AMMUNITION MAINTENANCE OVERVIEW

MAINTENANCE LEVELS

- Organizational Maintenance
- Direct Support Maintenance
- General Support Maintenance

ORGANIZATIONAL MAINTENANCE

( ) Performed by all activities having conventional munitions on hand including using units.

( ) Performed to prevent deterioration of munitions due to rough handling and exposure.

( ) Organizational Units may call upon DS units for technnical advice, assistance and support.

( ) Organizational Maintenance involves cleaning, removal of minor rust and corrosion, repair and replacement of boxes, repalletizing, repacking, repainting, and marking.

DIRECT SUPPORT MAINTENANCE

( ) Direct Support Maintenance is performed by conventional ammunition companies and includes surveillance with limited maintenance.

( ) Direct Support Maintenance includes the functions of inspections, test, care and preservation, service and repair, (as authorized) on all types of conventional munitions under their control in all ammunition storage and issue facilities.

( ) Direct Support Maintenance includes repairing, restenciling or replacing packing materials, declipping, reclipping, and the changing of the ratio linkage of small arms munitions

( ) Replacing readily removable parts and compartments, removing exudation from artillery projectiles, and performing electrical circuit continuity testing on rocket ammuntion are other examples of Direct Support Maintenance Operations.

GENERAL SUPPORT MAINTENANCE

( ) General Support Maintenance consists of, but is not limited to:

( ) Removal of exterior rust and corrosion.

( ) Painting and stenciling.

( ) Major repairs of fabrications of boxes, containers and crates.

( ) Repair and renovation of munitions.

( ) Replacing unserviceable cartridge cases, primers, propellant, base detonating fuzes or tracer units on artillery munitions.

( ) Replace unserviceable boosters, fuzes, primers and igniters on all conventional munitions.

AMMUNITION CONDITION REPORTS

In conjunction with the Care Of Stocks In Storage (COSIS) Program QASAS personnel are required to submit DA Form 2415, Ammunition Condition Report, to provide data for the control and management of unserviceable and permanently suspended munitions items.

The DA Form 2415 is used to report unserviceable repairable muntions which are in condition codes E, F, G and N. This form will be used to report unserviceable, uneconomically repairable munitions in condition code H and permanently suspended munitions in condition code J.

AMMUNITION CONDITION CODES (ACC)

Code	Title	Explanation
I.....	(Not to be assigned)	
J.....	Suspended (In stock)	Items in stock that have been suspended from issue pending condition classification or analysis when the true condition is not known. This includes items that have been suspended from issue and use pending commodity command investigation or determination of serviceability, and munition items that are being subjected to a malfunction investigation due to an unsafe or other defective condition. Unclassified (condition code K) returns are excluded.
K.....	Suspended (returns)	Items returned form customers and users suspended from issue pending inspection and condition classification. (Includes items that have been identified by stock number and name, but not examined for condition.) These stocks will be inspected and properly classified as to condition according to allowable time standards in chapter 5. When more time is needed because of receipts in large quantities, lack of facilities, lack of personnel, or other circumstances, the accountable supply distribution activity may grant an extension.
L.....	Suspended (Litigation)	Items held pending litigation or negotiation with contractors or common carriers. This includes assets that contained shortages, overages, defects, or other conditions that require negotiations or litigation with procurement sources or common carrier to determine responsibility or liability for correction. Also includes frozen assets held pending the results of a report of survey

AMMUNITION CONDITION CODES (ACC)

Code	Title	Explanation
M.....	Suspended (in work)	Items on inventory control record but that have been delivered to and accepted by an Army or DOD maintenance facility or a contractor's plant for processing.
N.....	Suspended (ammunition suitable) emergency combat use.	Ammunition stocks suspended from ussue except for
O.....	Not assigned	Preserve for DOD assignment
P.....	Unserviceable (reclamation)	Items that are unserviceable, uneconomically reparable because of physical inspection, tear down, or engineering decision. Item contains serviceable components or assemblies that may be reclaimed.
S.....	Unserviceable (Scrap)	Items that have no value except for its basic material content. No stock will be recorded as on hand in condition code S. This code is used only on transactions that involve shipments to DPDOs. Items will not be transfered to condition code S before turn into PDOs if they are recorded in condition code A through H at the time they are

AMMUNITION CONDITION REPORT

For use of this form, see TM 38-750; the proponent agency is DCSLOG.

