SB 742-1

SUPPLY BULLETIN

INSPECTION OF SUPPLIES AND EQUIPMENT

AMMUNITION SURVEILLANCE PROCEDURES

Approved for public release; distribution is unlimited

HEADQUARTERS, DEPARTMENT OF THE ARMY

1 September 2008

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DEPARTMENT OF THE ARMY
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a. U.S. Army Joint Munitions Command, AMSJM-QAS, 1 Rock Island Arsenal, Rock Island, IL 61299-6000 (Conventional Munitions).

b. Commander, Aviation and Missile Command, ATTN: AMSAM-RD-SE-RA-QS Redstone Arsenal, AL 35898-5000 (Guided Missiles and Large Rockets).

c. U.S. Army Chemical Materials Command, ATTN: AMSCM-OPS, 5183 Blackhawk Road, Aberdeen Proving Ground, MD 21010-5424.

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CHAPTER 1. INTRODUCTION

1-1. Purpose.

The procedures in this supply bulletin (SB) implement the Department of the Army (DA) ammunition surveillance policy established by AR 702-6. Additionally, SB 742-1 describes the functions that constitute the DA Ammunition Surveillance Program as defined in AR 740-1, chapter 3. The SB also prescribes the policies and procedures to assure quality requirements are met for Class V materiel supplied to foreign governments under the Army Security Assistance Program.

1-2. Scope.

This bulletin encompasses conventional, chemical, rockets, guided missile ammunition, and research and development stocks in storage. The procedures contained herein apply to supply Class V materiel in the wholesale, retail, combat support, and user stockpiles worldwide. Use of this publication is mandatory for each DA activity that has a receipt, storage, issue, maintenance, disposal, surveillance, or test mission for ammunition. This includes, but is not limited to, ammunition depots, ammunition supply points, basic load storage areas, ammunition plants, research development test and evaluation laboratories, and proving grounds.

1-3. Policy.

a. Single Manager of Conventional Ammunition (SMCA) DODD 5160.65.

(1) The inspection of the other services' (Navy, Marine Corps, or Air Force) stocks will be conducted according to the specific inspection requirements of the owning or configuration managing service.

(2) See paragraph 1-5 for SMCA technical assistance, paragraph 2-2 for inspection procedures for non-army owned ammunition and Appendix D, paragraph D-16, for further guidance on items belonging to other services.

b. QASAS functions. Functions identified by this SB must be accomplished by Department of the Army Civilian (DAC) Quality Assurance Specialists (Ammunition Surveillance) QASAS, GS-1910 series (career program 20). Under the direction of a QASAS, military ammunition inspectors SSG/SFC (MOS 89B) and properly trained and designated civilian technicians (including local nationals outside the continental United States (OCONUS) locations) may supplement and assist the QASAS in the accomplishment of ammunition surveillance functions.

c. QASAS in charge. Throughout this bulletin, the term "QASAS in charge" is defined as the senior or chief QASAS of the local surveillance organization. For application in organizations without an assigned QASAS, the term relates to the "QASAS in charge" of the supporting ammunition surveillance organization.

d. Technical publications. Supply bulletins (SB), technical manuals (TM), drawings, specifications, and instructions issued by appropriate materiel developers will be used to supplement this bulletin. When needed documents and publications are not available, they will be requisitioned promptly.

e. Tests and inspections. The only tests and inspections authorized for ammunition surveillance operations are those covered by applicable SBs, approved Depot Maintenance Work Requirements (DMWRs), or specific written authorization from the appropriate major command (MACOM) or major subordinate command (MSC).

(1) Test, measurement, and diagnostic equipment (TMDE); tools and gages; and ammunition peculiar equipment (APE) used in these operations will be limited to those specifically authorized for the item under test or examination.

(2) Modification or function of ammunition items will not be attempted unless specifically authorized by the abovementioned publications or documents or by the appropriate major commodity command.

(3) Disassembly and reassembly of ammunition items may be authorized as part of the visual inspection provided that:

(a) There is reasonable cause to justify disassembly of samples.

(b) Disassembly and reassembly is conducted according to approved procedures.

(c) Approved facilities and equipment are available and used.

(d) Disassembly and reassembly will be conducted by a QASAS or under the direction of a QASAS.

(e) Approval of the QASAS in charge must be obtained prior to the start of such an operation.

f. Word usage. The words "will" and "must" are used in this bulletin to indicate mandatory requirements. The word "should" indicates a normally required method of accomplishment, which can be deviated from only upon the documented authorization of the QASAS in charge. A written record of the justification or rationale for the deviation must be maintained. The term "may" indicates an acceptable or suggested means of accomplishment.

g. Ammunition explosives safety.

(1) The ammunition and explosive safety standards of DOD Manual 6055.09-M, AR 385-63, AR 385-10, DA PAM 385-64, and AMC-R 385-100, as applicable, must be followed.

(2) All personnel engaged in operations involving explosive, radioactive, or other hazardous material will be thoroughly knowledgeable of the applicable standing operating procedures (SOP) and formally trained in safety.

(3) Prompt action will be taken to control any hazard. If a dangerous item or situation is encountered, all operations in the immediate area will be shut down (see paragraph 10-1). Personnel will be evacuated to a safe site. The incident will be reported immediately through the proper chain of command. Explosive Ordnance Disposal (EOD) or other authorized personnel will be called for help in

eliminating the hazard. Operations will not be resumed until the hazard has been eliminated.

(4) All serious or repetitive situations adversely affecting the explosive safety of the installation/organization will be made a matter of record to installation's/organization's commanding officer.

h. Ammunition surveillance workload priorities.

(1) Explosive safety inspections or functions; e.g., inspections for toxic leakers, safety in storage inspections on potentially unsafe munitions, monitoring of demilitarization operations, magazine inspections and actions in support of the Propellant Stability Program.

(2) Periodic inspections of required stocks.

(3) Shipping and receiving operations to include pre-issue inspections and receipt inspections.

(4) Test sample preparation and function or trace testing.

(5) Maintenance operations, area operations inspection.

(6) Basic load/technical assistance visits.

(7) Special inspections.

(8) Storage monitoring inspections.

(9) Safety in storage inspections of munitions not covered above.

1-4. Quality Assurance Specialist (Ammunition Surveillance) (QASAS).

The qualifications, physical requirements, training, and development requirements for QASAS and management of the QASAS civilian career program are defined in AR 690-950 and AR 702-12.

1-5. Technical Assistance.

a. Request for technical assistance concerning implementation of this bulletin or supplements will be directed to the appropriate command (listed below) having management responsibility for the commodity involved.

(1) US Army Aviation and Missile Research & Development Engineering Center
ATTN: AMSAM-RD-SE-RA-QS
5400 Fowler Rd
Redstone Arsenal, AL 35898-5000.
DSN: 645-7988; COMM: 256-955-7988

(2) US Army Joint Munitions Command
ATTN: AMSJM-QAS
1 Rock Island,
Rock Island, IL 61299-6000.
DSN: 793-6982

(3) US Army Chemical Materials Agency,
ATTN: AMSCM-OPS, 5183 Blackhawk Road,
Aberdeen Proving Ground, MD 21010-5423.
DSN: 584-8752 COMM: 410-436-8752

b. Queries concerning the surveillance of items under SMCA will be directed to JMC surveillance office. This includes items in industrial and field service accounts, regardless of the owning service.

c. Request for information on non-commodity problems will be addressed to Commander, U.S. Army Materiel Command, ATTN: AMCOPS-SCL, 9301 Chapek Road, Ft. Belvoir, VA 22060-5527.

d. References below are given for ease of use with this manual. Throughout the manual, when you are directed to reply to or through an organization, you will use the address or website listed here.

(1) Joint Munitions Command Surveillance Office: Headquarters US Army Joint Munitions Command
1 Rock Island Arsenal
ATTN: AMSJM-QAS
Rock Island, IL 61299-6000
FAX: DSN 793-7136 COMM: 309-782-7136
e-mail: amc.rock.org.jmc-amsjm-qas@mail.mil

(2) US Army Aviation and Missile Command Munitions Team:
US Army Aviation and Missile Command
ATTN: AMSAM-MMC-MM-M
Redstone Arsenal, AL 35898-5000
e-mail: AMSAM-MMC-LS@redstone.army.mil
DSN: 746-3106/3108/9819

(3) US Army:
US Army Pacific USARPAC,
ATTN: APLG-MUS,
Fort Shafter, HI 96858-5100
DSN 315-438-8118 COMM: 808-438-8118
FAX 315-438-7119
e-mail: aplgmu@safter.army.mil

(4) Navy Ships Parts Control Center:
US Navy
Navy Ships Part Control Center (INSPCC),
Box 2020 ATTN: 853a,
Mechanicsburg, PA 17055-0788
DSN: 430-2000

(5) Drawings can be obtained thru the following addressees:

(a) Army: (except chemical and GM/LR):
Headquarters, US Army
Joint Munitions Command
ATTN: AMSJM-QAS
Rock Island, IL 61299-6000

(b) Army guided missiles and large rockets:
US Army Aviation and Missile Command
ATTN: AMSAM-CIC-E-A
Building 4722
Redstone Arsenal, AL 35898-5000
DSN: 788-8911

(c) Army toxic chemical munitions:
US Army Chemical Materials Agency
ATTN: AMSCM-OP-SM
5183 Blackhawk Road
Aberdeen Proving Ground, MD 21010-5424
DSN: 584-2972
COMM: 410-436-2972
FAX: DSN 584-5415 COMM 410-436-5415

(d) Air Force:
US Air Force Hill Air Force Base
ATTN: 00-ALC-TIED
Hill Air Force Base, UT 84056-5609
DSN 777-0889

(e) Navy, Marine Corps:
US Navy
NAVSURFWARCEN Crane Division Code 4021,
Bldg 2084
300 Highway 361
Crane, IN 47522
DSN: 482-5588

(f) Defense Ammunition Center
McAlester, Oklahoma
https://www3.dac.army.mil/

(6) Test , Measurement, Diagnostic Equipment Office Headquarters:
US Army
Joint Munitions Command
1 Rock Island Arsenal
ATTN: AMSJM-CTM
Rock Island, IL 61299-6000
DSN: 793-8583/1446
COMM: 309-782-8583/1446
e-mail: JMC-OFC-CTM@osc.army.mil

(7) Chemical Command:
U.S. Army Chemical Material Agency
ATTN: AMSCM-OPS,
5183 Black Hawk Road,
Aberdeen proving Ground, MD 21010-5424
DSN: 584-6382/7604/3361
COMM: 410-436-6382/7604/3361
FAX DSN 584-5415 COMM: 410-436-5415
e-mail:cmasmt@apgea.army.mil

(8) Army National Guard:
Army National Guard Reserve Component,
ATTN: NGB-ARL-E,
111 South George Mason Drive,
Arlington, VA 22204-1382

(9) Army Sustainment Command:
US Army Sustainment Command (ASC),
ATTN: AMSAS-FSL,
1 Rock Island Arsenal
Rock Island, IL 61299-6500
(DSN 793-6670/7796)
COMM: (309) 782-6670/7796
FAX DSN 793-1750
COMM: (309) 782-1750

(10) Naval Ordnance Center:
OIC Naval ORD Center
Pacific Division
Fallbrook Det CODE 5133
700 Ammunition Road
Fallbrook, CA 92028-3187
DSN 873-3601 COMM: 760-731-3601

(11) JMC Marine Corps Liaison:
Marine Corps Liaison
ATTN: MCLNO-LMA
Rock Island, IL 61299-6500
DSN 793-5549/4808.
COMM: (309)782-5549/4808

(12) Air Force Afloat Preposition Force Program
APF Superintendent
OOALC/WMR
Hill AFB, UT 84056
DSN 777-9411

(13) Air Force:
OO-ALC/LIWGE,
6034 Dogwood Avenue,
Hill Air Force Base, UT 84056,
e-mail: harrisb@gateway.hill.af.mil, or fax
DSN: 777-2186

(14) Navy:
US Naval Surface Weapons Support Center
Crane Division Code 402,
300 Hwy 361
Crane IN 47522-5900
e-mail: burns_chuck@crane.navy.mil or fax
DSN 482-1883.

(15) Gun Systems Branch at the
National Center for Energetics,
Indian Head Division,
Indian Head, MD 20640

(16) Propellant sample shipments:

(a) Army:
US Army Armament Research,
Development and Engineering Center
Ammunition Receiving Office Bldg 806
ATTN: APSL Bldg. 938
Picatinny Arsenal, NJ 07806-5000

(b) Navy:
Naval Surface Warfare Center
Indian Head Division
Explosive Scales Bldg 1103
ATTN: E17 X6521
5021 Safe Haven Way
Indian Head, MD 20640-5032.

(17) PRP propellant samples shipped to:

(a) Radford Army Ammunition Plant
ATTN: SJMRF-OP-Q
Radford, VA 24141-0099

(b) US Army Armament Research,
Development and Engineering Center
Ammunition Receiving Office Bldg 806
ATTN: APSL Bldg. 938
Picatinny Arsenal, NJ 07806-5000

(18) JMC Safety Office:

(a) Headquarters
Joint Munitions Command
ATTN: AMSJM-SF, Safety/Rad Waste
Rock Island, IL 61299-6000
e-mail: usarmy.ria.jmc.mail.army-amc-org-jmc-amsjm-sf@mail.mil
DSN: 793-2113. COMM: (309) 782-2113

(b) Headquarters,
Joint Munitions Command,
ATTN: AMSJM-SF/Radiation Safety Officer (RSO)
e-mail: usarmy.ria.jmc.mail.army-amc-org-jmc-amsjm-sf@mail.mil
Rock Island IL. 61299-6000
DSN: 793-0338, COMM: (309) 782-0338
After normal duty hours contact:
JMC Operations Center.
DSN: 793-0223 or 7270 or 6321
COMM: (309) 782-0223/7270/6321

(19) TACOM-ARDEC
Picatinny Arsenal, NJ 07806-5000

(a) ATTN: AMSTA-AR-QAT-A

(b) ATTN: AMSTA-AR-QAC-T

(20) Mailing Address:

HQ, Joint Munitions Command
ATTN: AMSJM- (Insert last two or three letter of applicable office symbol below)
1 Rock Island Arsenal
Rock Island, IL 61299-5500

(a) CDL

(b) CDS

(c) QAP

(d) CDA

(e) LID

(f) SA

(g) LIT

(h) QAE

(i) LIM

(j) CDP

(k) QAS

(21) Recommended web sites:

(a) Propellant Information:
http://www.jmc.army.mil/DCG/Quality/Propellant.aspx

(b) Publications:
http://armypubs.army.mil/

(c) Quality Deficiency Reports:
https://www.pdrep.csd.disa.mil/

(d) Joint Hazard Classification System:
https://www3.dac.army.mil/es/usatces/default.asp?page=8

(e) CAD Disposition Worksheet:
https://jmcsp.osc.army.mil/sites/MLRC/QA/QAS/QAsurveillance/Policies%20%20Procedures/Forms/AllItems.aspx

(f) Special Packaging Instructions:
https://jmcsp.osc.army.mil/sites/MLRC/QA/QAS/QAsurveillance/Special%20Packaging%20Instructions/Forms/AllItems.aspx

(g) Conventional Ammunition Inspection Interval and Priority Listings:
https://jmcsp.osc.army.mil/sites/MLRC/QA/QAS/QAsurveillance/Policies%20%20Procedures/Forms/AllItems.aspx

(h) Ammunition Data Cards (NAVY):
https://apps.cran.nmci.navy.mil/corp/MainPage.cfm

(i) AMCOM Electronic ordering of drawing hard copies:
http://www.edms.redstone.army.mil/homepage.asp

(j) Ammunition Data Cards (ARMY). Use the Munitions History Program (MHP):
https://mhp.redstone.army.mil/DefaultMain.aspx

(k) Intentionally left blank.

(l) Intentionally left blank.

(m) Outloading/Unitization Drawings:
https://www3.dac.army.mil/det/

(n) Functional/Overhead Fire Clearance Request:
https://www6.osc.army.mil/fcr/

(22) Commanding Officer,
Naval Surface Warfare Center,
Indian Head Division,
ATTN: CODE 5240A,
Building 221,
Indian Head, MD 20640-5035.
301-744-2325

(23) TACOM-ARDEC
Bldg 62
ATTN: RDAR-EIL-TP
Rock Island, IL 61299-6000
e-mail: usarmy.ria.ardec.mil.ardec-ppfsb@mail.mil

CHAPTER 2.
SURVEILLANCE OF AMMUNITION BY INSPECTION

2-1. General.

a. The ammunition surveillance inspection program is structured to ensure that materiel in the stockpile meets established explosives safety and serviceability criteria and is properly classified. Trained and certified personnel using statistical sampling techniques and procedures accomplish inspections. The program identifies items for timely maintenance, disposal, priority of issue, and restricted use. The classification of defects and standards in this publication provides the QASAS with necessary guidance to accomplish program goals and assigned missions.

(1) Required vs. non-required stocks. The ammunition stockpile is separated into two parts: required stocks (JMC Priority 1 and 2) and non-required stocks (JMC Priority 3) pursuant to the provisions of DOD Directive 5160.65-M. Required stocks satisfy both power projection and training requirements. Retail stocks are required stocks. Non-required stocks include long supply held stocks for economic and contingency purposes, assets held above requirements and potential reutilization/disposal assets.

(a) JMC will update as required, the SMCA priority listing identifying whether an item is required or non-required. Use of the priority listing when scheduling inspections is mandatory for all JMC locations storing conventional munitions. SMCA ammunition not listed on the current priority listing should be considered non-required stocks (JMC Priority 3). Questions as to the proper priority of new stocks will be directed to JMC Surveillance (paragraph 1-5.d.(1). Use of this listing by MACOMs other than AMC is at their discretion. See paragraph 1-5.d.(21)(g) for web page address for SMCA (JMC) priority listing.

(b) Type of inspection and inspection intervals for required and non-required stocks will be IAW paragraph 2-4d and 2-4e. Specific owning service requirements will take precedence to the priority requirements.

(2) The SMCA index of items assigned to the Single Manager for Conventional Ammunition (SMCA) is available on the web. It lists conventional ammunition assigned to SMCA and indicates using services and is pursuant to the provisions of DOD Directive 5160.65-M. This listing is available on the Web as referenced in paragraph 1-5.d.(21)(b).

b. Use the general inspection policy of this chapter supplemented by the guidance for specific items in Appendices D through AE and Ammunition Information Notices. This supplemental guidance is based on known potential problem areas and may include exceptions and additional requirements for each specific item. Therefore, in the event of apparent conflict between general requirements and requirements for specific items, the specific requirements will have precedence.

2-2. Inspection Procedures for Non-Army Owned Conventional Ammunition.

a. Navy owned (SMCA managed) stocks will be inspected IAW NAVSUP P-805 and this SB. In the event that Navy procedures do not meet SB 742-1, safety-in-storage criteria, both procedures SB 742-1 and NAVSUP P-805 will be used. Receipted ammunition will have a normal Receipt Inspection (RI) performed IAW this SB. All outer packs opened for RI that were received with a traceable seal will be resealed using a traceable seal IAW NAVSUP P-805. All other procedures related to the samples will be accomplished as directed by this SB. All assets will then be scheduled for next inspection using safety-in-storage scheduling procedures IAW paragraph 2-4e and NAVSUP P-805, Chapter 1, paragraph 1-2.7. Defect classification and assignment of condition code will be IAW NAVSUP P-805. Navy unique stocks will be inspected and scheduled for inspection IAW NAVSUP P-805.

b. Marine owned (SMCA managed) stocks will be inspected IAW NAVSUP P-805 and this SB. Receipted ammunition will have a normal Receipt Inspection (RI) performed IAW this SB. All outer packs opened for RI that were received with a traceable seal will be resealed using a traceable seal IAW NAVSUP P-805. All receipted assets will then be scheduled as normal for Periodic Inspection (PI) as directed by this SB. Defect classification and assignment of condition code will be IAW NAVSUP P-805. Marine Corp unique stocks will be inspected and scheduled for inspection IAW NAVSUP P-805.

c. Following are clarifications/exceptions to specific requirements of NAVSUP P-805:

(1) A Depot Surveillance Record (DSR), will be maintained for each lot of ammunition. SMCA installations will use the DSR as the "receipt inspection record form".

(2) Where the NAVSUP calls for a certification stamp; SMCA installations may use an authorized signature.

(3) Tags/labels and or bar codes are not required on serviceable stocks of Navy or Marine Corps ammunition in storage at SMCA installations. When ammunition is shipped to a Navy installation, bar codes encoded with National Item Identification Number (NIIN), owner and condition code will be affixed to the shipment. Material condition tags (DD Forms 1574 through 1577) will also be applied before shipment.

(4) SMCA installations should certify and seal empty containers being issued to Navy or Marine Corps activities. When empty containers cannot be sealed, SMCA installations may follow current army policy on identifying empty containers.

(5) Navy owned conventional ammunition not condition code A quality due to packaging deficiencies, but serviceable for intended purpose, will be assigned condition code J and reported by an Ammunition Condition Report (ACR), DA Form 2415, to reference 1-5.d.(4).

(6) Conventional ammunition suitable for Navy training use only will be assigned condition code B or condition code C as directed by a Navy Notice of Ammunition Reclassification (NAR).

d. Air Force owned (SMCA managed) stocks will be inspected IAW TO11A-1-10, this SB and applicable specific item technical order; if a conflict in guidance exists, the specific item TO will take precedence. Receipted ammunition will have a normal Receipt Inspection (RI) performed IAW this SB. All receipted assets will then be scheduled as normal for Periodic Inspection (PI) as directed by this SB. Defect classification and assignment of condition code will be IAW TO 11A-1-10. Air Force unique stocks will be inspected and scheduled for inspection IAW TO 11A-1-10 and the specific item TO.

e. Following are clarifications/exceptions to specific requirements of TO 11A-1-10 (Air Force stocks):

(1) A DSR will be maintained for each lot of ammunition. SMCA installations will use the DSR in lieu of AFTO Form 15.

(2) AFTO Form 15's received from Air Force units in support of munitions shipments contain valid inspection results. JMC surveillance organizations will utilize these inspections when determining date of next inspection. If AFTO Form 15 indicates that item being received has a current inspection then any receipt inspection performed will be limited to a damage in transit inspection.

(3) Hermetically sealed containers will NOT be opened for inspection purposes unless item TO specifically directs containers to be opened or the outer appearance of container indicates signs of damage or corrosion that may have penetrated the container. Items in previously opened hermetically sealed containers will be 100% inspected. Defects found on these items will not be considered for determining lot serviceability, nor will they be considered for sample selection for PI. Review TO 11A-1-10, paragraph 2.4, and 3.5 for detailed instructions.

(4) If specific item technical order requires testing of stocks with equipment not available contact servicing Air Force liaison or JMC Surveillance Office for guidance.

(5) Air Force owned munitions in an unserviceable, economically repairable condition code (CC/E, F, G), will be inspected at their normal periodic cycle for defects that may cause progressive deterioration IAW TO 11A-1-10.

(6) Certain AF owned items are exempt from normal periodic inspection IAW TO 11A-1-10; see paragraph 3.5 for detailed instructions. The requirements of this SB, paragraphs 2-4d and e will apply.

f. All service owned/service managed stocks will be inspected IAW with the owning services' criteria and scheduled for inspection IAW the owning services inspection criteria.

g. Lot clustering is applicable to all conventional stocks with the exception of navy owned stocks (see paragraph 2-6c(1)) and shall be used.

h. Ammunition containing depleted uranium will be scheduled for inspection IAW owing services criteria or this SB whichever is more restrictive.

2-3. Selection, Inspection, and Disposition of Samples.

a. Sample selection.

(1) Sample will be selected and tagged in storage for inspection by a QASAS and must be representative of the entire lot or lot cluster under evaluation. The evaluation will include overall condition of the lot/lot cluster in storage and will be recorded on the inspection report. Judgment must be exercised by the QASAS to ensure maximum representation without unnecessary re-warehousing.

(2) Samples of items that cannot be feasibly returned to the original package configuration (e.g., hermetically sealed containers, small arms ammunition packed in metal (terneplate) lined M1917 boxes, and heat-sealed barrier bags) will be used on a recurring basis if sampled lot is not part of a cluster. If the recurring samples indicate progression of deterioration type defects, lot acceptability will be determined by inspection of an additional sample from original sealed containers. If the sampled items are part of a lot cluster, such samples will not be used on a recurring basis until all lots in the cluster have been inspected and the inspection cycle is repeated. The criteria in paragraph 2-7 will apply.

(3) Selection and preparation of stockpile laboratory test program samples will be accomplished according to instructions contained in this bulletin, the applicable SB for the particular item, and instructions from the appropriate headquarters.

(4) Selection and preparation of function or trace test samples for shipment to a test facility will be accomplished according to instructions contained in this bulletin, the applicable SB for the particular item, and instructions from the appropriate headquarters.

(5) Selection and preparation of propellant samples for shipment to a test facility will be accomplished IAW paragraph 13-11.

b. Sample Inspection.

(1) All inspections and tests will be conducted by or under the supervision of a QASAS.

(2) The use of applicable Appendices D through AM, drawings, Ammunition Information Notices (AIN), specifications, SOPs, and Ammunition Data Cards (ADC) during all prescribed inspections is required and will be supplemented by related technical publications. Deviation from standards delineated in these references must be made a matter of record in reports to other agencies and the DSR.

(a) Ensure that the item being inspected is compared with a drawing or specification with the same revision under which it was manufactured or modified.

(b) In the event of a conflict between defect classifications in surveillance SBs and the specification, information in the SB will take precedence when classifying defects for ammunition.

(c) The specific item information contained in the appendices, supplement the criteria contained in the body of this bulletin. The use of the appendices is mandatory for the conduct of the

surveillance inspections for applicable items. Each appendix is tailored to a specific item or family of items. They are intended to enhance readiness of the U.S. Army by providing a standardized basis for the conduct of surveillance inspections worldwide; place emphasis of surveillance inspections on those components which are most susceptible to deterioration or change during long-term storage; and identify potential problem areas as early as possible during the life cycle, so that corrective action can be planned and accomplished in a timely manner.

(d) The appendices are written, staffed, and approved for ammunition that has been accepted into the field service account. The primary emphasis is the detection of defects that would adversely affect the safe storage, transportation, or reliable use of the item. Therefore, in some instances, acceptance and rejection criteria, defect classification, and permissible measured tolerances contained in the appendix will conflict with criteria contained on drawings and in specifications. Where this occurs, the criteria contained in the appendix will take precedence (verification inspection conducted at time of renovation excluded).

(3) Requests for ammunition drawings will be made to the applicable command as referenced in paragraph 1-5.d.(5).

(4) Ammunition Data Cards for conventional ammunition should first be checked for availability through the Munitions History Program (MHP). If unavailable, request from the consignor or JMC surveillance office (reference paragraph 1-5.d.(1). Ammunition Data Cards for guided missiles and large rockets should be requested from the consignor or AMCOM Munitions Team Office (reference paragraph 1-5.d.(2).

(5) The examination of samples will normally be conducted at the ammunition surveillance workshop building; however, examinations may be performed at the storage site or elsewhere when in conformance with an approved SOP. Refer to DA PAM 385-64 for permissible operations inside and outside of storage structures.

(6) Lots will normally be inspected for deterioration, damage, unsafe conditions, and gross manufacturing defects. Use of gages and precision-measuring instruments during the conduct of sampling inspections will be according to paragraph 2-8.

(7) Inspection results for each lot or serial number (SN) inspected must be considered in conjunction with the results of previous inspections for that lot/lot cluster or SN. Trends in the serviceability of the lot/lot cluster must be analyzed to determine if action is required in addition to the condition coding of the lot/lot cluster inspected. Analysis could indicate that the inspection interval for the lot/lot cluster needs to be expanded or reduced (see paragraph 2-5).

(8) The appropriate sampling plan of Chapters 2, or 12, or applicable appendix will be used in sampling inspections.

c. Sample disposition.

(1) Hermetically sealed containers will be resealed with reinforced tape. The tape will be minimum of 1½ inch in width and will be applied using three wraps with a 1 inch pull-tab. Lot inspection samples will be used on a recurring basis for subsequent inspections. Exterior package of samples will be marked or tagged as surveillance samples that are not to be shipped unless the total lot quantity is being shipped.

(2) Inspection samples of small arms ammunition packed in metal-lined (terneplate) M1917 boxes will be used on a recurring basis. Terneplate lids will be resealed using tape. Boxes will be identified as surveillance samples not to be shipped.

(3) Barrier bags opened for inspection should have the air evacuated and be resealed with a sealing iron. Detailed instructions for sealing barrier material are contained in MIL-STD-2073-18 and MIL-B-117. New bags must be prepared if the original bag cannot be resealed and equivalent barrier material is available. Samples that have been properly resealed should not be used on a recurring basis.

(4) Samples in jungle pack and those in barrier material, which cannot be properly resealed for any reason, must be resealed using pressure-sensitive adhesive tape. Inspection samples will be used on a recurring basis. Outer packs will be identified as surveillance samples not to be shipped. When the entire lot is scheduled for shipment, samples in barrier material must be resealed, if possible, according to paragraph 2-3c(3) above.

(5) Due to extreme hygroscopic nature of styrofoam, following procedures will be implemented when unpacking or repacking M2A1 containers with styrofoam supports:

(a) M2A1 containers with styrofoam inserts will remain open for an absolute minimum.

(b) When possible, desiccant packed in M2A1 container will be replaced with fresh desiccant prior to repack. As an alternate method of minimizing moisture absorption, place removed desiccant and styrofoam inserts in an approved desiccant container. Removed desiccant and supports will not be returned to M2A1 container until immediately prior to material repack and container closing.

(c) If neither procedure in paragraph 2-3c(5)(a) and (b) above is possible, then repack the desiccant and all inner packing in the M2A1 can immediately after removal of material. The M2A1 can will be closed until time of repack.

(d) Packs selected for item inspection will be the minimum number prescribed by this supply bulletin. All packs which are opened for inspection will be marked or tagged "Surveillance Samples: Not to be shipped until entire lot quantity is exhausted." and used on a recurring basis for future individual lot inspections only.

(6) Serviceable samples will be returned to storage with the parent lot.

(7) Ammunition with critical defects, considered hazardous to store, will be segregated with like items and destroyed as soon as possible according to approved procedures. When applicable,

ammunition with critical defects will be rendered safe to permit safe handling.

(8) Emergency disposal of lethal and incapacitating chemical munitions will comply with applicable public laws. Disposal of lethal or incapacitating chemical munitions by detonation is prohibited unless specifically authorized by higher headquarters.

(9) Munitions are sometimes assigned condition code H or placed in the RRDA or disposal account. Such munitions must be identified at time of classification for more extensive inspection or priority for demilitarization (see paragraph 2-4e).

(10) When a lot is rejected the defective samples will be tagged or otherwise marked for identification and returned to the parent lot.

(11) Only serviceable samples will be returned to serviceable parent lots. Defective samples in insufficient quantities to cause rejection of a serviceable lot will be either repaired or stored separately.

(12) Sample inspection will apply to the entire lot or lot cluster and the accept or reject criteria in Table 2-3 will be used for lot classification. For inspections involving lot clusters, disposition of inspection results will be in accordance with paragraph 2-6c(15).

(13) Rejected lots/lot clusters or samples must be reported according to the requirements of DA PAM 750-8. In addition, lots and lot clusters containing critical defectives will be locally suspended, assigned CC-J, and reported to the appropriate commodity command by the most expeditious means (by message or e-mail for OCONUS or by telephone during duty hours within the continental United States CONUS). Item nomenclature, National Stock Number (NSN), lot or serial number, defect(s) encountered, number of defectives, and number of samples examined must be included in the report. One copy of the ammunition data card(s) and the depot surveillance record card(s) will also be forwarded to the appropriate commodity command. If possible and appropriate, photographs will be included.

2-4. Types of Inspection. The principal types of inspections to be performed on ammunition materiel are defined below.

a. **Initial Receipt Inspection (IRI)**. Initial receipt inspection will be performed within 30 days after receipt or prior to shipment (whichever comes first) on materiel received directly from the manufacturer, vendor, or Government activity and has been inspected and accepted by the Government at the point of origin. This inspection is expected to identify gross manufacturer errors and is not intended as manufacturer's acceptance type inspection. An IRI includes Damage in Transit (DIT) inspection (see paragraph 2.4l) expanded to include inspection for gross manufacturer errors, certain type manufacturing defects, and includes inspection of item.

(1) DIT (see paragraph 2.4l) is required for materiel that has a current periodic inspection IAW this SB received from a JMC plant with an assigned QASAS.

(2) Lot Clustering procedures will be used according to instructions of paragraph 2-6c. All lots received will be individually inspected for damage in transit (see paragraph 2.4l). One lot of each cluster will receive an IRI.

(3) For materiel that cannot be lot clustered, inspection will be on a sampling basis by individual lot and will receive an IRI.

b. **Receipt Inspection (RI).**

(1) Condition Code K will be assigned to all ammunition lots received without a valid inspection. AR 725-50 limits the assignment of Condition Code K to a period not to exceed 45 days.

(2) When materiel is received from an activity with an assigned QASAS (see paragraph 1-3b) and the DSR stipulates that required inspections/tests were performed on the lot within the specified time interval, inspection will be for damage in transit only (see paragraph 2.4l). If additional inspection is indicated, the scope will be determined by the QASAS in charge. Lot Clustering provisions of paragraph 2-6c will be used whenever possible. If munitions are received without a current DSR, request it from the shipping activity. If a DSR is not available follow procedures listed in paragraph 2-4b(3).

(3) Materiel received without a current DSR will be inspected as follows:

(a) Containers will be inspected 100 percent for presence of seals. Contents of unsealed containers will be inspected 100 percent. Gaging will be performed as required by paragraph 2-8.

(b) Sealed containers and their contents will be inspected on a sampling basis by lot for damage in transit, deterioration, and nonstandard conditions.

(c) The extent of inspection will be altered by the QASAS in charge when the documentation received or the condition or configuration of the materiel indicates that an increase or decrease in the scope of inspection is required or justified.

(4) Used packaging material (i.e., boxes, fiber containers, filler material, eyebolt lifting plugs, closing plugs, etc.) will be inspected as follows:

(a) Receipts from storage installations, posts, camps, and stations with qualified ammunition surveillance personnel (assigned QASAS, military ammunition inspectors, MOS 89B, and properly trained and designated civilian technicians) and with documentation that certifies the materiel has been subjected to 100 percent inspection for serviceability and explosive contamination should be accepted in the condition assigned by the inspecting installation. Material certified free of explosive contamination by the shipping installation is suitable for storage in inert areas.

(b) Assignment of condition code K and 100 percent receipt inspection is not required for on-post accumulation of materiel generated from maintenance, demilitarization, load, assembly, and pack (LAP) operations which is stored in segregated areas set aside for the exclusive storage of class V materiel. The materiel shall be given a 100-percent

inspection prior to shipment, use, disposal, or storage in an inert area.

(c) Materiel placed in inert storage areas or offered to Defense Reutilization Management Office (DRMO) must have had a 100 percent inspection, verified on a sampling basis by a QASAS, and be certified as explosive free according to DODI 4140.62 and DOD 4160.28-M-V3. Certifications and inspection records must be maintained for materiel held in inert storage areas. Storage area and materiel must be controlled to ensure inspected and certified stocks are separated from materiel not properly inspected and certified as being free of explosive contamination.

(d) Serviceability will be determined using appropriate criteria given in paragraph 2-7. Degree of explosive contamination, if any, will be determined in conjunction with foregoing inspections. Wooden packing materials treated with pentachlorophenol (referred to as PCP or PENTA) must be properly identified. Containers that have contained depleted uranium cartridges will be tested according to AR 385-10 to ensure that they are free of radioactive contamination.

(e) The extent of inspection will be altered by the QASAS in charge as required.

(f) Materiel received with proper certification or documentation described in paragraph 2-4b(2) above can be shipped to other depots or plants without additional inspection prior to shipment. Copies of the certification and/or documentation will be provided to the consignee.

c. **Acceptance Inspection (AI)**. Acceptance inspection is performed on materiel received from contractor or plant requiring inspection and acceptance at destination, materiel inspected at origin and requiring acceptance at destination, and components from demilitarization to be reused or restored to stockpile. Instructions for AI will be furnished by the applicable commodity command, when required. Depots receiving materiel from procurement for stock will process DD Form 250 (Materiel Inspection and Receiving Report) according to Defense FAR Supplement (DFARS), Appendix F.

d. **Periodic Inspection (PI) (cyclic)**. All serviceable required (condition codes A, B, C, D and N) will be inspected periodically for deterioration and nonstandard conditions for classification of true level of serviceability. Periodic inspection interval requirements in accordance with paragraph 2-5. Lot clustering procedures per paragraph 2-6c will be used.

(1) Where a previous inspection has established a static condition; e.g., a rocket continuity test failure that has established a requirement for 100-percent replacement or inspection of igniters), such tests should not be performed during subsequent inspections. Disassembly for inspection of manufacturing type defects (measuring, weighing, etc.) will not be performed unless required by a specific procedure or directed by the appropriate commodity command (see paragraph 1-3e(3)).

(2) For SMCA managed required stocks in condition codes A, B, C, D and N, PIs will be performed at the time intervals specified in the Conventional Ammunition Inspection Interval Listing as provided on the JMC Surveillance Office website (see paragraph 1-5d(21)g); Table 2-1 will be utilized for NSNs/DODICs not in the listing; these NSNs/DODICs will be reported to the JMC Surveillance Office for a listing update. PIs (not including propellant) will be performed on unserviceable/suspended SMCA managed required stocks at twice the listed inspection interval. Interval for US Army Aviation and Missile Command (AMCOM) managed items will be as directed by the item SB. PIs will not be performed on stocks in the Resource Recovery and Disposition Accounts (RRDA) and on unserviceable, non-repairable ammunition.

(3) If stocks are stored under adverse conditions, the materiel must be examined more frequently as determined necessary by the QASAS in charge.

(4) All stocks of propellant items, including all owners and condition codes, stored at JMC locations will receive a PI at intervals specified in the Conventional Ammunition Inspection Interval Listing as provided on the JMC Surveillance Office website (paragraph 1-5d(21)g).

e. **Safety in Storage Inspection (SIS)**.

(1) SIS assures stocks are safe for continued storage and handling. Inspections will be performed on:

(a) Non-required stocks.

(b) Navy owned/ SMCA managed.

(c) Unserviceable, non-repairable ammunition

(d) All stocks in the Resource Recovery and Disposition Accounts (RRDA), whether serviceable or unserviceable.

(2) Handling includes those preparatory actions necessary to demilitarize or transport the item. The QASAS will determine whether the conditions noted are immediately hazardous or could result in a hazardous situation for handling, storage, or transportation. SIS inspections are not required for inert ammunition. When performing SIS inspections, ammunition materiel will only be inspected for defects that could affect further safe storage and handling, such as exposed explosives, corrosion that could lead to exposed explosives, or missing safety devices.

NOTE

In some cases, the time and effort required to perform a periodic inspection is the same or is marginally more than required for an SIS inspection. The decision to perform a PI in lieu of an SIS is at the discretion of the QASAS in charge. If a PI is performed, record inspection as a PI on the DSR and schedule a SIS for the next inspection.

(3) Lots determined to pose an immediate threat to life, health, or government property will be reported for emergency destruct.

(4) Lots or lot clusters determined to be potentially hazardous will be inspected as frequently as necessary to assure continued safe storage of the lot.

Necessary actions will be taken to identified and ensure demilitarization of this materiel before it becomes hazardous. Intervals in the Conventional Ammunition Inspection Interval Listing as provided on the JMC Surveillance Office website (paragraph 1-5d(21)g) will be utilized. QASAS in Charge may reduce interval as required. Classify this materiel to Condition Code (CC) H and assign defect code C018EZ.

(5) Lots or lot clusters determined to be non-hazardous in terms of normal storage and handling will receive an SIS at twice the designated PI interval.

(a) Lots in SIS status will remain in the appropriate condition code. Defect code C018DH (old) CAA843 (new) will be assigned when the lot exceeds one SIS assigned interval. The SIS assigned interval is twice the interval in Table 2-2 of this manual. Lots in SIS status may require a serviceability inspection IAW 2-4h prior to issue.

(b) Navy owned, SMCA managed stocks will receive SIS inspections and be maintained in their appropriate condition code, defect code C018DU (old); CAA874 (new) will be assigned to these stocks.

(6) Unless a periodic inspection is elected IAW paragraph 2-4e(2) note, condition code "J" will be assigned to lots that are not inspected by the time they reach twice the SIS assigned interval and defect code C018TM (old), CAA88B (new) applied. An item in SIS status is assigned an interval of twice the interval in Table 2-2 of this manual. Condition code "J" is not assigned until the inspection is overdue by twice the SIS assigned interval (i.e. a category Z item in Table 2-2 would have an SIS assigned interval of 4 years and CC-J would be applied after 8 years). AR 725-50 limits the assignment of condition code "J" to a period not to exceed 270 days. An inspection will be performed within 270 days of the date that condition code "J" is assigned.

(7) Sampling plans for SIS inspections will be determined by the QASAS in charge. The minimum sample size for potentially hazardous items is that indicated in Table 2-3. The minimum sample size for non-hazardous items is one-half that indicated in Table 2-3.

(a) Accept-reject criteria will not be used. The QASAS will determine whether the lot can be expected to remain non-hazardous during the SIS inspection interval. For lot clusters; defects found within the sampled lot which could affect safe storage or handling will cause a change in the status of the sampled lot IAW paragraphs 2-4e(2), (3), and (4) above and selection of additional samples IAW paragraph 2-6c(15).

(b) Testing or gaging is not required

SIS inspections will normally be performed in the surveillance workshop and must include inspection of outer pack, inner pack, and item. Palletized projectiles and small arms ammunition (except cartridges with chemical or explosive projectiles) may be inspected in the storage location. Examination of outer packs in storage is normally sufficient for small arms ammunition up to .50 caliber.

f. **Storage Monitoring Inspection (SMI).**

(1) Storage monitoring inspection is performed as required by applicable technical instructions for specific items or as determined necessary by the QASAS in charge. It is performed on items while in the storage site and includes but is not necessarily limited to:

(a) Inspection of lethal chemical agent munitions containers of bulk lethal chemical agent, or containerized lethal chemical agent munitions to detect leakers and other visual defects.

(b) Reading and recording pressure and relative humidity of items packaged in pressurized or desiccated containers.

(2) Frequency of SMI will be as required by the technical instructions for the specific item. SMI may also be conducted when determined necessary by the QASAS in charge.

g. **Special Inspections (SPI).** These inspections are performed at the direction of higher headquarters or to satisfy special or local requirements when approved by the QASAS in charge. Reason(s) for conducting SPI must be entered in the inspection remarks.

h. **Preissue Inspections (PII)**. This is an inspection other than a PI that must be performed prior to issue. Examples are ammunition requiring a special check for specific defects as determined by QASAS in charge or as directed by higher headquarters; or lots in SIS status, which require a serviceability inspection prior to issue. A lot or lot cluster overdue for PI will be given a PI prior to shipment, not a PII. The appropriate sampling plan in paragraphs 2-6, or Chapters 7, 8 and 12 will be used. Reasons for conducting PII must be entered in inspection reports. Navy owned munitions in SIS status will receive a PII prior to shipment.

i. **Verification Inspection (VI).** This inspection is performed on materiel processed during preservation and packaging (P&P) and maintenance (renovation, modification, overhaul, etc.) type operations. Verification inspection will be performed according to paragraphs 4-3 and 4-4.

j. **Basic Load Inspection (BLI)**. Basic load inspection is performed on stocks of munitions (to include training, security, and contingency stocks) maintained by a military unit or civilian security forces. This includes security forces at installations where AR 50-6 applies. Chapter 8 of this SB contains additional instructions.

k. **Surveillance Function Test Inspection (SFTI).** Function test of ammunition will be conducted IAW Chapter 3 and the item's supply bulletin or ammunition surveillance test procedure (ASTP). The visual inspection conducted in conjunction with the preparation of function test samples may satisfy the PI required for the lot(s) tested, however, additional samples may be required.

l. **Damage in Transit (DIT).** Damage in transit may be performed during IRI or RI inspections (see paragraphs 2.4a and 2.4b(2). DITs include inspection of exterior packaging and marking for deficiencies, correct unitization procedures, and nonstandard conditions on packaging based on applicable

documents.

2-5. Periodic Inspection Intervals.

a. The normal interval of inspection for required stocks is based on the expected rate of deterioration for specific item types. These deterioration rates have been developed into inspection interval categories that are assigned to items as appropriate. For items in outside storage see paragraph 10-3.

b. The normal interval of inspection for each category is given in Table 2-2. This interval is to apply unless specified otherwise in the inspection procedures for a specific item or is adjusted according to paragraphs c through e below. Serviceable lot(s) will be assigned defect code C018DH (old), or CAA843 (new) (overdue for inspection) when the elapsed time since the date of the last inspection exceeds the assigned interval by 6 months. The lot/lot cluster will remain in the previously assigned condition code until either the required inspection is performed or the lot/lot cluster reaches twice the assigned interval. Condition code J will be assigned to the lot(s) that are not inspected by the time they reach twice the assigned inspection interval and defect code CO18TM (overdue for inspection by twice the interval) applied. AR 725-50 limits the assignment of condition code "J" to a period not to exceed 270 days. An inspection will be performed within 270 days of the date that condition code "J" is assigned.

c. When the inspection results of a specific lot or lot cluster reveal progressive degradation of such degree that the lot may become unserviceable before expiration of the assigned category interval, the QASAS in Charge will schedule the next inspection at a shorter interval based on conditions detected, storage conditions, and materiel involved.

d. The normal interval of inspection may be expanded whenever local storage conditions, climatic conditions, and previous inspections justify. A prime concern in the area of climatic conditions must be the degree of relative humidity. The QASAS in charge is responsible for determining those items, specific lots and lot clusters that will be placed in an expanded inspection interval status. As a minimum, adjusting an interval of inspection for items, specific lots or lot clusters will be based on the following criteria:

(1) Each lot or lot cluster being considered for expanded interval status must have had an IRI, RI, or VI.

(2) Data from previous inspections must indicate that no appreciable degradation has occurred.

(3) Lots and lot clusters will be stratified by Department of Defense Identification Code (DODIC), and any other criteria determined applicable (such as manufacturer, age, condition, storage history) and each stratum considered as a whole for possible interval expansion. This procedure is not intended to be used on a one-time basis to extend intervals on lots or lot clusters overdue for inspection. It is intended to identify types of ammunition that can be considered for change of category based on actual inspection history.

(4) An expanded inspection interval may consist of an increase of up to one whole interval. The QASAS in charge is authorized to implement an expanded inspection interval. A brief history of the lots involved and rationale for the expanded interval implemented must be furnished to JMC, Surveillance Office for use in future inspection interval research.

e. For operational efficiency, all similar items should be programmed during the same month of a given year's PI schedule. To establish and maintain a schedule by like items, it is permissible to vary the date of next inspection (DNIN) by decreasing or increasing the interval as much as 12 months. Adjusting the schedule in this manner will have no effect on the provisions of paragraph 2-5b above.

f. Priorities for periodic inspection:

(1) Materiel with high turn over rates, needed to fill issue requirements.

(a) Lots in CC-J for past due inspection by twice the interval.

(b) Lots six months or more past due inspection (but less than twice overdue).

(2) All other required materiel at normal inspection interval.

g. Lots and lot clusters overdue for PI will not be issued. Shipments to Posts, Camps, and Stations location will have a minimum of six months remaining on their inspection cycle. Ammunition lots issued to OCONUS locations and to users/installations without a QASAS must have at least 18 months remaining on the inspection cycle. Ammunition lots transferred between two OCONUS theaters or ammunition lots retrograded back to CONUS also must have 18 months remaining on the inspection cycle (exception: ammunition being retrograded back to CONUS from a Theater Support Area supply point supporting on-going combat operations must have 9 months remaining).

2-6. Ammunition Inspection Categories and Sampling Plans.

a. Ammunition items (except toxic chemical and AMCOM-managed items) are separated into categories for assignment of PI intervals as listed in the Conventional Ammunition Inspection Interval Listing (paragraph 1-5d(21)g). Category determination is based primarily on susceptibility to and rate of deterioration. Items not listed under one of the existing categories will be reported to JMC Surveillance Office and be considered as category Z until a category is assigned. Change to a category will be disseminated by message pending formal change to this bulletin. Changes in categories are effective immediately and intervals for inspections must be adjusted at time of change. Categories for specific items covered by the Conventional Ammunition Inspection Interval Listing (paragraph 1-5d(21)g) supersede guidance given for general items in Table 2-1.

b. Table 2-3 will be used to determine the inspection sample sizes for IRI, RI, PI, and PII.

c. Lot Clustering.

(1) Ammunition lot clustering procedures are used to administratively combine ammunition lots into homogeneous groupings for conducting classification

(serviceability) inspections. This procedure is applicable to inspection of Army, Air Force and Marine Corps owned conventional ammunition stocks. This procedure also applicable to Navy owned conventional stocks for safety in storage inspection purposes. Those lots that do not meet the criteria for clustering will be evaluated using applicable guidance for individual lot inspections. Lot clusters may not contain more than 50 individual lots.

(2) Clustering will be performed within individual installations. The QASAS in charge is responsible for implementing the lot-clustering program and is the final authority on acceptability of lots for clustering. Lot clusters exist only on the installation where they have been created to perform inspections. Receiving installations will re-establish a lot cluster as required/necessary.

(3) When a cluster is being formed the date of next inspection will be based on the lot having the most recent date of last inspection (does not include inspection for damage in transit). If all lots within the new cluster are past due inspection, one lot must be inspected. This date then becomes the date of last inspection for the cluster.

(4) Lot clusters will use normal periodic inspection intervals of the Conventional Ammunition Inspection Interval Listing (paragraph 1-5d(21)g).

(5) Lots may be added (up to 50 lots) or deleted from a cluster at any time. Suspension or restrictions issued by higher commands or receipt/issue of a lot at the installation may be cause for the addition/deletion, but will not alter the date of next inspection for the lot cluster.

(6) Inspection samples will be drawn from a single lot within the cluster (except as described in paragraph 2-6c(13)) and must be representative. A different lot will be selected at subsequent intervals until all lots in a cluster have been sampled. Sample size for periodic inspection of lot clustered USAF SMCA assets will be found in Table 2-3, SB 742-1. All lot clustering procedures will be applied to USAF SMCA assets. The sampling size for periodic inspection of lot clustered USAF owned, Non-SMCA items will be determined using Table 3-1, T.O. 11A-1-10.

(7) All lots within a cluster are considered equally suitable for issue. Further inspection will not be required for shipping individual lots of a cluster, which is within inspection cycle, unless directed by higher headquarters for specific PII requirement. Receiving installation will apply the results and date of last inspection to the actual lot received from a cluster.

(8) Lots deleted from a cluster for any reason will retain the date of next inspection of the cluster. DSR will show inspection results of the sampled lot from the cluster.

(9) Lot clustering of new materiel is authorized when received directly from the manufacturer. "Skip lotting" is no longer an acceptable method of inspection for initial receipts.

(a) Normally, the first lot received from a manufacturer is inspected for the lot cluster if it meets clustering criteria (cluster can be initiated when first is received). An IRI will be performed IAW paragraph 2-4a. Any cluster must have a minimum of one lot inspected at the time of receipt or prior to issue.

(b) Only materiel received directly from the same manufacturer can be added to an existing lot cluster of new materiel.

(c) Each individual lot of new materiel received will be inspected for damage in transit.

(10) Lot clustering of materiel requiring SIS inspection:

(a) Multiple condition codes may be clustered for SIS inspections as long as clustering does not affect the safe storage and handling of the lot.

(b) Lots receiving SIS will have a PI performed prior to issue.

(11) In all cases, the DSR for each lot in the cluster will be annotated with inspection results of sampled lot. Included in the inspection remark will be the cluster lot index number and the lot number sampled.

(12) Each individual lot within a cluster must be evaluated in its storage locations for visual degradation. Any indication that a particular lot is showing a different rate of deterioration will be cause for deletion of that lot from the cluster. This evaluation may be performed in conjunction with magazine inspections or at the time samples are selected in the storage structure.

(13) Lots considered for inclusion into a lot cluster must meet the clustering criteria that follow.

(a) Same model/series of ammunition. This will typically separate clusters by the Department of Defense Ammunition Code (DODAC) (e.g., 1305-A071).

(b) Same manufacturer. This will be indicated by the manufacturer prefix for ammunition lot numbers (reference MIL-STD-1461). Depot lots (e.g., RR, SRD, RHN, etc.) that are formed from grouping ammunition lots will not be considered for lot clustering.

(c) Same lot interfix. Non-standard lots (lots with lot identifier codes, i.e. A, D, E, G, H, P, PG, R, S, SP SR, and PILOT) described in MIL-STD-1168 will not be clustered. The number of lots within a particular cluster is dependent on the number of lots within an interfix at the individual installation. There is no need to limit the number of lots beyond the scope of criteria noted here. Only propelling charges for semi-fixed ammunition assigned standard ammunition lot numbers are eligible for clustering. All other propelling charges and bulk propellants whose ammunition lot number is composed of the 5-digit number representing the propellant index or serial number will not be clustered.

(d) Similar method of pack. The intent here is to separate lots within the same DODAC that have significantly different types of packaging. Examples are mortar ammunition with and without jungle wrap.

(e) Same condition code. All lots must

have the same condition code to be included in the cluster. Not applicable to SIS lot clusters.

(f) Similar lot history. DSR must be reviewed to ascertain the similarity of lot histories for the lots being considered for clustering. Lots that have been uploaded will not be clustered. A lot cluster of new materiel must only contain materiel received from a manufacturer.

(g) It is permissible to lot cluster functional packed lots ("L" lots) provided that such lots have the same composition, e.g. the same ratio of ball to tracer and meet all other lot clustering criteria.

(h) In general suffixed lots should not be clustered because of dissimilarity of their lot histories; however, on a case-by-case basis the QASAS in Charge may permit clustering of suffixed lots having very similar histories; e.g. the same maintenance performed at the same installation separated by only a short time.

(14) Record keeping for lot clusters will be in accordance with guidance of paragraph 11-2i.

(15) Disposition of inspection results. Sample inspection will apply to the entire cluster and accept/reject criteria of Table 2-3 will be used for cluster classification. If the sampled lot fails to meet serviceability criteria additional samples will be inspected.

(a) Lot clusters with 2 to 5 lots, inclusive: dissolve cluster and inspect each individual lot in accordance with this chapter.

(b) Lot cluster with 6 to 10 lots, inclusive: inspect 2 (two) additional lots. If neither of the additional lots fails to meet serviceability criteria, remove first inspected (failed) lot from cluster and retain cluster in appropriate serviceable condition code. If either of the additional lots fails to meet serviceability criteria, reject the entire lot cluster and assign condition code accordingly.

(c) Lot clusters with 11 to 20 lots, inclusive: inspect 3 (three) additional lots. If none of the additional lots fail to meet serviceability criteria, remove first inspected (failed) lot from cluster and retain cluster in appropriate serviceable condition code. If any of the additional lots fail to meet serviceability criteria, reject the entire lot cluster and assign condition code accordingly.

(d) Lot cluster with 21 to 50 lots, inclusive: inspect 5 (five) additional lots. If none of the additional lots fail to meet serviceability criteria, remove first inspected (failed) lot from cluster and retain cluster in appropriate serviceable condition code. If any of the additional lots fail to meet serviceability criteria, reject the entire lot cluster and assign condition code accordingly.

(e) Individual failed lots that are removed from the cluster due to conditions stated in paragraphs 2-6c(13)(a) through (d) above will be treated as individual lots and be assigned the appropriate condition code based upon original inspection.

(f) Sample sizes and accept/reject criteria for all lots inspected within a cluster subsequent to the failure of the first lot to meet serviceability criteria will be in accordance with cluster lot requirements of Table 2-3.

2-7. Surveillance Defect Standards.

a. Ammunition defects are classified into the following four categories:

(1) Critical. A defect that is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending on the item, or a defect that is likely to cause the destruction of/or serious damage to the weapon or launcher under normal training or combat conditions.

(2) Major. A defect other than critical that is likely to result in failure in tactical use or which precludes or reduces materially the usability of the item for its intended use.

(3) Minor. A defect other than critical or major that is not likely to result in failure during use or reduce the intended use of the item, but which should be corrected prior to issue.

(4) Incidental. Defects not of the critical, major, or minor types will be classified as incidental and corrected when maintenance is performed on the item. Incidental defects will not normally be reported to the commodity command unless specifically requested but will be recorded on the depot surveillance record card.

b. Defectives are items having one or more defects; e.g., an ammunition item or unit having one or more major defects is considered a major defective. An ammunition item or unit having one or more critical defects and one or more major defects and one or more minor defects will be classified as a critical defective, a major defective, and as a minor defective.

c. The following criteria are furnished as a guide to assist the QASAS in classifying metal, plastic, and rubber component deterioration or corrosion; mixed ammunition; damage; packaging; and marking defects into one of the four defect categories:

(1) Metal, plastic, and rubber component deterioration.

(a) Critical deterioration is deterioration that creates a hazardous condition for persons using or maintaining the item.

(b) Major deterioration is deterioration that significantly reduces or precludes the functioning or use of the item and requires maintenance or renovation prior to issue.

(c) Minor deterioration is deterioration that does not significantly reduce the functioning or use of the item but normally requires minor maintenance to restore the materiel to an issuable condition or to prevent the progression of deterioration to a more serious degree.

(d) Incidental deterioration is superficial deterioration that affects only the surface of the item and does not affect the intended use of the item. Items with incidental defects are acceptable for issue at the time of inspection.

(2) Corrosion.

(a) Critical corrosion is rust, or corrosion that has progressed to the point that the material is hazardous to retain.

(b) Major corrosion is rust, corrosion accompanied singly or in combination with etching, pitting, or more extensive surface damage; loose or granular condition.

(c) Minor corrosion is loose rust, corrosion accompanied by minor etching and pitting of the surface.

(d) Incidental corrosion is discoloration or staining with no direct visual evidence of pitting, etching, or other surface damage.

(3) Ammunition mixed.

(a) Critical is when the types of ammunition mixed within a lot can result in hazardous or unsafe conditions for persons using or maintaining the item, e.g., ball ammunition with grenade cartridges or blank ammunition, high explosive (HE) with practice ammunition, incorrect type or color of smoke or signal, etc.

(b) Major is when the types of ammunition mixed within a lot can result in failure during tactical use, e.g., HE instead of HEAT ammunition, incorrect fuze model, etc.

(c) Minor or incidental defects – none are defined.

(4) Damage.

(a) Critical damage is a condition where the damage can cause hazardous or unsafe conditions for persons using or maintaining the item, e.g., broken safety devices, broken fins on fin-stabilized projectiles, etc.

(b) Major is a condition where the damage can cause failure or materially reduce the intended use of an item, e.g., dented or distorted cartridge cases, damaged rotating bands, misaligned components, etc.

(c) Minor or incidental defects - none are defined. Any damage other than defined above will be noted on the DSR for information. Damage other than critical or major will not be used as acceptance or rejection criteria (except for clearance of materiel pertaining to security assistance program) unless specifically required by appropriate item military standards or procedures.

(5) Packaging.

(a) Critical is a condition where the packaging or the absence of packaging components can cause hazardous or unsafe conditions for persons using, handling, transporting, or maintaining the materiel.

(b) Major is a condition where containers are damaged, weathered, or decayed to the extent that:

1. The contents cannot be adequately protected.

2. The containers require replacement.

3. The containers are damaged to the extent that contents cannot be readily removed.

4. The container cap or closure is damaged or insecure to the extent that contents cannot be adequately protected.

5. The container contents are loose to the extent that the item cannot be adequately protected during handling and transportation.

(c) Minor is a condition where containers are weathered or deteriorated to the extent that maintenance is normally required prior to issue or use. Examples of minor packaging defects are wet, moldy, or mildewed inner containers (except metal) and improper or inadequate sealing of fiber containers.

(d) Incidental is any packaging defect other than critical, major, or minor that should be corrected if and when maintenance becomes necessary. (Examples of incidental packaging defects are: broken or missing handles or cleats, and broken, missing or ineffective hardware, banding, or packing components.) However, contents must be safe and adequately protected for storage and shipment.

(6) Used packing materiel. The standards for evaluating used packing materiel are SB 725-12 and SB 755-1 for SMCA managed items and the applicable SB 742 series ammunition surveillance procedures for AMCOM items. Packing materiel that is acceptable for use will be classified as condition code B.

(7) Marking. Marking that is missing, illegible, incorrect, or misleading will be classified defective as follows:

(a) Critical is a condition where the marking can result in hazardous or unsafe conditions for persons using or maintaining the item, e.g., incorrect delay time, incorrect color or type of smoke or signal, HE ammunition with practice marking.

(b) Major is a condition where the marking can cause misuse or failure, e.g., incorrect model or type of round or fuze, HE instead of HEAT, etc.

(c) Minor marking defects are those other than critical or major that normally should be corrected prior to issue. Examples of minor marking defects are incorrect or missing lot number or Department of Transportation (DOT) name on the item or packing.

(d) Incidental marking defects are those other than critical, major, or minor that should be corrected when maintenance becomes necessary. Examples of incidental marking defects are use of ammunition identification code (AIC) versus NSN; illegible or missing marking such as nomenclature, NSN, DODIC, cube, weight; and incorrect weight format or placement. Also see Appendix D, paragraph D-1.

2-8. Use of Gages and Precision-Measuring Instruments.

a. As a general policy, every lot of ammunition which can be gaged and is classified as logistics control code (LCC) A or B must be gaged at least once during its storage life cycle. However, ammunition lots

for which the specified gages are not immediately available will not be reclassified to a lesser condition code, nor will shipments to users be denied, pending gaging. (FORSCOM, TRADOC, ARNG activities, and OCONUS commands, see paragraph 5-2a(4).

b. Gages must be requisitioned expeditiously by ammunition surveillance organizations for LCC-A or B ammunition on-hand or due in from new production (see paragraph 5-2). Retention and deployment of gages associated with the policies stated herein should be centrally managed on a theater, command, or other basis to minimize costs and maximize usage.

c. Gaging will be accomplished whenever possible during initial receipt inspection or at the next regularly scheduled periodic inspection. Sample size will be as specified in Table 2-3. For a lot that has been gaged at least once during its storage life cycle, use of gages during subsequent inspections will only be required when specifically directed by this bulletin, JMC Surveillance Office, or when conditions (i.e., damage, deterioration, or exposure to adverse conditions) impel the QASAS to direct additional gaging. When gaging, .50 cal. rounds, must not exceed 80 lbs of pressure IAW applicable MIL-STDs.

d. Precision-measuring instruments that are not ammunition peculiar (e.g., torque wrenches, feeler gap gages, micrometers, etc.) will be used to inspect for critical and major defects whenever specifically required by this bulletin, the complete round drawing, military specification, or by direction from higher headquarters, under the same terms given above for gages.

e. Results of gaging will be entered on the DSR. DSR's received from installations with active surveillance organizations that state that gaging has been performed will be honored by the receiving installation.

f. Procedures and actions listed below will apply in the event that ammunition items fail to meet gaging requirements listed in the appendix for a specific item, specification, or drawing during surveillance inspections. Gaging failures will be reported in detail and the report will contain the following information where applicable.

(1) NSN and lot number.

(2) Sample size.

(3) Type of failure.

(4) Number of failures.

(5) Gage drawing and revision number.

(6) Gage serial number.

(7) Number of passes since calibration.

(8) Gage dimensions at last calibration (if available).

(9) Actual measurements of item failing to gage.

(10) All other defects observed are to be identified.

g. Data required by paragraph 2-8f for individual items that fail to gage without causing lot rejection will be compiled and reported by letter or email on a quarterly basis to addressee in paragraph 1-5.d.(1).

h. Lots rejected for failure to gage during IRI will be reclassified to condition code L and reported on SF 368 (Quality Deficiency Report). The SF 368 will contain the information required in paragraph 2-8f and will be preceded by a priority message to addressee in paragraph 1-5.d.(1) if the defect encountered is classified as critical.

i. Lots rejected according to Table 2-3 for failure to gage during other than IRI will be reclassified to condition code D (for major or minor defects) or J (for critical defects) pending receipt of disposition instructions from JMC. The information required by paragraph 2-8f above will be reported to addressee in paragraph 1-5.d.(1) by message (for critical defects) or memo (for major or minor defects).

2-9. Condition Codes.

a. Information on the use of condition codes can be found in Appendix C.

b. All condition codes must be assigned by a QASAS. QASAS must review and approve any reclassification action.

Table 2-1. Periodic Inspection Intervals

Item	Category
Activators	X
Additive Jacket	Y
Ammunition Fixed and Semi-Fixed, 37mm through 165mm for Guns and Howitzers:	
a. AP, APERS, HE (all types), WP, TP, Canister, Blank, and Illuminating	W
b. Chemical, Colored Smoke, HC Leaflet, Pyrotechnic, Riot Control.	X
c. Cartridge, 105mm,Semi-Fixed for Howitzer Assembled with M67 Propelling Charges Less Than 15 Years Old (except M84 Series HC, Smoke, and M629 Tactical CS)	Y
d. Cartridge, 105mm, Semi-Fixed for Howitzer Assembled with M67 Propelling Charges 15 Years or Older, M84 Series HC Smoke, and M629 Tactical CS	Z
e. Cartridge, 105mm, Semi-Fixed for Howitzer Assembled with Propelling Charges Other Than M67	W
f. 120mm Tank Rounds	Y
Ammunition for Mortars (Mono Pack)	Z
Ammunition for Mortars (Jungle Pack):	
a. HE, WP, and Practice with Explosive Components	V
b. Practice without Explosive Components (Inert)	U
c. FS Smoke, Leaflet Riot Control	X
d. Illuminating	W
Ammunition for Mortars (Regular Pack):	
a. Practice without Explosive Components (Inert) and Illuminating	W
b. HE, WP, RP, Practice with Explosive Components, Chemical, FS Smoke, Leaflet and Riot Control	X
Ammunition for Recoilless Rifles	X
Ammunition, Close Combat Mission Capability Kit (CCMCK)	W
Ammunition, Inert, All Types	W
Ammunition, Small Arms, through 30mm (except through Cal .50 Packed in Steel Cans with Gaskets)	W
Ammunition, Small Arms, through Cal .50 Packed in Steel Cans with Gaskets (including Inert SAA)	R
Bag Loading Assemblies for Mortars	Y
Bangalore Torpedoes	X
Black Powder Charges:	
a. In Hermetically Sealed Containers	Y
b. Not in Hermetically Sealed Containers	Z
Blasting Caps, Electric and Non-Electric	V
Bombs:	
a. HE, Non-Cluster Type, Unfuzed	U
b. Fragmentation and WP Unfuzed	W
c. HE, Fragmentation, WP, Fuzed or Packed with Fuze, and Photoflash	Y
Boosters, All Types	X
Bursters	Y
Canisters, Smoke	Z
Cartridge Actuated Devices (CADs)/Propellant Actuated Devices (PADs)	W
Note: All CAD/PAD items listed in Appendix D of TB 9-1300-385 and TM 43-0001-39 are Inspection Category W (5 years). This includes DODICS MS80 and MS90 series Canopy Removal Det Cords and DODICS SP02 and SP03 Thin Layer Explosives.	
Cartridge, Bomb Ejection	W
Cartridge Cases, Primed:	
a. Artillery	W
b. Small Arms	Y
Cartridge, Photoflash	W
Charge, Practice, Hand Grenade	Z
Coupling Base with Primer	Y
Delay Elements and Delay Plungers:	
a. Hermetically-Sealed Elements	Y
b. Not Hermetically-Sealed	Z
Demolition Kit, Projected Charge	X
Demolition Block Charges, C4 or TNT	V
Demolition Block Charges (except C4 or TNT)	X
Destroyers, All Types (Document, Cryptographic Equipment, File)	Z
Destructors	Y
Detonating Cord:	
a. In Hermetically-Sealed Container	W
b. Not in Hermetically Sealed Container	Z
Detonation Simulator, Explosive M80	Z
Detonators	Y
Dispenser, Aircraft Mine, M56 and Practice M132 Loaded, and Reload Kits	Y
Dispenser, Riot Control	X
Dynamite, Military (see paragraph W-5 for Commercial Dynamite)	Y
Expelling Charges:	
a. Black Powder Filled	Z

b. Propellant Filled ..... Y

Explosive Bolts X

Fire Starters ..... Z

Firing Devices ..... Y

Flares ..... Z

Fuse, Blasting, Time ..... Z

Fusee ..... Z

Fuzes, All Types except Fuzes with Black Powder Time Train Rings or Unsealed Black Powder Delay Elements:

a. Artillery, All Container Types ..... W

b. Grenades, All Container Types ..... Y

Fuzes Containing Black Powder Time Train Rings or Unsealed Black Powder Delay Elements ..... Z

Grenades:

a. Practice, without Explosive Component, Inert ... W

b. TA, Riot Control X

c. HE, HEAT, Offensive, WP, Practice with Explosive Components ..... Y

d. Colored Smoke, HC and Incendiary ..... Z

High Explosives, Bulk X

Igniters, All Types ..... Z

Ignition Cylinders ..... Z

Incendiary Devices, All Types ..... Z

Increment, Propellant ..... Y

Inert Ammunition, All Types (except SAA Packed in Steel Cans with Gaskets) ..... W

Inert Components and Metal Parts for Ammunition Items ..... W

Initiators for Bomb Fuzes X

Launcher and 35mm Cartridges CS ..... Z

Launcher and Grenade, Smoke M176, M226 ..... Z

Mines:

a. APERS, AT, Practice with Explosive Components X

b. Practice without Explosive Components, Inert, Empty ..... W

Packing Materiel ..... R

Primers:

a. Artillery ..... W

b. Small Arms ..... .Y

Projectiles Separate Loading and Naval Separated:

a. Unfuzed non-ICM HE (except 8-inch M424) ..... U

b. Unfuzed ADAM, Baseburner, HERA, ICM HE, Illuminating, Practice with Explosive Components RAAM, WP ..... W

c. 155mm M485 (D505) ..... Y

d. Fuzed ADAM, Baseburner, HE, HERA, Illuminating, Practice with Explosive Components RAAM, WP ..... Y

e. Colored Smoke, HC X

f. 8-inch M424 X

Projectile 64mm, Riot Control M742, M743 ..... Z

Propellant, Bulk and Component Charges ..... Y

Propelling Charge, Separate Loading:

a. First Interval ..... R

b. Subsequent Interval V

Propelling Charge, Separate Loading (Navy) ..... W

Reducer, Flash ..... Y

Rocket Motors X

Rockets, Complete Rounds:

a. Flechette, HE, WP, RP, MPSM and Practice X

b. Flare and Illuminating ..... Y

c. Incendiary, Riot Control ..... Z

Shaped Charges ..... Y

Signals ..... Z

Simulators ..... Z

Smoke Pots ..... Z

Spotting Charges ..... Z

Squibs ..... Z

Supplementary Charges X

Thermal Batteries X

Thickener ..... W

Tracers, All Types ..... Y

Warheads, Warhead Sections:

a. Flechette, HE, WP, RP, and Practice with Explosive Components X

b. Flare and Illuminating ..... Y

c. Incendiary, Riot Control ..... Z

Table 2-2. Periodic Inspection Intervals

CATEGORY	INTERVAL (YEARS)
R	10
S	9
T	8
U	7
V	6
W	5
X	4
Y	3
Z	2

Table 2-3. Sample Sizes and Acceptance/Rejection Numbers.

Sample Size				Accept/Reject Numbers (Defectives)					
Item	Note	SAA	Other	Critical		Major		Minor	
				AC	RE	AC	RE	AC	RE
Outer pack	(1)	20	20	0	1	1	2	2	3
Inner pack		20	20	0	1	1	2	2	3
Belt, 5.56-mm	(2)	10		0	1	1	2	1	2
Belt, 7.62-mm	(3)	10		0	1	1	2	1	2
Belt, .30 cal.	(3)	10		0	1	1	2	1	2
Belt, .50 cal.	(3)	10		0	1	1	2	1	2
Belt, 20-mm	(3)		10	0	1	1	2	1	2
Belt, 30-mm	(3)		10	0	1	1	2	1	2
Item (Other) (Individual Lot)			20	0	1	1	2	2	3
Item (Other) (Cluster Lot)			32	0	1	1	2	3	4
Item (SAA) (Individual Lot)	(4)	300		0	1	14	15	21	22
Item (SAA) (Cluster Lot)	(4)	400		0	1	10	11	21	22

Notes to Table 2-3:

1. Inner pack and item samples must be selected from a minimum of ten outer packs. Additional outer packs must be inspected at either the inspection or storage location(s) to make a total sample size of 20.

2. If rounds are linked, a belt consisting of 6 links and 6 cartridges shall be capable of withstanding a tensile load of 19 lbs minimum without separation. Load shall be applied at a uniform rate and belt shall remain under tension for a minimum of 30 seconds.

3. If rounds are linked, a belt consisting of 25 cartridges and 25 links shall be capable of withstanding a tensile load of 25 lbs for 7.62-mm and .30 cal., 100 lbs for .50 cal. except with M2 links which should be 80 lbs, and 115 lbs for 20-mm without separation. Load shall be applied at a uniform rate and belt shall remain under tension for a minimum of 30 seconds. No test for belts of 30mm is required.

4. For the purpose of Table 2-3, SAA is defined as up to and including caliber .50.

5. Chapter 12 contains accept/reject criteria for Security Assistance Program inspections.

CHAPTER 3
SURVEILLANCE SUPPORT TO AMMUNITION FUNCTION TESTING

3-1. General.

a. Tests are performed at designated storage installations, ammunition test facilities, or laboratories according to procedures in the item's supply bulletin (SB) or ammunition surveillance test procedures (ASTP). These publications prescribe the sample size, equipment to be used, test methods, data to be recorded, and the criteria for evaluating the lot tested.

b. Lots selected for function test represent the world wide stockpile.

c. The year designation pertaining to ASRP testing will refer to the fiscal year in which funding for the testing is appropriated, regardless of the fiscal year in which testing is intended to be performed or actually conducted.

d. The primary responsibility for world-wide ammunition surveillance organizations is preparation of samples for shipment to the testing activities.

3-2. Ammunition Stockpile Reliability Program (ASRP) Specific Requirements.

a. Preparation of Ammunition Samples for Function Tests.

(1) JMC Quality Engineering Division (QAE) distributes a list of lots nominated for testing annually to each storage site/activity. The surveillance organization will notify JMC QAE regarding availability of candidate lots.

(2) The storage site/activity surveillance organization will monitor shipping actions to ensure arrival of surveillance samples at the test facility on or before the required delivery date (RDD).

(3) Selection and preparation of samples for shipment to a test facility will be as follows:

(a) Samples selected will represent the entire lot in storage at the specific site/activity.

(b) Ammunition lots will be in their current condition code at the time of test. Lots selected for shipment may not be CC-A. To ensure that the nominated lot has had no significant change since the last inspection, all lots with inspection intervals expiring prior to the RDD for the samples will undergo a readiness inspection prior to or during sample selection.

(c) It is permissible to ship two of more lot samples within one shipping container provided each lot sample is fully identified and separated. Different models and types are also permissible within the same shipping container, provided positive identification of samples is maintained.

(d) Correct NSN and DODIC for the functional lot will be stenciled on the outer packing boxes and must agree with the NSN/DODIC shown on the shipping documents. Shipping documents and containers will be annotated "FOR ASRP FY__".

(e) Samples will be maintained on stock records under the NSN/ DODIC of the functional lot.

(f) The sample size required for Small Caliber Ammunition (SCA) surveillance testing will be furnished with the request for samples. It is permissible to exceed the sample size by shipping full metal containers in sufficient quantity to provide the required sample. It is not necessary to delink and repack samples.

(g) Candidate lot test samples at the installation will be assigned condition code D (CC-D) and obligated for shipment. The material release order (MRO) for shipment of test samples to the test facility will normally be issued by the JMC Munitions and Logistics Readiness Center (MLRC).

(h) The shipping container must comply with Title 49 CFR.

(i) Selection of samples and inspection results as applicable will be documented on the DSR.

(j) The DSR will be forwarded to the testing facility upon shipment of samples.

(k) All samples will be selected by or under the supervision of a QASAS.

(l) Furnish a Report of Shipment (REPSHIP) to the designated test facility and JMC QAE.

(m) Hermetically-sealed containers, waterproof bags, lead foil envelopes, etc. (that would be opened for an inspection conducted in conjunction with sample selection) will not be opened on samples requiring a wet phase test of the sealed container by the SB or ASTP.

b. Function test at designated facilities.

(1) Scheduling of function test will be coordinated with JMC QAE.

(2) Results of function test will be uploaded directly into MHP.

(3) Notify JMC QAS/QAE by the most expeditious means when a critical defect is encountered during the test.

(4) Coordinate suspension of testing with JMC QAE.

(5) Forward photographs and videotape of malfunctioned items to JMC QAE.

(6) Maintain fragments of malfunctioned items pending receipt of disposition instructions.

(7) Submit malfunction reports to JMC IAW AR 75-1.

(8) Function testing will not be discontinued at the point where sufficient functional defects have been observed to reject the lot involved. All samples shall be tested to acquire as much data as possible.

c. Laboratory Tests.

(1) The JMC QAE manages the stockpile laboratory tests of ammunition. These tests are conducted IAW the ASTP for each item tested. Destructive and/or nondestructive tests are performed to detect trends or changes in the item's quality and to determine the items serviceability or safety status.

(2) Chemical stability tests for propellant and propelling charges are conducted IAW Chapter 13 which describes the Propellant Stability Program (PSP) and Propellant Reassessment Program (PRP). Memorandums and emails nominating candidate lots for the PSP are issued to the storage sites/activities annually. Refer to Chapter 13 for specific details.

CHAPTER 4.
AMMUNITION QUALITY ASSURANCE PROCEDURES FOR MAINTENANCE OPERATIONS

4-1. General.

This chapter prescribes responsibilities and procedures to ensure that ammunition assembled, maintained, modified, disassembled for demilitarization, or renovated at installations meets the established quality requirements.

4-2. Responsibilities.

a. The USAMC commodity commanders are responsible for furnishing the technical requirements for each ammunition maintenance program. As a minimum, the technical requirements will include:

(1) Depot maintenance work requirements (DMWR) or Letter of Instruction (LOI).

(2) List of required drawings and specifications.

(3) List of required ammunition peculiar equipment (APE).

(4) Quality standards.

(5) Lot number/suffix assignment criteria.

(6) Pre-renovation requirements.

(7) Post-renovation test requirements.

(8) Data card requirement.

(9) Reports requirement.

(10) Valid restrictions which will apply post renovation.

b. The ammunition operations organization is responsible for producing a product of acceptable quality. Operations must be performed according to an SOP that contains the detailed production techniques, standards, and process control necessary to produce a quality product. A pre-operational check must be performed prior to beginning maintenance operations. Process control is critical as product quality and overall cost of the operations are determined by the process control techniques employed.

c. The ammunition surveillance organization is responsible for management of the installation ammunition quality program. It includes:

(1) Ensuring an economical system to control product quality.

(2) Reviewing the work authorization (job order), SOP, Drawings, SB's, TM's and other required reference material for use by the operations organization prior to beginning the maintenance operation. Required procedures to review work authorizations are provided in Procedure C, paragraph 4-12.

(3) Constructing a quality audit check sheet prior to start of maintenance operations. (See Figure 4-4).

d. In addition to providing other pertinent information, the SOP is the foundation of the ammunition quality control program. For this reason, it is essential that each SOP contain production techniques in detail, standards, and controls necessary to produce a quality product. As a function of quality management, the ammunition quality assurance organization's responsibility is to ensure that each SOP contains as a minimum:

(1) The required quality characteristics for each operation.

(2) Detailed description of the quality standards.

(3) Method used to assure quality characteristics conformance (gage, visual, etc.).

(4) Operator quality checks.

(5) Quality assurance audit procedures.

(6) Specific safety requirements.

e. The ammunition surveillance organization will:

(1) Review the line layout and equipment setup during the pre-operational check.

(2) Review other procedural steps of the SOP that affect the quality of the product and safety of the operation.

(3) Evaluate the implementation of the SOP.

f. The Ammunition Surveillance Organization will utilize Quality Audit Procedures (reference paragraph 4-9) to:

(1) Review procedures to control the calibration of electrical measuring and test equipment, gages, and precision measuring instruments.

(2) Review procedures for control of non-conforming materiel.

(3) Verify the Quality Control procedures of the ammunition operations element.

(4) Verify the process produces a quality item using quality audit techniques. Quality audit check sheets must be completed during each visit made to monitor the maintenance/ production operation and are the only approved source for documenting a quality audit.

g. Determining process capability and maintaining control can best be accomplished by using statistical quality control techniques, such as X and R-charts, p-charts, np-charts, and c-charts. These are effective management tools and will be used by the ammunition organization wherever possible.

4-3. MIL-STD-1916.

MIL-STD-1916 establishes movement away from an AQL based inspection strategy to implementation of an effective prevention based strategy, including a comprehensive quality system and continuous improvement. The objective is to create an atmosphere where every noncompliance is an opportunity for corrective action and improvement rather than one where acceptable quality levels are the contractually sufficient goals.

4-4. Product Verification Sampling Plan.

MIL-STD-1916 was approved for use in April 1996 and will be used as the preferred method for acceptance of product. It requires the demonstration and maintenance of an effective process-focused Quality System. Maintenance operation elements are encouraged to submit their systems as an alternative to acceptance sampling requirements.

a. The operational element must have:

(1) A Quality System Plan.

(2) Prevention based system.

(3) Process focused quality system.

(4) Objective evidence that system works.

b. Alternative acceptance can be submitted for one or more contractually specified sampling inspection requirements or for a systemic alternate acceptance method. Submission is made IAW the requirements of MIL-STD-1916. If they do not have such a system, MIL-STD-1916 provides the preferred acceptance sampling plans. When using MIL-STD-1916, the following Verification Levels (VL) should be used:

(1) VL VII should always be used for critical characteristics.

(2) At the normal level of severity, use VL IV for major characteristics and VL II for minor characteristics if not otherwise specified.

c. Continuous sampling is the preferred method of performing acceptance sampling for inspection by attributes. Lot or batch sampling will be used if continuous sampling procedures are not employed (for example, if the operations organization lacks adequate screening capability). Continuous sampling procedures are outlined in MIL-STD-1916. In addition to sampling at frequency "f", the ammunition surveillance organization will monitor the screening phases to ensure correct application of proper "i" values and verification levels.

d. Inspection by attributes – MIL-STD-1916. If for any reason the continuous sampling procedure noted above is not employed (for example, if the operations organization lacks adequate screening capability), the appropriate plan from MIL-STD-1916 will be used by the ammunition surveillance organization.

e. Each inspection batch or lot will contain homogeneous material produced in a specified time interval (normally a single shift or day).

f. Inspection by variables: variables sampling plans are provided in MIL-STD-1916. Each inspection lot or batch will contain homogeneous material produced in a specified time interval (normally a shift or day). K and F Values will be provided upon request.

g. Inspection for critical characteristics: the operations organization will perform a 100% inspection for all critical characteristics. Surveillance will inspect for critical defects using VL VII and will always accept on zero defects and reject on one. The presence of a critical defect in any ammunition surveillance sample or in any other item which has passed 100-percent inspection by operation personnel will normally require rejection of all material processed since the process was last accepted regardless of which sampling plan is used. The extent of rejection may be modified depending on the circumstances creating the critical defect. If the defect cause can be isolated to a particular quantity of material or production interval then rejection may be limited to that quantity of material or production interval as determined by the QASAS in charge. Material that has been reprocessed and resubmitted for acceptance will be inspected IAW MIL-STD-1916.

h. Lots: continuous sampling procedures will always be on a moving product basis. Selection of samples for inspection by attributes may be on either a moving lot basis or on a stationary lot basis. Inspection by variables will be on a stationary lot basis. Inspections requiring disassembly will be performed on a moving lot basis as close as practical to the operations organization process on the part or parts being inspected.

i. Maintenance type operations of short duration and limited scope (5 days or less: these operations should be inspected using continuous sampling or lot/batch sampling plans. Regardless of the duration of a maintenance operation, a spot check or roving inspection may never be used in place of a quality audit.

4-5. Ammunition Lot Number and Suffix Assignment.

a. Ammunition to be modified, inspected 100-percent for a critical defect, or renovated will have a lot suffix assigned by the commodity command, or a lot number will be assigned locally as outlined in MIL-STD-1168. Assignment of local lot number must be approved by the commodity command. Suffixes or approval of local lot number will be requested from addressee in paragraph. 1-5.d.(1) for other Class V items. Additional information can be found in MIL-STD-1168.

b. Requests for lot suffix for SMCA managed assets should be e-mailed to addressee in paragraph. 1-5.d.(1). Organizations without e-mail capabilities may submit request by facsimile, or by mail to addressee in paragraph 1-5.d.(1). Lot suffixes are to be requested no earlier than 60 days and no later than 30 days prior to the start of approved or funded programmed projects. The ideal situation is for JMC/AMCOM to have 30 days from receipt of request to furnish the suffix to the requestor. Unplanned or unscheduled maintenance operations such as those, which occur during PREPO, AFLOAT operations or other unanticipated emergencies, are exempt from this limitation. The information in the request must include:

(1) A list including lot number/serial number, quantity, model number, and NSN of materiel to be reworked.

(2) Scope of rework to be accomplished, applicable DMWR and resulting model number and NSN if changed as a result of maintenance.

(3) List of replacement/added components involved by NSN, model, lot number, and manufacture date to include, where applicable, component

reassessment/ deterioration check test date. Lot suffix will be denied if these tests are not current.

(4) Established start date and date of availability of samples for shipment to proving ground (PG) for test.

c. Should an emergency situation arise (such as a change in scope of work, a component becomes unserviceable, or a component is received at the last moment, an expedited request for a lot suffix is in order.

d. All correspondence on lot suffix requests from U.S. Army organizations in Korea, Japan, and Hawaii must provide an information copy to addressee in paragraph 1-5.d.(3).

e. Examples of operations requiring lot suffixes are:

(1) Where new components replace like components (i.e., same model number).

(2) When a component is removed or added.

(3) Where munitions were declared unserviceable or suspended by the appropriate commodity command and require 100 percent culling, testing, etc.

