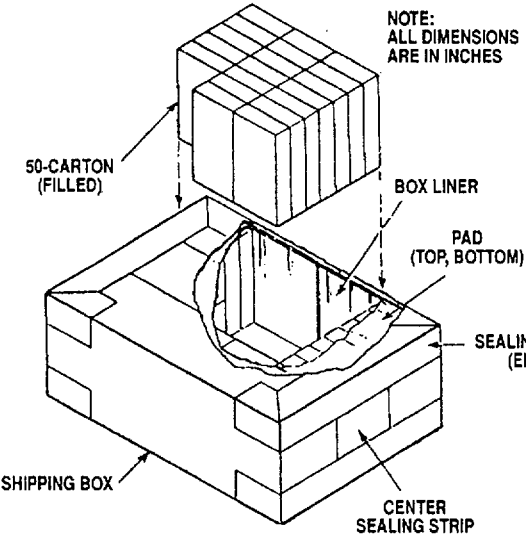


**MARKING INSTRUCTIONS**

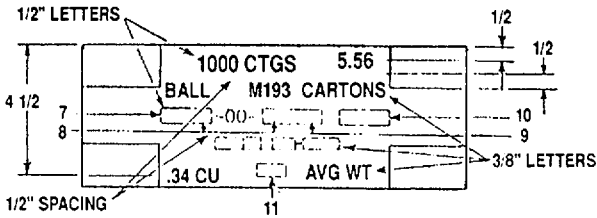
- 1 - MANUFACTURER'S IDENT SYMBOL, IF LESS THAN THREE CHARACTERS ADD DASH(ES).
  - 2 - YEAR OF MANUFACTURE, TWO DIGITS.
  - 3 - MONTH OF MANUFACTURE, ONE CHARACTER.
  - 4 - LOT INTERFIX NUMBER, THREE DIGITS.
  - 5 - LOT SEQUENCE NUMBER, THREE DIGITS.
  - 6 - AMMUNITION LOT SUFFIX, ONE CHARACTER.
  - 7 - CLASS NUMBER.
  - 8 - NATIONAL STOCK NUMBER.
  - 9 - NATIONAL ITEM IDENTIFICATION NUMBER.
  - 10 - DEPT OF DEFENSE IDENTIFICATION NUMBER.
  - 11 - AVERAGE WT.  
MIL-STD-1168 APPLIES.  
BOX MANUFACTURER'S STAMP TO BE LOCATED ON BOTTOM FLAP.
- SIZE OF LETTERS AND SPACING SHALL BE AS SHOWN.



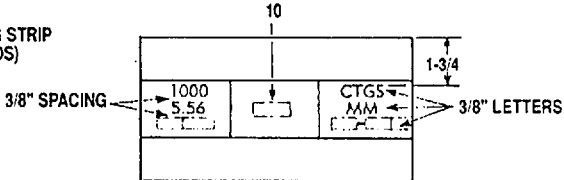
**MARKING ON TOP OF BOX**



NOTE:  
ALL DIMENSIONS  
ARE IN INCHES



**MARKING ON SIDE OF BOX  
(2 PLACES)**



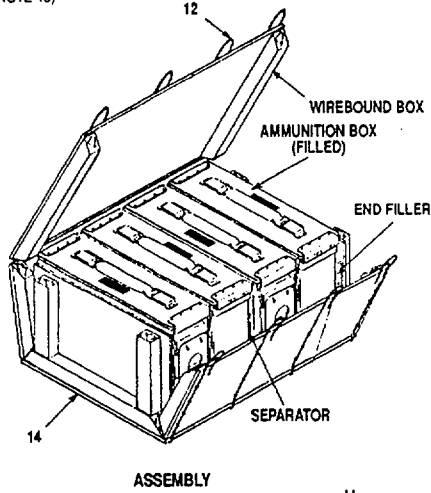
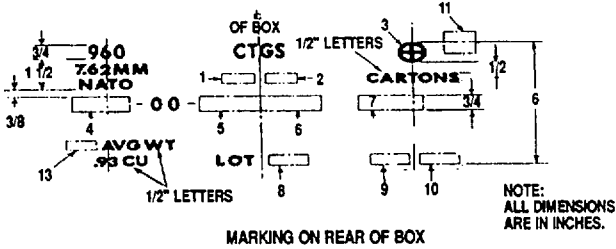
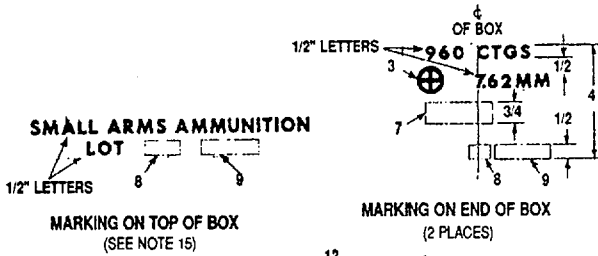
**MARKING ON END OF BOX  
(2 PLACES)**

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Figure 4-3. Typical packing and marking for 5.56mm ammunition box.

**MARKING INSTRUCTIONS**

- ALL MARKING TO BE STAMPED OR PRINTED AS SHOWN  
 SPACING BETWEEN LINES OF MARKING SHALL BE 1/4 MIN UNLESS OTHERWISE NOTED
- 1 - INSERT SYMBOL OF CARTRIDGE TYPE
  - 2 - INSERT MODEL OF CARTRIDGE
  - 3 - NATO DESIGN MARK (AP, BALL & TRACER ONLY)
  - 4 - INSERT CLASS NUMBER
  - 5 - NATIONAL STOCK NUMBER
  - 6 - INSERT NATIONAL ITEM IDENTIFICATION NUMBER
  - 7 - INSERT DEPARTMENT OF DEFENSE IDENTIFICATION CODE
  - 8 - INSERT INITIALS OF MANUFACTURER
  - 9 - INSERT LOT NUMBER
  - 10 - INSERT YEAR OF PACKING
  - 11 - INSERT "SYMBOL OF INTERCHANGEABILITY" WHEN APPLICABLE  
 THIS "SYMBOL OF INTERCHANGEABILITY" WILL BE SHOWN ONLY WHEN  
 CARTRIDGES HAVE BEEN ACCEPTED FOR NATO INTERCHANGEABILITY
  - 12 - ATTACH CAR SEAL
  - 13 - INSERT AVG WT  
 AVERAGE WEIGHT SHALL BE STENCILED ON BOXES (SHIPPING CONTAINERS).  
 AVERAGE WEIGHT IS AGREED TO BY SHIPPER AND CARRIER AND DETERMINED  
 BY PHYSICALLY WEIGHING REPRESENTATIVE SAMPLES
  - 14 - AVERAGE OUTSIDE DIMENSIONS: - 17-3/8 X 11 1/2 X 8 1/8
  - 15 - DIRECTION OF MARKING ON TOP OF BOX OPTIONAL



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Figure 4-4. Typical packing and marking for 7.62mm cartridges NATO boxes and cartons.

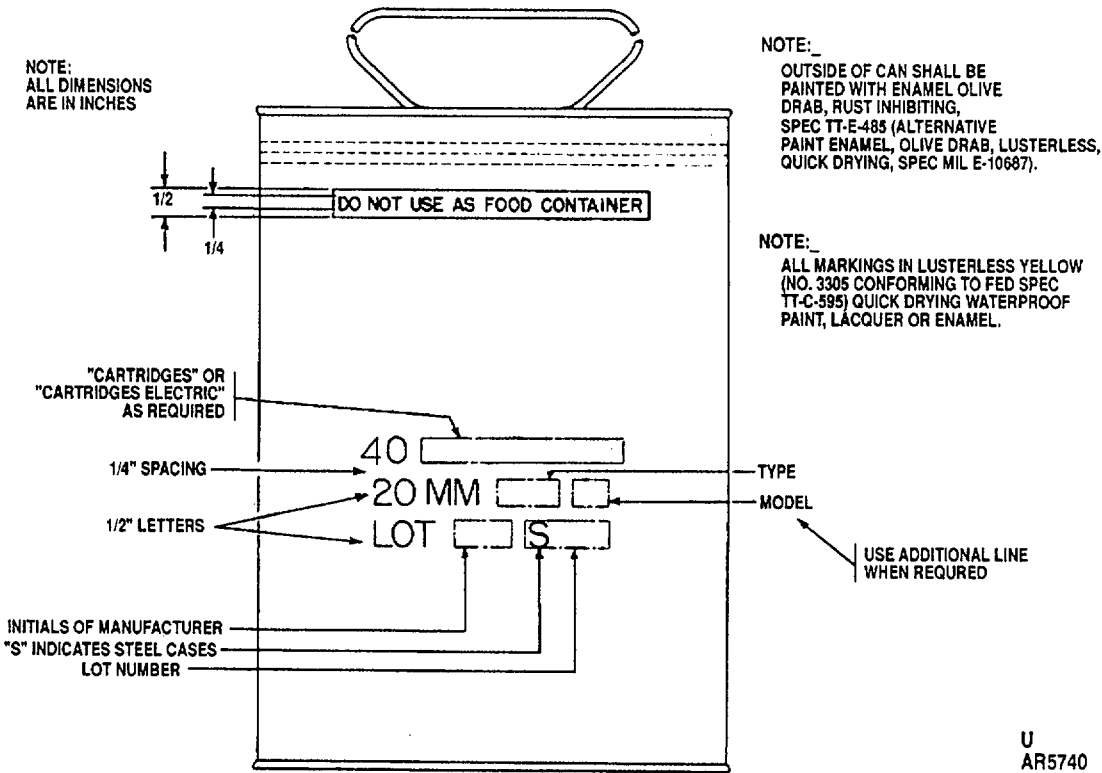


Figure 4-5. Typical markings on M21 can.