REQUIREMENT CONTROL SYMBOL CSGLD-1020

1. THRU: *(Include ZIP Code)*			2. DATE OF REPORT	3. PAGE ____OF ____PAGES	
4. TO: *(Include ZIP Code)*			5. UNIT IDENTIFICATION CODE		
6. FROM: *(Include ZIP Code)*			7. COMMODITY ☐ CHEM ☐ CONV ☐ GM		
8. NOMEN-MODEL ITEM REPORTED	a. PART/NSN NO.	b. SN/LOT NO.	c. DATE OF MFG	d. QTY IN LOT	
9. NOMEN-MODEL EQUIP INSTALLED/USED ON	a. PART/NSN NO.	b. SN/LOT NO.	c. DATE OF MFG	d. QTY IN LOT	
10. QTY INSPECTED	11. QUANTITY DEFECTIVE	12. PRESENT COND CODE	13. ECON REPAIRABLE ☐ YES ☐ NO		
14. USE ☐ WR ☐ TNG	15. ESTIMATED REPAIRMAINT/DISPOSAL UNIT COST DIRECT LABOR	GAE	OTHER		

16. DETAILS *(Description, cause, action, disposition)*

17. TYPED/PRINTED NAME, GRADE AND TITLE	18. SIGNATURE

55B40B04 VG#9

DA FORM 1 DEC 77 **2415**

EDITION OF 1 JAN 64 IS OBSOLETE

DMWR 9-1315-0000-X5

2-3 OPERATION NO. 3 - REMOVE CARTRIDGE FROM FIBER CONTAINER

a. Description of Operation.
   (1) Receive fiber container from Operation No. 2
   (2) Remove sealing strip from fiber container.
   (3) Remove fiber container lid.
   (4) Remove cartridge form fiber container.
   (5) Inspect fiber container for serviceability in accordance with criteria in TM 9-1300-251-34.
   (6) Place fiber container lid on primer end of cartridge.
   (7) Transfer:
      (a) Cartridge to Operation No. 4
      (b) Serviceable (reusable) fiber cointainers to storage.
      (c) Unserviceable fober containers to PDO.

b. Special Safety Requirements.
   (1) Operator will wear flame-retardant coveralls/head covering and conductive safety shoes.

c. Equipment Requirements
   (1) Remover, pneumatic lid - APE 1003M1 w/kit 1003E003 or machine, automatic lid removal - APE 1270 w/kit 127OE003.
   (2) Coveralls/head covering, flame-retardant - NSN 8415-00-279-8719.
   (3) Shoes, conductive safety