(4) Where a lot number is to be assigned locally, such as in creation of a regrouped lot, the information required in subparagraph b above will also be furnished to the applicable commodity command. Concurrence for assignment of local lot number wil1 be obtained from the commodity command prior to initiating maintenance.

f. When a JMC-assigned lot suffix is not used, the office in paragraph 1-5.d.(1) must be notified in writing of desire to cancel requested suffix. When an AMCOM assigned lot suffix is not used, addressee in paragraph 1-5.d.(2) must be notified.

g. When a change in the scope of work or components to be used is contemplated after a lot suffix has been assigned, the applicable commodity command must be notified of the proposed changes by an amendment to the request for the lot suffix.

h. Revised ammunition data cards will be prepared and submitted IAW MIL-STD-1168 when any rework results in a lot number change (see also paragraph 11-2d). Lot will be maintained in CC-D until data cards are submitted.

i. To ensure uniformity of inspection/ classification, the following definitions of lot 'None', 'Mixed' and 'Unknown' are provided.

(1) Lot None: ammunition items and components without a lot number assigned at time of manufacture.

(2) Lot Mixed; ammunition items and components with a lot number assigned at time of manufacture that can be separated by lot when appropriate.

(3) Lot Unknown: ammunition items and components with a lot number assigned at time of manufacture that cannot now be identified and separated by lot.

4-6. Ballistic Test of Ammunition.

The commodity command determines the requirement for testing of components and/or end items.

a. A ballistic test request (BTR) will be prepared by the commodity command for ammunition requiring PG test. Copies will be furnished the testing agency. Sample shipping instructions will be furnished to the shipping installation. On selection and preparation of samples, the installation ammunition surveillance organization will coordinate with local supply and transportation organization to assure timely shipment of samples.

b. The commodity command will determine the requirements for ballistic testing of items reworked.

(1) Information submitted according to paragraph 4-5b will be reviewed by the commodity command to determine the necessity for ballistic test of the reworked lot. The submitting installation will then be notified whether or not ballistic testing is required.

(2) The commodity command will prepare a BTR for each reworked lot determined to require test. The BTR will provide necessary direction for selecting and shipping samples, methods of test, and acceptance/rejection criteria. Copies of the BTR will be furnished the test agency and the shipping installation.

(3) An MRO will be issued by the commodity command for the movement of all test samples to a PG for ballistic test.

(4) The test facility will furnish ballistic test results to the commodity command. On acceptance notification by the commodity command, action will be taken by the installation to place the lot in the appropriate condition code for issue and use.

(a) If retest is determined appropriate by the commodity command, the installation will be requested to furnish additional samples.

(b) Special instructions as outlined in test facility request or shipping and marking instructions contained in the original BTR apply. Reference will be made to the original BTR on retest sample shipment to maintain continuity.

(c) In the event of ballistic failure, the commodity command will, if appropriate, initiate a request for waiver/deviation for subject materiel and advise each installation of the commodity command decision.

(d) The materiel involved will be retained in CC-D pending final decision and disposition.

c. Data cards for each lot shipped in a and b above will be furnished the test activity with the documentation covering the sample shipment. A data card will also be placed in box number one of each lot shipped for test. If data cards are not available, coordination will be made with the commodity command prior to release of shipment.

d. Ammunition that is restricted or remains suspended following renovation will be reported to the appropriate commodity command to provide for lot number inclusion in TB 9-1300-385.

4-7. Reassessment of Bulk Propellant and Performance Verification of Bulk-Packed Components.

Reassessment of bulk propellant and performance verification of bulk-packed components will be accomplished IAW Chapter 13. Reassessment involves the test and evaluation of stored propellant to determine functional serviceability prior to loading into a major end item. Performance verification involves the test and evaluation of bulk-packed components to verify current performance still meets the requirements of the Lot Acceptance Test (LAT) of the bulk-packed components, as specified in the Load, Assemble, and Pack (LAP) specification for the component, prior to loading into a major end item.

4-8. Deterioration Check Test (Explosive Components).

a. Specific explosive filled components including primers, ignition cartridges and delay elements require a deterioration check test (DCT) IAW the applicable military specifications. The DCT is a test of functional characteristics and moisture content of the black powder in the component. The DCT ensures suitability for use of these components before assembly into complete rounds. A successful test will allow components to be used (uploaded) for a period of three years.

b. Effective component usage planning for maintenance, renovation and production processes is critical for components requiring DCT. Installation level ammunition managers and workload planners should identify components requiring DCT at least six months prior to projected use. Notify JMC CAD/PAD Quality Manager and Maintenance Program Manager to verify suitability for uploading components and/or scheduling required assessments at the addresses in paragraph 1-5.d.(20)(h) and (j). Inventory Management Specialists for all component applications may be contacted at address in paragraph 1-5.d.(20)(d).

c. Explosive component lots requiring a deterioration check test may be tested by the storing installation for local use. Prior to performing the test, telephonic or written notification to the offices in paragraph 1-5.d.(20)(h) and (j) must be made to assure that a local test will not duplicate test efforts underway or completed elsewhere.

d. Deterioration check tests of explosive components will be reported to the offices in paragraph 1-5.d.(20)(h) and (j) by DA Form 984 with documentation necessary for test evaluation.

e. The office in paragraph 1-5.d.(20)(h) will periodically issue letter instructions. Components that require testing will be listed by model and type.

f. When subject material is shipped between CONUS installations and the item has a current test, the receiving installation should be contacted by the shipping installation. This contact is to determine that the remaining portion of the required test interval will not expire prior to the intended date of use for the item.

g. When subject material is to be shipped to an OCONUS installation, it must have a minimum of one year remaining before expiration of test or assessment interval. To ensure that remaining time is compatible with overseas command's planned usage, the following must be accomplished:

(1) All lots selected for shipment to OCONUS will be telephonically reported to the office in paragraph 1-5.d.(20)(h) for coordination with consignee.

(2) The test or assessment expiration date will be annotated on the shipping documents.

h. Component lots may be uploaded up to six months after expiration of DCT provided the operation is continuous. The JMC Maintenance Program Manager must be notified if a break in the operation of over one week occurs or at the beginning of the six months extension date.

i. Ammunition components requiring DCT and without a current test will be assigned CC-D, defect code CAA870. Tests will only be conducted when a requirement exists to upload the components.

j. Any ammunition component failing DCT will be assigned CC-H. HQ, JMC will notify storage installations of lots failing DCT.

k. Upon completion of maintenance programs, disposition of components shall be requested from the JMC Maintenance Program Manager. Disposition requests shall include NSN, part number, lot number, condition code, and quantity.

l. For a listing of DCT items, go to the address in paragraph 1-5.d.(21)(n). Notify HQ, JMC Quality CAD/PAD POC of any discrepancies between Mil-Spec requirements and the listing posted on the surveillance website.

4-9. Basic Surveillance Audit Procedures.

a. The following are standard steps to follow when conducting an audit. Prior to conducting the audit:

(1) Create and maintain audit schedules for all operations to be audited.

(2) Obtain copies of and review MWO's, SOP's, drawings, Specs, standards and prior audit reports. Place special emphasis on prior Corrective Action Requests (CAR). Review MWO's IAW Procedure C, paragraph 4-12.

(3) Prepare audit checklist and develop sample plan IAW Procedure A (paragraph 4-10) and MIL-STD-1916.

(4) Brief operation team leader on purpose and scope of audit.

b. Conduct audit and record observations. An observation is a statement of fact made during an audit and substantiated by objective evidence. Observations may be positive or negative. The terms nonconformance, nonconformities and findings will be used interchangeably to describe and report failures to comply with specified product or quality system requirements (negative observations). Objective evidence is qualitative or quantitative information, records, or statements of fact pertaining to the quality of an item or service or to the existence and implementation of a quality system element, which is based on observation, measurement, or test and which

can be verified.

c. Conduct audit of non-conforming materiel process and record results.

d. Audit Frequency: It is anticipated that ammunition maintenance operations audits will be conducted on a daily basis. When this is not possible, increase batch and sample sizes IAW MIL-STD-1916.

e. Determine operation compliance and product acceptance IAW Procedure B, paragraph 4-11.

f. Corrective Action Requests (CAR) must be completed every time a non-conformance is observed. Figure 4-2 shows sample CAR. Figure 4-3 is an example of a completed CAR. CARs must have a suspense date.

(1) The first time a checkpoint is found not in conformance, the CAR is addressed to the Operation Team Leader with a copy furnished to the QASAS in charge.

(2) If the same check point is found non-conforming during a subsequent audit, a CAR is completed referencing both the original and current non-conformance. Include the control number (CAR No.) of the original CAR. This CAR is addressed to the Director of Ammunition Operations with copies furnished to the Operation Team Leader and QASAS in charge.

(3) If the same check point is found non-conforming a third time, a CAR is completed referencing both prior non-conformances, (including CAR control numbers). This CAR is addressed to the installation commander with copies furnished to the Director of Ammunition Operations, the Operation Team Leader and the QASAS in charge.

g. After conducting audit:

(1) Brief operation team leader on findings after each audit.

(2) Distribute CARs.

(3) Complete audit and CAR status logs (Figure 4-1).

(4) File audit checklists and CARs.

h. Review CAR status log monthly for open CARs past suspense date.

i. Send memo to operation team leader, Director of Ammo Ops and QASAS in charge if CAR response not received by suspense.

j. Schedule follow up inspection to review CAR compliance. Post follow up date on CAR, CAR status log and audit schedule.

k. Conduct follow up audit. Close out CAR if corrective action is effectively implemented.

l. If corrective action is not correctly implemented, issue second CAR referencing the original CAR and failure to correct the non-conformance. Include the control number (CAR No.) of the original CAR. This CAR is addressed to the Director of Ammunition Operations with copies furnished to the Operation Team Leader and QASAS in charge.

m. Follow up the new CAR's as outlined in paragraphs i and j above.

n. If corrective action is still not effectively implemented, a third CAR is completed referencing both prior CARs and failures to correct the non-conformance (include CAR control numbers). This CAR is addressed to the installation commander with copies furnished to the Director of Ammunition Operations, the Operation Team Leader and the QASAS in charge.

4-10. Procedure A: Audit Checklist and Sample Plan Preparation Procedure.

a. Audit Checklist Preparation:

(1) Extract all check points from item SB's, SOP's, TM's, MWO's and special inspection requirements directed by higher headquarters.

(2) List checkpoints on audit checklist and classify as critical, major and minor defects.

(3) Randomly select checkpoints to monitor during the audit. Each checkpoint is a sample. List the number of times you monitor each checkpoint next to that check point on the audit checklist. Continue to select and monitor check points until your sample size is accomplished.

(4) Sign and date the audit checklist and list the sample size.

b. Sample Plan Preparation (for inspection by lot or batch):

(1) Multiply the number of inspection check points for critical characteristics by number of rounds run since completion of last audit. This yields critical characteristic batch size.

(2) Using the batch size calculated in paragraph 4-10b(1) above, determine the sample size from Table II, MIL-STD-1916 with Verification Level VII. This gives the number of critical characteristic checkpoints that will be selected for the audit.

(3) Multiply the number of inspection check points for major characteristics by number of rounds run since completion of last audit. This yields major characteristic batch size.

(4) Using the batch size calculated in 4 paragraph -10b(6) above, determine the sample size from Table II, MIL-STD-1916 with Verification Level IV. This gives the number of major characteristic check points that will be selected for the audit.

(5) Multiply the number of inspection check points for minor characteristics by number of rounds run since completion of last audit. This yields minor characteristic batch size.

(6) Using the batch size calculated in paragraph 4-10b(8) above, determine the sample size from Table II, MIL-STD-1916 with Verification Level II. This gives the number of minor characteristic checkpoints that will be selected for the audit.

(7) Continuous sampling plans are provided in MIL-STD-1916.

(8) Remember that maintenance workflow limits the maximum number of samples that can be checked during an audit. When workload is such that an audit cannot be performed for several days and sample size becomes too great to allow performance of an audit, all production will be assigned CC-D or CC-J as determined by QASAS in charge.

(9) To minimize lot rework, it is necessary to identify batches of production. Daily production runs are the recommended batch grouping.

(10) Reduced audit intervals may be applied IAW MIL-STD-1916.

4-11. Procedure B: Operation Compliance and Product Acceptance.

a. Operation compliance and product acceptance will be determined through performance of quality audits using audit checklists.

b. If no deficiencies are noted, accept process and product produced since last inspection. Audit checkpoints will be divided between process and product at the auditor's discretion. i.e.: You may check the operators performance of the operation, check the item after he has finished his step, or both.

c. If discrepancies are noted:

(1) Complete CAR (See Figures 4-2 and 4-3).

(2) Critical or major discrepancies - exercise rework option that was chosen during MWO preparation/review. (Two options exist, rework of rounds run since process was last accepted or implementation of 100% inspection by a line operator deemed suitable by the audit team. These options will be weighed on a case-by-case basis during each work order review. The selected option will be included in the work order prior to job start.) If rounds are to be reworked, place production run since process was last accepted in appropriate unserviceable condition code based on nature of defect and requirements of SB 742-1.

(3) Minor discrepancies - Tighten inspection for reject check point IAW MIL-STD-1916. If no additional deficiencies are found, correct defective round and accept process and production. If additional deficiencies are found, reject process and production as in paragraph 4-11c(2) above.

4-12. Procedure C: Procedures to Review Ammunition Maintenance Work orders (MWOs)..

a. Determine type of MWO.

(1) Renovation MWO operations (lot suffix, open box and work on round, etc.) require audit checklist preparation and audit. Renovation MWO review is a function of the audit team.

(2) Pre-shipment MWO operations (for such things as palletization and outer pack re-marking) will be checked as workload permits. Pre-shipment MWO review is the responsibility of the shipping desk. Shipping desk will provide audit team an info copy of MWO after reviewing and initialing it.

b. Check for suspensions/restrictions on each lot to assure suitability for rework.

c. Determine shelf life, propellant reassessment and DCT of lots and components.

d. Check for applicable MINs, AINs, SOUMs, etc.

e. Review DSR, lot location and quantity records for each lot to be processed and verify lot condition is adequately addressed by MWO scope of work. Check for any ACR's that apply and applicable defect codes. Make any changes required to scope of work to assure that all maintenance required is performed to yield the desired product condition code.

f. Verify proposed condition code, lot number and NSN are correct. Ensure all condition code segments of lot are upgraded if possible.

g. Verify accuracy of all marking information in MWO. (Hazard class/division, PSN, UN S/N, NSN, lot number, etc.) (Check AMDF, Fed Log, drawings, Joint Hazard Class, etc.).

h. Check whether a lot suffix is required/received/correct. Verify lot suffix is included in MWO.

i. Verify MWO includes project start and completion dates.

j. Obtain a copy of written authorization for every deviation from required procedures.

k. Discuss rework contingency option with planners. Assure that rework option has been chosen and is listed on MWO. (Two options exist, rework of rounds run since process was last accepted or implementation of 100% inspection by a line operator deemed suitable by the audit team. These options will be weighed on a case by case basis during each work order review. The selected option will be included in the work order prior to job start.)

l. Assure all required references are on hand. Check for most current version using DA PAM 25-30. Order if necessary. (Drawings, TMs, SBs, MWOs, SOPs, etc.).

CAR STATUS LOG					
CAR #	AUDIT DATE	FOR DIR	NON-CONFORMANCE	FOLLOW UP DATE	CLOSE OUT DATE
0212	12/15/02	I	23ea CC:J mixed on 4 plts w/ non-CC:J stocks	1/4/03	resp rec'd 1/2/03-prob not resolved-discuss w/C,SDD
0213	12/15/02	I	1ea PB93 mixed on plt w/ PB92	1/4/03	resp rec'd 1/2/03-prob not resolved-sent to CT to seeif completed
0214	12/14/02	I	SDS qty 8ea, MDC & multi pack qty 1ea	1/4/03	
0214A	3/7/03	I	Follow up 9614	3/22/03	
0215	12/21/02	I	2ea Torque screwdrivers on TOW-1-96 set too low	1/2/03	5/9/03
0215A	3/7/03	I	Follow up 9615	3/22/03	5/9/03
0216	12/21/02	I	C&R test performed w/out test bay personnel barriers in place	Corrected OTS	12/21/02
0217	12/27/02	I	2ea PD68 picked up on record by inventory without notifying Surv. Rounds also picked up in incorrect CC (CC:P vice CC:F)		2/1/03
0217A	3/8/03	I	Follow up 9617		3/29/03

Figure 4-1. CAR Status Log.

CORRECTIVE ACTION REQUEST		CAR NO.
COMPANY/PROCESS/DEPARTMENT AUDITED ADDRESS		AUDIT NO. DATE OF AUDIT
AUDIT CRITERIA:		
AUDITOR	COMPANY/DEPARTMENT PROCESS REPRESENTATIVE	AREA AUDITED
NON-CONFORMANCE SIGNATURE _____ (COMPANY/DEPARTMENT/ACTIVITY REPRESENTATIVE)		SIGNATURE _____ AUDITOR
CORRECTIVE ACTION DATE FOR COMPLETION OF CORRECTIVE ACTION _____ SIGNATURE _____ DATE _____ (COMPANY/DEPARTMENT/ACTIVITY REPRESENTATIVE)		
ACTION TAKEN TO PREVENT RECURRENCE OF NON-CONFORMANCE DATE FOR COMPLETION OF ACTION TO PREVENT RECURRENCE _____ SIGNATURE _____ DATE_____ (COMPANY/DEPARTMENT/ACTIVITY REPRESENTATIVE)		
FOLLOW-UP AND CLOSE OUT PROPOSED FOLLOW-UP DATE _____ FOLLOW-UP DETAILS CAR CLOSE OUT DATE _____ SIGNATURE _____ AUDITOR		
CAR Form		

Figure 4-2. Sample CARs.

CORRECTIVE ACTION REQUEST		CAR NO. 9631
COMPANY/PROCESS/DEPARTMENT AUDITED ADDRESS DAO MSL DIV Bldg. 168 Team Leader Attn.: Joe Ammo cf: DMPO Planning		AUDIT NO. 1 DATE OF AUDIT 2/8/03
AUDIT CRITERIA: SOP # AN-0000-J-054		
AUDITOR QASAS	COMPANY/DEPARTMENT PROCESS REPRESENTATIVE Joe Ammo	AREA AUDITED EHB-1-96

NON-CONFORMANCE

P4 connection not shorted IAW procedures in SOP. (P4 wire cut and stripped ends covered with aluminum foil. Aluminum foil secured to wire with tape.) P4 leads connect to gas generator igniter. Improperly shorted igniter leads represent a potential safety hazard. This hazard is mitigated somewhat by the fact that the batteries are no longer present, the rounds are protected by the container and are scheduled for demil. Handling hazard at time of demil would increase.

SIGNATURE _____ SIGNATURE _____
(COMPANY/DEPARTMENT/ACTIVITY REPRESENTATIVE) AUDITOR

CORRECTIVE ACTION

Team leader and DMPO Planning office informed of non-conformance. Utilize existing SOP procedures or change SOP to allow cutting P4 cable, stripping ends of all three P4 cable wires and twisting and taping together to short.

Determine requirement to correct rounds processed using non authorized procedure.

DATE FOR COMPLETION OF CORRECTIVE ACTION____2/12/03_____

SIGNATURE _____ DATE _____

(COMPANY/DEPARTMENT/ACTIVITY REPRESENTATIVE)

ACTION TAKEN TO PREVENT RECURRENCE OF NON-CONFORMANCE

Deviation from SOP must be approved in writing by all staffing parties prior to adopting a change in procedure.

DATE FOR COMPLETION OF ACTION TO PREVENT RECURRENCE N/A: _____

SIGNATURE _____ DATE _____
(COMPANY/DEPARTMENT/ACTIVITY REPRESENTATIVE)

FOLLOW-UP AND CLOSE OUT
PROPOSED FOLLOW-UP DATE _____2/13/03_____
FOLLOW-UP DETAILS

CAR CLOSE OUT DATE _____ SIGNATURE _____
AUDITOR

Figure 4-3. Sample CARs.

S:	NSN	Lot #	Acc:	DOM:
	Lnch Mtr Lot #	Whd Lot #	Rej:	Signature:

CHECKLIST FOR AUDIT REPORT NO: COMB-X-02/COMB-X-02		Date:	Page 1 of 3
Item No.	Requirement	Activity Compliance	Comments/Remarks
1.	SOP: Posted/signed/current?		
2.	ATR's completed for ammo movement?		
3.	Work Order present/correct version?		
4.	Torque wrenches & test equipment properly calibrated?		
5.	Overpack & missile checked during disassembly for obvious damage? (Major)		
6.	Correct missile P/N (13060893) received to be modified?		
7.	Both launch motor igniter housing and launch motor nozzle passed inspection? (Major) (Movement/splitting/breaking away/powder loss)		
8.	Old set screw teflon tip present?		
9.	Inside of tube inspected prior to inserting motor?		
10.	New set screw teflon tip present?		
11.	New set screw installed until protruding and then backed out?		

Figure 4-4. Sample Quality Audit Check Sheet.

CHAPTER 5.
EQUIPMENT

5-1. General.

This chapter provides instructions for supply, certification, maintenance, storage, use, inspection, and disposition for ammunition gages; Test, Measurement and Diagnostic Equipment (TMDE); and Ammunition Peculiar Equipment (APE) used in ammunition quality assurance operations.

5-2. Field Service Ammunition Gages.

a. Ammunition gages are used for surveillance and inspection. The requirement for gages will be based on the following:

(1) Required for surveillance inspections and tests for items actually in storage or for items to be placed in storage.

(2) Required for scheduled preservation and packaging or maintenance.

(3) The quantity of each gage must be locally determined based upon factors such as:

(a) Concurrent surveillance and maintenance requirements.

(b) Similar operations at several locations.

(c) Anticipated production levels that will require more than one gage.

(4) FORSCOM, TRADOC and ARNG activities storing class V materiel are exempt from these requirements except as directed on a case-by-case basis.

b. The ammunition gage mission has transferred to the national maintenance point and included with ammunition peculiar equipment (APE) to support maintenance and surveillance programs. Ammunition gages are centrally managed and ownership reverts to Headquarters, Joint Munitions Command. A request for gages for materiel managed by SMCA will be submitted to addressee in paragraph 1-5.d.(6). Requisitions will include the following:

(1) Gage NSN and/or part number (NSNs and part numbers for gages may be found in Section III of TB 43-0180).

(2) Quantity and priority.

(3) Justification for gage (ammunition maintenance/surveillance operation to be performed).

(4) Supplementary address of the receiving installation.

(5) Length of loan.

(6) If gages required are replacement gages, include the reasons for replacement.

c. Shipping orders will be issued by the commodity command for shipment of gages to the installation. Two DA Forms 3023 (Gage Record) will accompany each gage.

d. Gages for materiel managed by AMCOM are covered in the TM or DMWR for the item involved.

e. Care and preservation.

(1) Ammunition gages are precision-measuring instruments, difficult to procure, and generally expensive. Careful and intelligent use and storage will result in longer gage life and reduce replacement or extensive repairs.

(2) Because ammunition gages are easily damaged and are sensitive to dust and corrosion, they will be adequately processed and normally stored in a suitable cabinet provided for that purpose. Extremely large/heavy gages that cannot be stored in cabinets will be kept on racks or tables and must be covered and stored inside buildings. The following procedures apply to care and preservation of ammunition gages

(a) Segregate the gages in a manner that will prevent them from damaging one another by contact.

(b) Never pile gages on top of one another.

(c) When gages are to be stored for short periods of time or over night, first clean each gage with an approved finger print neutralizer, rinse with a solvent and then apply a light noncorrosive oil to protect each gage against corrosion.

(d) When gages are to be stored for longer periods of time, process them according to TB 43-0180. Gages so stored will be examined quarterly to determine whether corrosion has set in.

f. Inspection and certification. Ammunition gages for use on materiel managed by SMCA will be inspected, checked, and processed according to TB 43-0180.

g. Excess gages and disposition. Gage requirements must be reviewed at least annually to determine excesses. Any gage that does not meet at least one of the requirements of paragraph 5-2a above will be reported as excess. Disposition instructions for excess SMCA managed gages will be requested from the address listed at paragraph 1-5.d.(6). The request must include the NSN, gage drawing number, nomenclature, and serial number for each excess gage.

5-3. Equipment.

a. TMDE. Common items of TMDE are listed in the TM, DMWR, or SOP for the item involved.

b. APE.

(1) Conventional ammunition. Standard APE has been developed for quality assurance tests and inspections (reference AR 700-20 and TM 43-0001-47). The operation and maintenance instructions for this equipment are contained in the appropriate APE manual. Requisitions for APE and manuals must be made according to AR 725-50 to addressee in paragraph 1-5.d(6). Installation, operation and maintenance of APE must be performed in strict compliance with the applicable APE manual and JMC directives. Instances of equipment failure or specific problems with stated directives must be expeditiously reported for resolution to address listed above.

(2) Non-standard APE is developed locally and

submitted to JMC ref paragraph 1-5.d.(6) for review, tested and approval for use. APE and Non-Standard APE is listed in TM 43-0001-37, APE Data Sheets.

(3) Large rocket and guided missile ammunition. Test equipment is listed in the TM or DMWR for the item involved.

(4) Records and reports required by DA PAM 750-8 will be maintained and submitted.

(5) Surveillance organizations will identify APE necessary to perform inspection of stored stocks and APE will be used during all applicable inspections.

(6) For FORSCOM, TRADOC, and ARNG, provisions of paragraph 5-2a(4) apply.

(7) Local modification of APE and Non-Standard APE is strictly prohibited.

(8) The proper level of decontamination must be certified and documented according to TB 700-4 for all APE prior to shipment or storage.

c. Locally developed equipment will be reviewed by installation safety office and approved by installation Commander prior to use.

5-4. Calibration Monitoring Program.

a. The ammunition surveillance organization will establish a program to ensure constant adherence to policies and procedures of the Army Calibration System that apply to tools and equipment assigned to all serviced ammunition organizations. (See AR 750-43, TB 750-25, TB 742-94-1, TB 43-180, and implementing documents.)

b. Written procedures will be established to assist the ammunition surveillance organization in ensuring that tools, gages, and TMDE in use during all operations involving ammunition are serviceable and have not exceeded the calibration interval. (See Chapter 10, paragraph 10-1c).

c. The records and reports used in calibration of Army equipment are outlined in DA Pam 750-8.

CHAPTER 6.
LARGE ROCKET AND GUIDED MISSILE AMMUNITION

6-1. Ammunition Surveillance Procedures:

Surveillance inspection requirements for AMCOM missiles, rockets, and components are contained in individual Department of the Army Supply Bulletins – Ammunition Surveillance Procedures. Requirements of SB 742-1 also apply.

6-2. Storage Monitoring Inspections (SMI):

Since most AMCOM missile systems require desiccant and humidity indicators, SMI's are a very important required inspection. SMI's must be conducted per intervals stated in the applicable SB. Intervals may be shortened depending on local storage conditions, or as deemed necessary by the QASAS-in-charge. Organizations storing desiccated systems must be knowledgeable and trained to promptly identify, report, and maintain these systems.

6-3. Testing and Equipment Requirements.

a. The command has mobile surveillance test vans that perform functional testing on the STINGER and HELLFIRE missile systems. These vans perform electrical checkout of these systems on a worldwide basis as scheduled by the applicable system Project Office and/or AMCOM RAM Engineering & System Assessment Div, RDEC addressee in paragraph 1-5.d.(2). The purpose of the functional test is to identify the current missile stockpile reliability with high confidence, to assure the user of wartime readiness and to segregate failing hardware.

b. This testing is normally independent of local visual inspections conducted in depots, ASP's, and unit basic loads, as conducted by assigned surveillance personnel per the applicable SB. However, considerations should be given to simultaneously conducting other required inspections (IRI, RI, PI, PII, SMI), if due. This could result in personnel and labor savings.

c. A QASAS/Ammunition NCO (MOS 89B), or other technically qualified person should accompany the Surveillance Test Team to assist in the coordination of the test/inspections and facilitate any administrative details. Test results will be briefed to the local commander or his representatives. The missiles found to be unserviceable will be reported on ACR or QDR, as appropriate.

CHAPTER 7.
TOXIC CHEMICAL MATERIEL

7-1. General.

a. This chapter contains specific instructions relative to surveillance operations involving toxic chemical munitions (TCM) and bulk chemical agents. Surveillance operations will be performed using this publication, other SBs, TMs, drawings, specifications, local SOPs, and other applicable publications. Selected TCM and bulk agents have been classified as solid or hazardous wastes. These materials are also regulated under the Federal Resource Conservation and Recovery Act (RCRA) or an equivalent authorized state program for waste management. The activities directed in this chapter do not supersede or diminish the requirements imposed by other federal, state, or local regulations, requirements, or agreements. Personnel involved with surveillance operations shall coordinate activities directed in this chapter with individuals that are responsible for the installation's compliance with environmental regulations.

b. Periodic inspections (PIs) are no longer performed on TCM and agents. Surveillance organizations will, nonetheless, emphasize those inspections/operations that are necessary to assure items are safe for storage, on-post movement, and demilitarization. Such efforts may involve, but are not limited to, storage monitoring, leaker isolation/containerization, special inspections, and assessments. Eliminating the PI requirement does not relieve surveillance organizations from reclassifying ammunition based upon information gathered during other types of inspections. Accurate classification of the stockpile is still required, to the extent that existing inspection protocols make this feasible. If sufficient information is available to justify assigning a new condition code, surveillance organizations will do so and submit a DA Form 2415 to the NICP at the address in paragraph 1-5d(7).

c. Technical assistance. Addressee in paragraph 1-5d(7), will provide technical assistance at the request of a chemical installation. All abnormal conditions encountered during surveillance operations will be reported in memorandum format via e-mail or fax to the above.

7-2. Definitions.

a. Confirmed Agent Detection. To be confirmed, an initial detection of chemical agent leakage must be corroborated by a second, different method of detection. Monitors used for detection are differentiated by the analytical methods employed.

b. Containment. A physical condition, which mitigates or prevents agent migration from munitions, bulk agent containers, agent vessels, packaged/overpacked items, or storage magazines. Containment may be achieved by overpacking, powered filtration, or passive filtration.

c. Filter Units. Any system of equipment that will separate airborne agents from ambient air by means of adsorption and prevent airborne agent from being exhausted from the storage structure to the outside environment. Air movement may be accomplished by means of a powered filtration unit with a motor blower (active filtration) or, a system such as a wind powered or natural draft device used in concert with an adsorbent unit (passive filtration).

d. Inspection Intervals. As listed in Table 7-1, two intervals are identified for the SMI of chemical surety items.

(1) Quarterly inspection interval. Quarterly inspection implies one inspection per quarter at approximately 90-day intervals. Intervals between quarterly inspections may not exceed 120 days or the end of the quarter in which they are due, whichever comes first. Subsequent inspections may be scheduled based upon either the originally forecast date of inspection or the actual date of completion.

(2) Annual inspection interval. Annual inspection implies one inspection per year at approximately 12-month intervals. This interval may be extended up to 15 months. If the inspection interval is extended, subsequent inspections will be scheduled based upon the originally forecast 12 month inspection date.

(3) Inspections not completed IAW the above scheduling guidelines will be documented by the QASAS-in-charge, and the documentation retained locally. The documentation shall include a full description of the circumstances that resulted in the overdue condition. Overdue inspections will be performed as a higher priority than routinely scheduled recurring inspections.

e. Leaker Lot. A munition lot so designated by Headquarters addressee ref paragraph 1-5d(7), because of a demonstrated, increased tendency to leak. Leaker lots are generally subjected to a more aggressive surveillance regimen to ensure prompt identification and control of agent leaks. Leaker lot designations are site-specific and do not extend to other installations storing the same manufacturer's lot, unless directed by addressee in paragraph 1-5d(7). The use of the term "leaker lot" within the context of this supply bulletin does not imply that all munitions within the lot are leaking.

f. Overpacked Munitions. Items packaged in one or more of the approved overpacks listed in Table 7-2. These items include, but may not be limited to munitions previously identified as leakers; M56 Warheads generated during the M55 Rocket Assessment; recovered chemical warfare material (RCWM); and munitions subjected to various Ammunition Stockpile Reliability Programs [including Surveillance Program Lethal Chemical Agents and Munitions (SUPLECAM), Surveillance Test Program – Metallurgical (STPMTL), etc] which have been drilled, sampled and plugged. Bulk agent in ton containers or munitions in original shipping and storage containers, such as spray tanks and M23 mines are not considered overpacked.

g. Short Term Exposure Limit (STEL). The maximum concentration to which unprotected chemical workers may be exposed for up to 15 minutes continuously.

h. Worker Population Limit (WPL). Maximum allowable 8 hour time weighted average concentration that an unmasked worker could be exposed to for an 8

hour workday and a 40 hour week for 30 years without adverse effect.

7-3. Documenting Results of Inspections, Maintenance, Ammunition Anomalies and Ammunition Transactions.

a. All meaningful information (e.g., results of inspections, tests, technical investigations, agent sampling, etc; and disposal process anomalies; maintenance; re-warehousing; etc) shall be recorded on the DSR Card. Documents cited to clarify or supplement DSR comments must be retained as part of the lot history. In addition, surveillance organizations should capture all information that could have an impact on waste munitions management or treatment. Accomplishment of Storage Monitoring Inspections may be recorded on the DSR Card or via a locally developed record keeping system. If a locally developed system is adopted, records attesting to the accomplishment of SMIs must be retained indefinitely.

b. The Chemical Materials Agency (CMA) ammunition surveillance element at demilitarization facilities will provide technical input, to include any unusual conditions encountered during demilitarization, to the host installation surveillance organization for posting on the Depot Surveillance Record (DSR) card. The surveillance office at the host installation will prepare the closeout remark when a lot is completely destroyed. A Chemical Accountability Management Information Network (CAMIN) report that identifies the storage installation, disposal facility, nomenclature, stock number, lot number, serial number (if applicable), destruction certificate control number(s), destruction end date associated with each destruction certificate, and the number of munitions destroyed will be physically attached to each DSR. The CAMIN report may be by Lot or NSN.

c. DSR cards will be retained by chemical storage depots/activities for at least one year after completing a disposal campaign for each stock numbered item (unless plant closure occurs earlier than one year following the munitions campaign). Upon completion of this holding period, DSR cards will be forwarded to the addressee in paragraph 1-5d(7), for records retention by the NICP.

7-4. Chemical Agent and Munitions Demilitarization Operations.

a. Chemical agent and munitions demilitarization operations include those performed in support of CMA, involving the Project Manager for Chemical Stockpile Disposal (PMCSD), the Project Manager for Alternative Technologies and Approaches (PMATA), and the Product Manager for Non-Stockpile Chemical Materiel (PMNSCM).

b. Ammunition Surveillance Plan requirements are as follows:

(1) Each government and Systems Contractor (SC) organization within CMA will comply with the requirements of CMA Regulation 742-4, Ammunition Surveillance Program. Each PMCSD and PMATA government field office will develop and implement a local Ammunition Surveillance Plan that clearly defines government roles and responsibilities in the demilitarization program. (PMNSCM requirements are spelled out in CMA Regulation 742-4).

(2) All Ammunition Surveillance Plans will include the requirements of CMA Regulation 742-4 as well as site-specific ammunition surveillance requirements and responsibilities. The ammunition surveillance chain of command within the organization must be spelled out in the Plan. Circumstances wherein personnel are permitted to stop operations must also be clearly defined in the Plan.

(3) The SC will incorporate ammunition surveillance requirements in appropriate local procedures and/or in a matrix, as described in CMA Regulation 742-4. The frequency of oversight visits to the operating areas, as well as specific areas to be reviewed, will be defined and documented. Discrepancy and nonconformance reporting procedures will also be defined.

c. Only qualified personnel will perform and/or monitor the performance of ammunition surveillance duties. Government personnel will be QASAS or, in the event QASAS are not available, personnel with locally acceptable training and/or experience. The SC may utilize a variety of personnel from within their organization; i.e., ammunition surveillance, QA/QC, safety, surety, environmental, etc.

d. The performance of ammunition surveillance duties is both a SC and a government responsibility. The SC must implement specific requirements. The government is obliged to verify implementation, monitor SC performance, and also to implement specific requirements IAW the provisions of CMA Regulation 742-4 and the local Ammunition Surveillance Plan. This is intended to assure accuracy of documentation, control of the operational process, safety and integrity of operations, and compliance with established safety, surety, environmental, and operational standards. Ammunition surveillance activities include, but are not limited to, the following:

(1) Verify the presence of approved operational procedures (SOPs, LOPs, etc.) for operations being performed.

(2) Verify that procedures contain provisions to assure that incoming material receipt documentation correctly identifies the items being demilitarized by proper NSN, DODIC, lot number, quantity, and nomenclature.

(3) Verify the presence and serviceability of all required safety and protective equipment.

(4) Verify that required lightning protection and grounding system inspections and tests have been performed as necessary.

(5) Verify that required calibration/load test for equipment has been performed and is current.

(6) Verify that demilitarization area(s) comply with explosive safety and personnel limits.

(7) On a daily basis, verify that Destruction Certificate Memorandums are accurately prepared, signed as prescribed, and copies maintained.

(8) Verify compliance with all approved operational and safety procedures.

(9) Verify that noted operational deficiencies are properly documented and reported IAW site-specific requirements and the local Ammunition Surveillance Plan. Follow-up verification of corrective actions will be accomplished IAW local procedures to assure that deficiencies have been corrected.

7-5. Types of Inspections.

a. Storage Monitoring Inspection (SMI). SMIs will be conducted as indicated in Table 7-1 regardless of condition code. Each storage configuration (package, container, or item) will be visually inspected for evidence of leakage, condition of the outer pack, dunnage, or any other condition affecting suitability for continued safe storage, to the extent possible without re-warehousing. Items, whether in original shipping and storage container or overpacks, will have outer pack inspected without opening.

b. Special Inspections (SI)/Assessments. Will be performed as directed by the office referenced in paragraph 1-5d(7).

c. Magazine Inspection. Will be performed IAW Chapter 10 of this publication.

d. Storage Structure and Site Air Sampling. All TCM storage structures and sites will be monitored quarterly to the STEL concentration. Igloos containing leaker lots of non-overpacked M55 GB rockets will be monitored to the STEL concentration once every normal duty day, and those with non-leaker lots or overpacked leakers will be monitored a minimum of once weekly. Air sampling may be conducted more frequently due to site-specific requirements. The rational for the increase and the site-specific frequency will be documented and provided to the addressee at paragraph 1-5d(7).

Table 7-1
SMI Requirements For Toxic Chemical Items

Item	Not Overpacked	Overpacked
Ton Containers	Quarterly	N/A
Mines	Annual	Quarterly
Projectiles/Cartridges	Annual	Quarterly
Bombs	Annual	Quarterly
Spray Tanks	Quarterly	Quarterly
DOT Bottle	Quarterly	Quarterly
Rockets	Quarterly	Quarterly
SUPLECAM Samples	Quarterly	Quarterly
M56 Warheads	N/A	Quarterly

7-6. Detection, isolation, and containerization of leaking munitions and/or containers (hereinafter referred to as leakers).

a. Testing munitions and bulk agent containers for agent leakage will be performed with detection equipment or monitors listed in DA Pam 385-61. The proper use, maintenance and calibration of equipment will be IAW applicable equipment or users publications, TM's, TB's, and /or the organization's chemical agent monitoring plan and supporting Quality Assurance/Control (QA/QC) plan. Selection of equipment and procedures should be based on compatibility with the operation to be performed and, to the extent practicable, should incorporate the most sensitive and accurate technology available. Departures from this approach will be justified and documented in the leaker report.

b. The prompt identification, isolation, and containment of all agent leakage are of primary concern to ensure the safety of workers, the general public, and the environment. Monitoring is conducted IAW specified requirements for the type of munition or agent in storage, and prior to entry for the conduct of operations. If the presence of leaking agent is confirmed, steps will be initiated to ensure that isolation and containment operations are accomplished.

c. WPL monitoring may be required for the protection of unmasked workers conducting long-term operations. If agent is detected and confirmed at the WPL, an attempt must be made to identify the source.

d. When evidence of a leaking chemical munition or container in storage is noted, the source will be located, isolated, and contained as soon as practical consistent with all safety, security, and environmental protection requirements. The chemical storage site commander or his designated representative must evaluate safety and environmental risks associated with leakers prior to commencing or suspending leaker isolation operations. Risk assessment factors to be considered should include impending nightfall, weather conditions, protective clothing wear times, time of day, availability of personnel, supplies, or equipment, or any other condition that impacts risk. Isolation operations need not extend beyond normal duty hours and should not prevent the accomplishment of unrelated, concurrent operations such as environmental monitoring and safety in storage inspections.

NOTE

In addition to notifying addressee in paragraph 1-5d(7) IAW paragraph 7-8, the installation element responsible for chemical event reporting will be informed of any confirmed agent leak to determine whether submission of a chemical event report is required IAW AR 50-6.

e. The following procedures apply to chemical munitions and storage containers stored in enclosed structures.

(3) Agent detected:

(n) Close storage structure vents.

(o) Perform confirmation procedures. If chemical agent is confirmed at any level, follow procedures contained in subparagraph 7-6e(2). If confirmation cannot be obtained, the storage structure will not be considered contaminated and storage structure vents may be opened. However, actions should be taken to assess the cause of the original "false positive" agent detection.

(4) Agent confirmed:

(a) Vents remain closed.

(b) Install and operate powered filtration system(s) and open vents. Filtration system(s) will

remain in operation until leaker isolation and containerization/repair operations are completed, or until the agent source is eliminated.

(c) Begin leaker isolation and containerization procedures.

(d) An inspection of the materiel in storage will be conducted to the maximum extent possible without re-warehousing in an attempt to visually locate the source of the contamination. Packaged items will have the outer pack inspected without opening. Peeling, discolored, or blistered paint, or the presence of liquid is considered evidence of possible leakage. Positive tests will be confirmed with a second test. The presence or absence of leakage will be as indicated by the second test.

(e) If during visual inspection the leaking item cannot be located, individual stacks, pallets, or items will be shrouded for additional localized monitoring.

(f) Shrouding consists of covering individual stacks, pallets, or items with any type of plastic sheeting (as an alternative, individual items, in lieu of using plastic sheeting, may be temporarily encapsulated in a locally approved container) in order to create a separate environment and concentrate agent for monitoring purposes. Proper shrouding is accomplished using plastic sheeting free of rips and tears. Suspect stacks or pallets should be completely enclosed from top to the floor. It is not necessary for the enclosure to be taped or otherwise sealed to the floor. Shrouding individual items or containers may involve completely enclosing the suspect item or probable source of leakage. Projectile sample ports, lifting plugs or nose closures may be removed on the last pallet isolated provided they are removed, monitored and replaced one at a time.

1. Shrouding will be completed with minimal re-warehousing.

2. Individual shrouded stacks, pallets, or items will be monitored using low-level monitoring procedures in order to isolate specific stacks, pallets, or munition with elevated readings.

3. Shrouded stacks, pallets, or items with elevated reading will be visually inspected and monitored in order to further isolate the leaker(s).

4. If operators elect to use a container to concentrate agent vapor, items that are not confirmed as leakers must be removed from containers after isolation is completed.

(g) For M55 rockets, intrusive low-level monitoring of the shipping and firing container may be required to confirm the presence of leaking agent.

(5) When the leaking item is located, it will be repaired and/or containerized as soon as practical. Leakers should only be containerized after all other approved containment procedures have been attempted. Use of leaker overpacks must be minimized due to the resultant loss of visibility of energetic components and the increased difficulty in demilitarization that the overpacks create. However, worker safety will take precedence in any decision to containerize leakers. Vapor leakers should not be decontaminated. A heavy-grade plastic bag, 4 mil or thicker, may be used as an interim drip container for leaking liquid agent. Liquid leakers should not be decontaminated unless it will reduce the spread of liquid contamination or reduce the potential for personnel exposure during containerization. No water or decontamination solution (except residual liquid on the item), sand, vermiculite, or other material, except interim drip bags, will be placed in overpack containers with leaking munitions. When drip bags are present, care must be taken to avoid tearing or catching bags between gaskets and flanges during packaging. All records regarding leaker packaging will include remarks on the absence or presence of drip bags. This includes DSR card, DD Form 1577, leaker report, and any other applicable record.

(6) Leakers overpacked in propelling charge containers will be transported and stored vertically with the lid up. The round will be placed into the container base first.

(7) Once leaker isolation and overpacking have been accomplished, overpacked leakers must remain in the storage structure until air monitoring indicates that agent containment and cleanup operations have been effective. Additionally, the overpacked item will be shrouded and monitored to confirm no contamination is on the exterior of the container before the item can be moved/transferred to an appropriate storage location.

f. Magazine filtration and monitoring. Selected storage magazines may be equipped with fixed or mobile power filtration units, or passive filter systems. This equipment is intended to mitigate potential agent releases to the exterior of the storage structure and/or reduce agent concentrations within the storage structure during isolation and repair/containerization operations.

g. The interior of all magazines will be monitored to verify the effectiveness of operations intended to eliminate an agent source, including magazines equipped with filtration systems. However, powered filtration may mask a continuous agent source making it difficult to verify the effectiveness of leaker isolation, leaker packaging, bulk agent container repair, or general area decontamination. Prior to monitoring the interior of magazines equipped with powered filtration units, vents will be closed and powered filtration units will be shut down for a period of not less than twenty minutes. Sample point(s) within the storage structure should be determined based on the location of the original agent source and/or operations to eliminate the source.

NOTE

A vent with a powered filtration unit attached is considered closed when the powered filtration unit is turned off as long as the hoses connecting the filter to the magazine are serviceable and adequately secure.

(5) If the presence of agent is confirmed, powered filtration will be resumed and the vents can be reopened. Filtration and periodic monitoring will continue until the agent source is eliminated or no airborne agent can be detected. The frequency of

periodic monitoring should be determined locally, based on general and site-specific risk factors. Should agent levels in the storage structure not be eliminated after leaker isolation and containerization, further isolation may be necessary.

(d) If the presence of agent is not confirmed, filters should remain shut down, vents should remain closed, and the structure monitored at least once daily for three consecutive workdays. If all results are negative, vents may be reopened, powered filtration systems may be removed and no further action is required.

(e) If a powered filtration system is being operated because the presence of agent has been detected and confirmed, and action has not yet been taken to eliminate the source or has not been successful, the system need not be shut down to ascertain agent concentrations within the storage magazine. Filtration should continue until the agent source is isolated and contained or until airborne agent can no longer be detected. Remote magazine monitoring may be used as the basis for initial determination of levels of PPE for operators performing leaker isolation and repair/containerization, etc. General area air monitoring in the immediate vicinity of operations may require operators to modify levels of PPE.

(6) If a powered filter system is being operated in the absence of agent confirmation (e.g., pre-emptive or precautionary filtration in "high risk" structures), the vents will be closed and filtration systems will be shut off for at least twenty minutes prior to monitoring the interior of the magazine to confirm the presence or absence of airborne chemical agent. If airborne agent is detected and confirmed, powered filtration will be resumed and vents can be re-opened. Operations will proceed as described in paragraph 7-6e(2), above.

(7) Vents may remain open or closed while monitoring the interior of magazines equipped with wind or natural draft filtration systems. No waiting period is required prior to monitoring. If the presence of agent is confirmed these systems must be supplemented with a powered filtration system and guidelines in paragraphs 7-6e(2) through 7-6e(3) apply.

h. Leaker containment procedures for selected items. When overpacks are required, they will be selected from Table 7-2.

(1) Cartridge 105mm. Leakers should not be repackaged in a fiber container if the original fiber container can be removed. The cartridge case and propellant should be separated from the 105mm projectile whenever possible and the projectile and cartridge case should be containerized separately. Annotate records to fully identify the packaging configuration of the containerized cartridge and disassociated explosive and inert components.

(2) Cartridge 4.2-inch. Isolate leaking munitions down to the individual fiber container(s) w/o opening the fiber. Leaking muntions will be placed nose end up in the overpack container w/o removing the fiber, propellant or ignition cartridge. Annotate records to fully identify the packaging configuration of the containerized cartridge.

(3) M23 land mines. Leaking mines encountered during the course of operations will be returned to their original drum if serviceable. The requirement to repackage the leaking mine in the bottom of the drum is rescinded. It may occupy the top, middle or bottom of the drum. If a leaking mine is detected and confirmed by monitoring the interior of the drum (prior to removing mines), no attempt will be made to isolate the leaking mine. The lid will be replaced and the occurrence will be documented as a single leak. If the original drum is unserviceable, the mines and the original unserviceable drum will be overpacked.

(4) Overpacks. Leaking overpacks (to include propelling charge containers) will not be automatically double overpacked in Single Round Containers (SRC). The initial course of action is to torque lids, bolts, test plugs or other closures to the value listed in paragraph 7-7g(10)(a) through (n), the appropriate LOI or drawing. If leak continues, isolate the leaking overpack and place into an approved secondary overpack.

(5) Ton containers.

WARNING

Over an extended period of time in static storage, the threads of brass plugs and valves on GB ton containers have been known to deteriorate. To preclude dislodging a deteriorated brass valve or plug from a leaking GB ton container, no attempt will be made to tighten the valve stem(s) or cap(s), nor will any attempt be made to tighten a leaking plug.

(a) Upon detection of a leaking GA or GB ton container valve or plug, the following will be accomplished:

1. On ton containers with brass valves and plugs, all valves and plugs on that container will be replaced with steel plugs manufactured IAW drawing numbers SK 69-4-30 (valve) and SK 72-6-5 (plug).

2. On ton containers with steel plugs, in lieu of brass valves and plugs, the leaking plug will be tightened. Should tightening of the steel plug not mitigate the leak, the steel plug shall be replaced.

(b) Upon detection of a leaking VX or H-agent type ton container valve or plug, the following will be accomplished:

1. If the valve leaks from the safety cap or packing nut, the valve stem and safety cap should be tightened and the area decontaminated. Follow-up inspections shall be accomplished within three days and again after one week to verify effectiveness of corrective action. The safety cap may be removed and the area decontaminated, however this could result in the release of liquid agent.

2. If the valve leaks from threaded area, replace both brass valves with steel plugs.

3. Leaking plugs will be replaced with steel plugs. When leaking plug(s) is replaced, all

brass plugs on affected end of ton container will be replaced.

(c) If replacement of valves or plugs does not correct leaking condition, container contents will be transferred to a serviceable ton container.

(6) Items received at demilitarization facilities that leak prior to entry into the explosive containment vestibule (ECV) will be classified as a leaker and should be introduced into the demilitarization process or placed under engineering controls as soon as possible.

i. For items not listed above, refer to Table 7-2 for applicable overpack.

j. Overpack Container Requirements.

NOTE

Overpack containers for leaking chemical munitions do not require color code markings. Existing color code markings may not be a reliable source of information. Information pertaining to the explosive make up of an overpacked munition will be annotated on DSR card (s).

(1) All overpack containers will be visually inspected immediately prior to use IAW the inspection guidance referenced in paragraph 7-7g(5). In addition, individual containers requiring leak test must be leak tested prior to use, unless leak testing has occurred within the preceding 90 days.

(2) Overpacks used for containerization of leakers will have a properly prepared DD Form 1577 (Unserviceable [Condemned] Tag-Material) attached to container. Presence or absence of fibers, drip bags and propellant, type leaker, and leaker report number will be annotated on the tag and DSR card(s). Additionally, the following data will be placed on the container either by stencil or a vinyl label (similar to hazardous waste labels):

(a) NSN and DODIC.

(b) Nomenclature.

(c) Lot number.

(d) Quantity.

(e) Date packaged.

(f) Type leaker.

(g) Leaker report number.

(h) "NOSE END" on appropriate end of rocket container.

(3) Additional labels or markings are permitted consistent with operational requirements and RCRA permits. Overpacks marked prior to 01 March 2000 do not require remarking solely to comply with this criterion.

NOTE

Vinyl label must be a high strength, high conformity, solid safety hazard tape and resistant to solvents. All headings and markings will be legible and applied with permanent ink (Figure 7-1).

Figure 7-1
LEAKER LABEL

TOXIC CHEMICAL MUNITION LEAKERS

NSN/DODIC _____

NOMENCLATURE _____

LOT NUMBER _____

QUANTITY _____ TYPE LEAKER _____

LEAKER REPORT NUMBER _____

NOSE END
ON POST MOVEMENT ONLY

7-7. Overpacks for TCM and Agents.

a. This section provides a listing of approved types of overpacks for containerization of TCM and agents identified as leakers. Unless otherwise specified, listed overpacks are for depot storage and intra-depot movement only. Overpack requisitioning procedures, inspection criteria, and storage requirements are also included.

b. Table 7-2 lists overpacks authorized for containerization of specific items. Primary overpacks are intended for use in the packaging of individual TCM and agent items identified as leakers. Secondary overpacks are intended for use in the packaging of leaking primary overpacks.

c. Propelling charge containers are no longer authorized for use as a primary or secondary overpack unless specifically, and on a case-by-case basis, approved by CMA. However, site commanders may elect to retain some propelling charge containers in local retail accounts to confront accident scenarios that would require rapid packaging to mitigate

uncontrolled hazards or minimize prolonged worker stay-time in protective clothing. Inspection criteria for the propelling charge containers are listed in Table 7-4.

d. Leaking munitions containerized prior to the effective date of this SB do not have to be repackaged solely to meet this criterion.

e. Requisitioning Procedures. Overpacks may be requisitioned through the addressee in paragraph 1-5d(7). Questions pertaining to supply status of these containers will be referred to the National Inventory Control Point (NICP) (addressee in paragraph 1-5d(7)).

f. Each storage installation shall identify a portion of their retail stocks of overpack containers as contingency stocks. Contingency stocks are defined as those quantities of containers issued to local retail accounts that are projected for use during a two-year period. Two-year projections will be based on local leaker histories or, by exception, can be directed by higher headquarters.

g. Overpack Inspection and Storage Requirements.

(1) These requirements are applicable to containers authorized for use as overpacks for leaking chemical munitions and leaking overpacks in depot storage. Requirements presented herein do not supersede requirements of the Resource Conservation and Recovery Act (RCRA) or state environmental laws. Installations must ensure compliance with all current Environmental Protection Agency (EPA) regulations pertaining to these munitions and incorporate such information in local policy or SOPs, where appropriate.

(2) If procedures and requirements presented here are in conflict with those provided in container-specific Letter of Instruction (LOI) or similar work instructions, container-specific procedures will take precedence.

(3) Inspection requirements and intervals are established to ensure that a serviceable stockpile of overpack containers is available to address current and future leaker contingencies. Installation personnel must compile and retain records of all inspections. Periodically, this information will be requested by the NICP/NMP to assess long-term container performance. All container defects must be recorded (by serial number, if applicable) even if user maintenance is successful and the container is suitable for use.

(4) Rejected overpacks that cannot be repaired at the user level will be assigned CC-F and reported by memorandum to the NICP addressee in paragraph 1-5d(7).

(5) Inspections should be performed in a clean, dry environment, protected from adverse weather conditions, and in an area where the use of personal protective clothing is not required. The criteria for inspecting overpack containers can be found as follows:

(a) M55 SRC: Table 7-3.

(b) 10”X 96” SRC; 12”X 56” Non-Standard SRC Overpack, 12" X 56" SRC, 7”x27” SRC and 9”X41” SRC: Container-Specific LOI.

(c) Secondary Steel Container (SSC): Drawing Number DA 100/2, Loading and Bracing in SSC of M23 Mines in Drums Unitized 1 or 2 Drums per Pallet.

(d) AGM-12C Bullpup: DMWR 3-1325-E388-P1.

NOTE

Container-specific LOIs and drawings may be obtained by contacting addressee in paragraph 1-5d(7).

(6) Receipt Inspection. Installations will perform inspection for damage-in-transit when overpacks are received directly from a government or contractor production facility and the overpacks have been subjected to 100 percent leak testing and inspection by the manufacturer. Containers which were not subjected to 100-percent leak testing and inspection by the manufacturer will be 100-percent inspected and tested at time of receipt.

(7) Periodic Inspection.

(a) Overpack containers (except SSCs) that are either (1) maintained in the wholesale account, under control of the NICP or (2) issued to local retail accounts but not designated as contingency stocks, will undergo visual inspection of the external surface of the container so that 20 percent of the containers are inspected annually and 100 percent of the stockpile is inspected each 5 years. It is neither necessary nor desirable to access the interior of the container to perform annual inspections, unless serviceability is in question, based upon an external inspection. Unnecessary handling can damage the container. A leak test is not required but may be performed at the discretion of the inspector if serviceability is in question, based upon visual inspection.

(b) The SSC requires an external visual inspection, IAW applicable portions of Drawing DA 100/2 prior to issue to retail accounts. Annual inspections of (1) wholesale assets or (2) containers issued to local retail accounts, but not designated as contingency stocks, are not necessary. SSCs do not require a leak test unless directed by the NICP/NMP.

(c) 100 percent of contingency stocks at user installations will be visually inspected (internally and externally, including components) and leak tested (except SSC) annually.

(8) Leak Testing: SRCs will be helium leak tested using the Defense Ammunition Center (DAC) Validation Engineering Leak Detection System. Operator instructions for using this equipment are reflected in the DAC publication, “Portable Helium Leak Test Manual” dated October 2002. This manual provides general information, operating instructions and settings for the Harris Regulator Model 415-125, the Helium Dispenser/25C9001, and the Matheson LeakHunter Plus 8066. The DAC manual will be used in lieu of the manufacturer’s User Manual packaged with each Matheson LeakHunter Plus 8066. Containers that successfully pass this leak test can be assured of having an agent containment capability of at least $1x10^{-4}$cc/He/0.5psi/sec.

(a) For SRCs (except M55 SRCs) and modified overpacks assembled with shipping and

storage O-rings (normally Buna N or Neoprene) and pre-packaged O-rings (normally Butyl rubber), the shipping and storage O-ring should be installed to perform leak testing. The pre-packaged O-ring is to be used only during actual containerization operations.

(b) For M55 SRCs assembled with pre-packaged Teflon seals, a single Teflon seal should be used repeatedly until a test failure is encountered. Upon failure, the test seal will be destroyed and discarded, and a new test seal will be used. Extra Teflon seals, NSN 5330-01-302-0054, should be requisitioned from the NICP.

(c) The AGM-12C Bullpup Container will be leak tested using the APE 1052 modified with a gauge indicating a pressure range of 1-5 psi. The test will be conducted at 3 psi, with no pressure loss noted over a 3-minute period.

(d) A tag or label will be affixed to each overpack container indicating the date and results of last test.

(9) Care and handling of SRCs during Inspection. The following special precautions are to be observed during inspection, preventive maintenance, and preparation-for-use operations involving SRCs. If container-specific procedures are in conflict with guidelines published here, container-specific procedures will take precedence.

(a) The condition of the flange sealing surface and cover is critical to container performance. Care must be taken to prevent damage to these surfaces during inspection and testing. Foreign substances of any kind, to include skin oil, may interfere with obtaining a good seal. Particular care must be taken with unpainted flange or cover surfaces.

(b) Unpainted flanges and covers should be thoroughly cleaned with a specified solvent and liberally coated with a specified rust preventive coating after inspection and/or testing. Authorized solvents and rust preventive are listed below. Lubrication of the seal is not required.

(c) Authorized solvents are Wipe Solvent DS-104 or Wipe Solvent DS-108. Pertinent packaging and ordering information is provided below.

1. Wipe Solvent, DS-104: NSN 7930-01-367-1000, 4 ea x 1 gallon container, NSN 7930-01-367-1001, 24 ea x 16 oz squeeze tube.

2. Wipe Solvent, DS-108: NSN 7930-01-367-0995, 4 ea x 1 gallon container, NSN 7930-01-367-0994, 24 ea x 16 oz squeeze tube.

(d) The manufacturer's recommended non-petroleum based rust preventative is Rhodorsil Fluid 47 V 50 (Polydimethyl-Siloxane, from Rhodia Silicones, Prospect Plains Road, Cranbury, NJ 08512-7500. Rust preventative installed by the manufacturer (Rhodorsil Fluid 47 V 50 (Polydimethyl-Siloxane) should not be removed from machined mating surfaces unless, based upon the judgment of an inspector, it is necessary to do so to recognize and classify a defect(s). Acceptable substitutes are Grease, MIL-G-14931, Grease, Silicone, MIL-G-46886; or Dow Corning Vacuum Grease, 2021846-0888. No NSN or military specification has been assigned to Dow Corning Vacuum Grease. It may be procured through a regional Dow-Corning sales representative.

(10) Overpack container lid closure torque values are provided below:

(a) M10A4 - 225-350 inch-pounds.

(b) M13A2 - 200-325 inch-pounds.

(c) M14A2 - 175-300 inch-pounds.

(d) M16A2 - 200-325 inch-pounds.

(e) M16A3 - 200-325 inch-pounds.

(f) M18A1 - 225-350 inch-pounds.

(g) M18A2 - 225-350 inch-pounds.

(h) M460A2 - 225-350 inch-pounds.

(i) Test plugs for all propelling charge container lids are to be seated with a torque of 2.5 foot-pounds (at least 30 inch-pounds) minimum.

(j) ID Set M1, 8110-00-340-2006, lid closure torque requirements follows: The bolts/nuts shall be torqued diametrically opposed from each other to 30 foot-pounds (plus or minus 2 foot-pounds). In addition, bolt threads must be fully engaged to nut. A minimum of two threads must extend from the nut after torque.

(k) M55 SRC, 8140-00-286-0482: torque inspection plug to 25 ft-lbs (300 inch-lbs). For container cover, cross torque bolts in 20 ft-lbs (240 inch-lbs) increments to 60 ft-lbs (720 inch-lbs).

(l) SSCs used to overpack M23 Mines: The bolts will be torqued in an anti-clockwise pattern starting at the top right corner to 300 in-lbs. Once all the bolts have been torqued, the process will be repeated.

(m) AGM-12C Bullpup: Torque bolts to 150 in-lbs.

(n) SRC lid closure torque values are located within each container's LOI. For the 9" x 41", 7" x 27" and 12" x 56" SRCs, operator is required to cross torque bolts in 20 ft-lbs increments to 60 ft-lbs.

(11) Torque values are the same for containers whether the overpack is being used in containerization operations or during periodic serviceability inspections.

Table 7-2. Approved Overpacks for Storage of Toxic Chemical Munitions.

Item	Primary Overpack & NSN	Secondary Overpack & NSN
1. M55 RKT,GB/ VX	a. M55 Single Round Container (SRC) 8140-01-286-0482	10” X 96” SRC P/N ACV00402
2. 4.2 Inch & 105mm (Proj only)	7” X 27” SRC P/N S727001	NA, SEE NOTE 1
3. 105mm W/Ctg Case	7” X 27” SRC P/N S727001	NA, SEE NOTE 1
4. 155mm Proj	9” X 41” SRC P/N ACV00655	NA, SEE NOTE 1
5. 8 Inch Proj	9” X 41” SRC P/N ACV00655	NA, SEE NOTE 1
6. M23 Mines	Original Storage Container	Secondary Steel Container (SSC) 8140-01-310-6929
7. MK 94, 500 lb. Bomb (Palletized)	AGM-12C Bullpup (Modified IAW DMWR 3-1325-E388-P1)	SEE NOTE 2
8. MC-1, 750 lb. Bomb	AGM-12C Bullpup	SEE NOTE 2
9. TMU28/B Spray Tank	Original Storage Container	SEE NOTE 2
10. Previously Overpacked Leakers in M10, M13, M14 or M16 Propelling Charge Containers, or ID Set M1 Container		12” X 56” SRC, P/N ACV00649 12” X 56” Non-Standard SRC, NSN: 8140-00-01-375-7070

NOTES:

1. No secondary overpack is identified for the 9” x 41” and 7” x 27” SRCs. Due to extensive product testing and demonstrated performance history, it has been determined that the probability of either of these containers leaking is negligible. If a leak is detected, addressee in paragraph 1-5d(7) will be notified and sites will be provided with a plan to mitigate the situation.

2. Use of overpacks other than those identified require prior approval of addressee in paragraph 1-5d(7).

3. Leaking munitions containerized prior to the effective date of this SB do not have to be repackaged solely to meet the criterion of this table.

Table 7-3. Single Round Container (SRC) Inspection Criteria (M55).

Checkpoint	Corrective Action
Container body	
Cracks or holes.	Reject container.
Dents which preclude use.	Reject container.
Dents which do not preclude use.	None required.
Missing or damaged components.	Reject container.
Sealing flange machined surface	
Scratches which would prevent proper sealing.	Reject container.
Foreign material, rust, dust, paint chips, etc.	Clean and apply rust preventive.*
Flange bolt hole threads damaged.	Reject container.
Cover	
Cracks or holes.	Reject container.
Missing or damaged component.	Reject container.
Serial number (S/N) does not match container body (when applicable).	Attempt to find matching S/N. If not possible, perform leak test.
Loose inspection plug.	Apply Teflon sealant (tape or liquid); torque 25ft-lbs min.
Scratches in sealing surface/groove.	Reject container.
Foreign matter, rust, etc., in seal groove.	Clean and apply rust preventative.*
Container Seal	
Teflon seals: Flat spots, irregularities, deformation, or scratches. O-rings: Cuts, irregularities, hardness, or deformation.	Destroy seal. Request replacement from NICP (the addressee at paragraph 1-5d(7).
Bolts	
Damaged bolt or threads.	Replace bolt.
Container Assembly	
Fails Leak Test.	Reject container.**

*Leak test container upon completion of maintenance. If the rust cannot be removed with no coarser than fine grade steel wool and a soft rag, or there are pits or rough surfaces caused by the rust, reject the container(s).

**After initial failure, retest with a new Teflon seal or o-ring. If failure occurs a second time, reject container.

Table 7-4. Inspection Procedures For Propelling Charge Containers.

Checkpoint	Corrective Action
Metal container lid gasket missing, out of place, damaged, or deteriorated.	Replace gasket.
Failure to pass leak test.	Replace gasket and retest. If fails a second time, reject container.
Air Sampling plug missing.	Replace plug.
Damaged threads on air sampling plug/port.	Replace sampling plug/lid.
Container dented precluding use; i.e. munition would not fit into container, container would not seal.	Reject container.
Foreign material, rust, dust, paint chips, etc., which would not allow container sealing or allow markings to be stenciled on the container.	Repair and renovate container to serviceable standards. If not possible, reject container.

7-8. Reporting of Leaking Munitions.

a. All occurrences of confirmed positive agent concentrations will be telephonically reported to addressee in paragraph 1-5d(7). Should this condition exist for more than 1 day, periodic telephonic or email updates shall be provided as necessary to keep headquarters apprised of progress, but shall not occur less than weekly. As a closeout action, when the positive agent concentration no longer exists, and leaker(s) have been found and containerized, a written leaker report will be submitted.

b. Written and telephonic munition leaker reports must contain, as a minimum, the information reflected below in the format provided. If the prescribed format for the munition leaker report is too restrictive to convey details, provide additional narrative.

c. Items received at demilitarization facilities, which leak prior to entry into the explosive containment vestibule or the ton container drain station, will be classified as leakers. The leaker report must describe the ultimate disposition of these items, e.g., whether the items were processed through the demilitarization facility or overpacked and returned to storage.

d. Items received at demilitarization facilities, which leak after entry into the explosive containment vestibule or the ton container drain station, will not be classified as leakers. If processing can be accomplished, no reporting is necessary. If these items cannot be fully processed and are returned to storage, they will be reported by memorandum.

Leaker Report Form.

1. Leaker Report Number. Consists of an installation acronym, 2-digit calendar year and a sequential number, e.g., ANCA-99-03, TOCDF-04-28.

2. Leaker Report Date. DDMMYY

3. Chemical Event Report Number.

4. Date Agent First Detected. DDMMYY (Should be consistent with initial Chemical Event Report date.)

5. Date Leaker Isolated. DDMMYY

6. Item Data:

a. Nomenclature

b. NSN

c. DODIC: Individual reports will be submitted for each DODIC.

d. Lot number and/or serial number: Individual reports will be submitted for each lot number except when a leak is detected inside an ONC/EONC which contains multiple lots (see item 8a). If an ONC/EONC contains multiple lots, a single report will be submitted with the individual lot numbers and quantities listed here.

7. Leaker Category. State one of the following as appropriate.

a. Original item. Leak attributable to deterioration of the original item.

b. Overpack. Item that leaked in the past and was overpacked to contain leakage.

c. SUPLECAM. SUPLECAM or other stockpile reliability test item that has not previously leaked, even if it was overpacked as a precautionary measure.

d. Other. Explain any leaking item that does not fall clearly into one of the three previously stated categories, e.g., ineffective maintenance - changed brass valves for steel plugs and ton leaked the following day; dropped pallet while loading ONC for shipment to demil plant, initiating leakage.

8. Leaker Data.

a. Quantity and Type. State type of agent involved and define leak as vapor, liquid, or exudate. If liquid, give approximate quantity of agent leaked, e.g., approximately 1 teaspoon. If the individual leaker is not isolated due to introduction into the demilitarization process, document as a single round leaking e.g. if agent is detected within an unopened ONC/EONC, the leak quantity will be one regardless of the quantity of munitions inside the ONC/EONC.

b. Leak Location (Geographical). State where leaking munition was initially located at time of leak and where ultimately moved to, if applicable. Include building, truck, or ONC number, and general location inside any given structure, e.g., igloo 1202, grid (or stack) XXX; ONC no. 106 unloaded into TOCDF unpack area.

c. Leak Location (Physical). Physical location of the leak on the round, e.g., nose end sample port, around lifting plug, ton container valve safety cap. If unknown, so state.

9. Initial Operation and Detection.

a. Operation and Monitoring. State the type of operation being supported and related monitoring (or visual inspection) when presence of agent was first detected and confirmed, consistent with number 4. above. Examples include: Daily headwall monitoring; headwall monitoring for first entry in support of treaty inspection; general area air monitoring during inventory; visual inspection during first entry for SMI.

b. Detection Method Used and Reading. State initial and confirmation readings and method used in detection, giving exact readings if possible. Estimate readings if necessary and explain why estimated, e.g., MiniCAMS® initial readings estimated to be >120 STEL concentration - column saturated.

10. Isolation Operation and Detection.

a. Monitoring and Operation. Indicate leaker isolation process relating specifically to readings obtained, e.g., obtained readings of ... under shrouded pallet, visual inspection then revealed liquid agent leaking from one round, confirmed with M8 paper.

b. Detection Method Used and Reading. Same type of information as 9b above, relevant to the isolated round.

11. Corrective actions taken. Include type and, if applicable, serial number of overpack used. State if packed with or without interim drip bag or other materials and any decontamination efforts conducted on round and/or structure.

12. Remarks. Include any additional information that may help to clarify conditions encountered during operations or serve as a basis for process improvement. Examples include, but are not limited to, unusual deterioration of munitions or packaging; filter breakthrough; agent confirmed during general area air monitoring (if not reported previously); agent release/detection outside the storage structure and related details, e.g., agent confirmed 25 feet downwind of structure w/ MiniCAMS® reading of 0.8 STEL concentration; equipment failure, personnel injuries/exposures or unique PPE issues; clarification of previously reported information that may have since changed, such as that contained in a Chemical Event Report. Cite previous leaker reports and overpacks, if applicable.

13. Point of Contact. The name and phone number of a QASAS who drafted the report and the name of an individual who was present during leaker isolation and containment operations - QASAS, toxic material handler, surveillance inspector, etc.

7-9. Storage Monitoring Inspection Procedures for Specific Items.

a. Ton Container. Quarterly SMI IAW paragraph 7-5a is required for all ton containers filled with bulk chemical agents.

(1) Visual. Each container shall be visually inspected for defects as defined in paragraph 2-7 and for evidence of leakage. Liquid, paint peeling, paint discoloration, or paint blistering will be considered as evidence of possible leakage. Vapor tests will be accomplished directly adjacent to container closures or other suspect areas. Leakers will be reported IAW paragraph 7-8 and handled according to paragraph 7-6.

(2) Ends of ton containers will be examined for presence of rust and/or corrosion. Minor rust or corrosion covering 25 percent or less of container end surface will be recorded, for information, on the depot surveillance record card. If minor rust or corrosion exceeds 25 percent of end surface, the container will be assigned CC-E and a DA Form 2415 will be submitted to the NICP at the address in paragraph 1-5d(7). If rust exists on areas immediately adjacent to valves or plugs in sufficient quantity to hinder detection of agent leakage, and de-rusting and repainting of areas is not performed during inspection cycle, container will be placed in CC-E.

(3) A ton container will be placed in CC-E for de-rusting, repainting, and remarking when any degree of rust or corrosion threatens to render identification markings illegible.

(4) Cylindrical surface of ton containers will also be examined for presence of rust or corrosion. Containers will be placed in CC-E when rust or corrosion on cylindrical surface has progressed to scaly, granular, or flaked condition accompanied with definite pitting or etching of metal, or with pits or irregular areas of material removed from item surface. Any lesser degree of rust or corrosion on cylindrical surface of containers will not result in a condition code change though it will be recorded for information on the depot surveillance record card.

(5) Ton containers need not be removed from the storage structure or stack solely for visual inspection of areas not accessible while in the normal storage configuration. If visual inspection indicates deterioration, container should be removed and given a more thorough inspection.

b. M55 GB Rockets. SMI procedures are located in Appendix AE of this regulation. The use of any other procedures must be authorized in writing by addressee in paragraph 1-5d(7).

c. Projectiles, fuzed and unfuzed.

(1) Agent leakage sometimes occurs at the juncture of the fuze or lifting plug and the projectile body. These leaks, if not detected early in the leakage process, often become “self-sealing”.

(2) Workers should be aware of this phenomenon and recognize that any built-up area between the fuze/lifting plug and projectile or the presence of a dry residue may be an indication of agent leakage.

(3) Dry residual agent leakers will be reported as “exudates” on the leaker report form.

CHAPTER 8.
BASIC LOAD INSPECTION AND TECHNICAL SUPPORT ASSISTANCE

8-1. General.

a. The following are to receive BLI and technical support assistance from QASAS. This will include technical assistance visits and inspection of operational load, training load, mission load and contingency stocks.

(1) Active Army.

(2) Reserve Component units and activities.

(3) National Guard units.

(4) Security forces at installations where AR 50-6 applies.

(5) Activities and individuals located outside the real property boundaries of coordinating and/or supporting installations.

b. Ammunition surveillance support (BLI and technical support) in CONUS will be implemented by scheduling support on a periodic basis as established in a letter of agreement between the command providing QASAS support and the recipient activity. Provisions of AR 5-9 also apply.

(1) Theater regulations will govern frequency of support OCONUS, but in no case will the visit occur less frequently than 12-15 months. This inspection excludes war reserve stocks in storage for customer issue.

(2) Training ammunition drawn for immediate use from ASPs is excluded.

c. DSR's are not required for the above stocks of ammunition (see paragraph 11-2a(1)).

d. Propelling charges for 155mm Howitzer M3 and M4 series Propelling Charges (1320-D540 and 1320-D541) with "Y" indicator are not to be cleared for shipment to Basic Load. Assign priority of issue, CC-C and/or lot selection code "O" to expedite the usage of serviceable stocks in training.

8-2. Inspection Requirements.

a. FORSCOM or TRADOC installations (post, camp, station) with assigned QASAS will perform inspection of stored conventional and guided missile basic load and training munitions under unit control no less frequently than 12-15 months. Appropriate SBs and TMs will be used for the inspection.

b. The BLI will be conducted by a QASAS, who may be supplemented and assisted by a military MOS 89B (SSG/SFC) and/or qualified wage grade or local national personnel. In addition, the unit inspected normally furnishes support personnel for efficient handling, unpacking, correction of minor deficiencies, repacking, and storage of munitions as required.

c. The local organization responsible for maintaining subject materiel may perform operator/organizational inspection/basic maintenance functions as authorized in the maintenance allocation chart of appropriate technical manuals. Any problems encountered that cannot be resolved locally will be brought to the immediate attention of the supporting QASAS. The results of such operations will be documented for review by the QASAS during periodic technical support visits.

d. BLI will be conducted on all uploaded munitions and all open (unsealed) containers. Munitions sealed in original package shall be opened and inspected to the extent necessary to verify serviceability based on such parameters as storage conditions, appearance of outer pack, lot size, or length of time in basic load.

(1) Barrier material packaged items will be treated according to paragraph 2-3.c.(4). Sampling criteria in paragraph 2-3 and table 2-2 do not apply.

(2) Ammunition lots must meet minimum serviceability standards for the specific type munition for retention in the basic load.

(3) The appropriate models and quantities of ammunition required to support the unit's applicable weapon systems will be in the UBL.

8-3. Technical Assistance Visit.

QASAS will conduct a review in the following areas in conjunction with BLI:

a. Explosive safety.

b. Ammunition storage.

c. Unit procedures for transportation of ammunition upload plans, disposition of excess ammunition including training ammunition, and investigating and reporting malfunctions (see paragraph 10-11).

d. Property books and ammunition records and reports.

e. Check lots against suspense/ restriction files (TB 9-1300-385) and AINs and MINs. Check that units have an adequate suspension system.

f. Assure that previously rammed projectiles are positively identified and are reclassified to CC-H for demilitarization. Verify that units have requested disposition instructions.

8-4. Reporting.

A memorandum format report will be forwarded to the unit commander within 30 days using local directives at theater or command level for distribution guidance with a copy sent to the appropriate materiel management activity. The memorandum will specify discrepancies noted and include recommended corrective action. For inspection of ARNG units, one copy will be sent to addressee in paragraph 1-5.d.(8). Response will be reviewed by the QASAS to evaluate corrective actions taken.

8-5. Establishment of Local Directives.

Supplemental guidance must be developed at local, theater, or command level to cover policies, procedures, and responsibilities for required basic load inspection.

CHAPTER 9.
CLASS V MATERIEL SUPPLIED TO NON-SMCA CUSTOMERS

9-1 General.

a. This chapter pertains to all Class V Army owned stocks, supplied to non-SMCA customers.

b. Terms and definitions:

(1) SMCA customers -- Army, Navy, Air Force, and Marine Corps.

(2) Non-SMCA customers – Federal, State and Local departments, agencies, or institutions; commercial corporations; U.S. Coast Guard; director of civilian marksmanship; rod and gun clubs; and veteran organizations; and Allies supplied Class V material by Acquisition Cross Service Agreements (ACSA).

9-2 Procedures.

a. Installations are required to obtain functional (performance) clearance for ammunition and explosive components including both shipments and in storage transfer of accountability. Shipment or transfer of accountability of caliber .22, shotgun shells and blank small arms ammunition does not require a functional clearance.

b. Materiel supplied to customers will comply with the following:

(1) Functional clearance by addressee in paragraph 1-5.d.(1).

(2) Materiel must be functionally serviceable. The materiel should have been accepted without waiver but waivered materiel may be cleared on a case by case basis.

c. Functional clearance will be obtained from addressee in paragraph 1-5.d.(1), by submitting Automated Functional Clearance Request Form located on JMC Surveillance Web Page at address in paragraph 1-5.d.(21)(n). The following information is required for clearance of candidate materiel:

(1) Customer.

(2) Nomenclature, NSN, and DODIC.

(3) MRO number.

(4) Lot/SN and quantity to be shipped.

(5) Date of manufacture and latest test data.

(6) Functional deviations or waivers from local records.

(7) Restrictions or suspensions.

(8) Latest inspection results.

CHAPTER 10.
AMMUNITION SURVEILLANCE PROGRAM FOR SAFETY AND LOGISTICS FUNCTIONS

10-1 General.

a. The organization performing an ammunition mission is primarily responsible for the safe and proper conduct of all operations.

NOTE

QASAS, military ammunition inspectors MOS 89B (SSG/SFC), and properly trained and certified civilian technicians (including local nationals in OCONUS locations) have the authority and responsibility to stop unsafe operations where imminent danger is involved.

b. The safety and logistics functions described in this chapter are the responsibility of QASAS personnel. These functions include inspection of buildings and areas in which ammunition and explosives are stored, including ASPs, PSPs, and proving grounds; outside storage; operations involving handling, storing, maintenance, shipping, research, development, test, evaluation, and destruction of ammunition and explosives; and transport vehicles and vessels used for transportation of ammunition and explosives.

(1) Safety while conducting operations, compliance with SOPs, ammunition identity (lot integrity), and serviceability are primary concerns of such inspections. Unsafe practices, methods, or conditions must be corrected immediately and reported through appropriate channels for long-term corrective action.

(2) The QASAS in charge will maintain close coordination with the directors of both safety and operations on matters affecting the explosive safety at an installation and furnish copies of magazine inspection reports, follow-up actions.

(3) Applicable safety, transportation, storage, maintenance, demilitarization, supply regulations, and directives issued by responsible commands will be used in conducting such inspections. In the absence of such documents, the policies and procedures detailed in this chapter will take precedence and be followed.

c. A SOP will be prepared prior to conducting any explosive handling operation. SOPs at AMC installations will be written in accordance with AMC-R 700-107. Other MACOMS will comply with DA PAM 385-64, Chapter 2 when developing SOPs, however, AMC-R 700-107 should also be used as guidance. Surveillance may develop other types of procedures for operations not including explosive handling as long as all applicable information required by AMC-R 700-107 is included. SOPs will be reviewed as directed by AMC-R 700-107. Other surveillance procedures shall be reviewed, as a minimum, biennially by the QASAS in charge for compliance with safety, operational and quality requirements.

d. The QASAS in charge will personally conduct periodic on-site reviews of ammunition operations to assure that these operations are being conducted satisfactorily from both a safety and a quality perspective.

10-2 Storage Buildings and Areas.

a. Magazines and other buildings in which ammunition and explosives are stored will be given a formal inspection annually (except as noted in paragraph 10-2.c.). Such inspections will be performed by QASAS who will record and report the results. A formal record of the inspection results will be maintained to include discrepancy reports forwarded to responsible installation activities and the resolution or corrective actions resulting from these reports.

(1) Inspection results will be considered part of the technical history of the items in storage.

(2) Any unusual or changing conditions encountered during an inspection that have or could have an adverse effect on any of the stored items will be recorded on appropriate DSR. QASAS will apply knowledge of such conditions on specific lots of materiel to consider the potential effect on item serviceability or suitability for continued safe storage.

(a) Such conditions, along with any potentially hazardous conditions, will be specifically noted and reported to the appropriate organization for prompt corrective action.

(b) The QASAS in charge may deem it necessary to conduct special inspections or adjust the assigned inspection intervals for materiel that has been adversely affected by such storage conditions.

(3) A re-inspection will be scheduled for locations where potentially serious conditions have been encountered to verify that they have been corrected.

(4) Conditions to be considered in the inspections of magazines and storage buildings include, but is not limited to, the following:

(a) Compliance with storage drawing.

(b) Segregation of lots and condition codes.

(c) Adequacy of aisles.

(d) Stability of stacks.

(e) Separation of stacks by safety distance where such are specified.

(f) Compliance with quantity distance limits in stacks and magazines.

(g) Storage compatibility of explosives and ammunition.

(h) Satisfactory housekeeping in the magazines for the type of materiel in storage.

(i) Suitability of the magazine for the type of materiel in storage.

(j) Condition of magazine, doors, and ventilators. (Magazine door flashings will not be inspected for defects and/or reported.)

(k) Maintenance of adequate firebreaks

(where required) around magazines and storage sites.

(l) Presence and proper types of fusible links on doors and ventilators where required.

(m) Adequacy, composition, and depth of earth cover should be checked every 24 months.

(n) Capability of magazine contents to continue to be stored safely.

(o) Presence of required condition code tags (paragraph 11-2) on unserviceable lots of ammunition.

b. Lightning protection systems within the ammunition area will receive a visual examination and a test for electrical continuity and adequacy of grounding at intervals contained in AR 385-10, DA PAM 385-64 and DoD 6055.90-M. These inspections and tests will normally be conducted by a designated operations organization within the installation. The procedures and the results of these inspections and tests will be monitored and reviewed by the ammunition surveillance organization to assure that the lightning protection systems are properly inspected and tested. Copies of all inspection and test results will be maintained IAW DA PAM 385-64. Suitable commercial test equipment or APE 1952, lightning protection system test equipment may be used.

c. At the discretion of the QASAS in charge, the magazine inspection interval may be increased to a maximum of 24 months or reduced to a minimum of quarterly depending on activity or local conditions which would increase or decrease the possibility for deficiencies to occur. Reasons for changing intervals (lack of funding or personnel does not constitute justification) must be documented.

d. Empty magazines will be inspected upon notification of removal of materiel. An empty magazine need not be re-inspected before being reused for storage provided that:

(1) It was inspected after it was emptied.

(2) Magazines and storage sites having had chemical surety materiel stored therein have been certified free of toxic hazard (AR 50-6).

(3) All defects noted during the inspection have been verified as being corrected.

(4) Use for storage is accomplished within 24 months following the last inspection.

(5) Empty magazines must be sealed with a numbered seal to assure that ammunition is not stored without proper notification of the ammunition, security, and surveillance organizations. Local procedures must be prepared to assure above notification. Integrity of seals will be assured at least every 6 months.

e. Any magazine or storage building that is to be used for storage of non-explosive or non-ammunition items (general supplies), or which is to remain empty for a long period of time, more than one year, should have the magazine inspection interval lengthened. Qualified facilities engineer personnel instead of the ammunition surveillance organization may conduct these inspections.

(1) The lengthened interval is to be based on local conditions but should not be less than 24 months and must not exceed 36 months. Continued magazine inspection is required to detect any damage or deterioration before extensive and costly repairs may be necessary for restoration.

(2) The surveillance organization will document and report any damage and deterioration to the appropriate installation organization for planning or programming of preventive maintenance so that the magazine remains suitable for ammunition storage. The correction of all deficiencies must be verified by the ammunition surveillance organization.

(3) Installations that have been identified under the Base Realignment and Closure act, need not conduct inspections on empty magazines. A final inspection will be made prior to base transfer. This final inspection is limited to a check for ammunition items or residue.

10-3 Ammunition and Explosive Materiel in Outside Storage.

a. Ammunition placed in outside storage will be given adequate continuing inspection to ensure that packaging is not damaged or deteriorated to the extent that ammunition contents are exposed in any manner not intended by the original design of the package.

(1) Any damaged packages will be adequately repaired before placing in outside storage. All ammunition will be stored in stable stacks with ventilation provided according to existing requirements.

(2) DA policy requires that outside storage of ammunition and explosive materiel be held to an absolute minimum.

(3) It is recognized that there are situations where outside storage may be justified provided materiel is stored per explosive safety standards. Examples of these situations are as follows:

(a) Size precludes storage in magazines.

(b) Materiel is presently stored outside and scheduled for demilitarization or maintenance.

b. A formal examination will be made quarterly of each outside site in which ammunition is stored. This inspection will consist of a general exterior examination of the ammunition items and packages for evidence of deterioration or damage and for the presence of any conditions indicating the possibility of future deterioration.

(1) If the exterior examination reveals any evidence of deterioration or nonstandard conditions, additional detailed inspections will be made as necessary to determine the condition of the entire quantity of ammunition affected. Primary emphasis is to detect any evidence of deterioration or hazardous conditions that may affect the continued serviceability or storage safety of the ammunition.