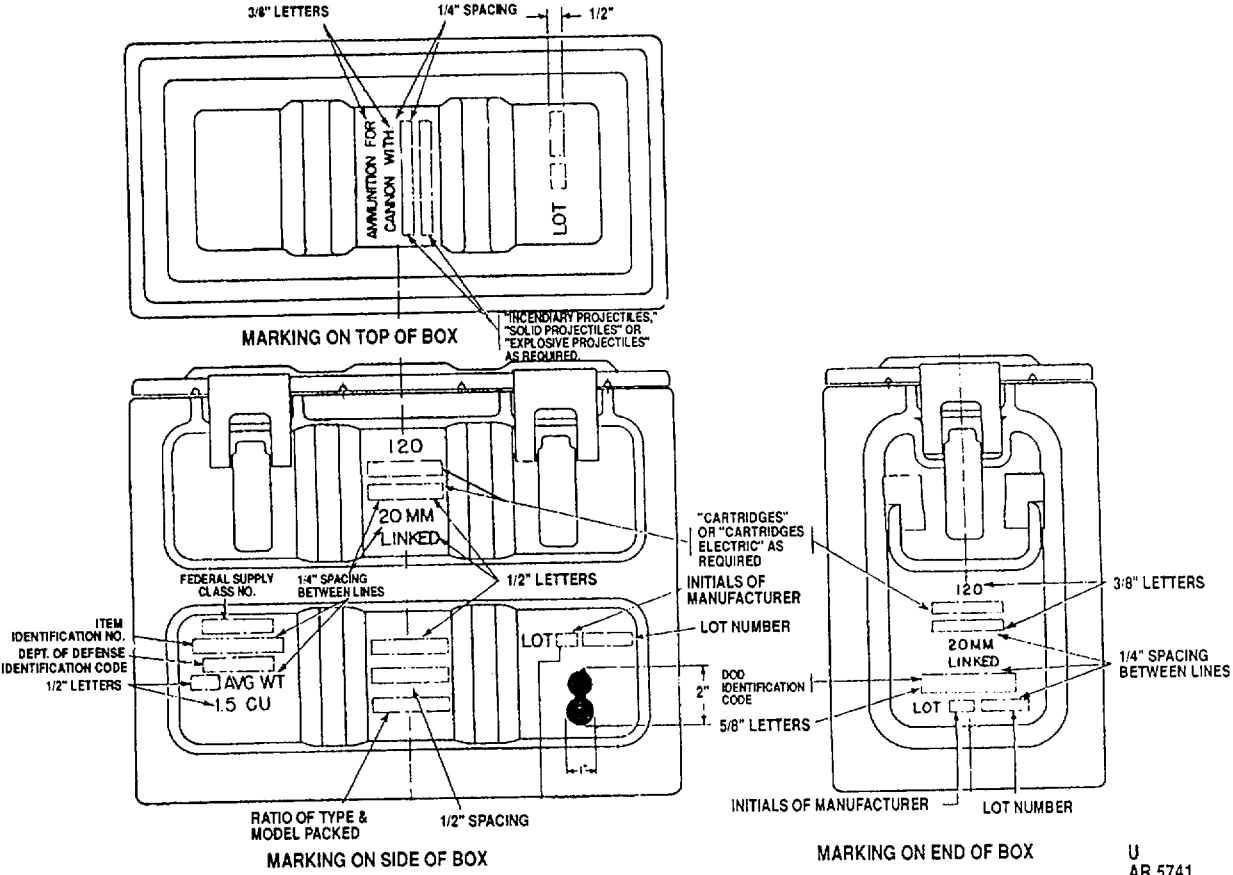


Figure 4-6. Typical packing and markings for linked 20mm in M21 and box Mark 1.

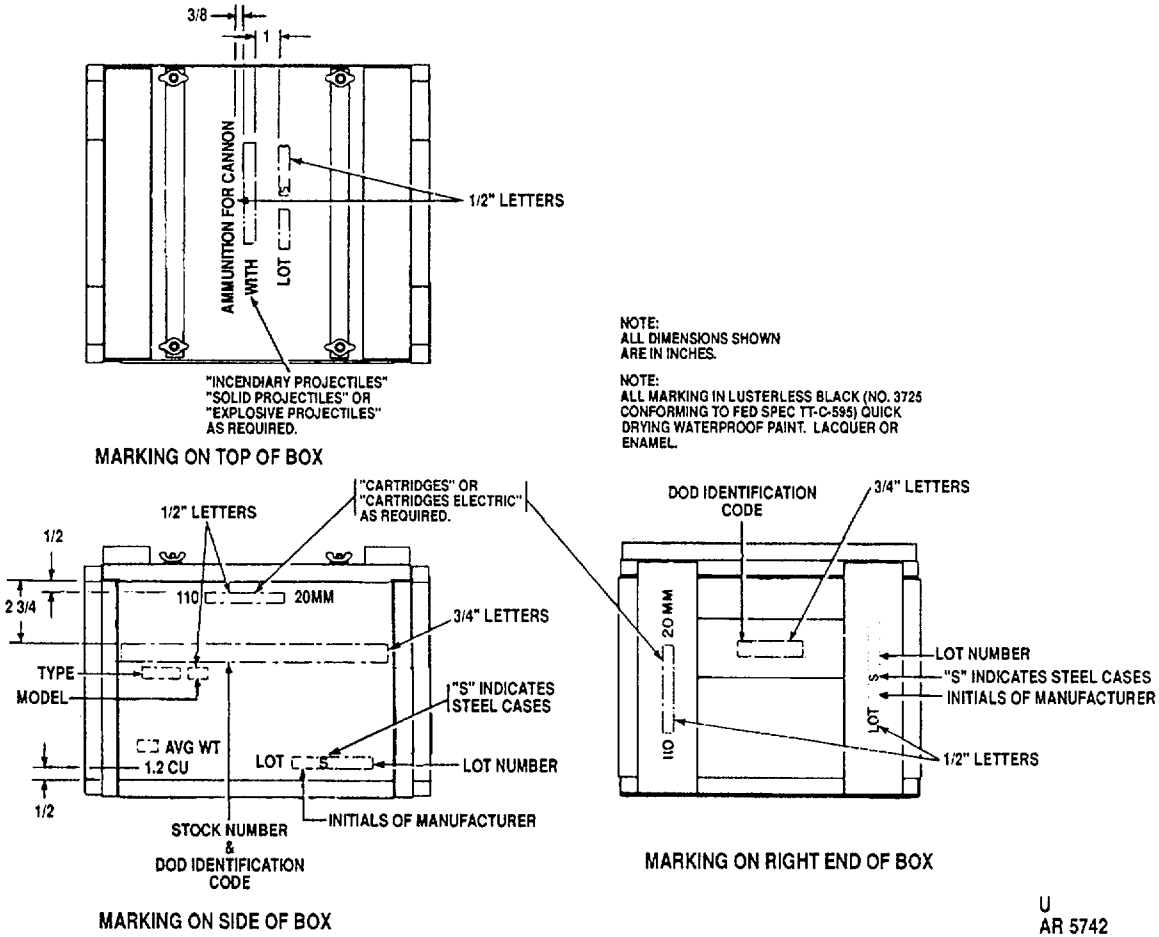
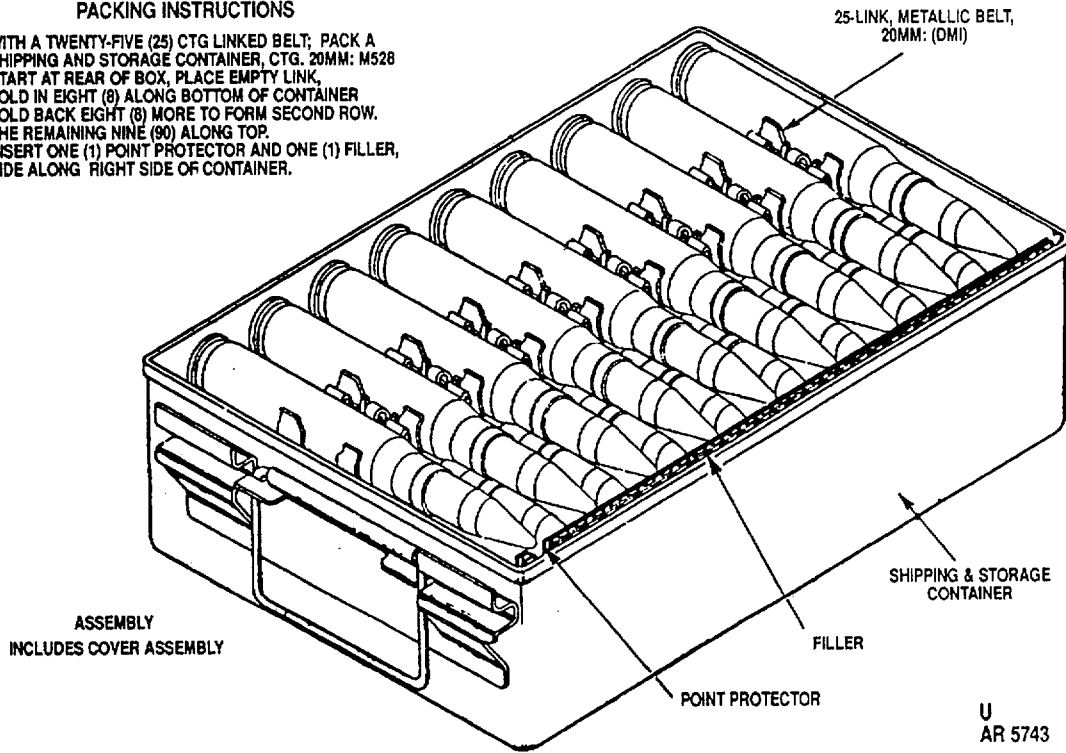


Figure 4-7. Typical packing and marking for 20mm cartridges in can M21 and box M23.