d. Material Requirements
   none

QUESTIONS TO BE ANSWERED

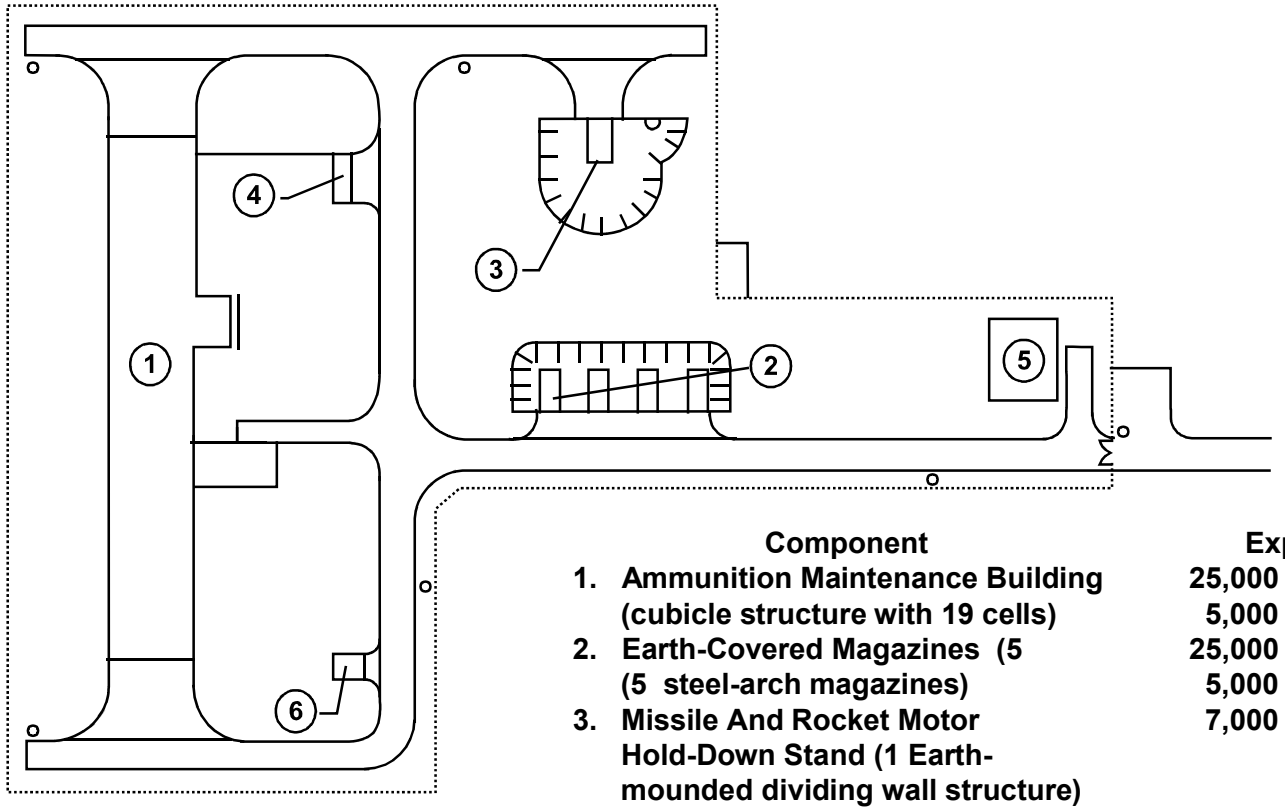
What is to be done???

How should the work be done??????

Who will accomplish this work???

