TM 9-1300-250

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

AMMUNITION MAINTENANCE

This copy is a reprint which includes current pages from Changes 1 through 7

HEADQUARTERS, DEPARTMENT OF THE ARMY
SEPTEMBER 1969

Change)
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No. 7)

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 15 June 1988

AMMUNITION MAINTENANCE

TM 9-1300-250, 25 September 1969, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. When an entire chapter or section is added or revised, the bar will be adjacent to the title only.

Remove pages	Insert pages
A	A (B blank)
5-5	5-5 (5-6 blank)

2. File this change sheet in front of the publication for reference purposes.

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To be distributed in accordance with DA Form 12-40A-R, Organizational Maintenance, Artillery Ammunition.

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ii	3
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TECHNICAL MANUAL
No. 9-1300-250

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *25 September 1969*

AMMUNITION MAINTENANCE

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 DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Armament, Munitions, and Chemical Command, ATTN: AMSMC-MAY-T(D), Dover, New Jersey 07801-5001. A reply will be furnished to you.

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CHAPTER 1
INTRODUCTION

1-1. Purpose and Scope

a. This technical manual provides general information and guidance for personnel engaged in maintenance of conventional ammunition. Detailed maintenance procedures for specific items of ammunition are covered in the TM 9-1300 series. See appendix A for detailed listing.

b. This TM is intended specifically for direct support (DS) and general support (GS) personnel engaged in ammunition maintenance. However, it contains an overview of all levels of maintenance. This TM does not apply to ammunition operations at DARCOM depots.

c. Demilitarization of ammunition is considered within the scope of maintenance operations.

d. Doctrine and policies applicable to DS and GS Ammunition Companies are covered in FM 9-6, FM 9-19, and FM 9-38.

1-2. Ammunition Maintenance Philosophy

a. Maintaining available assets of ammunition in the stockpile in a serviceable condition is the job of those organizations and individuals responsible for ammunition maintenance. The ammunition must be available and serviceable when it is needed.

b. In general, ammunition requiring maintenance falls into two broad categories: that affected by environmental conditions, and that rendered obsolete by advancing technology. The first category may require only preservation and packaging operations such as repalletizing, repacking, cleaning, rust removal, repainting, and remarking. The second category may require complex renovation, including the replacement of component parts under closely controlled conditions, to assure safety and reliability. The work in the first category should be accomplished at the lowest level of maintenance—organizational—but may be accomplished at any level where the ammunition is located. The second category usually requires skills, tools, and equipment and facilities not available below the GS and/or DS level.

c. Since substantial quantities of unserviceable ammunition may be found in stocks of ammunition outside the DARCOM depot complex, greater emphasis has been placed on maintenance as a means of assuring the availability and serviceability of the total ammunition stockpile. Obviously, returning this ammunition to a depot for maintenance would generate tremendous tonnage, severely tax transportation resources and increase costs. This makes it imperative that ammunition preventive maintenance, and preservation to preclude further deterioration, be emphasized through Army organizations involved with conventional ammunition.

1-3. Repair Parts, Tools, and Equipment

a. Tools and equipment having general application to the ammunition are authorized for issue by Tables of Allowance (TA), Tables of Organization and Equipment (TOE), and Repair Parts and Special Tools Lists (RPSTL) of the TM for the specific class of ammunition.

b. Special tools are listed in SC 4940-95CL-A11 for DS and SC 4925-95-CL-A03 for GS.

c. Repair parts and special tools required for maintenance of specific classes of ammunition are included in the RPSTL of the appropriate TM. Packaging materials are listed as repair parts.

d. Consumable/expendable supplies required for maintenance are listed in appropriate TM.

CHAPTER 2
CATEGORIES OF MAINTENANCE

2-1. General

There are three major levels of maintenance in which Army personnel involved are responsible. These maintenance responsibilities are as required in the DA TMs, related publications and regulations. These levels of maintenance are detailed in the Maintenance Allocation Chart (MAC) published in the Organizational Maintenance TM for specific materiel. The levels of maintenance are briefly described below in paragraphs 2-3 through 2-5.

2-2. Organizational Maintenance

Organizational maintenance is performed by all activities having conventional ammunition on hand including using units. It is performed to prevent deterioration of ammunition due to rough handling and exposure. Organizational units may call upon DS units for technical advice and assistance. Organizational maintenance involves cleaning, removal of minor rust and corrosion, repair and replacement of boxes, and restenciling of containers as prescribed in -10, -12, or -20 TM as required by MAC published therein.

2-3. Direct Support Maintenance

DS maintenance is 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.

e. Replacement of readily removable external parts and components such as, but not limited to, fuzes of artillery and mortar ammunition, propelling charges and primed cartridge cases for semifixed and mortar ammunition, grommets, and nose plugs.

2-4. Packaging and Packing Materials

Packaging and packing material authorized at DS level is limited in quantities due to storage space requirements. The fluctuations of day-to-day demand on ammunition issues make it extremely difficult to plan levels in advance so that actual quantities of packaging and packing materials will be on hand when required. A source of availability for packing material may be from unit turn-in, and requisitioning through supply channels following instructions implemented in AR 725-1 and AR 725-50. Packing and packaging materials are listed in appendix C.

2-5. General Support Maintenance

GS maintenance is performed by conventional ammunition maintenance detachments. Conventional ammunition maintenance detachments provide GS maintenance on conventional ammunition in depot complexes located in the communications zone (COMMZ). In addition, they can be deployed forward to the Army service area to perform certain tasks. GS maintenance units are responsible for accomplishing that part 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:

a. 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.

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

c. Demilitarization of ammunition when so directed.

2-6. Preservation Materials and Equipment

a. Packaging, packing material, and components will be requisitioned through supply channels in accordance with AR 725-22 and AR 725-50. Stock levels should be established and be based on demand criteria and on items listed in appendix C. The stockage list should be reviewed periodically in order to maintain levels that are commensurate with requirements.

b. Tools authorized to the ammunition maintenance detachment (GS) are listed in TOE, which will be used for basis of issue. SB 700-20 provides official identification of the current classification status of all items of materiel which have been type classified in accordance with AR 71-6, except obsolete items. Additional tools and equipment may be supplemented by the issue of equipment for maintenance and surveillance operations (TM 43-0001-47 and TB 43-0195), when authorized by the US Army Armament Materiel Readiness Command.

2-7. Reconditioning Equipment

Refer to TM 43-0001-47 and TB 43-0195 for equipment used for reconditioning operations.

2-8. Technical Procedures

GS procedures are generally limited as follows:

a. Cleaning and Painting. The procedures utilized for DS are applicable except that paint spray guns and abrasive equipment are utilized.

b. Part or Component Replacement. No locally developed procedure will be employed. Specific technical publications (depot maintenance work requirements) will be provided as needed on a case-by-case basis by the US Army Armament Materiel Readiness Command. These publications must be amplified to conform to local conditions and to reflect (through written Standing Operating Procedures (SOPs) the safety requirements, pertinent inspection requirements, personnel and explosives limits, exact designation of the equipment to be used, location and sequence of the operations to be performed, and a sufficiently detailed description of each step of the operation.

CHAPTER 3
SAFETY

3-1. General

Safety requirements when performing ammunition maintenance are covered in AR 385-10, the Army Safety Program; TM 9-1300-206, Ammunition and Explosives Standards, and maintenance manuals for specific items of ammunition.

3-2. Explosive Safety

a. Ammunition and explosives are relatively safe to handle as long as due consideration is given to the characteristics of each type of explosive involved, the method in which each is assembled, and the nature of the operation being performed. Personnel must adhere to the prescribed normal safety precautions and to any specific precaution in the applicable TM for the item.

b. TM 9-1300-206 contains safety requirements covering the following topics and other topics concerning ammunition.

(1) Fire-fighting procedures.
(2) Handling and storage of ammunition.
(3) Operational precautions.
(4) Quantity-distance requirements.
(5) Barricades.
(6) Operational shields.
(7) Personnel and explosives limits.
(8) Safety tools and equipment.

3-3. Safety Requirements for Renovation

Renovation operations are hazardous and require a thorough knowledge of the activities involved, the hazards to be guarded against, and the precautionary methods necessary for greatest protection to personnel and property. Before starting any operation involving ammunition or explosives, an adequate SOP (refer to para. 4-6) shall be developed and approved by the commander of the establishment or by a qualified member of his staff to whom has been delegated the responsibility for review of, and authority for approval of, the SOP. Controlled tests may be necessary in order to establish SOPs for certain operations. This SOP shall include, as a minimum, such items as safety requirements, personnel and explosives limits, equipment designation, and location and sequence of operations. No deviation from this procedure shall be permitted without the approval of the commander or his designated representative.

CHAPTER 4
DS/GS MAINTENANCE PLANNING

4-1. General

The proper performance of a maintenance operation depends primarily upon planning. Before work on any item is begun, each operation to be performed must be completely thought out. All of the tools and equipment used to do the job must be procured and distributed to the points where they will be used. Complete rounds or items to be worked on must be inspected. Necessary replacement parts or components must be determined, then procured, and stored. Supplies such as paint, varnish, steel wool, cardboard, and sealing compound must be obtained in the proper quantities. Men who are experienced in operation must be assigned to various sections of the job. Inexperienced men must receive training so that they will be able to help when needed. Technical information must be obtained so that the job will be performed correctly. Consideration must be given to safety so that each operation may be conducted with the minimum possibility of injury to either the operator or the equipment. Once the operations are under way, provisions must be made for removing bottlenecks and increasing production, making operations more simple, increasing safety, etc. The above examples are intended to give an idea of the nature of the planning. The system used in planning jobs of other types by deciding ahead of time—

What is to be done?

How the work is to be done?

Who is to do the work?

Where is the work to be done?

applies itself very well to maintenance; and the paperwork to be discussed later is merely a step in answering these questions so as to build up to an official line layout.

4-2. Job Planning Instructions

The reason for instructing as many men as possible in maintenance operations becomes obvious when the mission of an ammunition unit is considered. The unit may be confronted in the field with a tremendous amount of work. It may be necessary to draw on native labor in order to perform a number of jobs simultaneously, Small details of men may have to be sent to distant locations to perform other work. Then men in these details must utilize such labor and equipment as will be available to them. The men in the details then must rely upon their own knowledge to organize their line. They must do their own job planning and supervising.

4-3. Procedure

a. DS and GS support units will perform ammunition maintenance and demilitarization of ammunition only after receipt of a properly validated work authorization. Such work authorization will be the issuance of a Maintenance Request (DA Form 2407), an indorsement to Ammunition Condition Report (DA Form 2415), or a letter of proposal. Instructions in the use of these forms are specified in TM 38-750.

b. An assignment sheet (work order) can be added where a validated work authorization does not furnish sufficient information. It may be made up by the maintenance officer. The assignment sheet is a form of work order to be used within the organization and provides for, but is not limited to, the following:

(1) The scope of the maintenance job.