(2) Each outside site will be examined immediately following any unusual weather condition, such as severe rain, snow, or wind storms, which might damage or affect the ammunition.

c. PI will be accomplished on required stocks in outside storage at ½ the interval set by the Conventional Ammunition Inspection Interval Listing (paragraph 1-5d(21). The ½ interval will be shortened as determined by the QASAS in charge if packaging deterioration is found during performance of outside storage site quarterly inspection.

10-4 Handling, Storage, and Shipping Operations.

a. QASAS personnel will review handling, storage and shipping operations for compliance with applicable safety and operational regulations. Reports of deficiencies will be forwarded through appropriate channels to obtain corrective actions, as required. Follow-up will be made to assure deficiencies are corrected. QASAS will clear all lots of ammunition, components, and related materiel designated for shipment or issue. QASAS should work with supply personnel to assure oldest assets are issued first whenever possible.

b. Clearance will include reviewing the DSR, suspension records, and other applicable references. Local procedures will be designed to assure that all necessary actions required prior to shipment are:

(1) Noted on the appropriate shipping documents.

(2) Provided to the operating element for action.

(3) Checked to assure completion prior to release of items for issue or shipment.

(4) P-treated materiel may be shipped without restriction unless otherwise noted on the Shipping Planning Worksheet (SPW).

(5) Items palletized with black banding is not suitable for PREPO, AFLOAT/MPS/APF ships and must be replaced with galvanized banding prior to shipment. Other than new production material which requires items to be palletized with galvanized banding, older production items palletized with black banding are suitable for overseas shipment for any non-PREPO, AFLOAT application, including to non-DOD customers, provided the banding is satisfactory for its intended use and purpose. (See Appendix D, paragraph D-4 for the disposition of new Army production items received with black banding).

c. Lots and lot clusters overdue for PI will not be issued. Shipments to Post, Camp and Station locations will have a minimum of six months remaining on their inspection cycle. Ammunition lots issued to OCONUS locations and to users/installations without a QASAS must have at least 18 months remaining on the inspection cycle. Ammunition lots transferred between two OCONUS theaters or ammunition lots retrograded back to CONUS also must have 18 months remaining on the inspection cycle (exception: ammunition being retrograded back to CONUS from a Theater Support Area supply point supporting on-going combat operations must have 9 months remaining).

d. It is the responsibility of the ammunition operations organization to certify as inert/free of hazardous chemicals and/or explosives materiel being transferred directly to the DRMO. This certification will be verified IAW DOD 4160.21-M-1 through sampling by QASAS.

10-5 Transport Vehicles and Vessels.

The examinations, inspections, and reports in paragraphs a and b below must be performed by or monitored by QASAS personnel in support of the transportation officer. Of particular interest are the safety aspects of equipment and operations.

a. When transport vehicles and vessels are to be used for transportation of ammunition and explosives, they (motor vehicles, rail cars, barges, ships, aircraft, MILVANs, and CONEX/ISO containers) must be given a thorough exterior and interior examination to determine suitability to transport the materiel involved.

b. Upon receipt at a military establishment, ammunition/explosives-laden transport vehicles and vessels must be given a thorough exterior and interior examination before unloading operations are started.

(1) The examination is performed to uncover evidence of tampering or sabotage (such as broken seals, wire twists, or other security devices), missing cargo, and possibly hazardous conditions resulting from damage in transit.

(2) The condition of the lading will be observed on receipt and during unloading operations to detect damaged cargo and to determine where improper blocking, bracing, and staying methods were employed. See paragraphs 11-3c and d for reporting of deficiencies.

c. Basic policy and guidance for transportation of ammunition and explosives are contained in DTR 4500.9-R. Guidance on specific areas of interest is contained in AR 190-11, 46 CFR, 49 CFR, TM 38-250, and DA PAM 385-64.

10-6 Demilitarization.

a. Demilitarization SOP will be submitted to the Ammunition Surveillance organization for review, concurrence and approval prior to start of operation.

b. Installation surveillance organization will monitor ammunition/explosives demilitarization operations and sites.

c. The surveillance organization will develop an SOP to support demilitarization operations. The SOP will include the following information:

(1) Ammunition surveillance pre-operational checklist with the following steps:

(a) Monitor DD Form 1348-1 and/or DA Form 4508 to verify that item being demilitarized is of the proper NSN, lot, quantity, and nomenclature.

(b) Verify that the proposed method of demilitarization is compatible with current demilitarization directives.

(c) Verify the availability of approved operation SOP and that operation SOP or a dedicated surveillance SOP contains all surveillance inspection criteria.

(d) Verify the availability (at demilitarization site) of environmental permit listing conditions

and restrictions. Also, determine that demilitarization can be conducted without violation of environmental permit conditions or restrictions.

(2) Ammunition surveillance pre-inspection of demilitarization site.

(a) Verify site to be used is as authorized in SOP.

(b) Verify all safety and protective equipment required by SOP is available.

(c) Determine that all required references cited in SOP are available.

(d) Verify that a copy of the governing SOP is posted and available.

(e) Verify that all required fire and chemical hazard symbols are posted.

(f) Verify that operations are in compliance with environmental regulations as stated in the SOP.

(g) Verify that communication equipment is available and functioning properly.

(h) Determine that fire-fighting equipment is available.

(i) Verify that sensitive items are provided proper security.

(j) Confirm that operators are properly qualified and certified and licensed according to pertinent regulations.

(3) Ammunition surveillance inspection and monitoring of demilitarization operations.

(a) Verify compliance with all requirements applicable to a specific demilitarization operation.

(b) Monitor demilitarization operations using all criteria prescribed in this procedure.

(c) Examine demilitarization area (including service magazines) for compliance with explosive limits reflected in SOP, good housekeeping, and storage compatibility.

(d) Verify required personal protective equipment is used on each operation per appropriate publications.

(e) Verify compliance with all environmental requirements as stated in the SOP. Demilitarization site and operation must be in compliance with MACOM policy. This policy as stated in AMC-R 755-8 is mandatory for AMC installations and should be used as guidance by other MACOMs. Assure compliance with all Federal, local, and host-nation regulations.

NOTE

All personnel must be alert for changes in environmental conditions that could create an unsafe or unfavorable operation.

(4) Ammunition surveillance survey of demilitarization or burning site after operation.

(a) Verify on completion of each prescribed interval that scrap metal, casings, fragments, and related items are recovered from open burning and open detonation grounds and disposed of according to local SOPs.

(b) Verify after each prescribed interval in the mission SOP that a search of the surrounding area is conducted to locate and identify any unexploded ordnance. Items or material such as lumps of explosives or unfuzed ammunition may be picked up and prepared for the next detonation. Recovery and detonation of fuzed ammunition or items will be performed per local SOPs.

(c) Verify that ammunition or explosives are not left unsecured.

(d) Discrepancies noted during the survey that require immediate remedial action must be corrected prior to continuing the operation. Unresolved problems will be reported immediately to the QASAS in charge.

(5) Ammunition surveillance of demilitarization residue.

(a) Inspection will be conducted on all items of demilitarization residue produced during one work shift. Material will be offered for ammunition surveillance inspection daily.

(b) The ammunition surveillance organization will, as a minimum, perform random sampling IAW MIL STD 1916 to verify the adequacy of the demilitarization and decontamination process performed by the activity generating demilitarization residue. Results of verification inspection and sampling will be documented.

(c) Materiel generated from demilitarization to be returned to stock or offered for sale (e.g., propellant, explosives, etc.) will be inspected by a QASAS utilizing the same sampling plan as above. Functional classification and quality standards of components and materiel generated from demilitarization will be as specified by the appropriate DMWR or letter of instruction (LOI). Where classification and quality standards are not stated, data will be requested from the appropriate commodity command.

(d) All reclaimed propellant must be certified as stable for continued storage prior to re-use, return to stock, or offering for sale through Defense Reutilization and Marketing Office (DRMO) channels. Specific guidance and instructions for determining the chemical stability of propellant is contained in Chapter 13.

(6) Certification of reclaimed scrap.

(a) Scrap will be certified by the generating activity (ammunition operations organization) as being properly processed, totally inert, and free of hazardous chemicals/explosives. Mutilation will be accomplished according to existing requirements (see DOD 4160.21-M-1, AMC-R 385-100, DA PAM 385-64 and demilitarization code in the FED LOG AMDF) prior to turn-in to the DRMO.

(b) A sample of the scrap certified in (a)

above will be selected and inspected by the surveillance organization according to paragraph 10-6c(5)(b). When the inspection results determine the processed scrap to be free of hazardous material, a QASAS will verify that the certification provided by the operations organization is valid. Both the certification and verification must be documented and maintained per current regulations.

(7) Accountability.

(a) Closed loop accountability must be maintained per local regulations at demolition/burning grounds and at temporary storage sites.

(b) A certification record of demilitarized items will be prepared on a daily basis.

(8) Surveillance reporting of demilitarization operations will be performed daily according to paragraph 10-9.

10-7 Protective Clothing.

a. Suitable personal protective clothing, equipment, and devices will be used to protect against hazards inherent in specific operations, according to AMC-R 385-100, DA PAM 385-64 or other appropriate publications.

b. When conductive clothing or equipment is required in an operation, the conductive reliability of such equipment must be checked using APE 1953, conductive floor and conductive shoe tester, or other approved equipment. Utilization of APE 1953 must be according to applicable operator and maintenance manuals and must conform to local safety requirements. Daily records of results must be maintained.

10-8 Handling of Treated Packing Materiel

a. Pentachlorophenol (PENTA)-treated packing material. Personnel handling PENTA-treated packing material must wear protective clothing and follow hygiene requirements as stated in applicable DMWR, Surgeon General directives, or U.S. Army Environmental Hygiene Agency Technical Guide Number 146, entitled "Pentachlorophenal treated material handling and disposal".

b. Zinc Napthenate/Copper Napthenate-treated material. Personnel handling such material must observe precautions according to applicable DMWR or Surgeon General directives.

10-9 Documentation.

a. An internal reporting medium for all visits by QASAS personnel to operations will be established. Refer to Chapter 4 for further guidance.

b. Reports of deficiencies/operational improvements forwarded to responsible activities, and the resolution or corrective actions resulting from such reports, will be maintained. Follow-up will be made to ensure deficiencies are corrected.

10-10 Ammunition Information Notices (AIN)/Missile Information Notices (MIN).

a. AINs are used to:

(1) Disseminate advisory/guidance/restriction/technical information for JMC/SMCA managed items.

(2) Provide information relating to the conduct of the surveillance program.

(3) Disseminate new or revised inspection criteria for JMC/SMCA managed items.

(4) Disseminate new/updated ammunition shelf and service life data.

(5) Disseminate approved and/or upcoming changes to ammunition manuals.

(6) Disseminate new storage and handling requirements of specific ammunition items.

(7) Disseminate authorized use of ammunition to specific weapon systems.

(8) Retransmit Safety of Use Message (SOUM) and Ground Precautionary Action (GPA) Message.

(9) Retransmit warnings for specific ammunition items.

(10) Retransmit or clarify established ammunition policies and/or reporting requirements.

(11) Provide information on new/revised ammunition packaging/markings.

b. MINs are used to:

(1) Disseminate technical information for AMCOM managed items.

(2) Provide surveillance information regarding guided missiles and large rockets.

c. Surveillance organizations will implement guidance.

10-11 Major Training Area Operations.

a. QASAS responsibilities.

(1) QASAS assigned to live firing training areas are responsible for providing technical assistance and support on ammunition quality and explosive safety matters to locally assigned personnel and to troops training at the facility. This includes, but is not limited to, range support during training exercises and investigating and reporting malfunctions involving ammunition in accordance with AR 75-1.

(2) QASAS should be available to assist range safety officers to assure that units are properly briefed prior to commencement of training exercises. This will include as a minimum, safety in handling and transportation, protection of ammunition from the elements, malfunction reporting requirements and turn-in procedures for unused ammunition and residue (packing material, fired cartridge cases, etc.). In addition, the need to inform the QASAS of any suspect or otherwise defective ammunition that might affect user safety or mission accomplishment should also be emphasized. Examples of defective ammunition are rounds that fail to chamber, assemble or disassemble, deteriorated propellant bags, excessive misfires, short ranges, etc.

(3) QASAS must be thoroughly familiar with the requirements of AR 75-1, AR 385-63, AR 385-10,

AR 740-1, DA PAM 385-64, FM 4-30.1, local procedures, and make extensive efforts to ensure they are met.

(4) QASAS will assure that suspended or restricted munitions and ammunition lots cleared or not cleared for overhead fire are identified and appropriate action taken.

(5) Actions required and reporting procedures for malfunctions involving ammunition will be as specified in AR 75-1 and supplements thereto. Local range procedures must assure that the provisions of this regulation are met.

b. Malfunction investigations. QASAS should be available to prepare or provide assistance in preparation of reports required by AR 75-1 and local procedures. Typical examples of steps that may be taken in the event of a malfunction are listed below. It must be understood that the following is not intended to be an all-inclusive list.

(1) Obtain general information concerning the incident at the time the initial report is made. Determine if incident is reportable IAW AR 75-1 criteria.

(2) Inform reporting individual that ammunition and weapons involved in the incident must be left in place and not disturbed until an investigation has been conducted.

(3) Conduct visual inspection of malfunction site in conjunction with AMC logistics assistance representative (ACALA for weapons and AMCOM for missiles), ammunition officer and/or EOD, if needed.

(4) Visually inspect unpackaged ammunition as well as any residue from the expended ammunition. Particular attention will be given to the condition of ammunition prepared for firing, i.e., tampering or unauthorized firing configurations or procedures, exposure to elements, and length of time unpackaged.

(5) Every effort will be made to interview all personnel involved in the malfunction and other personnel who witnessed the incident. Personnel will be thoroughly questioned on events, procedures, actions, etc., that took place before, during, and after the malfunction.

(6) Ammunition will be locally suspended from use when it has been determined that the ammunition is the possible cause of a malfunction.

(7) Preliminary reports for malfunctions of conventional ammunition will be patterned after DA Form 4379, including all Army designated Class V items except guided missiles and large rockets. This includes warheads and warhead sections (when not assembled to guided missiles or large rockets) and small rockets (2.75 inch and smaller). The preliminary report will contain all applicable information requested in DA Form 4379 but will not be delayed if some of the information is not immediately available. All conventional ammunition preliminary reports will be reported by telephone if possible to Commander, U.S. Army Joint Munitions Command Operations Center (DSN793-7270/6321 or Commercial 309-782-7270/6321), Rock Island, IL 61299-6000 or by e-mail: AMC.ROCK.ORG.JMC-OPCTR-OP@MAIL.MIL with copy furnished to: AMC.ROCK.ORG.JMC-QAS-MALF@MAIL.MIL and AMC.ROCK.ORG.JMC-AMSJM-QAS@MAIL.MIL. Malfunction reports considered classified due to operational necessity will be sent to the JMC Operations Center via secure internet protocol roster network e-mail at: JMC-G3-AMMO@CONUS.ARMY.SMIL.MIL.

c. Range area operations.

(1) QASAS should conduct area inspections periodically (daily when possible) of the ranges to assure that ammunition is properly handled, stored, and transported. Particular attention will be made to safety or operational requirements such as explosive limits, rough handling of ammunition, excessive amounts of ammunition packages opened, etc. When discrepancies are noted, on-the-spot corrections will be made. Discrepancies will be recorded and reported according to locally established procedures.

(2) When visiting firing ranges the QASAS will observe firing and, if possible, consult with troops to determine if problems were encountered with the ammunition during training. Problems that are brought to the attention of the QASAS must be investigated and reported through command channels to the appropriate commodity command.

(3) QASAS monitoring range operations and unit turn-ins should assure that projectiles that are returned to ASPs which are known or suspected of having been rammed are placed in CC-H. Using units must provide positive identification of these rounds by placing a statement on the turn-in document and indelible marking on the projectiles when turning them in at the ASP.

10-12 Prepositioned Ships.

a. Army Prepositioned Ships (PREPO, AFLOAT), Marine Corps Maritime Prepositioned Ships/Landing Force Operational Reserve Material (MPS)/(LFORM) and Air Force Afloat Prepositioned Fleet (APF).

b. Introduction: Ammunition supplied for PREPO, AFLOAT, MPS/LFORM and APF is intended for long term storage aboard ship and for rapid deployment in a combat situation.

c. Criteria applicable to PREPO, AFLOAT, MPS/LFORM and APF stocks:

(1) Every effort must be given to assure lots selected will withstand shipboard environment for an extended period.

(2) When SMCA managed assets from the appropriate account are not available; resolution will be accomplished by JMC according to DOD 5160.65-M.

(3) Any supply/transportation action that frustrates or complicates inventory or surveillance procedures, contributes to delays in shipping or difficulty of handling, increases demurrage charges at the port, or increases battlefield litter during deployment should be avoided.

(4) Palletization of Ammunition:

(a) Black banding is not suitable for palletizing units on PREPO, AFLOAT/MPS/APF ships.

Galvanized steel strapping with the following specifications is required: ASTM D3953, Type 1, Heavy Duty, Finish "B" (Grade 2), Size ¾" or 1 ¼" X .035", 031" or .029", Note: brite or slit edges shall have Finish "A" overlay. The size of strapping must be as specified in applicable drawings. All banding is required to be tight.

(b) Non-4 way entry skid base units must be replaced with 4-way entry pallets. However, munitions previously palletized on serviceable 4-way entry preserved skidded bases are acceptable provided gross weight of unit does not exceed 2200 pounds.

(5) Lot integrity must be maintained by supply source and all transshipment activities. To the maximum extent possible, an entire lot must be loaded in the same conveyance(s). Quantities of one lot that can all be contained in one conveyance must not be shipped in several railcars or trucks. When multiple lots within a conveyance are necessary, each lot will be segregated.

(6) Shipper must assure 155mm projectiles are assembled in bundles of three pallets (AMC DWG 1948-4076-20PE1001). Note that the 2 galvanized, 1-¼ inch bundling straps on the pallets should pass inboard of end eyebolt lifting plugs in lieu of outboard of lifting plugs. Proper bundling significantly decreases loading/unloading time at ports and elsewhere.

(7) Ammunition storage/shipping installations are reminded to use all feasible procedures to prevent moisture contamination of ammunition and boxes during loading and shipment.

(8) Shippers should repair broken pallets/skids and loose banding at time of shipment. Having to do these repairs at the port with expensive contract labor is not cost effective.

(9) Shippers should assure all containers with air test plugs (propelling charges, 120mm, etc) have the plug in place. Over the 5 or more years munitions normally stay on board, just one round with a missing plug could cause premature deterioration in the more hostile shipboard environment, resulting in self-ignition, and potential loss of the whole ship and crew.

(10) PREPO shipments will meet European Union Commission decision in respect to non-manufactured coniferous wood packing material (NMWPM) and be certified pest-free wood. The NMWPM materials are defined as wood pallets, skids, boxes, crates, reels, and other wooden materials that have not been satisfactorily processed to kill pests present in the raw wood. Each container will be marked and certified.

d. Criteria applicable to Army PREPO, AFLOAT stock only:

(1) The Surveillance Program for PREPO, AFLOAT stocks is designed to adequately describe the current condition of ammunition and provide a basis for decisions concerning stock rotation and storage of ammunition on board ships. Surveillance functions, including sample selection and inspection, removal and replacement of suspended stocks, minor preservation and packaging (P&P), stock rotation and inventory actions are accomplished at 24 to 30 month intervals or when the ship downloads for other reasons.

(2) This program is managed by the senior QASAS at addressee reference paragraph 1-5.d.(9). All stocks being considered for Army Prepositioned ships (PREPO, AFLOAT) require a Functional Clearance from this office. Functional Clearance will be obtained from addressee in paragraph 1-5.d.(9), by submitting automated functional clearance request form located on JMC Surveillance Web at address in paragraph 1-5.d.(21)(n). Clearance must be revalidated if stocks not shipped within 360 days.

(3) Lot selection guidelines:

(a) Only Army owned ammunition of unquestionable serviceability will be loaded on PREPO, AFLOAT vessels. Lot will be selected by Army Sustainment Command (ASC), in coordination with storage installations.

(b) ASC will select lots to assure that two or more lots per DODIC are on board each, when possible. Multiple lots are needed to reduce impact of possible future suspension actions against stocks aboard the PREPO, AFLOAT fleet.

(c) MROs will use exception data to advise storage locations of specific lot numbers requested for each DODIC. Selected lots will be functionally cleared, and quantities from each lot will be specified. Do not fill the order from only one lot when more than one lot is called for. Do not substitute lots without coordination with ASC.

(d) Small lots (less than one pallet) will be avoided in the selection process, where alternatives exist. For multiple pallet shipments, round up the shipment quantity to the next full pallet if requisition quantity does not equate to full pallets.

(e) For propellant requirements see paragraph 13-17.

(f) Pre-issue inspections will be directed, as required, by addressee in paragraph 1-5.d.(9), after review of individual lot histories.

(g) Project Codes are used to identify each PREPO, AFLOAT ship. They will be MW_ with the last alpha character indicating a specific ship. Functional clearances are required for shipments with these project codes.

(4) Army PREPO shipments are configured in break bulk and strategic configured loads (SCL). See paragraph 1-5.d.(5)(f) for SCL load drawing and configurations.

e. MILVANS/ISO containers:

(1) Containers should have at least 24 months remaining on their CSC certification. It is imperative that CSC containers for PREPO, AFLOAT be inspected IAW the provision of MIL HDBK 138B even if they have current CSC certification labels. When a container fails to meet the criteria, it must be rejected for use. Inspectors should not allow any deviation for the MIL HDBK criteria.

(2) Containers loaded with ammunition and explosives must be blocked and braced tightly IAW

applicable drawings. Slack spaces normally allowed laterally (1" to 1 ½") for road and rail transport are not allowable for vessel shipment.

(3) Repship data must be forwarded by the shipper to addressee in paragraph 1-5.d.(10) and addressee in paragraph 1-5.d.(9), as well as the destination port. Weight, dimensions, number of pallets of each lot/DODIC must be listed. This information is required for final stow planning to expedite uploading of vessels.

(4) After receipt of MRO and completion of any required surveillance actions, shipping installation surveillance organization will mail, FAX or email to addressee in paragraph 1-5.d.(9) the DSR and Ammunition Data Cards (ADC).

(5) For ammo retrograded from a PREPO, AFLOAT ship, addressee in paragraph 1-5.d.(9) will forward the DSR to the storing installation.

(6) Questions pertaining to PREPO, AFLOAT stocks or shipment of PREPO, AFLOAT stocks should be addressed to addressee in paragraph 1-5.d.(9).

f. Criteria applicable to Marine Corps MPS/LFORM stock only:

(1) Lots will be picked for MPS/LFORM using the Marine Corps MPS PREFERENCE LIST. Lots do not require a functional clearance from the Army.

(2) Stocks are listed as category 1,2 or 3 with 1 being preferred, 2 being not preferred and 3 being unacceptable. Category 1 preferred stocks are the only stocks suitable for MPS/LFORM. If category 1 stocks are determined to be unsuitable, contact the Marine Corps liaison. (See paragraph 1-5.d.(11)).

(3) Only the best Marine Corps assets are to be shipped for MPS/LFORM.

(4) Unless exception data on the MRO designates a particular lot, no less than 2 and no more than 5 lots per DODIC per ship will be selected. Lots with a "Y" designator will not be used.

(5) Lots with a normal current inspection will not require a pre-issue inspection.

(6) MPS/LFORM requests can be identified by project code MEA, MEB, MEC, OR 830 on the Ammunition Shipment Planning Worksheet (ASPW) sometimes called (SPW).

(7) After receipt of MRO and completion of any required surveillance actions shipping installation surveillance organization will mail DSR and ADC of accepted lots to addressee in paragraph 1-5.d.(10).

(8) Fallbrook is responsible for ensuring that ADC and DSR's are forwarded to installations receiving retrograded ammo.

(9) Questions pertaining to MPS/LFORM should be addressed to the local Marine Corps liaison. In the absence of a local liaison, contact the addressee in paragraph 1-5.d.(11).

g. Criteria applicable to Air Force APF stock only (IAW T.O. 11A-1-10):

(1) Only condition code "A" stocks will be shipped to, or placed on APF vessels unless otherwise permitted by the APF Program Superintendent. Only conditions code "A" assets with at least six years shelf/service life remaining (to the greatest extent possible) will be shipped to support APF operations.

(2) Air Force APF stocks do not require an Army functional clearance and there is no requirement to request clearance from the Air Force.

(3) Only full unit packs will be shipped. Light boxes will not be shipped.

(4) A periodic Inspection (PI) will be performed immediately prior to shipment of lots selected for APF even if this entails performing multiple PI's at the same location within a short period of time. Questions concerning Air Force APF should be addressed to the addressee in paragraph 1-5.d.(12).

10-13 Water Port Operations.

a. QASAS assigned to water ports will act as advisor to the senior Department of Defense official operating the port and its support facilities (Military Traffic Management Command Detachment, Transportation Terminal Unit, Port Supply Activity, etc.).

b. Advice and planning support will be provided in the areas of explosives safety (site planning in accordance with quantity distance requirements, compatibility of ammunition and other cargo, etc.), ammunition handling procedures and techniques, preparation of hazardous cargo documents and repair/evaluation of damaged ammunition items/packages.

c. Pier and ship operations will be monitored to assure proper equipment and procedures are used in the handling, movement, lifting and securement of ammunition and explosives and that proper fire fighting precautions have been taken. At all operating locations, to include supporting marshalling areas, assure explosive weight limits are not exceeded and that pier and shipboard personnel observe common precautions for personnel handling or operating in the vicinity of ammunition and explosives.

d. Coordination with U.S. Coast Guard elements is essential for effective implementation of guidance.

e. Also see paragraph 10-5.

10-14 Quantity Distance determinations.

QASAS can assist the organization safety office in preparation of site plans, waivers and storage licenses. Detailed information in this area is in AR 385-10/DA PAM 385-64.

10-15 War Reserves Stocks for Allies (WRSA) Programs.

a. QASAS assigned to water ports will act as advisor U.S owned forward positioned ammunition stocks for support of WRSA is intended for long term storage in an austere environment. This program is managed by the Army Sustainment Command (ASC). Any deviations from the requirements of SB 742-1 will be granted by the ASC in coordination with the EUCOM J4 Munitions Officer and applicable services headquarters. In the case of Army stocks, this is the

HQDA, DCS, G4, Munitions Office.

b. Criteria applicable to WRSA stocks:

(1) All stocks being considered for WRSA require a Functional Clearance from ASC. Functional Clearance will be obtained by submitting automated functional clearance request form located on JMC Surveillance Web at address in paragraph 1-5.d.(21)(n). Clearance must be revalidated if stocks are not shipped within 360 days.

(2) Stocks offered for WRSA shipments will meet ISPM-15 requirements (as applicable). Check with EUCOM ECJ4 in regards to compliance with ISPM 15/DoD pest-free certification.

(3) Lots do not need to meet FMS quality standards. However, stocks must be CC-A, suitable to issue to US Troops.

(4) Every effort must be given to assure lots selected will withstand an austere environment for an extended period.

(5) When SMCA managed assets from the appropriate account are not available; resolution will be accomplished by JMC according to DOD 5160.65-M.

(6) Lot selection guidelines:

(a) Only ammunition of unquestioned serviceability and the best available will be selected for WRSA. Lot will be selected by Army Sustainment Command (ASC), in coordination with HQ, JMC; HQ, AMCOM; and JMC storage installations.

(b) Lots will be the largest size possible.

(c) Small lots (less than one pallet) will be avoided in the selection process, where alternatives exist. For multiple pallet shipments, round up the shipment quantity to the next full pallet if requisition quantity does not equate to full pallets.

ASC will select lots to assure that two or more lots per DODIC are included in each shipment. An exception can be granted on a case-by-case basis.

(d) MROs will use exception data to advise storage locations of specific lot numbers requested for each DODIC. Selected lots will be functionally cleared, and quantities from each lot will be specified. Do not fill the order from only one lot when more than one lot is called for. Do not substitute lots without coordination with ASC.

(e) For propellant requirements see paragraph 13-17.

(f) Pre-issue inspections will be directed, as required, by ASC, after review of individual lot histories. Lots that have not been inspected within the past 12 months or are of questionable serviceability will have a PII prior to shipment.

(7) Any supply/transportation action that frustrates or complicates inventory or surveillance procedures, contributes to delays in shipping or difficulty of handling, increases demurrage charges at the port, or increases battlefield litter during deployment should be avoided.

(8) Palletization of Ammunition:

(a) Black banding is not suitable for palletizing units for WRSA. Galvanized steel strapping with the following specifications is required: ASTM D3953, Type 1, Heavy Duty, Finish “B” (Grade 2), Size ¾” or 1 ¼” X .035”, 031” or .029”, Note: brite or slit edges shall have Finish “A” overlay. The size of strapping must be as specified in applicable drawings. All banding is required to be tight.

(b) Non-4 way entry skid base units must be replaced with 4-way entry pallets. However, munitions previously palletized on serviceable 4-way entry preserved skidded bases are acceptable provided gross weight of unit does not exceed 2200 pounds.

(c) Lot integrity must be maintained by supply source and all transshipment activities. To the maximum extent possible, an entire lot quantity must be loaded in the same conveyance(s). When multiple lots within a conveyance are necessary, each lot will be segregated or clearly identified as distinct lots in the transport unit, i.e. engineer tape, placard boards, etc.

(9) Shipper must assure 155mm projectiles are assembled in bundles of three pallets (AMC DWG 1948-4076-20PE1001). Note that the 2 galvanized, 1-¼ inch bundling straps on the pallets should pass inboard of end eyebolt lifting plugs in lieu of outboard of lifting plugs. Proper bundling significantly decreases loading/unloading time at ports and elsewhere.

(10) Ammunition storage/shipping installations are reminded to use all feasible procedures to prevent moisture contamination of ammunition and boxes during loading and shipment.

(11) Shippers will repair broken pallets/skids and loose banding at time of shipment.

(12) Shippers should assure all containers with air test plugs (propelling charges, 120mm, etc) have the plug in place.

c. MILVANS/ISO containers:

(1) It is imperative that CSC containers for WRSA be inspected IAW the provision of MIL HDBK 138B even if they have current CSC certification labels. When a container fails to meet the criteria, it must be rejected for use.

(2) Containers loaded with ammunition and explosives must be blocked and braced tightly IAW applicable drawings. Slack spaces normally allowed laterally (1” to 1 ½”) for road and rail transport are not allowable for vessel shipment.

(3) Questions pertaining to WRSA stocks should be addressed to addressee in paragraph 1-5.d.(9).

CHAPTER 11.
RECORDS AND REPORTS

11-1. Technical History.

a. The technical history of each lot, serial, or group is maintained by the surveillance organization indicating the results of each inspection, test, investigation, and any unusual or changing condition affecting the ammunition. The technical history of materiel is an important record used in evaluating the serviceability and reliability of ammunition items, and it is important that all data recorded for inspections, tests, and investigations be accurate and concise.

b. The type of information required for recording and reporting is dependent on the type of information required by the organizations supported by surveillance, i.e., supply, maintenance, and stockpile reliability organizations.

(1) The information required for supply purposes is determined by local procedures for satisfying local and higher headquarters supply actions.

(2) The information required for maintenance purposes normally is more detailed on the extent of deficiencies and work required to return the item to an issuable condition.

c. The type of information required to evaluate the reliability of the stockpile includes condition of materiel, quantity, date of manufacture, type of storage, type of defects, assignable cause of defects, results of tests, etc.

d. Additionally, the surveillance organization is required to submit various other types of reports on materiel received or in storage and to maintain certain specified records.

e. Forms required by this chapter are available at the 'Official Department of the Army Publications and Forms' website referenced in paragraph 1-5.d.(21)(b).

11-2. Records.

a. Depot Surveillance Record (DSR).

(1) DSR will be prepared and maintained in an up-to-date status for each lot, serial, or group of ammunition in storage (for exceptions, see paragraph (6) below). DSR is used by all organizations that store ammunition or explosives at any level above the user level (such as depots, direct and general support units, ammunition supply points, etc.). DSR contains information on the technical history of the materiel such as the results of each investigation, examination, test, any unusual or changing condition affecting the ammunition, type of storage, etc.

(a) Surveillance organizations with access to the Munitions History Program (MHP) will use the automated MHP feature of that system.

(b) Surveillance organizations without MHP access but with computer capability should automate DSR information using the procedures detailed in Appendix B.

(c) Organizations operating on an automated DSR system will not continue to maintain a printed "hard copy" system.

(2) All DSR data fields will be used unless the QASAS in charge determines that a certain data field is not applicable at a particular location. It is the responsibility of the QASAS performing the last inspection to assure that all data fields in use contain accurate and up to date information.

(3) The recorded inspection remark will contain:

(a) Date of inspection.

(b) Type of inspection accomplished.

(c) Condition code.

(d) Number of samples.

(e) Inspection reference(s).

(f) Approximate quantity. Quantity is for information only, is not intended as a stock record requirement, and will not be used if prohibited by a security classification. Quantity will be only that of individual lot, not entire cluster quantity.

(g) Type of storage.

(h) A brief and accurate description of conditions encountered to include packaging unitization information, type banding, etc. The DSR for each lot in a cluster will be annotated with inspection results of the sampled lot. Remarks will include the defect codes that best identify the defects observed during the inspection. Defect codes are identified in DA PAM 700-19 and Appendix AB and Appendix AC.

(i) Statement of actions taken and assignment of condition code.

(j) Status of missile alteration or MWO (if applicable).

(k) Pertinent reference to documents other than normal inspection references such as ACRs, memoranda of disposition, etc.

(l) QASAS identification. The completed inspection will reflect the name (typed or printed) of the QASAS who conducted the inspection who will normally review the entry for accuracy.

(m) The latest entry should be compared with previous inspection results given on the DSR for possible findings that may require additional action. The Chief of Surveillance or first line supervisor should periodically monitor these remarks to assure that they are accurate and complete.

(4) DSRs for missile materiel will normally be prepared for each lot or serial number item. Refer to Chapter 6 for specific guidance on inspection by lot, serial number, or group number. DSRs will be maintained accordingly.

(5) DA Form 3022-R may be reproduced locally as required on 8 by 10-inch card stock (image size 7 by 9½-inch) to permit folding the card in the middle to an 8 by 5 inch size for filing. Installations that have automated DSRs are required to have a capability for printing DSRs.

(6) Exceptions from the requirement to prepare and maintain DSRs:

(a) CCFTP test samples held at the test site.

(b) Army ammunition plants need not prepare DSRs for new materiel in the industrial account, provided no significant events necessitating a DSR entry (such as suspensions, restrictions, releases, special inspections or conditions code changes) occur. Processed industrial stocks, which have not yet "been accepted" by the government, will have DSRs initiated as specified by appropriate regulatory requirements. For materiel identified as "work in process," logbooks containing pertinent information may be used in lieu of DSRs. If lots are shipped prior to initiation of DSRs, shipping documents will be annotated with a statement that DSRs have not been initiated; reference this paragraph.

(c) Basic load munitions, see paragraph 8-1c.

(7) DA Form 3022-R may be reproduced locally, as required, on 8½ by 11-inch paper for use as an ammunition surveillance inspection worksheet (i.e., used to temporarily record inspection data for transposition to the formal DSR).

b. Ammunition suspension record. Ammunition suspected of being unsafe or containing a critical defect will be suspended to prohibit its issue and use. This action is based on malfunction or accident reports, function test reports, and inspection reports. An investigation is conducted to ascertain the quality of the lot or item and to determine disposition of quantities involved. Based on the results of the investigation, disposition instructions will be issued to release, rework, or demilitarize the ammunition under consideration.

(1) Army suspension. Worldwide ammunition suspension, restriction, and release notices are disseminated by JMC and AMCOM teletype or electronic mail supplements to TB 9-1300-385.

(2) Other service suspensions are covered in CMRS (Air Force) and NAVSUP P 801 (Navy/USMC).

(3) In accordance with SMCA guidelines, a temporary suspension issued by the Army, Navy/USMC or Air Force applies to all stocks regardless of owner. If a service does not agree with the temporary suspension it will release its stocks; that release applies only to that service's stocks. A permanent suspension issued by the Army, Navy/USMC or Air Force applies only to stocks of the service issuing the permanent suspension. Permanent suspensions issued by any service will apply to stocks in the demilitarization accounts unless JMC surveillance non-concurs in the suspension action.

(4) Suspension control. Control of suspended stocks is a responsibility of the ammunition surveillance organization and involves maintaining the installation's master suspension records. The ammunition surveillance organization is also responsible for assuring that suspended items that are restricted from handling or movement are not moved, handled, or shipped except as specifically authorized by higher headquarters. Munitions locally issued for training must be monitored for suspensions. Suspension notices received during non-duty hours at installations where non-duty hour training exercises are conducted must be checked against munitions in use for such exercises.

(a) Suspended stocks in storage must be appropriately identified using DD Form 1575 (Suspended Tag-Materiel) or DD Form 1575-1 (Suspended Label-Materiel) to preclude unauthorized handling or issue.

(b) In addition to applicable information as requested on the form, the tag will be annotated with one of the following remarks as applicable:

"Suspended-- Issue Prohibited."

"Suspended from Issue, Movement, and Use."

"Suspended Except for Emergency Combat Use."

(c) Lettering will be the largest possible that is compatible with the forms. OCONUS commands may fabricate and use multilingual versions of forms as needed.

(d) Forms will be securely attached to the affected lot's stack in storage and to the magazine data card to preclude loss during magazine storage operations, etc. Presence of suspension tags will be verified during each magazine inspection.

c. Ammunition gage record card. DA Form 3023 (Gage Record) is received with each gage and includes pertinent gage information. The card will be maintained in an up-to-date manner with the record of actual gage usage recorded on the reverse side. The gage usage record is used to determine when gages should be submitted for a dimensional check. Gage record cards are returned with gages requiring use-test checks.

d. DD Form 1650 (Ammunition Data Card). When ammunition is renovated, inspected 100 percent for critical defects, modified or regrouped, new or revised Ammunition Data Cards (ADC) will be prepared by the appropriate ammunition operations organization and approved by the applicable quality organization. The requirement for new ADCs is outlined in MIL-STD-1168 and specific instructions from the commodity command. Revised data cards will be forwarded to addressee in paragraph 1-5.d.(20)(c) utilizing MHP; for other services see paragraphs 11-4.

e. Equipment logbooks and maintenance logs. The results of inspection and maintenance of missiles and associated test and handling equipment will be maintained on applicable forms according to DA Pam 750-8.

f. Storage monitoring record. Results of the SMI monitoring and action taken to correct any discrepancies will be posted to the DSR. Storage Monitoring inspection of toxic chemical munitions may be recorded on a locally devised form (manual or automated) for each ammunition lot or serially numbered item subjected to SMI. Records indicating that SMIs have been accomplished are part of the historical record and will be retained indefinitely. When SMIs reflect nonstandard conditions (e.g., evidence of leakage, damaged outer pack or container,

dunnage, etc.) the results of the inspection and the actions taken to resolve discrepancies will be posted to the DSR.

g. DA Form 4508 (Ammunition Transfer Record). DA Form 4508 will be used to accomplish local condition code, NSN, nomenclature, and lot or SN changes and will be processed through and concurred in by the ammunition surveillance organization. QASAS must review and approve any reclassification action.

h. Materiel condition tags and labels.

(1) All materiel destined for Navy or Marine Corps use will have materiel condition tags or labels affixed prior to shipment.

(2) Tags or labels will be used to identify suspended stocks, as required by paragraph 11-2b(4)(a) above, and to identify containerized chemical surety munitions.

i. Lot Cluster logs.

(1) A log will be maintained for each cluster that identifies all lots belonging to the cluster.

(a) Figure 11-1 contains an example format and describes minimum data elements required for creating a local log. A master log will be maintained to identify all lot clusters. Figure 11-2 contains an example format and guidance on development of the master log. Local reproduction of Figures 11-1 and 11-2 is authorized.

(b) The surveillance test lot (STL) reporting system of the Standard Depot System (SDS) or a PC-based data base system using data elements from Figures 11-1 and 11-2 meet the requirements for lot cluster logs.

11-3. Reports.

a. DA Form 2415 (Ammunition Condition Report). The ACR is used to report failures, discrepancies, and other conditions of ammunition materiel. The instructions for use, completion, and distribution of DA Form 2415 are outlined in DA Pam 750-8.

b. SF 368 (Product Quality Deficiency Report). SF 368 (PQDR) is the authorized means for users of Army materiel to report:

(1) Equipment faults in design, operations, and manufacturing.

(2) Equipment improvement recommendation to suggest improvements in Army materiel.

(3) Unsatisfactory new equipment received that is a direct result of below standard quality or workmanship.

(4) PQDRs for Army owned or managed ammunition will be reported IAW AR 702-7 utilizing the Joint Services Website referenced in paragraph 1-5.d.(21)(c).

c. SF 364 Report of Discrepancy (ROD). Installations receiving shipments with damage due to improper unitization, packaging, preservation; and with incorrect marking, quantity discrepancies or documentation discrepancies will report the discrepancies according to AR 735-11-2. SF 364 will not be used for reporting transportation discrepancies (see DD361 below), except for materiel sent parcel post. The QA organization will normally report packaging discrepancies while the operations organization reports discrepancies in the item(s) shipped.

d. DD 361 Transportation Discrepancy Report (TDR). Shipments received at an installation that are astray, lost, or damaged; improperly blocked and braced; incompatible; handled improperly by carrier; tender or use of carrier's inadequate equipment or facilities; misdirected shipments; improper documents; or shipped in violation of military regulation will be reported on DD361 according to DOD 4500.9R.

e. Ammunition inspection and lot number report. This report will be prepared according to AR 700-19 and DA PAM 700-19 (WARS) for those commodities under the control of JMC and AMCOM managed commodities. The preparation of required input data will be accomplished by or under the supervision of a QASAS.

f. The Small Arms Ammunition Trace Test Record will be used for recording and reporting the trace test results according to SB 742-1305-94-20.

g. Reports of explosions, chemical agent releases, and serious accidents will be reported in accordance with AR 385-10 and applicable supplements.

h. DD Form 250 (Materiel Inspection and Receiving Report).

(1) The instructions and procedures for the preparation and distribution of DD Form 250, initiated in connection with shipment of supplies from vendor's plants (new procurement), are specified in DOD acquisition regulations. The requirement for inspection and/or acceptance of materiel (new procurement) received at depots from vendors as indicated on DD Form 250 is applicable to:

(a) Materiel inspected at origin and requiring acceptance at destination.

(b) Materiel requiring inspection and acceptance at destination.

(2) Installations receiving materiel from procurement for stock will process the DD Form 250 in accordance with applicable regulation (1) above.

(3) The SF 368 will be used to report defective products received at army installations for acceptance by the Government. In block 22 of SF 368, reference that this is a "Memorandum of Rejection" should be included.

11-4. Distribution of DSRs and ADCs to Army Activities.

DSRs and ADCs are important documents for activities that store, ship, receive, or issue ammunition. Missing DSRs and ADCs may frustrate ammunition logistic operations and necessitate the performance of unnecessary inspections. The ammunition shipper will assure DSRs and ADCs are available to the receiving activity. DSRs need not be forwarded to the receiving activity if MHP is available to both, shipper and receiver. If MHP is not available to

either shipper or receiver, DSR will be transmitted by fax or email. Forwarding by mail or with the shipment should only be accomplished when either shipping or receiving activity does not have fax or email capability. ADCs are available on the Internet at the web addresses listed in paragraph 1-5.d.(21)(h) or 1-5.d.(21)(j). If ADC is not available electronically, receiving activity will contact shipping activity and request hard copy of ADC. Installations should utilize electronic capabilities to the maximum.

11-5. Distribution of DSRs and ADCs to Other Than Army Activities.

a. For all U.S. Navy and Marine Corps shipments, one copy of the ADC and DSR for each lot or serial numbered item of ammunition will be forwarded to the consignee utilizing DA Form 200. Distribution for U.S. Air Force shipments will be according to TO 11-A-1-10, which specifies that surveillance records will be both mailed and sent with the ammunition shipment. Additional distribution will be made as follows:

b. For materiel furnished the U.S. Air Force, send one copy of ADC and DSR to addressee in paragraph 1-5.d.(13).

c. For NAVSEA, NAVAIR, and USMC shipments, forward the ADC and DSR to the consignee and one copy of each to the addressee in paragraph 1-5.d.(14).

d. Data cards for specific lots need to be sent only once to each service central repository. Subsequent shipments of the same lot do not require report submissions of the same data card to the same repository.

e. DSR will not be provided to foreign military sales or security assistance customers. ADCs will be provided to these customers. Refer to paragraph 12-6.c. and 12-6.d. for further information.

11-6. Reporting of Offshore Procured Ammunition.

a. There is ammunition in or entering the U.S. Army Inventory that was manufactured in foreign countries. This ammunition is commonly called "off-shore procured ammunition" and may or may not have restrictions on its use by U.S. Forces.

b. If during inspection it is determined that the ammunition is off-shore procured and there is a question as to the authorization for issue and use by U.S. Forces, the lot must be reported to the appropriate commodity command, regardless of quantity. Data reported will include nomenclature, NSN, lot number, pack, manufacturer markings, and details. Data will be sent as appropriate to the addressees in paragraph 1-5.d.(1) and (2). Ammunition for which there is no question as to the authority for existence in the stockpile for use by U.S. Forces will have the appropriate condition code assigned based on inspection and test conducted according to this publication.

c. Lots that are questionable will be assigned a non-issuable condition code pending receipt of instructions from the commodity command.

Figure 11-1
AMMUNITION LOT CLUSTER LOG

INDEX # _____ CC:_____

ITEM DESCRIPTION:_____

LOT NUMBER	SAMPLED	DATE

1. INDEX #: A sequential number followed by the Department of Defense Identification Code (DODIC) (e.g. 001-A071). Each sequence number will be unique and will not be reused. If the items to be clustered do not have an assigned DODIC, the installation will assign a local DODIC for this purpose.

2. CC: Enter the condition code for the lot cluster.

3. ITEM DESCRIPTION: Enter the nomenclature of the item clustered.

4. LOT NUMBER: Enter the complete lot number of each lot in the cluster (e.g., IOP91F012-024).

5. SAMPLED: Enter an X in this column if the lot has been used as the lot cluster sample; otherwise leave blank.

6. DATE: Enter the date the lot was used as a lot cluster sample; otherwise leave blank.

Figure 11-2
LOT CLUSTER MASTER LOG

INDEX #	DATE	# LOTS	CC

1. INDEX #: Enter the Index number as defined in Figure 11-1.
2. DATE: Enter the date the Lot Cluster was established.
3. # LOTS: Enter the number of lots in this cluster
4. CC: Enter the condition code of the cluster.

CHAPTER 12.
SECURITY ASSISTANCE PROGRAM

12-1. General, Foreign Military Sales, Grant Aid, and Presidential Draw down.

a. The requirements in this chapter are applicable to Security Assistance Program such as Foreign Military Sales (FMS) shipments Grant Aid (GRA), and Presidential Draw down. These requirements are not intended to conflict with those of other DA publications.

b. Only materiel (the item and packing i.e. intermediate, inner, and outer packs) that reflects favorably on the United States and meets the quality requirements as specified in this chapter will be supplied to foreign governments unless otherwise authorized by negotiated agreement. Inspection and clearance criteria for Presidential Draw down shipments will be the same as those for Grant Aid (GRA) shipments. Materiel will be tested and quality checked to the same degree as that supplied to the U.S. Army.

c. Materiel selected for the SAP will be from the best available stocks and will be of unquestionable serviceability. Packaging will have no extraneous markings that might cause the identity or serviceability of the contents to be questioned. Only exceptions are for shipments requested, "As is". All munitions will also meet the requirements prescribed by the technical publication(s) for the item concerned.

d. SMCA managed Army materiel will not be cleared for shipment by the quality organization or released by the consignor until clearance for functional suitability is obtained. Installations will not release SMCA managed materiel that does not meet prescribed specifications without written authority from the SMCA.

e. Materiel accepted on waiver at the time of acceptance, renovation, modification, etc., due to deviations from specifications or drawings affecting safety, reliability, interchangeability, or specified performance characteristics is not suitable unless the customer has been apprised of the nature and extent of the deviation and agrees to accept the materiel. Similarly, customer approval is required for any other deviation from the requirements specified in this chapter. Installations will not release such materiel until written authority has been obtained from the appropriate commodity command. The commodity command will not provide written authority to the shipper until the customer has been fully informed of materiel characteristics and has agreed to accept the materiel.

f. Items in long supply and excess (MIMEX) materiel is furnished in "as is" condition with the recipient government waiving the right to submit claims against the U.S. Government through the Department of Defense (DOD) discrepancy report system. The Letter of Offer and Acceptance (LOA) defines in general terms the condition constituting "as is" and states that preservation and packaging will be the minimum for safety and to reduce further deterioration during shipment. Markings will comply with Department of Transportation (DOT) and United Nations Organization (UNO) requirements. Unless otherwise stated, the lack of a current inspection, trace test, function test, deterioration check test, or reassessment of materiel is not cause to disqualify a lot from shipment. A functional clearance is not required for MIMEX.

g. Additional inspection requirements or instructions for specific materiel may be provided by the appropriate commodity command on an "as required" basis for selected shipments.

12-2. Clearance Procedures.

a. SMCA managed Army materiel.

(1) A clearance for functional suitability will be obtained from addressee in paragraph 1-5.d.(1). Functional clearance will be obtained by submitting automated Functional Clearance Request Form located on JMC Surveillance Web Page at address in paragraph 1-5.d.(21)(n). The following information is required for clearance of candidate materiel, any information that is not received or is illegible will slow the process for clearance and the requestor will be contacted to provide the data:

(a) Requestor name and phone number.

(b) Country and case (LOA) designator.

(c) Nomenclature, NSN and DODIC.

(d) Materiel Release Order (MRO) number (FMS requisition/document number).

(e) Lot or serial number and quantity to be shipped assigned to each MRO by MRO suffix.

(f) Date of manufacture and latest test date (if applicable).

(g) Functional deviations or waivers from local records.

(h) Restrictions or suspensions.

(i) Identify whether or not outer pack is P-treated.

(j) Issuing facility.

(2) Materiel not shipped within 360 days from date of functional clearance must have functional clearance updated by SMCA.

(3) Materiel not shipped within 360 days from date of FMS inspection will be reevaluated by the ammunition surveillance organization for continued suitability for FMS. Reevaluation should take into consideration type of storage and results of the last inspection or test. Reinspection need not be made unless the QASAS in charge deems it necessary to assure that the materiel meets the requirements of this supply bulletin.

(4) When an MRO is denied by the designated shipper, a detailed description of the conditions warranting the denial will be furnished SMCA upon request.

b. AMCOM, Air Force, Navy, Marine Corps managed/owned materiel and inert items do not require a clearance for functional suitability from the SMCA IAW this manual. Functional clearance requirements will be specified by the owning service.

TB 9-1300-385 will be queried to ensure proper condition code. AMCOM inquiries may be made to addressee in paragraph 1-5.d.(2).

12-3. Inspection Criteria.

a. SMCA managed Army materiel. Sample size (Table 12-1) and criteria as outlined in paragraphs 12-4a and 12-5a will be used to determine the acceptability for FMS shipments and for the outer pack for Grant Aid (GRA). Classification of defects will be according to Chapter 2 and acceptance criteria for defectives will be according to Table 12-1.

b. AMCOM managed materiel.

(1) The sample size, defect classification and rejection criteria are contained in the applicable technical manual, supply bulletin, or other procedural documents.

(2) Pressurized and desiccated containers shall be 100-percent inspected prior to release for shipment to ensure that they have adequate internal pressure and a satisfactory internal relative humidity as specified in the applicable technical manual.

12-4. Materiel Acceptability Criteria.

a. SMCA managed materiel.

(1) Small arms tracer ammunition selected for FMS will have a specification trace of 80 percent or greater. Absence of test data will not disqualify a lot from shipment.

(2) Materiel selected for GRA will be CC-A quality and comply with issue requirements for the U.S. Army.

(3) Munitions accepted without waiver of functional deficiencies at an Army Ammunition Plant (AAP) may be considered suitable for issue under FMS provided:

(a) Materiel has had an acceptance inspection (AI) or initial receipt inspection (IRI) encompassing criteria found in Chapter 2 and paragraphs 12-4 and 12-5 of this chapter.

(b) Lots are in CC-A.

(c) Containers have original manufacturer's seals.

(d) Lots will be shipped before interval of 360 days from date of AI or IRI and functional clearance.

(e) Functional clearance is requested and received from SMCA.

(f) Should shipment occur after 360 days from date of AI or IRI, normal FMS inspection procedures will be applied.

(4) Materiel selected for FMS or GRA will be afforded preservation and packaging level A/B except for parcel post and air shipment for which level B/B is authorized as stated in AR 700-15. Guidance for less than level A/B packaging and preservation will be contained in the requisition and annotated on the MRO as exception data.

(5) Ammunition with the following conditions will not be released by the QA organization without written authorization from SMCA. Materiel that does not meet the prescribed standards will be reported by the installation to addressee in paragraph 1-5.d.(20)(f) for waiver of deviation consideration and customer acceptance. Where applicable, detailed deficiencies and rework requirements (preservation, packaging, and maintenance) to include estimated cost(s) will be provided.

(a) Restricted from issue or use for any reason.

(b) Accepted at time of manufacture or renovation under a waiver that affects safety, reliability, interchangeability, specified performance characteristics, or maintainability.

(c) Appearance of the item or its related packing undesirable in that it could cause an unfavorable reaction from the customer.

(d) Preservation and packaging level is less than that prescribed by AR 700-15 based upon item, package configuration, shipment mode, and handling conditions, and storage conditions.

(6) Bulk propellant, propelling component charges and ammunition components.

(a) Bulk propellant and component charges. Materiel selected for FMS shipment will have a minimum of one year remaining on the Loading Authorization (as specified at APP I, TB 9-1300-385) at the time of shipment unless otherwise authorized by SMCA.

(b) Ammunition components (such as primers, ignition cartridges, or delay elements) selected for FMS shipments will have a minimum of 1 year remaining on the deterioration check test interval unless otherwise authorized by addressee in paragraph 1-5.d.(1).

(c) Materiel selected for GRA shipments will be CC-A quality and comply with those issue requirements for the U.S. Army.

(7) High explosive (HE) and white phosphorous (WP) fixed and semi-fixed ammunition, mortar ammunition, separate loading projectiles, and separate loading propelling charges with less than 100 rounds per lot will not be issued for GRA or FMS shipments unless specifically authorized in the LOA, DD Form 1513 (U.S. DOD Offer and Acceptance) or the quantity requisitioned is less than 100 rounds.

(8) Tag end lots of ammunition and specifically a lot for which the quantity remaining is less than a standard pack will not be utilized for GRA or FMS unless authorized in the LOA, or the quantity required is less than one standard pack.

b. AMCOM managed materiel.

(1) All materiel selected for shipment under the FMS will be subjected to a pre-issue inspection prior to release for shipment. This inspection will be performed according to the applicable ammunition surveillance procedure and technical manuals.

(2) All outstanding URGENT Department of the Army Modification Work Orders (DAMWO) must be applied to materiel selected for FMS shipment prior to the required pre-issue inspection.

(3) All other DAMWOs should be applied to materiel selected for FMS shipments prior to the required pre-issue inspection. Exceptions to this criteria, which must have prior approval from AMCOM, are as follows:

(a) Modifications developed for limited geographical application that is not required by the recipient.

(b) Modifications that are not available and application would delay the scheduled shipment release date.

(4) Missiles, rockets, and related separately packaged components selected for shipment to FMS customers must have at least 50 percent or 4 years, whichever is less, of the established shelf life remaining at the time the shipment is released to the carrier at the point of origin. Materiel selected for shipment to GRA customers must have at least 2 years of the established shelf life remaining at the time the shipment is released to the carrier at the point of origin.

12-5. Special Instructions.

a. SMCA managed materiel.

(1) Renovated or reworked ammunition.

(a) Ammunition renovated or reworked will be repackaged according to the applicable drawing for the item concerned.

(b) Ammunition previously renovated or reworked and meeting the requirements of this bulletin will be considered suitable for GRA or FMS.

(c) Ammunition that is renovated or reworked to fill a GRA or FMS requirement must meet the requirements of this bulletin.

(d) Ammunition requiring a post renovation test will be tested prior to release for shipment.

(2) Marking defects.

(a) Marking defects that do not exceed the limits established by the inspection criteria of this supply bulletin are acceptable.

(b) Address marking will be applied according to the latest revision of MIL-STD-129, AR 725-50, and special instructions as may be furnished by the Security Assistance case manager.

(c) Lots of ammunition marked with an Ammunition Identification Code (AIC) or Federal Stock Number (FSN) in place of the National Stock Number (NSN) and Department of Defense Identification Code (DODIC) are acceptable. The DD Form 1348-1 (DOD Single Line Item Release/Receipt Document) and document accompanying the shipment must either reflect the AIC, the FSN and DODIC, or the correct NSN and DODIC. If the ammunition requires reworking, the correct NSN-DODIC will be applied according to applicable drawings.

(d) Weapon model designation on boxes need not be corrected to comply with drawing requirements unless containers required reworking at which time weapon designation will be applied according to applicable drawings.

(e) Changing the nomenclature from "shell" to "cartridge on the round, container, or box is not required unless the round, container, or box requires reworking. Items containing both nomenclatures within a lot (such as cartridges on boxes and fiber containers, and shell on round) are acceptable.

(f) Light boxes (less than a standard pack) will be marked IAW drawing 8796522.

(g) When obliteration is done during processing through maintenance, packing or renovation facilities, the entire side, top, or end will be completely painted with sufficient coverage to effectively prevent "bleeding through" of previously applied markings.

(h) The color of the obliterating paint, or lacquer used will match as closely as possible the color of the boxes or containers. Care will be exercised when obliterating and remarking cleats of boxes to ensure that the color of the paint, size of lettering, and position of stenciling will clearly identify the contents and not cause misinterpretation of applicable color markings for practice, smoke, or chemical ammunition.

(i) Remarking will be according to the packing and marking drawing for the item concerned.

(j) When impressed marking is obliterated, the new marking will be stenciled on the opposite side of the box. Destination marking will be stenciled on the obliterated impressed marking side of the box. Boxes previously stenciled over the obliterated impressed marking are acceptable if the stenciling is legible and the obliteration was accomplished over the entire panel of the box.

(k) Obliteration, when required, must be consistent throughout a lot (such as same color or paint, enamel, or lacquer; uniform coverage; and uniform lettering).

(l) Obliterated impressed marking on metal components due to changes in production or modification is acceptable if covered by X punch or knurling. When X punch or knurling is not feasible due to hardness of metal or possibility of component deformation, the ORD markings may be obliterated with black paint or lacquer. Obliteration will be applied neatly. New markings will be applied by stamping or stenciling as appropriate. Recipient will be advised that items have been remarked to comply with the proper nomenclature and that serviceability and reliability are not affected.

(m) The following specifications are for the paint and stencil ink authorized for obliteration and remarking of materiel required for GRA and FMS:

MIL-P-52108(MR), water emulsion paint for stenciling and obliteration.

A-A-208, Type I, opaque stencil marking ink for nonporous surfaces.

A-A-208, Type II, opaque stencil marking ink for porous surfaces.

A-A-208, Type III, opaque stencil marking ink for both porous and nonporous surfaces (applied by a pressurized container).

A-A-208, Type IV, opaque stencil marking ink for both porous and nonporous surfaces (applied by a stencil roller).

(n) Marking obliteration should be done according to the current MIL-STD-129. Repainting should be done with sand color paint for natural color wood boxes and remarked in black. For dark wood or weathered boxes use olive drab (OD) paint with yellow markings.

(o) All items selected for shipment to GRA or FMS recipients will have "U.S. Army" markings deleted.

(3) When loss of paint coverage is excessive, complete repainting will be required. Metal containers, metal boxes, or metal crates that have minor scratches and small unpainted areas which would present an unsightly appearance if retouched, may be shipped without repainting. Where packing supports in containers causes loss of paint coverage, repainting is not required (unless rust or corrosion is present).

(4) Metal strapping or wire bands must be properly and uniformly applied and must be tight. Tightening of existing loose wire bands is permissible by utilizing a suitable wire-crimping tool to crimp the wire and staple the crimp to the box. Staples will be sufficient length to afford strength without protruding through the thickness of the applied surface. If wire bands are replaced with metal strapping, it is permissible to cover box markings if no unmarked spaces are available and if essential markings such as lot numbers are not covered. The same type of wire strapping will be used on an individual box. However, wire and strap banding are permitted within a lot. Flat steel strapping, specification ASTM-D3953, is the authorized strapping for GRA or FMS shipments. Lots presently banded with other strapping, which is satisfactory in appearance and application, are acceptable. Only authorized strapping will be used when strapping is replaced due to reworking of materiel, poor appearance, rust on loose bands, etc. Palletized projectiles or bombs (empty or loaded), required for GRA or FMS will be strapped using steel strapping, specification ASTM-D3953.

(5) Minor rust or corrosion on hasps, hinges, or screw heads is acceptable. Major rust or corrosion on hardware will be removed. Where the protective plating is affected by removal of rust or corrosion, the hardware will be painted the same color as the box.

(6) Boxes with dry rot, termite infestation, or other conditions conducive to eventual complete deterioration of the wood or having appearance of weathering or abuse are not acceptable.

(7) Boxes with cleats in different positions (vertical and horizontal) or without cleats within a lot are acceptable if the box meets all other requirements.

(8) Fiber containers opened for inspection or rework operations will be resealed using tape of the same type and size if the container meets appearance standards. If minor fraying occurs during removal of old tape and the waterproof impregnated layer beyond the area normally covered by tape is not destroyed, the container is considered acceptable. It is acceptable to use a wider tape of the same type to cover frayed edges at time of resealing when waterproof impregnated layer is destroyed. Re-taping to merely cover frayed edges is not considered necessary. Fiber containers opened for inspection will be resealed with tape pressure sensitive adhesive, plastic film, filament reinforced, MIL-T-43036 if tape of original type and color is not available.

(9) Discoloration or fingerprints on cartridge cases or marks on base caused by felt pads and chipboard fillers are acceptable if no active corrosion is present. Efforts will be made to improve the appearance of the cartridge case base if reworking is required.

(10) Fixed and semi-fixed ammunition assemblies with fired or resized cartridge cases are not acceptable for FMS.

(11) Containers with tear strips or other self-destroying closing devices that destroy the hermetic seal when opened for any required sample inspection will be acceptable when lids are resealed by means of three wraps of plastic film, pressure sensitive, and filament reinforced adhesive tape (MIL-T-43036). A pull-tab is also required for easy removal of the tape.

b. AMCOM managed materiel.

(1) Samples are to be selected by a QASAS and must be representative of the entire lot under evaluation. The evaluation will include overall condition of the lot in storage.

(2) Rebuilt, repaired, or modified materiel must conform to applicable standards and drawing requirements.

(3) All items selected for shipment to FMS recipients will have "U.S. Army" markings deleted.

(4) Spot paint is allowable provided it does not detract from the appearance of the item and is not on a critical surface. Paint used for spot painting will blend as nearly as possible with the original paint. Brush marks are allowable if runs or sags are not evident. These criteria also apply to spot painting of containers, except that minor scratches (those not exposing the surface) need not be spot painted if they do not materially detract from the appearance of the containers.

(5) Containers with tear strips or other self-destroying closing devices that destroy the hermetic seal when opened for any required sample inspection will be acceptable when lids are resealed by means of three wraps of plastic film, pressure sensitive, and filament, reinforced adhesive tape (MIL-T-43036) A pull-tab is also required for easy removal of the tape.

(6) Obliteration of box or container markings will be accomplished as specified by the current MIL-STD-129. The color of the obliterating paint, enamel or lacquer will match the original basic coloring of the boxes or containers, as nearly as possible. Sand color

(30277 of federal standard 595) will be used on unpainted wooden boxes for obliteration of old markings. The same color and kind of ink will be used to obliterate original markings on any package surface. Embossed markings will be sanded or planed smooth or the panel(s) reversed and the corrected markings applied to match the balance of the markings on the box.

(7) Metal strapping or wire bands must be properly applied, uniform, and secured. Tightness should be determined by using procedures contained in AMC drawing 19-48-4116-20 PA 1002 (Unitizing Procedures for Boxed Ammunition and Components in Palletized Units-Strapped).

(8) Boxes with evidence of dry rot, termite infestation, or other conditions conducive to deterioration of wood or boxes or giving the appearance of weathering or abuse are unacceptable. Boxes must be serviceable.

(9) Items produced and accepted under various waivers and deviations, as indicated by remarks on ammunition data cards or log books, will be require AMCOM clearance prior to FMS shipment. Some clearances may also require customer approval.

12-6. Shipment Procedures for SMCA Managed Materiel.

a. Report of shipment (REPSHIP) notification will be forwarded to SMCA for all GRA or FMS shipments. Installation quality assurance security assistance coordinators (SAPC) and transportation officers will affect appropriate procedures to ensure that a REPSHIP electrical transmission message is furnished within 3 days of shipment.

b. The addressee in paragraph 1-5.d.(20)(a) will provide REPSHIP notification for FMS airlift shipments.

c. DD Form 1650 (ammunition data cards) for SAP shipments will be forwarded to the designated recipient in accordance with DOD 4000.25-8-M (Military Assistance Program Address Directory (MAPAD)). One copy of the ammunition data card for each item or lot will accompany FMS shipments according to DOD 5160.65M (Joint Conventional Ammunition Quality Assurance Policies/Procedures, Part 5). Ammunition data cards will be purified to eliminate remarks such as waivers granted, conversion of one type of ammunition to another type (such as anti-aircraft (AA) to tank ammunition) and other remarks that may be misconstrued by a recipient country. (See paragraph 11-5.e.)

d. DA Form 3022-R (DSR cards) will not be sent on GRA or FMS shipments. Any request for shipment of DSR cards in connection with these shipments will be cleared with the addressee in paragraph 1-5.d.(1).

Table 12-1. Sample Size and Acceptance Criteria for FMS and GRA.

Lot Size	Sample Size	Defective					
		Critical		Major		Minor	
		Acc	Rej	Acc	Rej	Acc	Rej
Item Lot size							
5000 or less	40	0	1	0	1	1	2
5001 - 20,000	80	0	1	1	2	3	4
20,001 or more	120	0	1	2	3	4	5
SAA (up to 50 Caliber) any lot size	450	0	1	7	8	19	20
Number of inner packs in lot							
5000 or less	40	0	1	0	1	1	2
5001 - 20,000	80	0	1	1	2	3	4
20,001 or more	120	0	1	2	3	4	5
Number of outer packs in lot							
5000 or less	40	0	1	0	1	1	2
5001 - 20,000	80	0	1	1	2	3	4
20,001 or more	120	0	1	2	3	4	5

CHAPTER 13.
PROPELLANT AND PROPELLING CHARGES

13-1. Purpose. This chapter provides methods for determining serviceability and chemical stability of nitrocellulose-based propellant and propelling charges.

13-2. Scope. The provisions of this chapter apply to all Army organizations that store bulk propellant, bulk-packed propellant components, or propelling charges, regardless of ownership. Proper use of this chapter will ensure safe storage/serviceability of "standard" propellant items (items that have been assigned standard DODIC's and/or NSN's) and "non-standard" propellant items (items that have not been assigned standard DODIC's and/or NSN's). "Standard" and "non-standard" propellant items include:

a. Bulk propellant used in the loading of production quantities of cartridges/cartridge cases and also used in the assembly of component charges for field service items, such as mortar increments, or used for the manufacture of propellant-filled components such as ignition/igniter bags and charges, expulsion charges, etc.

b. Separate loading and separated charges.

c. Propellant derived (downloaded) from rework or demilitarization operations.

d. Propellant-filled ammunition components (e.g., expulsion charges, igniter bags).

e. Bulk-packed components of nitrocellulose construction (e.g., mortar increment capsules).

WARNING

Nitrocellulose-based propellants can become thermally unstable as they age. The normal aging process of the propellants involves deterioration of the nitrocellulose with an accompanying generation of heat. At some point, the propellant may reach a state where heat is generated faster than it can be dissipated. The accumulation of heat can lead to combustion (autoignition). Chemical stabilizers are added to propellants to slow the aging process. In time, the stabilizer levels will drop to a point where the remaining effective stabilizer (RES) is not sufficient to prevent an accelerating rate of decomposition. When this point is reached, the propellant may autoignite, with possible catastrophic results to property and life. Monitoring the stability level of each propellant lot is essential for continued safe storage (see Table 13-2).

f. Each US Army organization storing propellant and propelling charges is responsible for managing its propellant stocks, which includes RES monitoring. The Propellant Management Guide, published by U.S. Army Defense Ammunition Center, should be utilized in this effort. Any stabilized propellant lot with unknown RES in storage at any Army installation, regardless of ownership is considered to be potentially hazardous and must be reported to the JMC Ammunition Surveillance Division immediately. Any stabilized propellant lot in storage, regardless of ownership, which has exceeded its "Next-Test-Date," must be reported to the JMC Ammunition Surveillance Division) for disposition. Stabilized propellant (except for RDECOM and ATEC non-standard items) in quantities less than the minimum recommended lot size per organization (see Table 13-3) should be issued immediately, or scheduled for demilitarization as soon as practical. Continued monitoring of RES levels is required until demilitarization is complete.

13-3. Definitions.

a. Bulk Propellant. All types and models of granular, sheet, stick, flake, or ball propellant packaged in a bulk container, to be used in loading cartridge cases, for production of separate loading or separated propelling charges, or component charges, or for any other application where nitrocellulose-based propellant is required. Bulk propellant is usually assigned FSC 1376.

b. Bulk-packed components. Propellant components used in the assembly of complete rounds. Includes made-up charges or increments, such as bagged charges for howitzer ammunition; propellant-loaded cartridge cases, primed or unprimed; mortar increments in sheets, bags, or capsules; expelling or expulsion charges (loaded with other than black powder, propellant-filled igniter bags); and small rocket motor grains (rocket assist grains). Component charges are usually assigned FSC 1310, 1315, or 1340.

c. Complete Round. The assemblage of all ammunition components necessary to fire a weapon one time.

d. Separate-loading charges. Bagged and combustible-cased charges stored and issued as end items. Separate-loading charges are usually assigned FSC 1320.

e. Separated charges. Navy propelling charges assembled to a primed cartridge case and issued as end items.

f. Demilitarization: the process of removing military characteristics from materiel. The process of demilitarization involves these two broad categories of methods:

(1) Resource Recovery and Recycling (R3) military munitions for which R3 actions are designated are not considered to be Waste Military Munitions (WMM). For propellants, these actions include conversion to fertilizer, nitrocellulose extraction, re-blending for commercial or military use, use as a component of blasting gel, etc. R3 involves recovering and reusing all or part of the propellant.

(2) Treatment, involves partial or total destruction of the material, which may involve the recycling of component materials, such as metal parts. Items that undergo treatment are usually those that have been declared to be WMM. Treatment is a term used in the world of environmental science. For propellant, the method of treatment most commonly used is destruction by burning.

g. Disposal. Refers to the removal of military munitions from government ownership/control.

h. Propellant Stability List. A list identifying all nitrocellulose-based Army propellant lots under test by

the Army can be accessed on the JMC Ammunition Surveillance Division share point site. If unable to access this data electronically, contact the JMC Ammunition Surveillance Division for assistance.

i. Propellant Stabilizer. Chemical ingredient added to propellant to neutralize the deterioration products of nitrocellulose by slowing down nitrogen oxide (NOx) attacks. The stabilizer lengthens the effective life of the propellant and prevents auto ignition from occurring during normal use and storage. The stabilizer level must be periodically monitored via testing and analysis throughout the storage life of the propellant. Commonly used stabilizers are:

(1) Diphenylamine (DPA).

(2) 2-Nitrodiphenylamine (2-NDPA).

(3) Ethyl Centralite (EC).

(4) Akardite II (AK II).

j. Thermal Stability/Instability. Propellants can auto-ignite when they become thermally unstable. Nitrocellulose-based propellants naturally decompose over time, with an attendant generation of heat. The heat generated can increase the rate of decomposition, which in turn increases the rate of heat generation. As the rate of heat generation accelerates, the system may reach a point where combustion will occur. A system is said to be thermally stable if the heat generated by propellant decomposition can be removed from the system at least as rapidly as it is generated.

13-4. Safety. All personnel using the procedures in this chapter will observe safety precautions cited in DA, AMC, and Army Service Component Command (ASCC) regulations, and in DA Pam 385-64, as applicable.

13-5. Personnel. Sample selection and visual inspection of propellants and propelling charges, air testing of containers, and field stability testing will be conducted by, or under the technical supervision of QASAS careerists. Questions and concerns will be brought to the attention of the responsible QASAS for resolution.

13-6. Surveillance. Surveillance of propellant falls into two categories: visual inspections performed at storage and production activities, and tests, which are conducted as part of the Stockpile Laboratory Test Program. Surveillance determination of serviceability will be based on visual inspection, air testing of propelling charge containers and tests for stabilizer levels and thermal stability. For bulk-stored propellant, the currency of the loading authorization, as reflected in Appendix I, TB 9-1300-385, will also be considered.

13-7. Visual Inspection and Air Test. Sample size and frequency will be in accordance with Chapter 2.

a. Bulk Propellant. Inspection will generally be limited to inner and outer packaging, although any unusual conditions noted concerning the physical state or odor of the propellant will be reported. If condition of packing, such as obvious structural damage or water damage, requires opening the container to determine extent of damage, the condition of the propellant and any other unusual conditions will be noted in writing. Acceptance and rejection criteria will be in accordance with Chapter 2.

b. Separate Loading and Component Charges.

(1) Containers for separate loading charges selected for visual inspection will be air tested prior to opening and after closing. Perform air test in accordance with operational manual for APE 1052-series, Air Test Kit. If the samples test satisfactorily before opening, all containers in the lot are considered to be satisfactory. Containers which leak only after closing shall not be considered defective for lot evaluation, but shall be repaired or replaced before returning to storage. Damaged gaskets on sample containers will be replaced.

(2) Visual inspection will include all external surfaces of each increment, including surfaces where individual increments abut one another. The APE 1991 should be used to test the tensile strength of 155mm propelling charges. Condition of bags, stitching, wrappings, etc., will be noted. Details of visual inspection and classification of defects are contained in paragraph 13-7 and Table 13-1. Charges should be exposed to the air for the minimum time necessary.

(3) 155mm propelling charges 1320-D540 and 1320-D541 returned from SWA.

(a) A Periodic Inspection will be performed on 155mm propelling charges retrograded from SWA in 1991 or 1992 (lots with "y" identifier) prior to issue. If a PI has been performed within the last 90 days, the QASAS in charge can exempt lots from this requirement.

(b) Do not clear lots retrograded from SWA for shipment to combat load, Army Prepositioned Stocks (APS) or USMC AFLOAT.

(c) Test of tensile strength will include cloth on all bags and especially the ends of the bags. Test IAW paragraph 13-7(b)(2). Test must assure that thread used to assemble bag is not deteriorated to a point that it would fail during normal handling.

c. Classification of Defects. Table 13-1 lists defects for separate loading and component charges that supplement surveillance defect standards in Chapter 2.

13-8. Ammunition Stockpile Reliability Program (ASRP) Testing. The ASRP for propellant contains two distinct Stockpile Laboratory Test programs: The Propellant Stability Program and the Propellant Reassessment Program.

13-9. Propellant Stability Program (PSP). This program monitors and analyzes stabilizer levels and stability trends of Army-managed propellant lots, in order to identify potentially unstable propellants in sufficient time to safely remove them from the stockpile through use or through demilitarization. The PSP is centrally administered by the JMC Ammunition Surveillance Division, and consists of two subprograms: Master Propellant Program and Stockpile Propellant Program.

Table 13-1. Propellant Defects Classification and Standards.

Classification	Method of Inspection	Defect Standard
1. Critical:		
a. Cracked/broken igniter tube.	Visual/Manual - non- ferrous rod	
b. Assembly damaged to the extent that Clean Burning Igniter (CBI) or Black Powder Igniter (BPI) can escape without force.	Visual	
c. Igniter charge assembly missing.	Visual	
d. Increments cracked, torn or missing.	Visual	
2. Major:		
a. Metal container lid gasket missing, out of place, damaged, or deteriorated.	Visual	
b. Failure to pass air test.	Air test	DS-1
c. Deteriorated propellant bag.	Manual	DS-2
d. Damaged propellant bag.	Visual	DS-3
e. Mildew or moisture stain on propellant bag.	Visual	
f. Caked igniter.	Manual	
g. Improper/inadequate assembly.	Visual	DS-4
h. Missing components (packing, primer, igniter, etc).	Visual	
i. Container (metal, fiber, barrier bag, wood, etc., excluding separate loading propelling charge containers) deteriorated or damaged to extent requiring replacement. Perforation/tears in plastic liners of M1 Additive jacket are acceptable if jacket remains secure to charge.	Visual	
j. Container for separate loading propelling charges deteriorated or damaged to extent requiring replacement.	Visual	
k. Flash reducer assembly damaged to the extent that salt can escape without force.	Visual	
l. Test plug missing.	Visual	
m. Torque test failure of plug.	Manual	
n. Damaged threads on air sampling port.	Visual	
o. Damaged threads on air sampling plug.	Visual	
p. Combustible case broken or damaged to the extent that propellant can escape (DODICs DA12 and DA13).	Visual	
q. Combustible case with uneven cap (crooked, tilted, or slanted. (DODICs DA12 and DA13).	Visual	
r. Combustible case with cut or puncture through case wall (DODICs DA12 and DA13).	Visual	
s. Combustible case that cannot be repacked into its sleeve due to exterior damage (DODICs DA12 and DA13.	Manual	
3. Minor:		
a. Paint coverage inadequate.	Visual	DS-5
b. Loose lacing/wrapping.	Visual	
c. Container (metal, fiber, barrier bag, wood, etc.) Deteriorated or damaged to extent requiring reconditioning.	Visual	DS-5
d. Any seam or opening incompletely stitched.	Visual	
e. Marking missing, misleading or unidentifiable	Visual	
f. Evidence of poor workmanship.	Manual	
g. Test plug not greased.	Visual	
h. Container seal missing or incorrectly applied.	Visual	
i. Cover incompletely engaged.	Visual	
j. Unit not palletized in accordance with approved drawings	Visual	
4. Incidental:		
a. Discolored propellant bag.	Visual	DS-6
b. Container for separate loading propelling charge deteriorated or damaged.	Visual	DS-5
c. Caked flash reducer. (1) If found, inspect an additional 20 rounds for all defect criteria in this table. (2) DO NOT reject for caked flash reducer. **NOTE**: This requirement is for an inspection of only one additional sample of 20. Do not repeat if caked flash reducer is found in the second sample.	Visual	
*Defect Standards:		

DS-1 Metal container is to be tested at 3-5 PSI, using APE 1052, before opening for inspection and after replacing container cover. Container must be capable of maintaining constant pressure for 10 seconds. Visible decrease in pressure gage reading during the 10-second interval will classify container as defective.

DS-2 Propellant bag with loss of tensile strength is usually accompanied by cloth discoloration as follows:

(a) Brown spots on white silk bags.

(b) Orange spots on green silk bags.

(c) Blue spots on white cotton or rayon blend bags.

The APE 1991 should be used to test the tensile strength of 155mm propellant bags.

DS-3 Propellant bag damaged or incompletely stitched to extent propellant can escape.

DS-4 Stitches, bags, and seals shall be without breaks, tears, grease, or noticeable foreign matter. Increment is in improper order; i.e., charge five assembled where charge three should be.

DS-5 Separate loading propelling charge containers should be considered serviceable if all the following are true:

(a) Sample passes air test regardless of visual condition of lid gasket. Torn or cracked gaskets on samples must be replaced.

(b) Marking is legible.

(c) Rust has not progressed to major defect stage {see paragraph 2-7c(2), Chapter 2}.

Above criteria apply only to material in storage not to new production or to renovated material.

DS-6 Propellant bag discolored (see DS-2) without loss of tensile strength. Lots exhibiting this defect will receive priority of issue for training.

a. Master Propellant Program. Within six months after government acceptance, a five-pound sample of each newly produced lot of bulk propellant is sent to the Army Propellant Surveillance Laboratory (APSL) at ARDEC, and specified in the contract. Samples are monitored throughout the life of the propellant, and Master Sample stabilizer trends are compared with field-stored propellant stabilizer trends.

(1) When a Master Sample test result is stability category "D", a Notice of Ammunition Reclassification (NAR) for that specific lot is issued. The NAR will direct demilitarization of the propellant within 60 days when stored in bulk form, as bulk-packed propellant components or component charges, or as separate loading propelling charges. Note that these suspension actions do not apply to propellant uploaded into fixed or semi-fixed rounds.

(2) A Master Sample with test results of stability category "C" will be compared with field sample results of that lot. Field samples from that lot (index) from all Army storage locations visible on the worldwide ammunition reporting system (WARS) will be tested. If testing of field samples confirm stabilizer category “C”, the lot will be reclassified to CC-C by NAR. Category "C" propellant lots on hand after one year will be re-tested. If the lot has not deteriorated to category "D," it will be retested each year until it has been expended, or it has deteriorated to category "D", at which point it will be demilitarized within 60 days.

(3) Notification of ammunitions suspensions, restrictions and releases for Army account propellant will be managed in accordance with TB 9-1300-385. US Army organizations storing wholesale and retail assets are required per DOD 5160.65M to apply NAVSUP P 801 to all Navy, Marine Corps, and Coast Guard-owned assets. The NAVSUP P 801 provides a listing of suspended, limited use, and unserviceable ammunition and propellant. Temporary suspensions apply to all services; permanent suspensions only apply to the owning service.

NOTE

US Navy NARs for Navy-specific bulk propellants or bulk-packed component charges will not apply when loaded into weapons systems smaller than 5 inch (127mm) that are currently in an Army account. Army experience has demonstrated that uploaded propellants in such rounds have never auto-ignited.

b. Stockpile Propellant Program (SPP). The SPP tests fielded Army propellant assets to assure that environmental effects are accounted for in determining their safe storage condition. The SPP test frequencies vary depending on propellant type, lot history and chemical stability. The Propellant Surveillance Laboratory at ARDEC compares field sample test results with master sample test results. The laboratory also performs the Safe Interval Prediction Test (SIP) for each propellant lot, the results of which are used to establish a Field Retest Date for every lot in the SPP. The SPP includes bulk propellant, bulk-packed components, and separate loading charges. The following items are not included in the SPP and will not be tested unless specifically directed by the JMC Ammunition Surveillance Division:

(1) Propellant when assembled to complete rounds; i.e., mortar, fixed, or semi-fixed ammunition.

(2) Propellant components when assembled as part of a projectile; e.g., expelling charges, expulsion charges.

(3) Rocket propellant, to include rocket assist grains for artillery projectiles.

(4) Any high explosive or propellant ingredient not chemically stabilized; i.e., black powder, RDX, TNT, NC, etc.

(5) LOVA propellant.

(6) Propellant with lost lot identity (see paragraph 13-14).

(7) Combustible container components (except when bulk stored, i.e. mortar increment capsules).

(8) CBI powder in bags when assembled to propelling charges.

NOTE

All propellants stored on an Army installation and not specifically excluded above are part of the SPP. All propellant NOT assembled to a complete round, regardless of how it is stored, is part of the SPP. Bulk propellants and component items containing propellant are included in the SPP prior to loading into complete rounds; any remaining quantities from the lot not uploaded remain in the program for future, periodic testing.

NOTE

If the entire worldwide quantity of a specific propellant lot is assembled into complete rounds, that lot is not tested under the SPP but is continuously monitored in the MPP. When a propellant lot is downloaded (removed) from an end item, its stability must be determined. The Ammunition Surveillance Division at JMC will be contacted for stability determination prior to any maintenance or demilitarization operation that will generate propellant.

Downloaded propellant should be scheduled for reuse, destruction, or transfer to a third party owner within one year of generation (see paragraph 13-13).

Organizations conducting maintenance or demilitarization operations will contact the JMC Ammunition Surveillance Division for stability determination prior to any maintenance or demilitarization operation that will generate propellant.

Lot integrity and RES level of the downloaded propellant will be maintained if the lot is to be retained for any period in excess of 24 hours. Downloaded propellant that is being bulk-stored and marketed for sale must be physically removed from the installation after sale.

c. At the beginning of each FY, the JMC Ammunition Surveillance Division will select candidate lots for SPP testing that FY. JMC will email the list of candidate lots to specific organizations to determine the availability of samples.

(1) Prior to the shipment of any propellant lot, the applicable DSR will be reviewed for availability of the current stability category, the date of the last test, and the date of the next test. If the DSR does not reflect current information, the local QASAS should first consult the propellant stability database, then the JMC Ammunition Surveillance Division, if necessary.

(2) Organizations will retain serviceable requested samples in condition code "D". Samples in CC-H at time of request will be retained in CC-H. Sample quantities will be obligated for shipment to the test facility. Parent lot quantities will be retained in the current condition code and may be issued, pending receipt of sample test results.

(a) Requested samples will be selected and prepared for shipment in accordance with paragraph 13-11. A copy of the DSR card will be forwarded to the test activity for each sample shipped. DA Form 984 (Munitions Surveillance Report) is not required for sample propellant lots. Material Release Orders (MRO) for shipment of samples will be issued by the JMC MLRC.

(b) After completion of testing from a test code group, the propellant stability database will be updated with the latest test results. The JMC Ammunition Surveillance Division will forward the test results to the installation from which the lot samples were drawn. The local ammunition surveillance organization will annotate the results on the local DSR. The JMC Ammunition Surveillance Division will issue a NAR for any Army propellant lot in stability category "C" or "D".

NOTE

Unless otherwise specified in an Army NAR, any stability-related suspensions or restrictions of Army bulk propellant or bulk-pack components will NOT apply to propellant configured and uploaded as a component of fixed, semi-fixed, or separated munitions, for gun systems less than 5 inches (127mm) diameter. Army experience has demonstrated that propellant uploaded in such rounds has never auto-ignited. If downloaded, any and all stability-related suspensions and restrictions will apply.

NOTE

The stability level of bulk WC 864 propellant and bulk stored igniters containing WC 864 propellant will not be considered as representing the stability of igniters assembled to the Modular Artillery Charge System (MACS) propelling charges – DODICS DA12/DA13. When assembled as a charge, stabilizer from the main propellant charge of the MACS migrates to the igniter which increases the stability level of the igniters.

Table 13-2.
Propellant Stability Category Codes

Stability Category	Percent Effective Stabilizer
A	0.30 or more
C	0.29 - 0.20
D	Less than 0.20

NOTE: Propellant stability data for Category "D" propellant will be entered on the end item DSR card for information purposes.

A - Acceptable stabilizer loss; safe for continued storage.