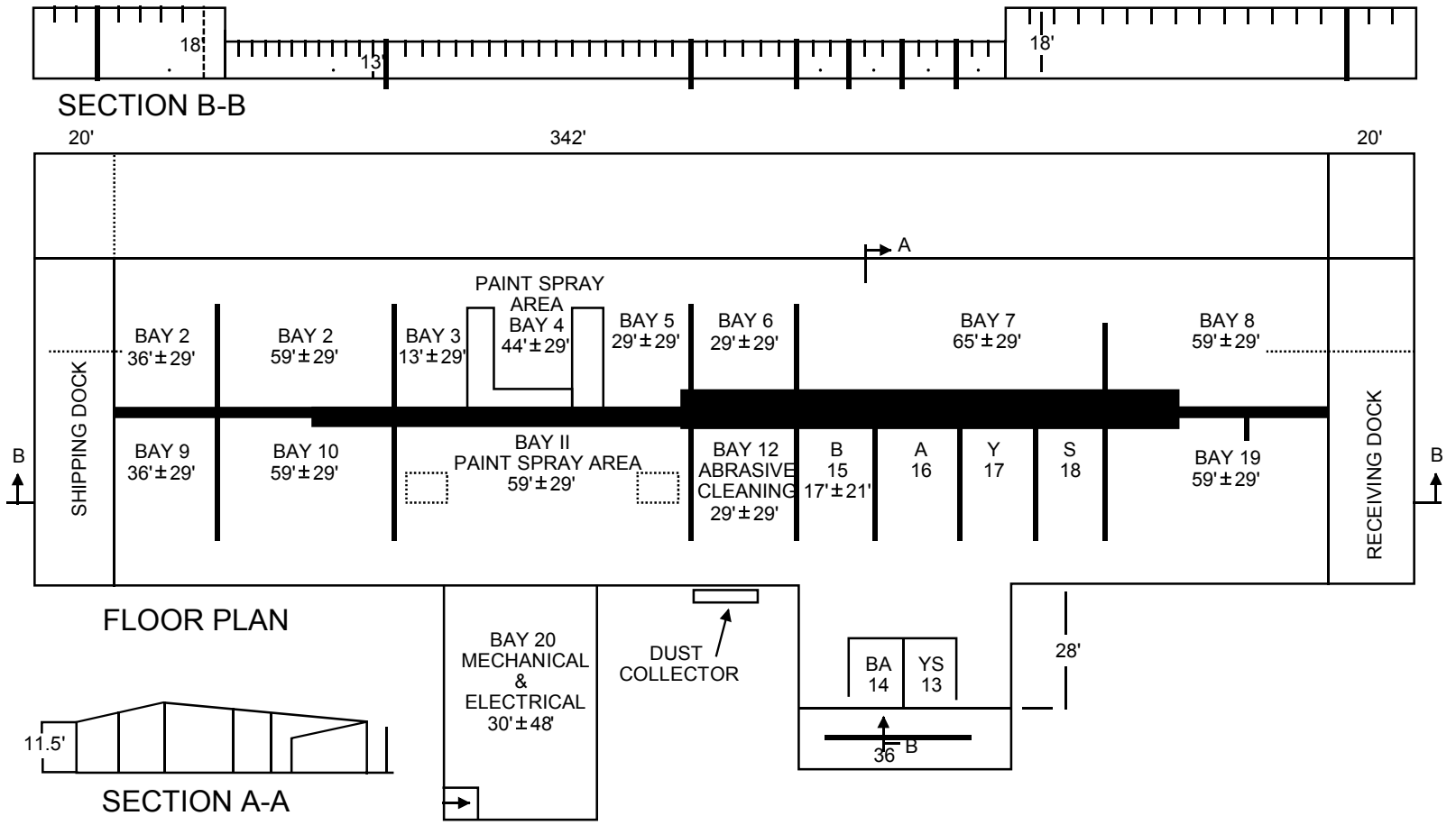
Where will the work be accomplished???

RENOVATION FACILITIES



	Component	Explosive Quantity		
1.	Ammunition Maintenance Building	25,000	lb	(total)
	(cubicle structure with 19 cells)	5,000	lb	(per cell)
2.	Earth-Covered Magazines (5	25,000	lb	(total)
	(5 steel-arch magazines)	5,000	lb	(per magazine)
3.	Missile And Rocket Motor Hold-Down Stand (1 Earth-mounded dividing wall structure)	7,000	lb	
4.	Vacuum Collector Building	400	lb	(total)
	(Cubicle Structure With 2 Cells)	200	lb	(per cell)
5.	Lunch Room-Change House	None		
6.	Flammable Storage Building	None		