(2) The lot number and quantity of rounds (items) to be processed.

(3) The lot number(s) and quantities of replacement parts or components to be used.

(4) Special instructions on inspection, operations, hazards, disposition of unserviceable conponents resulting from operations.

(5) Those operations, which must be performed in order to process the material, consisting of replacing parts, painting, changing nomenclature, adding suffix, preparing data cards, etc.

(6) Listing of material to include quantity to accomplish the job (e.g., paint, banding material, tape, etc.).

c. Depot Maintenance Work Requirements (DMWRs) for renovation, repair, or demilitarization of ammunition are composed of a series of sheets in the form of a pamphlet. Each sheet is an operation study of the technical features of the operation to be accomplished. The DMWR shall be approved by the commanding officer or by a qualified member of his staff to whom has been delegated the responsibility for review and authority for approval of the DMWR. The sequence of operations may not be applicable to a DS or GS facility. DMWRs are prepared by the US Army Armament Materiel Readiness Command for a variety of installations operating on a comparatively large production basis. The manner in which the field unit does a job probably will be different from the manner in which an established depot does the same job. A DMWR received in the field will serve as a guide to the ammunition officer in making up the SOP. Figure 4-1 is a sample page of a DMWR.

d. When a work authorization has been received, with or without an assignment sheet, the unit will prepare the details and procedures for doing the work.

4-4. Organization

After the ammunition unit has received the authority to perform a maintenance operation on a particular

item, the unit officer first assembles all the information he can about the item to be processed. Drawings, specifications, technical manuals, directives and circulars pertaining to complete rounds in their proper packing are invaluable to him. He must become thoroughly acquainted with the technical features of the item.

SAMPLE

Section I. OPERATION NO. 1 — REMOVE ROUNDS FROM STORAGE, TRANSFER TO OPERATING LINE, AND UNPACK

2-1. DESCRIPTION OF OPERATION

a. Identify item, remove from storage, load on carrier, and transfer to operating line.

b. Unload from carrier and transfer to temporary storage bay and/or unpacking operation.

c. Unpack round and inspect for deterioration or any unusual condition that would render item unsafe to process in normal manner. (*Note 1*).

d. Transfer complete round to operation No. 2 (*Note 2 and 3*).

e. Transfer packing materials to Operation No. 7.

2-2. INSPECTION AND SAFETY REQUIREMENTS (SPECIAL)

Operator engaged in cutting or handling steel strapping or wire must wear leather-palmed gloves and face shield or safety goggles.

2-3. DISPOSITION OF COMPONENTS AND MATERIAL

a. Complete Round—to Operation No. 2.

b. Packing Materials—to Operation No. 7.

c. Deteriorated Rounds—to Operation No. 9.

2-4. EQUIPMENT REQUIREMENTS

a. Approved transfer equipment and hand tools.

b. Lid remover, pneumatic.

c. Leather-palmed gloves and face shields or safety goggles.

Note 1. Any round found unsafe to process in normal manner should be packed and transferred to destruction area for disposal.

Note 2. Protect primed cartridge case with suitable cap during transfer operation. Reference Paragraph 2618 of AMCR 385-100.

Note 3. Ammunition lot integrity must be maintained at all times in this and ensuing operations.

Figure 4-1. Sample page of DMWR.

The officer then turns the reference material over to the operational noncommissioned officer and the surveillance noncommissioned officer, who study the references closely. The job is discussed thoroughly with key noncommissioned officers to decide beforehand the method of procedure.

4-5. Process Flow Sheets

a. The first form to be made out will be a process flow sheet (fig. 4-2). A process flow sheet is a chart for recording, in a compact manner and in proper sequence, the operations found in an operating line. The chart begins with the ammunition to be processed coming from storage and follows it through each operation to the finished reworked item. Operations arranged in proper sequence fall naturally into four major groups. All types of ammunition to be processed must go through the following operations:

(1) Unpacking.
(2) Repairing.
(3) Disassembly.
(4) Replacing.
(5) Reassembly.
(6) Repacking.

For a more detailed explanation of each operation, see an adequate SOP. (para. 4-6).

b. In planning the flow sheets, the following questions should be considered:

(1) Can any operations be eliminated?

(2) Can any of the operations be combined?

(3) Can any operations be done better in a different order?

(4) Can any of the operations be simplified? (Work simplification will be included in the basic plan to the greatest degree possible and will be a continuing effort when line is in operation.)

c. Each operation is listed either as a primary or as a

secondary operation.

(1) A primary operation is one necessary to a smooth flow of production. It also may be called a main line operation.

(2) A secondary operation is one necessary to the completion of production, but not necessary to assure an immediate smooth flow. Secondary operations may be shunted from the main line operations into branch lines to be returned at a point farther along the main line.

d. Included in the flow sheet is a table listing the number of each operation, the personnel required, the tools to be used, and the materials needed.

(1) *Materials.* A careful study will be made of the requirements for materials to go into the product. Materials include such items as new components, sealing compound, paint, etc.

(2) *Equipment.* In selecting equipment, refer to TM 43-0001-47 and TB 43-0195. The most appropriate equipment available will be selected and used in the operation. Improvised tools planned for use should be approved by the appropriate commodity command.

(3) *Personnel.* The number of workers assigned to each operation will be kept at an efficient operational minimum.

e. The original flow sheet acts as a blueprint for the layout of the line. It is useful as a reference and as a guide for locating the various operating tables or operating rooms. Using the flow sheet, a clear picture of the job as a whole can be obtained. Changes probably will be made in methods, tools, personnel, and sequence of operations after work has begun. All the changes will be incorporated into the final flow sheet, and copies sent later to the next higher headquarters.

4-6. Standing Operating Procedures (SOP)

a. General. After the original process flow sheet is completed (fig. 4-2), the SOP will be prepared. It supplements the flow sheet by:

(1) Explaining the mechanics of operations in detail.

(2) Listing additional information such as special hazards and special operating methods.

(3) Grouping together the operations which will be performed in one unit of the line, operating room, or bay.

b. Instructions for Preparation of SOP Cover Sheet. The SOP cover sheet will be completed as illustrated in figure 4-3. Information applicable to each numbered line not listed below is considered self-explanatory.

Line 1—Installation. Insert the name of the installation.

OPERATION				Personnel required	Tools and equipment	Materials	Time required (min)
No.	Description	Primary	Secondary				
1	Open boxes, remove fiber containers.	X		2	Pliers		2
2	Inspect boxes and containers.	X		1			½
3	Strip tape from container, remove fuze, inspect.	X		1			1
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

Figure 4-2. Sample process flow sheet.

Standing Operating Procedure for:

2. ITEM: Cartridge 105 MM, HE M1, w Fuze PD M51A5 0.05 Sec. delay, 1315-C444 Class 4, Fire Symbol 4

3. OPERATION: Renovation

4. DEPOT ORGANIZATION SYMBOL AMXRC-Y

5. SOP No. AMXRC-1 DATE 4 Jun 67

5a. REV No. **DATE**

5b. CHANGE No. 3 **DATE** 8 Jul 67

6. AUTHORITY Ltr **DATE** 14 Aug 67
SMUAP-F, Subj: Refuzing Projectile

7. ESTIMATED PRODUCTION: Daily 350 **TOTAL** 19,000

8. PREPARED BY John A. Jones **TITLE** Equipment Specialist
PHONE EXTENSION 2461

9. REVIEWED BY Robert L. Smith **TITLE** Chief, Maintenance Branch

10. SUBMITTED BY David T. South **TITLE** Chief, Planning Branch

11. CONCURRENCES:

OFFICE	SIGNATURE	TITLE
SURVEILLANCE	Leo P. Hass	Chief, Surveillance Ofc
SAFETY	James T. Rosy	Chief, Safety Ofc
AMMUNITION DIV.	Will R. Flatt	Chief, Ammo Div
QUALITY CONTROL	Joseph H. Gunn	Chief, Quality Control

12. APPROVAL
John Q. Little
COL, USA
Commanding

Figure 4-3. Sample of standing operating procedures cover sheet.

Line 2—Item. Indicate the Federal supply classification (FSC) class, Department of Defense identification code (DODIC), and complete nomenclature, hazard classification, and fire symbol required for the item to be processed.

Line 3—Operation. Indicate the type of activity (e.g., renovation, care and preservation, demilitarization, shipping, inspection, or test, as applicable).

Line 4—Depot organization symbol. Insert the depot symbol followed by the office symbol for the responsible organization.

Line 5—SOP no. and date. Insert the depot symbol and the basic number for the SOP, beginning with 1 (e.g., AMXRC-1, AMXRC-2 etc.), and date of basic SOP.

Line 5a—Rev. no. and date. Enter revision number when complete revision of the SOP is made (e.g., Rev 1).

Line 5b—Change no. and date. Insert the change number to either the basic or revised SOP, whichever is applicable.

Line 6—Authority. Indicate the appropriate technical reference, modification work order (MWO), test procedure, etc., from which the SOP was developed.

Line 11—Concurrences. Indicate the division or office, typed name, signature, and title of each person whose concurrence must be obtained, based on local policy (e.g., Chief, Ammunition Surveillance Office; Chief, Ammunition Division; Chief, Safety Office; Chief, Maintenance, Renovation, or Demilitarization Branch; and Chief, Ammunition Quality Control Office).

c. Instructions for Preparation of Index of Operations. The index of operations will be completed as illustrated in figure 4-4.

Column 1. Indicate the operation number.

Column 2. Identify the building or site where the operations is being conducted. Identifying numbers will coincide with site plan drawings submitted.

Column 3. Insert the bay/room number to show the exact location of operation. Bay numbers will coincide with line layout drawings submitted.

Column 4. Indicate the total explosive limits for individual bays listed in column 3. Small arms ammunition and chemical ammunition without bursters may be listed by numbers of rounds. Explosive limits in a bay will include items in transit (e.g., on conveyors, skids, or trays).

Column 5. Insert a description of the operations (e.g., unpack, disassembly).

Column 6. Page number.

Remarks. Insert a brief description of the work to be performed. List waivers, exemptions, or approved deviations which apply to this operation. Insert the reason for a change or revision. If an SOP supersedes an SOP of another number, an explanatory statement and notice of supersession should be made.

d. Instructions for Preparation of Operations Format. The illustration of operations format, figure 4-5, is not intended to cover all situations, and the reflected information does not necessarily have complete or accurate steps. The illustration has been provided solely for the purpose of adding clarification to the written instructions below, applicable to lines A through L on the figures.

Line A—SOP for. Indicate the operation and nomenclature of the item being worked (e.g., "Care and Preservation of 155-MM HE M107").