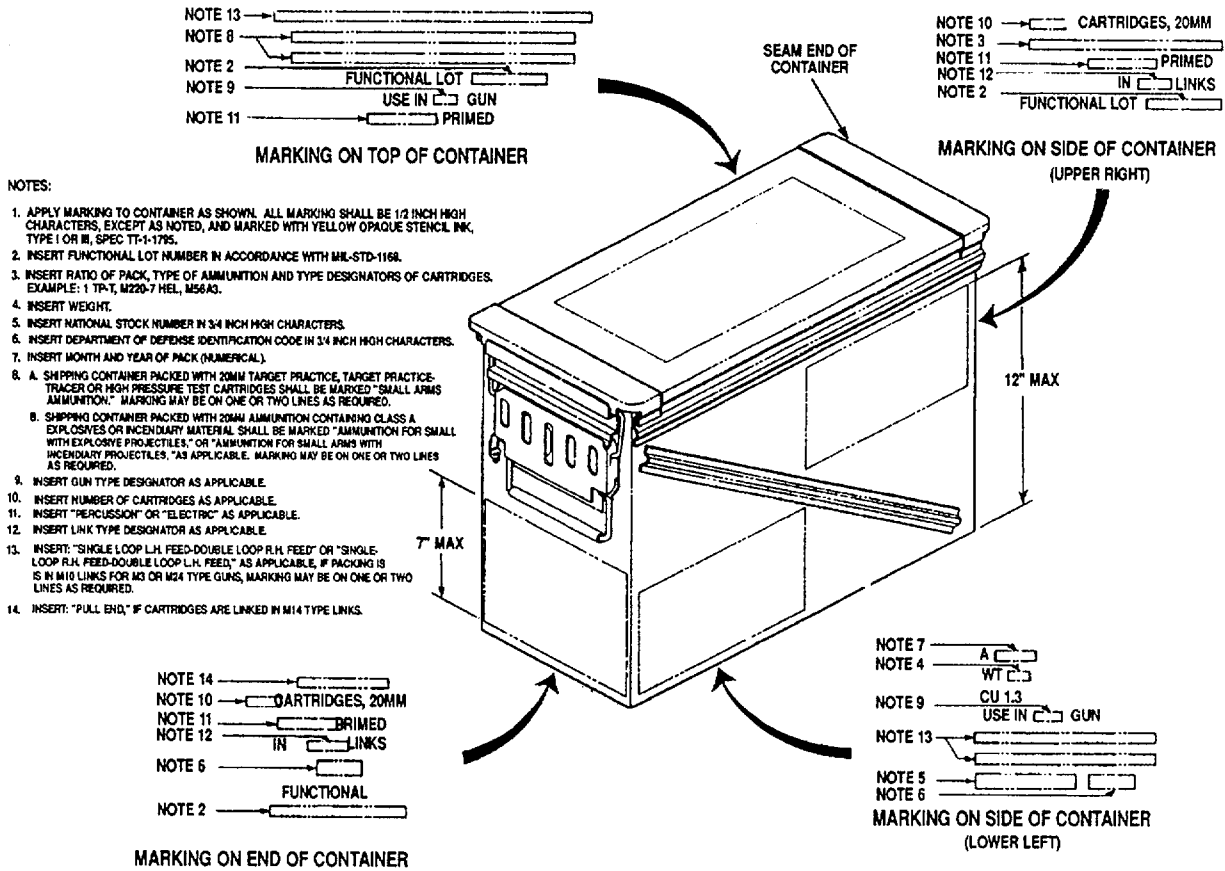
**PACKING INSTRUCTIONS**

WITH A TWENTY-FIVE (25) CTG LINKED BELT; PACK A SHIPPING AND STORAGE CONTAINER, CTG. 20MM: M528 START AT REAR OF BOX, PLACE EMPTY LINK, FOLD IN EIGHT (8) ALONG BOTTOM OF CONTAINER FOLD BACK EIGHT (8) MORE TO FORM SECOND ROW. THE REMAINING NINE (90) ALONG TOP. INSERT ONE (1) POINT PROTECTOR AND ONE (1) FILLER, SIDE ALONG RIGHT SIDE OF CONTAINER.



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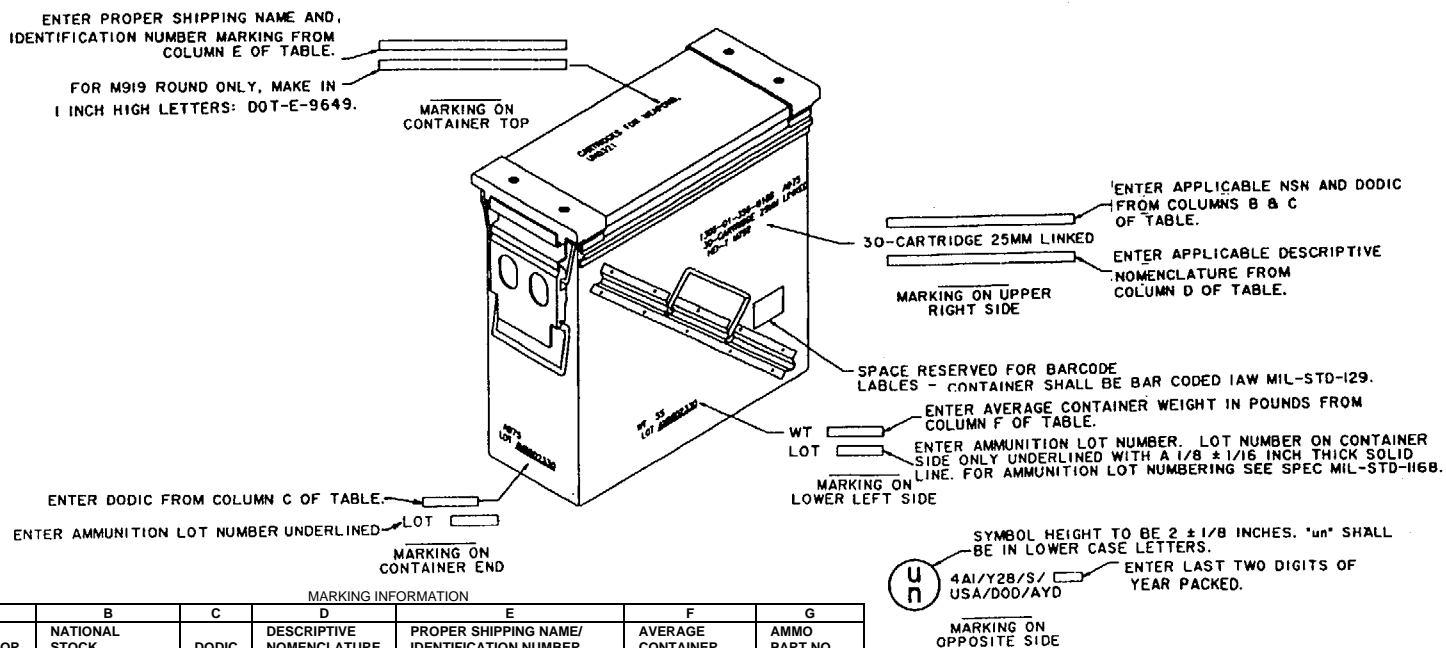
Figure 4-8. Linked 20mm cartridges packed in shipping and storage container M528.



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Figure 4-9. Typical markings on shipping and storage container M548.

PA125  
SHIPPING AND STORAGE CONTAINER  
30 ROUNDS 25mm LINKED AMMUNITION



MARKING INFORMATION

A	B	C	D	E	F	G
AMMO DESIGNATOR (REF)	NATIONAL STOCK NUMBER (NSN)	DODIC	DESCRIPTIVE NOMENCLATURE	PROPER SHIPPING NAME/ IDENTIFICATION NUMBER	AVERAGE CONTAINER WEIGHT (LBS)	AMMO PART NO.
M791	1305-01-356-9839	A974	APDS-T-M791	CARTRIDGES FOR WEAPONS. INERT PROJECTILE UNO328	53	12013533
M792	1305-01-356-0188	A975	HE 1-T M792	CARTRIDGES FOR WEAPONS. UNO321	55	12013230
M793	1305-01-356-0189	A976	TP-T M793	CARTRIDGES FOR WEAPONS. INERT PROJECTILE UNO328	55	12013224
M794	1305-01-356-0187	A967	DUMMY M794	NONE REQUIRED	55	12013880
M910	1305-01-350-5265	A940	TPDS-T M910	CARTRIDGES FOR WEAPONS. INERT PROJECTILE UNO328	53	12556500
M919	1305-01-348-0192	A986	APFSDS-T M919	CARTRIDGES FOR WEAPONS. INERT PROJECTILE UNO328	53	9391187

AMMUNITION REFERENCE DATA SEE COLUMN G. APPLY MARKINGS TO CONTAINER AS SHOWN. ALL MARKINGS SHALL BE 3/8 MINIMUM HEIGHT EXCEPT AS NOTED. APPLY MARKINGS WITH YELLOW INK. MARKINGS SHALL BE IAW MIL-STD-129.