C - Significant stabilizer loss. Lot does not represent an immediate hazard, but is approaching a potentially hazardous stability condition. Loss of stabilizer does not adversely affect functioning in an uploaded configuration. Disposition instructions will be furnished by NAR. All stability category "C" assets on the installation must be reported in writing to the office in paragraph 1-5.d.(1). Report may be sent by fax, e-mail, or telephone.

BULK PROPELLANT and BULK-PACKED COMPONENT lots will be offered for Resource Recovery and Recycling as soon they become stability category "C". One year after becoming stability category "C", a sample of the bulk propellant lot or the bulk-packed component lot will be retested. If the lot has not deteriorated to category "D", it will be retested each year until it has been expended, or it has deteriorated to category "D", at which point it will be demilitarized within 60 days. Exceptions may be approved by the JMC Ammunition Surveillance Division.

SEPARATE LOADING PROPELLING CHARGES should be issued for use to preclude loss of assets. One year after becoming stability category "C", a sample from the lot will be retested. If the lot has not deteriorated to category "D", it will be retested each year until it has been expended, or it has deteriorated to category "D", at which point it will be demilitarized within 60 days. Exceptions may be approved by the JMC Ammunition Surveillance Division.

D – Unacceptable stabilizer loss. Lots identified as stability category "D" present a potential safety hazard and are unsafe for continued storage as bulk, bulk-packed components, or as separate loading propelling charges. Bulk propellant, bulk-packed components, and separate loading propelling charges will be demilitarized within 60 days after notification of category "D" status. After the lots are demilitarized, written notification will be made to the JMC Ammunition Surveillance Division, which will forward the notification to the JMC Demilitarization Office. If the 60-day demilitarization suspense cannot be met under any circumstance, local commanders will elevate this critical shortfall through their chain-of-command. Notification will also be sent to the JMC Ammunition Surveillance Division.

SOUTHWEST ASIA (SWA) "Y" LOTS - Stability test results for SWA "Y" lots will apply to the basic (non-SWA) lot as well, and vice versa, unless otherwise directed by JMC.

13-10. Propellant Reassessment Program (PRP). This program involves the test and evaluation of stored propellant to determine the functional serviceability prior to loading into a major item. It does not apply to items intended exclusively for Research, Development, Test & Evaluation (RDTE). Whenever possible, the oldest propellant lot(s) will be selected for the PRP. The JMC Ammunition Surveillance Division is responsible for the final determination of functional serviceability of bulk propellant and component charges (including suitability of component LAT) under the PRP, and the JMC Ammunition Surveillance Division is responsible for providing the notification of loading authorization via Appendix I, TB 9-1300-385. The functional serviceability will be determined by a laboratory reassessment test (closed bomb), a ballistic test, or combination of both. These tests will be performed only when an actual need for the propellant or bulk-packed component exists. Sample selection and shipment will be in accordance with paragraph 13-11, unless otherwise directed by the JMC Ammunition Surveillance Division. Propellant classified as "Master" or "Reference" lots are exempt from the PRP requirements in this bulletin. Bulk propellant and bulk-packed component charges having a current loading authorization, and that are otherwise serviceable, will be classified CC-A; those otherwise serviceable lots without a current loading authorization will be classified CC-D.

a. Request for reassessment testing of field service stocks will be coordinated with the JMC Ammunition Surveillance Division and supply item manager not less than 120 days before the loading is to commence. The reassessment request will contain:

(1) Lot number and NSN of propellant/ propelling charge requiring reassessment.

(2) Estimated start date of project requiring reassessed lot(s).

(3) NSN, lot number(s), and quantity of material to be reworked.

b. JMC will coordinate the reassessment test so that the samples arrive at the test facility no later than 60 days before the maintenance project is to commence.

c. Ballistic testing at a proving ground will be performed as required by the JMC.

d. Loading authorizations are issued at time of initial acceptance, and are provided via Appendix I, TB 9-1300-385 for reassessments performed in accordance with the requirements of the PRP. Component functional serviceability is determined at time of performance test and renewed with each successive performance test. Expiration dates of initial acceptance (or LAT) and performance test are based on the following:

(1) Propellant compositions M5, M10, M26, and M26E1 are valid for 2 years, regardless of pack.

(2) Other types stored in metal or metal-lined wood containers (level A) are valid for 5 years.

(3) All types stored in fiber drums are valid for 2 years.

e. The expiration date of the loading authorization for the lot will be annotated on the DSR and will be noted on the shipping documents. All applicable propellant lots with a current loading authorization will be listed in Appendix I of the latest edition of the TB 9-1300-385, or in the JMC Ammunition Surveillance Division share point site.

f. If a propellant lot's loading authorization expires during a maintenance program, a GS-12 or higher grade QASAS from the servicing ammunition surveillance organization may permit an extension of up to 180 days to allow completion of the active maintenance program under which the reassessment was requested. Otherwise, lots with expired loading

authorizations cannot be loaded until reassessed.

g. All OCONUS shipments of bulk propellant or component charges will be cleared through the JMC Ammunition Surveillance Division, and only CC-A material will be approved for shipment. Material to be shipped must be in support of an upcoming or on-going maintenance operation, and material shipped must have a minimum of nine months remaining on the loading authorization upon arrival OCONUS.

13-11. Selection, Preparation and Shipment of Propellant Samples For Stockpile Propellant Program.

a. Sample Selection:

(1) Bulk packed increments and charges for mortars will be shipped in quantity specified by sample requests. The propellant will not be removed from the increment bags. Sample shipment will be made using the current NSN and lot number. The sample size will be approximately one-half pound of propellant per lot, with every effort made to request sample quantities that are standard units of issue.

(2) Unless otherwise designated, the bulk propellant sample size will be one pound.

(3) Separate loading charges and 105mm propelling charges will consist of complete charges to be shipped in the quantity specified by the sample request (usually one pound).

b. Sample Preparation:

(1) Outer pack for samples will consist of standard ammunition packs meeting the requirements of Title 49, Code of Federal Regulations (CFR), or latest Bureau of Explosives (BOE) Tariff 6000. Approved outer packs for propellant samples include M2A1 ammunition container (as allowed per the latest revision of Special Packaging Instruction (SPI) ADP1376-002), metal-lined wood boxes, metal drums, and fiber drums, which meet both the maximum container load limit for which they were Performance Oriented Packaging (POP) tested, and the applicable packaging drawing marking requirement.

(2) Place samples in a VELOSTAT MIL-D-82645plastic bag of minimum size to hold the sample and allow grounding if necessary. Seal bag by one of the three following methods: (1) folding the opening over three times to close and apply two single wraps of tape that overlaps itself a minimum of one inch; (2) gather the opening together and tie with a twist tie; (3) use a zip-lock closure. Place the cushioned samples in an M2A1 Small Arms Container, in accordance with SPI ADP 1376-002. Alternate packaging methods that meet POP requirements are as follows:

(a) 8135-01-185-6816 (roll of MIL-PRF-81705 barrier material); 8105-00-837-7756 (Ziploc type bag 11 X 10); 8105-00-837-7757 (Ziploc type bag 12 X 12); 8135-00-282-0565 (MIL-PRF-131 barrier material to overpack plastic bags); 8135-01-015-2810 (MIL-PRF-131 barrier material to overpack plastic bags); 8105-01-274-3585 and 8105-01-382-7369 (MIL-B-82647 material).

(b) Refer to MIL-STD-652 for bulk container using metal drums, fiber drums, or metal-lined wood boxes.

(c) If a telescoping spiral-wound fiber container having metal ends and double-foil inner wrap is used for bagged propellant/increment(s), add cushioning at both ends as required to obtain a tight pack, and close with two wraps of tape.

(d) If large grain or stick propellant is to be shipped, wrap each item with plastic wrap, or bag and tape it. Cushion as required with bubble-wrap or closed-cell foam material.

(3) Expose samples to the air for the minimum time needed to package. Do not desiccate samples. Type or print legibly on a card the following information: NSN, lot number (if dual granulation, both lot numbers), name of the submitting installation, and test. Enclose card with sample in the inner pack. Include DSR card and ammunition data card for each lot. Pack dual grain charges separately; on the identification card, identify the grain as single-perforated (SP) or multi-perforated (MP). Do not print sample data directly on inner pack, i.e., aluminized bag. Flaking of bag material results in loss of sample data.

c. Sample Shipment. Samples will be shipped per directions in the Material Release Order from JMC.

d. The JMC MLRC issues the MRO for shipment of samples to the designated test installation.

13-12. Selection, Preparation and Shipment of Samples for Propellant Reassessment Program.

a. Bulk propellant sample selection:

(1) Select five containers that are representative of the entire lot.

(2) Remove two pounds of propellant from each container. If charge is of dual granulation, remove 2 pounds of each component propellant lot from each container. If propellant is packaged as component charges, bags must be removed. After sample quantity has been removed, residue from component charges is authorized for demilitarization.

b. Bulk-packed component sample selection:

(1) Sample size will be in accordance with LAT requirements of the load, assemble and pack (LAP) specification for the component.

(2) Select samples that are representative of the entire lot. Remove two pounds of propellant from each container. If charge is of dual granulation, remove two pounds of each component propellant lot from each container. If propellant is packed as component charges, bags must be removed. After sample quantity has been removed, residue from component charges is authorized for demilitarization.

c. Bulk propellant sample preparation:

(1) Seal and package separately each two pound sample as specified in paragraph 13-11b.

(2) Each two-pound sample container will be marked with propellant nomenclature, lot number, and number of container from which removed; e.g., container 1, 2, 3, 4, or 5. Do not print sample data directly on the inner pack; e.g., aluminized bag.

Flaking of bag material results in loss of sample data.

(3) The outer pack will be as specified in paragraph 13-11b(1), except for one end, which will be painted white and stenciled in black ink, "For Reassessment Test PROP-QAS (assigned number). The outer pack will contain the entire 10-pound sample.

d. Bulk-pack component sample preparation:

(1) The outer pack will be as specified in paragraph 13-11 above, except for one end, which will be painted white and stenciled in blank ink, "For Performance Verification Test PROP-QAS (then assigned number from JMC QAS).

(2) Each container will be marked with the component nomenclature and lot number.

e. Sample shipment. Samples will be shipped per directions in the MRO from JMC.

f. The JMC MLRC issues the MRO for shipment of samples to the designated test installation.

13-13. Reclaimed/Derived Propellant. Written coordination with the JMC Ammunition Surveillance Division shall occur before the start of any operation generating bulk propellant which will not be demilitarized within 60 days of generation. If the propellant will not be demilitarized within 60 days, the following shall occur:

a. The local ammunition surveillance organization and the JMC Ammunition Surveillance Division will review the storage history of each end item lot, looking for evidence of storage in extended temperature or moisture extremes that might have adversely affected the propellant. Separate-loading or bulk propellant in any account with an unknown storage history will be considered as having been exposed to extended periods of extremes of heat and/or moisture and will be burned within 60 days of discovery unless otherwise directed by the Propellant Stability Program Manager, Headquarters, Joint Munitions Command.

b. A sample of each propellant lot to be downloaded will be tested for stabilizer. In lieu of testing, the propellant can be downloaded if the quantity downloaded is demilitarized within 60 days of downloading. Bulk propellant of either unknown stability or Category "D" that is retained for any length of time greater than 24 hours must be isolated from other ammunition and explosives (i.e., placed in a dedicated magazine.)

NOTE

Propellant lots that have been determined by the JMC Ammunition Surveillance Division to be potentially hazardous to retain in storage, regardless of stability category, will be demilitarized within 60 days after download.

13-14. Lost Lot Identity. Propellants with lost lot identity cannot be tested to determine current level of stabilizer, since the specific propellant index cannot be identified. Therefore, these lots represent a potential safety hazard. Propellant with lost lot identity will not be retained in storage in any account. Propellant with lot numbers "MIXED," "UNKNOWN" or "NONE" as part of the lot number will be demilitarized within 60 days of discovery. Immediately contact the JMC Ammunition Surveillance Division if further instructions and/or assistance are needed. Installations will annually screen assets of all ownerships for lots with lost lot identity.

13-15. Minimum Lot Size. Installations are responsible for managing their propellant stocks. Table 13-3 establishes a recommended minimum lot size per installation for retention.

Table 13-3. Propellant Minimum Lot Size*

Weapon System	Propellant Charges or Increments
105mm	100 propelling charges
155mm	50 propelling charges
60mm	1200 increments
81mm	300 increments A 2400 increments B
4.2 Inch	7500 full increments 300 half-increments
120mm	1200 Donut increments
Bulk Propellant	50 pounds

Since performing stability tests on very small lots is not economically feasible, lot quantities less than the above should be transferred to CC-H, and disposition instructions obtained from the JMC MLRC. Organizations retaining less than 50 pounds per lot of bulk propellant for "special" projects will continue to monitor for stabilizer content. Lots retained for "special" projects, regardless of quantity, must be tested and the storing installation will ensure the JMC Ammunition Surveillance Division is provided annual visibility by list each March.

13-16. Reporting Requirements of Stabilized Propellant. At least one yearly review (at interval not to exceed 15 months) of propellant lots in storage against the information contained in the "Propellant Stability Database". This database resides in the Munitions History Program (MHP). The review is needed to ensure that stability category (A, C, D) is determined by the percentage result entered in the "MIN" column of the "Propellant Stability Database". Column heading "MIN" is the lowest result ever recorded for a lot. Errors or omissions discovered during a review will be immediately reported to the JMC Ammunition Surveillance Division.

a. Bulk propellant, bulk-packed components, and separate loading charges in storage in government owned facilities, and not reported via the Worldwide Ammunition Reporting System (WARS), will be reported to the JMC Ammunition Surveillance Division. This reporting requirement ensures that both the JMC Ammunition Surveillance Division and the local surveillance office have the latest stability test results for all non-WARS propellant that is located inside the installation boundary in a configuration capable of auto-ignition (e.g. bulk packaged, separate loaded charges, etc.). Current stabilizer visibility must be maintained for all propellant lots stored on each government installation even if the propellant is owned by or under the control of a non-DOD or commercial activity. The QASAS having direct oversight responsibilities at installation(s) not reporting propellant assets via the WARS will ensure the timely submission, each March, of the following data:

(1) NSN/DODIC.

(2) Propellant Lot Number/Index number.

(3) Quantity (pounds, charges, increments, etc.).

(4) Stability Category.

(5) Date of Last Stability Test.

(6) Goverment owned/non-government owned (indicate which).

(7) Owner account.

b. Storage of propellant declared "excess" by JMC will not exceed two years at installations lacking non-emergency demilitarization capability, unless authority to deviate is granted in writing by the JMC Ammunition Surveillance Division.

13-17. Propellant on Prepositioned (PREPO AFLOAT) Ships. A listing of candidate propellant lots to be considered for storage aboard PREPO AFLOAT ships will be transmitted by a representative of the Army Sustainment Command (ASC) to the JMC Ammunition Surveillance Division for review.

a. Each propellant lot selected for PREPO AFLOAT storage must meet the following conditions:

(1) PI conducted within 12 months of selection.

(2) Stability test performed within the past three years.

(3) Is in Stability Category "A".

(4) Stability retest not required for at least five years.

b. A lot will not be selected for PREPO AFLOAT storage unless current test results support a predicted minimum of five years' safe shipboard storage.

c. At least 60 days prior to any PREPO AFLOAT vessel's return to port for maintenance and inspections, the ASC representative will submit a list of all propellant lots aboard to the JMC Ammunition Surveillance Division. The JMC Ammunition Surveillance Division requires retesting of any PREPO AFLOAT propellant lots that have not been stability tested within the past three years. The JMC Ammunition Surveillance Division may require samples to be prepared and shipped to a laboratory for test, or may arrange for on-site testing at the maintenance/inspection port.

13-18. Safety Surveillance of Navy Gun Propellant. This program applies to Navy-developed propellant, and is centrally administered by the Navy. The Navy performs safety surveillance of gun propellant in a program that parallels that of the Army. The Navy relies heavily upon Fume Tests of master samples. It applies the results of fume test failures to the propellant lot in bulk and to the end item into which the propellant lot is assembled. Fume test failures are reported via a permanent Navy NAR, as a supplement to NAVSUP P 801.

NOTE

Since the Army is DOD's single manager for demilitarization, condemned Navy-developed materiel will be transferred to Army ownership for demilitarization. Once under Army ownership and control, ALL of the propellant stability management practices described in this chapter for Army Propellant will prevail.

13-19. Storage and Demilitarization of Non-Standard Propellants. This paragraph defines non-standard propellant and provides guidance for the storage, demilitarization and testing of non-standard propellant and propellant items that do not fall under the Propellant Stability Program (PSP).

a. The JMC Quality Assurance Surveillance Division manages the Army's PSP for nitrocellulose-based propellant and propellant items containing any of the stabilizers listed in paragraph 13-3 and specifically listed in the "NSNs for Propellant Items" spreadsheet located under the Policies & Procedures tab on the JMC Ammunition Surveillance Division share point site at: https://jmcsp.osc.army.mil/sites/mlrc/qa/qas/qasurveillance/default.aspx.

b. Non-standard propellant and propellant items that do not fall under the PSP are those typically defined with one or more of the following and shall be tested for stability by the owner:

(1) Are not assigned a NSN or DODIC.

(2) Do not have an assigned propellant index.

(3) Do not have a propellant description sheet/propellent acceptance sheet (PDS/PAS).

(4) Are of foreign origin and not produced under DOD contract.

(5) Propellant that is manufactured and/or procured specifically for research development and test (RD&T).

(6) Propellant that has been mixed or is a mixture of two or more propellant lots (does not include propellant produced under DOD contract IAW applicable mil-spec).

(7) Any propellant that cannot be tested due to unknown origin, unknown type, unknown index or unknown formulation.

(8) Any propellant or propellant item that does not meet the definition of a military munition as defined in 40 CFR 260.10.

c. Owners of non-standard propellant and/or propellant items in storage longer than 60 days shall identify to the installation senior QASAS and Accountable Officer the DOD program or test the propellant or propellant items are to be used for to include an estimated date of use. Any non-standard propellant in storage longer than two years, that has not been identified with a DOD program or test will be considered hazardous waste and is authorized for demilitarization. Demilitarization will not be accomplished until the owner/program office has been notified. The local QASAS and installation safety office will ensure the owner complies with demilitarization and environmental requirements.

d. The DOD/SMCA Designated Disposition

Authority (DDA) has authorized the assignment of CC-V to those propellant and propellant items above and remaining in storage longer than 2 years.

e. Non-standard propellant in storage should be limited to the minimum amount required and should be stored separate from GFM.

f. All non-standard propellant assigned to a DOD program or test retained in storage longer than two years is required to be tested IAW this chapter at owner's expense. The test results will be provided to the installation senior QASAS and safety office. The local QASAS may also request a formulation test at owner's expense of nitrocellulose based non-standard propellant to determine composition and testability for continued safe storage.

g. Local QASAS and safety will monitor RES levels of these propellant lots to ensure no unstable and/or untested propellant remains in storage. The propellant stability category specified in Table 13-2 will be used for determining if propellant is safe for continued storage.

CHAPTER 14.
(AMMUNITION) LOGISTICS ASSISTANCE PROGRAM (LAP)

14-1. Purpose.

This chapter prescribes the roles and responsibilities of QASAS assigned to the Logistics Assistance Program, as outlined in AR 700-4 and AMC regulation 700-3. The primary purpose of the (Ammunition) LAP is the early detection and resolution of ammunition logistics problems in order to both assist commanders to sustain the readiness and safety of their Class V stocks and to provide the AMC Life Cycle Management Commands (LCMC) feedback concerning ammunition performance, quality characteristics, and other logistics concerns encountered in the field.

14-2. Personnel.

QASAS selected for assignment in the (Ammunition) LAP will have current knowledge and broad experience in ammunition logistics.

Ammunition Logistics Assistance Representative (LAR). Throughout this chapter the term "Ammunition Logistics Assistance Representative (LAR)" or Ammunition LAR will be used to define those QASAS assigned to the LAP program.

14-3. Responsibilities.

Ammunition LARs provide commanders with advice and recommendations to assist them in attaining and sustaining the readiness and safety of their Class V stocks. Their responsibilities include:

d. Providing commanders with technical guidance necessary to resolve ammunition and systemic logistics problems.

e. Identifying and reporting, through channels, all ammunition logistics functions that have an adverse impact on logistics readiness. This includes supply, maintenance, transportation, personnel, training, organization, systems, and doctrine.

f. Providing a means to collect, correlate, assess, and disseminate logistics information required to respond to problems from the materiel or users.

g. Establishing an organizational structure and procedures for contacting field units.

h. Providing commanders with a single POC for ammunition logistics assistance.

i. Assisting units in identifying, reporting, and providing guidance in the use or replacement of stocks affected by NARs, AINs, or Safety of Use Messages.

j. Analyzing, advising, assisting, and in some cases, providing training in areas of ammunition logistics. Training will supplement, not replace individual and unit training.

k. Keeping the supported commander informed of their activities, readiness degradation, or degradation trends on JMC furnished materiel.

l. Maintaining contact throughout the conventional and missiles ammunition communities in order to provide and disseminate information regarding total life-cycle ammunition and explosives logistics to/from the NICP, engineering/R&D, and PEO/PM ammunition communities.

m. Providing LCMC's logistics support activity managers a means to observe and identify materiel and logistics systems problems in the field.

n. Assisting with logistics problems affecting materiel readiness that are supported commanders' responsibility but are beyond their capability or organic resources.

o. Analyzing field operations to determine the ammunition logistics impact and requirements for improvement.

p. Improving logistics support based on materiel analyses, contact with using units, and other sources.

q. Furnishing command information and assistance on ammunition modernization.

r. Developing and coordinating plans to ensure that required assistance will be provided during mobilization, hostilities, and other contingencies.

s. Deploying as part of the Army Field Support Brigades and subordinate elements (Logistic Support Elements (LSE), Brigade Logistic Support Teams (BLST)) to support mobilization, contingencies and/or training events.

14-4. Relationship to Command Surveillance Organizations.

Upon request, Ammunition LARs may supplement command surveillance organizations in performance of the QASAS functions outlined in this SB. QASAS functions, when accomplished by Ammunition LARs, will be performed under the direction of the command senior QASAS or his/her designated representative, using procedures outlined in command regulations or directives, and locally approved SOPs. Ammunition LARs will not be used to fill the requesting command's vacant authorizations or increase its' authorized resources, rather to assist them in ensuring the readiness and safety of ammunition or operations where command surveillance coverage may be inadequate. LAR support to command surveillance organizations will not detract from their primary logistics assistance mission.

14-5. Procedures.

Ammunition LARs may provide assistance to supported units by performing any of the safety and logistics functions described throughout this SB: Examples include:

d. Magazine inspections.

e. Review of handling, storage, shipping operations.

f. Inspection of transport vehicles.

g. Monitoring of demilitarization operations.

h. Training Range Support:

(1) Malfunction investigations.

(2) Briefing units prior to training commencement.

(3) Area inspections.

(4) Observe firings and consulting with troops.

(5) Monitor unit turn-ins.

e. Port operations.

f. Preparation of site plans/explosive safety waivers.

g. Basic load inspections/technical assistance visits.

14-6. Senior Command Representatives (SCR).

Ammunition LARs assigned to Combatant Commands (CENTCOM, PACOM, EUCOM, etc.) will provide staff assistance and Class V technical support on a wide-range ammunition logistics issues to support COCOM readiness, OPLANS and CONPLAN development, and contingency and training operations.

14-7. Reporting.

Ammunition LARs will generate weekly reports listing their significant activities to HQ JMC (AMSJM-RDO). These reports are intended to summarize the accomplishment of those responsibilities outlined in paragraph 14-3.

APPENDIX A
REFERENCES

A-1. Department of Defense Publications.

DOD 4000.25-8-M	MILITARY ASSISTANCE PROGRAM ADDRESS DIRECTORY (MAPAD) SYSTEM
DOD 4160.28-M-V1	DEFENSE DEMILITARIZATION: PROGRAM ADMINISTRATION
DOD 4160.28-M-V2	DEFENSE DEMILITARIZATION: DEMILITARIZATION CODING
DOD 4160.28-M-V3	DEFENSE DEMILITARIZATION: PROCEDURAL GUIDANCE
DOD 5100.76-M	PHYSICAL SECURITY OF SENSITIVE CONVENTIONAL ARMS, AMMUNITION AND EXPLOSIVES
DOD 6055.09-M	DOD AMMUNITION AND EXPLOSIVES SAFETY STANDARDS
DODD 5160.65	SINGLE MANAGER FOR CONVENTIONAL AMMUNITION (SMCA)
DODI 4140.62	MATERIAL POTENTIALLY PRESENTING AN EXPLOSIVE HAZARD
DODI 4160.28	DOD DEMILITARIZATION (DEMIL) PROGRAM

A-2. Military Standards.

MIL-STD-129	MILITARY MARKING FOR SHIPMENT AND STORAGE
MIL-STD-1168	AMMUNITION LOT NUMBERING AND AMMUNITION DATA CARD

A-3. Military Handbooks.

MIL-HDBK-138	GUIDE TO CONTAINER INSPECTION FOR COMMERCIAL AND MILITARY INTERMODAL CONTAINERS
MIL-HDBK-1461	AMMUNITION MANUFACTURERS AND THEIR SYMBOLS

A-4. Army Regulations.

AR 5-9	AREA SUPPORT RESPONSIBILITIES
AR 25-50	PREPARING AND MANAGING CORRESPONDENCE
AR 75-1	MALFUNCTIONS INVOLVING AMMUNITION AND EXPLOSIVES
AR 190-11	PHYSICAL SECURITY OF ARMS AMMUNITION AND EXPLOSIVES
AR 385-10	THE ARMY SAFETY PROGRAM
AR 385-63	RANGE SAFETY
AR 700-13	WORLDWIDE AMMUNITION REVIEW AND TECHNICAL ASSISTANCE PROGRAM
AR 700-15	PACKAGING OF MATERIEL
AR 700-19	U.S. ARMY MUNITIONS REPORTING SYSTEM (WARS)
AR 700-20	AMMUNITION PECULIAR EQUIPMENT
AR 702-6	AMMUNITION STOCKPILE RELIABILITY PROGRAM
AR 702-7	PRODUCT QUALITY DEFICIENCY REPORT PROGRAM
AR 702-12	QUALITY ASSURANCE SPECIALIST (AMMUNITION SURVEILLANCE)
AR 710-2	SUPPLY POLICY BELOW THE NATIONAL LEVEL
AR 725-50	REQUISITION, RECEIPT, AND ISSUE SYSTEM
AR 735-11-2	REPORTING OF SUPPLY DISCREPANCIES
AR 740-1	STORAGE AND SUPPLY ACTIVITY OPERATIONS

A-5. Department Of Army Pamphlets.

DA PAM 40-8	OCCUPATIONAL HEALTH GUIDELINES FOR THE EVALUATION AND CONTROL OF OCCUPATIONAL EXPOSURE TO NERVE AGENTS GA, GB, GD, AND VX
DA PAM 40-173	OCCUPATIONAL HEALTH GUIDELINES FOR THE EVALUATION AND CONTROL OF OCCUPATIONAL EXPOSURE TO MUSTARD AGENTS H, HD, AND HT.
DA PAM 385-61	TOXIC CHEMICAL AGENT SAFETY STANDARD
DA PAM 385-64	AMMUNITION AND EXPLOSIVES SAFETY STANDARDS
DA PAM 710-2-1	USING UNIT SUPPLY SYSTEM (MANUAL PROCEDURES)
DA PAM 710-2-2	SUPPLY SUPPORT ACTIVITY SUPPLY SYSTEM: MANUAL PROCEDURES
DA PAM 750-8	THE ARMY MAINTENANCE MANAGEMENT SYSTEM (TAMMS) USERS MANUAL

A-6. Technical Bulletins.

TB 9-1300-278	GUIDELINES FOR SAFE RESPONSE TO HANDLING, STORAGE, AND TRANSPORTATION ACCIDENTS INVOLVING ARMY TANK MUNITIONS OR ARMOR WHICH CONTAIN DELPETED URANIUM
TB 9-1300-385	MUNITIONS RESTRICTED OR SUSPENDED
TB 9-1315-257-12	OPERATOR AND UNIT INFORMATION FOR CARTRIDGE, 120MM: CANISTER, M1028 (NSN 1315-01-516-5248)
TB 9-1330-211-14	OPERATOR, FIELD AND SUSTAINMENT INFORMATION FOR GRENADE, HAND, RUBBER BALL, NON-LETHAL, GG04
TB 700-2	DEPARTMENT OF DEFENSE AMMUNITION AND EXPLOSIVES HAZARD CLASSIFICATION
TB 43-180	CALIBRATION AND REPAIR REQUIREMENTS FOR THE MAINTENANCE OF ARMY MATERIEL

A-7. Technical Manuals.

TM 3-23.25	SHOULDER LAUNCHED MUNITIONS
TM 9-1015-203-12	OPERATOR AND UNIT MAINTENANCE MANUAL FOR HOWITZER, LIGHT: TOWED, 105-MM, M101A1 (NSN 1015-00-322-9752)
TM 9-1015-234-10	OPERATOR`S MAINTENANCE MANUAL FOR HOWITZER, LIGHT, TOWED: 105-MM, M102 (NSN 1015-00-086-8164)
TM 9-1015-252-10	TECHNICAL MANUAL, OPERATOR`S MANUAL FOR HOWITZER, LIGHT, TOWED: 105-MM, M119A2, NSN 1015-01-482-4914
TM 9-1015-254-13&P	MORTAR SUBCALIBER INSERT: M303 (NSN 1015-01-377-4824)
TM 9-1055-886-12&P	M287 9-MM TRACER BULLET TRAINING DEVICE (NSN 1055-01-207-2684)
TM 9-1230-782-13&P	DISPENSING SET, MUNITION, NETWORK COMMAND: SPIDER, XM7 (NSN: 1230-536-0128); MUNITION CONTROL UNIT, XM10 (NSN: 1346-01-538-3145); LAUNCHER AND LINE, NETWORK COMMAND MUNITION: EXTENDED RANGE TRIPLINE SENSOR, XM9 (NSN: 1346-01-538-3141); LAUNCHER AND GRENADE, NETWORK COMMAND MUNITION: MINIATURE GRENADE LAUNCHER, XM8 (NSN: 1346-01-538-3120); AND TRAINER, DISPENSING SET, MUNITION, NETWORK COMMAND (NSN: 6920-01-568-7847)
TM 9-1300-200	AMMUNITION, GENERAL
TM 9-1300-214	MILITARY EXPLOSIVES
TM 9-1300-251-20&P	ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES AND 40MM GRENADES LAUNCHERS
TM 9-1300-251-34&P	ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES AND 40MM GRENADES LAUNCHERS
TM 9-1315-249-12&P	81MM MORTAR TRAINING DEVICE, 81MM SABOT (INERT) M1 AND 22MM SUB-CALIBER PRACTICE CARTRIDGES M744, M745, M746, AND M747
TM 9-1315-252-12&P	CARTRIDGE 81MM TARGET PRACTICE (SHORT RANGE) M880 (NSN 1315-01-216-7071) (1315-C876)
TM 9-1315-886-12	LAUNCHER AND CARTRIDGE, 84 MILLIMETER: M136 (AT4)
TM 9-1330-200-12	GRENADES
TM 9-1330-200-34	GRENADES
TM 9-1340-222-20	2.75-INCH LOW SPIN, FOLDING FIN AIRCRAFT ROCKETS; 2.75-INCH SPIN STABILIZED, WRAP AROUND FIN AIRCRAFT ROCKETS; 66MM LIGHT ANTITANK WEAPON SYSTEMS; 3.5-INCH ROCKETS; AND M3A2E1 ROCKET MOTOR (JATO)
TM 9-1340-222-34	2.75-INCH LOW SPIN, FOLDING FIN AIRCRAFT ROCKETS, 66MM LIGHT ANTITANK WEAPON SYSTEMS, 3.5-INCH ROCKETS AND M3A2E1 ROCKET MOTOR (JATO)
TM 9-1345-203-12	LAND MINES
TM 9-1345-203-34	LAND MINES
TM 9-1346-215-10	MUNITION, CROWD CONTROL MODULAR, NON-LETHAL: M5 (NSN: 1346-01-524-3348)
TM 9-1375-213-12	DEMOLITION MATERIALS
TM 9-1375-213-34&P	DEMOLITION MATERIALS
TM 9-1375-215-13&P	MK 2 MOD 0, MINE CLEARANCE SYSTEM (MARINE CORPS) AND MINE CLEARANCE LINE CHARGE - MICLIC (ARMY)
TM 9-1375-219-13&P	DEMOLITION KIT, BREACHING SYSTEM, ANTI-PERSONNEL OBSTACLE (APOBS) (DODIC, MN79) (NSN 1375-01-426-1376) AND DUMMY DEMOLITION KIT, BREACHING SYSTEM, ANTI-PERSONNEL OBSTACLE (APOBS) (DODIC MN84) (1375-01-467-1277)
TM 9-1377-200-20	CARTRIDGES, CARTRIDGE ACTUATED DEVICES, AND PROPELLANT ACTUATED DEVICES
TM 9-1377-617-12	MUNITION, CROWD CONTROL MODULAR, NON-LETHAL: M5 (NSN 1377-01-464-2605)
TM 9-2350-264-10-1	TANK, COMBAT, FULL-TRACKED: 120-MM GUN, M1A1
TM 9-2350-264-10-2	TANK, COMBAT, FULL-TRACKED: 120-MM GUN, M1A1
TM 9-2350-388-10-1	TANK, COMBAT, FULL-TRACKED: 120-MM GUN M1A2 SYSTEM ENHANCEMENT PACKAGE
TM 9-2350-388-10-2	TANK, COMBAT, FULL-TRACKED: 120-MM GUN, M1A2 SYSTEM ENHANCEMENT PACKAGE (SEP)
TM 38-250	PREPARING HAZARDOUS MATERIALS FOR MILITARY AIR SHIPMENT
TM 43-0001-27	ARMY AMMUNITION DATA SHEETS FOR SMALL CALIBER AMMUNITION
TM 43-0001-28	ARMY AMMUNITION DATA SHEETS FOR ARTILLERY AMMUNITION: GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, GRENADE LAUNCHERS AND ARTILLERY FUZES
TM 43-0001-29	ARMY AMMUNITION DATA SHEETS FOR GRENADES
TM 43-0001-30	ARMY AMMUNITION DATA SHEETS FOR ROCKET SYSTEMS, ROCKET FUZES AND ROCKET MOTORS
TM 43-0001-36	ARMY AMMUNITION DATA SHEETS FOR LAND MINES
TM 43-0001-37	ARMY AMMUNITION DATA SHEETS FOR MILITARY PYROTECHNICS
TM 43-0001-38	ARMY AMMUNITION DATA SHEETS FOR DEMOLITION MATERIALS

TM 43-0001-39	ARMY AMMUNITION DATA SHEETS FOR CARTRIDGES, CARTRIDGE ACTUATED DEVICES (CADS) AND PROPELLANT ACTUATED DEVICES (PADS)
TM 43-0001-47	ARMY AMMUNITION DATA SHEETS FOR AMMUNITION PECULIAR EQUIPMENT (APE)
TM 43-0001-61	ARMY AMMUNITION DATA SHEETS REMOTE MUNITIONS

A-8. Field Manuals.

FM 3-19.4	MILITARY POLICE LEADERS` HANDBOOK
FM 3-19.15	CIVIL DISTURBANCE OPERATIONS
FM 3-23.30	GRENADES AND PYROTECHNIC SIGNALS
FM 3-34.214	EXPLOSIVES AND DEMOLITIONS
FM 4-30.1	MUNITIONS DISTRIBUTION IN THE THEATER OF OPERATIONS

A-9. Supply Bulletins.

SB 742-1305-94-20	SMALL ARMS AMMUNITION TRACE TESTING
SB 742-1375-94-423	CHARGE, DEMOLITION: BLOCK, M3, M5A1, M112, AND CHARGE ASSEMBLY, DEMOLITION: M37 SERIES OR M183; AMMUNITION SURVEILLANCE PROCEDURES

A-10. Army Materiel Command Regulations.

AMCR 385-100	SAFETY MANUAL
AMCR 700-107	PREPARATION OF STANDING OPERATING PROCEDURES FOR AMMUNITION OPERATIONS

A-11. Drawings.

DWG 1948-75-5	INDEX OF U.S. ARMY UNITIZATION, STORAGE, AND OUTLOADING DRAWINGS FOR AMMUNITION AND COMPONENTS

A-12. Project Manager for chemical Demilitarization.

PMCD 742-4	AMMUNITION SURVEILLANCE PROGRAM

A-13. Other References.

BOE 6000 BUREAU OF EXPLOSIVES
DTR 4500.9R DEFENSE TRANSPORTATION REGULATIONS
29 CODE OF FEDERAL REGULATIONS
46 CODE OF FEDERAL REGULATIONS
49 CODE OF FEDERAL REGULATIONS

OTHER REGULATIONS ARE LISTED IN APPENDICES BY ITEM.

APPENDIX B
MUNITIONS HISTORY PROGRAM

B-1. General:

The purpose of the Munitions History Program (MHP) application is to collect and store inspection and test data and track ammunition technical history quality assurance data. This system replaces the current Depot Surveillance Record (DSR) Card, including the SDS system and other systems now being used to collect field data. All organizations are required to use the Munitions History Program to maintain their DSR information where internet connectivity is available. In locations where internet connectivity is not available the use of other methods of recording DSR data is authorized. There also is an offline capability module to be developed, which will allow the MHP system to be used while offline and when the computer is next connected to the internet the data will replicate to the MHP server.

B-2. Application: The MHP application and database provides the following:

a. Flexible, robust, user-friendly data screens and reports.

b. A method of interfacing to external data sources to include the Joint Hazard Classification System (JHCS), World-Wide Ammunition Reporting System (WARS).

c. Interfaces to load the NIIN, lot and serial data so that user does not have to type in this information.

d. Printable versions of the DSR card.

e. Maintains the inspection history for each lot and serial number.

f. Ability for the administrator to grant access to individual modules as well as an application that defines access levels within the system.

B-3. Web Address: The Web-site for MHP can be found at https://mhp.redstone.army.mil/. Users are required to have an AKO/password account to access the system. Access rights to MHP can be granted by sending an e-mail to: ROCK-AMSJM-QAS@CONUS.ARMY.MIL

B-4. MHP Access: The following information is required for access to MHP:

a. AKO user name.

b. Military Service Grade, GS/NSPS employee, service branch, contractor employee (government or non-government contractor).

c. User location (UIC).

d. Desired user access level.

B-5. User Access Levels: The following access levels are provided for the MHP application. Senior surveillance personnel will determine the appropriate access level, 1, 2 or 3, for their personnel. The MHP administrator at the Joint Munitions Command will input the AKO user name and access level into MHP.

a. Level 1 – Read only.

b. Level 2 – User.

c. Level 3 – Supervisor.

d. Level 4 – Administrator – allow access and modification to all areas.

B-6. MHP Modules: The following modules are available in the MHP application to select from:

a. New Inspection: Allows user to enter information pertaining to a QASAS ammunition inspection, including comments. This may also be used for administrative comments on ammunition groups.

b. View Inspection: Allows users to browse/review inspections which have been entered and approved (MHP historical data).

c. Final Review: Administrators to review inspections entered and edit, delete, or approve them.

d. Suspension/Restrictions: Provides a listing of restricted and suspended munitions that will assist personnel responsible for storage, issue, use, testing, inspection, maintenance, and transportation of munitions.

e. Legacy Data: MHP historical inspection data; for limited locations. This module contains all electronic DSR data.

f. User Access: Allows user to add, edit or remove module access rights for users at levels below their own. Module is a Level 4 authorization only.

g. Maintenance: Add, edit, or remove items from the many tables which support the drop-down lists used by the MHP program. Module is a Level 4 authorization only.

h. Forum: Allows users to leave constructive comments regarding the MHP application, including bugs encountered and suggested improvements or modifications.

i. Help Desk: Allows user to enter a problem or question that they need a response to. They will be contacted by the appropriate Help Desk personnel when submitting a request.

j. Reports: Currently this module allows users to extract data only for use in analysis. Future upgrades will include reports/databases where data can be input such as in the quality management report (124 report). New reports will be added as found necessary and suggestions will be accepted in the help desk module. Current reports are as follows:

(1) Serial history – Serial numbered item search for inspection histories.

(2) Transaction history in TB - Compares shipping/receiving transaction to the TB 9-1300-385 (future enhancement will include AF and Navy suspension/restriction data comparison).

(3) Date of next inspection – Allows organizations develop inspection schedules.

(4) Quality Management Report/124 Admin Report – This module is currently under development and is expected to be operational within FY09.

(5) WARS (On Record) – Includes near real time WARS data and comparison to TB 9-1300-385

B-7. New Inspections:

a. Access: Requires an access level of 2, 3, or 4 as well as administrator granted right to view this module. (No read-only access).

b. Purpose: Allow users to enter and save information creating a new munitions inspection.

c. Applicable Rules:

(1) Allows user to pull munitions histories from other UICs (locations), or to create an inspection/comment if one does not exist.

(2) Provides level 3 and 4 users with option to auto-approve inspection prior to saving the inspection.

(3) Allows user to enter multiple munitions (i.e. NIIN-lot-serial combinations) for each inspection record.

(4) Users can associate multiple lots with each inspection record.

(5) Users can associate multiple serial numbers for a specific lot with each inspection.

(6) Users can enter one and only one UIC.

(7) Users can enter multiple defect codes for each inspection record (and for each of these specific areas: outer pack, inner pack, item, and general).

(8) Allows the user to enter Administrative comments for a NIIN-lot-serial combination.

B-8. View Inspections:

a. Access: Requires an access level of 1, 2, 3, or 4, as well as administrator granted right to view this module.

b. Purpose: Allow users to view existing inspections.

c. Applicable Rules:

(1) Lists inspections that have already been approved.

(2) Users can select to view “inspections” or a DSR Card information.

(3) Allows users to switch between inspections and DSR card information.

B-9. Final Review:

a. Access: Requires an access levels of 2, 3, or 4 as well as administrator granted right to view this module.

b. Purpose: Allow users to review, edit, and approve or delete inspections.

c. Applicable Rules:

(1) Does not list inspections which have already been approved unless specifically requested.

(2) If user creates an inspection and checks auto-approve, the inspection will not show up in the Final Review Module.

(3) Users can approve multiple inspections at a time.

(4) For deletion, DSR summary page is shown first to confirm that deletion of this record is desired.

(5) Level 2 users can review, edit inspections for all level 2's at the same UIC as the current user.

(6) Level 2 and 3 users can only delete their own inspections.

(7) Level 3 users can review, edit, or approve inspections for all level 2's and level 3's at the same UIC as the current user.

(8) Level 4 can edit any other levels’ inspections from any UIC.

(9) Users may edit comments for the number of working days that is set in the maintenance module (Days to auto-approve section). If the inspection has not been approved after this period of time, the system will automatically approve it.

(10) Allows user to view approved inspections.

B-10. Suspensions/Restrictions:

a. Access: All levels, providing user has access to this module.

b. Purpose: To provide a listing of restricted and suspended munitions that will assist personnel responsible for storage, issue, use, testing, inspection, maintenance, and transportation of munitions.

c. Applicable Rules:

(1) JMC manages Part I items and reporting.

(2) AMCOM manages Part II items and reporting.

(3) Part I and Part II list all JMC or AMCOM munitions that are currently suspended, restricted, or released.

(4) Suspensions can be entered at any of these four levels: serial, lot, NIIN, or DODIC.

(5) Restrictions can be entered at any of these four levels: serial, lot, NIIN, or DODIC.

(6) Remarks can be entered at any of these four levels: serial, lot, NIIN, or DODIC.

(7) “Relevant S/R data” includes S/R matches at all four levels: serial, lot, NIIN, or DODIC.

B-11. Legacy Data:

a. Access: Only available online. Requires an access level of 1, 2, 3, or 4, as well as administrator granted right to view this module.

b. Purpose: Allows user to view and print DSR information (includes scanned and legacy electronic DSR's) entered into systems prior to MHP.

c. Applicable Rules:

(1) Data is searchable and printable.

(2) Data is read-only.

B-12. Access Levels:

a. Access: Requires an access level of 4, as well as administrator granted right to view this module.

b. Purpose: Allows user to review, modify and control access levels and authorized modules for users below themselves.

c. Applicable Rules:

(1) Can only view and modify information for users whose access level is less than the current users' access level.

(2) Users cannot modify their own access information.

(3) New users must be added to the user access table when a login is created for them. Default access level is 1, read-only.

(4) Access level and module authorization determine what options will be presented to each user on the MHP main menu.

B-13. Maintenance:

a. Access: Only available in online mode. Requires an access level of 4 as well as administrator granted right to view this module.

b. Purpose: Allow limited user maintenance of drop-down lists and other data used in MHP program.

c. Applicable Rules:

(1) Tables that are used to create drop-down lists may have the option to review, add, modified, or delete by level 4 users.

(2) Days to auto-approve may be reviewed or modified by level 4 users.

(3) Allows level 4 to delete inspections.

B-14. Help Desk:

a. This module allows you to enter a question, suggestion, or problem that you are having with the MHP application. Someone from the MHP Help Desk will contact you to respond to your question.

b. To access the ASIS-MHP Help Desk feature, click on

, available on the Main Menu Page. This will take you to the Help Desk entry page where you will have the following options:

(1) Submit a Help Desk Question/Problem.

(2) View Open Questions/Problems.

(3) View Closed Questions/Problems.

(4) Search the Help Desk Database.

B-15. MHP Access Problems:

a. Personnel experiencing problems accessing MHP during normal working hours, 0600-1630 CST, need to contact DSN 793-6982, commercial 309-782-6982, email ROCK-AMSJM-QAS@CONUS.ARMY.MIL

b. After duty hours, personnel experiencing problems accessing MHP need to contact the Operations Center, JMC, DSN 793-7270, commercial 309-782-7270, email ROCK-JMC-OPCTR-OP@CONUS.ARMY.MIL.

APPENDIX C
AMMUNITION CONDITION CODES

Definition:	Amplification:
CODE A SERVICEABLE (ISSUABLE WITHOUT QUALIFICATION) New, used, repaired, or reconditioned materiel, which is serviceable and issuable to all customers without limitation or restriction. Includes materiel with more than 6 months shelf-life remaining.	Normal incidental requirements for additional packaging, packing, or marking, etc., that can be accomplished at time of issue (without additional resources or manpower or causing a delay) does not constitute a restriction.
CODE B SERVICEABLE (ISSUABLE WITH QUALIFICATION) New, used, repaired, or reconditioned materiel which is serviceable and issuable for its intended purpose; however it is restricted from issue to specific units, activities, or geographical areas by reason of its limited usefulness or short service-life expectancy. Includes materiel with 3 through 6 months shelf-life remaining.	Normal incidental requirements for additional packaging, packing, or marking, etc., that can be accomplished at the time of issue (without additional resources or manpower or causing a delay) does not constitute a restriction. Includes items restricted from or to specific missions.
CODE C SERVICEABLE (PRIORITY OF ISSUE) Items that are serviceable and issuable to selected customers, but which must be issued before conditions A and B materiel to avoid loss as usable assets. Includes materiel with less than 3 months shelf-life remaining.	
CODE D SERVICEABLE (TEST/MODIFICATION) Serviceable materiel that requires test, alteration, modification, conversion, or disassembly. This does not include items that must be inspected or tested immediately prior to issue.	
CODE E UNSERVICEABLE (LIMITED RESTORATION) Materiel which involves only limited expense or effort to restore to serviceable condition and that is accomplished in the storage activity where the stock is located.	Minor maintenance is exterior to the round or munitions. Includes all repair of external surfaces and repair or replacement of packaging, packing, palletization, and marking.
CODE F UNSERVICEABLE (REPAIRABLE) Economically reparable materiel which requires repair, overhaul, or reconditioning (includes reparable items which are radioactively contaminated).	Major maintenance usually requires replacement of end item components or modification.
CODE G UNSERVICEABLE (INCOMPLETE) Materiel requiring additional parts or components to complete the end item prior to issue.	
CODE H UNSERVICEABLE (CONDEMNED) Materiel which has been determined to be unserviceable and does not meet repair criteria (includes condemned items that are radioactively contaminated).	Includes material determined to be uneconomically repairable. Includes Army materiel that became unserviceable by reason of shelf/service life expiration.
CODE J SUSPENDED (IN STOCK) Materiel in stock, which has been suspended from issue and use pending condition classification or analysis, where the true condition is not known.	Includes Temporarily Suspended material pending serviceability determination. Army ammunition that has missed two scheduled periodic inspections is included. Includes Air Force materiel that is identified and held for future test/surveillance requirements, either destructive or nondestructive in nature. May contain formerly serviceable assets that became unserviceable by reason of being reserved for test or shelf/service-life has expired.

CODE K SUSPENDED (RETURNS)
Materiel returned from customers or users and awaiting condition classification.

Includes items that have been identified by stock number and item name, but not examined for condition. Stocks in this CC will be inspected and properly classified as to condition according to the appropriate regulations. When more time is required, an extension of time may be granted by the applicable accountable supply distribution activity.

CODE L SUSPENDED (LITIGATION)
Materiel held pending litigation or negotiation with contractors or common carriers.

CODE M SUSPENDED (IN WORK)
Materiel identified on inventory control records but which has been turned over to a maintenance facility or contractor for processing.

CODE N SUSPENDED (SUITABLE FOR EMERGENCY COMBAT USE)
Ammunition stocks suspended from issue except for emergency combat use.

CODE P UNSERVICEABLE (RECLAMATION)
Materiel determined to be unserviceable, uneconomically reparable as a result of physical inspection, tear-down, or engineering decision. Item contains serviceable components or assemblies to be reclaimed.

Assigned as directed by the owning Service.

CODE Q SUSPENDED (QUALITY DEFICIENT EXHIBITS
This code is for intra-Air Force use only. Quality Deficient exhibits returned by customer/user as directed by the inventory manager due to technical deficiencies reported by Quality Deficiency Report. Exhibit requires technical or engineering analysis to determine cause of failure to perform IAW specifications.

CODE R SUSPENDED (RECLAIMED ITEMS, AWAITING CONDITION DETERMINATION)
Assets turned in by reclamation activities, which do not have the capability (e.g., skills, manpower, or test equipment) to determine the materiel condition. Actual condition shall be determined prior to induction into maintenance activities for repair/modification.

CODE S UNSERVICEABLE (SCRAP
Material that has no value except for its basic materiel content. No stock shall be recorded as on hand in Supply Condition Code S. This code is used only on transaction involving shipments to DRMOs. Materiel shall not be transferred to Supply Condition Code S prior to turn-in to DRMOs if materiel is recorded in Supply Condition Code A thru H at the time materiel is determined excess. Materiel identified by NSN shall not be identified by this supply condition code.

CODE V WASTE MILITARY MUNITIONS
Material identified as Waste, Military Munitions.

Assignment will only occur under the coordinated authority of a designated DOD or Service Designated Disposition Authority (DDA). Prior to the custodial CC-V request, the WMM must meet criteria of WMM under the DOD Military Munitions Rule Implementation Policy and must have a current inspection.

APPENDIX D
SECTION I. LIST OF SPECIFIC ITEMS

Ammunition Identification Codes (AIC) or Other Outdated Markings....D-1
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Smoke Pot, Floating, HC, M4A2 (1365-K867)....D-32

SECTION II. INSTRUCTIONS FOR SPECIFIC ITEMS

D-1. Ammunition Identification Codes (AIC) or Other Outdated Markings.

a. Ammunition lots marked with the AIC in lieu of NSN and DODIC (and otherwise acceptable) will be considered suitable for issue, training or inter-depot shipment without remarking the outer pack or palletized load. Annotation of NSN and DODIC is required only on shipping documents, ammunition data cards, and depot surveillance record cards.

b. Ammunition lots marked with AIC in lieu of the NSN and DODIC will not be issued for PREPO or basic load.

c. For information pertaining to the correct NSN/DODIC for a lot marked only with an AIC, contact the office in paragraph 1-5.d.(1).

d. Incorrect DOT shipping names will normally be corrected on accessible exterior packages prior to shipment. When it can be determined by the shipper that the marking was correct at some previous time, the materiel need not be remarked. Shipping documents will be annotated with the correct DOT shipping name.

e. Weapon model designations on boxes and containers need not be corrected to comply with current drawings.

f. Items containing dual nomenclature markings within a lot (e.g., "cartridge" on boxes and fiber containers and "shell" on the round) are acceptable.

g. Current markings will be applied whenever items or packaging are marked for other reasons.

D-2. Ammunition Manufactured for Special Purposes.

a. Certain lots of conventional ammunition were manufactured for special purposes: i.e., proving ground tests, engineering tests, etc., these lots were formerly identified by use of "PG", "SR", "SP", "A", "E", "P" lot interfix and/or word "PILOT" in the lot number. Special purpose ammunition of recent manufacture with the 13-digit lot number, as directed by MIL-STD-1168, is identified by the letters "S", "E", "A", or "P" in position number 10 (position 8 for propellant lots).

b. Ammunition manufactured for special purposes generally is not intended for actual firing as service or training ammunition. Such issues must be specifically authorized by JMC.

c. Non-functioning ammunition items (dummy, inert, drill, etc.) do not require any special authorization for troop issue. Generally, identification of this materiel as a special lot implies manufacture using standard service round technical data package with "special lot" identifying the inert nature of the material.

d. To prevent issue of special purpose ammunition or components for unauthorized use by using units, the following will be accomplished:

Lots other than non-functioning that are in field service, depot renovation, or similar accounts, and that have not been specifically authorized for troop use, will be reported by memorandum to the addressee in paragraph 1-5.d.(1). Report will provide NSN, nomenclature, lot number, quantity, and account. Copies of the ADC and DSR should be included. Authorization for troop issue shall be based upon verification that production complied with the technical data package requirements applicable to standard lots. Response from JMC must be annotated on the DSR. Receipts of special purpose lots will be reported unless the DSR indicates authorization was previously obtained. Serviceable lots will be assigned CC-D pending response from JMC.

Reporting is not required for special purpose lots identified by non-standard NSN or maintained in supply accounts which preclude issue to using units. Examples are demilitarization, proving ground (TECOM), and research and development accounts.

e. Ammunition manufactured for calibration and reference purposes is assigned a 13-digit lot number with letter "C" or "R" in position 10 (position 8 for propellant lots). Reporting procedures for these lots are the same as for other special purpose lots except that reports will be submitted to the addressee in paragraph 1-5.d.(20)(b). The response from JMC must be annotated on the DSR.

D-3. Ammunition, 40mm.

Cartridges that are assembled into linked belts will not be removed from their links for inspection or gaging purposes. Cartridges that appear to be damaged to the extent they might not chamber in the weapon should be reported on ACR to JMC Surveillance Division.

D-4. Black Banding.

New Army ammunition production is required to be palletized with galvanized banding. If any is received with black banding, the packaging office should be notified for investigation of contract. Contact packaging office addressee in paragraph 1-5.d.(23). Black banding utilized for palletization should be identified during damage in transit inspection.

D-5. Blasting Caps, Electric.

a. Defect and inspection criteria outlined in appropriate TMs, drawings, specifications and paragraph 2-7 of this bulletin will be used. In addition, the following criteria will be applied:

b. No more than one circumferential crack is permitted in the lead wire insulation at any or at all of the points where the wire is normally bent more than 90 degrees when in the authorized packaging configuration.

c. A longitudinal crack of less than ½-inch long with only one crack per 6-inch length of the wire is considered acceptable.

d. More than one circumferential crack, or more than one longitudinal crack of less than ½-inch, or combination of both in a segment of wire less than 6 inches is considered a minor defect.

e. Longitudinal cracks longer than ½-inch, longitudinal crack terminating in a circumferential crack, or flaking of the insulation in any part of the wire are considered major defects.

D-6. Bombs, Inspection for Heli-Coil Inserts.

h. NCB/MHQ assets of DODICS E462, E463, E464, E465, E466, E470, E471, E480, E481, E482, E483, E485, E487, E488, E489, F226, F227, F228, F237, F243, and F244 are to be placed in CC-E if all of the following conditions apply:

Assets were manufactured prior to 1 March 1968, or have an unknown date of manufacture.

Assets have none of the following markings:

The letter "A" stenciled after the load date.

The letters "HC" or "HCT" stamped near the lug wells.

The designation "AAB 423 INC" stenciled on the item.

i. Items placed in CC-E per the above guidance require 100% visual inspection to verify that no Heli-Coil is present.

j. If Heli-Coil is not present, and item is otherwise serviceable IAW acceptance criteria in applicable technical publications, item should be placed in appropriate serviceable condition code.

k. If Heli-Coil is present, a pull test of the Heli-Coil IAW procedure AAB 423 is to be performed. Items successfully completing this procedure, and which are otherwise serviceable IAW inspection criteria contained in applicable technical publications, will be reassigned an appropriate serviceable condition code. Items failing the pull test shall be reported for disposition instructions IAW appropriate technical guidance. Annotate DSR with inspection and test results.

D-7. Bursters, Tetrytol -- All munitions with tetrytol bursters will be placed in CC-F for replacement of bursters. Screening for evidence of explosive growth or exudation prior to issue for use is not considered practical or timely.

D-8. Cartridge Actuated Devices (CAD) and Propellant Actuated Devices (PAD).

a. All malfunctions, discrepancies, and accidents involving Army FSC 1377 CADS or PADS will be reported by the most expeditious means available to JMC Surveillance Division, according to AR 75-1. Suspected items (discrepant, malfunctioning, or involved in an accident) will be separated from condition code "A" materiel and clearly labeled "HOLD FOR ENGINEERING INVESTIGATION."

b. CADs or PADs service limits. These time limits are designated as shelf life and installed life (service). Shelf life and installed life will not be combined. The usable life of a CAD or PAD is expired if either of these limits are exceeded. Expired CADs or PADs must not be used without specific approval of the designated technical command. Service limits are based on design verification tests and surveillance evaluation by stockpile/service return reliability test program. Compliance with these limits, which can be found in appendix D of TB 9-1300-385, is mandatory.

c. Computation of shelf life and installed life. CAD or PAD lives are based on shelf life or installation life, whichever date occurs first is the CAD or PAD service limit expiration date. To compute shelf life or installation life, use the criteria below:

Shelf Life. Date of manufacture (DOM) plus Army-published shelf-life equals shelf-life expiration date. The DOM is denoted within the CAD or PAD lot number printed on the item or on a tag attached to the item. The year of manufacture is denoted as a two-digit number (spaces 4 and 5) immediately following the manufacturer's designation (spaces 1 through 3). The month of manufacture is denoted by an ALPHA character (space 6) immediately following the year designation ("A" represents January, "B" represents February, and so on. The letter "I" is not used).

Installed Life. Installed life begins when the CAD or PAD airtight container is opened, regardless of the reason. This date plus the Army-published installed life limit equals the installed life expiration date. The installed life expiration date will never exceed the shelf life expiration date.

All Army units (installation, ASP, user) will comply with limits cited in appendix D of TB 9-1300-385 and supplements thereto. Additional data can be found in TM 9-1377-200-20 and TM 43-0001-39-Series publications. If a conflict on service limits is encountered, TB 9-1300-385 takes precedence. Questions on shelf or service life or requests for installed (service) life extensions should be directed to Ammunition Surveillance Division, HQ JMC, Rock Island.

d. Shelf life and installed life expiration. All Army CAD/PAD lots with an expired shelf or installed life will be reclassified to CC-H; exceptions to CC-H reclassification can be found in Appendix H to TB 9-1300-385. Requests for disposition for expired CADs/PADs will be made to the JMC using the CAD Disposition Worksheet available at the website listed in paragraph 1-5.d.(21)(e). Surveillance testing is performed on expired CADs/PADs to verify reliability and determine if shelf/installed life limits can be extended. Failure to provide required information on the worksheet might cause needed samples to be eliminated from test program thus jeopardizing Army test plans. Dollar limitation and disposal provisions of DA PAM 750-8 do not apply for this material.

Army service return of downloaded CADs or PADs will be tagged using DD Form 1577. Annotate remarks block with the following information:

Aircraft model and tail number.

Date CAD/PAD installed.

Date CAD/PAD removed.

Expired and expended items removed from mission configuration by using units will be returned to the supporting ASP/storage facility.

The appropriate accountability, management controls, and documentation will be established or maintained for new item issues and to assure unit turn-in of all downloaded items.

If the original packages are not available, packages for replacement items will be used for repack and turn-in of unserviceable CAD or PAD.

If an item is selected/required for the CAD Surveillance test program, ship the item(s) to: addressee in paragraph 1-5.d. Documents for shipment should be marked: "Army CAD/PAD Surveillance Program, Notify CODE 5240A at 301-744-2325."

e. Condition code classification. CAD or PAD lots will be classified according to the provisions of AR 725-50 based upon the remaining shelf life and paragraph D-8d above.

f. Army stockpile test program for CADs or PADs in storage. JMC will furnish a nomination memorandum to each storage location from which test samples are desired. The sample size required for test will be furnished with the request for samples. Only the specific quantity requested for each lot will be shipped.

Each candidate lot from which samples have been selected for testing will be retained in the appropriate CC as determined by the local surveillance organization (QASAS). Candidate lot test samples at the installation will be placed in CC-D and obligated for shipment.

The MRO for shipment of test samples to NSWC, IH, will be issued by HQ JMC, Rock Island.

One end or side of the shipping container will be painted white. Shipping documents and containers will be annotated "ARMY CAD/PAD SURVEILLANCE PROGRAM".

Random sampling for selection of samples will be used where possible.

g. Inspection requirements. The owning service establishes appropriate inspection, quality assurance standards, and serviceability requirements. The appropriate requirements in Chapter 2 apply in addition to the specific inspection/technical provisions of TM 9-1377-200-20 and TM 43-0001-39. Inspection of CAD/PAD packing will be IAW applicable Special Packaging Instructions (SPI) used at time of manufacture. SPIs are available on the Surveillance website referenced in paragraph 1-5.d.(21)(f).

Hermetically sealed containers will not be opened unless packaging shows evidence of moisture or damage to the extent that contents may be unusable. Tear-strip and paint can type containers with RTV sealed lids are considered hermetically sealed containers.

Heat sealed barrier or plastic bagged items are to be considered equivalent to hermetically sealed items. Heat sealed material will not be opened unless there is evidence of moisture or damage to package contents.

Where capabilities exist, opened containers will be resealed IAW Chapter 2; otherwise use repackaging procedures IAW Chapter 3, TM 9-1377-200-20. Installed life begins on the date the container was opened. All opened containers (hermetically sealed and barrier/plastic bag) will be repacked and appropriately marked. Mark each opened/repacked CAD/PAD container: "OPENED (date as applicable)" in a conspicuous place. Markings can be hand written using an indelible marker. Each layer of packing will be marked with container open date. A tag, with applicable "OPENED (date)" markings, will also be secured to the outer pack. This is to allow identification and verification of remaining installed life of container contents. DSR must be annotated with container open date (month/year). Opened containers will be given highest priority of shipment/use.

D-9. Cartridge, 90mm, HEAT, M371A1 (1315-C282).

a. Surveillance inspections of 90mm, M371A1 cartridges will be limited to visual inspections. No disassembly is authorized.

b. Nose cap removal will be performed only as part of an authorized screening or renovation operation at a prescribed maintenance facility. Unauthorized nose cap removal and reassembly has been determined to

allow metal particle contamination of nose, resulting in possible premature functioning of the fuze and projectile.

D-10. Cartridges, 152mm.

Rounds assembled with the older M157 cartridge case that used an adhesive and lock ring system have been suspended. In that system looseness between the cartridge case and projectile was a major defect. The latest model cartridge case, the M205, is mechanically secured to the projectile. Since there may be some shrinkage in the case material, relative motion may occur between the M205 cartridge case and the projectile. If the cartridge case is intact (without cracks), the ignition element secured to the case, and the cartridge case is not separated from the projectile, the round will be considered serviceable.

D-11. Charges, Supplementary.

a. MIL-C-50417, Amendment 2. The defect classification for supplementary charges with loose pellets, as shown in MIL-C-50417, amendment 2, is applicable for new manufacture only and will not be used during inspection of fielded stocks. Loose pellets are not considered cause for rejection of supplementary charges in either bulk pack or assembled in complete rounds/projectiles.

b. Supplementary Charge Part Number 883820:. Polyethylene supplementary charge pads (DWG 8838203, rev D) in 155mm, M549A1 HERA projectiles may be compressed to less than 1/16-inch thickness. This condition occurs when projectiles are assembled with energy absorbing lifting plugs which have an intrusion depth ¼-inch longer than shock attenuating or "G" type lifting plugs. Compressed polyethylene pads do not present a safety hazard during storage, transportation, handling, or firing and are not to be considered a defect.

c. Supplementary Charge NSN 1320-00-824-0811 DX02, Part Number 8797090.

(1) Charges manufactured prior to April 1987 are no longer authorized for use in Army Maintenance of howitzer projectiles. Pending replacement of pads, charges may only be assembled to cartridge, 4.2 inch, HE M329 series.

(2) All affected wholesale and retail bulk stock (unit returns) are to be reclassified to condition code “F”. This appendix does not apply to charges already assembled to ammunition. Proving grounds are exempt from compliance with appendix.

(3) Acceptable charge manufactured in accordance with drawing 8797090 revision P (and subsequent revisions) has an oversize pad that causes charge to be firmly wedged into projectile.

(4) Presence of oversize pad reduces likelihood that supplementary charge is displaced should projectile be rammed without fuze or plug. Over run of charge and consequent in-bore explosion is thus prevented.

D-12. Components, Explosive.

See paragraph 4-8.

D-13. Conventional Ammunition in DEMIL Account.

a. Unserviceable conventional ammunition in Demil accounts, excluding guided missiles and rockets where lot/serial number accountability is required, separate loading propelling charges, and bulk propellant, may be assigned to aggregate lots providing the following criteria are met:

All lots are of the same DODIC/NSN.

All lots are in the same condition code.

No lots are suspended from issue, movement and use (SIMU).

b. Where this procedure is applied, all lot numbers that constitute an aggregate lot will be listed on the applicable DSR for the aggregate lot or on a locally developed log. Aggregate lots will be assigned lot number “MIXED-XXX” where “XXX” is a sequential number. Local procedures will be developed to limit the quantity of individual lots consistent with safe and efficient operations. When this is done, lots making up an aggregate lot may be stacked together in storage, and safety in storage (SIS) inspection may be based on sample taken from one of the constituent lots.

D-14. Dynamite.

a. Commercial dynamite.

Straight dynamite, 60-percent and over in strength, will be turned at regular intervals as directed in DA PAM 385-64 and will be annotated on a locally devised form that will be attached to the stack. Other types of dynamite, ammonia, ammonia-gelatin, and gelatin dynamites will not be turned in storage. However, yearly, at the conclusion of the hottest portion of the year, a representative sample will be selected and the containers examined for evidence of nitroglycerin exudation on the exterior of the cartridge. If exudation is found, the lot or lots involved will be reported on DA Form 2415 with a recommendation for destruction.

Dynamite contained in Canine Explosive Scent Kit (Dynamite, Exgel 40 and Exgel 75) has a shelf of 18 months. This dynamite need not be turned in storage. However, at the conclusion of the hottest portion of the year, a representative sample of the nitroglycerin based dynamite, will be selected and examined for evidence of nitroglycerin exudation.

Dynamite with discolored oily stains is not considered hazardous; see appendix W, paragraph W-6a and i. Dynamite exhibiting exudation (measurable liquid or nitroglycerin crystals) will be destroyed in accordance with local procedures.

b. Military dynamite. Military dynamite does not require turning in storage but will be periodically inspected per procedures outlined in Chapter 2 and the following information.

Exudation, crumbling, disintegration, or cracking of military dynamite are classified as major defects. In the absence of these conditions, loose explosive that is wholly contained by the inner pack is not to be considered a defect.

New production dynamite will have dark brown spots and colorations. It may also have a slick feel due to a wax coating applied to the outer wrapper. These are not defects unless accompanied by an oily exudate or crystallization.

Lots known to contain loose explosives that have migrated outside the inner pack (in any amount) will be repacked prior to shipment.

D-15. HERA Projectile Defect Classification.

a. Projectiles, 155mm, M549, HERA (1320-D579) and Projectile 8-Inch, HERA, M650 (1320-D624) with missing or damaged obturating bands can cause a critically short round.

A missing or damaged band evidencing an obvious crack, cut or gouge extending across entire width of band is to be classified as a critical defect. This damage is to be distinguished from incidental cracks or scratches that do not affect obturator functioning.

A "loose" obturator band is a critical defect if the band will not remain in the groove. If band can be manually removed from groove, but can also be "snapped" back into groove, round is to be considered serviceable.

Circumferential movement of obturator is not classified as a defect.

b. Excessive gap between warhead and motor body assembly is a critical defect for 155MM, M549A1 (1320-D579) and 8-Inch, M650 (1320-D624) projectiles due to potential for motor separation. Gap criteria is as follows:

A 0.0075-inch feeler gage shall not enter joint at any point.

A 0.0035 inch feeler gage may enter joint by more than one-eighth inch on any one 30 degree segment of joint, however, it may not enter by more than one-eighth inch on the remaining 330 degree segment.

c. Gap greater than 0.010 inches at any point between forward and aft warhead assembly of the 8-inch, M650 is a major defect.

d. Age and storage environment related deterioration causes 155MM, M549A1 projectile obturators to become excessively brittle especially in hot dry climates. Ductility will likely partially return if subsequently stored in a humid climate.

D-16. Items Belonging to Other Services.

Most conventional ammunition items belonging to other services and stored at CONUS installations by the Army will be inspected and tested in accordance with DOD 5160.65-M, Joint Conventional Ammunition Quality Assurance Policies and Procedures.

a. Ammunition Surveillance Division, Rock Island is the focal point for QA matters concerning SMCA field service stocks.

b. Munitions stored for other government agencies not covered by SMCA or private contractors are subject (as a minimum) to a receipt inspection and safety-in-storage inspections.

c. Additional inspection procedures and their frequencies will be specific in the appropriate support agreement or memorandum with the owner. This includes, but is not necessarily limited to, foreign, experimental, and test ammunition.

D-17. Items That Have Not Been Hazard Classified.

a. Items, that have not received a hazard classification IAW TB 700-2, must be considered Hazard Class/Division 1.1 Compatibility Group L for storage.

b. These items cannot be cleared for shipment except that captured military ammunition of unknown characteristics can be shipped by military air from one military airfield to another military airfield. These items can be moved about on a military installation except as above.

c. Item hazard classification must be requested from Director, U.S. Army Technical Center for Explosives Safety (USATCES) IAW the procedures of TB 700-2.

d. The primary source for determination of item hazard classification data is the Joint Hazard Classification System available on the World Wide Web reference paragraph 1-5.d.(21)(d).

D-18. Marker, Location Marine, MK25 (1370-L554).

a. The Air Force Technical Order covering this item (T.O. 11A-1-60) contains a warning to inspectors that any residual red phosphorous in an expended or partially expended L554 item is subject to spontaneous re-ignition upon exposure to air. These expended or partially expended Mk 25 Marine Location Markers are considered an environmentally hazardous material.

b. Inspectors are reminded to include this item and warning in local standing operating procedures (SOP's) dealing with inspections of residue, to ensure complete compliance with paragraph 2-4b(4)(c) of this SB.

D-19. Mine, Antipersonnel, M18 Series.

a. Inspect the electric blasting cap assembly M4 using test procedures in TM 9-1345-203-12&P, paragraph 2-3, and the following:

Unpack the electric blasting cap assembly M4 and inspect to insure that shorting plug/dust cover on M4 electric blasting cap assembly is present and properly closed.

Unroll the electric firing wire and visually inspect for defects such as cracks or peeling of the insulation material (also see paragraph D-5).

Test with the M40 test set according to TM 9-1345-203-12&P, paragraph 2-3d(9) (a) through (f) and reroll the firing wire on the spool.

WARNING

The M4 blasting cap assembly contains an M6 electric blasting cap. Personnel must be shielded from the effects of accidental initiation of the cap.

Electrical continuity test failure and damage or deterioration to the insulation material that results in a bare wire exposure liable to cause failure are classified as major defects (see paragraph D-5 for criteria).

b. Inspect mines for deterioration of plastic body.

Plastic cases on mine, APERS, M18A1 (1345-K143 and K145) manufactured before 12/89 may become soft and sticky, causing difficulty extracting the mine from

the cloth bandoleer (minor defect). Only back side of the mine affected. Deterioration of the plastic case does not affect functioning. Chemical reaction between explosive and polystyrene component of the plastic causes the deterioration.

Mines with exposed explosives should be transferred to condition code Hotel and disposed of in accordance with DA PAM 750-8.

Transfer wholesale stocks with deteriorated plastic case (w/o exposed explosive) to condition code “F” and do not ship to retail installations until renovated IAW DMWR 9-1345-0000-F21. Use retail stocks with deterioration of plastic cases (w/o exposed explosives) for all purposes and retain in basic load. Cut mine from bandoleers if use is required due to operational necessity and if attempt to extract the mine will not expose explosive. Limit cut to minimum required to extract mine from bandoleer.

D-20. Mine, AT, HE, M15.

a. Inspection of the M603 fuze packed with this mine is necessary to ensure that a detonator is present. Absence of this detonator could indicate that the inert fuze used with the practice mine M7A2 had been inadvertently assembled to the M15. Inspection for presence of the detonator is accomplished as follows:

Assure that safety clip is in place between pressure plate and body of fuze.

Turn the fuze over and assure that varnished or painted lining compound on end of detonator shows in bottom of fuze.

Absence of the detonator is classified as a major defect.

b. Inspect the mine Belleville spring for deterioration or improper assembly (major defect).

Test the resistance of the mine pressure plate by applying hand pressure to the unfuzed mine pressure plate. The amount of force applied (5 to 25-lbs is suggested) should not exceed approximately 50-lbs. If no movement of the pressure plate is detected, the Belleville spring is considered serviceable.

Remove the arming plug and visually examine the Belleville spring for deterioration, misalignment, or improper assembly (use of a flashlight will be required). Verify that the setting knob of the arming plug is properly assembled (see drawing #C37-1-7 and TM 9-1345-203-12&P). Arming plugs failing to meet this requirement will be classified as critical defectives. (Improperly assembled units allow the plug to be armed while the arrow is pointed toward the "safe" position.)

Examine the fuze retainer spring in the arming plug for deterioration or misalignment (major defect).

D-21. Mine, AT Heavy M19 Non-Metallic.

a. Inspect the mine for damage (cracked/dented body) IAW TM 9-1345-203-34, and ensure the mine's firing pin is “SAFE” by performing the following steps:

(1) Remove fuze and inspect rubber gasket

(2) Remove any foreign material found in fuze well.

(3) Verify fuze is set to “S” and safety clip is in place.

(4) Remove shipping plug from detonator well and remove any foreign material.

(5) Verify the firing pin is located at the edge of the detonator well.

(6) Remove safety clip and rotate fuze setting knob to “A”; verify that the firing pin moves to the center of the detonator well.

(7) Return setting knob back to the “S” position; verify the firing pin returns to the side of the detonator well (critical defect if firing pin does not return).

(8) Replace safety clip.

b. Functional characteristics per TM 43-0001-36 indicate a force of 300 to 500 pounds applied to the pressure plate will cause mine detonation. Testing has shown that mines may function below the 300 pound lower limit. The lowest functional force recorded from one lot during testing was 198.5 pounds. On average, mine lots can be expected to function between 260 and 500 pounds.

c. When installing/emplacing/or removing the K250 mines users are advised to adhere to established procedures, and to be aware of the mine's lower functioning force.

D-22. Permanent Suspension Of Material In SMCA Managed Accounts.

a. Permanent suspension action pertains only to assets of the service issuing the suspension. This appendix pertains only to assets suspended by the issuing service that are in or are transferred into the SMCA (Army) Demil Accounts (B5A or local accounts).

b. Non-SMCA ammunition, e.g. Navy torpedoes, Air Force missiles, will be conditioned coded in accordance with permanent suspension actions of the developing service, regardless of owner account.

c. For all other SMCA managed items, JMC Surveillance Division will issue a NAR indicating the disposition of stocks in Army accounts for each permanent suspension action issued by other services. An “X” in the Army column in SMCA list identifies items with Army use.

D-23. Projectile Receipt Inspection.

a. Projectiles, 8-Inch, M106 (1320-D680) with NPK metal parts are suspended, requiring ultrasonic test and assembly of ogive protector (OPA) and shock attenuating lifting plug. These projectiles have proven extraordinarily susceptible to developing cracks (due to residual stress) when subjected to impacts. Avoid striking projectile ogive area since any hard impact may cause projectile ogive to crack especially at cold temperature. Projectiles may be transported without special precautions as long as they remain palletized IAW approved drawings.

Lots which have been ultrasonically tested (100%) for presence of cracks in area of ogive may be distinguished from other M106 projectiles by presence of polyethylene truncated cone (ogive protector assembly) assembled to ogive and shock attenuating

lifting plug assembled to fuze well.

Unit returns of projectiles, which have indication of rough handling, are to be classified as unserviceable requiring ultrasonic screening. Projectiles, which have broken shock attenuating lifting plugs, are not repairable.

Field service returns are to be classified unserviceable, requiring ultrasonic screening unless it can be determined with reasonable certainty that ogive protector and lifting plug have not been removed by troops.

b. Any projectile that is known or suspected of having been rammed into a howitzer weapon is to be placed in CC-H and authorized for demilitarization. Howitzer user's manuals caution howitzer crews not to load a previously rammed projectile into a weapon. One exception is Copperhead projectiles when rammed into a cold tube.

D-24. Projectile 155mm, Illuminating, M485 Series (1320-D505) and Projectile 155mm, Infrared Illuminating, XM1066 (1320-DA49).

a. Projectiles missing a groove pin in base (located approximately ¾" up from base of projectile) may cause premature functioning of the round (critical defect).

(1) Surveillance inspections for missing groove pins in the base of the projectile is to be conducted visually and by inserting an appropriately sized probe (approximately 1/8" diameter tip, such as the tip of a ball point pen or a carpenter's nail) into the three (3) holes to verify the presence of each pin, as paint may be covering a hole that is missing a pin.

(2) Pins should be flush or near flush to the surface of the shell body.

(3) M485A2 only: due to possible rework during production, some M485A2 projectiles may exhibit as many as six (6) extra pin holes. Extra holes with pins inserted are not to be considered a defect. Any pin hole without a pin is a critical defect.

b. Defects found during inspection of the expelling charge will be classified as follows:

(1) Bulged (incidental defect).

(2) Cracks without exposure of contents (incidental defect).

(3) Split, cracked, torn, or burst with contents exposed (major defect).

(4) Cover separated with contents exposed (major defect).

(5) If during the course of the surveillance inspection, stuck expelling charges are encountered with no exposed black powder or moisture on top of the visible expelling charge or in the fuze well, additional samples equal only to the number of stuck charges are to be selected. If these samples evidence no black powder contamination or moisture, the lot is to be accepted for unrestricted issue and use.

(6) If stuck expelling charges exhibit cracks with exposed contents and/or moisture, they are to be treated as major defects, the lot condition coded accordingly, and reported in accordance DA Pam 750-8.

Loose components, indicated by rattling inside the projectile during handling, is not a safety concern. Rattling is caused by looseness of spacers inserted in the base of projectiles and in the canister assembly during loading and packing to assure a tight pack. However, loose-pack of the cargo has been proven to contribute to fuze failures, resulting in duds and overall decrease in reliability of the round.

D-25. Projectile, 155mm, M825 Series Defect Classification.

a. Projectile, 155MM, M825/M825A1 WP (1320-D528) with missing or damaged obturating bands can cause a critically short round.

A missing or damaged band evidencing a crack, cut or gouge extending across entire width of band is to be classified as a critical defect.

A "loose" obturator band is a critical defect if the band will not remain in the groove. If band can be manually removed from groove, but can also be "snapped" back into groove, round is to be considered serviceable.

Circumferential movement of obturator is not classified as a defect.

b. Canister component lot numbers have been stenciled on each projectile. This is not a defect but makes end item lot identification more difficult. Item drawings provide correct location for projectile lot number.

c. Corrosion on aluminum portion of M825 projectile base is a critical defect. Procedure for conduct of inspection and defect classification criteria is same as that for M483A1 projectiles with old type "green" bases (see Appendix N). Steel portion of M825 projectile base is that portion from base/body joint extending rearward for one-fourth inch. Damage to protective coating should be repaired using M825 projectile drawings, provided there is no corrosion present.

d. M825 projectiles may rattle or exhibit other internal noise when nose is tipped or shaken. This condition is common due to slight looseness of components and does not affect safety, firing or end item performance.

D-26. Projectile, 8 inch, M404.

a. Inspection of 8-inch M404 projectiles will include inspection of expulsion charge bags. Bags may be made of 2-mil low-density polyethylene film that is known to deteriorate over time due to environmental stress cracking. Emphasis should also be placed on condition of lifting plug gaskets.

b. Any crack or tear in an expulsion charge bag is a major defect if moisture can enter or propellant escape. Deterioration or damage to lifting plug gaskets to an extent, which would permit entry of moisture, is also a major defect.

c. Expulsion charge covers can be removed using a spark proof tool. Following inspection, cover edges are to be snapped back under the stake marks in the

cup using finger pressure.

D-27. Rocket, 66mm Incendiary, M74, TPA (1340-H110).

a. Evidence of grayish/white residue on round/ warhead could in fact be an oxidation product from the triethyl aluminum, but could also be residue from excessive epoxy sealant used to secure fill plug.

b. If grayish/white residue is found on warhead, perform the following test:

WARNING

Hydrochloric acid is corrosive and should be handled with care. If acid contacts skin, it should be immediately flushed with water and/or sodium bicarbonate solution (baking soda and water).

Test solution is hydrochloric acid. Dilute concentrated hydrochloric acid (commercial muriatic acid or 12n laboratory acid) with an equal volume of water to give approximately 6n hydrochloric acid. Test solution should be poured into a dropper bottle for use. This solution should be obtained from the medical officer, post hospital, laboratory or pharmacy.

Neutralizing/cleanup solution is a saturated solution of sodium bicarbonate (baking soda) in water. Mix the baking soda into a container of water until no more dissolves.

Place 2-4 drops of acid solution directly on powder on warhead or on powder scraped off warhead into a plastic or ceramic container (dish). If residue is oxidation product from triethyl aluminum, it should dissolve away. Follow procedures of reference directing clip be submerged in oil, and report as a critical defect.

Residue, which is epoxy sealant, will not be affected by the acid solution.

After each test, acid wetted area should be neutralized by wiping with a rag wet with bicarbonate solution in paragraph 5b.

D-28. NSNs for Electrostatic Packing Material.

MIL-PRF-81705 ELECTROSTATIC PROTECTIVE BARRIER MATERIAL		
NSN	TYPE	SIZE
8135-01-185-6816	Type I	36 inches X 150 ft roll
POLYETHYLENE BAG WITH INTERLOCKING SEAL CLOSURE		
NSN		SIZE
8105-00-837-7756		10 inches wide X 10 inches length
8105-00-837-7757		12 inches wide X 12 inches length

D-29. Identification Of Ammunition Stored In Southwest Asia (SWA) During Desert Storm/Desert Shield.

a. Material that was on the ground in Southwest Asia (SWA) during Desert Storm/Desert Shield is identified by the lot type designator code "Y". The use of this "Y" identifier does not apply to ammunition materiel used during Enduring Freedom/Iraq Freedom.

b. IAW MIL-STD-1168, the lot type identifier code is to be found in the tenth position of the lot number. For example, ammunition lot LOW89C003-002 becomes ammunition lot LOW89C003Y002. The "Y" will replace any previous lot type identifier. For example, lot number LC-85D002L004 becomes lot number LC-85D002Y004. It is imperative to include a remark in the DSR and ADC that identifies the previous type of lot identifier code that the "Y" replaced. See TB 9-1300-385 introduction for additional information. Navy/Marine Corps AIN 030-2001 will apply to Single Managed items owned and used exclusively by the U.S. Navy or U.S. Marine Corps.

c. For older type lot numbers, the "Y" should be added at the end of the lot number preceded by a dash to allow for a lot suffix. For example, lot LS-23-5 becomes lot LS-23-5-Y: a suffixed lot : lot number LOP-1-2A becomes lot number LOP-1-2AY.

d. For new format propellant lot numbers with the 0 (zero) in the 8th position: "Y" will be placed in the 8th position. For example, IND88A-070804 becomes IND88A-Y70804. For new propellant lot numbers with alpha character in the 8th position" "Y" will replace any previous lot identifier. For example, IND88A-G70804 becomes IND88A-Y70804. It is imperative to include a remark in the DSR and ADC that identifies the previous type of lot identifier code that the "Y" replaced. For old format propellant lot numbers: "Y" should be added at the end of the lot number preceded by a dash to allow for a lot suffix. For example, RAD-65268 becomes RAD-65268-Y; IND-BR-66007 would become IND-BR-66007-Y; a suffixed lot: lot number RAD-65268A becomes RAD-65268AY.

e. An ADC with the "Y" indicator need not be established solely to reflect the SWA status. An ADC will be established when a SWA lot undergoes rework that requires a lot suffix. Two separate ADC's will be initiated if part of the lot was in SWA and part was not. The "Y" identifier will be applied only to that portion of the lot that was in SWA during Desert Storm/Desert Shield. The two lot segments should be run and palletized separately to assure that the segments do not become mixed.

f. Prior to any rework which formally establishes the "Y" ammunition lot number, administrative methods will be used to establish and maintain identification of SWA stocks. As a minimum, the "Y" will be added to unit loads. All stock records, such as SDS lot files, magazine data cards, and shipping documents will include the "Y" identifier. Separate DSR's will be established for SWA lots. The "Y" will be added as subsequent lower levels of packs are exposed. For example, if a pallet is broken down, the individual outer packs will have the "Y" added; if an outer pack is opened, the inner pack will be marked. DSR's will include a remark indicating what level of pack "Y" has been marked on the ammunition.

g. Energetic material removed from ammunition with a "Y" identifier must have the "Y" identifier added to lot number and outer packs. Physical application of the "Y" identifier will be IAW the above paragraph e.

Assure DSR for energetic lots state they were stored in SWA. The outer pack marking of the "Y" identifier is not required on energetics removed from end items prior to publication of AIN 99-98, 30 October 98. However, a placard board or some other positive means of identification must be used to maintain the SWA identity of this material. Special attention should be paid to subject energetics in demil accounts and during safety in storage inspections.