Line C—Bay no. Show bay, room, or cubicle number.

Line G—Operation. Indicate the title of the operation (e.g., paint projectile).

Line H—Explosive limits. Indicate the number of units and pounds that have been determined to be necessary consistent with safe and efficient operation.

Oper no.	Bldg no. or site	Bay no.	Total expl. allowed in bay (Ref col. 3)	Description of operation	Page no.
1	4650	1	500 lb	Unpack	4
2	4650	2	200 lb	Disassembly	5

REMARKS:

Operation consists of defuzing, refuzing, and performing maintenance on item and packing material as required.

Exemption No. 16-64 is in effect as pertains to the location of Bldg 4650 to guard shelter.

Operation No. 27, Change 1: To provide for receipts of boxes from Operation No. 15, also to provide for receipt of and spray painting of powder drums.

Operation No. 14, Change 2: To add operation to clean and paint base plates.

Operation No. 14, Change 3: To provide for removing of stake burrs from base plates.

Figure 4-4. Sample of index of operations.

Line I—Personnel limits. Indicate the number of operators and transients allowed at the operation. Transients will include personnel servicing the operation, on-post and off-post visitors, supervisors, inspection personnel, and trainers undergoing cross training.

Line J—Step no., Description of operation, Specific instructions.

(1) The procedural details of work to be performed will be listed under Description of operation in a numbered and logical sequence. Description must be sufficient to allow the operator to accomplish task in a safe and technically correct manner. See figure 4-5.

(2) Procedural steps need not be listed in detail when contained in a DA publication. Reference will be made to the publication and exact section which describes the work to be performed. This section must be available at the location for ready reference and use by the operator. When the description in DA publications is too general to assure positive safety and technical adequacy or when security provisions preclude dissemination, the operation will be completely explained in the SOP without reference to the publication. Such interim procedures must be completely reviewed and

approved by the local safety office or the applicable technical manual proponent if it is deemed necessary by the local safety office. Such procedures must be kept within safety guidelines in TM 9-1300-206 and all specifics called out in the DA publication must be included. Varying from accepted, published procedures when working on ammunition can be dangerous.

(3) Specific Instructions furnish information about one specific step of the operation which has not been included in the actual description of physical work performed. Items to be listed here include quality characteristics, specific safety equipment or clothing required, safety precautions to be taken, and technical instructions pertaining to task accomplishment. All specific instructions will be identified to indicate the step and type of instruction: Safety (S), Operational (O), and Quality Characteristics (QC).

A. STANDING OPERATING PROCEDURE FOR: C & P of 155—MM HE M107

B. OPERATION NO. 3

C. Bay No.

D. SOP No. AMXZZ-100 **DATE** 5 May 67

E. Rev No. 1 **DATE** 10 Aug 67

F. Change No. 1 **DATE** 21 Aug 67

G. OPERATION: Paint projectile

H. EXPLOSIVE LIMITS: Units: 10 **EXPLOSIVE LBS:** 150

I. PERSONNEL LIMITS: Operators: 2 **TRANSIENTS:** 1

J

Step no.	Description	Specific instruction (safety, operational, quality characteristics.)
1.	Receive projectiles by power monorail from operation No. 2	1. (QC) Good workmanship—Visual *(DS-3) must be maintained.
2.	Activate paint spray booth.	2. (S) Assure that filters are clean and exhaust fan in paint spray booth is operating properly prior to start of operation.
3.	Spray paint cleaned projectile. Primer coat to be applied on any part of projectile where bare metal is exposed.	3. (QC) Rotating band covers must be present prior to painting. (QC) Paint coverage must be adequate.
4.	Projectiles will continue on monorail to operation No. 4.	*DS-3: The loaded projectile will be free of dirt, chips, grease, rust, and other foreign material.

K. SPECIAL REQUIREMENTS.

Equipment: Foreman will make periodic inspection of filters in paint spray booth and replace as necessary for effective operation of booth.

Surveillance will perform periodic test to assure that all grounding is adequate.

Maintenance personnel will inspect and perform maintenance on monorail conveyor system as frequently as is necessary to assure its continued safe and efficient operation. (This type of statement would only be required in the special requirements for the first operation where monorail is used.)

L. EQUIPMENT, TOOLS, GAGES, AND SUPPLIES.

Item	Qtr Req'd	Spec no. or dwg no.	NSN or APE no.
Enamel: Olive Drab, No. X34087, Lusterless, 1 gl	as req	TT-E-516	8010-00-297-2116
Enamel: Olive Drab, No. X34087, Lusterless, 1 gl		TT-E-516	8010-00-297-2113
Enamel: Olive Drab, No. X34087, Lusterless, 1 pt pressurized can		TT-E-516	8010-00-848-9272
Enamel: Light Green, No. X34558, Lusterless, 1 gl can	as req	TT-E-516	8010-00-828-3193
Paint Spray Booth, Ammunition	1 ea		APE 1045

Item	Qtr Req'd	Spec no. or dwg no.	NSN or APE no.
Conveyor, Monorail System	1 ea		APE 1044
Paint, System Hot Spray, Portable	1 ea		APE 1093

Figure 4-5. Sample of operation format.

Specific instructions will be located opposite the step in the operation description to which they are applicable and must not be placed opposite steps to which they do not apply. Refer to figure 4-5 for illustrations, examples, and explanations.

Line K—Special requirements. This space will include instructions which apply to one operation only and which normally do not apply to any other operation or to one particular step of an operation. Instructions may concern safety, technical aspects of the operation, defect standards, or equipment inspection requirements (fig. 4-5). Items covered under item J of the SOP need not be duplicated under item K.

4-7. Coordination

a. When the flow sheet, SOPs, index of operations, and operations format have been prepared, the Ammunition Officer with the assistance of his key NCOs provides the service section with a list of all special tools that will be required. This list includes any requirement for fabrication of special equipment. A listing of tools and material is given to the supply section.

b. A conference is held with the key NCOs for the purpose of reading the maintenance order and SOP. Each NCO is fully instructed in the operations for which he will be responsible (fig. 4-6), and is given a copy of the maintenance order and SOP. The line supervisor (NCOIC) makes a rough sketch of the line layout (para 4-8) for the Ammunition Officer's approval. It is the responsibility of the line supervisor (NCOIC) to receive all the tools and supplies needed to perform the operation from the supply section.

1. Assure that the proper segment of the SOP and/or the pertinent DA publication is posted conspicuously at the operation location and assure that it coincides with the operation being performed.
2. Retain a complete copy of the SOP in a location where it is immediately available to the foreman.
3. Instruct personnel under the foreman's supervision that omission of written safety requirement in the SOP does not indicate that safeguards are not needed; assure that safe work practices are observed at all times.
4. Assure that the quantity of explosives and the number of operators and transients authorized by the SOP are legibly and conspicuously posted in the operation location.
5. Thoroughly instruct each operator in his work assignment from a safety and operational standpoint, and perform follow-up to the degree necessary to assure that personnel are conforming with all safety requirements and performing in a manner which will produce quality and quantity.
6. Immediately stop any operation when an unusual or abnormal condition is encountered to the extent he considers it hazardous. Advise immediate supervisor of any unusual, abnormal, or hazardous condition encountered, and subsequently maintain close coordination and strict compliance with corrective action deemed necessary jointly by ammunition inspection (surveillance) and operations activities.
7. Assure that there are no deviations from, or violations of, the SOP.
8. Take corrective action on inoperative or defective equipment by reporting to the next echelon of supervision or requesting repair directly from qualified mechanics.
9. Assure through coordination with qualified equipment personnel that equipment operators under the foreman's jurisdiction are thoroughly trained and qualified to operate equipment from an operational and safety standpoint.
10. Assure that assembly of end items of ammunition is in accordance with component lot structure as specified by the planning activity.
11. Furnish day-to-day materials handling equipment (MHE) requirements relative to the number and type required to accomplish planned production.

12. Perform daily inspection of hand tools and mechanical devices to assure that they have not become unsafe for use as designed, either to the item being worked or to the operator.
Each operator assigned has been thoroughly trained and is familiar with his part of the operation. Operators have been instructed to follow this SOP at all times.
Signature of foreman _____ *Date* _____

Figure 4-6. Samples of responsibilities of ammunition NCO (foreman).

The NCO should be fully maintenance-minded and should be encouraged to originate all types of job aids and minor maintenance expedients.

4-8. Line Layout

a. The objective of all planning is the construction of the maintenance line and the actual processing of the item.

b. The line is arranged on the basis of the flow sheet and although it may take many forms, it usually will follow the **U** type line or the straight line.

c. The **U** line (fig. 4-7) is ordinarily employed when there is only one road available for use in supplying and removing processed items.

d. The straight line (fig. 4-8) is more readily employed whenever two roads are available; one at the incoming end of the line and the other at the outgoing end of the line.

e. A pilot run on a small sample may be tried out to determine if the initial SOP is sufficient and will turn out a satisfactory end product.

4-9. Completion Sheet

After completion of the job, the flow sheet (fig. 4-2) shall be revised to reflect details of the operations actually performed. The personnel, tools, equipment material and time required for each operation shall be included. Supply levels for future work can be established for similar operations.

4-10. Production Control

a. Production control should provide the following objectives:

(1) Estimates of man/machine/material requirements for new jobs, from past experience.