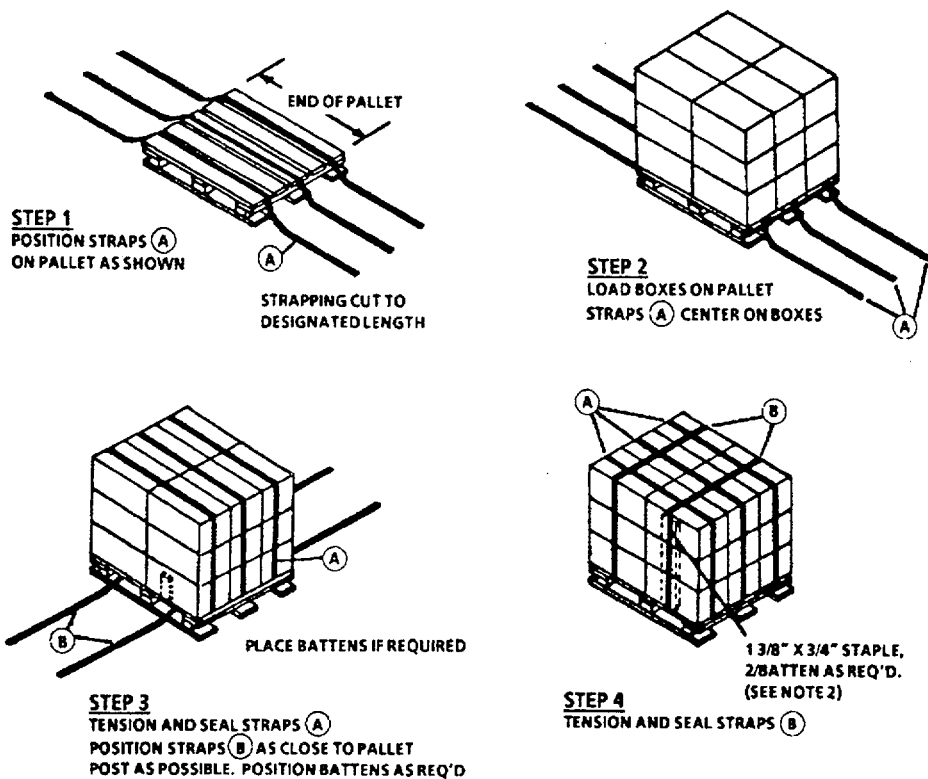
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Figure 4-10. Typical markings for container, PA125.



**GENERAL NOTES**

1. UNIT SHOWN HEREON IS PREPARED TO MEET THE FOLLOWING REQUIREMENTS:
  - A. GROSS WEIGHT APPROX. 2000 LBS, NOT TO EXCEED 2200 LBS.
  - B. HEIGHT OF PALLET AND LOAD NOT TO EXCEED 52"
  - C. OVERHANG AVOIDED WHERE POSSIBLE, BUT SHOULD NOT EXCEED APPROX. 1" IN ANY DIRECTION. ONE INCH, TWO INCH, OR FOUR INCH BATTENS MAY BE USED AS REQUIRED.
  - D. BOXES SECURED TO THE PALLET BY STEEL STRAPPING 1 1/4" X .035, TYPE I, CLASS A OR B, FED SPEC QQ-S-781A.
  - E. STRAPPING SECURED BY ONE 1 1/4" SEAL SECURED WITH A DOUBLE CRIMP, FED SPEC QQ-S-766.
2. A MINIMUM OF 2 STAPLES WILL BE USED TO FASTEN EACH STRAP TO ITS BATTEN. STAPLES WILL NOT BE USED WITHOUT BATTENS. STAPLES AUTHORIZED ARE 1 3/8" X 3/4".
3. ADDITIONAL BANDING MAY BE USED IN ANY DIRECTION ON THE PALLET LOAD, AT THE DISCRETION OF THE SHIPPER.
4. FILLERS, CONSTRUCTED OF TWO INCH LUMBER, MAY BE USED TO COMPLETE PARTIAL LAYERS ON PALLET. FILLERS SHOULD BE PLACED ON INTERIOR OF TOP LAYER, WHENEVER PRACTICAL.



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Figure 4-11. Palletizing

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**APPENDIX A**  
**REFERENCES**

**A-1. ADMINISTRATIVE PUBLICATIONS**

a. Army Regulations.

Reporting of Transportation Discrepancies in Shipments .....	AR 55-38
Malfunctions Involving Ammunition and Explosives.....	AR 75-1
Ionizing Radiation Protection (Licensing, Control, Transportation, Disposal, and Radiation Safety).....	AR 385-11
Accident Reporting and Records.....	A R 385-40
Ammunition Stockpile Reliability Program (ASRP) .....	AR 702-6
Quality Assurance Specialist (Ammunition Surveillance).....	AR 702-12
Reporting of Item and Packaging Discrepancies .....	AR 735-11-2

b. DA Pamphlets.

Consolidated Index of Army Publications and Blank Forms.....	DA Pam 25-30
Functional Users Manual for 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
Maintenance Request.....	DA Form 2407
Ammunition Condition Report .....	DA Form 2415
DOD Fire Incident Report .....	DD Form 2324
DOD Summary No Loss Fire Emergencies Report.....	DD Form 2324-1
Transportation Discrepancy Report.....	SF Form 361
Report Of Discrepancy (ROD).....	SF Form 364

**A-3. EQUIPMENT MANUALS**

a. Technical Manuals.

Operator's Manual for Machine Guns, Caliber .50; Browning, M2, Heavy Barrel Flexible, w/e (NSN 1005-00-322-9715) (EIC: 4AG) M48 Turrett Type (1005-00-957-3893) (EIC: 4BB) Soft Mount (1005-00-LL-H11-5877) (Navy) Fixed Type Right Hand Feed (1005-00-122-9339) (Navy) Fixed Type Left Hand Feed (1005-00-122-9368) (Navy) Mounts, Machine Gun, Caliber .50, M3 Tripod w/e (1005-00-322-9716) (EIC: 4EA) M63 Anti- aircraft w/e (1005-00-673-3246) (EIC: 4EC).....	TM 9-1005-213-10
Operator's Manual for Machine Gun, 7.62-mm, M60 w/e (NSN 1005-00-605-7710); Mount Tripod, MG, 7.62-mm, M122 (1005-00-710-5599) and M60D w/e (1005-00-909-3002) .....	TM 9-1005-224-10
Operator's Manual for Machine Gun, Caliber .50; Fixed, M85 (NSN 1005-00-690-2790) .....	TM 9-1005-231-10
Aviation Unit Maintenance Manual for Armament Pod, Aircraft: 7.62-mm Machine Gun, M18A1 (NSN 1005-00-832-7498) .....	TM 9-1005-257-12
Operator's Manual (Crew) for Gun, Air Defense Artillery, Towed, 20-mm, M167A1 (NSN 1005-01-014-0837) (EIC: 3JA) .....	TM 9-1005-286-10

Operator and Organizational Maintenance Manual: Armament Subsystem, Helicopter, 20-mm, Automatic Gun: M35 (NSN 1005-00-133-8193)..... TM 9-1005-299-10

Aviation Unit Maintenance Manual: Armament Subsystem, Helicopter: 7.62-mm Machine Gun - 2.75-Inch Rocket Launcher: M21 (NSN 1090-00-923-5971) ..... TM 9-1090-202-12

Ammunition, General..... TM 9-1300-200

Ammunition and Explosives Standards..... TM 9-1300-206

Ammunition Maintenance..... TM 9-1300-250

Organizational Maintenance Manual (Including Repair Parts and Special Tools List) for Small Arms Ammunition to 30-mm Inclusive (FSC 1305) ..... TM 9-1305-201-20&P

Operation Manual for Gun, Air Defense Artillery, Self-Propelled: 20-mm, M163A1 (NSN 2350-01-017-2113) (EIC: 3JJ)..... TM 9-2350-300-10

Army Ammunition Data Sheets for Small Caliber Ammunition (FSC 1305)..... TM 43-0001-27

b. Technical Bulletins.

Guidelines for Safe Response to Handling, Storage, and Transportation Accidents Involving Army Tank Munitions or Armor Which Contain Depleted Uranium..... TB 9-1300-278

**A-4. SUPPLY BULLETINS**

Department of Defense Ammunition Code (Cataloging Handbook H3)..... SB 708-3

Federal Supply Classification: Part 1, Groups and Classes (Cataloging Handbook H2-1) ..... SB 708-21

Ammunition Surveillance Procedures ..... SB 742-1

**A-5. SUPPLY CATALOGS**

FSC 1305 - Ammunition Thru 30-MM; FSC 1310 - Ammunition, Over 30-MM Up To 75-MM; FSC 1315 - Ammunition, 75-MM Thru 125-MM; FSC 1320 - Ammunition, Over 125-MM; FSC 1325 - Bombs and FSC 1330 - Grenades..... SC 1305/30-IL

Shop Equipment, Ammunition Renovation Field Maintenance, Less Power (NSN 4925-00-754-0710) (LIN W59719) MAP Only (4925-00-919-0067) ..... SC 4925-95-CL-A03

Tools Set, Ammunition: Field Maintenance, Ordnance Ammunition Company (NSN 4940-00-322-6058) (LIN W59582) and MAP Only (NSN 4940-00-919-0113) ..... SC 4940-95-CL-A11

**A-6. MILITARY STANDARDS**

Sampling Procedures and Tables for Inspection by Attributes..... MIL-STD-105D

Military Standard Visual Inspection Standards for Small Arms Ammunition through Caliber .50 ..... MIL-STD-636

Visual Inspection Standards and Inspection Procedures for Inspection and Packaging, Packing and Marking of Small Arms Ammunition ..... MIL-STD-644A

Military Standard Visual Inspection Standards for 20mm Ammunition and Components ..... MIL-STD-651

Parts and Equipment, Procedures for Packaging of ..... MIL-STD-794D

**A-7. FEDERAL SPECIFICATIONS**

Boxes, Wood Cleated Plywood ..... PPP-B-601, Rev F

## APPENDIX B

PACKING MATERIALS, ACCESSORIES, AND TOOLS

---

## Section I. INTRODUCTION

**B-1. Scope**

This appendix lists packing materials, accessories, and tools required for the performance of organizational maintenance for rockets, rocket motors, and rocket weapon systems.