AMMUNITION MAINTENANCE BUILDING



MARKING AND COLOR CODING OF AREAS AND EQUIPMENT

High Pressure Water Lines.....Red

High Pressure Air Lines.....Green

Electrical Lines.....Blue

Marking of Hazard Areas.....Black and Yellow

SAMPLE PROCESS FLOW CHART

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

OPERATION ARRANGEMENT SEQUENCE

1. Unpacking
2. Disassembly
3. Replace/Repair
4. Reassembly
5. Repacking

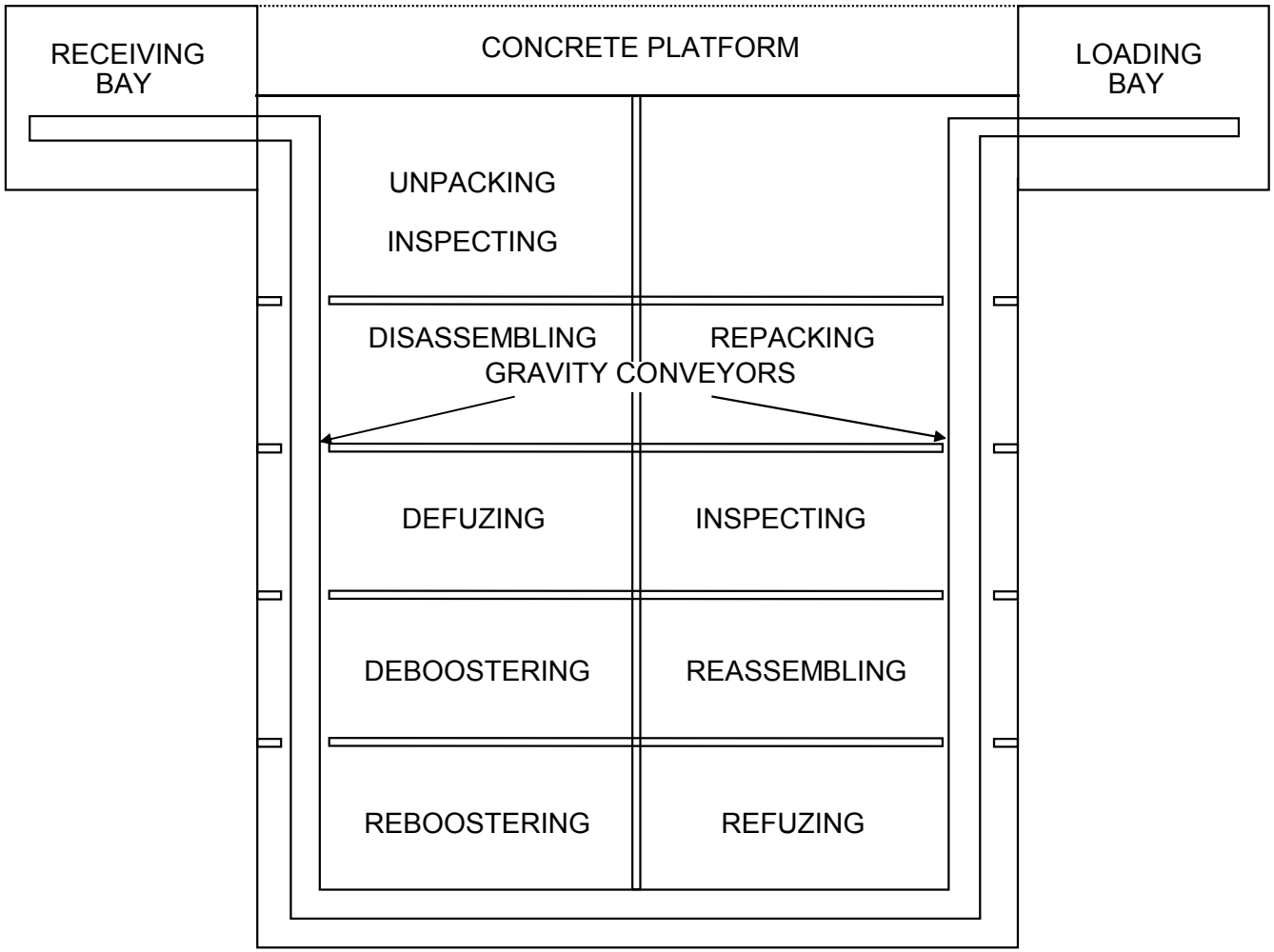
QUESTIONS TO BE ANSWERED

1. Can any operations be eliminated?
2. Can any of the operations be combined?
3. Can any operation be performed better in a different order?
4. Can any of the operation be simplified?
5. Type Operations:

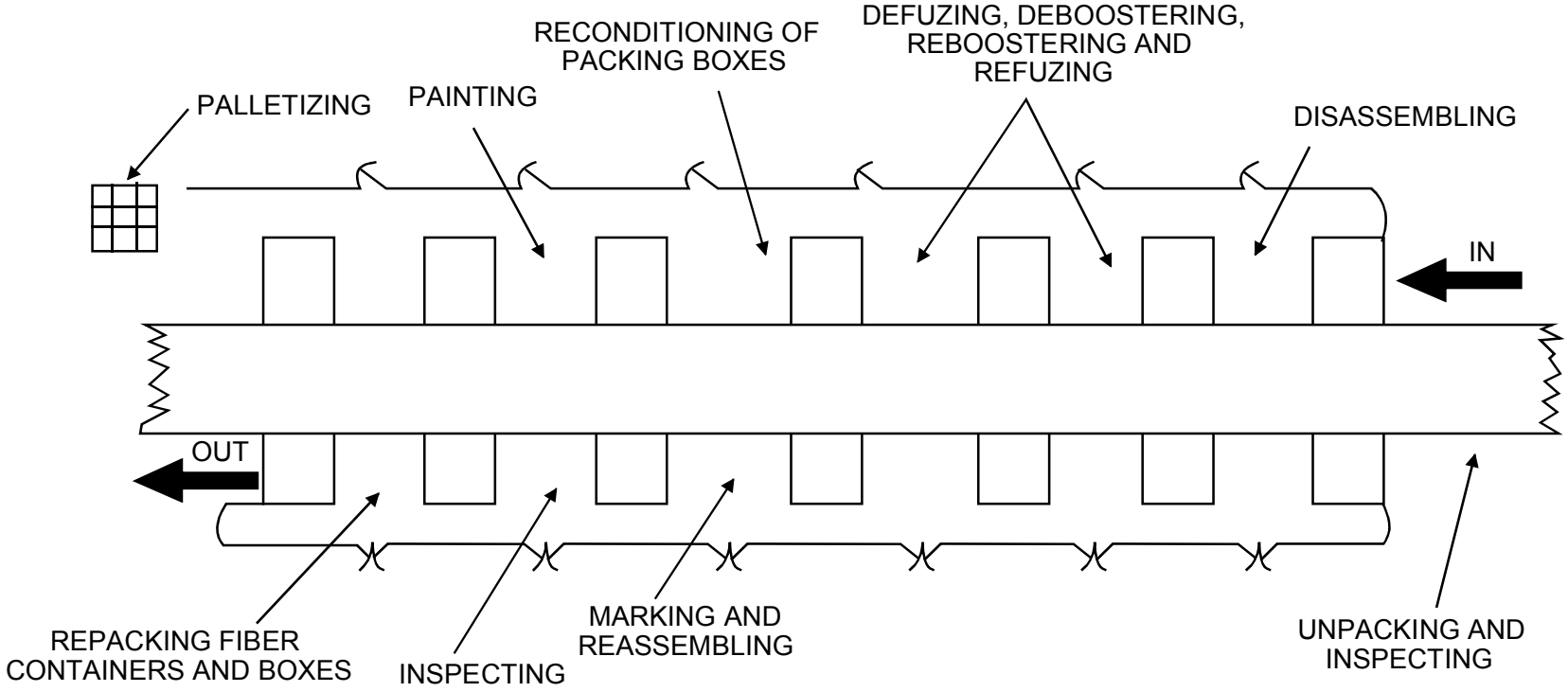
Primary: An operation necessary to the smooth flow of production and is sometimes called a main line operation.

Secondary: An operation 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.

U-SHAPE LINE LAYOUT



STRAIGHT LINE OPERATIONS



STANDING OPERATING PROCEDURES

2. ITEM: Cartridge 105MM HE M1, w Fuze PD
M51A5 0.05
See, 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 Jun 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
8. REVIEWED BY: Robert L. Smith TITLE Chief, Maintenance Branch
10. SUBMITTED BY: David T. South TITLE Chief, Planning Branch
11. CONCURRENCES:

OFFICE	SIGNATURE	OFFICE
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

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: Operator 2 TRANSIENTS: 1

Step No.	Description	Specific Instruction (safety, operational, quality characteristics.)
1.	Receive projectiles by power monrail 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 materials.