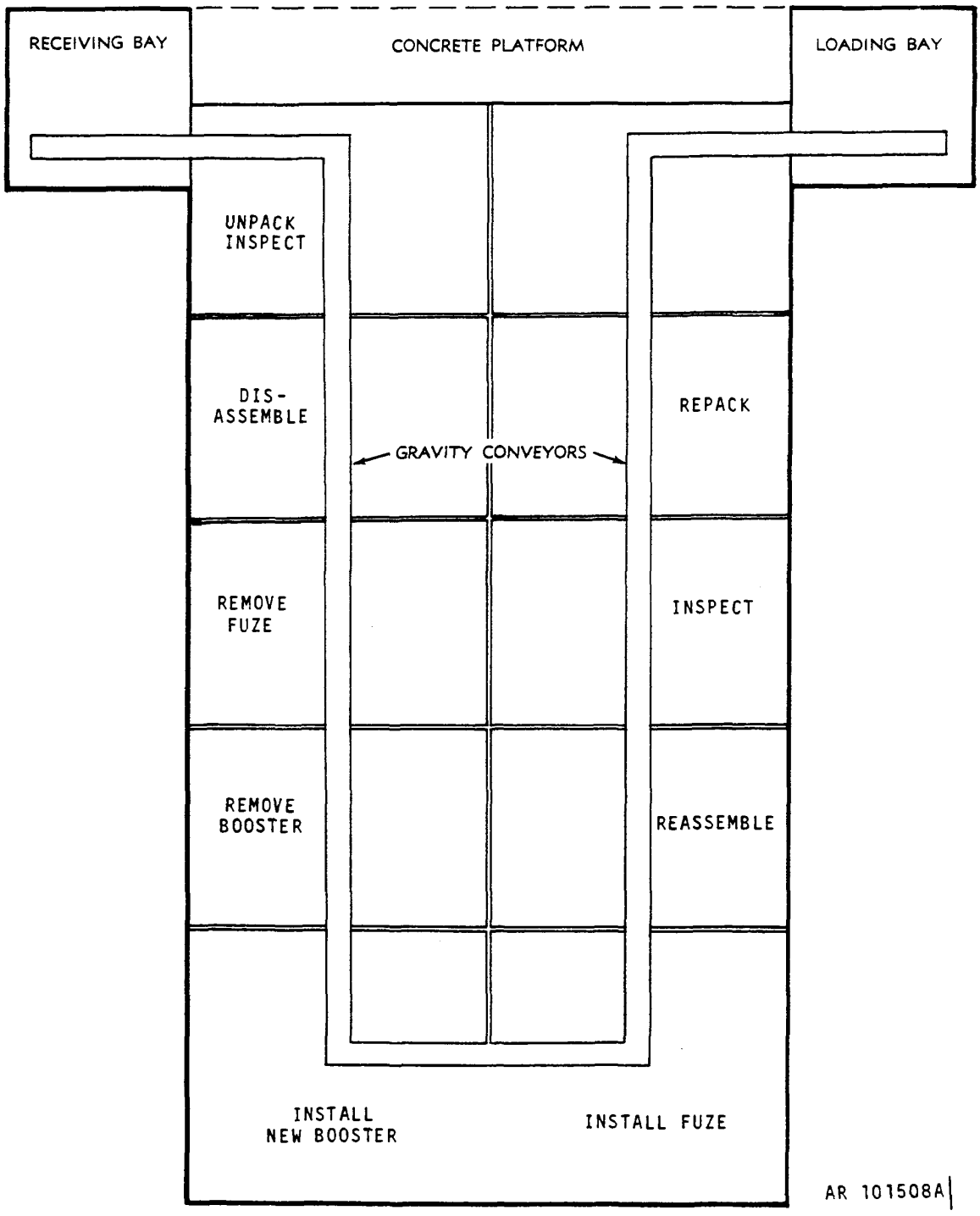


Figure 4-7. Sample U line operation.

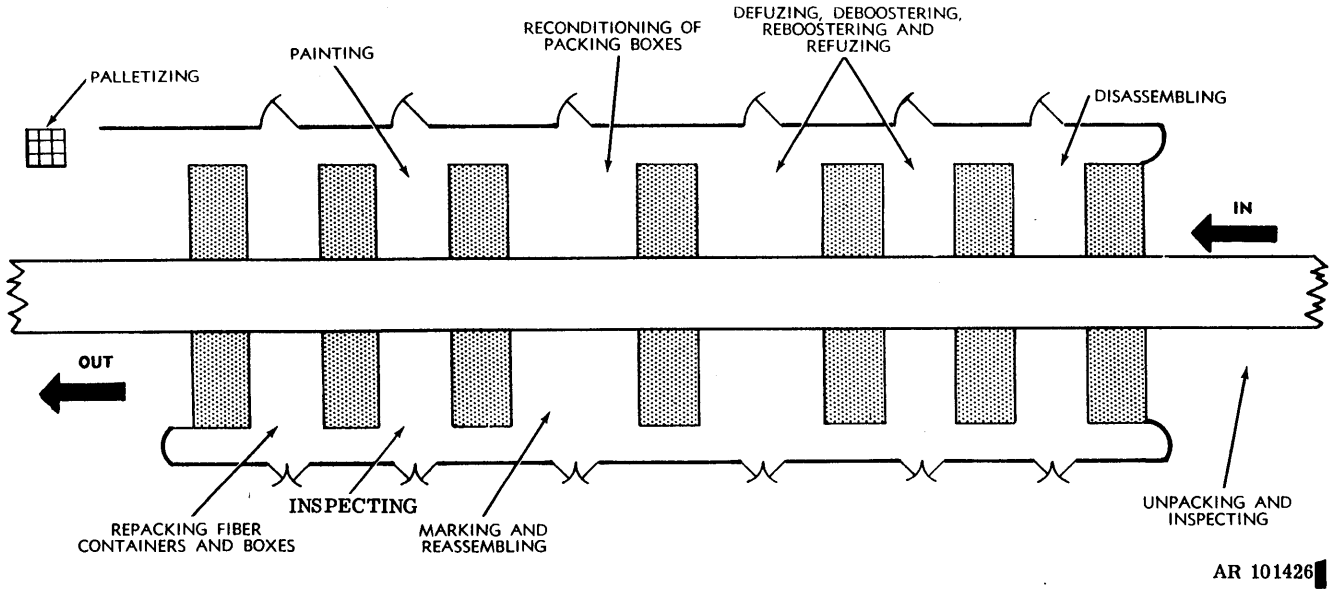


Figure 4-8. Sample straight line operation.

(2) Maintenance and controlled inventories.

(3) Production schedules on the basis of headquarters requirements and availability of all facilities of the line.

(4) Availability of all facilities for production at the time the job is scheduled.

(5) Maintenance of production levels for the best utilization of trained personnel.

(6) Keeping abreast of the current delivery dates of items to be renovated, the special machinery needed for the particular job and the component items that will be needed.

(7) Direction of the major flow of the item and component part transportation within the area.

(8) Receipt of reports of work done and evaluation of performance.

(9) Replacement when original plans are not carried out.

(10) Minimizing the idle time of men and machines.

(11) Maximizing the quality and quantity of renovated items completed.

b. Production control charts can provide assistance in attaining maximum production performance. Charts kept posted with timely information in a neat manner can provide a ready, valuable source of information for answering questions from higher headquarters and for forecasting bottlenecks and schedule slippages. A chart is also used for posting expected deliveries of ammunition to be renovated, component parts to be used in the renovation, and the special equipment needed for the particular job. The remoteness of several sections (lines), away from immediate control of the unit (section), necessitates the use of a chart-type control device to indicate the progress each operation has made on assigned jobs. The type of chart utilized is dependent solely on the situation and the supervisor.

4-11. Scheduling

a. Another inportant phase of production control is the scheduling of work to be performed. It establishes priorities, time of release to the line, and the sequence to be followed. A master schedule, designed to provide a convenient means of keeping a running total of production requirements, is used for scheduling purposes. A maintenance schedule is prepared for a particular operation indicating the name and number of products to be processed during a specified period. The manner is which this phase of production control is carried out must be adaptable to different types of installations and commands. Schedules should be established at GS level for 1 month and 6 months. The decision is influenced by workload, availability of equipment and personnel, and relative cost.

b. A widely used method of production scheduling is the control chart. It varies considerably as to type and scope of information. It may be in the form of a graph or mechanical device. The basic function of a control chart, irrespective of form devised, is to supply a quick, comprehensive, visual record of accomplishment against an established plan. This chart properly used, readily points out the need for investigation and correction of deficient accomplishment.

CHAPTER 5
INSPECTION REQUIREMENTS

Section I. GENERAL

5-1. General

This chapter outlines the requirements for inspection of ammunition in DS/GS ammunition maintenance organizations. These requirements are contained in all ammunition maintenance manuals for specific classes of ammunition -34 TMs (e.g., TM 9-1300-251-34).

5-2. Purpose

Inspections in maintenance organizations are one of the requirements of the Ammunition Surveillance and Quality Evaluation Program (see AR 702-6, AR 740-1, AR 742-9, and SB 742-1). Ammunition surveillance includes the observation, inspection, and classification of ammunition and components during movement, storage, and maintenance. Outlined in this chapter are the inspection at the time the ammunition is received in the maintenance shop, pre-maintenance, in-process, and final inspections.

5-3. Serviceability

a. Ammunition items will be inspected by a Quality Assurance Specialist (ammunition) or MOS 55X40 personnel under guidance of a Quality Assurance Specialist (ammunition), to determine serviceability or unserviceability according to SB 742-1 and pertinent SBs for the specific class of item.

b. Required maintenance for unserviceable material will be indicated on the inspection report. DS/GS units are limited to maintenance prescribed in the appropriate -34 TM for the specific class of ammunition.

5-4. Pre-maintenance

At the unpacking operation prior to start of work, the ammunition external packaging (or external surfaces, if not packaged) will be screened thoroughly. DS/GS will perform pre-maintenance screening.

NOTE

TM's (-12 and -34) contain a section for classification of defects. Table 5-1 is a sample.

5-5. In-Process

In-process inspections are an integral part of the maintenance procedures in the maintenance TM to assure that previous work is adequate and acceptable before going on to further operations.

5-6. Final Acceptance

a. The ammunition will be inspected after maintenance is completed to determine if the unserviceable item has been returned to a serviceable condition.

b. Quality Assurance Specialist (Ammunition), or MOS 55X40 personnel under the guidance of a Quality Assurance Specialist, will perform and certify this inspection before returning materiel to its storage area.

5-7. Inspection Methods

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

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

c. Gage Inspection. Checking an item with a measuring instrument or gage or a standard mating piece to determine if its size is acceptable in certain critical areas. (Standard mating piece is never to be used in place of a measuring instrument when a gage is available.)

Section II. CLASSIFICATION OF MATERIAL DEFECTS

5-8. General

Table 5-1 lists typical ammunition and packaging defects and provides a sample of the required method of inspection during maintenance for categories of defects. Categories of defects listed in the table are defined in SB 742-1. An AQL established for each defect is provided in table 5-1 for evaluation during final acceptance inspection. Details on the use of AQLs in the SBs and table 5-1 will not be covered in maintenance TMs; AQLs are to be used only by surveillance personnel who are already completely familiar with them.

5-9. 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 contained in DS/GS maintenance TMs (-34s) will be included as an integral part of all maintenance procedures.

5-10. Disposition of Lots After Maintenance

a. Each lot that meets the specified AQL is acceptable for issue and use.

b. Lots found with any critical, or with a sufficient number of major or minor defects to warrant rejection will be reworked and thoroughly inspected within the capability of the unit as specified in the MAC. If the required maintenance is beyond the capability of the unit and its supporting elements, request disposition instructions through command channels from the US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAD, Rock Island, IL 61299, in accordance with TM 38-750.

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. Suffixes will be obtained through command channels from the US Army Armament Material Readiness Command, ATTN: DRSAR-QAS, Rock Island, IL 61299.