**B-2. General**

This appendix is divided into the following sections:

*a. Section II - Packing Materials and Accessories.* A list of packing materials authorized for the performance of maintenance at the organizational level.

*b. Section III - Special Packing Tools.* A list of special tools and equipment authorized for the performance of maintenance at the organizational level.

**B-3. Explanation of Columns**

The following provides an explanation of columns in Section II and III.

*a. Part Number.* Indicates the primary number used by the manufacturer which controls the design and characteristics of the item. Drawings can be obtained from originating source (see CAGE Code).

*b. Contractor and Government Entity Code (CAGEC) - (Formerly known as Federal Supply Code for Manufacturers (FSCM)).* A five-digit code used to identify the manufacture, distributor, or Government agency/activity that supplies the item.

*c. Figure Number.* This column lists the number of the figure where the item is identified/located.

*d. Description.* Indicated the Federal item name and any additional description of the item required.

**Section II. PACKING MATERIALS AND ACCESSORIES**

Part No.	CAGEC	Figure No.	Description
			CARTRIDGE, 12 GAGE SHOTGUN
			Plastic Case No. .00 Buckshot, M162; No. 4 Buckshot, M257; No. 4 Buckshot, M274; Breaching, M1030; Paper Case No. .00 Buckshot; All Brass No. .00 Buckshot, M19
			Packing for:
7553296	19200		Chest Ammunition: M2A1
7553347	19200	4-1	Box, Wirebound:
	19200		Box, Packing, Ammunition
9396196	19200		Box, Paperboard
			CARTRIDGE, CALIBER .22
			CARTRIDGE, Cal .22 Ball, Long Rifle, M24
			CARTRIDGE, Cal .22 Ball, Hornet, M65 (Soft Point)
			CARTRIDGE, Cal .22 Ball, Long Rifle, Match Grade, Commercial Pack
			CARTRIDGE, Cal.22 Ball, Short Super Match or Equal Commercial Pack
			CARTRIDGE, Cal .22 Tracer, Long Rifle, M861
			Packing for:
7553296	19200		Chest Ammunition: M2A1
7553347	19200	4-1	Box, Wirebound:
7640995	19200		Cartridge, Grenade:
			CARTRIDGE, 9 MILLIMETER
			Ball, NATO, M882, Jacketed-Hollow-Point, MK243, MOD 0*
			Packing for:
9362826	19200		Carton (50 rd)
9362803	19200		Tray, Cartridge
9378264	19200		Filler, Bottom; Filler, Side; Filler, End and Tape, Removal:
7553296	19200		Chest Ammunition: M2A1
7553347	19200	4-1	Box, Wirebound:
			Test, High Pressure, M905
			Packing for:
9362826	19200		Carton (50 rd)
9362803	19200		Tray, Cartridge
9378264	19200		Filler, Bottom; Filler Side; Filler, End and Tape, Removal:
7553296	19200		Chest Ammunition: M2A1
7553347	19200	4-1	Box, Wirebound:

\* For US Army law enforcement use in the United States and its territories only

Part No.	CAGEC	Figure No.	Description	
			<b>CARTRIDGE, CALIBER .38</b>	
7553296	19200	4-1	Special Ball, M41 Packing for: Chest Ammunition: M2A1	
7553347	19200		Box, Wirebound:	
8594102	19200		Carton (50 rd)	
7553768	19203		Filler, End	
7553766	19203		Filler, Top	
7553767	19203		Filler, Top	
7553296	19200	4-1	Special Ball, XM142 Packing for: Chest Ammunition: M2A1	
7553347	19200		Box, Wirebound:	
7553363	19203		Carton (50 rd)	
7553766	19203		Filler, Top	
7553768	19203		Filler, End	
7553767	19203		Filler, Center	
			<b>CARTRIDGE, CALIBER .45</b>	
5580944	19203	4-1	Ball, M1911 Packing for: Carton (50 rd)	
7553730	19200		Filler, Top; Filler, End; Filler, Side; and Tape Removal:	
7553396	19200		Chest Ammunition: M2A1	
7553347	19200		Box, Wirebound:	
10521236	19203		Ball, M1911 Match Grade Packing for: Carton (50 rd)	
8596133	19200		Filler, Top; Filler, End; Filler, Side; and Tape Removal:	
7553296	19200		Chest Ammunition: M2A1	
7553347	19200		Box, Wirebound:	
				<b>CARTRIDGE, CALIBER .50</b>
7140393	19200		1920()	Tracer, M1, M17, Incendiary, M1, M23, Armor Piercing, M2; API, M8 APIT, M20; Tracer, M17, Tracer, Headlight M21; Ball, M2, M33; Ball, Plastic, Practice, M858; Tracer, Plastic, Practice, M860; SLAP, M903; SLAP-T, M962 Packing for: Link Cartridge: M9
7553296	19200	Chest Ammunition: M2A1		
7553347	1920()	Box, Wirebound:		

Part No.	CAGEC	Figure No.	Description
			<b>CARTRIDGE, CALIBER .50 - Continued</b>
			Tracer, M1, M17; Armor Piercing, M2 Ball, M2, M33, API, M8; Tracer, Headlight, M21; Incendiary, M23; SLAP, M903; SLAP-T, M962
7553547	19200		Packing for: Filler, End
7553548	19200		Filler, Side
7553550	19200		Fuel Pick-up Unit:
7553549	19200		Separator
7553296	19200		Chest Ammunition: M2A1
7553347	19200		Box, Wirebound
			Tracer, M1, M17; API, M8, APIT, M23; Tracer, Headlight, M21; Incendiary, M23 Ball, M33; Caliber .50 API MK 211
.....	19204		Packing for: Link, Cartridge, M15A2
8596922	19200		Filler, Side
7553296	19200		Chest Ammunition: M2A1
7553347	19200		Box, Wirebound
			Spotter Tracer, M48 Series
7553722	19200		Packing for: Carton (10 rd)
7553720	19200		Filler, End; Filler, Side; Filler, Bottom; and Tape Removal:
7553296	19200		Chest Ammunition: M2A1
7553347	19200		Box, Wirebound
7991261	19200		Link, M15A1
MIL-P-10511	81349		Pallet, Wooden (all cal .50 cartridges may use this pallet)
			<b>CARTRIDGE, 5.56 MILLIMETER</b>
			Ball, M193; Tracer, M196 HP-T, M197; Ball, M855; Tracer, M856; Short Range, Training, M862; Armor Piercing, M995
10534433	19200		Packing for: Carton (20 rd)
10535857	19200		Filler, Side; Filler, Comer; and Tape Removal:
7553296	19200		Chest Ammunition: M2A1
7553347	19200		Box, Wirebound
10010483	19204		Ball, M193; Tracer, M196, Packing for: Clip (10 rd) ((A061) DODIC)
10542256	19200		Carton
10534431	19200		Bandoleer: M3
11010484	19205		Filler Magazine:
10542257	1920()		Filler
7553296	19200		Chest Ammunition: M2A1



Part No.	CAGEC	Figure No.	Description
			<b>CARTRIDGE, 5.56 MILLIMETER - Continued</b>
MIL-P-15011	81349		Pallet, Wooden (all 5.56mm cartridges may use this pallet)
7553347	19200		Box, Wirebound
			Grenade, M195, Blank, M200
			Packing for:
10542289	19200		Carton (20 rd)
10542290	19200		Filler, Upper Corner; Filler, Lower Corner; Filler, Upper Side; Filler, Folder; Filler, Inner; and Tape Removal:
			Chest Ammunition: M2A1
7553296	19200		Box, Wirebound
7553347	19200		
			<b>CARTRIDGE, 7.62 MILLIMETER</b>
			NATO, Ball, M59, M80; Nato, AP, M61; Nato, Tracer, M62; Armor Piercing, M993
			Packing for:
.....	19203		Carton (20 rd)
7553714	19200		Filler, End
7553715	19200		Filler, Bottom
7553716	19200		Filler, Side
7553315	19203		Chest Ammunition: M19A1
7258943	19201		Shipping and Storage Container: M548
7555581	19200		Box, Wirebound
			NATO, Ball, M59, M80; Nato, AP, M61; Nato, Tracer, M62
			Packing for:
.....	19203		Box, Intermediate Pa
7553748	19200		Filler, Side; Filler, "U" Top; and Tape Removal:
7553296	19200		Chest Ammunition: M2A1
7553347	19200		Box, Wirebound
			NATO, Ball, M59, M80; Nato, Tracer, M62
			Packing for:
7268389	19204		Link, Cartridge: M13
8595244	19200		Filler, Side
7553315	19203		Chest Ammunition: M19A1
7555581	19200		Box, Wirebound
			NATO, Ball, M59, M80; Nato, Tracer, M62
			Packing for:
7268389	19204		Link, Cartridge: M13
.....	19203		Carton, Assembly (100 rd)
8594723	19200		Bandoleer: M2
7553315	19200		Chest Ammunition: M19A1
7258943	19201		Shipping and Storage Container: M548
7555581	19200		Box, Wirebound