D-30. Cartridge 105mm HE M1 (1315-C445); Projectile 155mm HE M795 (1320-D529); Projectile 155mm HE M107 (1320-D544).

a. A small percentage of projectiles have been shipped from loading plants with small amounts of explosive contamination on their exterior. The small amount of explosive, or exudates, are unwanted but pose no significant safety hazard. Visual inspection for explosive or exudates residue on the threads or exterior of the projectile has always been a requirement for visual inspection. It is not feasible to place objective limits on this visual inspection. A degree of interpretation is necessary to account for the subjectivity of the inspector and has been a part of the normal inspection process at ammunition plants for decades. The visual inspection requirements for explosives in the threads or on the exterior of the projectile are not intended to detect trace amounts of explosive. They are also not intended to require the use of chemical reagents, such as Webster's reagent, to verify these requirements since most explosive items will test positive due to the nature of the loading process. Load plants have had the responsibility for these inspections for many years and have performed safe assembly and delivery of numerous high explosive items.

b. The following definitions are provided for inspection purposes:

(1) Explosive stain: a discoloration of the paint that has no visible explosive residue present. Stains are not acceptable at the LAP plant but are not a reason for non-acceptance at the depot.

(2) TNT bloom: TNT bloom (frost, needles, dust) is a light fine crystalline particulate that can be present on the coatings of metal lattices of the steel projectiles as a result of the melt pour loading process. Bloom represents a minute quantity of material and is not a safety hazard. Bloom will have a white 'frosted' appearance and will sparkle when viewed with a light source in a dark environment. When wiped with a solvent, bloom seems to come off easily with no visible residue but may reappear after the solvent has evaporated. Bloom is not a reason for non-acceptance at the depot.

(3) Raw TNT: raw TNT 'cake' or residue is tan or beige in color and is deposited on the projectile surface via a drip, splatter or other means. Raw caked TNT on the exterior of the projectile is not permissible in accordance with LAP specification. TNT cake or residue will have a 'bump' that can be felt as opposed to bloom that cannot be felt.

c. Photos describing 'explosive stain', 'TNT bloom', and 'raw TNT' are available for viewing in MHP under 'Notices- AIN report'.

D-31. Simulator, Pyrotechnic, Main Tank Gun M30 (1370-LA06), Simulator, Pyrotechnic, Direct/Indirect Fire Cue (DIFCUE) M31A1 (1370-LA07).

a. Units drawing/using subject DODACs have reported that, when individual rounds are functioned, the resulting smoke and heat have caused discoloration of simulators positioned near the functioned item in the firing device. Items which have been loaded in the firing device but which the unit has not attempted to fire have been subsequently turned in with light to severe blackening of the simulator cap or body. Questions have arisen regarding the effect of this exposure on the external and internal serviceability of these unfired items.

b. The following defect criteria are to be used in evaluating the serviceability of items from subject DODACs returned from the field:

(1) Critical:

-Powder evident on outside of unit.

-Body ruptured or opened.

-Cap missing or ruptured.

-Contact pins missing.

(2) Major:

-Body damaged (deformed, cracked, warped, or visibly subjected to stress or bulging).

-Body or cap blackened or discolored by burn marks or scorching.

-Cap not secured to body.

-Cap damaged (deformed, cracked, warped, or visibly subjected to stress).

-Contact pins loose or extended.

-Retaining tabs missing or damaged.

(3) Minor:

-Item covered with foreign material, i.e. soot, dirt, or grime.

-Model or lot number markings illegible, misleading or unidentifiable.

c. Discoloration from burn marks or scorching can be distinguished from foreign material, i.e. soot, dirt, or grime, by inability to remove burn marks or scorching by wiping item with a rag.

D-32. Smoke Pot, Floating, HC, M4A2 (1365-K867).

The following visual defect criteria are to be used in evaluating the serviceability of the K867 Smoke Pot:

a. Critical:

Fuze type incorrect (only E14 or M207A1 fuze authorized).

b. Major:

(1) Advanced rust or corrosion (rust scale or pitting) of exterior surfaces.

(2) Body with dents on crimped edges exposing filler.

(3) Body with dents on surface exposing filler.

(4) Tape covering emission hole missing, loose, or damaged.

(5) Fuze with major damage.

(6) Fuze with major corrosion.

(7) Marking incorrect.

c. Minor:

(1) Protective coating inadequate (25% or more of total surface coating blistered, peeled, or missing).

(2) Marking illegible or missing.

(3) Light corrosion not affecting serviceability (no pitting or rust scale permitted).

(4) Outer cover ring clamp damaged.

(5) Outer cover handle inoperative.

(6) Inner cover handle inoperative.

(7) Fuze chain and pull ring damaged or missing.

(8) Body with dents on crimped edges but not exposing filler.

(9) Body with dents on surface deeper than ¼ inch but not exposing filler.

APPENDIX E
SMALL ARMS CARTRIDGES THROUGH CALIBER .50

E-1. Item Description.

a. FSC: 1305.

b. Ammunition Type: Small arms cartridges through caliber .50 to include plastic and short range training ammunition (SRTA), along with close combat mission capability kit (CCMCK) marking ammunition.

c. The small arms family of cartridges (through caliber .50) are those which are complete assemblies consisting of all components necessary to fire a weapon (i.e., cartridge case, primer, propellant and bullet or shot). For a complete description of various cartridges, see TM 43-0001-27 and applicable drawings.

E-2. Unique Safety Precautions.

a. Reasonable care will be taken during inspection and handling. SAA may function if the primer is inadvertently struck.

b. To preclude the mixing and issue of other types of SAA with blank ammunition, the following minimum precautions will be taken:

(1) Conduct no operations involving other types of SAA in bays or rooms in which operations involving blank SAA are being conducted.

(2) Inspect all equipment and work areas prior to use to insure service rounds are not present.

(3) Restrict use of all involved equipment to blank SAA until the operation is completed.

(4) Incorporate controls on linking machines that will prevent entry of all rounds except blank ammunition.

(5) Conduct a 100-percent visual inspection of all rounds prior to linking, clipping or carton packing and another 100-percent inspection before final packing to assure that only blank ammunition has been linked/clipped or packed in cartons.

c. Restrictive marking stenciled on the exterior container of SAA.

(1) Prior to 1976, it was common for Frankford Arsenal to instruct the manufacturers of SAA to stencil the exterior containers of restricted ammunition prior to containers leaving the manufacturing facility. The restrictions were not forwarded to higher headquarters for inclusion in TB 9-1300-385.

(2) There is no available record of the lots with restrictions stenciled on boxes and it is not anticipated that an attempt will be made to list these restricted SAA lots in TB 9-1300-385.

(3) Restrictions stenciled on boxes of SAA are considered valid and all ammunition lots so marked should be issued and used according to these restrictions.

d. SAA for overhead fire.

(1) SAA intended for overhead fire is manufactured to different, more stringent specifications and is identified by NSN, not by lot number.

(2) Only SAA identified for overhead fire in FED LOG, TM 43-0001-27 or Ammunition Data Cards (A151, A166, A167) may be used for that purpose.

(3) AR 385-63, Policy and Procedures for Firing Ammunition for Training, Target Practice and Combat, states that units intending to use ammunition lots for overhead fire must have lots approved for such use. This guidance does not apply to SAA.

e. Class V materiel supplied to non-SMCA customers. Shipment or transfer of accountability of caliber .22, shotgun shells and blank small arms ammunition to non-SMCA customers does not require a functional clearance.

E-3. Testing and Equipment Requirements.

a. Profile and alignment gaging and pull and twist tests will be performed during IRI per paragraph 2-8, applicable drawings, and applicable specifications. Pull and twist tests will also be performed during subsequent cyclic and receipt inspections.

b. Test cartridge according to Table E-1:

Table E-1. Gaging Requirements

Model	IRI	RI	PI	UBLI
All SAA	A,B,C	B,C,D	B,C,D	B,C,D

Legend:

WARNING: when performing profile and alignment gage operations, use extreme care to not apply pressure on the primer.

A - Profile and alignment gage (gaging required only for Logistic Control Code (LCC) A and B items).

(1) Cartridge .50 cal – if the cartridge fails to gage using only finger pressure, the inspector will utilize APE 1999, Pressure Tester for the .50 cal Profile Alignment Gage.

(a) The APE 1999 allows the inspector to ensure insertion pressure does not exceed 80 lbs when gaging.

(b) Use care during removal of the cartridge and inspect cartridge and the profile alignment gage for damage after applying pressure with APE 1999. If the lot fails gaging, report deficiency to JMC per paragraph 2-8i, and provide comment on the quantity of .50 cal rounds that failed after applying 80 lbs of pressure using the APE 1999 Pressure Tester.

(c) Submit requests for APE 1999 and/or APE 1999 documentation to AMSJM-LID, APE and Demilitarization Management Division (see paragraph 1-5d(20(e)). No profile and alignment gages are available for the CCMCK 5.56mm or 9mm assets.

B - Pull test. (See Table E-5 for specific pull requirements.)

C - Twist test. (See MIL-STD-644 for specific procedures.)

D - Profile and alignment gaging required only if not accomplished during IRI, or if round is visibly

damaged. Lot will not be rejected if damaged round fails to gage. Gage failures will be reported IAW requirements of basic SB. (Profile and alignment gaging is required only one time during life cycle of lot.)

c. Table E-2 identifies test and measuring equipment:

Table E-2. Equipment Identification List Using Gage, Profile and Alignment

Caliber	NSN	Part Number	Model
5.56mm	5220-00-949-8607	8654100	L2A2 L5A3 M193 M195 M196 M199A1 M200 M855 M855A1 M856 M995 M996
7.62mm	5220-00-119-0873	8648501	L13A1 M59 M61 M62 M63A1 M64 M80 M82 M82A1 M118 M160 M276 M852 M993
.30 cal	5220-00-119-0871	8648308	M1 M2 M14 M25 M72 M1909
.30 cal Carbine	5220-00-119-0872	8648580	M1 M27
9mm	5220-01-285-6426	8649470	M882 M917A1
.38 cal	5220-00-119-0868	8651500	M41
.45 cal	5220-00-119-0869	8648570	M1 M9 M26 M1911 M1921
.50 cal API API-DT API-T Ball Blank Dummy Inc Sabot Tracer	5220-00-119-0870	8648301	M1 M2 MK257 M2A1 M8 M9 M17 M20 M23 M33 M903 M962 MK211
.50 cal Spotter-Tracer Practice	5220-00-119-0874	8648316	M48A2 T249E2

E-4. Inspection Category and Sampling Plan.

a. Inspection categories:

(1) Category R (ten years) for items packed in steel cans with gaskets (includes inert items)

(2) Category W (five years) for items not packed in steel cans with gaskets (includes inert items); and for Marking Ammunition (CCMCK).

b. Table 2-3 will be used to determine sampling plan for SAA.

c. Samples of small arms ammunition packed in metal (terneplate) lined M1917 boxes will be used on a recurring basis. Terneplate lids will be resealed by means of three wraps of plastic film secured with Pressure Sensitive and Filament Reinforced Adhesive Tape (MIL-T-43036). A pull-tab is also required for easy removal of the tape. Boxes will be identified (stenciled or tagged) as “Surveillance samples, not to be shipped”. In the event that the entire lot is scheduled for shipment, remove the “not to be shipped” statement.

E-5. Specific Inspection Points.

a. Specific inspection points are in Table E-3. Item will be inspected and classified according to this table.

b. Refer to MIL-STD-644 and basic portion of this SB for inspection of packaging and marking.

Table E-3. Item Defects

	Critical	Major	Minor	Notes
1. Complete Round:				
a. Discolored, dirty, oil smeared.			X	6
b. Corroded or stained, if etched.		X		
c. Cartridge profile gaging failure.		X		3
2. Cartridge Case:				
a. Round head.		X		
b. Dent.				2
c. Split Case.	X			1
d. Split Case.		X		1
e. Perforated case.	X			
f. Draw scratch.				2
g. Scratch.			X	
h. Beveled underside of head.		X		
i. Case mouth not crimped in cannelure.		X		
j. Scaly metal.				2
k. No chamfer on head rim.		X		
l. Fold.			X	7
m. Wrinkle.			X	
n. Buckle.			X	
o. Bulge.			X	
p. Illegible or missing head stamp.			X	
q. Defective head.			X	
r. Defective mouth.			X	
s. No visible evidence of mouth anneal.		X		
3. Bullet (Note 4):				
a. Dent.			X	
b. Scratch.			X	
c. Split bullet jacket.		X		
d. Loose bullet.	X	X		5
e. Missing cannelure.		X		
f. Scaly metal bullet.				2
g. Upset (crooked) point.			X	
h. Exposed steel (clad jacket).			X	
i. Blunt point.			X	
j. Defective cannelure.			X	
4. Primer:				
a. No primer.		X		
b. Cocked primer.		X		
c. Inverted primer.		X		
d. Loose primer.		X		
e. No waterproofing material (primer pocket joint).			X	
f. Defective crimp.			X	
g. Nicked or dented primer.				2

Notes:
1. Refer to MIL-STD-636 for position locations.
2. Classify per MIL-STD-636.
3. See paragraph E-3.
4. See paragraph E-6i.
5. Critical defect applies if the exposed steel penetrator is loose enough to permit side-to-side movement or can be pulled out of the bullet jacket for DODICs AB56, AB57, AB58 (M855A1 5.56mm Enhanced Performance Round). See paragraph E-6k.
6. See paragraph E-6l for white powder on DODIC A518.
7. Classify .50 cal fold criteria the same as 7.62mm per MIL-STD-636.

E-6. Additional Guidance for SAA.

a. Small caliber stockpile reliability program (SCSRP) and centralized trace test program (CTTP) for SAA.

(1) Refer to basic portion of this SB for selecting and preparing for shipment lots nominated for SCSRP and CTTP.

(2) Trace Function Test Report, DA Form 3524-R with part 1 completed, is required only for tracer bearing SCSRP/CTTP candidate lots shipped to test facilities. DA Form 3524-R should be forwarded to designated facility by transmittal record (DA Form 200) for verification of receipt. Assure that all component lot data is listed for functional lots (ratio packed).

(3) Surveillance trace test of SAA will be performed as directed by JMC according to SB 742-1305-94-20.

b. Conglomerate lots of SAA.

(1) Individual lot quantities of SAA of less than a standard exterior pack will be accumulated for conglomeration only when directed by the commodity command. The commodity command will notify AMC storage activities and overseas command of items authorized for conglomeration. Unless otherwise notified, less than a standard pack will be assigned condition code P except as noted below.

(a) Calibers .22, .32, .38, 9mm, and .45, shotgun shells, rifle grenade cartridges, high pressure test items, caliber .50 spotter-tracer and dummy cartridges.

(b) Listed items will be maintained in stock by individual lot number regardless of lot size.

(2) When authorized, lots will be conglomerated by caliber, type, manufacturer and functional code. A local control number will be assigned and will consist of depot symbol, sequence and year established, e.g., TOD-1-86. A local record will be maintained of the individual component lots and related quantities which comprise conglomerated control numbers. Each box containing conglomerate stocks will have a card affixed to the interior, listing individual lots and quantities.

(3) Individual lots of SAA in a potential conglomerate stockpile need not be delinked or declipped prior to receipt of disposition instructions. Lots will be maintained by individual lot number, functional code, model number and caliber. Various models of tracer within one caliber, whether serviceable or deteriorated, may be placed into one conglomerate lot.

(4) Quantities will be accumulated and carried on record as usable assets under the appropriate condition code. Quantities of 50,000 and over of the same model and caliber will be reported on DA Form 2415 (Ammunition Condition Report) according to DA PAM 750-8 for disposition instructions.

(5) If relinking is authorized, only cartridges from one producer per type (regardless of year of manufacture) will be utilized in a belt of linked ammunition. A maximum of 100,000 cartridges will be packed as a lot. Lot number assignment will be according to MIL-STD-1168. Data cards will be prepared and distributed according to MIL-STD-1168 and data item description DI MISC 80043.

(6) Conglomerate lots will be inspected for serviceability at the same interval as other category V items i.e., seven years. Sample size will also be the same.

(7) Packed lots will be identified by DODIC and nomenclature furnished by JMC.

(8) Repackaging instructions will also be provided by JMC.

c. SAA with lost lot identity.

(1) All SAA with lost lot identity (excluding commercially procured items such as caliber .22) will be picked up on accountable records in condition code K pending inspection and classification. Ammunition determined by inspection to be serviceable will be assigned condition code B for training use only in hand weapons (rifle, pistol or shotgun) or ground and vehicle mounted machine guns. These rounds are also authorized for emergency combat use.

(2) Serviceable caliber .50 ammunition with lost lot identity can be used in the M85 machine gun for training provided that:

(a) M15A2 links which are suspected or known to have been previously cycled in M85 machine gun are not used. M15A2 link is designed for one time use.

(b) Field returns of loose rounds that were not linked in M15A2 links for use in M85 machine gun will not be issued for use in the M85 machine gun. Ammunition suitable for use in M85 is limited to assets known to be originally assembled with M15A2 link, and is limited to relinking of partial belts to standard pack configuration.

(3) SAA with lost lot identity is prohibited from use for overhead fire and qualification exercises.

(4) Munitions and configuration components (links, clip, etc.) will be segregated by caliber, type and model designation. A 100-percent visual inspection and classification of rounds and components will be made to include performance of required testing, where applicable, according to MIL-STDs, drawings and provisions of this appendix. Links which have been cycled through weapons will not be reused.

(5) Serviceable munitions will be assigned a local lot number consisting of a three digit activity symbol, lot sequence number, identification code "U" (unknown) and year established, e.g., BAP-3U-80.

(6) Level of pack will depend on the local situation. As a minimum, preservation and packaging will be accomplished to assure adequate security, provide transportation safety and allow expected field handling by the user. In addition to standard markings, packaging will be identified by local lot number and training use marking, e.g., DAP-3U-80, training use.

(7) Records and reports. DSR's and accountable records will be maintained using the local

lot number. Malfunction reports, WARS report, input, etc., on these munitions will be made in a usual manner using the local lot number. Ammunition Data Cards are not required for these lots.

(8) CONUS posts, camps or stations without adequate personnel and facilities to perform inspection and processing of SAA will report through command channels to JMC according to DA PAM 750-8 for disposition.

d. Repack of small caliber ammunition. The following criteria is to be used when repacking stocks of ammunition through caliber .50 to different configurations:

(1) All lots must be certified for use in the weapon(s) for which they are being repackaged. Certification for each lot will be obtained by furnishing a list of component lots to the office in paragraph 1-5d(1). Request for lot certification will indicate date repack is to start, designate the NSN to which ammunition will be repacked, and must be received by JMC at least three months before the operation is scheduled to begin. Lots not certified for use in weapons for which repack is being accomplished will require testing. Tests will be arranged by the office in paragraph 1-5d(1) upon request.

(2) Serviceability criteria.

(a) Ammunition will meet the visual inspection criteria specified by the appropriate Military Standard.

(b) Restricted or suspended ammunition will not be used in repack operations without specific authorization or instructions from the commodity command.

(3) Lot formation criteria.

(a) Functional lots must meet the requirements of appropriate military standards, specifications and drawings. The latest revision must be used unless otherwise directed by the commodity command. Small caliber ammunition assembled in metal link belts will be tested and inspected 100-percent according to the appropriate portion of MIL-STD-644, paragraph 5.1.6.

(b) No more than one lot of each component will be used in a functional lot.

(c) Functional lots will consist of a minimum of 30,000 rounds, unless otherwise specified by the commodity command. The maximum lot size will be controlled by the size of the major component (Ball, AP, API, etc.).

(d) When directed by the commodity command, hybrid lots may be authorized. In such cases, up to five major component lots and two minor component (tracer) lots may be used so long as each component displays the head stamp from one manufacture (i.e., all ball, all AP, all tracer, etc., have the same manufacturer). Year of manufacture may be disregarded. If two tracer lots are used, there must not be a variance of over 10-percent in any element of their tracer test (satisfactory, blind, specification trace) results. Hybrid lots will not exceed 250,000 rounds.

(e) Linked ammunition consisting of two or more types of cartridges packed in an authorized combination. An "L" will be used in the lot number to indicate functional pack. In some cases SAA will qualify for two identifier codes in place of a hyphen in the lot number (reference MIL-STD-1168). In those cases where the functional pack identifier "L" conflicts with another identifier code, the "L" will be dropped and the other code will be used.

(f) Dummy small arms ammunition.

1. Inspect dummy cartridges for such defects as damaged extractor groove/rim, damage which may preclude use, corrosion, and loose projectiles which would cause the round to fail to gage.

2. Dummy cartridges with defects other than those specified above will be considered serviceable as long as the defects do not preclude use and cartridges can be identified as dummy.

3. In 2009, an initiative to positively identify Dummy, Drilled and Inert (DDI) small arms ammunition was undertaken. This included nickel plating and fluting 5.56mm, 7.62mm, .50 cal and nickel plating and drilling (2 holes) 9mm. Additionally, all older production of DDI (prior to 2009) was to be removed from the inventory to be reworked to meet the new standards and will process through normal swap out of assets when units request the new DDI. TM 43-0001-27 has updated data sheets of new production DDI.

Table E-4. DDI DODIC/NSN

Type	DODIC	NSN	Model
9mm	AB45	1305-01-568-5691	M917A1
5.56mm	AB48	1305-01-568-5696	M199A1
7.62mm	AB47	1305-01-568-5689	M63A1
.50 cal	AB46	1305-01-568-5686	M2A1

e. SAW ammunition (5.56mm cartridge, models M855 and M856) not fully seated in metallic link belts or with incidental dents on cartridge case shoulder should not be rejected. Such conditions do not affect serviceability of ammunition.

f. Load requirements for stockpile pull-testing of various SAA metal linked ammunition.

(1) The load requirements listed in Table E-5 will apply:

Table E-5. SAA Pull Test Requirements

Type	# of Belts	# of Links	# of Ctgs	Load	Tension Time
5.56mm	10	7	6	19 lbs.	30 sec
7.62mm	10	26	25	25 lbs.	30 sec
.30 cal	10	26	25	25 lbs.	30 sec
.50 cal (M2 links)	10	26	25	80 lbs.	30 sec
.50 cal (M9 links)	10	26	25	100 lbs.	30 sec

NOTE

Inner pack and item samples must be selected from a minimum of ten outer packs. Additional outer packs must be inspected at either the inspection or storage location(s) to make a total sample size of twenty. Pull test does not apply to caliber .50 M15A2.

(2) A belt consisting of the appropriate number of links and cartridges shall be capable of withstanding the appropriate tensile load without separation. Load shall be applied at a uniform rate and belt shall remain under tension as specified in Table E-5.

(3) All pull test failures will be reported IAW paragraph 2-8h or 2-8i as applicable. A pull test failure will be considered to be a major defect for reporting purposes.

g. Classification of primer defects.

(1) Visual standards for primer defects are contained in MIL-STD-636. The purpose of the standard is to provide a standard basis for inspection of small arms ammunition at various small arms manufacturing facilities.

(2) Defect classification of special in MIL-STD-636 is for new production. Table E-3 will be used for classification of primer defect criteria.

(3) Primer defects encountered while performing cyclic inspections will be reported IAW Chapter 11.

h. Clip, cartridge, 5.56, 10 round - small quantities of residual ammunition at the retail level (user) may be reclipped with used clips provided reclipped ammunition is visually inspected 100% at tab end for cracks or missing tabs. Ammunition clips found defective after loading will be replaced.

i. DODIC AA37/AA39 – Cartridges 7.62mm Short Range Training Ammunition (SRTA) Ball, M973, and Cartridges 7.62mm Short Range Training Ammunition (SRTA) Tracer, M974 have plastic projectiles which are more susceptible to damage incurred through normal transportation and handling. Any 7.62mm SRTA with visible damage to the projectile will be considered unserviceable.

j. Close Combat Mission Capability Kit (CCMCK) Marking Ammunition:

(1) DODICs AB09, AB10, AB11, AB15, AB16 and AB17 (see Table E-6 for description) – Ammunition consists of plastic projectiles and two piece cartridge cases susceptible to damage incurred through normal transportation and handling. These cartridges will be utilized with the CCMCK conversion kits for the M16A2, M4 and M249 weapons.

(2) DODICs AA12, AA21, AB12, AB13 and AB14 (see Table E-7 for description) – CCMCK consists of a 9mm cartridge case with a plastic projectile. These cartridges will be utilized with the M9 pistol with SIMUNITION CCMCK conversion barrel.

(3) The following criteria applies to both type of marking ammunition (5.56mm and 9mm):

(a) A five year inspection interval applies.

(b) Any perceived damage to either the projectile or the cartridge case, or evidence of corrosion to the above listed cartridges renders the rounds unserviceable.

(c) Shelf life for CCMCK ammunition will be listed in TB 9-1300-385, Appendix D under non CAD/PAD items. See TB 9-1300-385 Part I, Munitions Suspended and Restricted for condition code requirements based on established threshold timeframes. There are no safety concerns with assets that exceed their threshold, however the user can expect some degraded marking capability.

(d) Storage requirements for CCMCK: if inspectors or users determine that CCMCK assets have been stored in conditions exceeding 145 degrees Fahrenheit, they will notify JMC QAS (paragraph 1-5d(1)) to request an Ammunition Stockpile Reliability Program assessment be conducted. Inspectors and/or users will identify and retained these assets pending JMC QAS direction.

Table E-6. CCMCK 5.56mm Ammunition by DODIC

Model/NOUN	Color	DODIC	NSN
M1042 Cartridge, 5.56mm Practice Ammunition Rifle	Blue	AB09	1305-01-536-5822
	Red	AB10	1305-01-536-5827
	Yellow	AB11	1305-01-536-5829
M1071 Cartridge, 5.56mm Practice Ammunition Linked (SAW)	Yellow	AB15	1305-01-536-9289
	Blue	AB16	1305-01-537-1521
	Red	AB17	1305-01-537-1522

Table E-7. CCMCK 9mm Ammunition by DODIC

Model/NOUN	Color	DODIC	NSN
Cartridge, 9mm FX Markings	Red	AA12	1305-01-424-2410 1305-01-439-9717
	Blue	AA21	1305-01-449-3208
M1041 Cartridge, 9mm Practice Ammunition	Yellow	AB12	1305-01-536-7720
	Blue	AB13	1305-01-536-7721
	Red	AB14	1305-01-536-7722

k. DODICs AB56, AB57, AB58 – Cartridge 5.56mm Ball, M855A1, Enhanced Performance Round: the new 5.56mm enhanced performance round has an exposed steel penetrator. A penetrator that can spin is permissible and has no adverse effect on performance. A penetrator with side-to-side movement should not be fired. Additionally, the projectile has a bronze-colored zinc coating to protect it from the elements and prevent corrosion. The jacket will be 100% in contact with the penetrator.

l. DODIC A518 – Cartridge, Caliber .50 SLAP M903/SLAP-T M962 4:1 Linked (SLAP/SLAP-T): the

caliber .50 Sabot Light Armor Penetrator (SLAP) and Sabot Light Armor Penetrator with Trace (SLAP-T) are linked in a 4:1 configuration (NSN 1305-01-332-8254). The manufacturer of A518 puts calcium stearate powder (white powder) in the container for lubrication purposes. This practice was implemented at the end of development and early production phase of the SLAP/SLAP-T program as a result of the cyclic performance evaluation. However, this practice has not been submitted to the government as an SOP on the current or previous production contracts and/or standardized. A follow-on determination/ evaluation of historical documentation and engineering study will be performed to validate and confirm this procedure. Therefore, at the present time, this is an accepted practice by the government and deemed no adverse effects on the handling and storage of this ammunition. Since the weapon technical manual specifies the ammunition must be clean and dry, the calcium stearate powder should be wiped off the ammunition before use.

m. DODIC AB72 – Cartridge 7.62mm Bottlenose, Blank, M82A1:

(1) NSN: 1305-01-596-1319, HC/D & SCG: 1.4S, NEW: .002475 lbs (.00123 kg).

(2) Utilization: this cartridge is used for the "rendering of honors" in the 7.62mm M14 rifle, employed without a blank firing attachment (BFA). It is also available for use as a training cartridge in the 7.62mm M14 enhanced battle rifle and 7.62mm M24 & M110 sniper weapon systems.

(3) Identification: the round has a double taper neck and no bullet.

APPENDIX F
CARTRIDGE, 60-MM MORTAR

F-1. Item description.

a. FSC: 1310.

b. Ammunition type: Cartridge, 60-mm mortar. Includes the M49-series (HE, DODIC B632), M50-series (TP, DODIC B634), M83-series (illuminating, DODIC B627), M302-series (WP, DODIC B630), M720 (HE, DODIC B642), M720A1 (HE, DODIC BA16), M721 (illuminating, DODIC B647), M722 (WP, DODIC B646), M722A1 (WP, DODIC BA14), M767 (IR illuminating, DODIC BA04), M768 (HE, DODIC BA17), M769 (Full Range Practice, DODIC BA15), M888 (HE, DODIC B643) and M1061 (Mortar, Anti-Personnel Anti-Materiel, DODIC BA29.)

c. 60-mm cartridges are fin-stabilized rounds fired from smooth bore weapons. A complete round consists of a projectile, fin assembly, ignition cartridge, primer, propelling charge, and a fuze. For a complete description of these rounds, see TM 43-0001-28 and the drawing for the particular round.

F-2. Unique safety precautions.

No unique safety precautions are applicable to this item.

F-3. Testing and equipment requirements.

a. All IRI samples will be gaged using a profile and alignment gage. Gaging is not normally required during PI, RI, or UBLI. Gaging, during these inspections (other than IRI), should be limited to individual rounds having visual evidence of damage or other conditions that may preclude loading and firing. Unless the rounds requiring gaging are truly representative of the lot being inspected, they should be disregarded in evaluating the lot.

b. Table F-1 identifies test and measurement equipment.

Table F-1. Equipment Identification List.

Gage, Profile and Alignment			
Drawing	NSN	Preferred Gage	Application
7256348	5220-00-305-6030	YES	All models
5539280	5220-00-395-4450	NO	All models complete
7256419	5220-00-395-4457	NO	Short rounds only
6518134	5220-00-395-4423	NO	Short rounds only
7258360	5220-00-395-4466	NO	Short rounds only

NOTE

Non-preferred gages will not be requisitioned or purchased but may be used if on-hand and serviceable.

F-4. Inspection category and sampling plan.

a. Inspection category.

(1) Category U: 7 years - Jungle Pack Practice without Explosive Components (Inert) cartridges.

(2) Category V: 6 years - Jungle Pack HE, WP and Practice with Explosive Components cartridges.

(3) Category W: 5 years - all Illuminating and Regular Pack Practice without Explosive Components (Inert cartridges).

(4) Category X: 4 years – all Chemical, FS Smoke, Leaflet, Riot Control cartridges and Regular Pack HE, WP, RP and Practice with Explosive Components cartridges.

(5) Inspection interval is to be reduced to 2 years for cartridge lots assigned condition code C due to discolored propellant.

b. The sampling plan for inspection is according to Chapter 2.

F-5. Specific inspection points.

Items will be inspected and classified according to the appropriate paragraphs of this supply bulletin and Table F-2.

F-6. Inspection description and notes.

a. All models with fuzes requiring safety wires.

b. All models with M65 series fuze.

c. All applicable fuze models.

d. Profile and alignment gage. Gage if visually questionable.

e. Place the damaged charge on a M27 fin, oriented so that the propellant rests against the damaged surface. Vigorously shake the fin and charge three times. If any propellant is spilled the damaged charge must be classified as a critical defect. If no propellant is spilled the damaged charge will be classed as a major defect.

f. Ignition cartridge must be assembled with red end next to the primers. (Dwg 9207925 and 9220383).

g. Normally done only during initial receipt inspection as stated in paragraph F-3a.

h. When a component is damaged, or incorrectly assembled, so as to affect the functioning or reliability of the round, it will be classified as a defect.

i. Discoloration of propelling charge containers is a result of high humidity and temperature in storage. Color change is from normal light yellow to dark yellow to light green progressing to darker shades of green. Splotches of discoloration rather than a uniform transition of entire charge container evidences change. When discoloration is present inspections should focus on:

(1) Possible residue buildup on the portion of the fin which is adjacent to the propellant containers.

(2) Deterioration of polyurethane foam lining of the propellant charge supports. Breakdown of this foam leaves residue on the charge containers.

(3) Cartridges are to be considered serviceable if discolored propellant containers are hard, intact and buildup does not cover ignition flash holes. Cartridges

exhibiting these conditions or with foam adhering to the propellant containers are to be assigned condition code C for priority of issue.

j. All 60MM cartridges with propellant charge support assemblies found missing or improperly positioned during the following inspections:

(1) Initial receipt inspections (IRIs).

(2) Periodic inspections (PIs) without evidence of previously being field returns.

k. All 60MM cartridges with propellant charge support assemblies found missing or improperly positioned during (field return) receipt inspections (RIs).

NOTE

Removal and replacement of the propellant charge support must be done with care as improper handling can result in damage to the propellant charges.

Table F-2. Item Defects and Method of Inspection.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Warning label missing or illegible.	M49A5, M700-series, M888 & M1061	Visual	
b. Fin blade damaged or distorted.	All except M50-series	Visual/Gage	Para F-6d
c. Propelling charge support assembly missing or improperly positioned.	See Para F-6j	Visual	Para F-6j
d. Propelling charge missing or damaged to the extent that propellant shall escape.	M49A5, M700-series, M888 & M1061	Visual/Manual	Para F-6e
e. Propellant increment missing.	M49-series & M302-series	Visual	
f. Primer head above flush with rear surface of fin.	All	Straightedge	
g. Fuze safety wire missing or insecure.	Para F-6a	Visual/Manual	
h. Fuze shear wire missing or insecure.	Para F-6b	Visual/Manual	
i. Ignition cartridge missing or inverted.	M49-series (except M49A5)	Visual	Para F-6f
j. Obturating ring missing.	M49A5, M700-series, M888 & M1061	Visual	
k. WP leaking or evidence of leaking.	M302-series, M722-series	Visual	
2. Major:			
a. Propellant increment missing.	M83-series	Visual	
b. Propellant increment cut or torn.	M49-series, M83-series, M302-series	Visual	
c. Propelling charge damaged but not to the extent that propellant will escape.	M49A5, M700-series, M888 & M1061	Visual/Manual	Para F-6e
d. Fuze not fully seated.	M49A5, M700-series, M888 & M1061	Visual	
e. Fin assembly not fully seated.	M49A5, M700-series, M888 & M1061	Visual	
f. Obturating ring damaged.	M49A5, M700-series, M888 & M1061	Visual	
g. Obturating ring not flush or below bourrelet diameter.	M49A5, M700-series, M888 & M1061	Straightedge	
h. Cartridge fails to fully enter profile and alignment gage.	All	Gage	Para F-6g
i. Any component damaged incorrectly assembled other than described elsewhere).	All	Gage	Para F-6h
j. Glue or asphalt on bourrelet area.	All	Gage	
k. Propelling charge support assembly missing or improperly positioned.	See Para F-6k	Visual	Para F-6k
l. Fin corroded with blockage of the flash holes.	All	Visual	
3. Minor:			
a. Fuze not fully seated.	M49-series (except M49A5)	Visual	
b. Fin damaged or distorted.	M50-series	Visual/Gage	Para F-6h
c. Propellant increment missing, cut or torn.	M50-series	Visual	
d. Ignition cartridge missing or inverted.	M50-series	Visual	Para F-6f
e. Fuze not set on superquick (SQ).	Para F-6c	Visual	
f. Fuze not set on proximity (PROX).	M734 fuze	Visual	
g. Fin corroded with flaking but not blocking flash holes.	All	Visual	
4. Incidental:			
a. Propellant container discoloration.	All	Visual	Para F-6i
b. Fin corrosion with no flaking.	All	Visual	

APPENDIX G
CARTRIDGE, 81MM MORTAR

G-1. Item Description.

a. FSC: 1315.

b. Ammunition Type: Cartridge, 81mm Mortar. It includes the following models:

(1) High explosive ammunition: M362 Series (C222, C223); M374 Series (C236, C256); M821 Series Improved Mortar System (C868); and M889 Improved Mortar System (C869, CA43).

(2) Red Phosphorous ammunition: M819 Improved Mortar System (C870).

(3) Illuminating ammunition: M301 Series (C226), M853A1 Improved Mortar System (C871) and M816 IR Improved Mortar System (C484).

(4) White phosphorous ammunition: M375 Series (C276).

(5) Training and practice ammunition: M43A1 Target Practice (C227), M879 Practice for Improved Mortar System (C875).

c. Obsolete models not specifically addressed in this appendix include the M43 Series (HE), M56 Series (HE), M57 Series (WP), and the M370 (WP). If these models are encountered, applicable portions of this supply bulletin will be used to inspect and classify these rounds.

d. The M1 Sabot cartridge, the 22mm Sub Caliber cartridge, the M68 Training cartridge and the M880 Short Range Practice Round are not to be inspected using this appendix. TM 9-1315-249-12&P provides procedures and criteria to supplement Chapter 2 of this supply bulletin when inspecting the M1 Sabot and 22mm Sub Caliber cartridges. TM 9-1315-252-12&P provides procedures and criteria for inspecting the M880 cartridge and refurbishment kit. The M68 is shipped and stored in an inert configuration.

e. The 81mm cartridges are fin-stabilized rounds fired from smooth bore weapons. A complete round consists of a projectile, fin assembly, ignition cartridge, primer, propelling charge and a fuze. Improved 81mm ammunition (M800 series), M374A3, and M375A3 have an ignition cartridge assembly which includes a primer. Some models of HE cartridges are issued either with or without fuzes. All other rounds are issued fuzed. For a complete description of these rounds see TM 43-0001-28 and the drawings for the particular round.

f. The M374 and M375 Series cartridges have differences between the basic and A1 projectile bodies depending on propelling charges for which they were originally designed. The basic M90 propelling charge has proven compatible and is authorized for use, with either basic or A1 projectile bodies. The M90A1 propelling charge is only authorized for use with the A1 projectile bodies, due to a smaller bourrelet diameter than the basic. This reduction was necessary to cope with the greater bore fouling produced by the M90A1 propellant bag during firing. This dimensional difference between the basic and A1 model projectile body is not cause for gaging or measuring during inspection of a previously renovated lot. The ammunition data card should be checked to assure the propellant model is compatible with the projectile model. This difference must also be considered when planning replacement of the propellant.

g. Practice ammunition for the 81mm includes the M68 Training Cartridge and M1 Sabot with separately issued 22mm Sub Caliber that is available in 4 charge levels (DODICs). Training ammunition for the improved 81mm system utilizes M1 sabots, full range practice rounds (M879) and a short range practice cartridge (M880). The M880 practice cartridge can be rebuilt by the unit from separately issued kits according to TM 9-1315-252-12&P. Each kit contains replacement fuze, fuze windshield, ignition (propelling) cartridge, obturating ring, 3 plastic increment plugs, 3 dud plugs, and a breech plug assembly. All M880 cartridges must have been modified by drilling three holes and adding three dud plugs.

h. Many drawings for the improved 81mm (M800 Series) cartridges are proprietary and therefore cannot be reproduced or disseminated by JMC to other MACOMs.

G-2. Unique Safety Precautions.

Packing clips are not to be removed from the M751 or M775 fuzes used with the M879 and M880 practice rounds during inspection. The packing clip is a positive safety mechanism that is to be removed only just prior to firing.

G-3. Testing and Equipment Requirements.

a. Gaging policy is provided in Chapter 2 of this supply bulletin. Gaging is not normally required during PI, RI, or UBLI. Gaging, during these inspections (other than IRI), should be limited to individual rounds having visual evidence of damage or other conditions that may preclude loading and firing. Unless the rounds requiring gaging are truly representative of the lot being inspected, they should be disregarded in evaluating the lot.

b. Table G-1 identifies test and measurement equipment.

Table G-1. Equipment Identification List Gage, Profile and Alignment

Drawing	NSN	Application
6518071	5220-00-395-4421	All models
6518101	5220-00-395-4422	Short rounds only

G-4. Inspection Category and Sampling Plan.

a. Inspection category:

(1) Category U: 7 years - Jungle Pack Practice without Explosive Components (Inert) cartridges.

(2) Category V: 6 years - Jungle Pack HE, WP and Practice with Explosive Components cartridges.

(3) Category W: 5 years - all Illuminating and Regular Pack Practice without Explosive Components (Inert cartridges).

(4) Category X: 4 years – all Chemical, FS Smoke, Leaflet, Riot Control cartridges and Regular Pack HE, WP, RP and Practice with Explosive Components cartridges.

(5) Category Z: 2 years - all cartridges in plastic mono pack, bulk primers, spotting charges and M880 rebuild kit.

(6) The 2 year inspection interval listed above does not apply to cartridges in plastic monopacks which have been overpacked in PA156 metal containers.

(7) Inspection interval is to be reduced to 2 years for cartridge lots assigned condition code C due to discolored propellant. Interval for all M819 and M853A1 cartridge lots manufactured prior to 1995 is also to be reduced to 2 years.

b. The sampling plan for inspection is according to Chapter 2.

G-5. Specific Inspection Points.

Items will be inspected and classified according to this supply bulletin and Table G-2.

Table G-2. Item Defects and Method of Inspection.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Fuze not set on safe.	Para G-6a	Visual	
b. Fuze safety wire or bore riding pin missing, not secure or improperly engaged.	Para G-6b	Visual/Manual	
c. Fuze packing clip missing, insecure, or not properly assembled.	M751 Fuzes M775 Fuzes	Visual Visual	
d. Red band around striker pin is showing (possibly armed).	M751 Fuzes M775 Fuzes	Visual Visual	
e. Primer head above flush with rear edge of fin.	M43 Series M301 Series M362 Series M374, A1, A2 M375, A1, A2	Straightedge Straightedge Straightedge Straightedge Straightedge	
f. Ignition cartridge head not below flush with rear edge of fin.	M374A3 M375A3 M800 Series	Straightedge Straightedge Straightedge	
g. Any propellant increment cut, torn, or missing (with leaking propellant).	M301 Series M362 Series M374, A1, A2 M375, A1, A2	Visual Visual Visual Visual	
h. Any propelling charge container missing or damaged (cracked or delaminated) so that propellant can escape.	M374A3 M375A3 M800-Series	Visual Visual Visual	Para G-6l Para G-6l Para G-6l
i. Fin assembly damaged, distorted, or cracked.	All	Visual/Gage	Para G-6f
j. Warning label on cartridge missing or illegible.	M301A3 M362 M374 Series M375 Series	Visual Visual Visual Visual	
k. Obturating ring missing or broken.	M374 Series M375 Series M800 Series	Visual Visual Visual	
l. WP or RP leakage or evidence of leakage.	M375 Series M819	Visual Visual	
m. One or more shear pins missing.	M301 Series M853A1 M819	Visual Visual Visual	
n. Warning label on fuze missing or illegible (if required).	As required	Visual	Para G-6n
o. Crack(s) on projectile	All HE/WP	Visual	Para G-6m
p. Increment holders missing, broken, loose, or improperly bent to hold increment.	Para G-6r	Visual	Para G-6r

2. Major:			
a. Primer or ignition cartridge missing or inverted.	All	Visual	Para G-6k
b. Any propellant increment cut, torn, or missing.	M43 Series M68	Visual Visual	
c. Propellant container damaged where propellant cannot escape.	M374A3 M375A3 M800 Series	Visual Visual Visual	Para G-6l Para G-6l Para G-6l
d. Any component damaged or incorrectly assembled (if not described elsewhere).	All	Visual	Para G-6g
e. Fuze assembly not fully seated.	Para G-6c	Visual	
f. Fin assembly loose or not fully seated.	All	Visual/Manual	Para G-6h
g. Increment holders missing, broken, loose, or improperly bent to hold increment.	Para G-6s	Visual/Manual	Para G-6s
h. Obturating ring not welded.	M374 Series M375 Series M819 M821 M853A1 M879 M889	Visual Visual Visual Visual Visual Visual Visual	
i. Obturating ring not flush or below bourrelet diameter.	M374 Series M375 Series M819 M821 Series M853A1 M879 M889	Straightedge Straightedge Straightedge Straightedge Straightedge Straightedge Straightedge	Para G-6f Para G-6f Para G-6f Para G-6f Para G-6f Para G-6f Para G-6f
j. Obturating ring damaged (other than broken).	M374 Series M375 Series M800 Series	Visual Visual Visual	
k. Cartridge fails to freely enter profile and alignment gage.	All	Gage	Para G-6i
l. Glue, asphalt, wax, or cement on cartridge (bourrelet area only).	All	Gage	Para G-6f
m. Fuze well liner missing or damaged.	Para G-6d	Visual	
n. Monopack cracked completely through.	M821 M889	Visual Visual	Para G-6o Para G-6o
o. Monopack O Ring displaced out of groove.	M821 M889	Visual Visual	Para G-6o Para G-6o
p. Warning label on cartridges missing or illegible.	M800 Series	Visual	
q. Fin corroded with blockage of the flash holes.	All	Visual	
3. Minor:			
a. Explosive in fuze well threads.	Para G-6d	Visual	Para G-6j
b. Closing plug not fully seated.	Para G-6e	Visual	
c. Paint missing in an area greater than ¼ inch square.	All	Visual	
d. Fuzewell liner removeable by hand.	All	Manual	Para G-6e
e. Fuze not set in the “PROX” mode.	All with M734 Fuze	Visual	
f. Fin corroded with flaking but not blocking flash holes.	All	Visual	
4. Incidental:			
a. Propellant container discoloration.	M374A3, M375A3, and M800 Series	Visual	Para G-6q
b. Fin corrosion with no flaking.	All	Visual	

G-6. Specific Inspection Points.

a. All models with fuzes having a safe setting.

b. All models with fuzes requiring a safety wire, safety pin, or bore riding pin.

c. All fuzed cartridges.

d. All unfuzed HE cartridges.

e. All models with closing plugs.

f. Gage with a profile and alignment gage only if visually questionable (4-power magnification permitted for identification of cracks).

g. When the component is damaged to the extent that its functional effectiveness has been destroyed, it will be classified as a defect.

h. When the fin assembly can be turned upon application of hand pressure, it will be classified as a defect.

i. Normally done only during initial receipt inspection. See paragraph G-3a above.

j. Caked explosive in threads will be classified as a defect. Explosive dust will not be considered a defect.

k. Ignition cartridge must be assembled with red end towards the fin (dwg 8881026). Cartridges with combined ignition cartridge and primer do not require specific orientation. These include trainers and improved 81 mm cartridges.

l. Rigid propellant containers have a water resistant finish to protect propellant from moisture contamination. Cracks, dents, seam, or propellant fill hole cover delamination or other damage would be classified as a major defect. If damage is severe enough to permit propellant to escape, the defect is critical. To check integrity of propellant containers, place the charge on a fin and hand shake vigorously three times.

m. Projectile body (HE or WP) with open or closed crack (cold-shut) is a safety hazard during firing.

n. Missing warning labels are not a defect for M524A5 and M524A6 fuzes. Cartridges missing warning labels will not be classified unserviceable based on this condition. DSR's will be annotated and labels replaced during future renovation.

o. Any visual defect that would permit air and moisture to enter the container is to be classified as a major defect. Lots rejected for defective monopack containers are to be assigned condition code C.

p. Damaged metal outer containers for the M821 or M889 cartridges are not to be classified defective unless inspection indicates damage to inner container or damage is severe enough to require replacement for shipment. Internal cushioning will protect monopack inner container from damage even when metal container has dents one inch in depth.

q. Discoloration of propellant charge containers is a result of high humidity and temperature in storage. Color change is from normal light yellow to dark yellow to light green progressing to darker shades of green. Splotches of discoloration rather than a uniform transition of entire charge container evidences change. When discoloration is present inspections should focus on:

(1) Possible residue buildup on the portion of the fin which is adjacent to the propellant containers.

(2) Deterioration of polyurethane foam lining of the propellant charge supports. Breakdown of this foam leaves residue on the charge containers.

(3) Cartridges are to be considered serviceable if discolored propellant containers are hard, intact and buildup does not cover ignition flash holes. Cartridges exhibiting these conditions or with foam adhering to the propellant containers are to be assigned condition code C for priority of issue.

r. All 81mm cartridges with propellant charge support assemblies found missing or improperly assembled during the following inspections:

(1) Initial receipt inspections (IRIs).

(2) Periodic inspections (PIs) without evidence of previously being field returns.

s. All 81mm cartridges with propellant support assemblies found missing or improperly assembled during (field return) receipt inspections (RIs).

APPENDIX H
CARTRIDGE, 105MM HOWITZER

H-1. Item Description.

a. DODACS 1315-

C433	C440	C443	C444
C445	C448	C449	C450
C451	C452	C453	C454
C455	C457	C462	C463
C468	C473	C477	C479
C542	C544	C546	CA11
CA13	CA52	CA53	

b. Ammunition Type: Cartridge, 105mm howitzer. Includes the following models: M1, HE; M60 series, WP; M84 series, HC, BE; M314 series, Illuminating; M327 series, HEP and HEP-T; M395, Blank; M444, HE (ICM); M546, APERS-T; M548, HERA; M629, Tactical CS, M760, HE; M913, HERA; M927, HERA; M1064, IR Illuminating; and M1130, HE, PFF, BB. Does not include toxic filled or M413 (ICM), HE, and M84B1, Leaflet that are type classified obsolete. Does not include C430, C431, C432, CA17 (fixed crimped HE M1) developed for Air Force use, and C472 (HEAT-T).

c. Army 105mm howitzer cartridges are semi-fixed and fired from rifled howitzers. A complete service round consists of a projectile, fuze, cartridge case with primer and propelling charge. Cartridges are issued fuzed or unfuzed. For a complete description of these rounds see TM 43-0001-28 and drawing for respective round.

H-2. Unique Safety Precautions.

a. Fuze MTSQ M501 and M501A1 are not drop safe. Dropping or rough handling of projectile assembled with either fuze can and has resulted in fuze functioning and expulsion of projectile contents.

b. Handle high explosive projectiles M1 and M760 carefully. They are susceptible to sustaining non-visible cracks on nose or ogive area if dropped or struck against a hard surface. Potential for cracking increases greatly when temperature drops below 30 degrees Fahrenheit. Projectiles dropped onto hard surface during course of inspection, or suspected of having been dropped due to visible damage, should be segregated and assigned an unserviceable condition code.

c. Dummy Propelling Charge M3 assembled to M14 cartridges is loaded with "asbestos, short fiber, commercial." All 105mm M14 Dummy Cartridges are to be assigned Condition Code HOTEL for disposal. Ammunition Surveillance organizations should coordinate with 105mm firing units to effect turn in to ammunition supply points.

(1) The M3 Dummy Propelling Charges can be turned into the local Defense Reutilization Marketing Office (DRMO) providing following conditions are met:

(a) Items are free from any kind of explosives, organic, or ignitable materials capable of exploding or detonating. Qualified personnel will inspect the items to assure they are inert, and sign a statement testifying to this effect on the DD Form 1348.

(b) Charges that are being used in the field must be double bagged in plastic and placed in 55 gallon drums. Items currently in depot storage may be turned into DRMO in their over pack configuration.

(c) A profile sheet, Material Safety Data Sheet (MSDS) or a printout from the DOD Hazardous Material Information System (HMIS) database, describing the asbestos must accompany the load sent in for disposal.

(2) Additional information can be obtained from addressee in paragraph 1-5.d.(18)(a).

H-3. Testing and Equipment Requirements.

a. Gage all IRI samples using gages identified in Table H-1, as applicable. Gaging is not normally required during PI, RI, or UBLI. Gaging, during these inspections (other than IRI), should be limited to individual rounds having visual evidence of damage or other conditions that may preclude loading and firing. Unless the rounds requiring gaging are truly representative of the lot being inspected, they should be disregarded in evaluating the lot.

b. Assure either Preformed Packing (O-ring), NSN 5331-00-584-1581 or 5331-00-265-1097 is available prior to conducting inspection of M444, HE. This will avoid delay in assembling torque-tested fuzes to projectile. Always use new Preformed Packing for assembling fuze to projectile.

c. Ammunition drawings require that the supplementary charge be immobile in the HE cartridges. LAP Plants assemble pull-tab type closing plugs to cartridges at manufacture. Inspectors can remove these plugs without breaking the tab by using a fuze wrench or prying tool to tap/pry them out. Inspectors can re-use serviceable plastic closing plugs, with intact pull-tabs, on surveillance samples. The following NSNs are available as replacement plugs, if required:

(1) 1315-01-188-3211.

(2) 1315-00-987-1621.

(3) 1315-00-821-6608.

H-4. Inspection Category and Sampling Plan.

a. Inspection Categories:

(1) Category W: Lots with other than M67 propelling charges.

(2) Category Y: Lots with M67 propelling charges less than 15 years old, except M84 series, HC Smoke BE, and M629 Tactical CS.

(3) Category Z: Lots with M67 propelling charges 15 years and older, and M84 series, HC Smoke BE and M629, Tactical CS.

b. Cartridges with M67 Propelling Charges: HE, M1; SMOKE, WP M60 series; HC, M84 series; Illuminating, M314 series HE, M444 (ICM), M927 HERA and M1130, HE, PFF, BB.

(1) To ensure the war fighter receives the best ammunition possible, only lots in condition code “A” with the newest propelling charges will be selected for shipment to combat zones, unless otherwise specified. Lots with propelling charges 15 years old or older will

be assigned condition code "C," for priority of issue, and consumed in training if possible.

(2) Each 105mm howitzer lot with a M67 propelling charge 15 years old or older will require a Pre-Issue-Inspection (PII) unless a PII/Periodic Inspection equivalent inspection has been performed on the lot within the last 60 days.

(3) Report cartridges/lots found with deteriorated propelling charges IAW DA PAM 750-8 with a courtesy copy to addressee in paragraph 1-5.d.(20)(d).

c. Sampling plan for inspection is IAW Chapter 2.

H-5. Specific Inspection Points.

a. QASAS will inspect and classify items according to this supply bulletin and Table H-2.

b. QASAS will inspect and torque test assembled fuzes as required by Appendix X. Remove fuze from projectile only if torque test is required.

c. Cartridge, 105mm, M60 series WP will be packaged with projectile base down. When packaged or unitized in other orientations and subjected to high temperatures (111+ degrees F) filler will melt, change position (hence center of gravity), and upon solidification cause poor ballistics with resultant short rounds.

d. HERA, M548, M927 rocket motor spike may be contaminated with a yellow crystalline substance composed of 2-Nitrodiphenylamine. Double base cast propellants used in rocket motor also have a history of exuding a NG plasticizer that tests have proven to be quite insensitive. Both may give appearance of corrosion but presence of either substance is not a defect. Annotate occurrence on Depot Surveillance Record Cards for information purposes.

e. Some HC smoke rounds have been reported as having a white powdery residue in the fuze well and under the fuze closing plug. This substance has been laboratory tested and determined to be aluminum and zinc chlorides. It is not an explosive hazard and is considered to be an incidental defect. Removal of the white residue is not necessary prior to fuzing and use of the cartridge. If this residue contacts the skin, wash skin thoroughly.

H-6. Inspection Description and Notes.

a. Remove propelling charge from cartridge case. Apply light side-to-side pressure to primer end with fingers. Primer is only press fit into cartridge case so avoid excess force. Slight movement of primer from side to side is not a defect unless movement results in primer head above flush with base of cartridge case.

b. Sweep a stiff non-sparking ruler with a true edge of at least 4 inches in length across cartridge base. If resistance is noted, cartridge case has a high primer.

c. Cartridges requiring supplementary charges may detonate in-bore if fired without charge. Supplementary charge prevents booster from striking base of fuze liner, should it separate from fuze.

d. HE projectiles known to have been dropped on ogive or evidencing damage to this area shall be classified unserviceable. Report this ammunition to, the office in paragraph 1-5.d.(1) by message, identifying lot number, quantity, and DODIC and include circumstances of incident causing damage. Retain cartridge, pending response to report.

e. Ascertain reason for gaging failure, i.e. malformed threads, eccentric fuze well, cocked or shallow fuze well, etc. Projectiles with damaged threads that pass gaging are not defective. A concentricity gage (deep cavity) is not available for M548 HERA cartridges. Utilize an inert M514A1 proximity fuze to assure acceptable concentricity and depth of fuze well. The M514A1 proximity fuze is available from addressee in paragraph 1-5.d.(20)(e); order part number 1920211-708153 I.

f. Projectile should fit freely into mouth of cartridge case. Inspector will report cartridges that fail gaging IAW paragraph 2-7 of this SB.

g. Polysulfide rubber on fuze threads or O-rings between fuze and ogive are alternate methods to seal fuze well against intrusion of moisture. Absence of one or the other might cause degradation of expulsion charge with failure of cargo to eject properly.

h. Propelling Charges.

(1) M67 Propelling charge.

(a) Consists of seven numbered increment bags. Increments are stacked in cartridge case starting with increment one at the base.

(b) Charge 5 has lead foil sewn into bag (except for charges with integral lead carbonate). Foil must face primer. Visual inspection will indicate whether this is present.

(c) Lead carbonate has been introduced as an alternate to lead foil in new manufacture and was utilized exclusively, beginning with propellant lot RAD84C-070356. This compound is integral with the propellant grain in charges 3 through 7 and its presence cannot be determined by visual examination. Review of propelling charge Ammunition Data Card may not reveal lead carbonate or lead foil as components. Propelling charges manufactured with propellant manufactured prior to RAD84C-070356 require lead foil.

(d) Inspector will utilize SB 742-1, Chapter 13, paragraph 13-7 and Table 13-1 as applicable in conjunction with this appendix. Special emphasis will be placed on condition of cloth. Inspection history demonstrates loss of tensile strength may occur without prior discoloration.

(e) Assembled to HE, M1; Smoke, WP M60 series; HC Smoke, M84 series; Tactical CS, M629; Illuminating, M314 series; HE (ICM), M444, and M927 HERA.

(2) M176 Propelling Charge - Consists of five increments numbered 3 through 7 stacked starting with number 3 at the base. Charge assembled only to HERA, M548.

(3) M121 Propelling Charge assembled only to APERS-T, M546, consists of two increments numbered 6 and 7 with number 6 found at the base.

(4) Charge, Propelling for Cartridge, 105mm, HEP-T M327 (no model number) is a single increment charge assembled only to HEP, HEP-T M327.

(5) M200 Propelling Charge - single increment charge assembled only to HE, M760 and DPICM, M915.

(6) M229 Propelling Charge -single increment, similar to M200 except for presence of flash reducer assembled to muzzle end of charge. Assembled only to HERA, M913.

(7) Test tensile strength of cloth by placing parallel thumbs firmly on the propellant bag and applying tension to the cloth by spreading thumbs outward. Weakness of the cloth should be obvious. Inspector must take care so as not to severely rupture the bag, which would result in propellant spillage. Blue spots on bag usually accompany loss of tensile strength. Assign priority of issue for training and shorten inspection cycle (at discretion of QASAS in charge) if blue bags are noted but no evidence of loss of tensile strength. Ammunition not authorized for training will only be assigned a shorter inspection cycle.

(8) Small holes in bags are acceptable, providing they do not allow loss of propellant and are not attributable to deterioration.

i. Foreign matter in fuze well may be ascertained to be inert or high explosives by use of laboratory analysis. Webster's Reagent is unreliable and may only be utilized to confirm inertness. Color of explosives will range from burnt orange to brown color when reagent is applied to TNT or Composition B.

(1) Exudate may be identified as an oily liquid or re-solidified mass at edges, bottom and/or sides of fuze well liner. Exudate results when explosives have been exposed to elevated temperatures (above authorized storage temperature), over a period of time and are forced through interface of fuze well liner and projectile. TNT contaminated with products residual to manufacturing process is prone to this. Lot history should be reviewed to expose extraordinary circumstances that could reveal cause of exudation, i.e. desert storage in South West Asia.

(2) Other causes of TNT explosives contamination are sloppy workmanship at time of manufacture and migration of small flakes from under fuze well liner. The latter form of contamination should not be cause for lot rejection but should be annotated on surveillance records and removed incidental to required minor maintenance.

j. Presence of black powder contamination in the fuze well due to defective expulsion charge is a critical defect.

k. Evidence of white phosphorus (WP) filler in fuze well is a critical defect. Submerge projectile in water filled container when condition is encountered.

l. Remove supplementary charge, insert two fingers into fuze well, apply pressure to side of liner and attempt to remove it. Lot will not be rejected for loose fuze well liners. Instead, Depot Surveillance Record Card will be annotated and defect corrected at time of other required maintenance.

m. Superficial cracks in closure cup will not be cause for rejection. Cartridge is defective if cracks are deep enough to allow moisture contamination.

n. A .006 feeler gage shall not enter this joint more than ⅛ inch for 360 degrees. This criteria is only applicable to ammunition in field service account.

o. 0.6mm (approximately 0.024") feeler gage shall not enter this joint at any point.

H-7. References.

a. TM 9-1015-203-12.

b. TM 9-1015-234-10.

c. TM 9-1015-252-10.

d. TM 9-1300-251-20&P.

e. TM 9-1300-251-34&P.

f. TM 43-0001-28.

Table H-1. Equipment Identification List.

Description	Drawing	NSN	Application
Gage, Profile & Alignment	9280415 7258482	5220-01-295-5383 5220-00-313-3090	All All
Gage, Concentricity (deep cavity)	7304529	5220-00-395-4479	All unfuzed M1, M760and M913
Gage, Plug, Thread and Concentricity	6024125	5220-00-395-4397	All unfuzed M84A1, M314 series, M60 series
Profile and Alignment Gages are interchangeable			
NOTE: Special torque test equipment utilized to check fuze setting torque is specified in Appendix X			

Table H-2. Item Defects and Method of Inspection.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Primer above flush.	All	Straightedge	Para H-6
b. Loose primer.	All	Manual	Para H-6a
c. Cracks in projectile.	All	Visual	
d. Distorted or out of round projectile.	All	Visual/Gage	

e. Exudation of filler around fuze well liner.	All HE	Visual	Para H-6i
f. Rocket-Off cap or Base Bleed cover missing or pierced	M548, M913, M927, M1130	Visual	
g. Incorrect number of propelling charge charges.	All with adjustable increments	Visual	
h. Supplementary charge missing.	M1, M760, M548, M913, M927, M1130	Visual	Para H-6c
i. Fuze well liner missing.	M1, M760, M548, M913, M927	Visual	
j. Leaking black powder.	M84 series, M314 series, M395 blank	Visual	Para H-6j
k. Leaking WP.	M60 series	Visual	Para H-6k
l. Projectile, HE; with damaged ogive/nose.	M1, M760	Visual	Para H-6d
m. Flash reducer missing insecure.	M913	Visual	
2. Major:			
a. Damaged rotating band.	All	Visual	
b. Fuze well threads damaged.	All	Visual	Para H-6e
c. Fuze well threads fail to gage.	M1, M760, M548, M913, M927, M1130	Gage	Para H-6e
d. Fuze not staked or improperly staked.	All fuzed cartridges	Visual/Drawing	
e. Fuze fails disassembly torque test.	All fuzed	Torque test	
f. Fuze fails setting torque test.	All with MTSQ. (except M577 series)	Torque test	
g. Cartridge case severely dented.	All	Visual/Gage	Para H-6f
h. O-ring or fuze sealant missing.	M444	Visual	Para H-6g
i. Weight zone marking missing, mixed, visual incorrect, or unidentifiable. Prick punch marks in the center of each square are not required.	All	Visual	
j. Propelling charge cut or torn.	All	Visual	Para H-6h
k. Deteriorated propellant bag.	All	Visual	Para H-6h
l. Incorrect sequence of propelling charge.	All with adjustable increment charges	Visual	
m. Foil side of bag, charge 5, not facing primer.	All with M67 charges with lead foil.	Visual	Para H-6h
n. Lead carbonate or lead foil missing.	All	Visual	Para H-6h
o. Ctg case/proj fail to chamber gage.	All	Gage	Para H-6f
p. Hole through closing cup.	M395	Visual	Para H-6m
q. Closure cup loose.	M395	Manual	
r. Crack in closing cup.	M395	Visual	Para H-6m
s. Tracer plug or disks damaged.	M327	Visual	
t. Excessive gap between rocket motor and warhead.	M548, M913, M927	Gage	Para H-6n
3. Minor:			
a. Closing cup seal damaged.	M395	Visual	Para H-6n
b. Loose fuze well liners.	M1, M760, M548, M913, M927	Manual	Para H-6l
c. Supplementary charge pad missing.	M1, M760, M548, M913, M927	Visual	
d. Cord between increments broken.	All with adjustable increments	Visual	
e. Fuze well spacer missing.	All unfuzed HE and HERA	Visual	
f. Excessive gap between Base Bleed assembly and plug adapter.	M1130	Gage	Para H-6o
4. Incidental:			
White residue in fuze well or under closing plug.	All HC smoke only	Visual	Para H-5e

APPENDIX I
CARTRIDGE, 105MM APFSDS-T, M735 AND CANISTER, M1040, TP-T, M467A1 AND HEPT, M393A3

I-1. Item Description.

a. DODAC:

(1) 1315-C521. Cartridge, 105mm, APFSDS-T, M735.

(2) 1315-CA40. Cartridge, 105mm, Canister, M1040.

(3) 1315-CA37. Cartridge, 105mm, TP-T, M467A1.

(4) 1315-CA32. Cartridge, 105mm, HEP-T, M393A3.

b. Ammunition Type:

(1) Cartridge, 105mm Armor-Piercing Fin-Stabilized, Discarding-Sabot, with Tracer, (APFSDS-T) M735.

(2) Cartridge, 105mm Anti-Personnel (Canister) M1040.

(3) Cartridge, 105mm, Target Practice with Tracer (TP-T), M467A1.

(4) Cartridge, 105mm, High Explosive Plastic with Tracer (HEP-T), M393A3.

c. The design of the M735 round is typical of the new family of 105 mm APFSDS-T cartridges (such as the M735, M774 and M833). While lacking the depleted uranium (DU) core of the M774 or M833, the M735 cartridge does contain other design features characteristic of this family that warrant special emphasis during life-cycle surveillance of this round. These areas of emphasis are specified in paragraph I-5 of this appendix. For a complete, detailed description of this group of items, see appropriate TMs, drawings, and specifications. The M735 cartridge has six main components that are of particular concern in surveillance inspections. These components and their basic material compositions are as follows:

(1) Sub projectile: tungsten (core); steel/ nickel (body).

(2) Sabot: aluminum (anodized).

(3) Bourrelet: steel.

(4) Obturating Band: nylon.

(5) Windshield: aluminum (anodized).

(6) Windshield tip: steel.

d. The M1040 is intended for use in the M6A1 gun mounted on the Mobile Gun System (MGS) of the STRYKER Brigade Combat Team. The design of the M1040 is different than most 105mm cartridges. While the M1040 share a cartridge case, obturator, and primer design similar to other 105mm tank ammunition rounds, its projectile is a unique design including nylon and aluminum parts that contain tungsten spheres. These characteristics require special emphasis during life-cycle surveillance of this round. These areas of emphasis are specified in paragraph I-5 of this appendix. For a complete, detailed description of this group of items, see appropriate TMs, drawings, and specifications. These components and their basic material compositions are shown as follows:

(1) Front can: aluminum (anodized).

(2) Body: Nylon.

(3) Cap: aluminum (anodized).

(4) Obturator: nylon.

(5) Primer.

(6) Cartridge case: steel.

e. The design of the M47A1 and M393A3 is intended for use in the M68A1 gun mounted on the Mobile Gun System (MGS) of the STRYKER Brigade Combat Team. The M467A1 is designed as a low cost training round for the M393A3, which is a high explosive plastic tactical cartridge. The M467A1 and M393A3 contain other design feature characteristics that require special emphasis during life-cycle surveillance of these rounds. Their areas of emphasis are specified in paragraph I-5 of the appendix. For a complete, detailed description of this items, see appropriate TMs, drawings, and specifications. The M467A1 and M393A3 have four main components that are of particular concern in surveillance inspections. These components and their basic material compositions are as follows:

(1) Projectile:

(a) M467A1: inert, steel body.

(b) M393A3: high explosive plastic charge, steel body.

(2) Rotating bands: copper alloy.

(3) Cartridge case: steel.

(4) Primer.

I-2. Unique Safety Precautions.

a. The primer electrode is the mechanism for transferring electrical or radio frequency (RF) energy to the primer to cause initiation. Energy is transferred if only the center electrode of the primer is being touched. During ammunition handling/loading, a hand may contact the aft cap, primer and center electrode at the same time without risk. There is danger when only the center electrode is contacted.

b. Personnel should not carry any unauthorized wireless/electronic devices when performing uploading, downloading, and pre-firing operations.

c. Tank personnel should never operate any tactical radio in the 200-280 MHz frequency range when performing uploading, downloading, and pre-firing operations. If possible, operate the tactical radio in its hopping mode.

d. Maintain a safe separation distance (SSD) of 30 meters (99 ft) between vehicles/personnel operating UHF radios in the 220-280 MHz frequency range, and operations involving unpackaged tank ammunition.

e. Always wear gloves (e.g., combat vehicle

crewman type MIL-G-44108) when handling main gun ammunition. The human body absorbs RF energy that could be transferred to the primer electrode.

f. Never attempt to clean the primer or the primer electrode on the aft face of the cartridge case by touching the primer of electrode with any object or tool.

g. To clean ammunition, wipe it with a dry, clean, soft rag. Do not use abrasive material or cleaning solvent.

I-3. Testing and Equipment Requirements.

Table I-4 identifies test and measurement equipment and gaging requirements.

I-4. Inspection Category and Sampling Plan.

a. Inspection category W: 5 years (for items in depot storage).

b. The sampling plan is IAW Chapter 2.

c. A stockpile reliability test program will be conducted on this cartridge. Samples selected for inclusion in this program will be inspected visually in accordance with Table I-1 prior to shipment to the test site. Inspection results will be annotated on a DSR and a copy forwarded to addressee in paragraph 1-5.d.(20)(h). The sampling interval will be as prescribed by HQ JMC. This program is designed to see what effect storage, uploading, handling, and downloading have on performance. Both ballistic testing and teardown inspection will be performed at designated CONUS locations.

d. Annual basic load inspection will be performed on this cartridge by QASAS according to Chapter 8.

e. Storage of empty PA-117 containers should be examined to verify that covers are locked in place and containers are protected from the elements.

I-5. Specific Inspection Points.

Item will be inspected and classified according to Chapter 2 and Tables I-1, I-2 or I-5.

I-6. Inspection Description and Notes.

a. M735 Cartridge, APFSDS-T:

(1) Surveillance samples with projectiles exhibiting lateral movement are not considered defective unless one or more of the following conditions are noted:

(a) Cartridge deformation preventing profile and alignment gaging or chambering.

(b) Crimp out of groove.

(c) Evidence of propellant dusting on the outside of the cartridge case or projectile.

(2) The ability to fully gage or chamber the round should be the determining factor in doubtful cases.

b. M1040 Cartridge, Canister:

(1) Inspection for loose aluminum can: s`urveillance samples of the can are considered damaged if the aluminum can can be spun or rotated by hand while firmly holding the nylon body.

(2) Inspection for loose aluminum cap: surveillance samples of the cap are considered damaged if the aluminum cap can be rotated at all, while firmly holding the aluminum can.

(3) The ability to fully gage or chamber the round should be the determining factor in doubtful cases.

c. M467A1 and M393A3 Cartridges:

(1) Surveillance samples of the projectiles should not be able to spun or rotated in relation to cartridge case by hand. There shall be no movement of the projectiles within the cartridge case, i.e. rotating, wobbling, and/or evidence of an unsecured condition.

(2) Inspection for gap between cartridge case and rotating band lip, the maximum gap permitted at shoulder of rotating band and mouth of cartridge case is 1.3mm.

d. Testing has demonstrated that the electric primer assembled to these rounds is insensitive to initiation from mechanical impact. Primers or igniters above flush are therefore to be considered major defects rather than critical. (Any straight edge rule is suitable for checking this characteristic.)

e. Perform gaging according to Table I-4.

f. Primers must be staked in one place (M1040) or two places, approximately 180-degrees apart. Stakes should show evidence of moving cartridge case material into joint at cartridge case to primer. Stakes on primers with wrench holes will not necessarily deform wrench hole. If there is no evidence of metal deformation at cartridge case and primer joint, then perform the following:

(1) Mark a line across primer head and cartridge case. Apply disassembly torque of 175-inch pounds.

(2) Check line to verify no movement.

g. Container dents that are less than ¼ inch do not require repair. Dents greater than ¼ inch that impair the structural integrity of the PA-117 container or prevent the removal of the cartridge case are major defects. A cartridge that cannot be removed in the PA-117 shipping and storage container shall be placed in CC-F and reported by ACR with info copy by email to the office in paragraph 1-5.d.(1). Cartridges removed from damaged containers that evidence dented cartridge cases shall be placed in CC-H and reported by ACR as above.

h. Moisture noted within PA-117 containers indicated ammunition was either wet when containerized or the interior components of the PA-117 were wet when the ammunition was packed out. Containers with wet interior projectile supports and spacers are considered unserviceable until the moisture intrusion condition is corrected. Cartridges found in such containers must be closely examined for moisture damage according to the applicable tables.

I-7. References.

a. TM 9-1015-203-12.

b. TM 9-1015-234-10.

c. TM 9-1015-252-10.

d. TM 9-1300-251-20&P.

e. TM 9-1300-251-34&P.

f. TM 9-2320-311-10-11.

g. TM 43-0001-28.

Table I-1. Item Defects and Method of Inspection for Cartridge, 105mm, APFSDS-T M735.

Classification	Application	Inspection Method	Inspection Description
1. Critical: none defined.			
2. Major:			
a. Excessive lateral movement of projectile.		Visual/Manual/Gage	Para I-6a
b. Primer or igniter above flush.		Visual/Gage	Para I-6d
c. Primer staking missing.		Visual	Para I-6f
d. Windshield or windshield tip bent or damaged.		Visual	
e. Windshield loose (lateral or longitudinal looseness only).		Manual	
f. Bourrelet cracked or loose.		Visual	
g. Sabot cracked.		Visual	
h. Missing parts (e.g., bourrelet, obturator, windshield tip, bourrelet screws).		Visual	
i. Hose clamp not removed from around sabot (reference TM 9-2350-series or dwg 9296707).		Visual	
j. Obturating band damaged (i.e., cracked, broken, or gouged).		Visual	
k. Failure of cartridge to gage.		Gage	Para I-6d
3. Minor:			
a. Windshield cushion missing.		Visual	
b. Evidence of poor workmanship.		Visual	

Table I-2. Item Defects and Method of Inspection for Cartridge, 105mm, Canister, M1040.

Classification	Application	Inspection Method	Inspection Description
1. Critical: none defined.			
2. Major:			
a. Loose can (able to spin).		Manual	Para I-6b
b. Loose cap (able to spin).		Manual	Para I-6b
c. Damage to can (cracks, dents, splits).		Visual	
d. Damage to body (cracks, chips).		Visual	
e. Damage to cap (cracks, dents, splits).		Visual	
f. Primer above flush.		Visual/Gage	Para I-6d
g. Primer stake missing.		Visual	Para I-6e
h. Obturator damaged (i.e., cracked, broken, or gouged).		Visual	
i. Corrosion on metal parts.		Visual	
j. Failure of cartridge to gage.		Gage	Para I-6d
3. Minor:			
Evidence of poor workmanship.		Visual	

Table I-3. Item Defects and Method of Inspection for PA-117 Shipping and Storage Container.

Classification	Application	Inspection Method	Inspection Description
1. Critical: none defined.			
2. Major:			
a. Cover Assembly nonfunctional.		Visual	
b. Gasket missing or defective.		Visual	
c. Internal components/packaging missing or defective.		Visual	

d. External components missing or defective.		Visual	
e. Dents greater than ¼ inch deep that prevent cartridge extraction.		Visual	Para I-6g
f. Perforations/holes.		Visual	
g. Internal components/packaging moisture soaked.		Visual	Para I-6h
h. Markings illegible, precluding proper identification of nomenclature and lot number.		Visual	
3. Minor:			
Protective finish on container body (not rims and rings) with pitted corrosion over 10 percent of surface.		Visual	

Table I-4. Equipment Identification List.

Description	Inspection	NSN	Application
Gage, profile and alignment	Complete cartridge	5220-00-231-7775	IRI
Note 1. Ring gaging required only if round fails profile and alignment gaging.			
Note 2. Profile and alignment gaging required only if not accomplished during IRI, or if round is visibly damaged. Profile and alignment gaging is required only one time during life cycle of lot.			

Table I-5. Item Defects and Method of Inspection for Cartridge, 105mm, TP-T, M467A1 and HEP-T, M393A3

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
Damage to projectile (cracks, chips, nicks, burs or corrosion).	M393A3 only	Visual	
2. Major:			
a. Loose projectile.		Manual	Para I-6c
b. Damage to projectile (cracks, chips, nicks or burs).	M467A1 only	Visual	
c. Nicks, burs, or chips on rotating bands that causes outer diameter of the band to be raised up or that cover the width of the band.		Visual	
d. Gap between cartridge case and rotating band tip.		Gage	Para I-6c
e. Primer above flush with case base.		Visual/Gage	Para I-6d
f. Primer stake missing.		Visual	Para I-6f
g. Corrosion on metal parts or on the primer.		Visual	
h. Failure of cartridge to gage.		Gage	Para I-6e
3. Minor:			
Evidence of poor workmanship (paint on body or markings on cartridge are smeared or illegible etc.).		Visual	

APPENDIX J
CARTRIDGE, 105MM APFSDS-T, M774, M833 AND M900

J-1. Item Description.

a. DODACS: 1315-C523; C524; C543.

b. Ammunition Type: Cartridge, 105mm Armor-Piercing, Fin Stabilized, Discarding Sabot, with Tracer (APFSDS-T) M774, M833 and M900.

c. These rounds use a kinetic energy penetrator made from depleted uranium (staballoy). Because of the toxic nature of U238 when ingested into the body, more stringent inspection criteria must be used to assure that no hazard exists to personnel handling the items. Also, the design and material composition of the cartridges represents a departure from previous generations of armor piercing tank ammunition. The design and material configuration warrant special emphasis during the life cycle surveillance of the cartridges. The basic material compositions of projectile components are as follows:

(1) Fin: aluminum (anodized).

(2) Windshield: aluminum (anodized).

(3) Sabot: aluminum (anodized).

(4) Windshield tip: steel.

(5) Penetrator: staballoy (depleted uranium).

(6) Bourrelet: steel.

(7) Sabot seal: rubber (silicon).

(8) Obturator: nylon.

(9) Sealing band: polypropylene.

(10) Bourrelet screws: steel.

J-2. Unique Safety Precautions.

a. Because of the toxic nature of depleted uranium (DU), SOPs will be developed locally to assure that personnel involved in operations with DU rounds are protected from possible ingestion.

b. SOPs should include procedures covering accidents, storage, incidents, and reporting requirements involving rounds containing radioactive (DU) materials. (Reference TB 9-1300-278, Guidelines for Safe Response to Handling, Storage, and Transportation Accidents Involving Army Tank Munitions Which Contain Depleted Uranium).

c. Procedures for commercial transportation of radioactive (DU) materials must fully reflect the applicable requirements of 49CFR173 and AR 350-10, in addition to necessary actions required prior to commercial shipment of explosives. Procedures include a requirement to swipe test the exterior of all pallets and unpalletized outerpacks prior to shipment. Analyze swipe taken on pallet/outerpack according to paragraph J-7.

d. Cartridges are exempted by NRC license from labeling requirements for radiologic material. Shipments must comply with DOT Exemption DOT-E-9649.

e. Projectiles with evidence of damage and/or corrosion will be inspected and swipe (smear) tested for evidence of contamination. The swipe (smear) test will be conducted as specified in paragraph J-7.

f. Personnel handling DU rounds should wear gloves and should not eat, drink, or smoke until hands are thoroughly washed with soap and water.

g. Accidents and incidents involving DU munitions will be reported through the local RPO to the license RPO, addressee in paragraph 1-5.d.(18)(b). These include: theft or loss of control; functioning; fires, explosions, or accidents where DU munitions are, or could be damaged; or damage that exposes or releases DU to the environment.

h. QASAS conducting UBL Inspection at 105mm tank units should assure that only M1 Abrams tank units are in possession of Ctg, 105mm, APFSDS-T, M900.

J-3. Testing and Equipment Requirements.

Table J-1 identifies test and measurement equipment and gaging requirements.

J-4. Inspection Category and Sampling Plan.

a. Inspection category: Category W (five years).

b. Sampling plan for inspection is according to Chapter 2.

c. A stockpile reliability test program will be conducted on cartridges, which will require samples to be selected from specific lots in basic load. Samples will be inspected visually according to Table J-2 of this appendix prior to shipment for test. Inspection results will be annotated on a DA Form 984, and a copy forwarded to the office in paragraph 1-5.d.(20)(h). Sampling intervals will be as prescribed by HQ, JMC.

d. This program is designed to see what effect uploading, handling, and downloading by tank crews have on performance. Both ballistic testing and physical teardown inspection will be performed by designated licensed facilities. DU ammunition samples will not be individually swiped. Only exterior container swipe IAW paragraph J-7n will be done. Samples will be swiped as part of ASRP test.

e. Annual basic load inspections will be performed on cartridges by QASAS according to Chapter 8 and Table J-2. Ammunition contained in basic load stocks will not be rejected for minor correctable defects.

J-5. Specific Inspection Points.

Item will be inspected and classified according to Chapter 2 and Table J-2.

Table J-1. Equipment Identification List.			
Description	NSN	Application	Inspection
Gage, profile and alignment	5220-00-231-2775	Complete cartridge	IRI,RI,PI,UBLI
Proportional counter		As specified in para J-7	IRI,RI,PI,UBLI
Swipe, Cloth, Test	6665-01-198-7573	Swipe Test	IRI,RI,PI,UBLI (Note 2)
Note 1. Profile and alignment gaging required only if not accomplished during IRI, or if round is visibly damaged. (Profile and alignment gaging is required only one time during life cycle of lot.)			
Note 2. Swipe (smear) test will only be performed on damaged and/or corroded projectiles.			

Table J-2. Item Defects and Method of Inspection.			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
Projectile loose in cartridge case (M900).		Visual/Manual	Para J-6i(4)
2. Major:			
a. Windshield or windshield tip bent or damaged.		Visual	Para J-6a
b. Windshield loose (lateral or longitudinal looseness only).		Visual/Manual	Para J-6a
c. Bourrelet cracked or loose.		Visual/Manual	Para J-6a
d. Missing parts (e.g., bourrelet, obturator, windshield tip bourrelet screws).		Visual	Para J-6a
e. Corrosion on projectile parts (pitting).		Visual	Para J-6a
f. Corrosion of primer as specified by TM 9-1300-251-20&P.		Visual	Para J-6a & J-6c
g. Yellow/yellowish white projectile corrosion.		Visual/Swipe	Para J-6a & J-6d
h. Failure of cartridge to gage.		Gage	Para J-6a & J-6e
i. Damaged inner or outer container.		Visual	Para J-6a & J-6f
j. Hose clamp(s) not removed from sabot.		Visual	Para J-6a
k. Primer or igniter above flush.		Straightedge	Para J-6a & J-6g
l. Primer staking missing.		Visual	Para J-6a & J-6h
m. Obturating band damaged (e.g., cracked, broken, or gouged).		Visual/Gage	Para J-6a
n. Sabot damaged (e.g., cracked, broken, or gouged).		Visual/Manual	Para J-6a
o. Lateral movement of projectile (M774 and M833).		Visual/Manual	Para J-6a & J-6i
p. Rust, metal tears or cracks in cartridge case (M833 and M900).		Visual	Para J-6a
q. Damage to cartridge which may expose DU core.		Visual/Swipe	Para J-6a & J-6d
3. Minor:			
a. Damaged inner or outer container.		Visual/Manual	Para J-6b & J-6f
b. Protective windshield cushion missing.		Visual	Para J-6b

J-6. Inspection Description and Notes.

a. Cartridges having any major defects will be reported according to DA PAM 750-8, regardless of dollar value. Defective quantities that are authorized for repair or demilitarization will be transferred as directed by HQ, JMC, to a facility licensed to perform these procedures.

b. Replacement containers and protective windshield cushion should be requisitioned as required according to the procedures in applicable technical manuals.

c. Refer to paragraph 3-9, TM 9-1300-251-20&P for inspection criteria.

d. Projectile will be swipe tested according to paragraph J-7 if any of the following conditions exist: Corrosion in sabot gaps, windshield interfaces or if physical damage to projectile is noted which could expose DU core.

e. Perform gaging according to Table J-1.

f. Inspect packing material IAW Chapter 2.

g. Testing to date has not shown electric primer assembled to these cartridges to be sensitive to initiation from mechanical impact. Primers or igniters above flush are therefore to be considered major defects rather than critical. (Any straight edge rule is suitable for checking this characteristic.)

h. Primers must be staked in two places, approximately 180 degrees apart. Stakes should show evidence of moving cartridge case material into joint at cartridge case to primer. Stakes on primers with wrench holes will not necessarily deform wrench hole. If there is no evidence of metal deformation at cartridge case and primer joint, perform the following:

(1) Mark a line across primer head and cartridge case.

(2) Apply disassembly torque of 175 inch pounds.

(3) Check line to verify no movement.

i. Surveillance samples with projectiles exhibiting lateral movement are not considered defects unless one or more of following conditions are noted:

(1) Cartridge case deformation preventing profile and alignment gaging or chambering.

(2) Crimp out of groove.

(3) Evidence of propellant dusting on outside of cartridge case or projectile.

(4) There shall be no movement of M900 projectile within the cartridge case; i.e., rotating, wobbling, and/or evidence of an unsecured manner.

J-7. Swipe (Smear) Test.

a. Chance of any DU particles migrating to surface of projectile is considered remote, therefore, swipe test will only be performed under either of the following circumstances:

(1) Damaged cartridge with possible core exposure.

(2) Cartridge with visible corrosion (powdery substance) on sabot, sabot gaps or windshield interfaces.

b. The following safety precautions should be observed when performing swipe test:

(1) Do not eat or drink while swipe testing. Radioactive materials pose the greatest harm if taken internally, such as by ingestion. Keep hands away from face.

(2) Do not perform swipe test with exposed open cuts or sores. Cover any open cuts or sores with bandages and wear protective rubber gloves. Radioactive material can also be taken internally through open cuts.

(3) Do not clean projectile prior to swipe test.