Table 5-1. Classification of Material Defects

GENERAL PACKAGING

Component	Category	Defect	Method of Inspection	Reference	AQL
Outer Container	Major	Damaged, weathered, or rotted to extent contents are not protected or container is no longer structurally sound.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Container cap or closure insecure to extent contents are not protected.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.40
	Major	Contents loose to extent item may be damaged in handling.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Hardware or banding loose, missing, broken, or ineffective.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.65
	Minor	Handle or cleat missing or broken.	Visual	TM 9-1300-251-20 chapter 3	0.65
Inner Container	Major	Damaged to extent contents are not protected or cannot be readily removed.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.40
	Major	Barrier bag improperly sealed, torn, cut, or otherwise penetrated.	Visual	Reter to chapter IV	0.40
	Minor	Wet (except metal), rusted, moldy, or mildewed.	Visual	TM 9-1300-251-20 chapter 3	0.65
	Minor	Barrier bag edges delaminating but not yet unsealed.	Visual	Refer to chapter IV	0.65
WOODEN BOXES AND CRATES					
Hardware	Minor	Inoperative or loose.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.65
	Minor	Nails, screws, and fasteners which can be replaced or properly sealed.	Visual	TM 9-1300-251-20 chapter 3	0.65
Ends	Major	Damage which requires disassembly of box.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Broken or missing cleats and handles.	Visual	TM 9-1300-251-20 chapter 3	0.65
Wood	Major	Splits closer than 1 inch to edge of board or adjoining split or over 1/8-inch wide.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Warping which prevents insertion or removal of rounds and/or sealing of the box.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.40
	Major	Excessive mildew and mold which cannot be removed and which render markings illegible.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Holes or loose knots which exceed 1 1/2 inches in largest diameter of 1/3 width of board.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Knots greater than 1/4 the width of the skid.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Splits over 3 inches but no closer than 1 inch to edge of board or adjoining split; or 1/8-inch wide, which can be repaired by use of corrugated fasteners.	Visual	TM 9-1300-251-20 chapter 3	0.65
	Minor	Loose skids.	Visual	TM 9-1300-251-20 chapter 3	0.65
Strapping	Minor	Missing, rusted, or distorted.	Visual	TM 9-1300-251-20 chapter 3	0.65

Table 5-1. Classification of Material Defects – Continued
WOODEN BOXES AND CRATES — Continued

Component	Category	Defect	Method of Inspection	Reference	AQL
Wires	Major	Broken or rusted through.	Visual	Refer to chapter IV	0.40
Marking	Major	Incorrect and/or illegible.	Visual	Refer to chapter IV	0.40
		FIBER CONTAINERS			
Metal ends	Major	Perforations, excessive rust, or ends which are crushed or not securely crimped to body.	Visual	TM 9-1300-251-20 chapter 3	0.40
Body and cap	Major	Cuts, tears, or gouges closer than 1 inch to closure, more than 1/2 square inch in area, or through all impregnated layers.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Molded, mildewed; or rotted.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Wrinkled or peeling.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Blisters with combined area of more than 1/2 square inch.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Wet or soft containers.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Cuts, tears, or gouges not closer than 1 inch to closure, less than 1/2 square inch in area, and unpenetrated layers which can be spot painted.	Visual	Refer to chapter IV	0.65
Marking	Major	Incorrect and/or illegible.	Visual	Refer to chapter IV	0.40
		METAL CONTAINERS			
Body	Major	Dents which impair the structural integrity of the material.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Loose or leaking seams.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Rust which has caused pitting and perforations.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Perforated.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Damaged supports which are integral to container.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Dents deeper than 1/4 inch which may be removed without weakening structure of container.	Visual	TM 9-1300-20 chapter 3	0.65
	Minor	Minor rust which can be removed.	Visual	Refer to chapter IV	0.65
	Minor	Supports which can be replaced.	Visual	TM 9-1300-251-20 chapter 3	0.65
Caps and Covers	Major	Rust which has caused excessive pitting.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Perforated.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Minor rust which can be removed	Visual	Refer to chapter IV	0.65
Marking	Major	Incorrect and/or illegible	Visual	Refer to chapter IV	0.40
		METAL BOXES			
Body and Cover	Major	Extensive pitting and rust.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Split seams.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Dents, which cause creases or folds in metal which cannot be removed.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Perforated.	Visual	TM 9-1340-222-20	0.40
	Major	Missing or broken separators.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Minor rust which can be removed.	Visual	para 4-6	0.65

Table 5-1. Classification of Material Defects—Continued
METAL BOXES—Continued

Component	Category	Defect	Method of Inspection	Reference	AQL
Body and Cover (Continued)	Minor	Dents exceeding 4 square inches per side, end or top or deeper than 1/4 in.	Visual	TM 9-1300-251-20 chapter 3	0.65
	Minor	Damaged or missing gaskets.	Visual	TM 9-1300-251-20 chapter 3	0.65
Marking	Major	Incorrect and/or illegible.	Visual	para 4-20	0.40
		FIXED AMMUNITION (EXCEPT 152-MM)			
Projectile	Critical	Distorted or out-of-round projectile.	Gage	—	1.00
	Critical	Exudation of filler around fuze well.	Visual	—	1.00
	Major	Corrosion in nose fuze well or supplementary charge.	Visual	—	0.40
	Major	Rust or corrosion at bourrelet.*	Visual	—	0.40
	Major	Damaged rotating band.	Visual	—	0.40
Fuze	Major	Corrosion on nose fuze body (See Nose Fuzes for additional defects).	Visual	—	0.40
Cartridge case	Critical	Cracked or split cartridge case.	Visual	—	1.00
	Critical	Liner of 106-mm recoilless rifle cartridge case damaged to extent that propellant can escape.	Visual	—	1.00
	Major	Corrosion on cartridge case and/or primer.	Visual	—	0.40
	Major	Severe cartridge case dents.	Visual	—	0.40
	Major	Liner of 106-mm recoilless rifle cartridge case damaged but not to the extent that propellant can escape.	Visual	—	0.40
Marking	Major	Incorrect and/or illegible.	Visual	—	0.40
		SEMI-FIXED AMMUNITION (EXCEPT MORTAR)			
Projectile	Critical	Distorted or out-of-round projectile.	Gage	—	1.00
	Critical	Exudation of filler around fuze well.	Visual	—	1.00
	Major	Rust or corrosion at bourrelet.*	Visual	—	0.40
	Major	Corrosion in fuze well or on supplementary charge.	Visual	—	0.40
	Major	Damaged rotating band.	Visual	—	0.40
Fuze	—	(See Noze Fuzes additional defects).	—	—	—
Propelling Charges	Criticial	Damp or wet bag(s).	Visual	—	—
	Major	Deteriorated propellant bag (loss of tensile strength).	Manual	—	0.40
	Major	Damaged propellant bag.	Visual	—	0.40
	Minor	Discolored propellant bag (no loss of tensile strength).	Visual	—	0.65
Cartridge Case	Critical	Cracked or split cartridge case.	Visual	—	1.00
	Critical	Rust or corrosion that penetrates base plate.	Visual	—	1.00
	Major	Corrosion on cartridge case and/or primer.	Visual	—	0.40
	Major	Severe cartridge case dents.	Visual	—	0.40
Marking	Major	Incorrect and/or illegible.	Visual	—	0.40
Mortar Cartridge	Critical	Missing or broken safety pin or clip on fuze.	Visual	—	—
Inner pack	Major	Jungle wrap cut, penetrated or otherwise unsealed.	Visual	—	1.00
		152-MM AMMUNITION			
Projectile	Critical	Distorted or out-of-round projectile.	Gage	—	1.00
	Critical	Exudation of filler around fuze well.	Visual	—	1.00
	Major	Major rust or corrosion (more than 2 square inches or pits from corrosion) on projectile.	Visual	—	0.40
	Major	Damaged rotating band.	Visual	—	0.40
Fuze	Major	Corrosion on nose fuze body (See Nose Fuze for additional body defects).	Visual	—	0.40

Table 5-1. Classification of Material Defects—Continued

152-MM AMMUNITION—Continued

Component	Category	Defect	Method of Inspection	Reference	AQL
Cartridge Case	Critical	Cartridge case base separated from cartridge case body.	Visual	—	1.00
	Critical	Cartridge case separated from projectile (pull back rubber barrier bag to observe junction).	Visual/ Manual	—	1.00
	Critical	Loose ignition element.	Visual/ Manual	—	1.00
	Major	Cartridge case with open cracks or loosely assembled to projectile.	Visual/ Manual	—	0.40
	Major	Torn or missing rubber barrier bag.	Visual	—	0.40
	Major	Corrosion on ignition element or fuze body.	Visual	—	0.40

*See footnote at end of table.

Table 5-1. Classification of Material Defects-Continued

GENERAL PACKAGING

Component	Category	Defect	Method of Inspection	Reference	AQL
		SEPARATE-LOADING PROJECTILES			
Projectile	Critical	Distorted or out-of-round body	Gage	-	1.00
	Critical	Exudation of filler.	Visual	-	1.00
	Critical	Rust through projectile base plate.	Visual	-	1.00
	Major	Rust or corrosion over bourrelet.*	Visual	-	0.40
	Major	Corrosion in fuze well or on supplementary charge.	Visual	-	0.40
	Major	Damaged rotating band.	Visual	-	0.40
	Major	Damaged obturating band.	Visual	-	0.40
Projectile	Critical	Missing rocket motor cap.	Visual	-	1.00
	Critical	Damaged or missing obturating band HERA rounds only.	Visual	-	1.00
	Critical	Evidence of looseness or excessive gap at threaded joint HERA rounds only.	Visual/ Manual	-	1.00
	Critical	Broken lifting plugs-threaded area remains in fuze well of projectile, for M549/M549A1 only.	Visual	-	1.00
		PROPELLING CHARGES			
Propelling Charge	Critical	Missing or broken central igniter tube.	Visual	-	1.00
	Critical	Blocked central igniter core.	Visual/ Manual	-	1.00
	Critical	Missing or off center base igniter pad or missing igniter core.	Visual	-	1.00
	Critical	Missing bag, extra bag, or incorrect sequencing of zones.	Visual	-	1.00
	Critical	Missing or loose lacing jacket.	Visual/ Manual	-	1.00
	Minor	Tie straps not tied or looosely tied.	Visual/ Manual	-	0.65
	Major	Missing flash reducer.	Visual	-	0.40
	Major	Bag(s) torn or damaged to extent that black powder or propellant can escape.	Visual	-	0.40
	Major	Deteriorated propellant bag.	Manual	-	0.40
	Major	Lumpy or caked powder in ignition pad.	Manual	-	0.40
Container	Major	Container damaged to extent that propelling charge cannot be removed	Manual	-	0.40
	Major	Metal container lid gasket missing, out of place, damaged, or deteriorated.	Visual	-	0.40
	Major	Damaged or deteriorated container with penetration	Visual	-	0.40
		NOSE FUZES			
Nose Fuze	Critical	Missing or broken safety pin or clip (howitzer and mortar fuzes only).	Visual	-	1.00
	Critical	Loose nose cap.	Visual	-	1.00
	Critical	Missing or broken component.	Visual	-	1.00
	Critical	Corrosion on time rings.	Visual	-	1.00
	Critical	Severe physical damage.	Visual	-	1.00
	Critical	Fuse is suspected of being armed.	-	-	0.40
	Major	Corrosion on fuze body.	Visual	-	0.40
	Major	Loose booster assembly (only for fuzes that are not assembled on rounds).	Manual	-	0.40
		BURSTERS (REPLACEMENT ITEMS ONLY)			
Burster	Critical	Explosive and/or exudation.	Visual	-	1.00
	Critical	Missing onion skin seal, felt-pad, base plug, or closure.	Visual		1.00
	Major	Lack of record indicating recently pased 100 percent X-ray inspection (tetytol).	Visual	-	0.40
	Major	Physically damaged case.	Visual		0.40

*The bourrelet is a finely machined band or ring of metal just behind the ogive of a projectile, and designed to support the front portion of the projectile, riding the lands as it travels through the bore of a gun.