K. SPECIAL REQUIREMENTS.

Equipment: Foreman will make periodic inspection of filters in paint spray booth and replica 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 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 pl 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
Conveyor, Monorail System	1 ea		APE 1044
Paint, System Hot Spray, Portable	1ea		APE 1093

QUESTIONS TO BE ANSWERED

SOP
PREPARATION

“What is to be done”?

“Where can it be done”?

“How shall it be done”?

“With what shall it be done”?

“What safety precautions are necessary”?

MINIMUM REQUIREMENTS

“Safety Requirements”

“Personnel Limits”

“Explosives Limits”

“Designation Of Equipment Used”

“Location And Sequence Of Operation”

25a

COMPONENTS (Continued)

COMPONENT	DRAWING NO.	MODEL	MANUFACTURER	DATE MFG	LOT NO.	QUANTITY
Shorting Ring	XP-116698		Drews Co.	1963	None	
Bushing (2)	P-119038		Picatinny Arsenal	1963	None	
Carton	8860600		Picatinny Arsenal	1963	None	
Box, Wood	8860555		R.C. Bennett Co.	1964	None	
Bag, Barrier	8860600		Picatinny Arsenal	1963	None	
Cord, Nylon	MIL-C-5040		Val Rayco Mfg. Co.	1963	None	
EXPLOSIVES Cartridge, Assy. Flare, MX 3529/ ALA-17	FXP-115485		Picatinny Arsenal	1963	PA-285-1	

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

PA E.O. 5116-80. FSN-1370-862-6114.
Contract No. 4110. 16.4159.22.
Screw Cap x-rayed 100%
Screw Cap, Washer Flat and Center Bar and Ring Assy. counted overall with molycoat 88 prior to assembly.
**PA-PD 1186, Para 4.3.2. velocity test conducted in the vertical position.

(BACK)

NEW LOT NUMBERS

The new lot numbering system consists of a Manufacturers Identification Symbol. A Numberic Code Depicting The Year Of Production, An Alpha Code Representing The Month Of Production, A Lot Interfix Number Followed By A Hyphen, And A Lot Sequence Number.

AMC	75	D	018	124
Manufacturers Identification Symbol	Year Of Production	Month Of Production	Interfix Number	Sequence Number

Manufacturers Identification Symbol: Identifies The Manufacturer
Year Of Production: Identifies The Year The Lot Was Manufactured
Month Of Production: Identifies The Month The Lot Was Manufactured, Jan +A, Feb +B, Mar +C, Apr +D, May +E, Jun +F, Jul +G, Aug +H, Sep +J, Oct +K, Nov +L, Dec +M.
Interfix Number: Commencing With The First Lot Produced In The Calender Year, In Any-DODOC, By The Manufacture, Interfix Numbers Are Assigned Beginning With 001 to 999.
Sequence Number: Commencing With The First DODIC Of A Lot Produced In The Year, By The Manufacture, Sequence Numbers Are Assigned Beginning with 001, Sequenced By DODIC to 999.

LOT NUMBER SUFFIXES

Lot number suffixes become a part of the lot number when assigned to the lot. Lot suffixes consist of one alpha character, and will be a capital letter. Lot suffixes will be assigned in alphabetical sequence starting with the letter "A" and continuing through "Z", if required, in each lot. Once a lot of ammunition has been assigned a suffix it assumes an independent status and becomes a completely separate identity from that of the original basic lot or any quantities of the original lot which may have been assigned a different suffix. Lot number suffixes are assigned by the U.S. Army Industrial Operations Command (IOC), and must be annotated on the DA Form 3022-R, Depot Surveillance Record.

EXAMPLES

Old Lot Number: ABC 8-2E
Lot Suffix

New Lot Number: AMC 75D018-12B
Lot Suffix

All suffixes are applied immediately following the serial or sequence number of the original basic lot.