(4) Wash hands thoroughly with soap and water when testing is completed.

c. Fill in information required on front of swipe folder to include date, time, swipe number, location and technician.

d. Swipe does not have to be removed from paper strip during test.

e. Using moderate pressure, wipe surface of projectile along seams between sabot segments and seam of junction between windshield and sabot with swipe. Swipe should also include any area of the projectile with visible powder/corrosion. Use one swipe per cartridge.

f. Once swipe has been taken, care must be taken to prevent cross contamination. Do not touch side of swipe paper that was used for taking swipe.

g. Fold paper strip over once so that swipe is covered. Place swipe in re-sealable plastic pouch.

h. Swipes taken on individual cartridges will be tested for radioactivity with a proportional counter. Proportional counter may be located at a central location, and swipes forwarded for reading. Field locations may use AN/PDR 27 and AN/PDR 60 for identification of gross radiation hazards only. The proportional counter is required to measure limits specified in paragraph j below.

i. Exact procedure for measuring activity will depend upon equipment and facilities available. Each swipe must be marked so that a specific cartridge can be located again. Measurement of activity shall be performed by, or under guidance of, a Health Physicist or Radiation Protection Officer.

j. Activity levels exceeding background by 400 disintegrations per minute (DPM) alpha or 700 DPM beta-gamma may indicate a potential corrosion problem. Although activity levels at these DPM values are not considered to present a health hazard, it is desirable to identify initiation of a corrosion problem long before contamination results.

k. Any cartridge with reading that exceeds established background level by above amounts will be sealed in plastic, and the cartridge will be returned for examination to a facility licensed to disassemble DU cartridges (as directed by JMC).

l. Whenever activity levels exceed 500 disintegrations per minute (DPM) immediately notify the office in paragraph 1-5.d.(18)(b) and in paragraph 1-5.d.(19)(b).

m. A report will also be submitted to the addresses in paragraph l above when any activity levels are measured which exceed background levels of the counter being used by a factor of two. This report will include background and swipe readings; type, serial number, and calibration date of test instrument; and any other information deemed relevant.

n. The following procedure can be used to monitor pallet/outer pack prior to shipment. This procedure is not authorized for individual cartridges.

(1) Swipe at least a 300 square centimeter area of pallet/outer pack.

(2) Check swipe with an AN/PDR 27, 56 or 60 radiac meter, or equivalent. Reading of twice background is indicative of contamination.

(3) If readings indicate contamination, notify offices in paragraph l above.

J-8. References.

a. AR 385-10.

b. DMWR 9-1315-C523-X1.

c. DMWR 9-1315-C524-X20.

d. TB 9-1300-278.

e. TM 9-1300-251-20&P.

f. TM 9-1300-251-34&P.

g. TM 9-2350-305-10.

h. TM 9-2350-356-14.

i. TM 43-0001-28.

APPENDIX K
CARTRIDGE, 4.2 INCH MORTAR

K-1. Item Description.

a. FSC: 1315.

b. Ammunition type: Cartridge, 4.2 inch Mortar. Includes the following models: M328 Series (WP), M329 Series (HE), M335 Series (illuminating), and the M630 (tactical CS). The M2 Series WP or PWP and the M3 Series HE are obsolete and not specifically addressed in this appendix. If these models are encountered they should be inspected and classified using the applicable portions of this supply bulletin as a guide.

c. The 4.2-inch cartridges are spin-stabilized rounds fired from a rifled bore muzzle loading weapon. For a complete description of these rounds, see TM 43-0001-28 and the drawings for the particular round.

K-2. Unique Safety Precautions.

WP cartridges manufactured prior to 1966 may contain bursters loaded with tetrytol. Lots, which contain tetrytol bursters will be placed in condition code F for replacement of bursters. Screening for evidence of explosive growth or exudation prior to issue for use is not considered practical or timely.

K-3. Testing and Equipment Requirements.

a. All IRI samples will be gaged using a profile and alignment gage and concentricity gage. Gaging is not normally required during PI, RI, or UBLI. Gaging, during these inspections (other than IRI), should be limited to individual rounds having visual evidence of damage or other conditions that may preclude loading and firing. Unless the rounds requiring gaging are truly representative of the lot being inspected, they should be disregarded in evaluating the lot.

b. Table K-1 identifies test and measurement equipment.

K-4. Inspection Category and Sampling Plan.

a. Inspection category:

(1) Category U: 7 years - Jungle Pack Practice without Explosive Components (Inert) cartridges.

(2) Category V: 6 years - Jungle Pack HE, WP and Practice with Explosive Components cartridges.

(3) Category W: 5 years - all Illuminating and Regular Pack Practice without Explosive Components (Inert cartridges).

(4) Category X: 4 years - all Chemical, FS Smoke, Leaflet, Riot Control cartridges and Regular Pack HE, WP, RP and Practice with Explosive Components cartridges.

(5) Category Z: 2 years - bulk primers.

b. The sampling plan for inspection is according to Chapter 2.

K-5. Specific inspection points.

Item will be inspected and classified according to Chapter 2 and Table K-2.

K-6. Inspection Description and Notes.

a. All models which have a safe setting, except for Fuze MT M565, when not set on safe is a major defect.

b. All models with fuzes requiring a safety wire or pin.

c. M328 Series with tetrytol bursters (see paragraph K-2).

d. Red face must not be visible.

e. Propellant broken below the seam, or total loss of ⅛ to ½ increment, will be classified a major defect. Propellant broken, but not below the seam, or total loss less than ⅛ increment, will be classified an incidental defect.

f. When a component is damaged to the extent that its functional effectiveness has been destroyed, it will be classified as a defect.

g. Normally done only during initial receipt inspection. Assure that gage flange makes even contact with forward edge of projectile when fully inserted. If possible, establish cause for projectile's failure to gage (such as cocked liner, fuze well liner not fully inserted, foreign matter in threads, damaged threads, etc.).

h. Does not apply to new type plug (polyethylene) which does not require a spacer.

i. Caked explosive in the threads will be classified as a defect. Explosive dust will not be considered a defect.

j. This label which reads "Warning: Remove container extension and reduce propellant to not more than 25 and ½ increments before firing in 4.2 inch mortar M2" is applicable only to the M2 mortar. The M2 mortar was classified obsolete on 13 June 1957, and there are no known weapons in any U.S. inventory. Some allied countries may still be using the M2 mortar; therefore, whenever lots are encountered with missing labels, a remark should be included on the DSR to ensure lot is not shipped FMS or Grant Aid.

k. Obturator.

(1) The obturator bristles must slant clockwise when viewed from the rear of the cartridge.

(2) The bristle strips must be fully seated in the obturator groove with no obvious bulging of the bristle strips above the obturator groove.

(3) Two slits and white dots on the obturator must be oriented towards the rear of the round, the trailing edge of the obturator must be thinner than the leading edge when assembled to the cartridge.

(4) Other obturator damage (including the bristle strips) which would adversely affect the round's fit in the mortar tube or result in obturator failure will be cause for cartridge rejection.

Table K-1. Equipment Identification List.			
Description	NSN	Application	Inspection
Gage, profile and alignment.	9278618	5220-01-165-4567	M329A2
Gage, profile and alignment.	7258457	5220-00-313-3091	All except M329A2
Gage, depth and concentricity deep cavity.	7304529	5220-00-395-4479	M329 Series unfuzed

Table K-2. Item Defects and Method of Inspection.			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Excessive number of increments.	All	Visual	
b. Insufficient number of increments.	M328 Series, M329 Series	Visual	
c. Bag loading assembly missing or damaged to the extent that propellant can escape.	M328A1, M329A1, M329A2	Visual	
d. Pressure plate incorrectly assembled (reversed).	M329, M329A1	Visual	Para K-6d
e. WP leakage or evidence of leakage.	M328 Series	Visual	
f. Zone weight markings incorrect.	M328 Series, M329, M329A1	Visual	
g. Fuze not set on safe (except for Fuze, MT, M565).		Visual	Para K-6a
h. Fuze safety wire or pin missing, broken, insecure or improperly engaged.		Visual	Para K-6b
i. Supplementary charge pad missing.	M329 Series (unfuzed)	Visual	
j. Fuze well liner missing.	M329 Series (unfuzed)	Visual	
k. Explosive extends above the top of the fuze well.	M329 Series (unfuzed)	Visual	
l. Fuze well liner not fully expanded and not making contact with fuze well threads for full 360 degrees.	M329A2 (unfuzed)	Visual	
m. Explosive growth of burster.		Visual	Para K-6c
2. Major:			
a. Ignition cartridge missing.	All	Visual	
b. Insufficient number of propellant increments.	M335 Series, M630	Visual	
c. Bag loading assembly missing or damaged to the extent that propellant can escape.	M335A1, M335A2, M630	Visual	
d. Broken or chipped propellant increments.	All	Visual	Para K-6e
e. Any propellant holder missing.	All	Visual	
f. Rear propellant holder improperly seated.	M329A2	Visual	
g. Pressure plate incorrectly assembled (reversed).	M328 Series, M335 Series, M630	Visual	Para K-6d
h. Pressure plate nut not properly staked.	M328 Series, M329, M329A1, M335 Series, M630	Visual	
i. Rotating disc loose or improperly assembled.	M328 Series, M329, M329A1, M335 Series, M630	Visual	
j. Rubber obturator improperly assembled, damaged missing.	M329A2	Visual/Manual	Para K-6k
k. Extension pin missing.	M328A1, M329A1, M335A1, M335A2	Visual	
l. Supplementary charge missing or inverted.	M329 Series (unfuzed)	Visual	
m. Any component missing, damaged or incorrectly assembled (other than described elsewhere).	All	Visual	Para K-6f
n. Misalignment of fuze well liner with center line of projectile.	M329 Series (unfuzed)	Gage	Para K-6g
o. Depth to bottom of fuze well liner minimum.	M329 Series (unfuzed)	Gage	Para K-6g

p. Fuze well liner loose.	M329 Series (unfuzed)	Manual	Para K-6g
q. Fuze not fully seated.	M329 Series (fuzed)	Visual	
r. Glue asphalt, wax or cement on bourrelet area of cartridge.	All	Gage	
s. Supplementary charge not removable by hand or tab is missing.	M329 Series (unfuzed)	Visual	
t. Cartridges fails to freely pass through profile and alignment gage.	All	Visual	Para K-6g
u. Fuze not set on safe.	M565	Visual.	Para K-6a
3. Minor:			
a. Fuze stake missing.	All.(fuzed)	Visual	
b. Supplementary charge spacer missing.	M329 Series (unfuzed)	Visual	Para K-6h
c. Supplementary charge damaged.	M329 Series (unfuzed)	Visual	
d. Explosive on fuze well threads.	M329 Series (unfuzed)	Visual	Para K-6i
e. Shear or twist pin above flush.	M335 Series, M630	Visual	
4. Incidental:			
Warning label missing or unidentifiable.	M328 Series, M329, M329A1, M335 Series, M630	Visual	Para K-6j

APPENDIX L
CARTRIDGES, 120MM M829, M829A1, M829A2, M829A3, M830, M830A1, M831A1, M865, M908, M1002 AND M1028

L-1. Item Description.

a. DODACs and Ammunition Type:

(1) 1315-C380: Cartridge, 120mm, APFSDS-T, M829A1.

(2) 1315-C784: Cartridge, 120mm, TP-T, M831A1.

(3) 1315-C785: Cartridge, 120mm, TPCSDS-T, M865.

(4) 1315-C786: Cartridge, 120mm, APFSDS-T, M829.

(5) 1315-C787: Cartridge, 120mm, HEAT-MP-T, M830.

(6) 1315-C791: Cartridge, 120mm, HEAT-MP-T, M830A1.

(7) 1315-C792: Cartridge, 120mm, APFSDS-T, M829A2.

(8) 1315-CA05: Cartridge, 120mm, HE-OR-T, M908.

(9) 1315-CA26: Cartridge, 120mm, APFSDS-T, M829A3.

(10) 1315-CA31: Cartridge, 120mm, TPMP-T, M1002.

(11) 1315-CA38: Cartridge, 120mm, Canister M1028.

b. M829 Series Cartridges: The M829 series cartridges contain several main components that are of particular concern during surveillance inspections. These components and their basic composition are as follows:

(1) Subprojectile: DU penetrator with aluminum fin, aluminum windshield, and steel windshield tip. The M829A1 has a blunt windshield tip which is not removable. The M829A3 has a non-removable, uncoated, silver steel windshield with a non-separating tip.

(2) Sabot:

(a) M829 - four segment aluminum & anodized.

(b) M829A1 - three segment aluminum & anodized.

(c) M829A2 - three segment composite.

(d) M829A3 - three segment composite w/rings on forward bourrelet.

(3) Centering Band: nylon (M829 only).

(4) Obturator: Nylon.

(5) Combustible Cartridge Case: painted and sealed nitrocellulose.

(6) Combustible Forward Adapter: inert.

(7) Case Base and Seal Assembly (AFT CAP): steel with rubber.

c. M865 Cartridge, TPCSDS-T and M1002 Cartridge TPMP-T:

(1) Subprojectile: steel core (tactical rounds have penetrators, training sabot cartridges have cores) with an aluminum conical fin.

(2) Sabot: aluminum (anodized).

(3) Rear Band: rubber seal (M865 only).

(4) Obturator: nylon.

(5) Combustible Cartridge Case: painted and sealed nitrocellulose.

(6) Case Base and Seal Assembly: steel with a rubber seal.

d. M830 and M830A1, HEAT-MP-T; M908, HE-OR-T and M831A1, TP-T.

(1) Projectile:

(a) M830: steel body and spike with an aluminum boom and fin.

(b) M830A1: three aluminum sabot segments and a steel warhead assembly with a stainless steel proximity switch, ogive, and aluminum fin and boom.

(c) M908: same as the M830A1 except that a solid steel nose cone replaced the proximity switch.

(d) M831A1: aluminum body and steel spike assembly with an aluminum stabilizer.

(2) Centering Band:

(a) M830: copper.

(b) M830A1 & M908: has sabot.

(c) M831A1: nylon.

(3) Combustible Cartridge Case: painted and sealed nitrocellulose. The M830 has a live forward adapter (nitrocellulose).

(4) Case Base & Seal Assembly: steel with a rubber seal.

e. M1028 Cartridge, canister:

(1) Projectile: inert, aluminum two piece body canister with approximately 1097 0.375 inch tungsten balls.

(2) Obturator Band: nylon.

(3) Rear Band: rubber seal.

(4) Combustible Cartridge Case: painted and sealed nitrocellulose.

(5) Case Base & Seal Assembly: steel with a rubber seal.

L-2. Unique Safety Precautions.

a. M829 Series:

(1) Because of the toxic nature of depleted uranium (DU), SOPs should be developed locally to

assure personnel involved in operations with DU rounds are protected from possible ingestion. The SOPs should include procedures covering accidents, incidents, storage and reporting requirements involving round containing radioactive (DU) materials (reference TB 9-1300-278, Guidelines for Safe Response to Handling, Storage, and Transportation Accidents Involving Army Tank Munitions Which Contain DU).

(2) Procedures for the commercial transportation of DU materials must fully reflect the applicable requirements of 49CFR173 and AR 385-10, in addition to the necessary actions required prior to a commercial shipment of explosives.

(3) Cartridges are exempted by NRC license from labeling requirements for radiological material. All shipments must comply with DOT exemption DOT-E-9649.

(4) QASAS will inspect and conduct the swipe (smear) test on projectiles with evidence of damage and/or yellow corrosion for evidence of DU contamination as specified in paragraph L-7.

(5) Personnel handling DU cartridges should wear gloves and should not eat, drink, or smoke until they have thoroughly washed their hands with soap and water.

(6) Accidents and incidents involving DU munitions will be reported through the local Radiation Protection Officer (RPO), to addressee in paragraph 1-5.d.(18)(b). These include: theft or loss of control, functioning, fires, explosions or accidents where the DU munitions are or could be damaged, or damage that exposes or releases DU to the environment.

b. All 120mm Ammunition:

(1) The primer electrode is the mechanism for transferring electrical or radio frequency (RF) energy to the primer to cause initiation. Energy is transferred if only the center electrode of the primer is being touched. During ammunition handling/loading, a hand may contact the aft cap, primer and center electrode at the same time without risk. There is danger when only the center electrode is contacted.

(2) Personnel should not carry any unauthorized wireless/electronic devices when performing uploading, downloading and pre-firing operations.

(3) Tank personnel should never operate any tactical radio in the 200-280 MHz frequency range when performing uploading, downloading and pre-firing operations. If possible, operate the tactical radio in its hopping mode.

(4) Maintain a safe separation distance (SSD) of 30 meters (99 ft) between vehicles/personnel operating UHF radios in the 200-280 MHz range, and operation involving unpackaged tank ammunition.

(5) Always wear gloves (e.g. combat vehicle crewman type, MIL-G-44108) when handling main gun ammunition. The human body absorbs RF energy that could be transferred to the primer electrode.

(6) Never attempt to clean the primer or the primer electrode on the aft face of the cartridge by touching the primer or electrode with any object or tool.

(7) To clean ammunition, wipe it with a dry, clean, soft rag. Do not use abrasive material or cleaning solvent.

(8) Personnel must handle ammunition assembled with combustible cartridge cases carefully. Personnel will avoid damaging or scratching the combustible cartridge case during handling. Handle the cartridge by the metal case base and projectile sabot.

L-3. Testing and Equipment Requirements.

a. Personnel will perform gaging IAW SB 742-1, paragraph 2-8:

(1) Every lot must be gaged at least once during its storage life cycle and results documented on Depot Surveillance Record card.

(2) Whenever possible, QASAS will gage cartridges during initial receipt inspection or at the next scheduled periodic inspection. Gage rounds whenever conditions such as exposure to adverse conditions, deterioration, damage, etc. indicate a need to verify serviceability.

(3) Uploaded M829A2 cartridges may exhibit a chambering problem if they have been exposed to water or a high humidity and high temperature environment such as standing water or visible condensation in the ammunition stowage compartment, or if they have been subjected to unpackaged storage. Chamber gage cartridges using a Man Portable Chamber Gage (MPCG) Set, P/N 12948079, on a monthly basis. P/N 12948079 includes Letter of Instruction for using MPCG. At the same time, QASAS should inspect cartridges for corrosion on the projectile, the case base, and for watermarks on the cartridge.

b. Swipe Test: QASAS will perform swipe test only on damaged or corroded projectiles IAW paragraph L-7.

Table L-1. Equipment Identification List.

Description	Part Number	Application
Man Portable Chamber Gage(MPCG) Set	12948079 NSN: 5280-01-4777-5455	All 120mm Cartridges
Proportional Counter	Commercial Equip	Swipe (Smear) Test
Ring Gage Set	PN: 12900358 NSN: 5220-01-359-3001	All
NOTE: the ring gage set may be used in lieu of the man portable chamber gage, if unavailable.		

L-4. Inspection Category and Sampling Plan.

a. All 120mm cartridge inspection category: Y (3 years, 20 round sample size).

b. This item is included in the Ammunition Stockpile Reliability Program. Prepare test samples IAW Chapter 3. QASAS will not individually swipe DU ammunition samples. QASAS will swipe only exterior PA116/PA171 Shipping & Storage Container IAW paragraph L-7n. Samples will be swiped as part of ASRP test.

c. QASAS will conduct an initial upload inspection when a using unit uploads cartridges during peace time loading.

d. QASAS will perform the annual or semi-annual basic load inspections on cartridges according to SB 742-1, Chapter 8 and this appendix. Ammunition contained in basic load stocks will not be rejected for minor correctable defects.

e. Storage of empty PA116/PA171: containers should be examined to verify that lids are in place and containers protected from the elements.

f. QASAS should report any observed stowage area that could affect serviceability of the ammunition. Examples of such areas are: tank stowage compartments including the hull racks which may have standing water, rust condensation, burred racks, or swing tubes, etc. Report findings to the office in paragraph 1-5.d.(1).

g. QASAS supporting upload operations in conjunction with armored unit deployments should assure that tank stowage compartments are thoroughly dry prior to ammunition upload. QASAS at the receiving end of deployment should assure uploaded ammunition serviceability at earliest opportunity to preclude potential moisture damage to the combustible cartridge case and forward adapter. QASAS must advise the office in paragraphs 1-5.d.(1) and 1-5.d.(20)(a) of any damage or deterioration of ammunition or stowage compartments attributable to moisture damage in transit. Damage reports shall provide the bumper number and unit ID for the affected tank.

h. If M829A2 rounds are uploaded or stored in water or high humidity and high temperature environments outside of their original package, it may result in the round not chambering in the main gun. QASAS shall perform monthly chamber gage inspections, using a MPCG to verify ability of the cartridge to chamber. It is also recommended that M829A1 rounds, which have been exposed to freezing temperatures and rain or water, be chamber gage inspected by QASAS using a MPCG prior to their intended use to verify ability of the cartridge to chamber. This applies regardless of the position of the white mark(s) on the sabot segment. At the same time, QASAS should inspect cartridges for corrosion on the projectile, the case base, and for watermarks on the cartridge.

L-5. Specific Inspection Points.

QASAS will inspect and classify items according to Tables L-2 through L-6.

Table L-2. PA116 and PA171 Shipping and Storage Containers.

Classification	Application	Inspection Method	Inspection Description
1. Critical: none defined.			
2. Major:			
a. Cover Assembly nonfunctional.		Visual	
b. Gasket missing or defective.		Visual	
c. Internal components/packaging missing or defective.		Visual	
d. External components missing or defective.		Visual	
e. Dents greater than ¼ inch deep that prevent cartridge extraction.		Visual	Para. L-6e
f. Perforations/holes.		Visual	
g. Internal components/packaging moisture soaked.		Visual	
h. Markings illegible, precluding proper identification of nomenclature and lot number.		Visual	
i. IM panels perforated/cracked.	M829A3, M1002 and M1028	Visual	
j. IM panel gaskets missing or defective.	M829A3, M1002 and M1028	Visual	
k. Separation of top flange around IM panel.	M829A3, M1002 and M1028	Visual	
3. Minor:			
Protective finish on container body (not rims and rings) with pitted corrosion over 10 percent of surface.		Visual	

Table L-3. Cartridges 120mm APFSDS-T M829 (C786), M829A1 (C380), M829A2 (C792) and M829A3 (CA26).			
Classification	Application	Inspection Method	Inspection Description
1. Critical: none defined.			
2. Major:			
a. Failure to chamber/gage.		Gage	Para. L-6f
b. Sabot segments misaligned.		Visual	Para. L-6c
c. Rear obturator cracked/damaged.		Visual	
d. Sabot cracked.		Visual	
e. Front bourrelet rings cracked.	M829A3	Visual	Para. L-6c
f. Cracked cartridge case forward adapter.		Visual	
g. DU corrosion (yellowish or black powder or staining) in sabot gaps and/or windshield interfaces.		Visual	Para. L-7a(2)
h. Corrosion on projectile body causing pitting.		Visual	
i. Projectile partially or completely separated from. the combustible cartridge case.		Visual	Para. L-6h
j. Marks on sabot and windshield not aligned properly.	M829A1	Visual	Para. L-6o
k. Windshield damage (dents, blunt tip etc.).		Visual	Para. L-6g
l. Primer or igniter above flush		Visual/Manual	Para. L-6i
3. Minor:			
NOTE: See Table L-6 for all cartridge case and case base defect criteria.			

Table L-4. Cartridge 120mm TPCSDS-T M865 (C785), TPMP-T M1002 (CA31) and Canister M1028 (CA38).			
Classification	Application	Inspection Method	Inspection Description
1. Critical: none defined.			
2. Major:			
a. Rear nylon band defective.	M865	Visual	
b. Sabot cracked.	M865 and M1002	Visual	
c. Missing parts.		Visual	
d. Failure to chamber/gage.		Gage	Para. L-6f
e. Pitting corrosion on projectile assembly.		Visual	
f. Obturator - loose, cracked or other damage which would preclude gas seal.		Visual	
g. Rubber seal on Sabot torn or split.	M865	Visual	
h. Projectile top cap - loose or damaged.	M1028	Visual	
i. Forward body slots – cracked or separation.	M1028	Visual	
j. Projectile rubber seal – split, torn or cracked.	M1028	Visual	
k. Witness marks not aligned/loose forward projectile.	M1028	Visual/Manual	Para. L-6p
3. Minor:			
NOTE: See Table L-6 for all cartridge case and case base defect criteria.			

Table L-5. Cartridges 120mm HEAT-MP-T M830 (C787) and M830A1 (C791), TP-T M831A1 (C784) and M908 (CA05).			
Classification	Application	Inspection Method	Inspection Description
1. Critical: none defined.			
2. Major:			
a. Missing parts.		Visual	
b. Copper/nylon band damaged to the point of recluding chambering.		Visual/Gage	
c. Failure to chamber/gage.		Gage	Para. L-6f
d. Spike tip damaged.	M830 and M831A1	Visual	

e. Proximity sensor damaged.	M830A1	Visual	
f. Sabot cracked or pitted.	M830A1 and M908	Visual	
g. Shoulder switch bent or cocked.	M830	Visual	
h. Spike shoulder damaged.	M830	Visual	
i. Projectile rubber seal damaged.		Visual	Para. L-6j
j. Spike Tip loose.	M830	Visual/Manual	
k. Pitting corrosion on projectile.		Visual	
l. Projectile partially or completely separated from cartridge case.		Visual/Manual	Para. L-6h
m. Projectile rotates relative to forward adapter.	M830	Visual/Manual	
3. Minor:			
NOTES: 1. See Table L-6 for applicable combustible cartridge case and case base and seal assembly criteria. 2. *Potential exists for M830 projectile fins to break DIGL-RP stick propellant.			

Table L-6. Combustible Cartridge Cases and Case Base & Seal Assembly, 120mm Tank Ammunition.

Classification	Application	Inspection Method	Inspection Description
1. Critical: none defined.			
2. Major:			
a. Abrasion damage or peeling causing coating to be absent in one continuous area. Yellowish-white nitrocellulose case material exposed in this area totaling 10% or more of the total cartridge case surface (30 sq. in. or 192 sq. cm).		Visual	Para. L-6n
b. Case broken exposing internal propellant containment bag.		Visual	
c. Skive joint (glue joint at case shoulder) separation.		Visual/Manual	Para. L-6q
d. Case base and seal assembly (CBSA) separated from cartridge case body.		Visual	
e. CBSA rubber seal torn or separated.		Visual	
f. Primer above flush.		Visual/Manual	Para. L-6i
g. Primer stake missing or does not engage primer.		Visual	Para. L-6i
h. Corrosion of CBSA with visible pitting.		Visual	
i. Non-removable corrosion on primer.		Visual/Manual	
j. Shoulder or sidewall of case cracked, punctured, dented or split.		Visual	
k. Evidence of moisture damage resulting in a softening or penetration of the combustible ctg. case (CCC) or forward adapter.		Visual/Manual	Para. L-6l
3. Minor:			
a. Abrasion damage/peeling causing coating to be missing in one continuous area. Yellow-white nitrocellulose case material seen on this area totaling more than 0.25 sq/in or 1.6 sq/cm, but less than 10 percent of total surface.		Visual	Para. L-6n
b. Water mark on cartridge.		Visual	Para. L-6l
NOTE: The M830 (C787) has a live forward adapter.			

L-6. Inspection Description and Notes.

a. Remove the safety pin securing the front fuze blast guard. Remove the blast guard. Check that the S/A indicator is in the safe position. Check that the retaining clip is present, serviceable and properly installed. Reinstall the blast guard and safety pin to the front fuze.

b. Sabot segment gaps are permissible provided that the cartridge can be chambered.

c. The M829 projectile contains a forward nylon-centering band composed of four individual segments attached to sabot petal. The gaps between centering band segments are aligned with sabot segment gaps. The M829A1 projectile does not contain a forward centering band. The M829A3 contains a composite ring composed of three segments attached to the

petals. A blue adhesive is used to bond the ring. Adhesive is visible.

d. The M829, M829A1, M829A2, and M829A3 projectile assemblies contain a Depleted Uranium (DU) fin stabilized penetrator. The M829 series sub projectiles consist of a penetrator, windshield, and fin. The number of sabot petals and their composition material vary. The M865 TPCSDS-T projectile assembly consists of a steel core encased in three aluminum sabot segments attached to rubber obturator and steel stabilizer.

e. Container dents that are less than ¼ inch do not require repair. Dents greater than ¼ inch that impair the structural integrity of the PA116 container or prevent the removal of the cartridge are major defects. A cartridge that cannot be removed from the PA116/PA171 shipping and storage container shall be placed in CC-F and reported by ACR with info copy by email to the office in paragraph 1-5.d.(1). Cartridges removed from damaged containers that evidence dented cartridge cases shall be placed in CC-H and reported by ACR as above.

f. Perform chamber gaging according to paragraph L-3. Standard ring gage set may be used in absence of man portable chamber gage. NOTE: Ring gages will detect oversized conditions for their specific profile dimension. However, gaging with projectile and case ring gages will not detect an out of alignment condition at the mating point of the projectile assembly and cartridge case forward adapter. Therefore, where available, the MPCG is the preferred gaging method to properly verify the entire profile and alignment of a 120mm cartridge.

g. Any deformity (such as tip bluntness or off center displacement) of the windshield tip may affect the aero-ballistic performance of the sub projectile.

h. Samples with projectiles exhibiting movement in relation to the cartridge case are not considered defects unless one or more of the following conditions are also noted:

(1) Cartridge deformation (profile mis-alignment) preventing gaging or chambering.

(2) Evidence of propellant dusting on outside of cartridge case or projectile.

(3) The affected cartridge is either an M829A2 (C792) or M830 (C787) or M829A3 (CA26) with stick propellant that could become damaged by the movement of penetrator fins or projectile boom/fins.

i. Testing has demonstrated that the electric primer assembled to the round is insensitive to initiation by mechanical impact. Therefore, primers and igniters above flush are considered major defects, rather than critical. Any straight edge rule is suitable for checking primers for an above flush condition. The primer shall be staked to the case base. For lots manufactured CY02 and later, the stake shall be a single indentation applied to the case base and material must be displaced into the primer. For lots manufactured before CY02, absence of primer stake or primer stakes that do not clearly engage the primer are not considered defective if primer is not loose.

j. Any cut, nick, or gouge in the projectile rubber seal (M830 or M831A1) more than one half the width or more than 2 inches in circumference shall be cause for rejection.

k. Moisture noted within PA116/PA171 containers indicates ammunition was either wet when containerized or the interior components of the PA116/PA171 were wet when the ammunition was packed out. Containers with wet interior projectile supports and spacers are considered unserviceable until the moisture intrusion condition is corrected. Cartridges found in such containers must be closely examined for moisture damage according to the applicable tables.

l. QASAS will inspect cartridge cases for evidence of moisture, dents, or penetration. Defects can result from packaging or the cartridge not being dry at time of packaging, upload, and download operations during inclement weather, or exposure to standing water or heavy condensation in the bustle and hull ammunition storage racks. Inspect for water damage, soft cartridge cases, and forward adapters which easily deform under hand pressure, water marks indicating case exposure to standing water and metal parts rust or corrosion.

m. A windshield with a single longitudinal crack less than two inches in length is considered an incidental defect.

n. Cartridge cases that have yellowish-white combustible material showing, less than 10 percent of the total surface area of the cartridge case, will be touched up IAW procedures contained in TM 9-1300-251-34&P. If facilities and manpower are not available to perform the touch up, the rounds will be reclassified to Condition Code E.

o. The projectiles are marked with white alignment marks on the sabot and windshield. There are two marking schemes. The first scheme has one mark on the sabot and one on the windshield. The two marks must either align perfectly or be offset by no more than the width of the mark. The second marking scheme has two marks on the sabot and one mark on the windshield. The windshield mark must be positioned between and not overlap the marks on the sabot (refer to the alignment schemes with Accept/Reject Criteria and Sabot/Windshield Marks Alignment Procedure in TM 9-1300-251-24&P.

p. Assure the witness marks on the projectile (2 short white lines, one on the aft body and one on the forward body) located approximately one inch above the white nylon obturator band are aligned one above the other. If the witness marks are not present, manually grasp both the forward and aft projectile bodies and attempt to turn them in opposite directions. Any movement of the projectile forward body relative to the aft body is a defect.

q. Each inspected cartridge must be placed on a table and the integrity of the skive joint seal verified by a moderate hand pressure circular twist. Any movement of the cartridge case adapter (the tapered section between the projectile and the cartridge case) relative to the cartridge case is a defect. No tools will be used for this manual inspection.

L-7. Swipe (Smear) Test.

a. A swipe test is performed on a DU cartridge exhibiting external evidence of any DU corrosion or particles migrating to the surface of the sabot. Due to the extremely tight fit of the sabot segments, the potential for DU migration is considered to be very remote. Therefore, a swipe test shall only be performed under either of the following circumstances:

(1) Damaged M829 series cartridge resulting in an exposed penetrator.

(2) Cartridge with visible DU corrosion (yellowish or black powder or staining) on sabot, between sabot gaps or windshield interfaces.

b. The following safety precautions should be observed when performing a swipe test:

(1) Do not eat or drink while performing swipe testing. Radioactive ALPHA materials pose the greatest harm if taken internally, such as by ingestion. Inspectors should keep their hands away from their face.

(2) Do not perform swipe test with any exposed open cuts or sores. Cover any open cuts or sores with bandages and wear protective rubber gloves. Alpha radiation material can also be taken internally through open cuts.

(3) Do not clean suspect DU projectiles prior to a swipe testing.

(4) Wash hands thoroughly with soap and water when testing is completed.

c. Fill in information required on front of swipe folder to include date, time, swipe number, location, and technician.

d. Swipe does not have to be removed from the paper strip during test.

e. Using moderate pressure, wipe surface of the projectile along the seams between sabot segments and seam of junction between windshield and sabot with swipe. Swipe should also include any area of the projectile with visible powder/corrosion. Use one swipe per cartridge.

f. Using moderate pressure, wipe surface of the projectile along the seams between sabot segments and seam of junction between windshield and sabot with swipe. Swipe should also include any area of the projectile with visible powder/corrosion. Use one swipe per cartridge.

g. Fold paper strip over once so that swipe is covered. Place swipe in resealable plastic pouch.

h. Swipes taken on individual cartridges will be tested for radioactivity with a proportional counter. The proportional counter may be located at a central location and swipes forwarded for reading. Field locations may use an AN/PDR 60 or equivalent for identification of gross radiation hazards only, but these are not substitutes for the proportional counter required to measure limits specified in paragraph j below.

i. The exact procedure for measuring activity will depend upon the equipment and facilities available. Each swipe must be marked so that a specific cartridge can be located again. Measurement of activity shall be performed by or under the guidance of a Health Physicist or Radiation Protection Officer.

j. Activity levels exceeding background by 400 disintegrations per minute (DPM) alpha or 700 DPM beta gamma, may indicate a potential corrosion problem. Although activity levels at these DPM values are not considered to present a health hazard, the initiation of a corrosion problem needs to be identified long before actual contamination results.

k. Any cartridge with a reading that exceeds the established background level by above amounts will be sealed in plastic, and the cartridge will be returned for examination to a facility licensed to disassemble DU cartridges as directed by the office in paragraph 1-5.d.(18)(b).

l. Whenever activity levels exceed 500 DPM, the following will be immediately notified: (e-mail reporting is acceptable) the office in paragraphs 1-5.d.(20)(h) and 1-5.d.(19)(b).

m. QASAS will also submit a report to the above addresses in paragraph l when any activity levels are measured which exceed background levels of the counter being used by a factor of two. This report will include the background and swipe readings; type, serial number, and calibration date of test instrument, and any other information deemed relevant.

n. Following procedure can be used to monitor pallet/outer pack prior to shipment. This procedure is not authorized for individual cartridges:

(1) Swipe at least a 300 square centimeter area of pallet/outer pack using the procedures outlined at subparagraphs c through k above.

(2) Check the swipe with an AN/PDR 27, 56, or 60 radiac meter, or equivalent. Readings of twice background is indicative of contamination.

(3) If readings indicate contamination, suspend shipment of the contaminated item(s) and notify offices in subparagraph l above.

(4) The analysis using a proportional counter is required regardless of the results of the field instrument check.

L-8. References.

a. AR 385-10.

b. TB 9-1315-257-12.

c. TB 9-1300-278.

d. TM 9-1300-251-20&P.

e. TM 9-1300-251-34&P.

f. TM 9-2350-264-10-1/2

g. TM 9-2350-288-10-1/2.

h. TM 9-2350-388-10-1/2.

i. TM 43-0001-28.

APPENDIX M
LAUNCHER AND CARTRIDGE, 84MM, HE M136 (AT4)

M-1. Item Description.

a. FSC: 1315. NIIN 01-245-4950 or 01-486-2293.

b. Ammunition Type: Launcher and Cartridge, 84mm, HE: M136 (AT4).

c. The M136 (AT4) is a fully self contained, lightweight, man-portable, right shoulder fired anti-armor weapon. The M136 consists of a free-flight fin stabilized projectile packaged and sealed in an expendable launcher. The launcher serves as a transport and storage container. It is issued as a complete round of ammunition.

d. Firing is mechanical. The rearward motion of the firing rod strikes a pin and initiates the percussion cap; the firing train is relayed to the propellant charge. The propellant charge is completely burned prior to the departure of the projectile from the launch tube.

e. The weapon's projectile is a ballistic trajectory fin stabilized Octol (HMX/TNT) shaped charge. The base fuze incorporates an out of line rotor which aligns the detonator with the explosive train 15-25 meters from the muzzle after firing. The Piezoelectric crystal generates voltage to initiate explosive train upon impact at angles as slight as 10 degrees.

f. The launch tube is a glass-fiber reinforced plastic 84mm smoothbore full caliber barrel. Tube consists of a rear aluminum venturi, fire-through muzzle cover, firing mechanism, fixed front and adjustable rear sight assemblies, face pad, shoulder stop and carrying sling.

g. The projectile is factory pressed and cemented into a cartridge assembly consisting of an aluminum case, base plate, 365 grams of double base propellant, percussion primer and igniter. The cartridge is factory loaded into launch tube.

h. The M287 9mm subcaliber training weapon provides M136 weapon system familiarization and training. The M287 is similar in function and appearance to the M136 tactical system except for a gold colored band (indicating trainer), lack of muzzle cover, and presence of a 9mm barrel and bolt assembly in rear venturi (in lieu of projectile and cartridge assembly). The M287 utilizes the M939 9mm tracer cartridge (1305-A358) to simulate the ballistic trajectory of the tactical round. The M939 is marked with a red tip and one-half black base. The M939 cartridge will be inspected per the appropriate sections of this supply bulletin. The M287 trainer is considered a weapon, not ammunition (FSC 6920).

i. Stock number of expended launcher is 1315-01-273-9352, DODIC CX01.

M-2. Unique Safety Precautions.

The M136 (AT4) weapon system is a preloaded recoilless gun equivalent to a propulsive high explosive rocket. Due to the propulsive state of the M136 weapon system, orientation of muzzle (nose end) during handling, transport and storage will be according to the procedures established for propulsive state rockets.

M-3. Testing and Equipment Requirements.

None identified.

M-4. Inspection Category and Sampling Plan.

a. Inspection category X. Periodic inspection interval 4 years.

b. Sampling plan will be IAW Chapter 2.

c. No storage monitoring inspection is required.

M-5. Specific Inspection Points.

Item will be inspected IAW Chapter 2 and Table M-1. Item is packed in a transparent barrier material and will not normally be opened for purposes of inspection.

NOTE

Inspector must verify that the serial number on the round matches that on the outer pack. Annotate serial numbers, findings and any discrepancies on the DSR; report any discrepancies to the local accountable officer.

M-6. Inspection Description and Notes.

a. If accessible, inspection will verify serviceability of the sight, hinge pin and spring.

b. Early production units were color coded with a black band on the launch tube and marked with FSC 1340; later production is marked with a yellow band on a black band on launch tube and FSC 1315.

c. When component is damaged to the extent that functional effectiveness has been degraded, condition will be classified as a defect.

d. If the weapon is returned after removal from barrier bag, a complete visual inspection will be performed. If otherwise serviceable, weapon will be designated for priority issue. While barrier material is normally considered water and vapor proof, material that comprises the M136 “flat bag” is not vapor proof.

e. A rattling noise from fin assembly inside launch tube is not a defect.

f. Ensure two pieces of fiberglass tape are present, secure and serviceable. The fiberglass tape secures the rear sight assembly and the safety catch lever to the launcher tube.

g. The following NSNs are obsolete and are not to be used to identify AT4s:

(1) 1340-01-211-3595; DODIC: H584.

(2) 1315-01-324-3055; DODIC: C995.

M-7. References.

a. DWG 13229861.

b. DWG 13230240.

c. TM 9-1055-886-12&P.

d. TM 9-1315-886-12.

M-8. Shelf Life.

Indefinite.

Table M-1. Item Defects and Method of Inspection.			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Transport safety pin missing or ineffective.		Visual/Manual	
b. Cocking lever in cocked (not safe) position, broken or missing.		Visual/Manual	
c. Muzzle cover ruptured with obstruction (cover or foreign material) in bore of launch tube.		Visual	
d. Launch tube perforated, broken, cracked, crazed, dented, bent, gouged or white fiberglass visible.		Visual	Para M-6e
e. Broken and/or missing fiberglass tape.		Visual	Para M-6f
2. Major:			
a. Sight covers or sight assemblies damaged or missing.		Visual/Manual	Para M-6a
b. Markings or warning labels missing, illegible or incorrect.		Visual	Para M-6b
c. Any part of weapon missing, damaged, or inoperative (except as otherwise noted).		Visual/Manual	Para M-6c
d. Barrier bag missing or damaged to extent environmental protection is compromised.		Visual	Para M-6d
e. Packaging damaged to extent that contents are not adequately protected.		Visual	
f. Venturi obstructed or foreign material present.		Visual	
3. Minor:			
a. Packaging hardware damaged, missing, or inoperative.		Visual/Manual	
b. Packing loose, filler material inadequate or missing.		Visual/Manual	
c. Carrying strap damaged, deteriorated or missing.		Visual/Manual	

APPENDIX N
PROJECTILE, 155MM, ICM FAMILY

N-1. Item Description.

a. FSC: 1320.

b. Ammunition type: Projectile, 155mm HE, Improved Conventional Munitions (ICM). Includes model numbers M483A1, M692, M718, M718A1, M731, M741, M741A1 and M1122.

c. The M483A1 family of projectiles has metal parts comprised of four main components (less cargo). The components and basic material compositions are as follows:

(1) Ogive: aluminum (alodined).

(2) Body: steel/fiberglass.

(3) Base: aluminum (anodized).

(4) Fusible lifting plug: steel.

d. The design and material composition of the M483A1 family represents a departure from previous generations of artillery ammunition. These design and/or material changes warrant special emphasis during the life cycle surveillance of these munitions. Areas of emphasis are specified in paragraph N-5 of this appendix. For a complete, detailed description of the M483A1 family, see TMs and drawings.

e. Projectile models M483A1, M692 and M731 are thin based projectiles. The aluminum bases on these models, manufactured prior to April 1988, are susceptible to stress corrosion cracking, evidenced by surface corrosion. Projectiles with base corrosion or stress corrosion cracks may malfunction inbore. New production bases are of an improved aluminum alloy which is less susceptible to stress corrosion cracking. New style bases are identified by black color and by the projectile's NSN. The improved alloy will be used in new production and replacement bases for all ICM projectiles, both thin based and remote anti-armor mine system (RAAMS). Appropriate stock numbers are provided in Table N-1.

N-2. Unique Safety Precautions.

Exercise extreme care when handling a projectile with an exposed or damaged cargo of sub-missiles (grenades or mines) or a loose base. Sub-missiles can fall out, arm, and explode with lethality of a fragmentation hand grenade.

N-3. Testing and Equipment Requirements.

Table N-2 identifies test and measurement equipment and gaging requirements. Ring and gap gaging will be conducted during IRI IAW Chapter 2 and appropriate drawings and specifications. Subsequent gaging will only be performed on those projectiles showing evidence of damage.

N-4. Inspection Category and Sampling Plan.

a. Inspection Category W, Periodic Inspection interval - five years.

b. Sampling plan for inspection is IAW Chapter 2.

N-5. Specific Inspection Points.

Item will be inspected and classified according to Chapter 2 and Table N-3.

N-6. Inspection Description and Notes.

a. The gap between base and body interface will be gaged with a blade type feeler gage as follows:

(1) M483A1 projectile. Base gap criteria varies with drawing revision under which projectile was assembled. Projectiles manufactured according to drawing 9215220, revision K, or subsequent revisions, require base gap not to exceed 0.003-inch. Projectiles assembled according to drawing revisions prior to revision K require base not to exceed 0.010 inch. Round will be rejected if appropriate thickness feeler gage enters gap more than 0.060-inch depth (approximately 1/16 inch) for 360 degrees, or for 0.125-inch depth (approximately ⅛ inch) in one continuous 45-degree arc along base and body joint.

(2) M692 and M731 projectiles. Reject round if a 0.005-inch feeler gage enters gap for more than 0.060-inch depth for more than 180 degrees continuous arc along base and body joint.

(3) M718 and M741 projectiles. Reject round if a 0.023-inch feeler gage enters gap for more than 0.060-inch depth for more than 180 degrees continuous arc along base and body joint.

(4) M1122 projectiles. Reject round if a .003-inch feeler gage enters gap more than .060-inch depth for 360 degrees.

(5) All projectiles: accept or reject criteria will be 0 and 1 respectively. Occurrence of one defective sample will require the lot to be locally suspended from issue and use. Lot should be scheduled for 100% screening for excessive base gap. Details (including actual gap and circumferential measurements) will be reported immediately to the office in paragraph 1-5.d.(1). Rejects are to be tagged and identified in storage pending receipt of disposition instructions.

(6) Sealant was used to fill base/body gap for later production and base replacement using black bases. Projectiles with sealant in this gap will not be gaged.

b. Fusible plug is painted yellow for identification purposes.

c. Projectiles that fail to ring gage will be measured with a micrometer to determine if the diameter is within tolerance at all points. Take micrometer readings 90 degrees apart in areas which fail to ring gage, then rotate micrometer completely around circumference of projectile to determine if diameter is within 6.0900 - 6.0984 inches at all points. Reports submitted per paragraph 2-8g of this supply bulletin will include micrometer readings.

d. Fiberglass wrap damage criteria is as follows:

(1) Missing olive drab (OD) paint on fiberglass is not a cause for rejection. Projectiles having paint missing on portions of the fiberglass wrap (i.e., due to rubbing) shall be touched up with OD paint. (Color No. 34088, MIL-E-52891).

(2) Projectiles having longitudinal gouges greater than one inch in length and a full length depth

of 0.100-inch or more shall be rejected. Other longitudinal gouges shall have loose strands trimmed and be touched up with OD paint.

(3) Projectiles having loose strand(s) regardless of circumferential length resulting in a depth of less than .0625-inch and not exceeding .500-inch longitudinal width shall have loose strands trimmed and be touched up with OD paint.

(4) Projectiles having circumferential gouges greater than one inch in length with a full length depth of 0.100-inch or more and greater than 0.250-inch longitudinal width shall be rejected. All others shall have loose strands trimmed and be touched up with OD paint.

e. There shall be no movement when a rocking or rotating motion is applied to the ogive by hand.

f. Markings.

(1) M483 and M483A1 - diamonds.

(2) M731, M741 and M741A1 - triangles with 'S' (short mine self-destruct time).

(3) M692, M718 and M718A1 - triangles with 'L' (long mine self-destruct time).

(4) M1122 - squares.

g. The following procedures apply to inspection for base corrosion on projectile bases:

(1) Corrosion on the new style base will be classified as an incidental defect. Rust in the base/body gap will be classified a minor defect if the gap meets tolerance as reflected in paragraph N-6a.

(2) Remove the grommet and visually inspect the area at base/body joint for rust or corrosion and the entire base for corrosion. White aluminum oxide and roughening or pitting of base surface indicates aluminum corrosion.

(a) If necessary for inspection, clean external surface of base with a clean, lint-free rag or soft brush. Do not use a wire brush or any material that may abrade coating on base. Damage to coating may contribute to development of corrosion during long-term storage. Alcohol (i.e., methyl, ethyl, or isopropyl) may be used sparingly as a cleaning agent. Do not use chlorinated or petroleum based agents (e.g., gasoline, mineral spirits, acetone, ketone, etc.). Obturator ring between rotating band and base is made of polyvinyl chloride (PVC), which may be damaged by exposure to improper solvents. Damage may not be immediately apparent, but such exposure could cause obturator to break during long-term storage.

(b) Re-inspect any area in question to establish if coating surface is intact (not pitted). If coating is intact, area is not a defect. Surface irregularities may be present, including nicks and pings with aluminum base material displaced. Condition is a common result of manufacturing or handling and should not be considered a defect if corrosion is not present. If corrosion has blossomed (raised material resulting from corrosion formation), base is defective and must be classified according to Table N-3.

(c) Red or brown discoloration on the base is generally a result of rust on projectile surfaces or in the base/body gap and should be treated as an incidental defect.

(3) If damage to the coating on the base with no indication of corrosion is noted during inspection, a touch-up coating shall be applied to bare spots as follows:

(a) Clean touch-up area with alcohol immediately prior to finishing operation.

(b) Apply a thin coat of wash primer DOD-P-15328, NSN 8010-01-124-8193 or 8010-01-127-6896. Allow 15 minutes minimum to two hours maximum drying time for primer.

(c) Apply enamel, color number 34088 of FED-STD-595, MIL-E-52891, NSN 8010-00-848-9272, 8010-00-297-2116, or 8010-00-297-2113. Allow one hour or more to dry enamel. Drying time may be minimized by application of heat and/or forced air.

(4) Take the following action when corrosion on old style bases is detected:

(a) Report any lot rejected due to base corrosion to HQ, JMC as required by this supply bulletin and DA PAM 750-8. This defect is considered to be a factor of environment. Lots will not be suspended worldwide based on reports of base corrosion.

(b) Lots rejected due to base corrosion will be retained in an unserviceable condition code, not authorized for emergency combat. As a rule, it is desirable to perform a 100 percent screening of rejected lots when identified. If local authorities determine that screening is not immediately required, defective lot will be scheduled for base replacement.

h. Remove pallet tops and inspect that portion of aluminum ogive that is in contact with pallet top for corrosion or pitting. This area is especially prone to removal of protective alodine finish.

i. Inspect fusible plugs for bent or cracked lifting ring, dislodged or missing fusible disc or possible leakers. Leakers are recognizable by a ring of rust or cracked paint around periphery at interface of disc and hole.

j. Do not reject a lot for deformed, cracked or deteriorated rubber gaskets, PN 8860552. Replace defective rubber gaskets encountered during inspection.

k. A cut across the entire width and to a depth of more than half the height of band above body surface. (Depth of cut not to exceed 1/16-inch). Hairline cracks, which are a result of the production process, are acceptable.

l. Inspect closely for onset of corrosion, especially on aluminum parts.

m. Rust in the base/body gap will be classified a minor defect if no base corrosion is in evidence and the gap meets tolerance as reflected in paragraph N-6a.

n. M483A1, M692, and M731 with old style base.

o. M718 and M741 with old style base.

Table N-1. Projectile Stock Numbers.

Model	Old Style Base	New Style Base
M483A1	1320-00-126-7339-D563	1320-01-260-8720-D563
M692	1320-00-434-8856-D501	1320-01-261-6043-D501
M731	1320-00-434-8861-D502	1320-01-260-8719-D502
M718	1320-01-050-6059-D503	1320-01-268-0387-D503
M718A1	1320-01-151-9849-D515	1320-01-269-2257-D515
M741	1320-01-050-7966-D509	1320-01-268-0386-D509
M741A1	1320-01-150-7857-D514	1320-01-268-0385-D514
M1122	1320-01-579-6145-DA51 (Green)	1320-01-579-6145-DA51 (Black)

Table N-2. Equipment Identification List.

Description	Model	Application	Requirements
Gage, Ring	All	Upper and lower bourrelet	Para N-3
Micrometer	All	Bourrelet gage failure area	Para N-3
Gage, Feeler, Blade Type	All	Base and body interface	Para N-3
Gage, Depth	All	Fiberglass wrap and rotating band	Para N-3
* Use gage, ring, P/N 7304558, NSN 5220-00-395-4487			

Table N-3. Item Defects and Method of Inspection.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
Corrosion on base.	Para N-6n	Visual	Para N-6g
2. Major:			
a. Excessive base gap.	All	Gage	Para N-6a
b. Lifting plug wrong type (not fusible).	All	Visual	Para N-6b
c. Diameter of bourrelet greater than maximum allowed.	All	Gage	Para N-6c
d. Fiberglass wrapping damaged or loose.	All	Visual/Gage	Para N-6d
e. Loose ogive at ogive and body joint.	All	Manual	Para N-6e
f. Diamond, square or triangle marking missing, incorrect or unidentifiable.	All	Visual	Para N-6f
g. Corrosion on base (old style base).	Para N-6o	Visual	Para N-6g
h. Corrosion on ogive.	All	Visual	Para N-6h
i. Obturator missing or damaged.	All	Visual	Para N-6i, Para N-6h
j. Lifting plug missing or damaged.	All	Visual	
k. Corrosion on fuze well threads.	All	Visual	
l. Expulsion Charge, not removable, or torn allowing propellant leakage.	All	Visual	
m. Missing expelling charge.	All	Visual	
n. Supplementary charge missing or inverted, felt pad missing at bottom of supplementary charge, or explosive exudation in fuze well liner.	All	Visual	
3. Minor			
a. Rotating band damaged.	All	Visual	Para N-6k
b. Protective coating with bare areas exceeding ¼-inch square.	All	Visual	Para N-6l
c. Rust in base and body gap.	All	Visual/Gage	Para N-6m
4. Incidental:			
a. Corrosion on base (new style base).	All	Visual	Para N-6g
b. Expulsion charge cup loose or removable by hand.	All	Manual	

APPENDIX O
PROJECTILE, 155-MM, HEAT, M712 AND M823

O-1. Item Description.

a. FSC: 1320.

b. Ammunition Type: Projectile, 155mm HEAT, Cannon-Launched, M712 (Copperhead) and Projectile, 155mm Training, M823.

c. Item is a separate loading, laser-guided, high explosive projectile, M712 (Copperhead). Dummy projectile, M823 is a training item designed to train weapon crews in handling M712.

O-2. Unique Safety Precautions.

No unique safety precautions are applicable to this item.

O-3. Testing and Equipment Requirements.

No gaging or special testing is planned as part of the ammunition surveillance portion of the ASRP for this projectile. Extensive laboratory testing and detailed ballistic testing will be the primary source of data for reliability estimates according to AR 702-6.

O-4. Inspection Category and Sampling Plan.

a. RI will be accomplished IAW Chapter 2 and criteria contained in Tables O-1 and O-2. Container will not remain open for more than 72 hours. Prolonged exposure to environmental humidity will cause excessive damage to the projectile and possible degradation in reliability.

b. PI inspection is not required. In lieu of a PI, storage monitoring (SMI) of the M712 will be performed every 3 months. SMI will consist of 100 percent verification of the humidity indicator. Replacement, if indicated, will be performed according to TM 9-1300-251-34&P. Whenever the container is opened for replacement of desiccant, an inspection of the projectile will be performed according to Table O-2 and results noted on the DSR.

O-5. Specific Inspection Points.

Container and projectile will be inspected according to Chapter 2, Tables O-1 and O-2 (as appropriate). Opening of samples will be performed in such an environment as to limit possibility of moisture entering the container. These inspections will not be performed during periods of high humidity, (such as rainstorms). The time a container remains open or a projectile is removed from container will be kept to a minimum necessary to perform inspection. Accept or reject for the inspection of projectile and inner pack will be 0 and 1 respectively for critical, major and minor defects. Outer pack accept or reject will be IAW Chapter 2.

O-6. Inspection Description and Notes.

a. Humidity indicator.

(1) If 40-percent sector on the humidity indicator is not blue for M712, desiccant will be changed according to TM 9-1300-251-34&P.

(2) The M823 training projectile container should not contain desiccant. If present, desiccant should be removed during IRI. The humidity indicator card will be marked "Dummy" and placed in humidity indicator unit.

b. The splice screws should be finger tight and at or below flush with the projectile surface.

c. Access cover missing; screw on cover loose and cannot be made finger tight by hand turning. Screws must be at or below flush with the cover surface.

d. Wings extended indicate squib has been fired.

e. Switches must rotate freely when firing codes are being set into projectile.

f. Decals are no longer required on Copperhead containers. However, container top and bottom are a matched set, identified by serial numbers and should be assembled as one unit. Mismatched top and bottom may prevent container from retaining seal against humidity. Serial number may be found on a decal or marked with stencil ink. If decal is peeled off, replace with stencil. If both top and bottom are missing or unidentifiable, stencil both top and bottom with prefix "CNTR" followed by projectile serial number.

Table O-1. Metal Container Exterior.			
Classification	Application	Inspection Method	Inspection Description
1. Critical: None defined.			
2. Major:			
a. 40-percent sector on humidity indicator is not blue.	M712	Visual	Para O-6a
b. Stiffening ribs damaged.	All	Visual	
c. Damaged latches.	All	Visual	
d. Damaged or loose humidity indicator.	M712	Visual	
e. Loose or broken handles.	All	Visual	
f. Container dented to the extent that contents are not protected.	All	Visual	
3. Minor:			
a. Rust or paint deterioration.	All	Visual	
b. Container dented to the extent that contents are still protected.	All	Visual	
4. Incidental:			
Container serial number missing or illegible	M712	Visual	Para O-6f

Table O-2. Projectile and Container Interior.			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Evidence of composition B leakage.	M712	Visual	
b. Cracked or deeply gouged obturator.	M712	Visual	
2. Major:			
a. Aft closure damaged to extent that it would prevent engagement of extractor.	M712	Visual	
b. Missing or loose splice screws.	M712	Visual	Para O-6b
c. Loose or missing access cover.	M712	Visual	Para O-6c
d. Broken, cracked, or missing projectile ogive.	M712	Visual	
e. Crack or dent in any part of projectile body.	M712	Visual	
f. Wings extended.	M712	Visual	Para O-6d
g. Fins are loose, broken, or not in retracted position.	M712	Visual	
h. Water droplets condensed or fogged on interior surface of nose cone.	M712	Visual	
i. Window portion of projectile ogive (nose cone) severely scratched or gouged.	M712	Visual	
j. Dirt, debris, or foreign objects in wing or fin slots.	M712	Visual	
k. Dials on code or time switches missing, broken, or illegible.	All	Visual	Para O-6e
l. Excessive rust or pitting of bourrelet.	All	Visual	
m. Switch bracket broken or damaged.	All	Visual	
n. Cracked or deeply gouged obturator.	M823	Visual	
o. Missing plastic inserts (preload tabs).	All	Visual	
p. Internal pressure pads missing, damaged or deteriorated.	M712 Cntr	Visual	
q. Cradle pads missing, loose or damaged.	All Cntrs	Visual	
r. Stitching loose or missing.	All Cntrs	Visual	
s. Straps ripped or broken.	All Cntrs	Visual	
t. Damaged, leaking or missing gasket.	M712 Cntr	Visual	
3. Minor:			
a. Abrasions or smudges on window portion (nose cone) of projectile ogive.	M712	Visual	
b. Water droplets on or fogging interior surface of projectile ogive (nose cone).	M823	Visual	
c. Window portion of projectile ogive (nose cone) abraded smudged, scratched or gouged.	M823	Visual	
d. Dirt, debris or foreign objects in wing or fin slots.	M823	Visual	

APPENDIX P
SMOKE AND INCENDIARY GRENADES

P-1. Item Description.

a. DODACs: 1330-

G869	G932	G950
G872	G935	G955
G874	G937	G982
G900	G940	GG25
G930	G945	

b. Ammunition Type:

(1) Grenade, Hand, Smoke, M18.

(2) Grenade, Hand, Smoke, HC, AN-M8.

(3) Grenade, Hand, Smoke, WP, M15.

(4) Grenade, Hand-Rifle, Smoke, WP, M34.

(5) Grenade, Hand, Smoke, Colored, M48.

(6) Grenade, Hand, Incendiary, TH3, AN-M14.

(7) Grenade, Hand, Smoke, TA, M83.

(8) Grenade, Hand, Smoke, Visual, Restricted Terrain, M106.

c. Grenade, Hand, Smoke, HC, AN-M8 (G930). This is a burning type grenade used to generate white smoke for screening activities of small units. It is also used for ground-to-air signaling. The grenade body is a cylinder of thin sheet metal. It is filled with HC smoke mixture topped with a starter mixture directly under the fuze opening. The duration of smoke screen or signal is 105 to 150 seconds. Grenade is fuzed with the M201A1 pyrotechnic delay-igniting fuze.

d. Grenade, Hand, Smoke, WP, M15 (G935). Bursting type grenade used for signaling, screening and incendiary purposes. The grenade body is of sheet steel and cylindrical in shape. The body has a fuze well liner and is filled with 15 ounces of WP. The grenades are assembled with the M206A1 or M206A2 pyrotechnic delay-detonating fuze. The screening effect of the smoke is limited because WP burns with such intense heat, the smoke tends to rise rapidly. Pieces of WP will burn for about 60 seconds, igniting any flammable substance contacted.

e. Grenade, Hand-Rifle, Smoke, WP, M34 (G937). Bursting type grenade used for signaling, screening, and incendiary purposes. It may be thrown by hand or launched from a rifle, using the M1A1 or M1A2 grenade projection adapter. The grenade body is of serrated steel and is cylindrical in shape. The body has a fuze well liner and is filled with WP. The M34 hand-rifle grenade has a safety pin, which must be removed, and a safety lever, which is released to cause the grenade to function. Newer models also contain a safety clip to keep the safety lever in place should the safety pin be unintentionally removed from the grenade. The M34 hand-rifle grenade uses the M206A2 fuze.

f. Grenade, Hand, Smoke, M18 (G940/G945/G950/G955). These grenades are used for ground-to-air or ground-to-ground signaling and are a burning type munition. The grenades may be filled with any one of four smoke colors: red, green, yellow or violet. Each grenade will emit smoke for 50-90 seconds. The grenade body is of thin sheet metal and is filled with 11½ ounces of red, green, yellow or violet smoke composition. Grenades are assembled with the M201A1 pyrotechnic delay-igniting fuze. Older versions may have fuze model E7R6 assembled to them. This model is experimental version of the M201A1 fuze.

g. Grenade, Hand, Smoke, Colored, M48 (G932). The M48 grenade is a special-purpose, burning-type munition used as the training aid for the M47 grenade. This grenade is a nonlethal-type munition that contains red smoke mixture. The grenade consists of rubber body assembly, an M227E1 fuze, and a filling of RS red smoke mixture. The grenade weighs 390 grams (approximately 1 lb), and is 3½ inches in diameter. The gray grenade body is made of two rubber hemispheres vulcanized together. The top half of the grenade contains the fuze, and the bottom half contains the filling hole and the exhaust port. The grenade is filled with approximately 165 grams of RS mixture.

h. Grenade, Hand, Smoke, TA, M83 (G982). This is a burning type grenade used to generate smoke for screening activities of small units. The grenade body is a cylinder of thin sheet metal. It is filled with TA smoke mixture. The grenade is fuzed with the M201A1 pyrotechnic delay-igniting fuze.

i. Grenade, Hand, Incendiary, TH3, AN-M14 (G900). The TH3 incendiary hand grenade is used primarily to provide a source for intense heat to destroy equipment. It generates heat to 4000 degrees Fahrenheit. The grenade filler burn time shall not be greater than 44 seconds, but not less than 15 seconds. The grenade body is of thin sheet metal and is cylindrical in shape. It is filled with an incendiary mixture, Thermite TH3 and First Fire Mixture VII. Grenade is assembled with the M201A1 pyrotechnic delay-igniting fuze. Older models may contain fuze E7R6.

j. Grenade, Hand, Smoke, Visual, Restricted Terrain, M106 (GG25). Bursting type grenade used to produce instant, short duration white colored obscuration for screening activities inside restrictive terrain (i.e. enclosed spaces). The body is a mylar coated fiberboard cylinder with linked aluminum end caps. The grenades payload is titanium dioxide powder. The grenade is fuzed with the M201A1 Mod 3 pyrotechnic delay-igniting fuze with the confidence clip.

k. Fuze, Hand Grenade, M201A1 (G874). This is a pyrotechnic delay-igniting fuze. The body contains a primer, ignition powder, pyrotechnic delay column, and ignition mixture. Assembled to the body are a striker, striker spring, safety lever and safety pin with pull ring. The split end of the safety pin has an angular spread. The M201A1 Mod 3 is equipped with the confidence clip, which retains the pull ring from being inadvertently removed.

l. Fuze, Hand Grenade, M206A1 and M206A2 (G872). These are pyrotechnic delay-detonating fuzes. They differ only in body construction. The body contains a primer and a pyrotechnic delay column. Assembled to the body are a striker, striker spring, safety lever, safety pin with pull ring, and a detonator assembly. The split end of the safety pin has an

angular spread or a diamond crimp.

m. Fuze, Hand Grenade, M227 (G869). This is a pyrotechnic delay-igniting fuze. The body contains a primer, first-fire mixture, pyrotechnic delay column, and ignition mixture. Grenade fuze is restrained from functioning by the safety cotter pin, sliding safety latch, and handle. When the safety cotter pin is removed and the safety latch is pushed rearward from the lock pin, the handle is unlocked and grenade is armed. Releasing the handle causes the arming pin spring to eject the arming pin. This releases the firing pin, allowing the firing pin to activate the primer. The primer ignites the first fire mixture, which flashes and ignites the delay mixture. This in turn, ignites the ignition mixture. The ignition mixture burns through an aluminum foil shield on the bottom of the fuze and ignites the pyrotechnic mixture in the grenade body.

P-2. Unique Safety Precautions.

a. WP smoke is poisonous upon prolonged or repeated inhalation, particularly in confined space. Normal concentrations in open air are not likely to be harmful. Have container of water close at hand for submerging items in case of WP leakage.

b. PTA (Terephthalic Acid) may cause eye irritation and mild skin irritation. When finely divided and suspended in air, material should be considered a combustible dust.

c. HC reacts with water that can start it burning. Do not apply water as a spray or mist to burning HC items. Water can be used to fight a fire involving HC munitions if a large amount of water relative to the item is available.

d. In high concentrations or on prolonged exposures, HC smoke irritates the nose and throat and may be quite dangerous when inhaled. Personnel exposed to any concentration of HC smoke shall wear an air purifying respirator with the proper filter.

e. The pin of the M201A1 fuze used on AN-M8 HC; AN-M14 Incendiary; M83 TA Smoke, and M18 smoke grenades can be inadvertently pulled during processing. When the grenade is in its container, there is no possibility of the pin being inadvertently pulled.

f. To preclude fuze pins from being inadvertently pulled, users are cautioned to comply with the following procedures:

(1) Retain the grenades in their inner container until they are to be used or inspected.

(2) Always store and transport the grenades in the inner container.

(3) Prior to removing the grenade from the inner container, observe the fuze safety pin. If it is missing, do not remove the grenade from the inner container. If both legs of the pin are straight or if one leg is straight and the other is bent to an angle less than 45 degrees, bend each leg 90 degrees in opposite directions.

g. Grenades should never be lifted or handled by the safety pin pull ring.

h. The confidence clip has been added or will be added to a number of grenades in an effort to prevent the taping of grenades. Removal of the pull ring from the confidence clip can damage/distort the head of the safety pin and should not be reengaged.

P-3. Testing and Equipment Requirements.

None applicable.

P-4. Inspection Category and Sampling Plan.

a. Inspection Categories:

(1) Category X (4 years) - TA, Riot Control.

(2) Category Z (2 years) Colored Smoke, HC, Incendiary.

b. Sampling plan for inspection is IAW Chapter 2.

c. Inspection criteria for fuzes are contained in Appendix S.

d. Item will be inspected and classified according to Chapter 2 and Table P-1.

P-5. Inspection Description and Notes.

a. Shake manually. If rattling sound is heard (M18 grenades with slurry starter mix only), smoke grenade is to be considered serviceable, with restrictions (B01), (C06), and defect classified as major. Engineering changes for M18 smoke grenades provided for the use of starter mix slug in lieu of starter mix in slurry form. As a result, when grenade with slug starter mix is checked for looseness (manually shaken) there is a slight rattle. This is not a defect, but is inherent in the M18 design. Starter mix slug was introduced into Pine Bluff Arsenal lots as follows:

(1) 1330-G940 (Green) PB-89B013..... and after.

(2) 1330-G945 (Yellow) PB-89A033.....and after.

(3) 1330-G950 (Red) PB-88H055.....and after.

(4) 1330-G955 (Violet) PB-88M072.....and after.

b. Feel where tape is covering emission hole to ensure there has actually been a hole made in the metal container underneath the tape.

c. If the grenade is upside down in the inner container (fuze not visible), or if any of the above discrepancies are noted, it should remain inside the container and action taken to dispose of it safely.

d. Do not reinsert the pull ring into the confidence clip. Reclassify grenade to CC-F for refuzing – defect code FZ151 applies. A grenade with the pull ring disengaged from the confidence clip should not be considered unsafe unless evidence of damage to the safety pin is present to the extent that it endangers the user. This defect criteria does not apply to grenades manufactured without a confidence clip.

P-6. References.

a. TM 9-1300-200.

b. TM 9-1330-200-12.

c. TM 9-1330-200-34.

d. TM 43-0001-29.

e. FM 3-23.30.

Table P-1. Item Defects and Method of Inspection

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Unauthorized fuze installed.	All	Visual	
b. Safety pin missing, or insecurely assembled to the extent that it endangers the user.	All	Visual	
c. Grenades mixed within lot which can result in hazardous or unsafe conditions for persons using or maintaining items.	All	Visual	
d. Marking misleading as to color of smoke.	M18	Manual	
e. Evidence of leakage.	M15, M34	Visual	
f. Grenade packed upside down.	M15, M34	Visual	
g. Emission holes missing.	AN-M8, AN-M14, M48	Visual/Manual	Para P-5b
2. Major:			
a. Split seams or swollen body.	All	Visual	
b. Tape missing, loose, or does not completely cover emission hole.	All	Visual	
c. Fuze loose; not in full 360 degree contact with gasket.	All	Visual	
d. Grenade contents leaking.	AN-M8, M18, M106	Visual	
e. Marking incorrect.	All	Visual	
f. Rust or corrosion to the extent that grenade cannot be used as intended.	All	Visual	
g. Grenade cannot be removed from container.	All	Visual	
h. Safety latch missing.	M48	Visual	
i. Grenade packed upside down.	AN-M8, M14, M18, M48, M106	Visual	Para P-5c
j. Pull ring not inserted into confidence clip.	As applicable	Visual	Para P-5d
k. Grenade slurry mixture loose.	M18	Visual/Manual	Para P-5a
3. Minor:			
a. Marking incomplete or illegible but type of grenade and lot number are identifiable.	All	Visual	
b. Minor rust/corrosion.	All	Visual	
c. Layers of flaked rust which, when removed, leave pitting that will not affect functioning.	All	Visual	
d. Inadequate paint coverage.	All	Visual	

APPENDIX Q
RIOT CONTROL GRENADES

Q-1. Item Description.

a. FSC: 1330.

b. Ammunition Type: Grenade, Hand, Riot, CN, M7, M7A1; CS, M7A3; CS, M47; CN1, ABC-M25A1; CS1, ABC-M25A2; and CS, M58.

c. Riot control grenades are used to control insurgencies and for other tactical missions. They may also be used to simulate casualty agents during training.

d. Grenade, Hand, CN, M7 and M7A1 (G960):

(1) These grenades are burning type riot control agent grenades. CN has a powerful lachrymal effect and is irritating to the upper respiratory passages. In higher concentrations it is irritating to the skin, causing a burning and itching sensation. Incapacitation occurs at 15 to 30 seconds after exposure and endures for 5 to 20 minutes depending upon dosage concentration.

(2) The grenade bodies are of thin sheet metal and are cylindrical in shape. The filling is compressed into the grenade body, a tapered hole being formed through the body of the filling. The top surface of the filling and the tapered walls of the hole are coated with starter mixture (to aid ignition of the fuel by the fuze). Grenades are assembled with the M201A1 pyrotechnic delay-igniting fuze.

e. Grenade, Hand, CS, M7A3 (G963):

(1) The M7A3 grenade is a CS filled, burning type grenade. CS has a powerful lachrymal effect and is irritating to the upper respiratory passages causing coughing, difficulty in breathing and chest tightness. Heavy concentrations will cause nausea and vomiting as well. Incapacitation occurs 15 to 30 seconds after exposure and endures less than 10 minutes after personnel are removed to fresh air.

(2) The grenade body is a cylinder made of thin sheet metal. The filler is compressed into the grenade body with a starter mix. Grenades are assembled with the M201A1 pyrotechnic delay-igniting fuze.

f. Grenade, Hand, CS, M47 (G922). The M47 is a burning type grenade. It consists of a rubber body assembly, an M227 fuze, and a filling of CS pyrotechnic mixture. The grenade weighs 410 grams (approximately 1 lb), and is 3½ inches in diameter. The gray grenade body is made of two rubber hemispheres vulcanized together. The top half of the grenade contains the fuze, and the bottom half contains the filling hole and the exhaust port. The grenade is filled with approximately 185 grams of CS pyrotechnic granulated mix.

g. Grenade, Hand, CN1, ABC-M25A1 (G927). This is a bursting type grenade. The grenade body is spherical. It is made of two plastic hemispheres cemented together. The two pieces together form a burster well and slider housing. It is assembled with a pyrotechnic delay-detonating type integral fuze. The fuzing components consist of an arming sleeve, arming pin, firing spring, slider assembly and firing pin. The slider assembly contains a primer, pyrotechnic delay column and a detonator. The grenade is assembled with a safety pin and pull ring. Safety clips are not required with these grenades.

h. Grenade, Hand, CS1, ABC-M25A2 (G924). This is a bursting type grenade.

(1) CS1 has a powerful lachrymal effect and is irritating to the upper respiratory passages, causing coughing, difficulty in breathing and chest tightness. Heavy concentrations will cause nausea and vomiting as well. Incapacitation occurs 15 to 30 seconds after exposure and endures from 30 minutes to several hours depending upon the dosage concentration. CS is more persistent and has a more severe reaction than CN.

(2) The grenade body is spherical. It is made of two plastic hemispheres cemented together. The two pieces together form a burster well and a slider housing.

(3) The fuze is an integral pyrotechnic delay-detonating type. The fuzing components consist of an arming sleeve, arming pin, firing spring slider assembly and firing pin. The slider assembly contains a primer, pyrotechnic delay column, and a detonator. The grenade is assembled with a safety pin and pull ring. Safety clips are not required with these grenades.

i. Pocket CS Grenade, M58 (G933). This is a burning type riot control agent grenade. The body is a thin walled, two piece aluminum cylinder. It contains a CS pyrotechnic composition. There is a hole in the base of the body which is used for agent emission after functioning. The grenade is fuzed with the M201A1E1 fuze which is similar to the M201A1.

j. Fuze, Hand Grenade, M201A1 (G874). This is a pyrotechnic delay igniting fuze. The body contains a primer, first fire mixture, pyrotechnic delay column, and ignition mixture. Assembled to the body are a striker, striker spring, safety lever and safety pin with pull ring. The split end of the safety pin has an angular spread.

k. Fuze, Hand Grenade, M227 (G869). This is a pyrotechnic delay igniting fuze. The body contains a primer, first fire mixture, pyrotechnic delay column, and ignition mixture. Grenade fuze is restrained from functioning by the safety cotter pin, sliding safety latch, and handle. When the safety cotter pin is removed and the safety latch is pushed rearward from the lock pin, the handle is unlocked and grenade is armed. Releasing the handle causes the arming pin spring to eject the arming pin. This releases the firing pin, allowing the firing pin to activate the primer. The primer ignites the first fire mixture, which flashes and ignites the delay mixture. This in turn, ignites the ignition mixture. The ignition mixture burns through an aluminum foil shield on the bottom of the fuze and ignites the pyrotechnic mixture in the grenade body.

Q-2. Unique Safety Precautions.

a. Grenades should never be lifted or handled by the safety pin pull ring.

b. Before any grenade is removed from its fiber container, it must be thoroughly inspected to see that the safety pin is in place, undamaged, and prongs of the safety pin are spread approximately 45 degrees or

diamond crimped. This inspection must also ensure that the fuze lugs are not cracked or broken and the safety lever ears are properly assembled under the lugs.

c. If the grenade is upside down in the fiber container (fuze not visible), or if any of the above discrepancies are noted, it should remain inside the container and action taken to dispose of it safely.

d. Any riot control agent may present an inhalation and irritant hazard. Prolonged exposure of the eyes and respiratory system should be avoided. Wear protective masks to avoid excessive exposure when loose or airborne riot control agent is present.

Q-3. Testing and Equipment Requirements.

Not applicable.

Q-4. Inspection Category and Sampling Plan.

a. Inspection Category X; Periodic Inspection Interval - four years.

b. Sampling plan for inspection is IAW Chapter 2.

c. Inspection criteria for fuzes are contained in Appendix S.

d. Item will be inspected and classified IAW Chapter 2 and Table Q-1.

Q-5. References.

a. FM 23-30.

b. TM 9-1300-200.

c. TM 9-1330-200-12.

d. TM 9-1330-200-34.

e. TM 43-0001-29.

Table Q-1. Item Defects and Method of Inspection.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Safety pin missing.	All	Visual	
b. Safety pin is insecurely assembled to an extent that it endangers the user.	All	Visual	
c. Incorrect fuze model assembled to grenade.	All	Visual	
d. Grenades mixed within lot which can result in hazardous or unsafe conditions for persons using or maintaining items.	All	Visual	
e. Marking misleading as to type of grenade.			
2. Major:			
a. Tape loose or does not completely cover emission holes.	All	Visual	
b. Grenades show signs of filler leakage.	All	Visual	
c. Grenade packed upside down in fiber or metal container.	All	Visual	
d. Rust or corrosion to the extent items cannot be used as intended.	All	Visual	
e. Grenades loose in containers to the extent items cannot be adequately protected during transit.	All	Visual	
f. Lot number missing or illegible.	All	Visual	
g. Grenade cannot be removed from container.	All	Visual	
h. Grenade body seams split.	M7A3	Visual	
i. Grenade body swollen.	M7A3	Visual	
j. Missing or loose filler plug.	M25A2	Visual	
k. Safety latch missing.	M47	Visual	
3. Minor:			
a. Marking missing or illegible.	All	Visual	
b. Minor rust/corrosion.	All	Visual	
c. Layers of flaked rust which, when removed, leave pitting that will not affect functioning.	All	Visual	
d. Inadequate paint coverage.	All	Visual	

APPENDIX R
FRAGMENTATION GRENADES

R-1. Item Description.

a. FSC: 1330.

b. Ammunition Type: Grenade, Hand, Fragmentation, Delay M26, M26A1, M33, M61, M67.

c. Fragmentation hand grenades are used to supplement small arms fire against the enemy in close combat. The grenade produces casualties by high velocity projection of fragments.

d. Delay grenades, M26, M26A1, and M61 (G890/G880). Bodies are constructed of two pieces of thin wall sheet steel and have a notched fragmentation coil liner. Bodies are filled with Composition B. Each grenade is assembled with M204A1 or M204A2 pyrotechnic delay detonating fuze. Difference between M26, M26A1 and M61 is that the M61 has a safety clip. Safety clip is designed to keep the safety lever in place should the safety pin be unintentionally removed from the grenade. It is an additional safety device used in conjunction with the safety pin. The safety clip, of spring steel wire, consists of a loop which fits around the fuze body and a clamp which fits over the safety lever.

e. Delay grenades, M33 and M67 (G888/G881). The grenade body is a 2.5 inch steel sphere which is designed to burst into numerous fragments when detonated. The grenade body contains 6.5 ounces of high explosive, Composition B. Each grenade is fitted with an M213 pyrotechnic delay detonating fuze. Difference between M33 and M67 is the M67 grenade has a safety clip.

f. Fuze, M204A1 and M204A2 (G873). These are pyrotechnic delay-detonating fuzes. They differ only in body construction. The body contains a primer and a pyrotechnic delay column. Assembled to the body are a striker, striker spring, safety lever, safety pin with pull ring, and a detonator assembly. The split end of the safety pin has an angular spread or diamond crimp.

g. Fuze, pyrotechnic delay detonating, M213 (G877).

(1) The body of the fuze contains a primer and a pyrotechnic delay column. Assembled to the body are a striker, striker spring, safety lever, safety pin and pull ring, safety clip, and a detonator assembly.

(2) The M213 fuze is equipped with a steel safety pin and pull ring. The split end of the safety pin is either spread approximately 40 degrees or diamond shaped to prevent accidental removal and arming during shipping and handling. The pull ring is provided to facilitate easy removal of the safety pin.

(3) A second safety feature is the steel safety clip. The safety clip's purpose is to prevent the safety lever from snapping upward into a triggered position, in the event the safety pin is accidentally dislodged from the fuze.

R-2. Unique Safety Precautions.

a. Grenades should never be lifted or handled by the safety clip or the safety pin pull ring.

b. Before any grenade is removed from its fiber container, it must be thoroughly inspected to see that the safety pin is in place and undamaged and that the prongs of the safety pin are spread approximately 45 degrees or diamond crimped. This inspection must also ensure that the fuze lugs are not cracked or broken and the safety lever ears are properly assembled under the lugs.

c. If the grenade is upside down in the fiber container (fuze is not visible), or if any of the above discrepancies are noted, it should remain inside the container and action taken to dispose of it safely.

d. The confidence clip has been added or will be added to a number of grenades in an effort to prevent the taping of grenades. Removal of the pull ring from the confidence clip can damage/distort the head of the safety pin and should not be reengaged.

R-3. Testing and Equipment Requirements.

a. Test of fuze assembly torque will be according to the applicable portions of Table R-2 and paragraph R-5b. Testing will be accomplished once during the life cycle of the item. This test will be conducted during IRI. If equipment is not available, it will be ordered and testing will be conducted during the next cyclic inspection. Torques testing results from another installation is acceptable.

b. The required test equipment is listed in Table R-1.

Table R-1 Equipment Identification List

Description	Stock Number
Fuze adapter, hand grenade	4925-01-033-4451
Torque wrench, dial indicator, 50 inch pound capacity direct reading with memory indicator	As applicable
Scribe, metal	As applicable
Pitch-in Barricade, Hand Grenade, Delay Type	APE 1213M1

R-4. Inspection Category and Sampling Plan.

a. Inspection Category Y, Periodic Inspection interval - three years.

b. Sampling plan for inspection is IAW Chapter 2.

c. Inspection criteria for fuzes are contained in Appendix S.

d. Items will be inspected and classified according to Chapter 2 and Table R-2.

R-5. Inspection Description and Notes.

a. Visually inspect the neck area for cracks. Cracks (usually in the seam area) that extend downward from the upper edge of the neck to the body and are completely through the metal preclude proper torque being applied to the fuze. These will be classified as major defects.

b. Perform a test of fuze assembly torque according to the following procedures:

(1) Equipment required is listed in Table R-1.

(2) Scribe a line across junction of fuze and grenade body to provide means of detecting movement

between components. Apply 26 inch-pound torque in tightening direction (clockwise).

(3) Any movement of fuze at torque values of less than 26 inch-pounds will be classified as a major defect. Otherwise serviceable lots rejected as a result of torque failure will be assigned condition code E and reported by memorandum to the office in para 1-5.d.(1). Report will include specific torque values obtained.

(4) Actual performance of test requires caution by operator when applying torque to fuze body. Also avoid physically contacting fuze lever while torquing, as inaccurate values will result.

c. Do not reinsert the pull ring into the confidence clip. Reclassify grenade to CC-F for refuzing – defect code FZ151 applies. A grenade with the pull ring disengaged from the confidence clip should not be considered unsafe unless evidence of damage to the safety pin is present to the extent that it endangers the user. This defect criteria does not apply to grenades manufactured without a confidence clip.

R-6. References.

a. TM 9-1300-200.

b. TM 9-1330-200-12.

c. TM 9-1330-200-34.

d. TM 43-0001-29.

e. FM 3-23.30.

Table R-2. Item Defects and Method of Inspection

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Safety pin missing or broken.	All	Visual	
b. Safety pin is insecurely assembled to an extent that it endangers the user.	All	Visual	
c. Incorrect model fuze assembled to grenade.	All	Visual	
d. Grenade packed upside down in fiber or metal container.	All	Visual	
e. Safety clip (where applicable) missing or improperly positioned.	All	Visual	
f. Either or both lever hinge ears missing.	All	Visual	Fig. S-1
g. Both lever hinge ears not bent away from the body past the vertical center line of the body hinge bosses.	All	Visual	Fig. S-1
h. Ends of both lever hinge ears not bent upwards.	All	Visual	Fig. S-1
i. Grenades mixed within the lot which can result in hazardous or unsafe conditions for persons using or maintaining items.	All	Visual	
j. Marking misleading as to grenade type.	All	Visual	
2. Major:			
a. Cracks in neck area of grenade.	All	Visual	Para R-5a
b. Lot number missing or illegible.	All	Visual	
c. Pull ring is missing but safety pin is securely assembled.	All	Visual	
d. Pull ring is damaged to the extent that the safety pin cannot be easily extracted.	All	Visual	
e. Rust or corrosion to the extent that the grenade cannot be used as intended.	All	Visual	
f. Any movement of fuze at torque values of less than 26 inch-pounds.	All	Visual/Manual	Para R-5b
g. Grenade loose in containers to the extent items cannot be adequately protected in transit.	All	Visual	
h. Either lever hinge ear not bent away from the body past the vertical center line of the body hinge boss.	All	Visual	Fig. S-1
i. End of either lever hinge ear not bent upwards.	All	Visual	Fig. S-1
j. Improperly assembled, seated, or loose fuze.	All	Visual	
k. Pull ring not inserted into confidence clip.	As applicable	Visual	Para R-5c
3. Minor:			
a. Paint defects (i.e., scale, peeling, blistering, etc.).	All	Visual	
b. Layers of flaked rust which leaves pitting when removed but does not affect functioning.	All	Visual/Manual	
c. Marking of grenade incomplete or illegible but type of grenade and lot number are identifiable.	All	Visual	
d. Inadequate paint coverage.	All	Visual	
e. Missing gasket between fuze and neck of grenade.	All	Visual	

APPENDIX S
HAND GRENADE FUZES

S-1. Item Description.

a. FSC: 1330.

b. Ammunition Type: Fuze, Hand Grenade, M201A1; M204 Series; M213; Fuze, Hand Grenade, Offensive, M206; Fuze, Hand Grenade, Practice M205 and M228.

c. Fuze, Hand Grenade M201A1 (G874). This is a pyrotechnic delay-igniting fuze. The body contains a primer, first-fire mixture, pyrotechnic delay column, and ignition mixture. Assembled to the body are a striker, striker spring, safety lever and safety pin with pull ring. The split end of the safety pin has an angular spread.

d. Fuzes, Hand Grenade M204A1 and M204A2 (G873):

(1) These are pyrotechnic delay-detonating fuzes. They differ only in body construction.

(2) The body contains a primer and a pyrotechnic delay column. Assembled to the body are a striker, striker spring, safety lever, safety pin with pull ring, and a detonator assembly. The split end of the safety pin has an angular spread or diamond crimp.

(3) The hand grenade safety clip (when applicable) is designed to keep the safety lever in place should the safety pin be unintentionally removed from the grenade. It is an additional safety device used in conjunction with the safety pin. The safety clip, of spring steel wire, consists of a loop that fits around the fuze body and a clamp that fits over the safety lever.

e. Fuzes, Hand Grenade M206A1 and M206A2 (G872):

(1) These are pyrotechnic delay-detonating fuzes. They differ only in body construction.