CHAPTER 6
LOT NUMBERS

6-1. General

a. This chapter describes the old and the new lot numbering systems and the lot number markings used to identify ammunition and explosive material.

b. The purpose of lot numbering of ammunition outlined here is to provide the identification of material necessary to assure accurate control of the movements of items, to conserve and maintain surveillance records and to provide a means of withdrawing from service defective, deteriorated, hazardous, or obsolete ammunition and explosive material.

6-2. Description, Use, and Responsibility of Lot Numbers

a. Old System. The out-of-date system, which remains in the field for all ammunition, the lot number consists of a manufacturer's identification symbol, followed by a dash and the serial number as illustrated:

ABC—8—124
(1) (2) (3)

(1) *Manufacturer's identification symbol.* The manufacturer's identification symbol will consist of one, two, or three letters assigned in a manner indicating the identity of the arsenal, plant, depot, or station, in case of loaded items, or indicating the contractor in case of components. For the Army, the Ammunition Procurement and Supply Agency will assign the manufacturer's identification symbols to the manufacturer's of ammunition and ammunition components.

(2) *Interfix number.* Each lot number, including that of the first lot, will have an interfix number between the manufacturer's identification symbol and the serial number. The interfix number indicates the lots made according to a specific design or manufacturing procedure.

(3) *Serial number.* The serial number will identify the lot according to the sequence of production. A number will be assigned to each lot regardless of the final disposition. The serial number will begin with 1 and continue in sequence until production of the item is terminated or a change is made in the item or its production which requires a different interfix number.

b. New System. For all ammunition end items and their components including small arms, chemicals, grenades, mines, pyrotechnics, etc., the ammunition lot number consists of a manufacturer's identification symbol, a numeric code showing the year of production, an alpha code representing the month of production, a lot interfix number followed by a hyphen, a lot sequence number and when necessary, an alpha character used as an ammunition lot suffix to denote a reworked lot. The ammunition lot number does not exceed fourteen (14) characters in length and no characters are separated by spaces. The minimum number of characters used is thirteen (13). If a one or two character manufacturer's identification code is used, the remaining positions of the three (3) character field are filled by dashes (—), e.g. A— —, AB—, etc. The following illustrates the construction of an ammunition lot number:

AMC 75 D 018 — 124 B
(1) (2) (3) (4) (5) (6)

(1) Manufacturer's identification symbol.

(2) A two (2) digit numeric code identifying the year of production.

(3) A single alpha code signifying the month of production.

(4) Lot interfix number.

(5) Lot sequence number.

(6) Ammunition lot suffix (the alpha suffix).

6-3. Description and Use of Lot Numbers for Maintenance Operations

a. Old System. For renovated, modified or regrouped operations which are performed subsequent to acceptance of the munitions into the stockpile and to restore them into issuable condition, the lotting will be accomplished as listed below:

(1) *Ordinary maintenance.* Where new components replace like components (same model number), a lot suffix will be assigned by the responsible service. *Example:* US Army, Korea, Special Ammunition Depot 200 replaces fuzes on complete round Lot LOP-1-8—the suffix furnished changes the lot number to LOP-1-8A, B, C, etc., as applicable.

(2) *Extensive maintenance.* Where components replace different components, components are added or where work is extensive enough to warrant model number change (e.g., from Cartridge, 90-MM: HE, M71 to HE-T M71A1; from Fuze, M52 to M525; from Fuze, M500A1 to M520A1), new lots will be formed in accordance with the requirements of the maintenance directive. Lot numbers will be assigned in the normal manner except that the interfix number will start with 500 instead of 1, and the manufacturer's symbol will be that of the facility performing the work.
Example: US Army Depot, Miesau, Germany, modifies

Fuze, MTSQ, M500A1, Lot MA-2-23 which then becomes Fuze, MTSQ, M520A1, Lot number RHN-500-1 is assigned.

(3) *Other maintenance (regrouping).* Where numerous lots are regrouped to form one lot, regardless of whether ordinary or extensive maintenance is performed in conjunction with regrouping or not, a new lot number will be assigned.

Example: US Army, Fort Amador, Canal Zone regroups 81-MM Lots MA-2-24, MA-2-26, MA-2-28, etc., Lot number CRV-600-1 is assigned.

(4) *Lot suffixes.* Lot suffixes are furnished the maintenance facility, on request to the US Army Armament Materiel Readiness Command, ATTN: DRSAR-QAS, Rock Island, Illinois 61299. In those instances where maintenance projects are canceled or indefinitely delayed, the maintenance facility will request cancellation of the assigned suffix(es).

b. New System. For renovated, modified or regrouped operations which are performed subsequent to acceptance of the munitions into the stockpile and to restore them into issuable condition, the lotting will be accomplished as listed below:

(1) *Ordinary maintenance.* Where new components replace like components (same model number), a lot suffix will be assigned by the responsible service.

Example: US Army, Korea, Special Ammunition Depot 200 replaces fuzes on complete round Lot LOP-1-8—the suffix furnished changes the lot number to LOP-1-8A, B, C, etc., as applicable.

(2) *Extensive maintenance.* Where components replace different components, components are added or where work is extensive enough to warrant model number change (e.g., from Cartridge, 90-MM: HE, M71 to HE-T M71A1; from Fuze, M52 to M525; from Fuze, M500A1 to M520A1), new lots will be formed in accordance with the requirements of the maintenance directive. Lot numbers will be assigned in the normal manner except that the interfix number will start with 500 instead of 1, and the manufacturer's symbol will be that of the facility performing the work.

Example: US Army Depot, Miesau, Germany, modifies Fuze, MTSQ, M500A1, Lot MA-2-23 which then becomes Fuze, MTSQ, M520A1, Lot number RHN81A001M001 is assigned.

(3) *Other maintenance (regrouping).* Where numerous lots are regrouped to form one lot, regardless of whether or not ordinary or extensive maintenance is performed in conjunction with regrouping, a new lot number will be assigned.

Example: US Army, Fort Amador, Canal Zone regroups 81MM Lots MA-2-24, MA-2-26, MA-2-28, etc., Lot number CRV81A001G001 is assigned.

(4) *Lot suffixes.* Lot suffixes are furnished the maintenance facility, on request to the US Army Armament Materiel Readiness Command, ATTN: DRSAR-QAS, Rock Island, IL 61299. In those instances where maintenance projects are canceled or indefinitely delayed, the maintenance facility will request cancellation of the assigned suffix(es).

6-4. Manufacturer's Identification Symbol

a. Manufacturer's identification symbols are all capital letters and do not exceed three (3) alpha characters. This symbol is a part of the ammunition lot number. It is used to identify the arsenal, plant, depot, station, private contractors, vendors, etc., which manufactured, assembled, renovated, modified or loaded the specific lot of ammunition. It is used in the marking of the ammunition and the ammunition packings to assure the accurate control of ammunition, ammunition components and explosive materiel during movement, storage, maintenance, issue, and receipt transactions.

b. Manufacturer's identification symbols are assigned to each manufacturer of ammunition, ammunition components and explosive materiels. Different symbols for each plant are assigned to those manufacturers who have more than one plant producing ammunition items for the Government.

Example: Aerojet—General Corp., Azusa, California—symbol "AJA,"
Aerojet—General Corp., Sacramento, California—symbol "AJL,"
Aerojet—General Corp., Fullerton, California—symbol "AJD,"
Aerojet—General Corp., Solid Rocket Plant, Sacramento, California—symbol "AJS."

Different symbols are assigned for individual plants when the same manufacturing concern has two or more different plants in the same city. These provisions apply also to those manufacturers who operate GOCO facilities in addition to producing ammunition items for the Government at privately owned facilities. It is the responsibility of this organization to assure that no manufacturer's identification symbols be duplicated. For more detailed information consult MIL-STD-1168A, 28 February 1975.

CHAPTER 7
SOURCES OF MAINTENANCE DATA

7-1. General

Personnel performing ammunition maintenance operations must be fully acquainted with the item of ammunition to be processed (inspected) prior to carrying out any of the necessary operations. Sources of information consist of drawings, technical publications, data cards, and depot munitions work requirements.

7-2. Drawings

a. Operations dealing with the renovation of ammunition, are too dangerous to be attacked haphazardly. The renovator must be absolutely sure of his ground at all times. He might be drilling booster cavities, removing setscrews, defuzing, deboostering, or performing other equally hazardous operations. Therefore, he must have an accurate guide to tell him the details of the material with which he is working. These guides are his drawings. Their accuracy is his bible and he must learn to read them, to understand them, and to use them at all times. Drawings indicate:

(1) Proper packing, stenciling, painting, and marking of ammunition components.

(2) How the parts are constructed, points of inspection, explosive fillers and where they are located, under what conditions the explosive may be ignited, and what parts are apt to damage through rough handling.

(3) How to accomplish the breakdown of fuzes and to assemble components. From these drawings the renovator can determine what to do, how and when to do it, which operations must be done behind a barricade, and which may safely be done in the open.

b. Drawings are normally included in the work requirements publication. Where additional drawings are considered necessary, such drawings will be requested directly from the US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAD, Rock Island, IL 61299 to assure that the drawing provided pertains to the current task.

7-3. Ammunition Data Cards

a. Definition. An Ammunition Data Card (Department of Defense Form Number 1650) is an easily referenced record of the initial history of a lot of ammunition and explosive materiel or a serially numbered complete round guided missile which contains all required data pertaining to each lot of the item. Ammunition data cards are not included with small arms ammunition up to and including caliber .50.

b. General Requirements.

(1) When maintenance operations specified in paragraph 6-4 are performed, a new data card will be prepared by the facility performing the maintenance.