Change 1 B-5

Part No.	CAGEC	Figure No.	Description
<b>CARTRIDGE, 7.62 MILLIMETER - Continued</b>			
.....	19200		NATO, Ball, M59, M80; Nato, Tracer, M62
.....	19200		Clip, Cartridge (5 rd)
8594722	19203		Filler, Magazine (5 rd clip)
7553296	19200		Carton
7553347	19200		Chest Ammunition: M2A1
			Box, Wirebound
			NATO, Tracer, M62; Nato, Ball, M80
			Packing for:
7268389	19204		Link, Cartridge: M13
.....	19203		Carton, Assembly (100 rd)
8594723	19200		Bandoleer: M2
7553315	19203		Chest Ammunition: M19A1
7555581	19200		Box, Wirebound
			NATO, Tracer, M62 (Overhead Fire Application); Nato, Ball, M80 (Overhead Fire Application)
			Packing for:
7268389	19204		Link, Cartridge
.....	19203		Carton, Assembly
8594723	19200		Bandoleer: M4
7553315	19203		Chest Ammunition: M19A1
7555581	19200		Box, Wirebound
			NATO, Ball, M80
			Packing for:
10534739	19203		Carton
.....	19200		Bandoleer: M1
7553296	19200		Chest Ammunition: M2A1
7553347	19200	4-1	Box, Wirebound
			Match, M118, Match, M852
			Packing for:
			Box Intermediate Pa, M2A1 (20 rd)
8596111	19200		Filler, "U" Top; Filler, Side; and Tape Removal:
7552296	19200		Chest, Ammunition: M2A1
7553347	19200		Box, Wirebound
.....	.....		Box, Intermediate Pa (20 rd)
8596108	19200		Filler, "U" End; Filler, Side; Filler, Bottom; and Tape Removal:
			Chest Ammunition: M19A1
7553315	19203		Box, Wirebound
7555581	19200		

Part No.	CAGEC	Figure No.	Description
			<b>CARTRIDGE, 7.62 MILLIMETER - Continued</b>
7553850	19200		NATO, Grenade, M64
7553851	19200		Packing for: Carton (5 rd)
7553296	19200		Envelope, Waterproof
7553347	19200		Chest Ammunition: M2A1
MIL-P 10511	81349		Box, Wirebound Pallet, Wooden (all 7.62mm cartridges may use this pallet)
			<b>CARTRIDGE, 20 MILLIMETER</b>
			HEI, M97 Series: Incendiary M96; TP, M99A1, TP-T, M220; TP M204; HEI, M56 Series; HEI-T, M242; AP-T, M95, Dummy, M51A2, TP-T, M55A2; API-T, M53; TP-T, M206; HEI-T, M242/M242A1; HEI-T, M599; API-T, M601; API-T, M52E1, HEI-T-SD, M246/M246A1, MPT-SD, M940
7258943	19201		Packing for: Shipping and Storage Container, Cartridge: M548
.....	.....		Pad cushioning
10542308	19200	4-8	Shipping and Storage Container, Cartridge: M528
7238242	19206		Link, Cartridge: M10
11686411	19200		Link, Cartridge: M22
.....	.....		Link, M14
11010274	19200		Link, Cartridge: M14A1
8447633	19204		Link, Cartridge: M14A2
.....	.....		Link, Cartridge, M17A2
7147028	19200		Link, Cartridge: M12
11577416	19204		Link, M24
8445027	19200		Link, M26
130-147- 0100-3	19200		Link, DMI
130-147- 0000-3	19200		Link, DMIA
MIL-P- 15011	81349		Pallet, Wooden (all 20mm cartridges may use this pallet)
			<b>CARTRIDGE, 22 MILLIMETER</b>
			Sub-caliber Practice Cartridges, M744, M745, M746, and M747
932220-1	70210		Packing for:
9322198	19200		Frame, Assembly: Polystyrene compartment

Part No.	CAGEC	Figure No.	Description
			<b>CARTRIDGE, 25 MILLIMETER</b>
12913882 12073213 12013668 19-48- 4116 17	19200 19204 19204 19204		APDS-T, M791, HEI-T, M792; TP-T, M793; TPDS-T, M910; APFSDS-T, M919 Packing for: Box, Wood Link Assembly: 25mm, M28 Container, Shipping M621 Pallet Wooden
			<b>CARTRIDGE, 25.4 MILLIMETER</b>
9332576 8865541	19200 19203		Decoy, M839 Packing for: Box, Wood Shipping and Storage Container: PA19
			<b>CARTRIDGE, 30 MILLIMETER</b>
9229066 11825879 19-18 4116 18 12902719 12902723 12902725 12902724	..... 19200 19200  19200 19200 19200 19200		TP, M788, HEDP, M789; HEI-T, M799 Packing for: Metal container, M592 Link, Cartridge: M29 Pallet, Wooden  Strip, Ammunition: Channel Edge Guard: Ammunition Can Liner: Removal Strap:

**Section III. SPECIAL PACKING TOOLS**

Part No.(Dwg No.)	CAGEC	Figure No.	Description
8864731	19203		SALLEE CLOSER (5120-00-319-5434)
MIL-S-43104	81349		STRAPPING AND SEALING KIT: 5/8-Inch Strapping, Type III. (3540-00-565-6242)
MIL-S-43104	81349		STRAPPING AND SEALING KIT: 1-1/4-Inch Strapping, Type V (3540-00-565-6244)
ASTM D 3953-87	81346		Seal, Strapping, for 5/8 steel strapping.
ASTM D 3953-87	81346		Seal, Strapping, for 1-1/4-in. steel strapping.
ASTM D 3953-87	81346		Strapping, Steel: 5/8-in. 0.020 in. thick
ASTM D 3953-87	81346		Strapping, Steel: 1-1/4-in.

Part No.(Dwg No.)	CAGEC	Figure No.	Description
8648891	19203		GAGE, CHAMBER, 20mm, H5
7555162	19200		GAGE, PROFILE, 20mm, M50 series (5220-00-593-6541)
7299942	19200		GAGE, PLUG, PLAIN, CYLINDRICAL: (5220-00-313-3072)
8649292	19203		GAGE, CHAMBER, 30mm, A/D
7791394	19205		LINKER, DELINKER, HAND: M21E1 (4925-00-016-2616)
71600031	19204		MACHINE, LINKING-DELINKING, M7 cal. 50. (4925-00-299-1268)
APE 2060	19204		MACHINE, LINKING-DELINKING, 20mm f/links M12, M14. (4925-00-575-0784)
APE 2140	19204		MACHINE, LINKING-DELINKING, 20mm f/links M12, M14 and M17. (4925-00-420-2970)
APE 2143	19204		LINKER, HAND 20mm f/link DM1 or M24.
53M34750	11722		MARKING OUTFIT: Rubber Solid Gothic Type 1/4, 1/2, 3/4, 1-inch Letters. (7520-00-049-7993)
GGG-M-125	81348		RESPIRATOR, AIR FILTERING: Paint Spray, M6. (4240-00-022-2524)
GGG-W-641	81348		SOCKET, WRENCH: Sq Drive, 1/2 in. Drive Size, 12 Pt Opening 1-1/4 in. type II, class II, style A. (5120-00-189-7917)
GGG-W-686	81348		WRENCH, TORQUE: Deflecting Frame End Drive, Style, w/visual pl indicating torque mech, 1/2 in. male sq-drive, 600 inch-lb capa- city, type I, class I, style A. (5120-00-221-7947)

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## APPENDIX C

EXPENDABLE AND DURABLE ITEMS LIST

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## SECTION I. INTRODUCTION

**C-1. SCOPE**

This appendix lists expendable and durable items required for the performance of direct support and general support maintenance for small arms ammunition.

These items are authorized to you by CTA 50-970, Expendable Items (except Medical, Class V Repair Parts, and Heraldic items).

**C-2. EXPLANATION OF COLUMNS**

a. Column (1) - Item number. This number is assigned to the entry in the listing for referencing when required.

b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item.

O - Unit Maintenance  
F - Direct Support Maintenance  
H - General Support Maintenance

c. Column (3) - National Stock Number. This is the National Stock Number (NSN) assigned to the item; use it to request or requisition the item.

d. Column (4) - Description. Indicates the federal item name and, if required, a description to identify the item. The last line for each item indicates the Commercial and Government Entity Code (CAGEC) parentheses followed by the part number.

e. Column (5) - Unit of Measure (U/M)/Unit of Issue (U/I). This column indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (i.e. EA, IN, PR). If the unit of measure differs from the unit of issue, as shown in the ARmy Master Data File (AMDF), requisition the lowest unit of issue that will satisfy your requirements.