AMMUNICATION DATA CARD

FORM APPROVED
OMB NO. 0704-00168

1. ITEM NOMENCLATURE	2. NSN	3. DODIC	4. LOT NUMBER
5. MANUFACTURER, LOADING OR ASSEMBLY ACTIVITY	6. NET QUANTITY		7. PACKING OF LOT
8. CONTRACT OR ORDER NO.	9. DRAWING AND REVISION	10. SPECIFICATION AND REVISION	
11. DATE STARTED	12. DATE COMPLETED	13. DATE INSPECTED	14. LINE / 15. ZONE WEIGHT

16. SPECIFICATIONS				
a. CHARGE WEIGHT	b. INDEX OF POWDER	c. MAXIMUM PACKING DEPTH IN INCHES	d. PRODUCTION PACKING DEPTH RANGE IN INCHES	e. EXPLOSIVE WEIGHT PER PACKAGE

17. TEST SAMPLES			
a. NUMBER	b. SENT TO	c. DATE SHIPPED	d. MODE OF SHIPMENT

18. DOT NOMENCLATURE	19. HAZARD CLASS	20. GOVERNMENT QUALITY ASSURANCE ACTIVITY
21. REMARKS		

22. DISPOSITION	23. GOVERNMENT INSPECTOR		
	a. TYPED NAME	SIGNATURE	c. DATE SIGNED

DD FORM 1650, SEP 86

AMMUNITION PECULIAR EQUIPMENT (APE) DEFINITION

Equipment designed, fabricated, procured, tested and adopted to standard items by commodity commands to accomplish any munitions operations, including surveillance, maintenance, demilitarization and storage functions.

EQUIPMENT REQUIREMENTS

To accomplish the required work in any maintenance or renovation operation certain equipment must be available. The type of equipment required will depend upon the complexity of the work to be done. Different types of equipment may be required to perform work to correct:

- **Deterioration**
- **Design Changes**
- **Safety**

SAFETY DESIGN FEATURES

Explosives are sensitive to initiation by shock, flame, and electrostatic discharge. Therefore, equipment peculiar to munitions operations must be designed to minimize these hazards.

OPERATIONAL SHIELDS

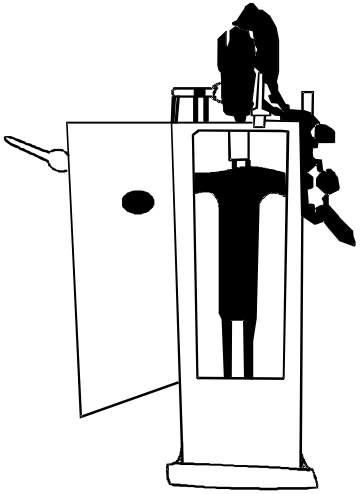
When hazards cannot be minimized to a safe level, special shields or machines operated by remote control must be used. These machines are equipment to protect the operator. In some cases separate operational shields must be constructed or built in dividing walls used as operational shields. Operational shields are used when the work required the removal of: primers, roosters base detonating fuzes and burster charges.

APE 1237-PRIMER INSERTING MACHINE

Use:
The Primer Inserting Machine is Used To Remove And Insert Screw Type Primers In Artillery Catridge Cases.

Description:
The Machine Consists Of An Operational Shield, An Air Motor, And The Controls To Operate The Machine.

Difference Between Models:
Original Design



Tabulated Data:

APE No.....12370000
Unit of Issue... Each
Installation Data:
Length.....21 in.
Width.....25 in.
Height.....64 in.
Utilities Required:
Air at 80 psi and 25 cfm
Production Capacity:
2600 primers inserted per 8 hour shift

Kits:

1237E001 KIT, Insert M58 Primers Into 90MM: M108 Cartridge Cases

1237E002 KIT, Insert M80 or M86 Primers Into 105 MM: M115 or M150 Cartridge Cases

1237E003 KIT, Insert M78 Primers Into 90MM: M112 Cartridge Cases

SUMMARY