DEPARTMENT OF DEFENSE
AMMUNITION DATA CARD

Form Approved
Budget Bureau No. 22-R0269

1. ITEM NOMENCLATURE	2. NSN	3. LOT NUMBER
CARTRIDGE, 81MM: HE, M43A1 w/Fuze, PD, M525	1315-00-555-4478(C225)	RHN78B001M001*

4. MANUFACTURING LOADING OR ASSEMBLING ACTIVITY	5. NET QUANTITY	6. PACKING OF LOT
USA Depot, Miesau, Germany	1946	1/fbr cntr, 4wdn box

7. CONTRACTOR	8. CONTRACT OR ORDER NO.	9. DRAWING OR REVISION	10. SPECIFICATION & REVISION
USA Depot, Miesau		75-1-88, Rev 6	MIL-S-16307,Oct 1949

11. DATE STARTED	12. DATE COMPLETED	13. DATE INSPECTED	14. LINE	15. ZONE WT SHELL
5 Feb 78	6 Feb 78	5-6 Feb 78	C	

16. CHARGE WEIGHT	16A. INDEX OF POWDER	16B. MPD IN INCHES	16C. PPDR IN INCHES
661 grains, RAD38342			

16D. EXPLOSIVE WT. PER PKG	17. EXPECTED MUZZLE VELOCITY	18. EXPECTED PRESSURE	19. SHELL WEIGHT
	704 FPS	4750 PSI	7.15 lb

20. NUMBER OF TEST SAMPLES	21. SENT TO	22. DATE AND MODE OF SHIPMENT

23. COMPONENTS *(Continue on reverse, if necessary)*

COMPONENT	DRAWING NO.	MODEL	MANUFACTURER	DATE MFG.	LOT NO.	QUANTITY
Shell, HE	75-2-261C 20	M43A1B1	Mullins Mfg Co	1953	MUA-7-4 -7-5	
Fuze, PD	73-1-161A2	M525	IOP(body)	1953	IOP-38-439 -38-440	
Head Assy	C8800199	T336E7	REX-5-3	1967	REX-5-3	

24. DISPOSITION

Provisionally accepted

25. TYPED NAME OF GOVERNMENT INSPECTOR

CASEY JONES

SIGNATURE

DD FORM 1 FEB 68 1650 (FRONT)

*The old Lot number is represented by RHN-500-1.

23A. COMPONENTS *(Continued)*

COMPONENT	DRAWING NO.	MODEL	MANUFACTURER	DATE MFG	LOT NO.	QUANTITY
Fin Assembly	75-2-26A22	M3	Scheible Co.	1953	SC-2-71, -2-81	
Primer, Perc	74-2-51A9	M34	Milan Arsenal	1952	MA-2-223	
Ctg Ignition	75-19-79G4	M8	Federal Lab Inc.	1953	FLI-1-65	
Bursting Charge TNT Flake	75-14-192B4	Grade 1	Kankakee Ord	1953	KNK-2-2001 2-2066	
Increment Prop	71-12-15A5	M1A1	Radford Arsenal	1953	RAD-38-342	
Increment Holder	71-12-19D3	M2A1	Walsh Mfg Co	1953	WMC-1-36	

26. REMARKS *(Identify by appropriate symbols: *Changes in process; **Deviations from drawing or specification; ***Unusual occurrences or difficulties)*

Other remarks:

1946 rds, Lot KOP-9-165C, renovated at U.S. Army Depot, Miesau, Germany, 2-78. Renovation consisted of modifying M52B10 fuze to M525 configuration. Head assembly removed and replaced by T336E7 head assembly, Lot REX-5-3. New head assemblies were repositioned and surveillance verification performed. NSN 1315-00-028-0469 (C225) changed to 1315-00-555-4478 (C225). Authorization for renovation, ltr; SMUAP-RE, 1st Ind, 18 December 1967, Renovation certified by Casey Jones, Ammo Inspector (Surv)

(BACK)

Figure 7-1. Ammunition data card. (SAMPLE)

(2) Data cards may be reproduced by mimeograph, offset printing, individual typing, or any other process which results in a clean, black image that lends itself to 35MM microfilm reduction.

(3) The basic format of the data card is included in figure 7-1. This format provides space for both the general and the detailed information required. The information required will vary with the item.

c. Required Information. The installation performing the maintenance operation is responsible for preparing a new Ammunition Data Card, DD Form 1650, in accordance with the following instructions:

(1) *Ordinary maintenance.*

(a) Spaces 1 through 25, as applicable, with the exception of spaces 3, 23, 23a, and 26. Transcribe information contained in basic data card to card to be completed by the renovating facility.

(b) Space 3—lot. Insert the complete lot number or serial number of the item represented by the data card. Indicate the reworked lot by using the applicable alphabetical suffix specified in the authorization document for the renovation of the item.

(c) Space 23—components. The information about components to be placed on data cards for loaded items differs from that to be placed on data cards for inert items. For loaded items, information will be furnished for each component part, such as subassembly, explosive, propellant, or other material used in the assembly of the loaded item described by the data card. Compilation of data applicable to components is as follows:

1. Component. Give the approved item name. *Example:* Head Assembly.

2. Drawing number. Enter the drawing number, revision letter and applied E.O.s, if any.

3. Model. Enter the model number for any item or subassembly to which a model number has been assigned. *Example:* T336E7.

4. Manufacturer. Give the name of the manufacturer of each lot of each component used. If any parts are furnished by a supplier other than the one identified in space 7, then the complete information required by the loaded item description shall be furnished (i.e., the identity of the supplier, date manufacture, lot number and quantity). *Example:* REX

5. Date manufactured. Enter the month and year (if available) during which each lot of each component was made. *Example:* 1966

6. Lot number. Enter the complete lot number of each component used in loading the item. *Example:* REX-5-3

7. Quantity. When more than one lot of the same component is used in the assembly of the loaded item, the quantity from each lot, within five percent, will be indicated in the column. No entry will be necessary when all components of each type are from the same lot.

8. Inert items. For inert items which are manufactured by more than one manufacturer, all seven sections of the components section, space 23, shall be filled out. If the inert items consist of items made by a single manufacturer, only information pertaining to components, drawing numbers, models and quantity should be included. Quantity is the number of units of each component in the lot.

(d) Space 23a. This is a continuation of pace 23 to be used when required. If additional space is needed beyond that provided, the list of components may extend into the Remarks section.

(e) Space 26—remarks. The following information will be included under Other Remarks:

1. Description of any unusual or important methods of inspection.

2. Serial numbers of item. When the items in the lot are serially numbered, list the serial numbers of all items included in the lot.

3. Description of method of rework or renovation used to rework rejected or unserviceable lots.

(2) *Extensive maintenance, other maintenance (regrouping) (see fig. 7-1) spaces 6, 9, 10, 15, 17, 18, and 19.* Transcribe the information contained in the basic card to the new card. Remaining spaces—compile the required data specifically affecting the maintenance operation being performed. Regarding item 23, when regrouping, list the lot numbers which are grouped (regrouped) to form the new lot.

APPENDIX A
REFERENCES

1. Administrative Publications

a. Army Regulations.

Type classification/reclassification of Army materiel ..... AR 70-61
Physical security of weapons, ammunition, and explosives ..... AR 190-11
Publications, blank forms and printing management ..... AR 310-1
Dictionary of United States Army terms ..... AR 310-25
Authorized abbreviations and brevity codes ..... AR 310-50
Department of the Army supplement to DOD 5200.1-R (DODISPR) ..... AR 380-5
Army safety program ..... AR 385-10
Fire prevention and protection ..... AR 420-90
Identification of inert ammunition and ammunition components ..... AR 385-65
Malfunctions involving ammunition and explosives ..... AR 75-1
Ammunition stockpile reliability program (ASRP) ..... AR 702-6
Post-Production Testing of Army Materiel ..... AR 702-10
Materiel management for using units, support units, and installations ..... AR 710-2
Special authorization and procedures for issues, sales, and loans ..... AR 725-1
Requisitioning, receipt and issue system ..... AR 725-50
Accounting for lost, damaged, and destroyed property ..... AR 735-11
Storage and supply activity operations ..... AR 740-1
Physical Inventory Control ..... AR 740-26
Ammunition advisors & specialists ..... AR 702-12
Army materiel maintenance concepts and policies ..... AR 750-1
Accident reporting and records ..... AR 385-40

b. DA Pamphlets.

Index of administrative publications ..... DA Pam 310-1
Index of blank forms ..... DA Pam 310-2
Index of doctrinal, training, and organizational publications ..... DA Pam 310-3
Index of technical manuals, technical bulletins, supply manuals (types 7, 8, and 9), supply bulletins, and lubrication orders ..... DA Pam 310-4
Index of supply catalogs and supply manuals (excluding types 7, 8, and 9) ..... DA Pam 310-6
Index of Storage/Outloading Drawings for Ammunition Commodities ..... DA Pam 310-24
Index of Depot Maintenance Work Requirements ..... DARCOM Pam 310-9

2. Blank Forms

Explosives — handle carefully — keep fire away ..... SF 431
Special fireworks — handle carefully — keep fire away ..... SF 401
Flow process chart (LRA) ..... DD 1723
Maintenance request ..... DA 2407
Ammunition condition report ..... DA 2415
Army depot surveillance record (LRA) ..... DA 3022-R
Ammunition stores slip (LRA) ..... DA 3151-R
Ammunition data card ..... DD 1650

3. Doctrinal, Training, and Organizational Publications

Explosives and demolitions ..... FM 5-25
Ammunition service in the theater of operations ..... FM 9-6
Conventional ammunition maintenance unit operations ..... FM 9-19
Conventional ammunition unit operations ..... FM 9-38
First aid for soldiers ..... FM 21-11
Military symbols ..... FM 21-30
Logistics maintenance management ..... FM 38-750
Military chemistry and chemical compounds ..... FM 3-9

4. Equipment Manuals

a. Technical Manuals.