(2) The body contains a primer and a pyrotechnic delay column. Assembled to the body are a striker, striker spring, safety lever, safety pin with pull ring and a detonator assembly. The split end of the safety pin has an angular spread or a diamond crimp.

(3) When applicable, the hand grenade safety clip is designed to keep the safety lever in place should the safety pin be unintentionally removed from the grenade. It is an additional safety device used in conjunction with the safety pin.

(4) Safety clips, of spring steel wire, consist of a loop, which fits around the threaded section of the fuze, and a clamp, which fits over the safety lever. Because the loop fits around the threaded section of the fuze, the clip must be assembled to the grenade when the fuze is assembled to the grenade.

f. Fuze, Hand Grenade M213 (G877):

(1) This is a pyrotechnic delay-detonating fuze.

(2) The body of the fuze contains a primer and a pyrotechnic delay column. Assembled to the body are a striker, striker spring, safety lever, safety pin and pull ring, safety clip, and a detonator assembly.

(3) The M213 fuze is equipped with a steel safety pin and pull ring. The split end of the safety pin is either spread approximately 40 degrees or diamond-shaped to prevent accidental removal and arming during shipping and handling. The pull ring is provided to facilitate easy removal of the safety pin. A second safety feature is the steel safety clip. The safety clip's purpose is to prevent the safety lever from snapping upward into a triggered position, in the event the safety pin is accidentally dislodged from the fuze.

(4) M213 fuzes must be hard-plate x-rayed prior to assembly into an M67 grenade. Fuzes are delivered to LAP or renovation facility from manufacturer without being x-rayed under NSN 1330-00-182-3570. Fuzes with this NSN are not considered unserviceable and will be retained in the condition code that a government representative accepted them in. When fuzes are x-rayed, the NSN is changed to 1330-00-182-3590. Fuzes with this NSN must have a statement on the Ammunition Data Card that they were 100% x-rayed. Notify JMC Ammunition office if fuzes do not have the statement.

g. Fuze, Hand Grenade, Practice, M205 Series (G870):

(1) The M205A1 and M205A2 are pyrotechnic delay igniting fuzes. They differ in body construction only. The body contains a primer and a pyrotechnic delay column. Assembled to the body are a striker, striker spring, safety lever, safety pin with pull ring, and an igniter assembly. The split end of the safety pin has an angular spread or a diamond crimp.

(2) The hand grenade safety clip (when applicable) is designed to keep the safety lever in place should the safety pin be unintentionally removed from the grenade. It is an additional safety device used in conjunction with the safety pin. The hand grenade safety clip, of spring steel wire, is shaped in a special configuration for installation on the grenade. It consists of a clamp that fits around the fuze body and over the safety lever. It serves to prevent release of the grenade safety lever if the safety pin is accidentally released.

h. Fuze, Hand Grenade, Practice, M228 (G878):

(1) Practice fuze M228 is a pyrotechnic delay igniting fuze. The body contains a primer and pyrotechnic delay column. Assembled to the body are a striker, striker spring, safety lever, safety pin with pull ring, safety clip (older models do not have the safety clip), and igniter assembly. The split end of the safety pin has an angular spread or a diamond crimp.

(2) The hand grenade safety clip is designed to keep the safety lever in place should the safety pin be unintentionally removed from the grenade. It is an additional safety device used in conjunction with the safety pin. The safety clip is assembled to the fuze. (Older models have the safety clip assembled to the grenade and positioned around the safety lever).

S-2. Unique Safety Precautions.

a. Fuzes should never be lifted or handled by the safety clip or the safety pull ring.

b. Before any fuze is removed from its fiber container, it must be thoroughly inspected to see that the safety pin is in place and undamaged and that the prongs of the safety pin are spread approximately 45 degrees or diamond crimped. This inspection must also ensure that the fuze lugs are not cracked or broken and the safety lever ears are properly assembled under the lugs.

S-3. Testing and Equipment Requirements.

Not applicable.

S-4. Inspection Category and Sampling Plan.

a. Inspection Category Y; Periodic inspection interval - three years.

b. Sampling plan for inspection is IAW Chapter 2.

c. Items will be inspected and classified according to Chapter 2 and Table S-1.

Table S-1. Item Defects and Method of Inspection.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Safety pin missing or broken.	All	Visual	
b. Safety clip missing (where applicable).	All	Visual	
c. Safety pin insecurely assembled to the extent that user is endangered.	All	Visual	
d. Igniter case cracked to extent that pyrotechnic charge is exposed, free to escape, or may be pinched between broken surfaces.	M205, M228	Visual	
e. Detonator case cracked to extent that explosive charge is exposed, free to escape, or may be pinched between broken surfaces.	M204, M206, M213	Visual	
f. Both fuze lever hinge ears not properly assembled.	All	Visual	Fig S-1
g. Either or both hinge ears missing or broken.	M204, M206, M213	Visual	Fig S-1
5. Major:			
a. Any of the following missing or damaged to extent that precludes proper functioning: (1) Pull ring. (2) Fuze threads. (3) Any other item that precludes use of fuze in a hand grenade.	All	Visual	
b. Fuze marking incomplete, inaccurate, or illegible to extent it is misleading as to type of fuze.	All	Visual	
c. One fuze lever hinge ear not properly assembled.	All	Visual	Fig S-1
d. Aluminum foil ignition seal damaged or punctured.	M201A1	Visual	
e. Rust or corrosion to the extent that fuze cannot be used as intended.	All	Visual	
6. Minor:			
a. Marking incomplete or illegible but type of fuze and lot number are identifiable.	All	Visual	
b. Minor rust/corrosion.	All	Visual	

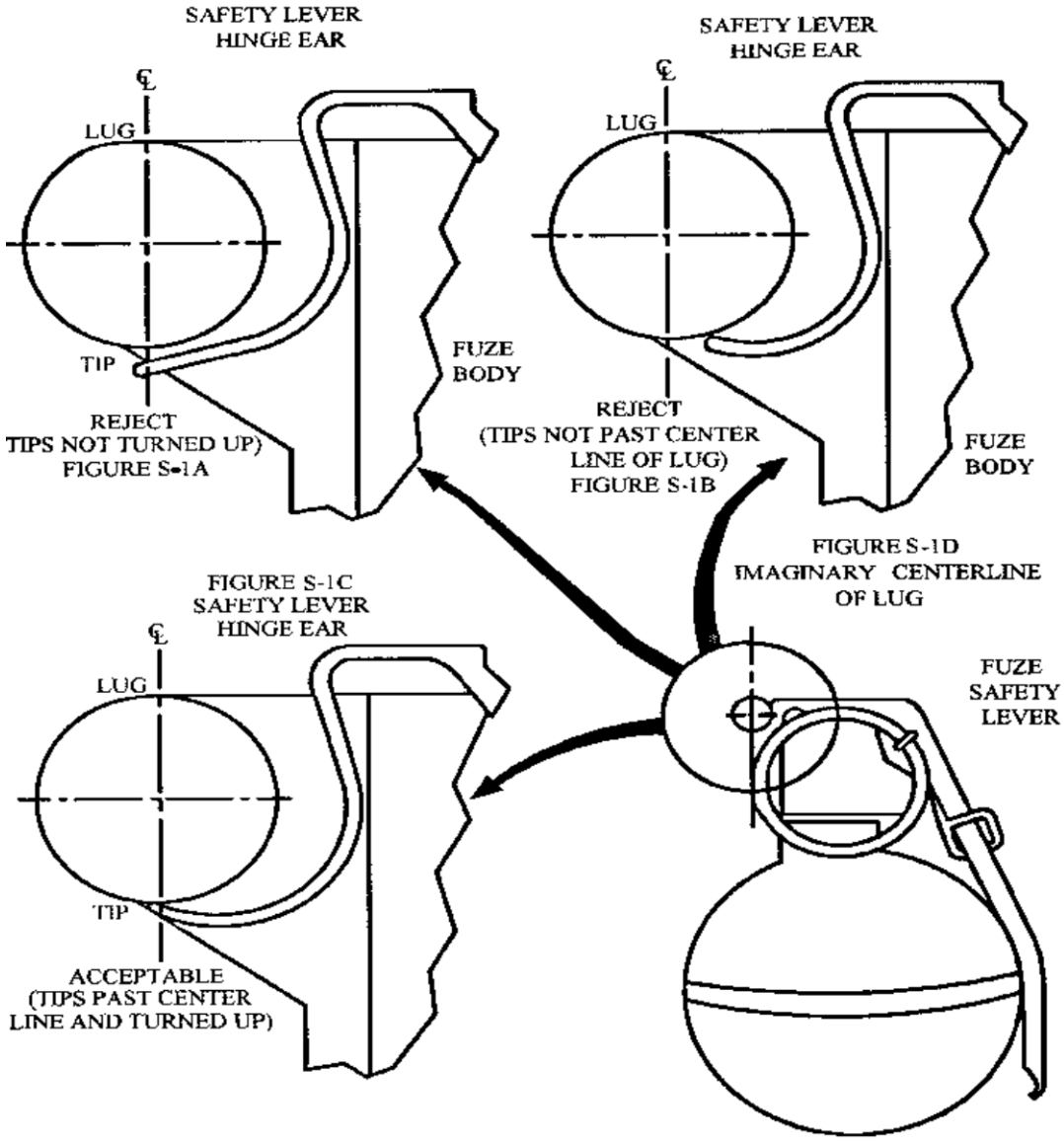


FIGURE S-1. SAFETY LEVER HINGE

APPENDIX T
ROCKET, 3.5 INCH

T-1. Item Description.

a. FSC: 1340.

b. Ammunition type: Rocket, 3.5-inch. Includes the following models: M28A2 (HEAT), M29A2 (practice), and M30 (WP).

c. The 3.5 inch is a fixed fin stabilized rocket, consisting of three major components: warhead, fuze, and motor. For a complete description of these rockets see TM 43-0001-30 and the drawings for the particular round. All 3.5 inch rockets with propellant or igniters over 10 years old require replacement of propellant and igniters. Replacement propellant must have a current load authorization. Replacement igniters must have been reassessed according to paragraph T-7 within 2 years from tentative date of replacement.

T-2. Unique Safety Precautions.

a. An RF energy survey should be performed prior to moving lots of 3.5 inch rockets known to have (or suspected of having) missing or ineffective shorting clips.

b. The maximum electromagnetic radiation (EMR) the 3.5 inch rocket may safely be exposed to in its storage and shipping configuration with a missing or ineffective clip is 20 volts per meter. In a truck or shipping container totally enclosed in metal, the 3.5 inch rocket can safely withstand EMR at levels 10 times (200 V/m) greater than in its storage configuration.

c. Following information pertains to movements where criteria of paragraph T-2b cannot be assured.

(1) Fiber containers, wooden boxes, or cardboard boxes do not provide adequate EMR protection. Seal rockets or container in MIL-B-131 foil barrier bag.

(2) Metal containers do provide adequate shielding for shipment of 3.5 inch Rockets provided containers have not been opened.

(3) Metal containers that have been opened must be resealed by either of the following methods:

(a) Seal with copper or aluminum foil tape. The electrical conductivity of the entire container is critical to EMR protection. To assure conductivity, remove all paint and tar from the tube in the vicinity of the opening. Securely seal the opening with copper or aluminum foil tape, attaching tape to shiny, bare metal.

(b) Seal rocket in MIL-B-131 foil barrier bag and repack into outer pack.

(4) Additional precautions to be taken during handling:

(a) Turn off radio frequency (RF) transmitters.

(b) Avoid exposure to RF fields such as the main beam of RADAR transmitters.

(c) Questions regarding EMR field levels should be cleared with safety office.

(5) No historical records exist to indicate that all rocket motor shunts are ineffective. The only way to ascertain whether a shunt is effective is by testing.

T-3. Testing and Equipment Requirements.

Test and measurement equipment and requirements are listed in Table T-1. Specific tests listed in Table T-1 are supplemental to the general inspection criteria of Chapter 2 and the specific inspection criteria of Table T-2. Inspection must not be limited to these tests.

T-4. Inspection Category and Sampling Plan.

a. Inspection category X, periodic inspection interval - 4 years.

b. The sampling plan for inspection is according to Chapter 2.

T-5. Specific Inspection Points.

Item will be inspected and classified according to Chapter 2 and Table T-2.

T-6. Inspection Description and Notes.

a. Test with shorting clip in place must not exceed 0.055 ohms. The test will be performed without disturbing the shorting clip when removed from the container.

b. If the ejection pin is missing, the rocket will be considered armed and treated accordingly.

c. Any round with a discernible 360 degree gap between the fuze and the warhead is to be rejected.

d. Grasp the fuze with one hand and twist the rocket head with the other. Repeat holding the fuze with one hand and twisting the motor body with the other hand. Any movement rejects the rocket.

e. Test will be conducted from the copper contact band (live lead) or blue auxiliary lead to the unpainted groove in the support ring (ground contact).

f. Test the ejection pin for freedom of movement. This is done on the M404A1 fuze (square ejection pin) by merely depressing the pin with the fingers and releasing it. It is done on the M404A2 fuze (round ejection pin) by depressing the pin with the fingers and then twisting it and releasing. If the ejection pin binds while being depressed or twisted, reject the rocket.

g. When the contact ring is damaged or improperly assembled, so that its functional effectiveness has been destroyed, it will be classified as a defect.

h. Lots already in an unserviceable condition code for replacement of propellant or igniters or requiring 100 percent test of igniter circuit or shorting clip do not require electrical test.

i. Gaging is not normally required during RI, PI, or UBLI. Gaging during these inspections should be limited to individual rounds having visual evidence of damage or other conditions which may preclude loading and firing. Unless such rounds requiring gaging are truly representative of the lot being inspected, they should be disregarded in evaluating the lot.

j. Only igniter circuit testers meeting the specifications of MIL-T-11393 are authorized. Testers supplied under NSN 4925-00-712-0205 meet these requirements. Authorized testers include, but are not limited to, the Alinco No. 101-5BF, 101-5BFG, and the Simpson No. 4-000ITS.

T-7. Reassessment of Rocket Motor Igniter M20A1.

a. Nonfunctional inspection criteria are given in Table T-3. The sample size is fifty igniters.

b. Functional criteria. Lots passing the nonfunctional test will have 50 samples functionally tested. These samples must be non-functionally acceptable. The igniter will be initiated using the firing mechanism from a 3.5-inch rocket launcher. A failure to ignite is a major defect, accept on one, reject on two.

Table T-1. Equipment Identification and Test Requirements.

Description	Identification	Inspection	Application
Continuity test equipment (shielded).	5220-00-313-3092	IRI	Complete round gaging
Igniter circuit tester.	4925-00-712-0205	IRI, RI, PI	Igniter resistance test

Table T-2. Item Defects and Method of Inspection.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Shorting clip missing or ineffective.	All	Visual/Test	Para T-6a
b. Exuding filler.	M28A2	Visual	
c. Leaking WP.	M30	Visual	
d. Fuze ejection pin missing.	M28A2, M30	Visual	Para T-6b
e. Gap between fuze and warhead.	M28A2, M30	Visual	Para T-6c
2. Major:			
a. Nozzle assembly loose, cracked, or distorted.	All	Visual	
b. Fuze safety band missing.	M28A2, M30	Visual	
c. Assembly loose at any joint or not fully assembled.	All	Visual/Manual	Para T-6d
d. Igniter circuit resistance below 0.675 ohms.	All	Test	Paras T-6e, T-6j
e. Ejection pin frozen.	M28A2, M30	Visual/Manual	Para T-6f
f. Igniter wires, electrical connections loose.	All	Visual/Manual	
g. Fins loose.	All	Visual/Manual	
h. Rocket not packed with head in direction indicated on pack.	All	Visual	
i. Contact ring damaged or improperly assembled.	All	Visual	Para T-6g
3. Minor:			
a. Igniter circuit resistance above 3.025 ohms.	All	Test	Paras T-6e, T-6j
b. Tag missing from shorting clip.	All	Visual	
c. Fuze safety band missing.	M29A2	Visual	
d. Ejection pin missing.	M29A2	Visual	

Table T-3. Nonfunctional Inspection Criteria for M20A1 Rocket Motor Igniter.

Defect	Classification	Accept	Reject
Powder leakage	Critical	0	1
Damaged igniter body	Major	1	2
Damaged lead wire	Major	1	2
Resistance not within 0.75 to 1.25 ohms	Major	1	2

APPENDIX U
ROCKET, 2.75 INCH

U-1. Item Description.

a. FSC: 1340.

b. Ammunition Type: Rocket, 2.75 Inch.

c. Referred to as Hydra 70 Rocket, 2.75 Inch Rocket system consists of a variety of warheads and fuzes and uses the MK40 or MK66 series rocket motor. Complete description of rockets/components can be found in TM 43-0001-30.

d. 2.75 Inch Rockets are air to ground rockets designed for deployment from rotary and fixed wing aircraft.

e. Rockets with MK40 motor are low spin, folding fin aircraft rockets (LSFFAR). Rockets with MK66 motor are spin stabilized, wrap around fin aircraft rockets (SSWAFAR).

U-2. Unique Safety Precautions.

a. Palletized (boxed and fastpack container) rockets, or rocket motors dropped five feet or more will be placed in CC-H and reported IAW DA PAM 750-8.

b. Unpalletized/unboxed/unpackaged rockets or rocket motors dropped from any distance will be placed in CC-H and reported IAW DA PAM 750-8.

c. Rocket motors are electrically initiated items and should be protected from sources of electromagnetic radiation and stray currents. Personnel will wear conductive safety shoes and will stand on conductive flooring or conductive mats when handling rocket motor. Inspection tables and test equipment will be properly grounded IAW DA PAM 385-64.

d. MK40 Mod1 and subsequent mods and MK66 all mods are considered propulsive at all times.

e. Fuze, Remote Settable, M439 has a resistance capacitance element, which is charged when attempting to fire the rocket. If fuze is set (charged) and motor fails to ignite, it may be loaded into another tube and fired. This second attempt to fire, however, will not be accurate. Though fuze remains safe, once set, fuze requires ten days to bleed charge to restore accuracy, and 45 days to completely discharge.

U-3. Testing and Equipment Requirements.

a. Test rockets IAW Table U-1.

Table U-1. Test Requirements

Model	IRI	RI	PI	BLI
MK40 Rocket Motor	A, B	B	N/A	N/A
a. Continuity Test: test is not required for 2.75 inch Hydra Rocket with MK66 Rocket Motor. b. Torque test.				

b. Table U-2 identifies test and measurement equipment.

Table U-2. Equipment Identification List

Description	NSN	Application
APE 1189	4925AA11890000	Rocket Motor/ Complete Round
APE 1189 Kits	Various	Rocket Motor/ Complete Round
Torque Fixture	4925-00-781-6511	Fuze/Warhead Interface Warhead/Motor Interface

U-4. Inspection Category And Sampling Plan.

a. Inspection category.

(1) Category X: 4 years (includes Flechette, MPSM, HE, WP, RP, Practice, and Multipurpose Penetrator warheads/rockets; MK40 and MK66 rocket motors).

(2) Category Y: 3 years (includes Flare and Illuminating warheads/rockets).

b. Sampling plan for inspection is IAW Chapter 2.

U-5. Specific Inspection Points.

Items will be inspected and classified according to Chapter 2 and Tables U-3 through U-6.

Table U-3. Complete Round

Classification	Application	Inspection Method	Inspection Description
1. Critical: None defined.			
2. Major:			
a. Loosely assembled components (i.e., fuze to warhead or warhead to motor).		Visual/Torque Test	Para U-6b
b. Gap between fuze and warhead or warhead and motor		Visual	Para U-6f
c. Incorrect orientation in outer pack (i.e., nose end of rocket not pointing in direction of nose end marking on outer pack).		Visual	
3. Minor: None defined.			
Note: See Tables U-4 through U-6 for defect criteria on individual components of complete round.			

Table U-4. Warhead			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Filler exudation or leakage.		Visual	
b. Crack or dent in warhead.		Visual	
c. Gouge in warhead.		Visual/depth gage	Para U-6g(1)
d. Missing crimp in main parachute, bulkhead & igniter area.	M257, M278	Visual	
2. Major:			
a. Corrosion/rust on metal surfaces or threads extensive enough to prevent assembly and/or effect metal integrity.		Visual	
b. Damaged threads that would prevent assembly.		Visual	
c. Gouge in warhead.		Visual/Depth Gage	Para U-6g(1)
d. Blistering or peeling paint that would require complete repainting.		Visual	
e. Marking illegible/obliterated to extent that item cannot be positively identified.		Visual	
f. Plastic nose cone damaged or loose.	Flechette	Visual	
g. Damaged or bent umbilical connector..	M255A1,M261, M267	Visual	
h. Damaged umbilical cord.	M255A1, M261, M267	Visual	
i. Presence of dirt, mud or foreign material in or around the tip of the fuze/nose.	M282	Visual	
3. Minor:			
a. Light corrosion/rust that does not affect assembly or metal integrity.		Visual	
b. Markings faded, dim and/or partially illegible, but item can be identified.		Visual	
c. Paint blistering or peeling in spots.		Visual	
d. Scratches through entire protective coating.		Visual	
Note: For fuzed warhead, see Table U-5 for defect criteria on fuze.			

Table U-5. Fuze			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Crack or dent in fuze body.		Visual	
b. Gouge in fuze body.		Visual/Depth Gage	Para U-6h
2. Major:			
a. Corrosion/rust on metal surfaces or threads extensive enough to prevent assembly and/or affect metal integrity.		Visual	
b. Damaged threads that would prevent assembly.		Visual	
c. Gouge in fuze body.		Visual/Depth Gage	Para U-6h
d. Marking illegible/obliterated to extent that item cannot be positively identified.		Visual	
e. Loose ogive on fuze.	M423 and M427	Visual	Para U-6a
f. Umbilical assembly missing.	Remote Set Fuzes Only	Visual	
g. Protective cap missing or damaged.	M433	Visual	
h. Dents, gouges or scratches in impact switch.	M433	Visual	
3. Minor:			
a. Light corrosion/rust that does not affect assembly or metal integrity.		Visual	
b. Markings faded, dim and/or partially illegible, but item can be identified.		Visual	
c. Scratches through entire protective coating.		Visual	

Table U-6. Motor			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Cracks, dents, or gouges in motor tube.		Visual	Para U-6k
b. Hole in motor tube forward bulkhead.		Visual	
c. Bulge on motor tube.		Visual	
d. Shorting clip missing or improperly positioned.	MK40 Motor	Visual	
e. Electromagnetic Radiation Shield (EMR) missing or damaged.	MK66 Mod3	Visual	Para U-6i
f. Broken lead wire.		Visual	Para U-6e
g. Loose nozzles on nozzle and fin assembly.	MK40 Motors	Manual	
h. Nozzle and Fin Assembly loose, cracked, dented, gouged or distorted.		Visual/Manual	Para U-6c
i. Missing, cracked or damaged fin hinge pin.		Visual	
j. Missing or damaged fin(s).		Visual	
k. Shielding and fin restraint band missing/damaged.	MK66, Mods 1,2 and 4	Visual	Para U-6i and U-8
l. Missing/damaged end shield,	MK66 Motor all Mods	Visual	Para U-6j and U-7
2. Major:			
a. Corrosion/rust on metal surfaces or threads extensive enough to prevent assembly and/or affect metal integrity.		Visual	
b. Damaged threads that would prevent assembly.		Visual	
c. Blistering or peeling paint that would require complete repainting.		Visual	
d. Marking illegible/obliterated to extent that item cannot be positively identified.		Visual	
e. Lock wire distorted or improperly assembled protrudes above surface of rocket motor tube.		Visual	
f. Missing contact disc or fin retainer.	MK40 Motor	Visual	
g. Dent or bulge in EMR shield.	MK66 Mod3	Visual	
h. Igniter circuit resistance not within prescribed limits.		Test	Para U-6d
i. Missing, damaged or loose nozzle seal/blow out seal.	MK40 Motor	Visual	
j. Missing or damaged weather seal.	MK66 Motor	Visual	
3. Minor:			
a. Light corrosion/rust that does not affect assembly or metal integrity		Visual	
b. Markings faded, dim and/or partially illegible, but item can be identified		Visual	
c. Paint blistering or peeling in spots		Visual	
d. Scratches through entire protective coating		Visual	
e. Shielding/fin restraint band improperly positioned or tape holding band to nozzle missing		Visual	Para U-8

U-6. Inspection Description.

a. In pre-1970 designs, a loose ogive (with rotation but without longitudinal looseness) does not represent a performance, safety or storability problem. For post-1970 designs, a loose ogive could represent a storability problem (seal broken) and is considered a major defect. The following defines P/Ns for the different fuze designs:

Fuze	Pre-1970 P/N	Post-1970 P/N
M423	8883683	9254708-1
M427	8883745	9254708-2

b. Torque test:

(1) Torque fixture listed in Table U-2 (formerly APE 2075M1) will be used. Warheads without fuze wrench slots may be tested using a torque wrench adapter that must be locally fabricated using drawing AXMRR-7507A. This drawing may be obtained from DAC, McAlester, OK.

(2) A line will be scribed or drawn across the junctions (fuze to warhead and warhead to motor) to provide a means of detecting movement between components. 55 foot-lbs torque will be applied in a tightening direction. Any movement at less than 55 foot-lbs is a test failure.

c. Do not attempt to twist nozzle assembly. Should the nozzle assembly wobble or move lengthwise, it is defective.

d. For MK40 series motors, perform igniter circuit resistance test IAW Ammunition Peculiar Equipment

Operational Manual and Parts List For APE 1189 Rocket Motor Continuity Tester. Igniter circuit resistance limit for MK40 series Motor: .63 to 4.0 ohms.

e. For MK66 motors, check to see if the end shield is damaged and requires replacement.

f. Gap is considered to exist if component is not seated for a full 360 degrees.

g. Criteria for gouge in warhead:

(1) M156, M257, M259, M264, M278: a gouge with visible depth will be considered a critical defect.

(2) M255A1, M261, M267, WDU-4A/A: a gouge with visible depth will be considered a major defect.

(3) M151, M229, M230, M247, M274, WTU-1/B: a gouge having a depth of 1/16" or more and length of ½" or more will be considered a critical defect; other gouges will be considered a major defect.

h. Criteria for gouge in fuze body: a gouge having a depth of 1/16" or more and length of ½" or more will be considered a critical defect; other gouges will be considered a major defect.

i. Shielding/fin restraint band is considered damaged if it contains a hole or cut through entire thickness within one inch of its aft edge. EMR shield is considered damaged if it contains a hole or crack within one inch of the aft edge of the EMR shield.

j. End shield is considered damaged if it contains a hole (other than fin pin holes) or cut through entire end shield. The end shield is bonded to the aft face of the nozzle.

NOTE

MK66 rocket motors (all Mods) with damaged or missing end shield, EMR shield, shielding/ fin restraint band, aluminum tape, or broken igniter wires are considered safe for transport or storage in approved containers.

k. While any crack or bulge in the motor tube is a critical defect, particular attention should be given to the lock wire slot/area.

WARNING

The end shield is designed to help protect the MK66 rocket motor from accidental ignition by electrostatic discharge or other sources of electricity. If the end shield is missing or damaged, the rocket motor is not considered safe to "hot-tube load". It is vital that only the aluminum tape identified below be used for repair. Anything other than metallic tape will not protect against accidental ignition.

U-7. Repair Procedures for Missing/Damaged End Shield (MK66 Mods).

a. Remove damaged end shield.

b. Inspect for damaged weather seal or igniter lead wire. Damage to weather seal is considered a MAJOR defect and a broken igniter lead wire is considered a CRITICAL defect. The weather seal is 2.5 inches forward of the aft face of the nozzle. Weather seal is considered damaged if it contains a hole or a cut through the entire weather seal. Inspect weather seal and broken lead wire for defects only if the end shield is missing or has been removed for repair due to damage.

c. Clean surface of the fin and nozzle assembly with clean rag and approved solvents.

d. Using Tape, pressure sensitive, aluminum, 3 inch wide (0.005 inch nominal thickness) procured to Fed Spec L-T-80, cut a piece of tape of sufficient area to cover nozzle assembly end. Suggested NSN for Tape is 7510-00-816-8077 and is available from regional GSA supply center.

U-8. Repair Procedures for Missing/Damaged/ Improperly Positioned Shielding/Fin Restraint Band or Missing Tape that Holds Band to Nozzle of MK66 Mods 1, 2 and 4 Rocket Motors.

a. If shielding/fin restraint band is loose or damaged, hold fins closed while removing shielding/fin restraint band. Fins are spring-actuated and may cause injury to personnel if they accidentally snap open. If fins do open accidentally, collapse the wrap around fins by pushing forward on aft surface of each fin to move fin from the deployed position to the stowed position (flush with the motor tube).

b. Apply one and one-half wraps of aluminum tape to rear area of fins. (See paragraph U-7 for type of tape to use.) Assure aluminum tape completely covers the contact band.

c. Fold back a one-inch length of aluminum tape to form a tear tab.

d. For missing ordnance tape, place a 4-inch length of ordnance tape diagonally across tab of shielding/fin restraint band and onto surface of nozzle body. Fold back a one half-inch length of ordnance tape to form a tear tab. If shielding/fin restraint band is improperly positioned, first squeeze fins and move restraint band until it completely covers contact band. Then add a 4-inch length of ordnance tape.

U-9. Lots with Suffix "AXA" or "XA" are not to be considered defective, and the presence of the extra "A" is not grounds for remarking, reclassification or submission of Quality Deficiency Reports (QDR).

U-10. References.

a. APE Operational Manual and Parts List for APE 1189 Rocket Motor Continuity Tester.

b. DMWR 9-1340-0000-F20

c. TM 9-1340-222-20

d. TM 9-1340-222-34

e. TM 43-0001-30

f. TM 43-0001-47

APPENDIX V
CHARGE, DEMOLITION, HE, LINEAR M58 SERIES AND CHARGE DEMOLITION, PRACTICE, M68 SERIES

V-1. Item Description.

a. FSC: 1375.

b. Ammunition type: Charge, Demolition, High Explosive Linear M58 Series and Charge, Demolition, Practice M68 Series.

c. Mine Clearing Line Charge (MICLIC) is a trailer mounted, rocket-towed demolition charge used to provide a clear path for combat vehicles during minefield breaching operations. The MICLIC is capable of clearing a path 14 meters wide by 100 meters long through a minefield. The launcher and trailer are fully reusable, and can be reloaded in thirty minutes.

d. The two linear charges available for use with the system are:

(1) Charge, Demolition, High Explosive Linear M58 Series. The charge assembly consists of PETN detonating cords and 700 Composition 4, unit charges, 2.5 pounds each, secured to 350 feet of nylon arresting cable. The primary explosive components are:

(a) Fuze, Electric, M1134 Series. The fuze is included in the container, but is separately packaged and is not connected to the charge assembly until item is prepared for deployment. Safe/arm mechanisms prevent initiation of the linear charge prior to launch. A window in the cylinder side of the fuze allows display of the safe/arm status of the fuze (green for safe, red for armed).

(b) Rocket Motor MK22 Series: A 5" rocket motor is used to tow the linear charge across the minefield. Item description and inspection criteria are contained in TM 9-1375-215-13&P, Operator's, Unit, Direct Support, and General Support Maintenance Manual Including Repair Parts and Special Tools List - Demolition Kit Mine Clearing Line Charge (MICLIC).

(2) Charge, Demolition, Practice, M68 Series. The item is a non-explosive linear charge used only for training sessions. Rubber is used to simulate the explosive pellets in the unit charges. The charge can be launched a maximum of three times. The M68 series contains an inert fuze, but uses a live MK22 series rocket motor.

V-2. Unique Safety Precautions.

Do not operate radio frequency transmitters within five feet of the M58 Series charge, or rocket motor. Safe distances from high-powered transmitters are included in Chapter 6, DA PAM 385-64. Positive steps (conductive floor, mats, etc.) will be taken to eliminate static discharges.

V-3. Testing and Equipment Requirements.

Table V-3 identifies depth gage and torque wrench requirements.

V-4. Inspection Category and Sampling Plan.

a. Inspection Category X: periodic inspection interval - 4 years. Periodic inspection sample size and accept/reject criteria will be according to Chapter 2.

b. Charges held by using units in Basic Load will be inspected on an annual basis according to Chapter 9 and this appendix.

V-5. Specific Inspection Points. The linear charge will be inspected and defects classified according to Chapter 2 and Tables V-1 through V-4 of this appendix.

Table V-1. Packaging Defects, M58 and M68 Series.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Warning stencil (or decal) on pallet cover or pallet back missing or illegible.		Visual	Para V-6a
2. Major:			
a. Damage to container exposing contents, or preventing intended use (penetration, dents, etc.).		Visual	Para V-6b
b. Cover not secured properly in place.		Visual	
c. Rust or corrosion compromising container integrity or markings.		Visual	
d. Rocket motor electrical receptacle (bottom receptacle) detent not in proper position.		Visual	Para V-6n
3. Minor:			
a. Strapping loose, broken or improperly applied.		Visual/Manual	Para V-6c
b. Protective coating (paint) missing.		Manual	
c. Marking missing, misleading or unidentifiable.		Visual	
4. Incidental:			
Shipping bracket and/or retaining pin missing.		Visual	

Table V-2. Packaging Defects, Fuze M1134 and M1147 Series.

Classification	Application	Inspection Method	Inspection Description
1. Critical: None defined.			

2. Major:			
a. Carton damaged, exposing inner pack.		Visual	
b. Contents loose.	M1134	Manual	
c. Carton wet.	M1134	Visual/Manual	Para V-6d
3. Minor:			
a. Marking missing, misleading, or unidentifiable (outer or inner carton and barrier bag).		Visual	
b. Carton damp.		Visual/Manual	Para V-6d
c. Barrier bag not evacuated or carton corners not blunted.	M1134	Visual	Para V-6e

Table V-3. Item Defects, Linear Charge M58 and M68 Series.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Shorting loop missing or assembled improperly.	M58	Visual	Para V-6f
b. Linear charge improper type	M68	Visual	
c. PETN end caps seated in fuze connector front half not below flush.	M58	Visual/Gage	Para V-6p
d. Arming wire knurled nut below flush.	M58	Visual/Gage	Para V-6q
e. Fuze improper type.	M68	Visual	Para V-6g
2. Major:			
a. Components missing or damaged.		Visual	
b. Fuze missing or improper type.	M58	Visual	Para V-6g
c. Linear charge improper type.	M58	Visual	
d. Flaking of first layer improper, layer not reversed faked, or layer with incorrect number of rows.		Visual	Para V-6h
e. Line missing from locked safety switch to charge.	M58	Visual	
f. Arresting cable hook not secured into pallet eye.		Visual	Para V-6i
g. Item wet.		Visual/Manual	Para V-6d
h. Improper orientation of cable guide in rocket motor cable receptacle.		Visual	Para V-6m
i. Electrical leads under the nylon sock with missing or improper tape.		Visual	Para V-6o
j. Rocket motor receptacle detent not in the 12 o'clock position.		Visual	Para V-7a
k. Crushed/damaged wires in junction box.		Visual/Test	Para V-7b
l. Arming wire knurled nut out of tolerance but above flush.	M58	Visual/Gage	Para V-6q
m. Snap hook improperly positioned.	M58	Visual	Para V-6r
n. Hose clamp torque below 31 inch lbs.	M58	Gage	Para V-6q
3. Minor:			
a. Knots in line to switch not coated.	M58	Visual	
b. Item damp.		Visual	Para V-6d
c. Arming wire knurled nut out of tolerance but above flush.	M58	Visual/gage	Para V-6q

Table V-4. Item Defects, Fuze M1134 and M1147 Series.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Red warning stencil (or decal) missing or illegible.	M1134	Visual	Para V-6j
b. Fuze armed.		Visual	Para V-6k
2. Major:			
a. Item damaged so as to be unusable.	M1147	Visual	
3. Minor:			
a. Protective coating (paint) missing, incomplete, or damaged.		Visual	
b. Dust cap missing.		Visual	Para V-6l

V-6. Inspection Description and Notes.

a. Stencil (or decal) reads: "WARNING - ASSURE THAT FUZE IS NOT ARMED AND COTTER (SHEAR) PIN IS IN PLACE PRIOR TO FIRING".

b. The M58 shipping and storage container must be evaluated for the following:

(1) Damage that impairs structural integrity of container.

(2) Damage that would preclude loading of container onto MK55 launcher.

(3) Damage to electrical connector jacks to include missing protective caps.

c. Apply two 1¼ inch steel straps around container. Straps will be located 6 inches toward center from each skid. Corner protectors will be placed under strapping to prevent damage.

d. Packing material or items that are wet should be disposed of according to established procedures. Packing material of items that are damp should be allowed to dry thoroughly prior to repacking and storage.

e. Barrier bags will be evacuated, and sealed or taped closed.

f. Shorting loop is visible at the fuze holder end of arresting cable.

g. Electric fuze M1134 Series for M58 Series Linear Charge and M1147 Series for M68 Series Linear Charge.

h. Faking is a method of coiling a rope or line to allow free running. The method of faking is described in drawing 8845322. The bottom layer of charge will have 11 rows. Each successive layer will have 12 rows, except top layer.

i. For the M68, any damage that cuts rope core is a cause for rejection.

j. Stencil reads: "WARNING - BOTH SHEAR PIN AND GREEN INDICATOR MUST BE VISIBLE BEFORE FIRING".

k. A window in the cylinder side of the fuze allows display of the SAFE/ARM status (green for safe, red for armed) of the fuze. If the fuze is armed, do not attempt to disarm the fuze. Pack armed fuze in an available cardboard or wooden box marked "ARMED FUZE". Request ASP or EOD assistance in disposal, or initiate immediate demilitarization action (if qualified personnel are available). Keep armed fuze isolated from other explosives, preferably with detonators against a sand bag, or other barrier, in a sturdy box (used ammunition box). Corners of fuze carton will be blunted to preclude damage to charge.

l. Replace dust cap.

m. Proper orientation of cable guide in rocket motor cable receptacle (bottom receptacle) is the 12 o'clock position.

n. Proper orientation of detent in rocket motor electrical receptacle is the 12 o'clock position.

o. Electrical leads under the nylon sock must be taped using a paper type tape like masking tape.

p. Gaging of PETN endcaps should be done using non-sparking straight edge.

q. Inspection for knurled nut tolerance:

(1) Care must be taken to obtain accurate data.

(2) Conduct Length (L) and Distance (D) measurements and assess the overall condition as follows:

(a) Before proceeding with the L and D measurements, first, measure the torque (inch-pounds) on the screw, which is a component on the hose clamp that is attached to the fuze connector – rear half. Record the torque. Determine the defect classification from the following formula:

(b) Remove the hose clamp from the fuze connector rear half and slide the protective nylon encasement sleeve away from the fuze connector so that the arming wire is visible.

(c) Measure Length (L) in inches as shown in Figure V-2 from the central axis of the Fillister head screw to Point B on the arresting cable. Record this measurement.

(d) Measure Distance (D) from the front face of the knurled nut to the front face of the fuze connector as follows:

1. Grasp the fuze connector end of the arresting cable and hold it vertically as shown in Figure V-3. Next, gently grasp the rope between Points B and C. Finally, utilizing another person, gently grasp the knurled nut.

2. Ensure that the rope is straight (see Figure V-3) by applying only a SLIGHT amount of tension to the rope. Do NOT apply an excessive amount of tension; this will lengthen the rope and ruin the measurement.

3. Ensure that the fuze connector is straight (see Figure V-3) with respect to the rope (i.e. the fuze connector is NOT cocked at an angle). A cocked fuze connector will also ruin the measurement.

4. Ensure that the arming wire is straight (see Figure V-3) by applying only a SLIGHT amount of tension to the wire. Do NOT apply an excessive amount of tension; this will deform the rope and ruin the measurement. Also, ensure that the ball end of the arming wire is firmly seated in the bottom of the knurled nut as shown in Figure V-4.

5. Ensure that the front face of the knurled nut is parallel with the front face of the fuze connector as shown in Figure V-5 (i.e. the knurled nut is NOT cocked at an angle).

6. To the nearest 0.05 inch, measure Distance “D” from the front face of the knurled nut to the front face of the fuze connector (Figure V-5). Distance “D” is POSITIVE when the front face of the knurled nut is above the front face of the fuze connector (Figure V-5). In contrast, when the front face of the knurled nut is below the front face of the fuze connector, “D” is NEGATIVE (Figure V-5). When the front face of the knurled nut is below the front face

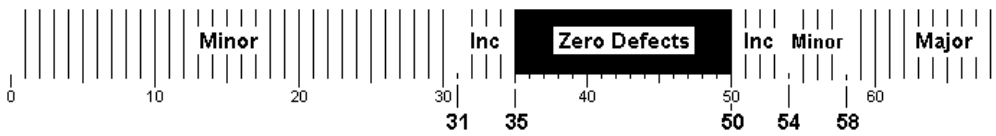
of the fuze connector, make certain that the tip of the depth gage contacts only the front face of the knurled nut as shown in Figure V-6.

7. Record the measurement on the data sheet. If "D" is negative, be sure to record the measurement with a minus sign.

(e) Determine the defect classification of the L and D combination see Figure V-7. The knurled nut below flush is always a critical defect.

r. Snap hook opening must face up away from the wall of the container.

Figure V-1. Hose Clamp Torque Specification.



FigureV-2. Length L Is Defined.

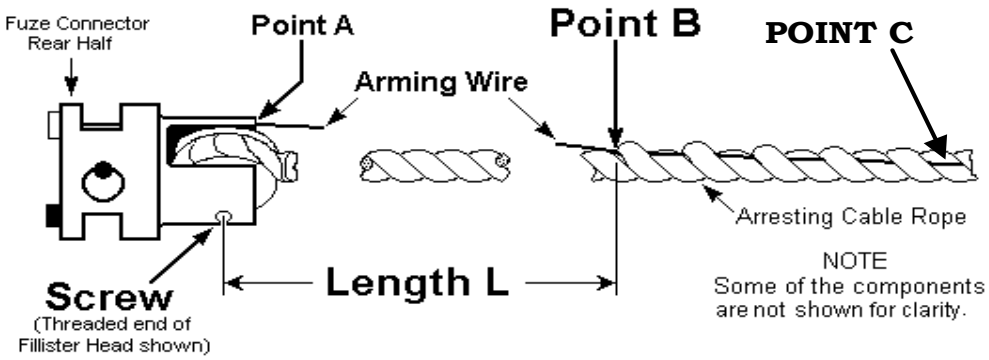


Figure V-3. Correct and Incorrect Inspection Configurations.

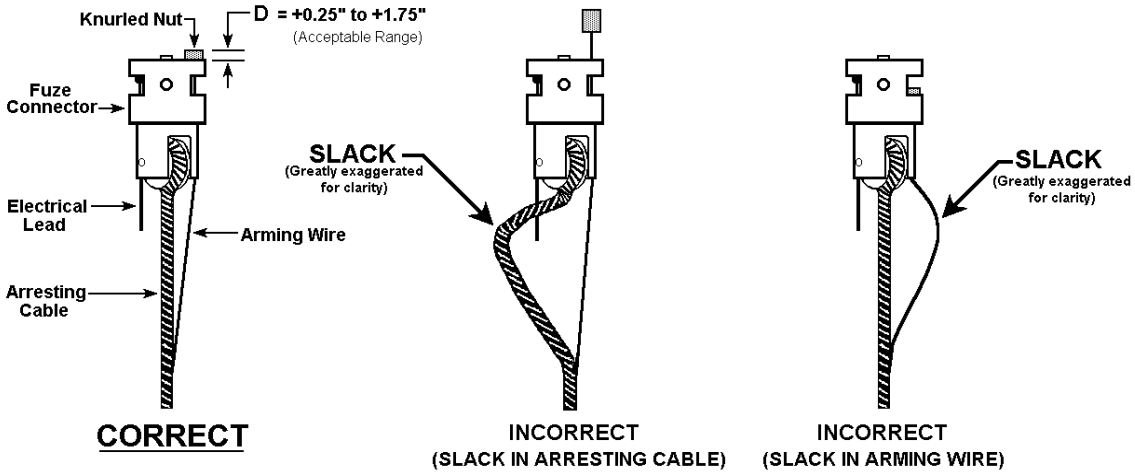


Figure V-4. Right and Wrong Positions of the Ball End of the Arming Wire.

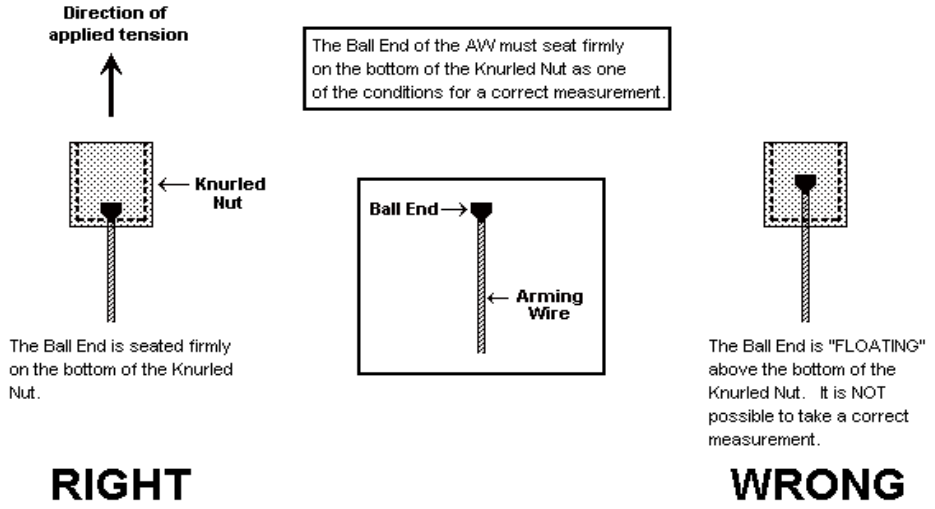


Figure V-5. Positive and Negative Ranges of Distance "D" Values

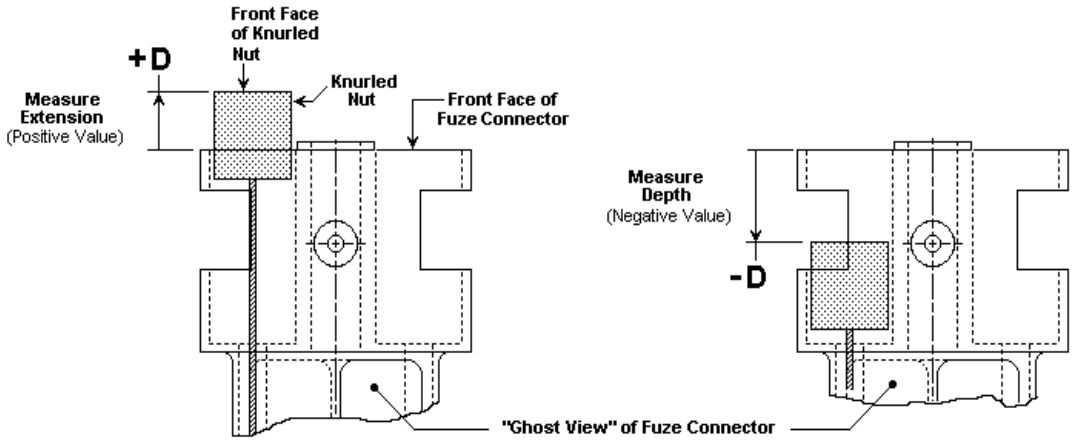


Figure V-6. Right and Wrong Depth Gauge Measurement Methods.

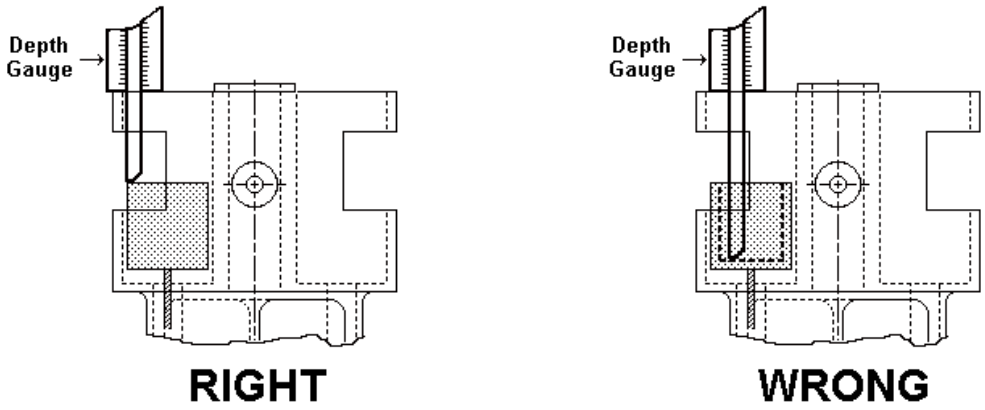
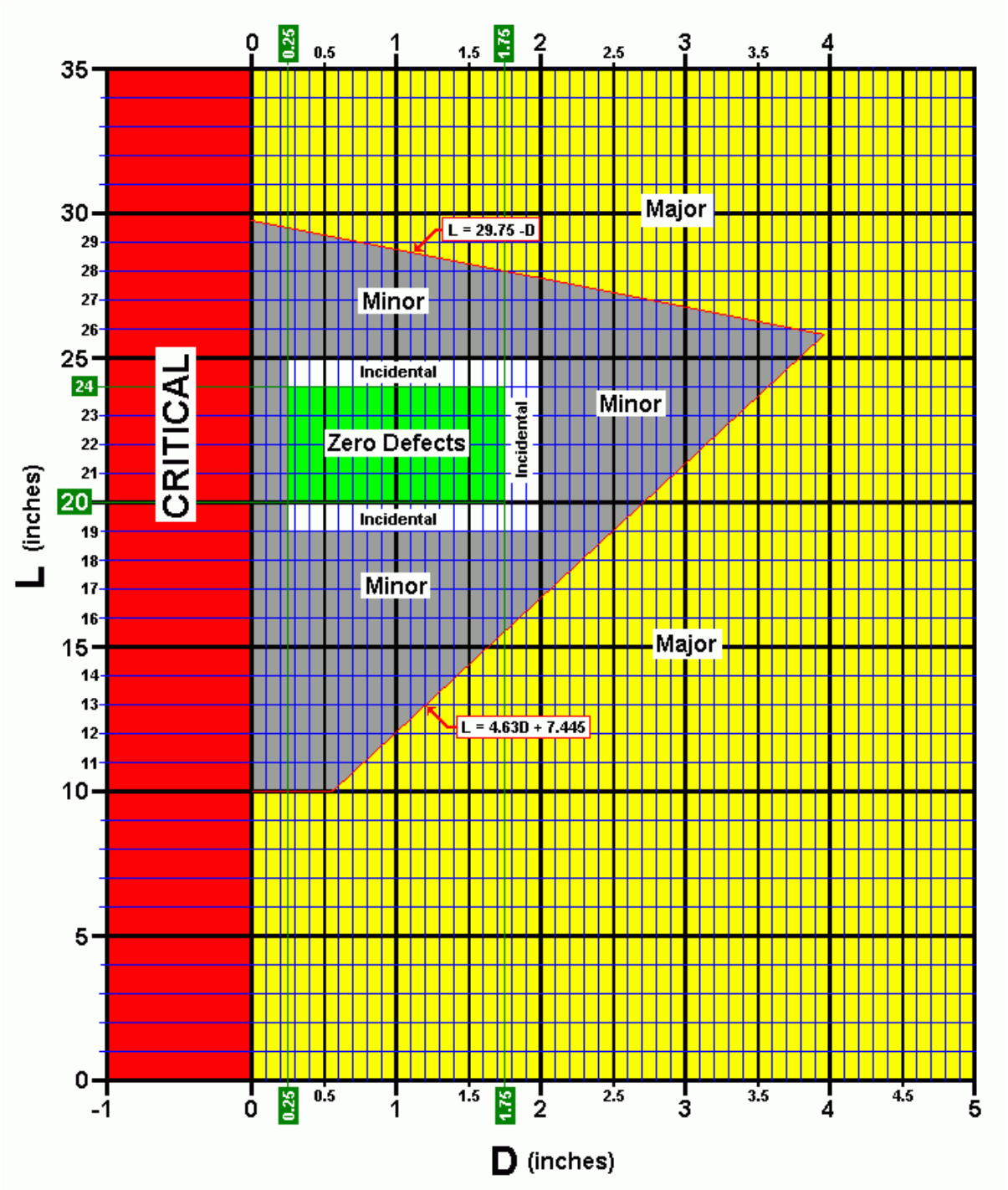


Figure V-7. Defect Classification of the L and D Combination.



V-7. Pre-issue Inspection of M58 Charges and M68 Practice Charges.

Pre-issue Inspections will be performed on all M58 and M68 series linear demolition charges by issuing installations. Charges will be inspected for:

a. Proper orientation of the detent in the rocket motor receptacle on the junction box. The rocket motor receptacle is the bottom receptacle. The detent should be in the 12 o'clock position.

b. Crushed/damaged wires in the junction box. Inspection procedures are as follows:

(1) Use a digital multimeter set to read ohms and capable of providing an audio alert when continuity or closed circuit is read.

(2) Remove protective caps from receptacles on linear charge junction box.

(3) Place one multimeter lead on receptacle #1, pin "A". Place other lead on receptacle #3, right side pin. Multimeter should register continuity. Receptacle #1 is the top receptacle. Receptacle #2 is the middle receptacle. Receptacle #3 is the bottom receptacle.

(4) Place one lead on receptacle #3, right side pin. Place other lead on shell of receptacle #3. There should be no continuity.

(5) Place one lead on receptacle #3, right side pin. Place other lead on right edge of panel between receptacles #2 and #3. Scratch paint to bare metal. There should be no continuity.

(6) If continuity is indicated in steps 4 and/or 5 then the junction box has damaged wires. Remove the junction box panel and verify the condition.

V-8. References.

a. DMWR 9-1375-000-X20.

b. FM 5-25.

c. TM 9-1375-215-13&P.

d. TM 43-0001-38.

APPENDIX W
CANINE EXPLOSIVE SCENT KIT

W-1. Item Description.

a. FSC: 1375.

b. Ammunition Type: Explosive Scent Kit, Canine.

c. Canine Explosive Scent Kit is designed to provide realistic training for sentry dogs and increase their proficiency to search and detect various amounts of explosive materials used by terrorists and subversives. Kit consists of eight numbered M19A1 ammunition cans overpacked in a wooden box. Seven cans contain an identified explosive material. One container is empty to allow for addition of another type of explosive material that may be required in future.

d. Explosive material contained in kit:

(1) Container 1: Explosive, Water Gel, quantity - 6 each 0.5 lb lengths, NSN 1375-01-180-5779 MY77.

(2) Container 2: Propellant powder (Smokeless Powder) (IMR), quantity - 2 each 1 lb containers, NSN 1376-00-772-1370 MY57.

(3) Container 3: No explosives.

(4) Container 4: Charge, Demolition Block M112, quantity - 3 each 1.25 lb blocks, NSN 1375-00-724-7040 M023.

(5) Container 5: Charge, Demolition Block 0.5 lb. TNT, quantity - 6 each .0.5 lb blocks, NSN 1375-00-926-9316 M031. Due to short supply of M031, JMC Inventory Management Specialists have been issuing Charge, Demolition Block 0.25 lb TNT, quantity 12 each, 0.25 blocks, NSN 1375-00-580-1377 or 1375-00-926-9394 M030.

(6) Container 6: Cord, Detonating, quantity - 6 each 5 ft. lengths, NSN 1375-00-180-9356 M456.

(7) Container 7: Dynamite, Exgel 75, quantity - 6 each 0.5 lb. sticks, NSN 1375-01-494-9223 MN85.

(8) Container 8: Dynamite, Exgel 40, quantity - 6 each 0.5 lb. sticks, NSN 1375-00-096-3095 M587.

(9) The above listed contents may be stored in M19A1 cans NSN 8140-00-828-2938. The M19A1 cans will fit into wooden box NSN 8140-01-194-8044.

e. Shelf-life requirements:

(1) NSN 1375-01-494-9223 MN85 Dynamite, Exgel 75 - 18 months.

(2) NSN 1375-00-096-3095 M587 Dynamite, Exgel 40 - 18 months.

(3) NSN 1375-01-180-5779 MY77, Explosive, Water Gel, - 12 months (Note: when Water Gel (MY77) ages it loses energetic properties, but does not lose scent necessary for use in canine training). See paragraph W-6.f.

(4) Commercial Dynamite is assigned eighteen (18) month shelf-life (S/L) IAW TB 9-1300-385, Appendix D. QASAS are authorized to extend S/L six (6) months in one (1) month increments, not to exceed twenty-four (24) months total S/L. Upon expiration of the eighteen (18) month S/L, inspection shall be performed every thirty (30) days to verify serviceability.

W-2. Unique Safety Precautions.

a. Extreme care is necessary when handling commercial dynamite due to greater sensitivity to heat and shock than other commonly used explosives. Avoid contact of exudate with bare skin. Respiratory protection from vapors is required in non-ventilated areas. Handling of Nitroglycerin-based explosives may cause severe headaches. Personnel handling commercial dynamite will wear appropriate personnel protective equipment (PPE). Contact you installation industrial health/hygiene office for assistance.

(1) Inspection personnel will wear Nitrile latex free gloves at all times when handling dynamites. Cotton or leather gloves may be worn over the Nitrile gloves if heavy work is being performed. The disposal of the cotton/leather gloves is IAW requirements of the installation safety/environmental officer. Operators should always wash their hands after handling dynamite regardless of whether or not they are wearing gloves.

(2) Inspectors will wear a half-face or full-face respirator with organic vapor cartridges if operations are performed in poorly ventilated areas. If large amounts of dust are present during repackaging or inspection operations, organic vapor/p100 combination cartridges should be used. All operators who wear respirators must be fit-tested, receive respiratory protection training IAW OSHA's respiratory protection standard, 29CFR1910.134 and be medically certified for use of a respirator.

b. Exuding dynamite is highly sensitive and shall be handled carefully to prevent accidental initiation. Avoid contact of exudate with bare skin. Respiratory protection from vapors is required in non-ventilated areas.

c. Packaged charges dropped in excess of six feet, or an unpacked demolition charge dropped in excess of three feet shall be considered unserviceable, turned in, and reported in accordance with local procedures.

d. Commercial dynamite that has deteriorated from age or other causes can be identified by liquid exudate, or soft, mushy feel to the sticks. Commercial dynamite exposed to humidity or relatively high temperatures deteriorates at an accelerated rate. Engineering evaluation determined that the presence of oily stains on the sticks or wrapping paper does not present a significant explosive hazard. Liquid exudate, largely a function of exposure to humidity, does present a potential explosive hazard. Liquid exudate consists of a measurable substance (actual drops or pooling). Exuding dynamite is highly sensitive and shall be handled carefully to prevent accidental initiation. Such dynamite should not be used, nor should packages be opened. See paragraph W-6i.

e. Ammonium nitrate, in presence of some organic materials, becomes more sensitive and subject to auto ignition. Ammonium nitrate dynamite with exposed explosives should be handled with caution.

W-3. Testing and Equipment Requirements.

Smokeless powder, 1376-00-772-1370 MY57, is part of

the propellant stability program. The MY57 is used in the MN01. The MY57 propellant test results from the propellant stability program are required to be placed on the canine explosive scent kit DSR.

W-4. Inspection Category and Sampling Plan.

a. Canine Explosive Scent Kit, in depot storage, is assigned no inspection category: periodic inspection interval - one (1) year. Sample size will be 20, or entire lot if total quantity is less than 20. Accept/reject criteria will be in accordance with Table 2-2 for depot stored stocks.

b. Annual periodic inspections will be scheduled to follow hottest portion of year. To the maximum extent possible, material in the kit should have only limited exposure to prolonged high temperatures and humidity (even moderately high temperatures of 75 to 80 degrees Fahrenheit have brought the onset of staining and liquid exudation of commercial dynamite).

c. Annual basic load inspection will be performed on kits in the hands of using units in accordance with Chapter 8. Inspection will be performed by a QASAS. Defects will be identified and classified in accordance with Table W-1. Kits containing commercial dynamite will be inspected at the conclusion of the hottest portion of the year. A representative sample will be selected and examined for evidence of nitroglycerin (liquid or crystal) exudation on the exterior of the stick and/or packing material.

W-5. Specific Inspection Points.

Items will be inspected and classified according to this supply bulletin and Table W-1.

W-6. Inspection Description and Notes.

a. Commercial dynamite when stored in temperatures exceeding 70 degrees Fahrenheit will require increased surveillance procedures to inspect for presence of exudation. Exuding dynamite, identified by a liquid substance and/or crystallization appearing on casing or sticks, will not be issued or used. Crystals of nitroglycerin appear yellow to dark amber. The manufacturing process allows for small pieces of inert filler to migrate outside the wrapping. The filler is beige to gray and not cause to reject the dynamite. The liquid substance is the result of absorption/adsorption of liquid by inorganic salts EGDN and traces of NG (nitroglycerin). It occurs in the exposure of the dynamite to high or prolonged levels of humidity. The wax coating of the dynamite sticks may also deteriorate. The deteriorated wax coating is normally a powdery light colored substance and does not present an explosive hazard. Dynamite exhibiting liquid exudation may be more sensitive and should be destroyed immediately in accordance with local procedures.

b. Commercial dynamite when stored in temperatures below 32 degrees Fahrenheit will be inspected for being frozen by using the Pin Test. A common pin will not penetrate frozen dynamite but can be pushed quite readily into dynamite that is merely stiff or hard. Frozen dynamite will be destroyed immediately in accordance with local procedures.

c. Damaged boards will be replaced. New box should be constructed from locally available material. Box will be marked in accordance with applicable drawings.

d. Remove nail and replace with nail of correct size and length.

e. Repair using scotch transparent tape, or equivalent.

f. Explosive water gel shelf life:

(1) Determining Water Gel date of manufacturing (DOM):

Water Gel is purchased as an off-the-shelf item and lot numbers may not correspond to standard lot numbering. Use the following examples to determine DOM and shelf life expiration dates:

(i) Lot: 262318FE92N5.
Date of Manf: 18 Feb 1992.
Shelf Life expires: 28 Feb 1993.

(ii) Lot: SEC08DEC01.
Date of Manf: 08 Dec 01.
Shelf Life expires: 31 Dec 2002.

(iii) Lot: 30AU06X2.
Date of Manf: 30 Aug 06.
Shelf Life expires: 31 Aug 07.

(2) Water gel under 12 months old and visually serviceable will be classified in CC-A.

(3) Water gel over 12 months old (expired shelf life), but still visually serviceable, will be classified to CC-B (B62 - restricted to use in canine scent kit) and retained for canine training. These assets may remain in Canine Scent Kits as long as they remain visually serviceable.

(a) Excess Water Gel with expired shelf life removed from scent kits but still visually serviceable, will be retained in CC-B (B62 - restricted to use in canine scent kit) and reported to the addressee in paragraph 1-5.d(20)(i).

(b) Unserviceable Water gel removed from canine scent kits will be classified accordingly and handled IAW local explosive disposal procedures. In addition, the requirement for the kit remains 6 ea sticks, inspection rejects are based solely on individual items from that kit. A single damaged water gel stick should not be used to justify the rejection of the remaining five water gel sticks.

g. Remove damp/wet sawdust, place in plastic bag and turn in for demolition. Replace with fresh sawdust from local sources.

h. Clean by brushing with copper or aluminum (non-sparking) brush (round brush preferred).

i. In recently manufactured dynamite, the nitroglycerin or nitro-cotton materials are produced in encapsulated micro-bubbles and do not leak/exude like older production dynamite. New production dynamite may have dark brown spots and colorations. It may also have a slick feel due to a wax coating applied to the outer wrapper. These are not defects unless accompanied by a liquid exudates or nitroglycerin crystallization.

j. Empty, burnable (not treated with PCP)

containers that have been used for dynamite will be destroyed by burning, in compliance with local environmental regulations and AMC-R 755-8. Oily stains of nitroglycerin will be scrubbed off non-burnable containers with a mixture of following solutions:

(1) Solution A. Sodium sulfide (pulverized) - 9 parts by weight, and water - 30 parts by weight.

(2) Solution B. Denatured ethyl alcohol - 70 parts by weight and acetone - 20 parts by weight. Immediately before decontaminating nitroglycerin, combine above solutions. If solutions are mixed and then stored, potency diminishes. Use of this mixture should be limited to very small quantities, such as oily film that adheres to surfaces after nitroglycerin has been removed with sponges or absorbed in wood pulp or sawdust. Operators using this solution should wear rubber gloves.

k. Clean and repack.

l. Repair using scotch transparent tape, or equivalent.

m. Demolition blocks will be dried; mildew or mold will be removed by wiping with a cloth or a bristle brush. Drying will be by natural means, no artificial heat will be utilized.

n. Special packaging instruction #ADPLBOX012 contains instructions for the preparation of light boxes of dynamite and water gel for use in the dog scent kit.

W-7. References.

a. SB 742-1375-94-423.

b. TM 9-1300-214.

c. TM 9-1375-213-12.

d. TM 9-1375-213-34.

e. TO 11A20-16-7.

Table W-1. Item Defects and Method of Inspection.			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Smokeless powder absorbing moisture.		Visual	
b. Smokeless powder container broken or leaking.		Visual	
c. Smokeless powder container missing top.		Visual	
d. Exudation (liquid substance) on commercial dynamite.		Visual	Para W-6a
e. Crystallization on commercial dynamite.		Visual	Para W-6a
f. Commercial dynamite frozen.		Manual	Para W-6b
2. Major:			
a. Outer pack weathered or damaged to extent that contents cannot be protected.		Visual	Para W-6c
b. Outer pack with nail protruding into interior of box.		Visual	Para W-6d
c. Metal containers damaged.		Visual	
d. Water gel explosive plastic covering punctured, broken, torn, cut, gouged or otherwise damaged, exposing explosive.		Visual	Para W-6e
e. Water gel explosive with expired shelf life.		Visual	Para W-6f
f. Commercial dynamite with expired shelf life.		Visual	
g. Water gel explosive packing (sawdust) damp or wet.		Visual	Para W-6g
h. Charge, demolition block .5 lb. TNT crushed or with exudation, crumbling, disintegration of covering and cracking of explosive surface.		Visual	
i. Charge, demolition block .5 lb. TNT activator well plugged with foreign matter.		Visual	Para W-6h
j. Charge, demolition block .5 lb. TNT Fiberboard container of end plates cut, torn, gouged, or otherwise damaged to extent that explosive is exposed or flaking.		Visual	
k. Detonating cord broken, chewed, mutilated, exposing explosive.		Visual	
l. Detonating cord soaked (water).		Visual	
m. Commercial dynamite wrapping loose, cut, torn, gouged, or otherwise damaged to extent that explosive is exposed.		Visual	
n. Commercial dynamite cartridge (sticks) broken.		Visual	
o. Commercial dynamite having a dark color is soft and mushy.		Visual/Manual	Para W-6i
3. Minor:			
a. Outer pack with board(s) loose, split, or warped.		Visual/Manual	
b. Outer pack with evidence of dry rot, mildew, mold, dampness, or termite infestation.		Visual	
c. Outer pack missing wooden knot, size and location being such that material is not adequately protected.		Visual	
d. Outer pack markings missing, misleading, incomplete, or unidentifiable.		Visual	
e. Inner pack markings missing or obliterated.		Visual	
f. Container contaminated with explosives.		Visual	Para W-6j
g. Smokeless powder loose in M19A1 container.		Visual	Para W-6k
h. Demolition charge, M112 Mylar film covering punctured, torn, cut, gouged or otherwise damaged to extent that explosive is exposed.		Visual	Para W-6l
i. Demolition charge, M112 protective cover strip missing.		Visual	
j. Charge, demolition block .5 lb. TNT with presence of mildew, mold or dampness.		Visual	Para W-6m

APPENDIX X
FUZES, ARTILLERY

X-1. Item Description.

a. FSC: 1390.

b. Ammunition Type: Artillery fuzes, including mechanical time (MT), mechanical time super quick (MTSQ), point detonating (PD), proximity (VT) and electronic time (ET) and multi option fuze artillery (MOFA). Mortar fuzes included in other appendices are not covered.

c. For a complete description and related data, refer to Chapter 7 of Army Ammunition Data Sheets (Federal Supply Class 1315, 1320 and 1390) and applicable Drawings.

X-2. Unique Safety Precautions.

a. No unique safety precautions are applicable to this item.

b. Proximity fuze M732 is required to be stored with the base up IAW DWG 19-48-4116-PA1002/156G. This prevents deterioration of the power supply. The container requires stencil markings showing an arrow pointing toward the bottom of the wire bound box and the word 'up'. Containers should be maintained inverted in storage. Orientation of boxes should be an inspection point at time of sample selection.

X-3. Testing and Equipment Requirements.

a. Torque test fuzes IAW Table X-1 utilizing the APE 1223 torque fixture. The fuze torque test will be conducted during receipt inspection on a sampling basis as determined by the QASAS in charge. Paragraphs 2-3b(1) and (2) apply. This determination should be based on past and present inspection data.

b. The M571, M592 and M711 and M762/M767 Series fuzes are hand settable with a plunger which provides locking of lower cap in flight. These fuzes do not require a fuze setting torque test.

c. M762/M767 Series fuzes are hand settable without the aid of a tool and do not require a fuze setting torque test since the electronics lock the setting in flight.

X-4. Inspection Category and Sampling Plan.

Inspection interval and sampling plan will be IAW Chapter 2.

X-5. Specific Inspection Points.

Item will be inspected and classified IAW Chapter 2 and Table X-2. Disposition and proper handling of packing materiel will be IAW paragraphs X-6g and h.

X-6. Inspection Description and Notes.

a. Fuzes assembled to complete cartridge rounds will be removed from cartridge prior to testing. Torque is to be applied in the direction of increasing time and with a continuous motion. Desirable method is to complete test in one revolution of setting (lower) cap. In case of an over-run when setting fuze on 'safe' or 'MA', cap will not be backed off but rotated through a complete cycle.

b. Proximity (non-metallic ogive).

c. All fuzes with booster.

d. All MT, MTSQ and three (3) proximity fuzes (M514A3, M728 and M732) listed in Table X-1 require a torque test.

e. All except proximity and solid nose types.

f. Disposition of fuzes bulk packed or assembled to complete rounds that fail torque requirements but not sufficient in number to reject entire lot will be as follows:

(1) Fuzes from bulk pack lots will be authorized for local destruction.

(2) Fuzes removed from cartridges for test will be reassembled to round, tagged, segregated and reported according to provisions of this supply bulletin.

g. Packs selected for item inspection purposes will be kept to a minimum. Additionally, all subject packs which are opened will be marked 'Surveillance Samples: not to be shipped until entire lot quantity is exhausted' and used on a recurring basis for future inspections.

h. When opening bulk pack fuzes in M2A1 cans for item inspection purposes, containers will be left open for a minimum amount of time:

(1) When possible, desiccant packed in M2A1 container will be replaced with fresh desiccant prior to repack.

(2) Desiccant to be reused, and Styrofoam packing supports removed from M2A1 cans must be stored in an approved desiccant container during item inspection. When containers are not available, Styrofoam supports and desiccant will be placed back into M2A1 cans immediately after fuze samples have been removed. Cans will then be closed and not re-opened until fuzes are repackaged.

i. M728 and M514A1E1 (M514A3) fuzes will be classified defective if index line is off the 10 second shipping position by 3-seconds or more.

j. Crack in setting window is a major defect if it pierces the window permitting entry of moisture or obstructs view of setting scale. Surface stress marks/ cracks are not defects.

k. Fuze not set on 'S' position is considered a major defect for M565 fuze model. When discovered 'OFF-S' during inspection, reset samples to 'S'. There is no hazard for use, handling or transportation.

l. M564 fuzes, which have verniers over 1 interval to right or left of 'S' position, are considered critical defectives. If encountered, investigate possibility that fuzes could be field returns, not representative of lot.

m. Humidity indicator cards are no longer required for current or future production of Fuze, M762/M767 Series. An Engineering Change Proposal (ECP) has been approved to remove the humidity indicator card from the packaging configuration. In drawing 8864492 Rev BA, 31 Jan 98, subject: Box Ammo Metal for Artillery Type and Rocket Fuzes, paragraph PP 9 requiring humidity indicator card is deleted in its entirety. M762/M767 Series is accepted

'AS IS' and replacement or repacking of the indicator cards is not required. Lots in condition code Lima (L) for humidity card defects will be returned to appropriate condition code based on inspection results. No action will be taken on Ammunition Condition Report (ACR) DA Form 2415 submitted for deficiencies with humidity indicator cards for subject items. Disregard humidity indicator card reading for M762/M767 Series fuzes.

n. Part of the M762/M767 Series fuze packaging includes a barrier bag inside the ammunition can. M762/M767 Series fuze barrier bag being torn or missing is not cause to reject the lot.

Table X-1. Fuze Setting Torque Test Requirements.

				# Below Min		# Above Max		
Model	**Inspection**	**Torque Limits Inch-Pounds**	**Sample Size**	**Accept**	**Reject**	**Accept**	**Reject**	**Application**
M501, MTSQ	RI, PI	50-300	20	2	3	2	3	Lower cap assembly
M501A1, MTSQ	RI, PI	50-300	20	2	3	2	3	Lower cap assembly
M520, MTSQ	RI, PI	50-300	20	2	3	2	3	Lower cap assembly
M520A1, MTSQ	RI, PI	50-300	20	2	3	2	3	Lower cap assembly
M548, MTSQ	RI, PI	60-300	20	1	2	2	3	Lower cap assembly
M563, MT	RI, PI	60-300	20	1	2	2	3	Lower cap assembly
M564, MTSQ	RI, PI	60-300	20	1	2	2	3	Lower cap assembly
M565, MT	RI, PI	60-300	20	2	3	2	3	Lower cap assembly
M514A3, PROX. RI, PI	RI, PI	100-300	20	2	3	2	3	Lower cap assembly
M728, PROX	RI, PI	100-300	20	2	3	2	3	Lower cap assembly
M732, PROX	RI, PI	100-300	20	2	3	2	3	Lower cap assembly

Table X-2. Item Defects and Method of Inspection.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Fuze with missing or broken safety pin or clip.	M501A1, M520	Visual	
b. Fuze not set to safe 'S' position.	M564	Visual	Para X-6l
c. Ogive and head assembly loose (removable by hand pressure).	M48 Series, M51 Series, M557, M572	Visual/Manual	
2. Major:			
a. Cracked ogive.	Para X-6b	Visual	
b. Threads damaged to the extent precluding assembly.	All	Visual	
c. Pull wire not inserted proper depth.	M520	Visual	
d. Fuze not set on muzzle action (MA). MA line on lower cap not in line with zero line on body.	M563, M571, XM711	Visual	
e. Ogive loose interferes with setting sleeve.	M48 Series, M51 Series, M557, M572	Visual	
f. Hairline and number not visible through window.	M577, M582	Visual	
g. Fuze setting not in shipping position (93.5-95.5 seconds).	M577, M582	Visual	
h. Fuze not set on 'SQ'.	M48A3, M51A5, M557	Visual	
i. Booster cup damaged or loose pellets.	Para X-6c	Visual	
j. Fuze fails torque test.	Para X-6d	Manual	Para X-6a, Para X-6f
k. Crack in setting window.	M577, M582	Visual	Para X-6j
l. Fuze not set to 'S' position.	M565	Visual	Para X-6k
m. Liquid crystal display not blank.	M762/M767 Series	Visual	
n. Humidity indicator card missing (except M762/M767 Series).	All	Visual	Para X-6m
o. Polyethylene cushion missing.	All	Visual	
3. Minor:			
a. Firing pin closing disc or foil missing or damaged.	Para X-6e	Visual	

b. Ogive loose (does not interfere with setting sleeve) or exhibits vertical movement.	M48 Series, M51 Series, M557	Visual/Manual	
c. Set line in improper position for shipping.	M513 Series, M514 Series, M728 Series, M732 Series	Visual	Para X-6k
d. Marking incorrect or illegible.	All	Visual	
e. Evidence of poor workmanship.	All	Visual	
f. Foil seal over lead charge damaged or missing.	M762 Series	Visual	

APPENDIX Y
CARTRIDGE, 120MM MORTAR

Y-1. Item Description.

a. DODACs and ammunition type:

(1) 1315-C379: Cartridge, 120mm, HE, XM934/M934/M934A1

(2) 1315-C623: Cartridge, 120mm, HE, XM933/M933

(3) 1315-C624: Cartridge, 120mm, WP XM929

(4) 1315-C625: Cartridge, 120mm, Illum, XM930.

(5) 1315-C788: Cartridge, 120mm, HE, M57 (NDI).

(6) 1315-C789: Cartridge, 120mm WP M68

(7) 1315-C790: Cartridge, 120mm, Illum, M91 (NDI)

(8) 1315-CA03: Cartridge, 120mm, WP, M929.

(9) .1315-CA04: Cartridge, 120mm, HE, M934A1/M934A2

(10) 1315-CA07: Cartridge, 120mm, Illum, IR, XM983 M983

(11) 1315-CA09: Cartridge, 120mm, Full Range, Practice, M931.

(12) 1315-CA39: Cartridge, 120mm, Illum, M930E1

(13) 1315-CA44: Cartridge, 120mm, HE, M933A1

NOTE

M57, M68, and M91 cartridges not authorized with carrier mounted M121 mortar due to overpressure safety concerns may cause bodily injury and hearing loss.

b. Early procurement of 120mm ammunition from foreign sources was designated M57 (C788) for high explosive or M91 (C790) for illuminating cartridges. A total of 57,000 HE, M57 and 9,000 Illum, M91 cartridges were purchased from foreign sources. This stock is frequently referred to as a non-developmental item (NDI). NDI cartridges have a unique propelling charge configuration. Fuzes for M57 HE cartridges are US manufactured M935 PD fuzes. The one lot of M91 illuminating cartridges is assembled with DM93 mechanical time fuzes. Cartridge model numbers have been changed for later production in the USA. Inspection criteria will apply to both foreign procurement and US production unless indicated otherwise.

c. 120mm cartridges are fin-stabilized rounds fired from smooth bore weapons. Weapons include M120 mortar for ground emplacement and M121 carrier mounted mortar. Information pertaining to weapons, authorized cartridges and firing procedures is contained in TM 9-1015-250-10. A complete round (except NDI) consists of a Projectile, Fuze, M31 Fin Assembly, M981 or M1020 Ignition Cartridge and four M230 or M234 Propelling Charges. For a complete description of these rounds see TM 43-0001-028 and TM 9-1300-251-20&P/34&P.

d. Sub Caliber Device, M303 is an 81mm, M29 Series mortar tube with an adapter. This device, when inserted into the 120mm tube permits firing of 81mm M300 Series and M880 Short Range (Practice) ammunition. Ammunition fired from this subcaliber device will be inspected using Appendix G for 81mm mortar ammunition. Information pertaining to weapon authorized cartridges and firing procedures is contained in TM 9-1015-254-13&P.

e. Drawings for 120mm mortar cartridges are proprietary and authorized only limited distribution. Any request submitted to Commander, Rock Island Arsenal, ATTN: SIORI-ITD, (DSN 793-6973) as required by paragraph 2-2b must include adequate justification of need for drawings.

f. Packaging of NDI cartridges is 1 round per fiber container, 2 fiber containers per wooden box. Later US production is packed 1 cartridge per, PA 153 fiber container or PA167 polyam container, 2 containers per metal can, PA 154.

g. Palletization of M900 Series cartridges will be in accordance with drawing 19-48-4116, Appendix 38A.

Y-2. Unique Safety Precautions.

No unique safety precautions are applicable to this item.

Y-3. Testing And Equipment Requirements.

a. Gaging policy is provided in Chapter 2 of this SB. Gaging is not normally required during PI, RI, or UBLI. Gaging, during these inspections (other than IRI), should be limited to individual rounds having visual evidence of damage or other conditions that may preclude loading and firing. Unless the rounds requiring gaging are truly representative of the lot being inspected, they should be disregarded in evaluating the lot.

b. A gage for 120mm ammunition is not available at this time. AMC Project Manager for Mortars is working to develop/procure a profile and alignment gage for 120mm cartridges.

Y-4. Inspection Category And Sampling Plan.

a. Inspection categories:

(1) Category W: 5 years - Practice without Explosive Components (Inert) and Illuminating.

(2) Category X: 4 years - HE, WP, RP, Practice with Explosive Components, Chemical, FS Smoke, Leaflet and Riot Control

(3) Inspection interval is to be reduced to 2 years for cartridge lots assigned condition code C due to discolored propellant or foam from packing supports adhering to propellant containers.

b. The sampling plan to be used for inspection is found in Chapter 2.

Y-5. Specific Inspection Points.

a. Items will be inspected and defects classified according to Table Y-1.

b. Drawings require packaging of all 120mm, M929 WP cartridges in fiber inner containers (PA153) and metal outer containers (PA154) to be marked "this end up." This is to permit identification of correct orientation when palletized and in storage. Requirement is to store and transport WP cartridges in a nose up configuration. When packaged or unitized in other orientations and subjected to high temperatures (111+ degrees F) filler may melt, change position (hence center of gravity), and upon solidification cause poor ballistics with resultant short rounds.

Table Y-1. Item Defects And Method Of Inspection

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Fuze not set on safe.	M91	Visual	
b. Fuze safety wire missing, insecure, or improperly engaged.	M57/M91	Visual/Manual	
c. Ignition cartridge head not below flush with rear edge of fin.	All	Straightedge	Para Y-6a
d. Firing plug protrudes above primer head.	All	Straightedge	
e. Any propellant increment missing or damaged (cut or torn with leaking propellant)	M57/M91	Visual	
f. Propellant increments not in correct sequence	M57/M91	Visual	Para Y-6b
g. Any propellant charge container missing or damaged (broken or cover delaminated with leaking propellant).	M900 Series	Visual	Para Y-6d
h. Propellant charge support assembly missing or improperly positioned.	Para Y-6k	Visual	Para Y-6k
i. Fin assembly damaged, distorted, or cracked.	All	Visual	
j. Obturating ring missing or broken.	All	Visual	
k. WP leakage or evidence of leakage.	M929	Visual	
l. One or more shear pins missing.	M91	Visual	
m. Crack in projectile.	All HE/WP	Visual	Para Y-6c
n. Explosive residue on projectile exterior.	All HE	Visual	
2. Major:			
a. Ignition cartridge missing	All	Visual	
b. Any propellant increment damaged where propellant cannot escape.	M57/91	Visual	
c. Propellant charge container damage where propellant cannot escape.	M900 Series	Visual	Para Y-6d
d. Any component damaged or incorrectly assembled (if not described elsewhere).	All	Visual	Para Y-6e
e. Fuze assembly not fully seated.	All	Visual	
f. Fuze adapter not fully seated.	All	Visual	
g. Fin assembly loose or not fully seated.	All	Visual/Manual	Para Y-6f
h. Obturating ring not welded/bonded.	All	Visual	Para Y-6g
i. Obturating ring not flush or below bourrelet diameter.	All	Straightedge/ gage	Para Y-6h
j. Obturating ring damaged (other than broken	All	Visual	
k. Cartridge fails to freely enter profile and alignment gage.	All	Gage	Para Y-6i
l. Glue, asphalt, wax, or cement on cartridge (bourrelet area only).	All	Visual/Gage	Para Y-6h
m. Arrow and/or "this end up" marking missing from inner/outer pack or ctg incorrectly oriented in pack.	M929	Visual	
n. Fuze not set on "PD".	All with M935 Fuze	Visual	
o. Fuze support missing from PA153 container.	M900 Series	Visual	
p. Fuze label missing or illegible.	M57	Visual	
q. Propellant charge support assembly missing or improperly positioned.	Para Y-6l	Visual	Para Y-6l
r. Fin corroded with blockage of the flash holes.	All	Visual	
3. Minor:			
a. Paint missing in an area greater than 0.25 square inch.	All	Visual	
b. Fuze not set in the "PROX" mode.	All with M734 Fuzes	Visual	
c. Propellant container discoloration	M900 Series	Visual	Para Y-6j
d. Fin corroded with flaking but not blocking flash holes.	All	Visual	Para Y-6j
4. Incidental:			
a. Propellant container discoloration.	All	Visual	Para Y-6j
b. Fin corrosion with no flaking.	All	Visual	Para Y-6j

Y-6. Inspection Description and Notes.

a. Primer is contained in M981 ignition cartridge. Ignition cartridge should be fully assembled and in contact with fin rear boss.

b. Propellants sequence for NDI cartridges starting from front of cartridge must be 4 each white increments, followed by 2 blue increments with 1 brown increment at rear.

c. Projectile body (HE or WP) with open or closed crack (cold shut) is a safety hazard during firing.

d. Rigid propellant charge containers have a water resistant finish to protect propellant from moisture contamination. Cracks, dents, seam, or propellant fill hole cover delamination or other damage would be classified as a major defect. If damage is severe enough to permit propellant to escape, the defect is critical. To check integrity of damaged propellant containers place the charge on an M31 fin, oriented such that the propellant would be resting against the damaged surface and hand shake vigorously three times.

e. When the component is damaged to the extent that its functional effectiveness is impaired significantly, it will be classified as a defect.

f. When the fin assembly can be turned upon application of hand pressure, it will be classified as a defect.

g. NDI M57/M91 Cartridges have obturators heat welded. M900 Series cartridge obturator ends are glued together with adhesive.

h. Gage with a profile and alignment gage only if visually questionable.

i. Normally done only during first inspection and documented on DSR card to preclude repeat gaging. See paragraph Y-3a.

j. Discoloration of propellant charge containers is a result of high humidity and temperature in storage. Color change is from normal light yellow to dark yellow to light green progressing to darker shades of green. Splotches of discoloration rather than a uniform transition of entire charge container evidences change. Corrosion on fin areas adjacent to propellant containers is normally associated with this discoloration. If this corrosion does not extend to other portions of fin, there is no flaking and flash holes are not obstructed, this condition is to be classified as incidental. Corrosion accompanied by flaking but no blockage of the flash holes is a minor defect. Corrosion with blockage of the flash holes is a major defect. Cartridges with discolored propellant charge containers or with foam from packing supports adhering to propellant containers is to be assigned condition code C, priority of issue.

k. All 120mm mortar cartridges with propellant charge support assemblies found during the following inspections:

(1) Initial receipt inspections (IRIs).

(2) Periodic inspections (PIs) without evidence of previously being field returns.

l. All 120mm mortar cartridges with propellant charge support assemblies found during (field return) receipt inspections (RIs).

APPENDIX Z
CARTRIDGES, 25MM

Z-1. Item Description.

a. FSC: 1305.

b. Ammunition Type: Cartridge, 25mm. Includes the following models:

(1) Armor Piercing Discarding Sabot-Tracer (APDS-T), M791.