## SECTION II. EXPENDABLE AND DURABLE ITEMS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) (U/M)/ (U/I)
1	O	6810-00-184-4796	ACETONE, TECHNICAL: 5 gallon can (81348) O-A-51	CN
2	O	6810-00-543-7415	ALCOHOL, DENATURED: Grade III (81348) OE760	GL
3	O	7920-00-900-3577	BRUSH: 3/8 in. x 1-3/8 in. (17987) 15SS	EA
4	O	8020-00-240-6361	BRUSH, ARTISTS: Flat chisel edge; 1/8 in. w (81348) H-B-118	EA
5	O	8020-00-246-8504	BRUSH, ARTISTS: Flat round edge (81348) H-B-118	EA
6	O	8020-00-597-4768	BRUSH, LACQUERING: 7/8 in. x 1 in. (81348) H-B-351	EA
7	O	8020-00-205-6505	BRUSH, PAINT: Flat w/ chisel edge, 1-1/2 in. w, 11/16 in. thk, type 1, grade A (81348) H-B-420	EA
8	O	8020-00-245-4516	BRUSH, PAINT: Grade A, 4 in. x 4-1/8 in. (81348) H-B-420	EA
9	O	8020-00-245-4522	BRUSH, PAINT: Flat, w/square edge 2-1/2 in. w, 3/8 in. thk, 1-1/4 in lg (81348) H-B-391	EA
10	O	8020-00-597-5301	BRUSH, PAINT: Oval style, chisel edge, 7/8 in. x 2-1/8 in. (81348) H-B-491	EA
11	O	8020-00-889-7919	BRUSH, PAINT: 1-1/2 in. x 13/32 in. (81348) H-B-695	EA
12	O	7520-00-223-8000	BRUSH, STENCIL: Long handle style type L, 0.813 dia of bristles (81348) H-B-00621	EA
13	O	7520-00-248-9285	BRUSH, STENCIL: Fountain type 1-3/8 in. dia. (81348) H-B-00621	EA



(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) (U/M)/ (U/I)
14	O	8020-00-262-9084	BRUSH, VARNISH: Flat w/ square edge, 1/2 in. w, 1/4 in. thk, 1-1/4 in lg. (45092) 608-1	EA
15	O	7920-00-255-5135	BRUSH, WIRE SCRATCH: Beryllium copper alloy, curved handle, 14 in. x 15/16 in. bloxk, 6 in. x 1-1/4 in. wire brush (81348) HB178	EA
16	O	7920-00-269-0933	BRUSH, WIRE SCRATCH: Beryllium copper alloy, straight handle, 7 in. x 1 in. block, 6 in. x 1-1/4 in. wire brush (81348) HB178	EA
17	O	6850-00-174-9672	CORROSION REMOVING COMPOUND: Liquid, type II, 1 gal bottle (81349) MILC10578	GL
18	O	7930-00-249-8036	DETERGENT, GENERAL PURPOSE: Flake or Powder, 5 lb. box and can (81348) A-A-1376	CO
19	O	8010-00-067-5436	ENAMEL: Clear (83421) 8010-00-067-5436	PT
20	O	8010-00-297-2111	ENAMEL: White, No. 37875 (81348) TT-E-516	GL
21	O	8010-00-297-2112	ENAMEL: Yellow, No. 33538 (81348) TT-E-516	GL
22	O	8010-00-297-2116	ENAMEL: Olive drab, No. 34088 (96906) MS35527-8	GL
23	O	8010-00-297-2119	ENAMEL: Blue, No. 35109 (81348) TT-E-516	GL
24	O	8010-00-297-2122	ENAMEL: Black, No. 37038 (81348) TT-E-516	GL
25	O	8010-00-828-3193	ENAMEL: Green, lusterless, No. 34558 (81348) TT-E-516	GL

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) (U/M)/ (U/I)
26	O	8010-00-848-9272	ENAMEL: Olive drab, No. 34088 (81348) TT-E-516	PT
27	O	8010-00-851-5525	ENAMEL: Yellow, No. 23538 (81349) MIL-E-16663	PT
28	O	8010-00-878-5761	ENAMEL: White, No. 37875 spray can (81348) TT-E-516	PT
29	O	8010-00-910-8154	ENAMEL: Black, No. 37038 (81348) TT-E-516	PT
30	O	8010-01-088-0096	ENAMEL: Orange, No. 32246 (81348) TT-E-515	QT
31	O	5315-00-597-9766	FASTENER, CORRUGATED, WOODJOINT: Steel, 1/2 in. sawtooth (58536) A-A-1957	HD
32	O	7520-00-079-0288	MARKER, TUBE TYPE: Yellow, felt chisel tip, pocket clip provided (81348) GG-M-00114	DZ
33	O	7520-00-537-6505	MARKER, TUBE TYPE: Yellow, 1/8 in. tip, no pocket clip (53034) METALMARKER1-8IN	EA
34	O	7520-00-973-1059	MARKER, TUBE TYPE: Black, felt chisel tip, pocket clip provided (81348) GG-M-00114	DZ
35	O	7520-00-973-1062	MARKER, TUBE TYPE: Red, felt chisel tip, pocket clip provided	DZ
36	O	5315-00-889-2743	NAIL: Type II, size 4, 6d point, 1-1/2 in. (81348) FF-N-105	PK
37	O	5315-00-889-2744	NAIL: Type II, style 4A, 6d point, 2 in. (81348) FF-N-105	PK
38	O	5315-00-889-2746	NAIL: Steel 10d, type II, style 4A, 3 in. (81348) FF-N-105	PG
39	O	5350-00-271-7938	PAPER, ABRASIVE: Flint, class I, GR4/0 (81348) P-P-105	PK

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) (U/M)/ (U/I)
40	O	8010-00-515-2208	PRIMER COATING: Yellow (54636) E90Y3	GL
41	O	7920-00-205-1711	RAG, WIPING: Cotton, unbleached and mixed colors (64067) 7920-00-205-1711	BE
42	O	7510-00-266-5016	TAPE, PRESSURE SENSITIVE ADHESIVE: Olive drab, lusterless, 2 in. w (81348) PPP-T-60	RO
43	O	7510-00-266-6711	TAPE, PRESSURE SENSITIVE ADHESIVE: Tan, lusterless, 3/4 in. w (52152) 232 3/4 IN.	RO
44	O	7510-00-823-8073	TAPE, PRESSURE SENSITIVE ADHESIVE: Black, lusterless, 1-1/2 in. w (81349) MIL-T-43036	RO
45	O	810-00-160-5794	THINNER, PAINT PRODUCTS: (81348) TT-T-306	GL
46	O	9505-00-294-7373 (when exhausted use 9505-00-248-9851)	WIRE, NONELECTRICAL: Round, zinc coated, .063 in. outside dia., medium temper (81346) ASTM A641	CL
47	O	5350-00-242-4405	WOOL, METALLIC: Steel wool, 1 lb. roll, type 2, class 1, CID A-A-1043 (58536) A-A-1043	LB
48	O	5350-00-255-7736	WOOL, METALLIC: Copper, 1 lb. roll, type I, class 3, Form A, CID A-A-1044 (81063) COPPERWOOLFINE	LB

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**APPENDIX D  
MARKING FOR CARTRIDGES**

Figure no.	Item	Drawing No.
D-1	Typical Marking for Cartridge 20mm HEI M56A3	7259023
D-2	Typical Markings for Cartridge 20mm HEI-T-SD, M246	10542384
D-3	Typical Markings for Cartridge 25mm; APDS-T, M791	12013533
D-4	Typical Markings for Cartridge 25mm HEI-T, M792	12013230
D-5	Typical Markings for Cartridge 25.4mm Decoy, M839	9329609
D-6	Typical Markings for Cartridge 30mm TP, XM788	28114038
D-7	Typical Marking for Cartridge 20mm MPT-SD, M940.	12551767
D-8	Typical Marking for Cartridge 25mm, TPDS-T, M910	

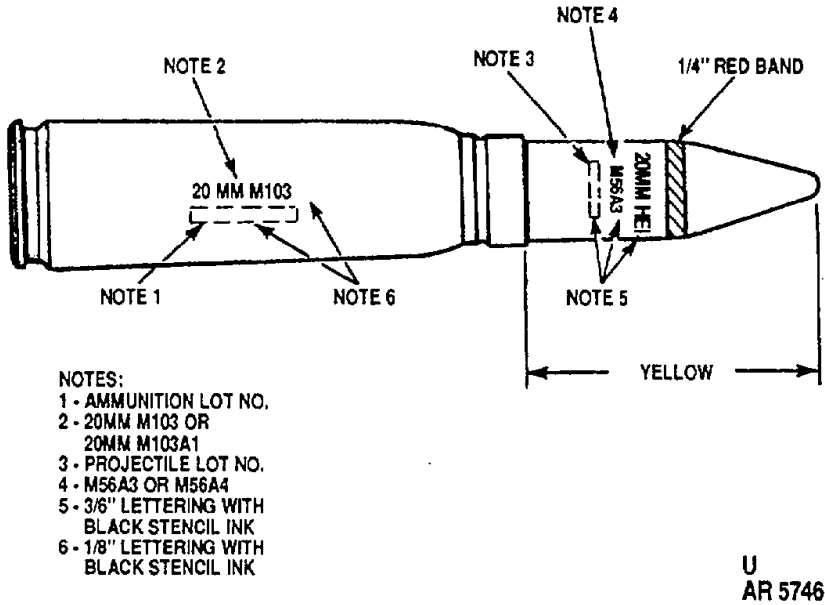
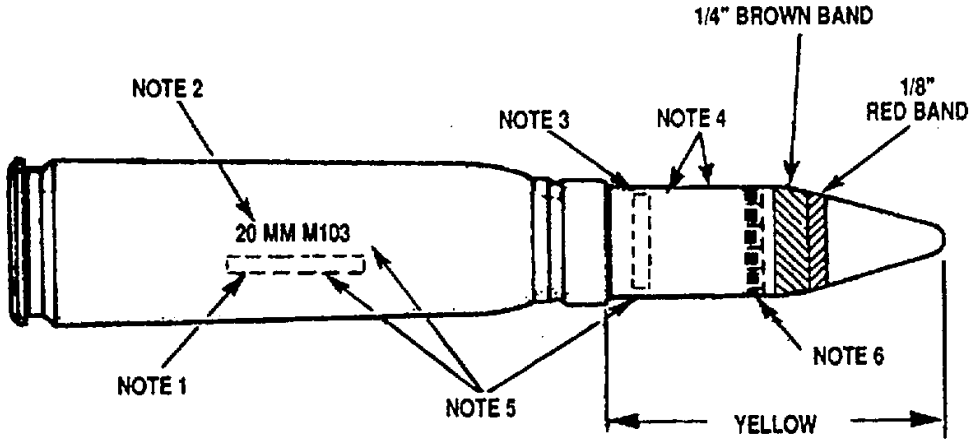