Army Ammunition Data Sheets Small Caliber Ammunition (FSC 1305) ..... TM 43-0001-27
Ammunition Data Sheets Artillery Ammunition, Guns, Howitzers, Mortars, Recoilless Rifles, Grenade Launchers, and Artillery Fuzes (Federal Supply Classes 1310, 1315, 1320, 1390 ..... TM 43-0001-28
Army Ammunition Data Sheets for Grenades ..... TM 43-0001-29
Army Ammunition Data Sheets for Land Mines (FSC 1345) ..... TM 43-0001-36
Army Ammunition Data Sheets for Military Pyrotechnics (FSC 1370) ..... TM 43-0001-37
Army Equipment Data Sheets, Ammunition Peculiar Equipment ..... TM 43-0001-47
Procedures for Destruction of Improved Conventional Munitions (ICM) to Prevent Enemy Use ..... TM 43-0002-33
Painting Instructions for Field Use ..... TM 43-0139
Storage/Materials Handling ..... TM 743-200/200-1
Use and Care of Handtools and Measuring Tools ..... TM 9-243
Materials used for cleaning, preserving, abrading, and cementing ordnance materiel; and related materials including chemicals ..... TM 9-247
Ammunition, general ..... TM 9-1300-200
Ammunition and explosives standards ..... TM 9-1300-206
Military explosives ..... TM 9-1300-214
Organizational Maintenance Manual (Including Repair Parts and Special Tools Lists): Artillery Ammunition for Guns, Howitzers, Mortars, Recoilless Rifles and 40mm Grenade Launchers ..... TM 9-1300-251-20
Direct support and general support maintenance manual (including repair parts and special tools lists): Artillery ammunition for guns, howitzers, mortars, recoilless rifles and 40-mm grenade launchers ..... TM 9-1300-251-34
Small arms ammunition ..... TM 9-1305-200
Bombs and bomb components ..... TM 9-1325-200
Grenades, hand and rifle ..... TM 9-1330-200-34
Organizational maintenance manual (including repair parts and special tools lists): 2.75-inch low spin, folding fin aircraft rockets; 66-mm light antitank weapon systems; 3.5-inch rockets; and M3A2E1 rocket motor (JATO) ..... TM 9-1340-222-20
Direct support and general support maintenance manual (including repair parts and special tools list) for 2.75-inch low spin, folding fin aircraft rockets, 66-mm light antitank weapon system, 3-5-inch rockets and M3A2E1 rocket motor (JATO) ..... TM 9-1340-222-34
Operator's and organizational maintenance manual (including repair parts and special tools list): Land mines ..... TM 9-1345-203-12&P
Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools Lists) for Land Mines ..... TM 9-1345-203-34&P
Operator's and organizational maintenance manual (including repair parts and special tools list): Flare, aircraft, parachute, white, MK 45 mod 0 (FSN 1370-088-5658; L473); flare, aircraft; parachute, MK 45 mod with adapter for dispenser XM19 (FSN 1370-461-1526; L424); and dispenser, flare: XM19 (FSN 1370-179-6011; L106) ..... TM 9-1370-201-12
Operator's and organizational maintenance manual (including repair parts and special tools list): Military pyrotechnics ..... TM 9-1370-203-20&P
Direct support and general support maintenance manual (including repair parts and special tools lists): Military pyrotechnics ..... TM 9-1370-203-34&P
Operator's and organizational maintenance manual (including repair parts and special tools list): Demolition materials ..... TM 9-1375-213-12
Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List): Demolition Materials ..... TM 9-1375-213-34
Ammunition for aircraft guns ..... TM 9-1901-1
Packaging and materials handling, preparation of hazardous materials for military air shipment ..... TM 38-250

The Army maintenance management system (TAMMS) ..... TM 38-750
Procedures for rapid deployment, redeployment, and retrograde for:
Chemical ammunition ..... TM 750-172
Small arms ammunition ..... TM 750-173
Artillery ammunition ..... TM 750-174
Grenades, rockets, and mines ..... TM 750-175
Pyrotechnics ..... TM 750-176
Demolition materials ..... TM 750-177
Fuzes ..... TM 750-178
b. Technical Bulletins.
National stock numbers and Department of Defense ammunition codes ..... TB 9-1300-256
Munitions suspended or restricted ..... TB 9-1300-385-1
Munitions permanently suspended or restricted ..... TB 9-1300-385-2
Inspection and certification of ammunition gages ..... TB 43-0195
c. Supply Bulletins.
Army adopted/other items selected for authorization/list of reportable items .... SB 700-20
Ammunition surveillance procedures ..... SB 742-1
Ammunition disposition of used packing material and certain specified ammunition components ..... SB 755-1

5. Military Standards

Military Standard Marking for Shipment and Storage MIL-STD-129F
Military Standard Ammunition Data Card MIL-STD-1167B
Military Standard Ammunition Lot Numbering MIL-STD-1168A

6. Supply Catalogs

FSC Group 13 Ammunition and explosives
Class 1305 — Ammunition, through 30 mm
1310 — Ammunition, over 30 mm up to 75 mm
1315 — Ammunition, 75 mm through 125 mm
1320 — Ammunition, over 125 mm
1325 — Bombs
1330 — Grenades ..... SC 1305/30-IL
FSC Group 49 Maintenance and repair shop equipment;
Class 4925 — Ammunition maintenance and repair specialized equipment .... Pub Unit 37
Tool set, ammunition: Field maintenance Ordnance Ammunition Company (4940-322-6058) (Line item W59582, formerly line item 454628) and tool set Ammunition: Field maintenance Ordnance Ammunition Company MAP only (4940-919-0113) ..... SC 4940-95-CL-A11
FSC Group 13 Ammunition and explosives;
Class 1336 — Guided missile warhead and explosive components
1337 — Guided missile and space vehicle explosive propulsion units solid fuel and components
1338 — Guided missile and space vehicle inert propulsion units, solid fuel and components ..... SC 1336-38-IL
Shop equipment, ammunition renovation: Field mainenance detachment less power (4925-754-0710 (Line item W59719) and shop equipment, ammunition renovation: field maintenance detachment, MAP ONLY (4925-919-0067) 72 1112, 240000 ..... SC 4925-95-CL-A03
FSC Group 13 Ammunition and explosives
Class 1340 — Rockets, rocket ammunition and rocket components
1345 — Land mines
1350 — Underwater mine inert components
1351 — Underwater mine explosive components
1355 — Torpedo inert components
1356 — Torpedo explosive components
1360 — Depth charge inert components

1361 — Depth charge explosive components
1365 — Military chemical agents
1370 — Pyrotechnics
1375 — Demolition materials
1376 — Bulk explosives
1377 — Cartridge and propellant actuated devices and components
1380 — Military biological agents
1385 — Explosive ordnance disposal tools, surface
1386 — Explosive ordnance disposal tools, underwater
1390 — Fuzes and primers
1395 — Miscellaneous ammunition
1398 — Specialized ammunition handling and servicing equipment ..... SC 1340/98-IL

APPENDIX B
CONSUMABLE MATERIALS AND SUPPLIES

(Deleted)

(Consumable materials and supplies can be found in TM 9-1300-251-20 and TM 9-1300-251-34) and operator, organizational maintenance manuals.

APPENDIX C
PACKAGING COMPONENTS AND MATERIAL

(Deleted)

(Packaging components and material can be found in TM 9-1300-251-20 and TM 9-1300-251-34) and operator, organizational maintenance manuals.

APPENDIX D
EQUIPMENT FOR MAINTENANCE AND SURVEILLANCE OPERATIONS

(DELETED)

APPENDIX E
GLOSSARY

This glossary provides definitions of codes/terms used frequently throughout the test of this manual.

a. Department of Defense Identification Code (DODIC). This code, which is composed of four characters consisting of a letter and three digits (for example, G915), is the same for items which are completely interchangeable as to function and use. Hence, whenever the same second part of the code is used as a suffix to two or more National Stock numbers, the items are interchangeable for issue.

b. Ammunition Maintenance. The word maintenance has various meanings in the Army, but herein its meaning is limited to those actions and related activities necessary to retain ammunition in or restore it to a serviceable condition. This includes inspecting, testing, servicing, renovating, repairing, and modifying ammunition to enhance its safety or functioning characteristics.

c. Modification. Modification is the substitution or alteration of component parts as a result of engineering changes to meet revised specifications; or to correct defects in material and equipment. When items are renovated, repaired or reconditioned, any other maintenance considered necessary may be performed.

d. Preventive Maintenance. Preventive maintenance is the routine action taken to maintain and retain serviceable stocks in that condition by cleaning; spot painting; limited reconditioning actions such as replacement of grommets, gaskets, lifting and closing plugs; and the minor repair or replacement of boxes, containers, or crates.

e. Reconditioning. Reconditioning is the restoration of ammunition to a serviceable condition by extensive cleaning, preservation, repair or replacement of readily removable parts such as fuzes, propellant increments or components (only parts and components that can be removed with equipment or similar tools and force used for assembly of the item), and the repair or replacement of packing materials.

f. Renovation. Renovation is the restoration of ammunition to a serviceable condition through repair or replacement of parts or components which are not readily removable. This function is considered general support and is normally accomplished in a suitable facility having the required utilities, equipment and barricades.

g. Surveillance. Surveillance is the observation, inspection, testing, and classification of ammunition items, components, and explosives in movement, storage, issue, receipt, maintenance, salvage, renovation, disposal and use with respect to serviceability, safety, and rate of deterioration.

h. Inspection. Inspection is the determination of serviceability of an item by comparing its physical and mechanical performance to determine whether the material conforms to the technical requirements.

i. Testing. Testing is the determination of serviceability or to detect electrical or mechanical failure by use of test equipment.

j. Replace. To replace is to substitute a serviceable component in such a manner as to allow the proper functioning of equipment.

k. Repair. Repair is the restoration of an item to serviceable condition. This includes, but is not limited to, inspection, cleaning, adjusting, and limited operations usually less hazardous than renovation.

l. Operational Shields. An operational shield is a barrier to protect personnel, materiel, or equipment from the effect of a possible fire or explosion occurring at the location of a particular renovation operation. The provisions of TM 9-1300-206 will be followed in the construction of operational shields.

m. Barricade. A barricade is an intervening approved barrier, natural or artificial, of such type, size, and construction as to limit in a prescribed manner the effect of an explosion on nearby buildings or exposures.

n. Demilitarize. Demilitarize is mutilation, disarming, and accomplishment of any other action required to render ammunition and explosives innocuous or ineffectual for military use.

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

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NG: State AG (3), Units—same as active Army except allowance is one copy per unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS



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CDR, 1st Bn, 65th ADA
ATTN: SP4 John Doe
Key West, FL 33040

DATE 14 January 1975

PUBLICATION NUMBER	DATE	TITLE
TM 9-1430-550-34-1	7 Sep 72	Unit of Radar Set AN/MPQ-50 Tested at the HFC

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
9-19		9-5		"B" Ready Relay K11 is shown with two #9 contacts. That contact which is wired to pin 8 of relay K16 should be changed to contact #10.
21-2	step 1C		21-2	Reads: Multimeter B indicates 600 K ohms to 9000 K ohms. Change to read: Multimeter B indicates 600 K ohms minimum. Reason: Circuit being checked could measure infinity. Multimeter can read above 9000 K ohms and still be correct.

SAMPLE

NOTE TO THE READER:

Your comments will go directly to the writer responsible for this manual, and he will prepare the reply that is returned to you. To help him in his evaluation of your recommendations, please explain the reason for each of your recommendations, unless the reason is obvious.

All comments will be appreciated, and will be given immediate attention. Handwritten comments are acceptable.

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