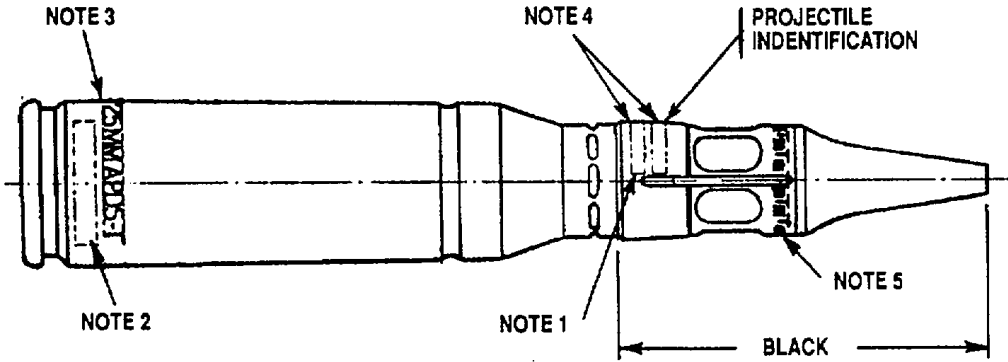
Figure D-1. Typical Marking for Cartridge 20mm HEI M56A3.



- NOTE:**
- 1 - AMMUNITION LOT NO.
  - 2 - 20MM M103 OR 20MM M103A
  - 3 - PROJECTILE LOT NO.
  - 4 - 3/16" LETTERING WITH BLACK STENCIL INK
  - 5 - 1/8" LETTERING WITH BLACK STENCIL INK
  - 6 - "T" MARKINGS IN RED

U  
AR 5747

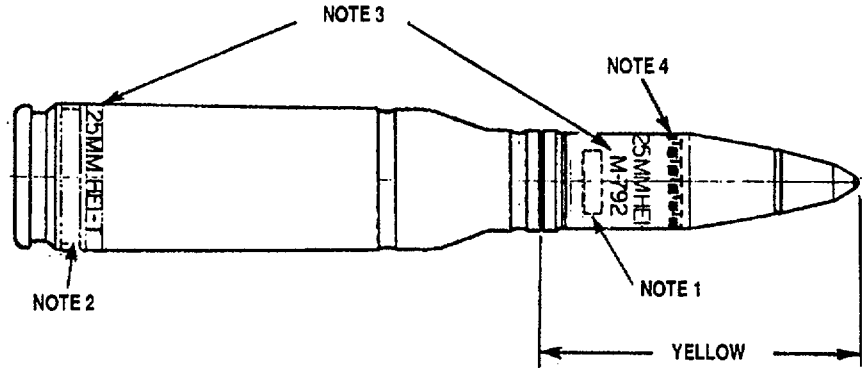
Figure D-2. Typical markings for cartridge 20mm HEI-T-SD, M246.



- NOTES:**
- 1 - PROJECTILE LOT NO.
  - 2 - AMMUNITION LOT NO.
  - 3 - 3/16" LETTERING WITH BLACK STENCIL INK
  - 4 - 3/16" LETTERING WITH WHITE STENCIL INK
  - 5 - "T" MARKINGS IN RED

U  
AR 5748

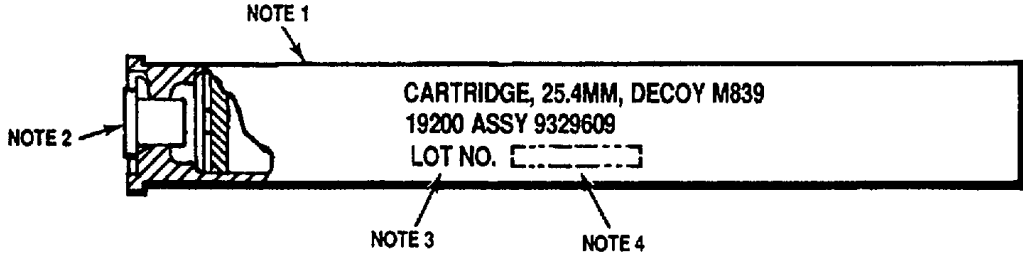
Figure D-3. Typical markings for cartridge 25mm; APDS-T, M791



- NOTES:
- 1 - PROJECTILE LOT NO.
  - 2 - AMMUNITION LOT NO.
  - 3 - 3/16" LETTERING WITH BLACK STENCIL INK
  - 4 - "T" MARKINGS IN RED

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AR 5749

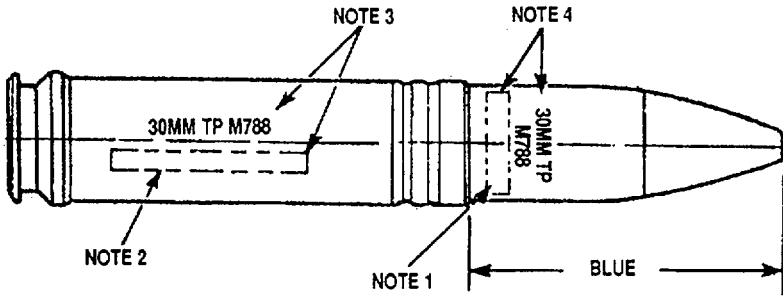
Figure D-4. Typical markings for cartridge 25mm HEI-T, M792



- NOTES:
- 1 - CHAFF COUNTERMEASURE
  - 2 - IMPULSE CARTRIDGE M796
  - 3 - 12" LETTERING WITH BLACK STENCIL INK
  - 4 - AMMUNITION LOT NO.

U  
AR 5750

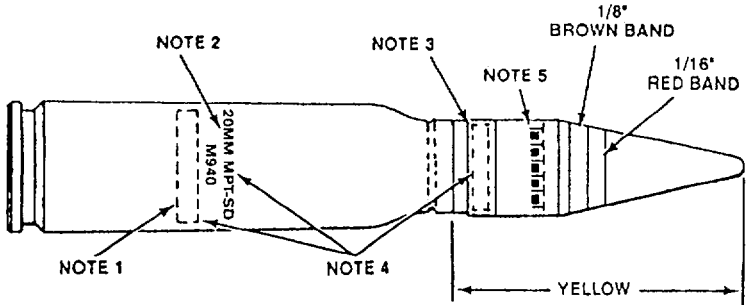
Figure D-5. Typical markings for cartridge 25.4mm Decoy, M839



- NOTES:
- 1 - PROJECTILE LOT NO.
  - 2 - AMMUNITION LOT NO.
  - 3 - 1/8" LETTERING WITH BLACK STENCIL INK
  - 4 - 3/16" LETTERING WITH WHITE STENCIL INK

U  
AR 5751

Figure D-6. Typical markings for cartridge 30mm TP, XM788

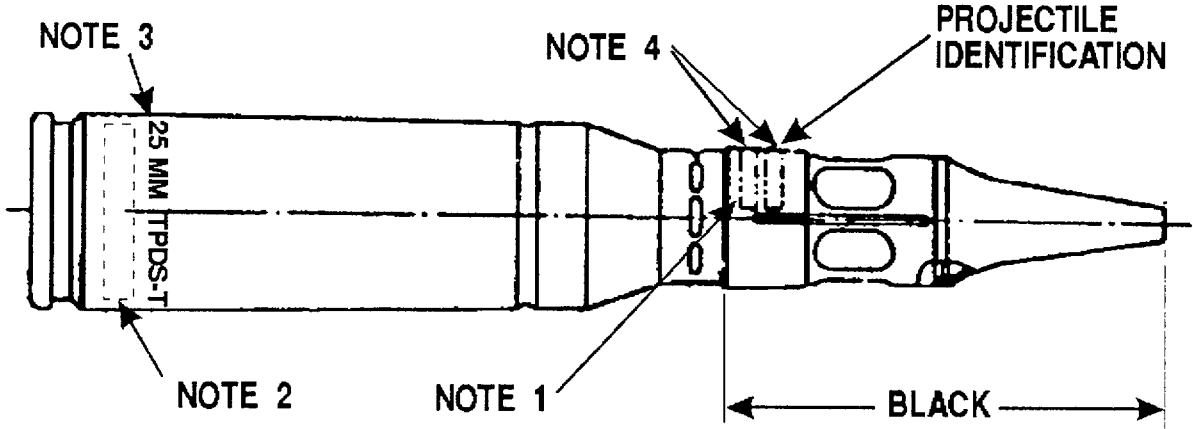


- NOTES
- 1. AMMUNITION LOT NO.
  - 2. 20MM MPT-SD, M940.
  - 3. PROJECTILE LOT NO.
  - 4. 1/8" LETTERING WITH BLACK STENCIL INK.
  - 5. 'T' MARKINGS IN RED INK.

U  
AR 4971

Figure D-7. Typical markings for cartridge, 20mm, MPT-SD, M940





**NOTES:**

- 1 - PROJECTILE LOT NO.
- 2 - AMMUNITION LOT NO.
- 3 - 3/16" LETTERING WITH BLACK STENCIL INK
- 4 - 3/16" LETTERING WITH WHITE STENCIL INK

U  
AR 6641

Figure D-8. Typical Marking for Cartridge 25mm, TPDS-T, M910

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