(2) High Explosive Incendiary-Tracer (HEI-T), M792 with fuze point-detonating self-destroying M758.

(3) Target Practice-Tracer (TP-T), M793.

(4) Dummy, M794.

(5) Target Practice Discarding Sabot-Tracer (TPDS-T), M910.

(6) Armor Piercing Fin Stabilized Discarding Sabot-Tracer (APFSDS-T), M919.

Z-2. Unique Safety Precautions.

a. Ammunition malfunctions will be reported IAW AR 75-1.

b. Cartridge, 25mm, M919, APFSDS-T utilizes a depleted uranium (DU) penetrator that emits very low levels of radiation. Care must be taken when handling this round to limit direct contact with the DU penetrator.

c. Evidence of depleted uranium corrosion is visible in the form of a yellowish or white powder or stain seen on the outer surface of the projectile and is a hazard to personnel. If corroded (Yellow or White Corrosion) APFSDS-T M919 ammunition is encountered, ammunition must be handled with gloves. The ammunition must be placed in the original pack, tagged unserviceable, and returned through normal supply channels. Avoid getting depleted uranium corrosion on hands, wash hands with water before eating or putting hands to face. Dispose of gloves IAW AR-385-10.

d. When handling M919, 25mm, APFSDS-T Cartridges with exposed DU penetrators (i.e. cartridges missing aluminum sabots or plastic nose caps) always wear gloves regardless if corrosion is present or not. Even though gloves are worn, always wash hands before eating or touching face. Gloves need not be disposed of or treated as radioactive waste.

e. Swipe test is not required on cartridge, 25mm, M919, APFSDS-T ammunition unless there is evidence of corrosion or damage.

f. Exposure to 25mm APFSDS-T ammunition results in exposure to low-level radiation. The amount of radiation received is proportional to the time spent in close vicinity of APFSDS-T M919 ammunition. Although the radiation exposure received is low, avoid unnecessary contact with packaged APFSDS-T M919 ammunition (within mission constraints).

g. Loss or unauthorized firing of M919 rounds must be reported through the chain of command as soon as discovered. All transmissions regarding incidents of this nature must be marked, 'For Official Use Only (FOUO)'. HQ, JMC must be notified within 24 hours of discovery. Report to addressee in paragraph 1-5.d.(18)(b).

Z-3. Testing and Equipment Requirements.

Profile and alignment gaging is not authorized at this time. See paragraph Z-7 for M28 link gaging criteria.

Z-4. Inspection Category and Sampling Plan.

a. Inspection category: Category W (five years).

b. Sampling plan for 25mm ammunition will be IAW basic portions of SB 742-1, Table 2-3, for column heading Item (Other).

NOTE

Inner pack and item samples must be selected from a minimum of ten outer packs. Additional outer packs must be inspected at either the inspection or storage location(s) to make a total sample size of twenty.

Z-5. Specific Inspection Points.

Refer to MIL-STD-644, MIL-STD-129, and DWG 8796522 for marking of wood boxes, DWG 12982865 for other than wood boxes, DWG AC00561 for palletized load marking procedures, and basic portion of SB 742-1 for inspection of packaging and marking. DWGS can be ordered from addressee in paragraph 1-5.d.(5).

Z-6. Additional Guidance for 25mm Ammunition.

a. Cartridges, 25mm M791, M910 and M919:

(1) Missing or cracked plastic nose caps do not affect the ballistic performance of these cartridges and do not pose any risk to the weapon. Rounds found with missing plastic nose caps must have the exposed aluminum windscreen visually inspected for dents or damage.

(2) Damaged windscreen will be classified as a major defect.

(3) When defective windscreen samples are noted in sufficient quantities to cause rejection of a serviceable lot, linked belt will not be separated from the serviceable lot, and lot will be reclassified and reported through command channels to the commodity command.

b. Conglomerate lots of 25mm ammunition:

(1) Individual lot quantities of 25mm ammunition of less than a standard exterior pack will be accumulated for conglomeration and reported to the commodity command. The commodity command will notify JMC storage activities and overseas commands of items authorized for conglomeration. Automatic disposal of 25mm ammunition is not authorized.

(2) 25mm ammunition will be maintained in stock by individual lot number regardless of lot size.

(3) Quantities will be accumulated and carried on record as usable assets under the appropriate condition code. 25mm ammunition will be reported on DA Form 2415 Ammunition Condition Report (ACR) according to DA PAM 750-8 for disposition instructions.

(4) If authorized, relinking will be IAW basic portions of SB 742-1.

(5) Conglomerate lots will be inspected for serviceability at the same interval as other category W items i.e., five years. Sample size will also be the same.

(6) Packed lots will be identified by DODIC and nomenclature furnished by HQ, JMC.

c. 25mm with lost lot identity:

(1) Firing of 25mm with lost lot identity is prohibited.

(2) All 25mm with lost lot identity (Lot UNKNOWN) will be picked up to accountable records in condition code K pending inspection and classification.

d. Ammunition determined by inspection to be serviceable and lot number identified will be assigned appropriate condition code. Ammunition determined by inspection to be unserviceable and lot number identified will be assigned appropriate condition code and reported through command channels to the commodity command.

e. Repack of 25mm ammunition:

(1) CONUS posts, camps or stations without adequate personnel and facilities to perform inspection and processing of 25mm ammunition will report through command channels to HQ, JMC IAW DA PAM 750-8 for disposition.

(2) Serviceability criteria:

(a) Ammunition will meet the visual inspection criteria specified in basic portions of this SB and the additional criteria in Table Z-1.

(b) Restricted or suspended ammunition will not be used in repack operations without specific authorization or instructions from the commodity command. Lot formation criteria. 25mm ammunition lots will be formed IAW basic portions of SB 742-1.

(c) Field returns of loose 25mm rounds with lot number not identifiable will be reclassified unserviceable and reported to the commodity command for disposition. Records and reports. DSR's and accountable records will be maintained IAW basic portions of SB 742-1.

f. Dummy 25mm ammunition:

(1) Inspect dummy cartridges for such defects as damaged extractor groove/rim, damage that may preclude use, corrosion, and loose projectiles.

(2) Dummy cartridges with defects other than those specified above will be considered serviceable as long as their intended purpose is unimpaired and they can be identified as dummy.

g. Air testing 25mm containers:

(1) Air testing of M621 and PA125 containers is not required during cyclic inspections.

(2) Air testing of containers is usually performed during maintenance operations only. HQ, JMC will provide instructions for testing in SOW of DMWR or LOI.

Z-7. Link Gaging Requirements.

a. A standard gage has not been developed to measure for correct positioning of link on cartridge. Engineering elements have approved and made available drawings from which a gage may be locally fabricated.

b. Drawings should be requisitioned from the office in paragraph 1-5.d.(20)(h). Drawing number assigned for the gage is XM283910087.

c. Cartridges not fully seated in metallic link belts are not cause for immediate rejection of the linked cartridge belt. If a reasonable attempt to correctly reposition the cartridge in its link fails (see Table Z-2 requirements), the linked cartridge belt should then be rejected.

d. Incidental dents on the cartridge case shoulder are not a cause for rejection. This condition does not affect serviceability of ammunition.

e. Check for compliance with drawing 12013695, Characteristics, Linked Belt, 25mm, M28, using locally fabricated 25mm gage and criteria in Table Z-2 below.

Z-8. Inspection of Linked Belts.

a. The M28 link is a two piece assembly intended to hold and link the 25mm ammunition for guiding the ammunition through the weapon system. The assembly consists of hardened steel main and pivot links hooked together and contoured accordingly for its intended purpose.

b. Links for Cartridges, 25mm, M791, M792, M793, M910, and M919 shall be inspected to assure free hinging. Linked 25mm ammunition shall hinge freely and fold over smoothly without binding, kinking, separating or any interference when belt is pulled over itself. Each belt shall be laid out full length with open side of links up. One end shall be drawn over remainder of belt until belt is completely reversed (open side of link down). One end of reversed belt shall then be drawn over remainder of belt until belt is returned to original (open side of link up) position. Belt must hinge freely throughout this process. Failure to hinge freely will be classified as a major defect.

Table Z-1. Ammunition Serviceability Criteria.					
	M791 APDS-T	M792 HEI-T	M793 TP-T	M910 TPDS-T	M919 APFSDS-T
1. Cartridge Case:					
Perforated or corroded primer.	Major	Major	Major	Major	Major
2. Projectile Assembly:					
a. Cracked, gouged or missing sabot segment.	Major			Major	Major
b. Windscreen bent, cracked, or missing.	Major			Major	Major
c. Loose M758 Fuze.		Major			
d. Loose penetrator.					Major
e. Corroded penetrator if cap missing.					Major
f. Missing or split obturator.					Major
g. Damaged Obturator.					Minor
h. Nose cap missing or split.	Accept			Accept	Accept

Table Z-2. Link Gaging Requirements.		
Examination	Method of Inspection	Defect Classification
1. Height from bottom of cartridge to forward tab of M28 link.	Vernier calipers/gage	Major
2. Dimple not engaged in cartridge case groove, two (2) places.	Visual	Major

APPENDIX AA
GRENADE, LAUNCHER/DISCHARGER, 66MM

AA-1. Item Description.

a. FSC: 1330

FZ14	FZ15	FZ16	FZ17
G815	G826	G978	GG03

b. Ammunition Type: Grenade, Launcher, Smoke: Screening, RP, (UK) L8A1 & L8A3; Grenade, Launcher, Smoke, IR Screening, M76; Grenade, Launcher, Smoke, Simulant Screening, M82; Grenade, Launcher, Smoke Screening, TA, M90; Grenade, Discharger, Anti-Riot, Irritant, CS, L96A1; Grenade, Discharger, Anti-Riot, Practice, L97A1; Grenade, Launcher, Non-Lethal, Distraction, M98; Grenade, Launcher, Non-Lethal, Blunt Trauma, M99.

c. The L8A1, L8A3, M76, and M82 are used with the four tube launchers (M6, M243, M257 or M259) or the six tube launchers (M239 or M250) mounted on armored/tactical vehicles. The L96A1, L97A1, M90, M98 and M99 grenades are primarily delivered from vehicles equipped with the light vehicle obscuration smoke system (LVOSS).

d. Grenade, Launcher, Smoke: Screening, RP, (UK) L8A1 & L8A3 (G815). These grenades are used to provide a self-screening smoke capability for armored/tactical vehicles. The grenade consists of a rubber cylindrical body and a metal base. The rubber body contains 360 grams of red phosphorous/butyl rubber in a 95/5 proportion and a central plastic burster tube containing a burster charge of 15 grams of black powder. The metal base contains the electrical clips, F92 squib type electric fuze, propellant charge of 3.0 grams black powder; and the delay assembly with delay composition (0.26 grams black powder, L8A1; 0.36 grams black powder, L8A3). The metal base contains eight gas propulsion holes covered by a metal foil diaphragm.

e. Grenade, Launcher, Smoke: IR Screening, M76 (G826). This grenade is used to provide an infrared and visual smoke screening capability for armored/tactical vehicles. The grenade consists of a plastic cylindrical body that contains 1200 grams of IR composition (brass flake material), a central burster containing 31 grams of Comp A-5 with a booster of 0.47 grams of Comp CH-6, a safe and arm (S&A) mechanism, and a propellant assembly. The S&A mechanism consists of an out-of-line spring loaded slider/bore rider containing an explosive lead with 0.07 grams of PBXN5 and a spring loaded setback lock. The propellant assembly contains a propellant charge of 1.2 grams of black powder, a pyrotechnic delay detonator, and a propellant retainer which has the electrical contacts and the electric match. The delay detonator contains 0.06 grams of A-1A powder, 0.3 grams of delay composition, 0.09 grams of lead azide, and 0.04 grams of RDX.

f. Grenade, Launcher, Smoke: Simulant Screening, M82 (G978). This grenade is used to provide visual screening capability for armored/tactical vehicles during training exercises. This grenade has the same components as the M76 grenade except its payload contains titanium dioxide instead of IR.

g. Grenade, Launcher, Smoke: TA, M90 (GG03). The M90 grenade is used with the M7 and similar 66mm launchers to generate a cloud of white smoke. The grenade body is a cylinder of thin metal. It is filled with three stacked canisters with a burning smoke mixture of Terephthalic Acid. The empty cylindrical grenade body remains in the launcher after the black powder expulsion charge has launched the 3 canisters approximately 35 meters from the launcher.

h. Grenade, Discharger, Anti-Riot, Irritant, CS, L96A1 (FZ14). The 66mm non-Lethal, anti-riot irritant grenade is intended to be used as a distraction device in order to stop, confuse, disorient, and/or temporarily incapacitate. The L96A1 can be used to provide standoff delivery of irritants from a mobile platform for riot/crowd control and protection of convoys in peacekeeping operations. The L96A1 is comprised of a 66mm glass filled nylon propulsion base and a cylindrical rubber body containing the payload. The propulsion base contains a black powder propellant charge, an electric match (fuze) and a black powder delay. The rubber body payload contains 23 individually fuzed, light alloy canister submunitions filled with tear gas, a CS compound. Each submunition contains a central perforation and is surrounded with cambric cloth (cloth impregnated with gun powder). The cambric cloth is ignited by a piece of igniter cord that is assembled through the central perforation in each submunition and joined to the initiation charge at the base of the grenade. The L96A1 uses the gas produced by the rapid burning of the igniter cord/cambric to burst the rubber body that contains the 23 submunitions. The submunition will burn for approximately 8 seconds, producing a cloud of CS irritating smoke.

i. Grenade, Discharger, Anti-Riot, Practice, L97A1 (FZ15). The 66mm non-Lethal, anti-riot practice grenade is intended to be used for training purposes. The L97A1 deploys cinnamic acid (CA) smoke to simulate the CS (tear gas) of the L96A1. The L97A1 is comprised of a 66mm glass filled nylon propulsion base and a cylindrical rubber body containing the payload. The propulsion base contains a black powder propellant charge, an electric match (fuze) and a black powder delay. The rubber body payload contains 23 individually fuzed, light alloy canister submunitions filled with CA smoke. Each submunition contains a central perforation and is surrounded with cambric cloth (cloth impregnated with gun powder). The cambric cloth is ignited by a piece of igniter cord that is assembled through the central perforation in each submunition and joined to the initiation charge at the base of the grenade. The L97A1 uses the gas produced by the rapid burning of the igniter cord/cambric to burst the rubber body that contains the 23 submunitions. The submunition will burn for approximately 8 seconds, producing a cloud of cinnamic acid smoke.

j. Grenade, Launcher, Non-Lethal, Distraction, M98 (FZ16). The M98 is a non-lethal 66mm grenade that contains 3 distraction payload canisters. When each canister reaches its target area, its bursters ignites a pyrotechnic charge. The ignition of the charges delivers a blinding flash and loud sound that disorients crowds. Loading the grenade into the launcher tube initiates the following sequence of steps: In the launcher tube, the electric match ignites the

black powder that propels each of the 3 submunitions from the grenade body and ignites the quick match of each of the 3 submunitions. 4.5 to 5.0 seconds later (in the target area), an audio/visual effect (M98) is delivered on the target. This interval starts with the ignition of the burster mix, the rupturing of the burster tubes and the ignition of the payload surrounding the burster tubes generating the applicable effect (of sound and of blinding light).

k. Grenade, Launcher, Non-Lethal, Blunt Trauma, M99 (FZ17). The M99 is a non-lethal 66mm grenade that contains 3 distraction payload canisters. When each canister reaches its target area, its bursters ignites expelling approximately 140 .32 caliber PVC balls. The physical impact of these balls will be traumatic, confusing and disorienting the crowds. Loading the grenade into the launcher tube initiates the following sequence of steps: In the launcher tube, the electric match ignites the black powder that propels each of the 3 submunitions from the grenade body and ignites the quick match of each of the 3 submunitions. 4.5 to 5.0 seconds later (in the target area), a blunt trauma effect (from the M99 PVC balls) is delivered on the target. This interval starts with the ignition of the burster mix, the rupturing of the burster tubes and the ignition of the payload surrounding the burster tubes generating the applicable effect (of PVC balls).

AA-2. Unique Safety Precautions.

a. If the M76 smoke grenade is armed (bore riding pin projecting from the body, red showing on slider), DO NOT attempt to remove grenade from container. Under no circumstances should attempts be made to return the slider to a safe position by hand. Replace packing, close cover, and notify EOD personnel for disposal.

b. Red phosphorous grenades produce smoke which may present an inhalation and irritant hazard. Prolonged exposure of the eyes and respiratory system should be avoided. Personnel shall wear protective masks to avoid excessive exposure when exposed to an RP smoke concentration.

c. A phosphine gas atmosphere is generated from the smoke mix in L8A1 and L8A3 grenades. As a result, the following safety handling guidance is to be observed.

(1) Store all L8A1 & L8A3 grenades in a ventilated area or magazine.

(2) Storage magazines containing these grenades shall be opened and allowed to ventilate three to five minutes prior to entry by personnel.

(3) These grenades shall only be unpacked out of doors or in a well ventilated area.

(4) Do not open storage containers in the vicinity of open flame or flame producing devices.

d. Prior to removing 66mm grenades from their pack, examine for presence of exposed propellant and/or explosive contents.

e. Avoid initiation of the M98 and M99 grenade by electromagnetic radiation (EMR) by ensuring that EMR sources like radars, radios, cell phones and SINCGARS are at sufficient distance (e.g. 50 meters) from the unpacked grenades.

f. Any riot control agent may present an inhalation hazard. Prolonged exposure of the eyes and respiratory system should be avoided. Wear protective masks to avoid excessive exposure when loose or airborne riot control agent is present.

AA-3. Inspection Category and Sampling Plan.

a. Inspection category Z; Periodic Inspection Interval – 2 years.

b. Sampling plan and accept/reject criteria for inspection is IAW SB 742-1.

AA-4. Specific Inspection Points.

Item will be inspected and classified IAW Chapter 2 and Table AA-1

AA-5. Inspection Description.

a. A black or green buildup of material can occur around firing clips on the L8A1 and L8A3 grenades. This substance is not leaking filler but a type of galvanic corrosion resulting from chemical reaction between copper rivets holding electrical contacts and phosphine gas generated from the main filling (red phosphorous). This external corrosion does not normally affect performance. The firing clips on the grenade connect with a knurled pin contact assembly in the grenade launcher where the knurling will make electrical contact through the corrosion. If the corrosion is to the extent that metal integrity is questionable, classify as a major defect. If not, corrosion will be considered incidental.

b. Corrosion/rust on the electrical connection that may interfere/prevent proper initiation of the grenade will be classified as a major defect. If it will not, classify as incidental.

c. Check the adequacy of the crimping of the grenade body and end plate. The presence of an improper, poor, or no crimp between the two will be classified as a major defect.

d. If the M98 or M99 grenade body (excluding the propulsion base assembly) is distorted or dented, classify as a critical defect -- the payload canister could become stuck/jammed in the launcher upon initiation. Dents to the propulsion base assembly will be classified as determined by the visual inspection.

AA-6. References:

a. TM 9-1330-200-12

b. TM 9-1330-209-14

c. TM 9-1330-200-34

d. TM 43-0001-29

Table AA-1 Defect and Method of Inspection.			
Classification	Model/Application	Inspection Method	Inspection Description
1. Critical:			
a. Grenade armed, slider/bore-rider extended, showing red.	M76, M82	Visual	
b. Markings misleading as to type of grenade.	All Models	Visual	
c. Grenades show signs of filler leakage.	All	Visual	Para AA-5a (L8A1/A3)
d. Evidence of damage and/or loose parts in the grenade.	M98, M99	Visual/Manual	Para AA-5d
2. Major:			
a. Metal base punctured.	L8A1/A3	Visual	
b. Punctured round without leaking filler.	All	Visual	
c. Rubber body torn or dry rotted.	L8A1/A3, L96A1, L97A1	Visual	
d. Plastic body cracked or damaged.	M76, M82	Visual	
e. Bore seal damaged or missing.	M76, M82	Visual	
f. Electrical contacts missing or corroded to the extent that metal is affected.	All Models	Visual	Para AA-5b
g. Metal foil covering gas propulsion holes missing or punctured.	L8A1/A3	Visual	
h. Grenade distortion preventing insertion into launcher (discharger).	L8A1/A3, L96A1, L97A1, M76, M82, M90,	Visual	
i. Markings illegible	All Models	Visual	
j. Any observable dent to the grenade body or loose end cap.	M90	Visual	
k. Missing swage crimp on grenade body DWG 13-19-802 (M90), DWG 13-19-762 (M98), DWG 12-19-722 (M99).	M90, M98, M99	Visual	
l. Improper/poor/no crimp	M98, M99	Visual	Para AA-5c
m. Rust or corrosion to the extent that it cannot be used as intended.	All	Visual	
n. Evidence of liquid and/or wetness in the unit pack assembly.	M98, M99	Visual	
3. Minor:			
a. Markings incomplete or illegible (other than grenade type and/or lot number).	All	Visual	
b. Minor rust/corrosion.	All	Visual	
c. Paint defects (e.g., rust scale, peeling, blistering, etc.).	L8A1/A3, L96A1, L97A1, M90, M98, M99	Visual	
d. Inadequate paint coverage.	L8A1/A3, L96A1, L97A1, M90, M98, M99	Visual	

APPENDIX AB
DEFECT CODES

Defect codes are listed in DA PAM 700-19, they are utilized to identify and clarify the serviceability of materiel. For conventional ammunition they are inputted to the Worldwide Ammunition Reporting System (WARS) and for Toxic Chemical Munitions (TCM) they are inputted to the Chemical Accountability Management Information Network (CAMIN). Defect codes are composed of six alpha/numeric characters: First character is the percent defective indicator; the second and third characters identify the type of assembly; fourth character indicates the classification of defect; and the fifth and sixth characters are the defect narrative. Indicators for each defect code element are listed below.

PERCENT DEFECTIVE

INDICATOR	PERCENT
0	0
1	1-14
2	15-24
3	25-34
4	35-44
5	45-54
6	55-64
7	65-74
8	75-84
9	85-94
C	95-100

ASSEMBLY/COMPONENT/PACKAGING

INDICATOR	NARRATIVE
01	Assembly (complete round or item of issue)
02	Fuze (nose fuze if item has two fuzes)
03	Booster
04	Bomblets
05	Warheads
06	Body, filled or empty (for projectile grenade, mine, rocket, etc.)
07	Filler (inert, explosive, pyrotechnic compound, non-lethal Chemical agent
08	Rotating Band
09	Cartridge case or cartridge case with liner
10	Fuze well liners
11	Propellant (bag, increment, train, etc.)
12	Gasket
13	Primer (artillery, small arms, ignition, etc.)
14	Fittings (tubes, pipes, valves, detents, etc.)
15	Initiator (ignition, igniter assembly, ignition cartridge)
16	Charge (supplementary, expelling)
17	Tracer
18	Motor (rocket)
19	Stabilizer or fin (bomb, rocket, grenade, artillery)
20	Firing device
21	Canister (smoke, illuminating, shot)
22	Parachute or parachute assembly
23	Burster or burster assembly
24	Adapter or adapter booster
25	Safety device (pin, block, lever, shorting clip, etc.)
26	Closure (closing plug, lifting plug, nozzle closure, base plate, etc.)
27	Link, belt, clip
28	Bandoleer
29	Hardware (screw, nut, bolt, pin, gasket, etc.)
30	Skid or pallet
31	Inner packing
32	Outer packing
33	Banding
34	Burster well
35	Detonator
36	Delay elements
37	Desiccant
38	Relative humidity indicator cards
39	Electrical connector (cables, plugs, wiring)
40	Launcher
41	Dispenser
42	Lead wire seals
43	Felt pads
44	Gas check gasket
45	Lug/suspension
46	Wind shield
47	Grommet
48	Base/tail fuze
49	Propelling charge container
50	Desiccant holder
51	Obturator band
52	Lethal chemical agent

CLASSIFICATION

1	Critical
2	Major
3	Minor
4	Incidental
5	Suspended–suitable for emergency combat
6	Suspended–from issue and use (SIU)
7	Suspended–from issue, movement and use (SIMU)
8	Restricted
9	Special remarks – maintenance

DEFECTS/SPECIAL REMARKS

INDICATOR	NARRATIVE
AA	Missing
AB	Loose
AC	Wrong model
AD	Wrong type
AE	Wrong lot number
AF	Mixed lots
AG	Mixed models
AH	Mixed ammunition types
AJ	Leaking (excluding TCM)
AK	Exuding
AL	Agent contamination (excluding TCM)
AM	Armed
AN	Foreign matter
AP	Corrosion (verdigris)
AQ	Deterioration
AR	Weathered (packing)
AS	Dry rot (packing)
AT	Blue bag with loss of tensile strength (propellant)
AU	Blue bag without loss of tensile strength (propellant)
AV	Authorized for demilitarization
AW	Dented
AX	Gouged
AY	Scratched
AZ	Split or cracked
BA	Cut or torn
BB	Inadequate torque
BC	Inadequate stake, crimp or weld
BD	Excessive torque
BE	Excessive tightness
BF	Missing (packing)
BG	Incorrect type (packing)
BH	Damaged (packing)
BJ	Insecure (packing)
BK	Incorrect size (packing)
BL	Zone weight punch marks defective
BM	Failed air pressure test
BN	Failed ring gaging
BP	Minimum retainable lot size
CA	Rust preventative compound missing
CB	Rust preventative compound ineffective
CC	Rust preventative lubricant missing
CD	Rust preventative lubricant ineffective
CE	Paint peeling
CF	Paint missing
CG	Paint chipped
CH	Inadequate paint coverage
CJ	Protective coating missing
CK	Sealing compound missing
CL	Sealing compound ineffective
CM	Rust
CN	Greater than 30 percent RH
CP	Greater than 40 percent RH
CQ	Greater than 50 percent RH
CR	Excessive moisture
CS	Caked igniters (black powder only)
CT	Oxidation
CU	Bent
CV	Excess paint coverage
CW	Requires notched banding
CX	Base gas check seal improper
CY	Base fuze hole plug improper
DA	Requires replacement
DB	Requires radiographic inspection
DC	Requires gaging
DD	Requires inspection for critical defect
DE	Pending malfunction investigation (class code 4, 5, or 6)
DF	Resource recovery indication (for TCM to be used at the direction of the Designated Disposition Authority)
DG	Requires ultrasonic inspection
DH	Past due inspection by six months

DJ	Requires replacement of unserviceable components
DK	Requires special inspection
DL	Requires replacement of desiccant and humidity indicator
DM	Requires 100 percent inspection or segregation
DN	Requires eddy current test
DO	Requires dye penetrant test
DP	Requires magnetic particle test
DQ	Requires chemical test (excluding TCM)
DR	Requires mechanical test
DS	Requires electrical test
DY	Requires inspection for other than critical defects
DU	Requires PII for fleet issue
DV	Requires torque test
DW	Component missing
DX	Component incorrect type
DY	Component damaged
DZ	Component insecure
EA	Failed chemical test (excluding TCM)
EB	Failed mechanical test
EC	Failed electrical test
ED	Failed functional test
EE	Failed environmental test
EF	Failed non-destructive test
EG	Failed radiographic inspection
EH	Failed ultrasonic test
EJ	Failed eddy current test
EK	Failed dye penetrant test
EL	Failed magnetic particle test
EM	Functional code downgrade
EN	Quantity of tracers in lot too small for trace test
EP	Misfire
EQ	Cannibalized
ER	Salt water damaged
ES	Damaged threads
ET	Unitized/palletized load not acceptable for shipment, handling, storage and transfer at sea
EU	Broken
EV	Waterproof protective cover missing or damaged
EW	Pallet adapters missing (Navy pack)
EX	Incorrect pallets for Navy issue
EZ	Hazardous, unserviceable, non-repairable (for TCM to be used at the direction of the Designated Disposition Authority)
FA	Marking missing
FB	Marking illegible
FC	Marking incorrect
FD	Marking misleading
FE	Label missing
FF	Label damaged
FG	Label incorrect
FH	Color coding incorrect
FJ	Extraneous markings
FK	Thermal coating missing
FL	Thermal coating soft
FM	Packed for local use
FN	Held for grand lotting
FO	Contains restricted/suspended components
FP	Contains serviceable components
FQ	Damaged in shipment
FR	Barrier bags not sealed
FS	Wet pack
FT	Base tracer hole plug improper
FV	Identified with ammunition identification code (AIC)
FW	Ammunition not palletized/unitized
FX	Ammunition improperly palletized
FZ	Non-hazardous, unserviceable, non-repairable (for TCM to be used at the direction of the Designated Disposition Authority)
HA	Overpacked leaking toxic chemical munition
HB	Multiple overpacks due to leaking overpack
HC	Toxic chemical munition leaker lot
HD	Non-leaking M23 Mine, packed with leaking M23 Mine in original drum
HE	Toxic chemical agent filler restricted due to decrease in agent casualty ratio
HF	Toxic chemical munition that has been drilled to obtain agent sample
HG	Toxic chemical munition that has been overpacked for reasons other than leaking

HH	Toxic chemical munition overpacked with explosive component(s)
HO	CFO metal parts
PB	Propellant Stability Cat B
PC	Propellant Stability Cat C
PD	Propellant Stability Cat D
SA	Lot less than minimum size for overseas shipment
SB	Pending evaluation from NICP
SC	ASRP Test Samples – Centralized Trace Test, Small Caliber Stockpile Reliability Program, Centralized Controlled Function Test Program, Large Caliber Test Program, Stockpile Propellant Program, Propellant Stability Program, Propellant Reassessment Program, Mater Sample Program, Deterioration Check Test Program
SD	Assigned priority of issue
SE	Directed by TB 9-1300-385 (class codes 4, 5, 6 or 7)
SF	Non-standard pack
SG	Accepted on waiver
SH	Less than one standard exterior package
SJ	Pending ballistic test results
SK	Limited to in country issue (due to level of packaging)
SL	Limited issue; CC-E is due to marking, packaging or material discrepancies not affecting functional reliability, safety or transportability. Items require normal maintenance for long term storage but are suitable for issue and use for training purposes.
SM	Shelf life will expire in one year or less
SN	Shelf life expired
SP	50 to 69 percent specification trace test (SAA)
SQ	50 percent of better satisfactory trace test (SAA)
SR	49 percent or less satisfactory trace test (SAA)
SS	Salvaged or used components or material
ST	Directed by higher HQ/command other than malfunction (not published in TB 9-1300-385)
SU	Pending reassessment
SV	Pending propellant analysis
SW	Held in environmental storage
SX	Storage configuration prevents inspection of item
SY	Restricted from overhead fire
SZ	Pending deterioration check test
TA	Service life expired
TB	Explosive contamination
TC	Assembly incorrect
TD	Obsolete (for TCM to be used at the direction of the Designated Disposition Authority)
TE	Overhaul cycle exceeded
TF	Direct by T.O. 11A-1-1 (Air Force)
TG	Directed by TWO 024-AA-ORD-010 (Navy)
TH	Directed by NAVSEA/NAVAIR
TJ	Directed by Air Force
TK	Directed by Marine Corps
TL	Previously stored in Southwest Asia
TM	Overdue for inspection by twice the interval
TN	Requires Magnaflux testing
WW	Pending inspection (found during wall to wall inventory)
XX	Designated a “waste munition” by the Designated Disposition Authority. Only to be used at the direction of the Designated Disposition Authority.
ZX	Cannot be found in storage
ZY	Not inspected by QASAS
ZZ	No meaning assigned; used to fill space (not authorized unless directed by JMC Surveillance Office).

APPENDIX AC
STANDARD (NEW) AMMUNITION DEFECT CODES

This Standard Ammunition Defect Code listing includes all codes and their standard definitions. No changes, additions or deletions to these codes are authorized except as approved by the JOCG Quality Assurance Subgroup for publication herein. These standard codes are provided for use by the individual Military Services. Army requirements are provided in Supply Bulletin (SB) 742-1, "Ammunition Surveillance Procedures," Appendix AE. Navy and Marine Corps requirements are provided in Naval Supply Systems Command (NAVSUP) Publication P-805, "Navy and Marine Corps Conventional Ammunition Sentencing," Appendix D.

AMMUNITION DEFECT CODE.

Defect codes are six digit, alphanumeric codes that complement and/or supplement Condition Codes by identifying specific reasons for Condition Code assignment and/or identifying specific defects or conditions.

STRUCTURE.

Defect codes are six-digit, alphanumeric codes. A defect code is made up of 6 alpha (letter) or numeric (number) characters in 4 component parts as follows: 1 23 4 56.

STATUS CODE. COMPONENT PART 1:

The first part is the "Status" Code. Status codes are single, alphanumeric character codes which complement condition codes by identifying the action required to determine the true condition or to change the current condition when the Condition Code alone does not provide this identification. Army and Air Force activities may use this position to indicate a percent defective based on inspection.

COMPONENT CODE. COMPONENT PART 23:

The second part is the "Component" Code. Component Codes are double, alpha-character codes. Component Codes supplement Condition Codes by identifying the subassembly, component or part (including packaging) of an item which is defective or which is the subject of a "Defect/Special Remark" Code.

CLASSIFICATION CODE. COMPONENT PART 4:

The third part is the "Classification" Code. Classification Codes are single, alpha-character or single, numeric character codes. Classification Codes complement Condition Codes by identifying the nature of qualifications on serviceability, including suspensions, restrictions or limitations on storage, movement, issue or use.

DEFECT/SPECIAL REMARK CODE. COMPONENT PART 56:

The fourth part is the "Defect/Special Remark" Code. Defect/Special Remark Codes may be either double, numeric-character or double, numeric-alpha-character codes. Defect/Special Remark Codes supplement Condition Codes by identifying specific defects or other factors (special remarks) applicable to the material condition or status.

STATUS CODE DESCRIPTION:

0	Zero percent defective	(Army and Air Force)
1	1 - 14% defective	(Army and Air Force)
2	15 - 24% defective	(Army and Air Force)
3	25 - 34% defective	(Army and Air Force)
4	35 - 44% defective	(Army and Air Force)
5	45 - 54% defective	(Army and Air Force)
6	55 - 64% defective	(Army and Air Force)
7	65 - 74% defective	(Army and Air Force)
8	75 - 84% defective	(Army and Air Force)
9	85 - 94% defective	(Army and Air Force)
A	Warranty in Effect. Used when specific defects (identified by Defect/Special Remark Code) are covered by warranty.	
B	For/Pending Quality Evaluation/Surveillance. Used to identify QE/surveillance samples/items.	
C	95 - 100% Defective (Army and Air Force).	
D	For/Pending Acceptance. Used for assets not previously accepted.	
E	For/Pending Certification/Recertification/Post Renovation Test. Used for assets previously accepted.	
F	For/Pending Engineering Investigation. Airborne Weapons Corrective Action Program (AWCAP) investigation or other malfunction analysis.	
G	Pending Authorization for Demilitarization or Reclamation. Used for non-repairable assets when test, inspection, maintenance or repair instructions do not provide specific condemnation or reclamation provisions for local activity determination.	
H	For/Pending Demilitarization/Reclamation.	
I	(Not used)	
J	Pending Screening for Known/Suspected Defects, or Segregation or Other Visual Inspection to Determine True Condition.	
K	Pending Receipt Inspection.	
L	Quality Deficiency Report (QDR) Exhibit/Report of Discrepancy (ROD).	
M	Pending Disposition.	
N	Requires Palletization, Repalletization, Unit Loading or Correction of Related Discrepancies Prior to Shipment/Issue.	
O	(Not used)	
P	Pending Sorting Due to Known Mixed Condition, Lots, Models, or Types. Used when any unacceptable mixture requires separation, regardless of Condition Code(s) assigned.	
Q	(Not assigned)	
R	Requires Correction of Unacceptable Packaging (Including Marking) to provide environmental protection prior to long term storage or shipment.	
S	(Not assigned)	
T	Shippable/Shootable.	
U	(Not assigned)	
V	Requires Item Maintenance; i.e., derust, repaint, remark, etc.	
W	Requires Replacement of Components.	
X	Obsolete.	
Y	(Not assigned)	

Z No Status Code applies.

COMPONENT CODE DESCRIPTION:

AA Assembly/Complete Round/All-Up-Round (AUR).
AD Adapter or Adapter Assembly.
AN Anchor.
AP Auto Pilot Battery Unit (APBU).
AT Actuator.
BB Barrier Bag.
BC Ball Cartridge (Small Arms Ammunition).
BD Bandoleer.
BF Base/Tail Fuze.
BL Barcode Label.
BM Bomblets/Submunitions/Grenades.
BN Banding.
BP Baseplate.
BR Booster, Rocket.
BS Booster, Fuze.
BT Battery, Thermal Battery.
BU Burster or Burster Assembly.
BW Burster Well.
BY Body, Filled or Empty (for Projectile, Grenade, Mine, Rocket, etc.).
CC Cartridge Case or Cartridge Case with Liner.
CH Charge (Supplementary, Expelling).
CL Closure (Closing Plug, Base Fuze Hole Plug, Tracer Hole Plug, Lifting Plug, Nozzle Closure, Base Plate, etc.).
CM Chemical/Chemical Agent/Chemical Munition.
CN Canister.
CO Control Section.
CP Clip.
CR Cradle.
CS Canister (Smoke, Illuminating, Shot).
CV Cover (Protective/Access Cover, Cap, Lid, etc.)
DC Dust Cover.
DE Delay Element(s).
DH Desiccant Holder.
DO Document Holder.
DP Dispenser.
DS Desiccant.
DT Detonator.
EC Electrical Connector.
EL Electrical Cable (Cables, Plugs and Wiring).
EM EMR (Electromagnetic Radiation) Shield.
EP Eye Shield Assembly (Stinger).
ES Environmental Seal.
EX Exercise Head.
FD Firing Device.
FL Filler (Inert, Explosive, Pyrotechnic Compound, Non-Lethal Chemical Agent).
FP Felt Pads.
FN Fin or Stabilizer (Bomb, Rocket, Grenade, Artillery).
FT Fitting (Tube, Pipe, Valve, Detent, Handle, Latch, etc.).
FU Fuel Tank.
FW Fuze Well/Fuze Well Liner.
FZ Fuze (Nose Fuze if item has two fuzes).
GC Guidance and Control Section.
GD Guidance Section.
GG Gas Check Gasket/Gas-Check-Seal (GCS).
GK Gasket/O-ring.
GN Grounding Device.
GP Grip Stock.
GR Grommet.
HB Handling Band/Strap.
HN Handle Carry.
HP High Pressure Container.
HS Hero Safe Shield, EMI (Electromagnetic Interference).
HW Hardware (Screw, Nut, Bolt, Pin, etc.).
IG Initiator (Ignition, Igniter Assembly, Ignition Cartridge Arming Device, Safe and Arming Device, Torpedo Exploder).
JW Jungle Wrap.
KT Kit.
LB Label, Identification Tag.
LG Lug/Suspension.
LH Latch.
LK Link, Belt.
LL Launch Lug/Fitting.
LP Lifting Plug.
LR Launcher.
LY Lanyard (Cable, Arming Wire).
MK Marking, Stenciling, Color-Code.
NZ Nozzle.
OB Obturator Band.
OG Ogive.
OW Observation Window.
PA Paint/Coating/Protective Finish.
PC Parachute or Parachute Assembly.
PI Packing/Package (Inner), Dunnage, Filler, etc.
PJ Projectile.
PN Penetrator.
PO Packing/Package (Outer), Container, Cradle, etc.
PP Propellant (Bag, Increment, Train, etc.).
PR Primer (Artillery, Small Arms, Ignition, etc.).
PS Pins Stacking.
PT Pallet, Pallet Adapter, Skid or Palletization.
PV Pressure Release Valve.
QR Quick Release Pins (Locking Pins).
RB Rotating Band.
RC Records, Logbook, Data Card, etc.
RD Radome.
RH Relative Humidity Indicator.
RL Rail.
RM Rocket Motor.
SA Safety Device (Pin, Block, Lever, Shorting Clip, etc.).
SB Sabot.
SC Spike Cap.
SE Sealant, Sealing Compound, Adhesive, etc.
SI Shock Indicator.
SK Skid.

SL Seal (Lead-Wire Seal, Securing Wire, Traceable Seal, etc.).
SM Shock Mount.
SP Shorting Plug.
SQ Squib.
SR Seeker.
TB Launch Tube.
TC Tracer/Tracer Cartridge.
TD Target Detecting Device (TDD).
TH Thermal Coating.
TL Tail Section/Torpedo Afterbody.
TM Telemetry.
TN Torpedo Nose Assembly.
TR Transducer.
UC Umbilical Cover.
WH Warhead(s).
WF Wings, Control Surfaces, or Wings and Fins (Set).
WS Wind Shield.
ZW Zone Weight Marking/Punchmarks.
ZZ Subassembly/Component/Part Not Otherwise Identified.

CLASSIFICATION CODE DESCRIPTION:

0 Critical defect/defective.
1 Major defect/defective.
2 Minor defect/defective.
3 Incidental defect/defective.
4 Suspended - suitable for emergency combat.
5 Suspended - from issue and use - SIU.
6 Suspended - from issue, movement and use - SIMU.
7 Classification directed by other service – NAVSUP P 801 (Navy) or CMRS (Air Force).
8 Directed by NICP, not included in TB 9-1300-385.
9 Directed by response to maintenance ACR IAW DA PAM 750-8.
A Classification directed by TB 9-1300-385 (Army), NAVSUP P 801 (Navy) or CMRS (Air Force).
B For training use only. (See Note 1)
C Priority issue for service use. (See Note 1)
D Priority issue for training use. (See Note 1)
E Restricted or limited issue. Not used when a restriction or limitation on use applies. (See Note 1)
F Restricted or limited use (except training, non-standard test or overhead fire). (See Note 1)
G Non-standard configuration, for non-standard test or training use only. (Not used with standard configuration items.) (See Note 1)
H Not cleared for overhead fire. (See Note 2)
I (Not used)
J Limited remaining shelf-life/service life. Used when remaining life is a Condition Code determinant.
Z No classification code applies.

NOTES:

(1) Used when classification is directed by authority other than TB 9-1300-385 (Army), NAVSUP P 801 (Navy) or CMRS (Air Force).

(2) Used when restriction is specified in appendices to NAVSUP P 801 (Navy) or TB 9-1300-385 (Army).

DEFECT/SPECIAL REMARK CODE DESCRIPTIONS:

NOTE: The first character identifies the general type of defect or Special remark as follows:

0- Safety defects or unsafe conditions.
1- In-service defects or conditions.
2- Environmental/exposure defects or conditions.
3- Test defects.
4- Inspection defects (other than visual).
5- Assembly defects.
6- Physical damage.
7- Processing deficiencies.
8- Special remarks.
9- Toxic chemical munitions.

WARNING

THE FOLLOWING CODES FOR SAFETY DEFECTS OR UNSAFE CONDITIONS APPLY WHEN DEFECTS OR CONDITIONS EXIST WHICH CONSTITUTE HAZARDS TO PERSONNEL, FACILITIES OR EQUIPMENT DURING HANDLING, STORAGE, PROCESSING OR TRANSPORTATION, AND WHICH REQUIRE SPECIAL HANDLING, TREATMENT AND/OR ATTENTION.

00 UNSAFE - Lethal fluid, substance or agent leak/contamination.
01 UNSAFE - Unstable (explosive, propellant, chemical).
02 UNSAFE - Combustible (non-lethal) fluid or substance leak.
03 UNSAFE - Cracked/ruptured explosive/propellant case.
04 UNSAFE - Explosive exudate/residue/contamination.
05 UNSAFE - Armed.
06 UNSAFE - Safety fitting/fixture/accessory missing/damaged.
07 UNSAFE - Dropped (exceeding safe drop limits).
08 UNSAFE - Misfire/hangfire.
09 UNSAFE - Toxic (non-lethal, non-combustible) fluid/substance leak/contamination.
0A UNSAFE - Unstable/insecure unit load.
0X UNSAFE - Other/unidentified safety defect/unsafe condition.

IN-SERVICE DEFECTS OR CONDITIONS. CODE DESCRIPTION:

10 Captive flown.
11 Ready Service.
12 In-water run.
13 Hermetic seal broken.
14 Extraneous markings.
15 Expended; retained for maintenance, reclamation or disposal.
16 CAD/PAD removed from aircraft. Remaining installed life will not meet maintenance cycle requirements.

17 Catapult launches and arrested landings (CATS/TRAPS)
1X Other/unidentified in-service defect or condition.

ENVIRONMENTAL/EXPOSURE DEFECTS OR CONDITIONS. CODE DESCRIPTION:

20 Expired (shelf-life, service life, MDD, etc.).
21 Requires replacement of desiccant and humidity indicator.
22 Wet/excessive moisture (rain/condensation).
23 Oxidation (rust), corrosion or verdigris.
24 Salt-water wet-down or salt spray exposure, or salt water damage.
25 Deteriorated, weathered.
26 Shelf life to expire in 1 year or less.
27 Exuding/hydrogen gas buildup.
28 Marking Illegible.
29 Marking faded.
2A Service life expired.
2B Shelf life expired.
2C Greater than 30 percent RH.
2D Greater than 40 percent RH.
2E Greater than 50 percent RH.
2F Wet pack.
2G Blue bag with loss of tensile strength.
2H Blue bag without loss of tensile strength.
2J Delaminated Glue/Bonding Failure.
2N Caked igniters (black powder only).
2P Dry rot (packing).
2Q Overhaul cycle exceeded.
2R ISPM-15 non-compliant.
2X Other/unidentified environmental/exposure defect or condition.

TEST DEFECTS. CODE DESCRIPTION:

30 Failed torque test.
31 Failed air pressure test.
32 Failed hydraulic test.
33 Failed electronic/electrical test.
34 Failed systems test.
35 Failed Test-In-Test (BIT).
36 Failed life/stockpile reliability/ surveillance function test.
37 Failed mechanical test.
38 Failed chemical test.
39 Failed non-destructive test/examination (NDT/NDE) (radiographic, ultrasonic, magnetic particle, eddy current, magnaflux, and dye-penetrant).
3A Failed environmental test.
3B Functional code downgrade.
3C Propellant stability Cat C.
3D Propellant stability Cat D.
3F Failed radiographic inspection.
3G Failed ultrasonic test.
3H Failed eddy current test.
3J Failed dye penetrant test.
3K Failed magnetic particle test.
3L Failed magnaflux testing.
3M Quantity of tracers in lot too small for trace test.
3X Other/unidentified test defect.
3N 50 to 69 % specification trace test (SAA).
3P 50 % or better specification trace test (SAA).
3Q 49 % or less specification trace test (SAA).

INSPECTION DEFECTS (other than visual). CODE DESCRIPTION:

40 Failed gaging.
41 Failed dimensional measurement.
42 Incomplete test, gaging or other inspection of a sample to verify serviceable condition.
43 Overdue inspection.
44 Not inspected by QASAS.
45 Pending inspection (found during wall to wall inventory).
46 Non-hazardous, unserviceable, non-repairable (for TCM to be used at the direction of the DDA).
4X Other/unidentified inspection defect (other than visual).

ASSEMBLY DEFECTS. CODE DESCRIPTION:

50 Missing.
51 Incorrect/unauthorized configuration.
52 Incorrect (item, component, part, material or marking).
53 Missing, incorrect, defective stake or crimp.
54 Missing/defective weld.
55 Loose, insecure, inadequate torque.
56 Excessive tightness, overtorqued, stuck.
57 Gear adrift/loose material.
58 Incorrect model.
59 Incorrect type.
5A Incorrect lot.
5B Incorrect color code.
5C Incorrect assembly/orientation.
5D Excessive paint coverage.
5E Explosive contamination/residue.
5F Missing, incorrect, misleading, illegible and extraneous markings.
5G Component (not identified in component codes) missing, i.e., inner packing components such as hardware, cushioning, filler, end cap of fiber container.
5H Incorrect fuze setting.
5J Label missing, incorrect or damaged.
5K Mixed lots, models, or ammunition types.
5L Limited issue. CC-E is due to marking, packaging, or material discrepancies not affecting functional reliability, safety, or transportability. Items require normal maintenance for long-term storage but are suitable for issue and use for training.
5M Cannibalized.
5N Zone weight punch marks defective.
5P Component damaged.
5R Air launch configuration.
5S Surface launch configuration.
5X Other/unidentified assembly defect.

PHYSICAL DAMAGE. CODE DESCRIPTION:

60 Structural damage (punctured, dented, broken, bent, split, cracked, worn, torn, cut, thread damage, etc.).
61 Surface damage (gouged, scratched, or paint/protective coating peeling, chipped, etc.).
62 Broken/cracked weld.
63 Barrier bags or hermetically sealed containers open.
64 Leaking filler material (non-lethal, non-combustible, non-toxic).
65 Foreign material, dirty, etc.
66 Dented.
67 Cracked, split, cut or torn.
68 Bent.
69 Damaged threads.
6A Broken.
6B Component (not identified in component codes) damaged, i.e., inner packing components such as hardware, cushioning, filler, end cap of fiber container.
6C Bent or missing pins.
6D Thermal coating missing/soft.
6X Other/unidentified physical damage or replacement of unserviceable components.

PROCESSING DEFICIENCIES. CODE DESCRIPTION:

70 Pending test or sample test (other than NDE or other inspection) for characteristic(s) that may be nonconforming. Other conditions unknown or unserviceable.
71 Pending gaging for characteristic(s) that may be nonconforming. Other conditions unknown or unserviceable.
72 Pending NDE (radiographic, ultrasonic, magnetic particle, eddy current, magnaflux, dye-penetrant) for characteristic(s) that may be nonconforming. Other conditions unknown or unserviceable.
73 Processing incomplete (other than test, gaging or NDE).
74 Pending test, sample test, gaging or NDE (radiographic, ultrasonic, magnetic particle, eddy current, magnaflux, dye-penetrant) to verify serviceable condition.
75 No fix authorized.
76 Requires PII for fleet issue.
77 Requires special inspection.
78 Requires 100 percent inspection or segregation.
79 Requires torque test.
7A Pending ballistic test results.
7B Pending evaluation from NICP.

SPECIAL REMARKS. CODE DESCRIPTION:

80 Non-standard pack (acceptable for shipment/issue). Limited to in country issue.
81 Non-standard pack (acceptable for local storage/movement only).
82 Not unitized/unitized.
83 Unserviceable outer package/container, contents serviceable. Authorized for local movement and temporary storage only. Not acceptable for shipment, issue, or long term storage of contents.
84 Resource recovery indicated.
85 Directed by CMRS (Air Force).
86 Directed by NAVSUP-P-805 (Navy).
87 Directed by NAVSEA/NAVAIR.
88 Directed by Air Force.
89 Directed by Marine Corps.
8A Previously stored in SWA.
8B Overdue for inspection by twice the interval.
8C Minimum retainable lot size.
8D Identified with Ammo Indent Code (AIC).
8E Lot less than minimum size for overseas shipment.
8F Assigned priority of issue.
8G Directed by TB 9-1300-385 (class codes 4, 5, 6 or 7).
8H Salvaged or used components or material.
8J Accepted on waiver.
8K Directed by Higher HQ/Command other than malfunction (not published in TB 9-1300-385).
8L Storage configuration prevents inspection of item.
8M Obsolete.
8N Restricted from overhead fire.
8P Held in environmental storage.
8Q Authorized for demilitarization.
8R Contains restricted/suspended components.
8S Contains serviceable components.
8T Deteriorated while in or as a result of conditions in storage.
8W Designated a "waste munition" by the DDA. Only to be used at the direction of the DDA.

TOXIC CHEMICAL MUNITIONS. CODE DESCRIPTION:

90 Leaking toxic (lethal) chemical munition (containerized).
91 Leaking toxic (lethal) chemical munition packaged in multiple overpack(s) due to primary container failure.
92 Toxic (lethal) chemical munition containerized for reasons other than leaking (precautionary).
93 Toxic (lethal) chemical munition "leaker lot".
94 Non-leaking M23 Mine(s), packaged in original drum with leaking mine(s).
95 Declared a solid waste by an Authorized Military Official (AMO or CMA) DDA.
96 Toxic (lethal) chemical munition drilled, sampled and plugged in conjunction with Stockpile Reliability Program testing.
97 Leaking or non-leaking toxic (lethal) chemical munition, containerized with accessible explosive components.
98 Leaking or non-leaking toxic (lethal) chemical munition, containerized without accessible explosive components (removed prior to packaging).

NO DEFECT/SPECIAL REMARK CODE APPLIES.
CODE DESCRIPTION:

ZZ No Defect/Special Remark Code applies.

ZA Deteriorated while in or as a result of conditions in Appendix AE Rocket M55 GB SMI Procedure

APPENDIX AD
AMMUNITION CARTRIDGE, 75MM, BLANK M337 SERIES

AD-1. Item Description.

a. DODIC: 1315-C025.

b. Ammunition Type: Cartridge, 75mm, Blank, M337 Series.

AD-2. Unique Safety Precautions.

No unique safety precautions are applicable to this item.

AD-3. Testing and Equipment Requirements.

a. All IRI samples will be gaged using a profile and alignment gage. Gaging is not normally required during RI, PI or UBLI.

b. Gaging during these inspections (other than IRI) should be limited to individual rounds showing evidence of damage or other conditions that may preclude loading or firing. Unless the rounds requiring gaging are truly representative of the lot being inspected, they should not be used to evaluate the lot. Results, however, should be annotated on the DSR with the reason for gaging.

c. Table AD-1 identifies test and measurement equipment.

AD-4. Inspection Category and Sampling Plan.

a. Inspection category: category W (five years), blank ammunition.

b. The sampling plan for inspection is according to Chapter 2.

AD-5. Specific Inspection Points.

Item will be inspected IAW Chapter 2 and Table AD-2.

AD-6. Inspection Description and Notes.

a. See drawing 7549273. Primer parts must not protrude beyond rear face of cartridge case.

b. See drawing 7549273. Assure seal and air escape hole are completely filled with resin cement. Any excess cement should be removed from exterior of cartridge case.

c. Cracks or splits in cartridge case may expose black powder filler to moisture that could cause accelerated degradation of performance.

d. Gaging is required only during IRI or if visual inspection is questionable.

e. See drawing 7549273. Wax emulsion is required for aluminum cartridge cases.

Table AD-1. Equipment Identification List.

Description	NSN	Application	Inspection
Gage, profile and alignment	5220-00-651-0104	Cartridge, M337A2	IRI, RI, PI, UBLI
Gage, profile and alignment	5220-00-234-3343	Cartridge (brass case), M337A1	IRI, RI, PI, UBLI

Table AD-2. Item Defects and Method of Inspection.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
Primer above flush.	All	Visual/Straight Edge	Para AD-6a
2. Major:			
a. Primer loose.	All	Visual/Manual	
b. Closing cup cracked, broken, punctured or malformed.	All	Visual	Para AD-6b
c. Closing cup seal not continuous or groove not filled with cement.	All	Visual	
d. Closing cup air escape hole not filled with cement.	All	Visual	Para AD-6c
e. Cartridge case crack or split extending through sidewall or bottom.	All	Visual	Para AD-6d
f. Chamber gage failure.	All	Gage	
3. Minor:			
a. Glue or asphalt on exterior of cartridge.	All	Visual	
b. Missing protective finish.	M337A2	Visual	Para AD-6e

APPENDIX AE
ROCKET M55 GB SPECIAL SURVEILLANCE INSTRUCTION FOR STORAGE MONITORING INSPECTION PROCEDURES

AE-1. Item Description.

a. FSC 1340.

b. Ammunition Type: Rocket M55, GB.

AE-2. Purpose, Applicability, Proponent.

a. Purpose: The purpose of this Special Surveillance Instruction (SSI) is to provide procedures required to implement a Storage Monitoring Inspection (SMI) program for M55 GB rockets as directed in Chapter 7 of SB 742-1. These procedures are limited to those necessary to efficiently perform SMI of M55 GB Rockets.

b. Applicability: This SSI applies to all agencies, depots, arsenals, and activities responsible for storing M55 GB rockets. The procedures and technical requirements in this SSI are mandatory and will be incorporated in local standing operating procedures (SOPs), either directly or by reference to this SSI. Surety, safety, security, and related technical requirements are provided in other DoD publications unless specifically noted in this SSI.

c. Proponent: The proponent for this procedure is HQ, CMA. Deviations or exceptions to these inspection procedures will be requested formally. Individual users are encouraged to report errors, omissions, and recommendations for improving these instructions. Reports should be submitted by memorandum and forwarded to U.S. Army Chemical Materials Agency, ATTN: AMSCM-OPS, 5183 Blackhawk Road, Aberdeen Proving Ground, MD 21010-5424.

AE-3. References.

AR 11-34 Army Respiratory Protection Program.

AR 50-6 Chemical Surety.

AR 385-10 The Army Safety Program.

AR 700-68 Storage and Handling of Compressed Gases and Gas Cylinders.

AR 702-12 Quality Assurance Specialist (Ammunition Surveillance).

AMC-R 350-4 Training and Certification Program for Personnel working in Ammunition Operations.

DA PAM 40-8 Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Nerve Agents GA, GB, GD, and VX.

DA PAM 385-61 Toxic Chemical Agent Safety Standards.

SB 742-1 Inspection of Supplies and Equipment, Ammunition Surveillance Procedures.

CMA Programmatic Laboratory and Monitoring Quality Assurance Plan (LMQAP).

AE-4. Definitions.

a. Compound Gate (Agent Gate): The window, in seconds, around the retention time of the compound of interest.

b. Leaking Munition: Munitions from which there has been a confirmed detection of chemical agent outside the munition body. (AR 50-6)

c. Leaker Isolation: For the purpose of this document leaker isolation is the isolation of a leaking rocket from a group of rockets with a single sample port open. Any other leaker isolation, draping stacks, pallets or rounds falls outside the scope of this procedure.

d. Quality Process (QP) Sample: A QP sample is a sample that has been spiked with a dilute solution of agent and exposed to ambient air for the same time and at the same flow rate as ordinary samples. For this procedure the dilute solution contains 0.5ng of GB. The ambient air is shipping and firing tube air.

e. Near Real Time (NRT) Low-Level Monitor (within the context of this document only): An automatic air monitoring system that can detect 0.5 ng of chemical agent GB within fifteen (15) minutes.

AE-5. Safety and Environmental Guidelines.

a. Guidance provided in this SSI does not supersede requirements of the RCRA or state environmental statutes. Installations must assure compliance with all current Environmental Protection Agency (EPA) regulations and state guidelines pertaining to these munitions, and incorporate such information in local policy or SOPs, where appropriate.

b. All SMI operations will be performed in a manner that minimizes the potential for agent release to the environment and affords maximum safety to operators and the general population. Implementing organizations will ensure SMI's are conducted in accordance with safety and health guidelines contained herein and in listed references.

c. Monitoring of ambient air inside chemical storage magazines while performing inspections will be accomplished IAW chemical storage site's approved monitoring plan.

d. The wrench used for removing the front and aft end cap sampling port plugs must be fitted with a splash shield to reduce the possibility of operators being exposed to liquid agent.

e. As a minimum, operators performing intrusive monitoring will wear OSHA level C protective clothing with hood and apron. A hazard analysis will be performed to determine the level of protective clothing required for leaker isolation.

f. The sample line for initial intrusive monitoring of M55 rockets will not be used for exposure monitoring of personnel.

g. When conducting intrusive monitoring operations on designated Leaker Lots, an igloo filtration system must be operating unless a hazard analysis indicates otherwise.

AE-6. Training and Certification.

a. The sample collection, laboratory, and monitoring personnel involved in the collection, analysis and monitoring of chemical surety material shall be certified and trained as outlined in the LMQAP

and site specific training plan.

b. Inspection functions identified in this SSI must be accomplished by Department of the Army Civilian (DAC) Quality Assurance Specialist (Ammunition Surveillance) (QASAS) GS-1910 series (Career Program 20). Under the direction of a QASAS, properly trained (IAW AMC-R 350-4) and designated civilian technicians may supplement and assist the QASAS in the accomplishment of these functions.

AE-7. Documentation.

a. All inspections must be documented IAW SB 742-1, Chapter 11.

b. A photocopy of the analytical monitoring results for all confirmed leaking rockets will be maintained in the Ammunition Surveillance Office. The lot number(s) and sample number(s) will be annotated on the monitoring results.

c. Leaking rockets will be reported IAW SB 742-1, Chapter 7.

AE-8. Sample Selection.

a. Vapor test. Samples from each lot, will be tested for agent contamination inside the M441 SFT, see Table AE-1. Sampling Plan A will be used for lots that have not experienced leakers in their life cycle. Sampling Plan B will be used for lots that have experienced leakers, but have not been designated as leaker lots. Sampling Plan C will be used for those lots that have been designated as Leaker Lots at your location. Lots in Sampling Plan B that have not leaked in five or more years and contain a known stable GB agent lot may be considered for re-inclusion in Sample Plan A. Requests for re-inclusion will be forwarded to the proponent of this SSI for approval.

b. When performing leaker isolation of M55, GB rockets, any intrusive monitoring can be credited toward the current quarter's sampling requirements. If the lot has already been sampled for the current quarter, no credit can be taken. If a leaker is encountered during the intrusive monitoring, the remainder of the total sample size still must be completed for this lot.

Table AE-1. M55 GB Rocket Storage Monitoring Inspection Sampling Plans

Lot Size	Quarterly (unless otherwise indicated) Sample Size		
	A	B	C
0-25	8[1]	20[1]	100%
26-150	16[1]	44[1]	25[2]
151-300	6	16	40[2]
301-750	9	23	64
751-3000	12	30	75
>3000	15	35	85

[1]Quantity indicated is to be sampled over a period of three years. This sampling may be accomplished at one time within the three years or in increments as determined by the QASAS-in-charge.

[2]When total annual sample size exceeds the lot size, the lot will be sampled 100% each year. This 100% sampling may be accomplished at one time within the year or in increments as determined by the QASAS-in-charge.

[3]When a rocket lot(s), or portion of a lot(s), has been scheduled for demilitarization within a designated calendar quarter (three months), the lot(s), or portion of lot(s), may be excluded from sampling during that quarter. If demilitarization has not commenced during the scheduled quarter (or is not imminent), sampling shall resume in subsequent quarters. Further delays are not authorized unless justified in writing by the QASAS-in-charge, based upon changes in the demilitarization timeline. Sample sizes need not be increased in ensuing quarters to account for rockets that were not sampled in a quarter during which a lot was scheduled for demilitarization

AE-9. Inspection Operations.

a. Visually inspect all accessible M441 Shipping and Firing Tubes (SFT) in the structure for evidence of leakage and general condition. Inspect for stability of stacks, condition of pallets and any other condition that could affect suitability for continued safe storage pending demilitarization. Visual inspections should be performed only to the extent possible without re-warehousing.

b. Identify M55 rocket lot selected for sampling.

c. Identify individual rockets designated for testing. Rockets not previously tested should be sampled first. Those rockets that have been previously inspected should have been tagged as such.

d. Verify that sampling plug in the front end cap of the SFT is in the 12 o'clock position. If sampling plug is not in the proper position, rotate M441 SFT until correct orientation is obtained. If M441 SFT cannot be rotated, check the position of the aft end sampling plug. The sampling plug closest to the 12 o'clock position will be removed first.

CAUTION

In rare instances, the M441 SFT may develop internal pressure during storage. Potential release of pressure associated with presence of liquid agent may result in expulsion of agent from sampling port when plug is removed. Equal care should be taken when removing either end-sampling plug. Situations have been experienced in which agent under pressure sprayed from one end of the firing tube but not the other. Plug removal wrench must be fitted with a splash shield.

e. Remove sampling plugs from front and rear end cap's and examine for the presence of agent contamination. If contamination is suspected, test with M8 paper. Look inside of the sample port for

evidence of solidified or crystallized agent. If present, monitor from outside the sample port; do not insert sample probe.

f. If front or rear end cap plug cannot be removed, and no evidence of agent leakage is present, select a different sample.

NOTE

With time, M441 SFTs have a tendency to settle within the pallet that causes the end caps of the SFTs to become misaligned with the openings in the end boards of the pallets. It is permissible to remove the end boards from the pallet. It is not necessary to replace the end boards when the operation is completed.

g. In the event damaged sampling port threads are noted, a thread chaser may be used or a self-tapping screw will be installed as a replacement for the plug that was just removed. If either plug cannot be reinstalled the rocket must be containerized in an SRC and tagged as a non-leaking rocket, missing sample plugs.

AE-10. Sampling Operations

a. The monitoring program described in the following section is based upon the ability of the equipment to detect the presence of 0.5ng of GB in the collected air sample. A mass of 0.5ng of GB will be the action level for this program.

b. Gross level testing to prevent saturation of the low-level detector separation column is optional. Maintain a ¼ inch separation distance between the front-end sample port and the end of the sample line or probe. If agent vapor is detected during gross level testing begin leaker isolation.

c. A NRT low level monitor will be used for this inspection. The NRT will be loaded with a Class III method to determine the presence or absence of agent at the 0.5 ng level. General QA procedures will be per the LMQAP. Methods and monitors developed and certified per the CASARM QA Plan need not be recertified. The following specific QC requirements will be enforced.

(1) One QP in the beginning of operations and one QP at the end of operations; an additional QP after 5 hours of operation. The QP samples will be injected at the end of the heated sample line or at the instrument. The QP samples must be exposed to shipping and firing tube air for the same time and at the same flow rate as ordinary samples. Corrective action is required if the QP cannot be detected at or above the 3:1 noise ratio of the instrument.

(2) Check flow rate prior to start of operations at the distal end of the sample line.

d. The void volume of air in the sample line must be taken into account during operations. Additional sample collection time must be added for continuous flow monitors, approximately 1 minute depending on line length and flow rate.

e. Intrusive sampling will be conducted with a single line. The heat traced sample line used for intrusive monitoring of M55 rockets will be connected to no more than 100ft of unheated Teflon line between the probe and the heated sample line.

f. To minimize interferent response recommend the Compound Gate on monitoring equipment be set at 5 to 6 seconds.

g. Sample lines used with real time low-level monitoring equipment should be provided preventive maintenance by having lines cleaned or flushed with solvent at intervals to be determined by the Laboratory/Monitoring Office.

h. Rodent feces have been identified as an interferent in real time low-level monitors. Ensure all areas around rocket pallet(s) are cleaned of feces prior to using monitors. Proper industrial hygiene procedures will be observed.

i. If an unusual number of leakers are encountered during an operation, the Laboratory/ Monitoring Supervisor and QASAS-in-charge shall review the sampling process for anomalies (e.g., contaminated sample lines, cross contamination, interference, etc.). If agreed upon, new samples may be taken to ensure the monitoring process has not been compromised.

j. Sample lines that become contaminated will be decontaminated and monitored in accordance with approved local procedures.

k. When intrusively monitoring Leaker Lots the following precautions will be taken to minimize the potential for cross contamination of subsequent samples.

(1) All opened SFTs must be in horizontal alignment with one another.

(2) No more than five SFTs will be sampled at one time.

(3) No more than 15 SFTs will be open at one time. To the extent practicable and consistent with efficient operations, operators should minimize the amount of time that SFTs remain open. Sampling port plugs should be replaced as soon as possible after intrusively monitoring. Each series of five SFTs and plugs should not be removed from SFTs awaiting sampling until necessary.

(4) Each series of SFTs will be opened, commencing with samples located lowest in a pallet or stack staying within the lot.

l. Single line sampling:

(1) The sample line will be assembled and attached to the monitoring line as shown in Figure AE-1.

(2) Operator will insert sample line into sample port so that the Tygon® stopper is flush against the sample port of the SFT. The sample line will extend no more than ½ inch into the SFT.

(3) Hold the sample line in the SFT for 1/5 of the cycle time for the instrument, operator will provide a minimum of 32 seconds of sample time per rocket based on a 3 minute sample time.

(4) When monitoring less than 5 rockets operator(s) will still monitor each shipping and firing

tube for 1/5 of the cycle time of the instrument and igloo air for the remainder of the sample time.

m. Upon detecting chemical agent vapor, at or above the action level, (a mass of 0.5ng of GB) operators will begin Leaker Isolation procedures as follows:

(1) Reinstall all sample port plugs. Ensure rubber gasket is placed on sample plug and is serviceable.

NOTE

If the vapor concentrations saturate the monitoring instrument's separation column, place instrument in a standby status and begin isolation procedure using alternate monitoring equipment.

(2) Insure sample line is clear of agent vapor by allowing monitoring instrument to aspirate clean ambient air.

(3) After verifying magazine's ambient air is free of agent vapor, begin Leaker Isolation. If an alternate detection method is used when initiating the isolation process, it may be used for confirmation.

NOTE

Real time low-level monitors that are being used to monitor the workers exposure profile may be used to verify that magazine ambient air is clear.

(4) During the isolation process, operator(s) will ensure that each SFT is subjected to an independent monitoring cycle. Placement of the sample line and the decision to monitor for a complete cycle will be based on the initial reading. The sample will not be considered a negative until one (1) complete NRT low-level monitoring sample cycle has been run.

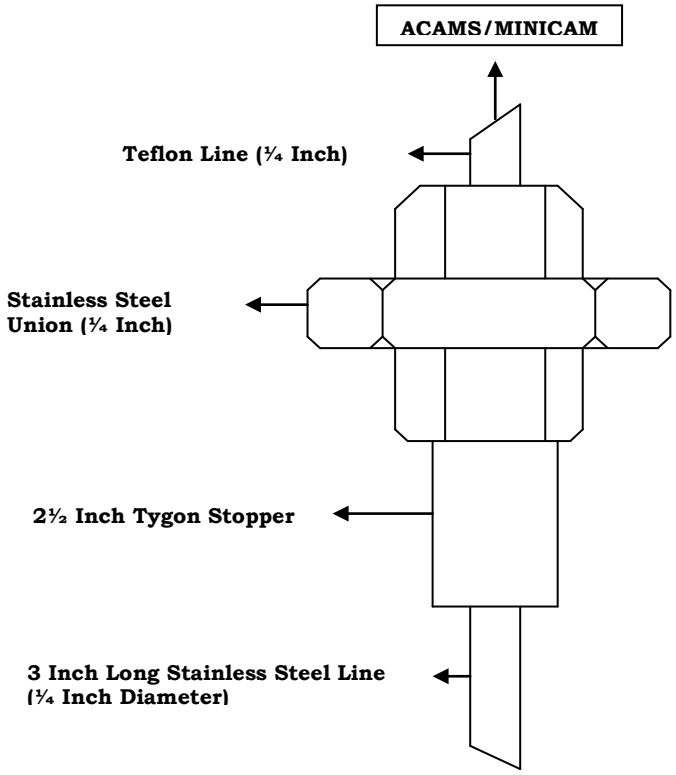
(5) If agent is detected on any one of the samples and leaker isolation is being performed using an alternate detection method, confirmation has been obtained. However, if leaker isolation is being conducted with the same detection method as used when agent was first detected an alternate detection method must be used for confirmation. The confirmation method/monitor must employ a different analytical method than the primary method.

(6) If using a continuous flow monitor and agent cannot be confirmed with an alternate method or no agent vapor is detected on last sampled rocket reinstall sample port plug with serviceable gasket and return item(s) to storage configuration and continue with SMI.

(7) When using a non-continuous monitor and agent cannot be confirmed with alternate method, or no agent vapor is detected on last sampled SFT, resample the previous set of SFT's sampled. If no agent vapor is detected on last sampled rocket reinstall sample port plug with serviceable gasket and return item(s) to storage configuration and continue with SMI.

(8) If agent is detected and then confirmed, containerize leaking rocket(s) in approved overpack container, apply required markings and place in approved storage location, IAW local procedures, and resume SMI. The decision to delay containerizing leakers will be based on ambient air contamination and the anticipated number of leakers in a structure. Movement of leakers to isolated storage may also be delayed to consolidate movements.

Figure AE-1
Stainless Steel Union placed at the end of the unheated sample line.



APPENDIX AF
FLARE, AIRCRAFT COUNTERMEASURE M206; DECOY, INFRARED, AIRCRAFT: COUNTERMEASURE, M211; FLARE, AIRCRAFT: COUNTERMEASURE, M212; CARTRIDGE, IMPULSE BBU-35/B; CARTRIDGE, IMPULSE M796

AF-1. Item Description.

a. NSN/DODIC:

(1) 1370-01-048-2138 L410 (M206 Flare);

(2) 1370-01-460-1684 LA14 (M211 Decoy);

(3) 1370-01-534-9804 LA14 (M211 Decoy Without Decal);

(4) 1370-01-460-1687 LA15 (M212 Flare);

(5) 1370-01-534-3060 LA15 (M212 Flare Without Decal);

(6) 1377-01-037-8651 MG62 (BBU-35/B Ctg);

(7) 1377-01-456-1933 MG62 (BBU-35/B Ctg);

(8) 1377-01-049-6365 MD73 (M796 Ctg).

b. Ammunition Type:

(1) Flare, Aircraft Countermeasure M206.

(2) Decoy, Infrared Countermeasure M211.

(3) Flare, Aircraft Countermeasure M212.

(4) Cartridge, Impulse BBU-35/B.

(5) Cartridge, Impulse M796.

c. Physical description:

(1) The M206 flare consists of a metal or plastic rectangular case 1 x 1 x 8 inches, containing an impulse cartridge receptacle with O-ring, a piston, felt spacer, flare pellet, and a plastic end-cap. The flare measures approximately 8" long with a 1" x 1" cross-section, and weighs approximately 0.43 pounds.

(2) The M211 decoy consists of an aluminum case which contains a receptacle (squib cup) for an impulse cartridge, a piston, a payload of stacked advanced material foil elements, which are pyrophoric (reacts with air), and an epoxied aluminum end-cap. The flare measures approximately 8" long with a 1" x 1" cross-section, and weighs approximately 0.66 pounds.

(3) The M212 flare consists of an aluminum case which contains a piston, a Safe and Initiation (S&I) device, a flare pellet grain assembly, and a brass end-cap. The flare measures approximately 8" long with a 1" x 1" cross section and weighs approximately 0.5 pounds.

(4) The BBU-35/B and M796 Impulse Cartridges consist of a cylindrical aluminum case 0.49-inch in body diameter, with a flange thickness of 0.060-inch and 0.625- inch in diameter. The cartridge case contains a firing electrode, glass-to- metal seal, bridge-wire, first-fire charge, booster charge, and a main-output charge contained by a closure disc held in place by a case end crimp. The M796 has both a disc closure and washer-closure.

d. Functional description:

(1) M206 flare requires an impulse cartridge (either MG62: Ctg, Impulse BBU-35/B or MD73: Ctg, Impulse M796) installed prior to functioning. The flare, with installed impulse cartridge, loads into a multiple flare dispenser magazine, which then installs into the aircraft. Flares dispense in flight when initiated by an electrical signal routed to the impulse cartridge. When the electro-explosive impulse cartridge fires and simultaneously ignites the first fire mix and forces the flare pellet to shear end-cap lugs and expel the payload (flare pellet) from flare case.

(2) The M211 Decoy's impulse cartridge receives a firing signal from the aircraft's on-board deployment system. Expanding hot gases from the impulse cartridge eject the highly air-reactive payload from the cartridge case into the air stream.

(3) The M212 Flare's impulse cartridge receives a firing signal from the aircraft's on-board deployment system. Expanding hot gases from the impulse cartridge simultaneously ignite the S&I device and expel the flare out of the case and into the slipstream. When the flare exits the case, the S&I device ignites the flare pellet.

(4) BBU-35/B and M796 Impulse Cartridges initiate electrically and generates flame gas pressure to ignite the flare and push flare ejection piston and payload out of flare case into aircraft slipstream.

AF-2. Unique Safety Precautions for M206 Flare.

a. Plastic M206s should not be used in the new ICMD AN/ALQ-212(V) dispenser. They will damage it. There is a chance of damage to older M130 magazines also due to non-ejection of flare grain (burns in case). The following lots of M206 flare were procured with plastic cases.

(1) BER lots w/interfix #001, 002, 003.

(2) LOW lots w/interfix #017, 019, 020.

(3) MBT lots w/interfix #004, 005, 006, 007, 008, 009.

b. Outgassing history: Test results confirm that temperature variations in storage can cause a build-up of hydrogen gas, subsequently resulting in bulging PA 19 metal cans. Uncontrolled relative humidity during the manufacturing and packaging process traps moisture in the magnesium composition that reacts with the magnesium causing a hydrogen gas release within 2 to 4 years and continues until all moisture is consumed.

c. Degassing procedures for PA19 cans:

(1) Gas release will be conducted in a well-ventilated area, free of flammables, explosives, fires, open flames and contaminants. Person(s) opening containers must wear face shield, flame-retardant clothing, conductive sole safety shoes or equivalent.

(2) Remove bulged cans from outer pack and place in a locally-designed holding fixture on a grounded surface. Caution will be taken to slowly release built-up gasses as serious injury to personnel could result. Container may open with considerable force due to gas pressure.

(3) The locally-designed holding fixture should be a wooden box or frame fabricated with an open front which will allow PA-19 container to be inserted with end handle accessible and a clearance between top of container and box from one to two inches. These types of fixtures will protection from cover flying open.

(4) Hold lower half of container body exerting a downward force, and with a non-sparking tool shaped in the form of a J, pull latch forward. Keep latch in constant contact with HASP if possible. A hissing sound may accompany release of gas. Verify that gas pressure has been released; then reseal container and remove from wooden box.

(5) Repack items.

AF-3. Inspection Category and Sampling Plan.

a. Inspection Categories:

(1) Flare – Cat Z: Periodic inspection interval - 2 years.

(2) Impulse Ctg – Cat W: Periodic inspection interval - 5 years.

b. Sampling Plan: Periodic inspection sample size and accept/reject criteria will be IAW Chapter 2 for both flare and impulse cartridges.

AF-4. Specific Inspection Points. Flare and Impulse Cartridges will be inspected and classified according to Chapter 2 of this manual and Tables AF-1 through AF-3 of this appendix.

Table AF-1. Packaging Defects

Classification	Application	Inspection Method	Inspection Description
1. Critical: None defined.			
2. Major:			
a. Outer/inner container broken or damaged.	M206, M211, M212, BBU-35/B, M796	Visual	Para AF-5a
b. Contents of inner container loose.	M206, M211, M212, BBU-35/B, M796	Visual/Manual	Para AF-5a
c. Developed rust on inner container.	M206, M211, M212, BBU-35/B, M796	Visual	Para AF-5a
d. Caked rust on hermetic container.	BBU-35/B , M796	Visual	Para AF-5a
e. Bulging inner container.	M206	Visual	Para AF-2
f. Hermetic container dented greater than ⅜ inch.	BBU-35/B , M796	Visual	Para AF-5a
g. Hermetic container punctured, rusted through or not sealed.	BBU-35/B, M796	Visual	Para AF-5a
3. Minor:			
a. Outer container moldy, dry rot or wet.	M206, M211, M212, BBU-35/B, M796	Visual	Para AF-5a
b. Inner/hermetic container with rust.	M206, M211, M212, BBU-35/B, M796	Visual	Para AF-5a
c. Outer/inner/hermetic container missing or illegible markings.	M206, M211, M212, BBU-35/B, M796	Visual	Para AF-5c
d. Key missing from exterior of can.	BBU-35/B, M796	Visual	Para AF-5j

Table AF-2. M206/M211/M212 Flare Defects.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
Piston Missing.	M206, M212	Visual	Para AF-5k Reject
2. Major:			
a. Body damaged.	M206, M211, M212	Visual	Reject
b. End cap damaged, missing, or not secure.	M206, M211, M212	Visual/Manual	Reject
c. Receptacle damaged or obstructed.	M206, M211, M212	Visual	Reject
d. Plastic case flare body.	M206	Visual	Para AF-5g
e. Electronic decal at back of flare/decoy missing or visibly damaged.	M211, M212	Visual	Para AF-5i
f. Metal frangible disk seal at bottom of impulse cartridge receptacle missing or damaged.	M211	Visual	Reject

3. Minor:			
a. Body wet or evidence of moisture.	M206, M211, M212	Visual	Para AF-5d
b. O-ring missing or damaged in receptacle.	M206, M211, M212	Visual	Para AF-5e
c. Markings missing or illegible.	M206, M211, M212	Visual	Para AF-5c
d. Dust cap missing or damaged.	M206, M212	Visual	Para AF-5f
e. Strings missing from top of ammunition can.	M211	Visual	Para AF-5h

Table AF-3. BBU-35/B & M796 Impulse Cartridge Defects.

Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Body ruptured or punctured.	BBU-35/B, M796	Visual	Reject
b. Closure disc punctured.	BBU-35/B, M796	Visual	Reject
2. Major:			
a. Body dented or bent.	BBU-35/B, M796	Visual	Reject
b. Corrosion on head of firing electrode pin.	BBU-35/B, M796	Visual	Reject
c. Body distorted and cannot be installed without undue force.	BBU-35/B, M796	Visual	Reject
d. Shelf/service life expired.	BBU-35/B, M796	Visual	Reject
e. Cartridge returned from unit failed to fire or misfire.	BBU-35/B, M796	Visual	Reject
f. Incomplete or missing red sealant on front and back of impulse cartridge.	BBU-35/B, M796	Visual	Reject
3. Minor:			
Markings missing or illegible.	BBU-35/B, M796	Visual	Para AF-5c

AF-5. Inspection Description and Notes.

a. Defective containers must have their contents inspected for defects IAW Tables AF-2 or AF-3. Repair or replace container as needed.

b. Loose contents must be inspected IAW Tables AF-2 or AF-3 and if serviceable, repacked.

c. Missing or illegible markings will be corrected. If not correctable, or items cannot be identified then reject.

d. Flares with wet body or with evidence of moisture will be wiped dry. Dunnage inside packaging should be replaced with dry packaging.

e. Install or replace missing or damaged impulse cartridge receptacle o-rings as needed.

f. Replace dust caps with saved excess stocks. If excess caps are unavailable, use two - 1" x 1 ½" pieces of masking tape to cover the receptacle in a "+" configuration with sides folded down to secure tape.

g. The following lots of M206 flare were procured with plastic cases that are prone to cracking during sudden elevation changes on aircraft. These lots are restricted IAW TB 9-1300-385.

(1) BER lots w/interfix #001, 002, 003.

(2) LOW lots w/interfix #017, 019, 020.

(3) MBT lots w/interfix #004, 005, 006,007, 008,009.

h. Replace strings with saved excess stocks. Tape to interior top of ammunition can.

i. M211 and M212 Countermeasures without decals must be zone loaded in dispensers and cannot be utilized in dispensers set to automatically distinguish between flare types.

j. Replace missing key with saved excess stocks. Tape to exterior top of can. Alternatively, pliers can be used to grasp tear strip to open can.

k. Remove dust cap and view in rear of M206 for presence of white four legged piston.

APPENDIX AG
NON-LETHAL GRENADES

AG-1. Item Description.

a. DODACs: 1330-

GG04 GG09 GG17 GG18 GG19

b. Ammunition Type:

Grenade, Hand, Rubber Ball, Non-Lethal
Grenade, Hand: Non-lethal, Stun, M84
Grenade, Hand: Practice, Stun, Reloadable, M102
Grenade Body, M102
Fuze, Grenade: Hand, Stun, Cartridge, M240

c. Grenade, Hand, Rubber Ball, Non-Lethal (GG04). Grenade uses NSN 1330-01-454-0132 for old configuration and NSN 1330-01-503-1036 for new configuration (with confidence clip and longer fuze safety lever). This is a non-lethal bursting hand grenade that is filled with approximately 100 .32 caliber rubber ball projectiles. The intent of this grenade is to cause non-lethal effects on its target to be used for force protection, peacekeeping, crowd control, and internment missions. The grenade disperses the rubber balls along with accompanying sound and flash. The GG04 uses a commercial variant of the M201A1 pyrotechnic delay-igniting fuze. There are two delays accompanying this grenade. The first delay is in the fuze which initiates a separating charge and a secondary delay element. The separating charge causes the fuze block assembly to be separated from the grenade. After this the final delay element burns, the main charge is initiated dispelling the rubber balls. A large piece of tape keeps the fuze block attached to the grenade body along with some internal fittings on this setup. The total delay time ranges from 1.7 to 3.5 seconds. For the new configuration, the total delay is 2.2 to 3.2 seconds. The new configuration GG04 has changes to the fuze which are a longer fuze safety lever and the addition of the confidence clip.

d. Grenade, Hand: Non-lethal, Stun, M84 (GG09). The M84 is a non-fragmentation, non-lethal, "Flash and Bang" stun hand grenade intended for hostage rescue, or capture of criminals, terrorists, or other adversaries. It provides a reliable, effective non-lethal means of neutralizing & disorienting personnel. The stun grenade produces an intense flash exceeding 1 million candlepower with accompanying noise level between 170 to 180 dB. The grenade is assembled with a commercial variant of the M201A1 pyrotechnic delay-igniting fuze with a delay time range of 1.5 +0.8/-0.5 seconds. The fuze contains a primer, first fire mixture, pyrotechnic delay column and ignition mixture. The fuze body contains a striker, striker spring, safety lever with brown band, primary safety pin with circular pull ring and secondary safety pin with triangular pull ring.

e. Grenade, Hand: Practice, Stun, Reloadable, M102 (GG17), Grenade Body, M102 (GG18), and Fuze, Grenade: hand, stun, cartridge, M240 (GG19). The M102 serves as a reusable, economical training device for the M84. The assembled M102 consists of the M102 reusable steel body and the M240 Fuze Cartridge. The M240 consists of a commercial variant of the M201A1 pyrotechnic delay-igniting fuze, and a cartridge with cap plug, containing the stun charge. The fuze and total delay time is identical to that of the M84. The M102 body is painted blue and is designed to be reused multiple times (minimum 10 reuses, maximum 10 reuses) to reduce training costs. When recovered, the expended M240 Fuze Cartridge can be unscrewed from the M102 body and replaced with another M240 Fuze Cartridge.

AG-2. Unique Safety Precautions.

a. Grenades should never be lifted or handled by the safety pin pull ring(s).

b. Before any grenade is removed from its packaging container, it must be thoroughly inspected to see that the safety pin(s) are in place, undamaged, and prongs of the safety pin are spread approximately 45 degrees.

c. If grenade is upside down in the packaging container (fuze not visible), or if any of the above discrepancies are noted, it should remain inside the container and action taken to dispose of it safely.

d. Use an appropriate air purifying respirator if exposure is to occur during function tests.

(1) In high concentrations or on prolonged exposures, Hydrogen Chloride (HCl) can cause respiratory tract signs and symptoms, including noticeable pain, cough, inflammation, edema, and a high concentration bronchial constriction.

(2) In high concentrations or on prolonged exposures, potassium perchlorate can interfere with the thyroid glands functioning. Use an appropriate air purifying respirator if exposure is to occur during function tests.

e. Always wear proper safety equipment (ie. Safety glasses). When inspecting grenades, APE-1213M1 “Pitch–in-barricade” is recommended to be in place, during visual inspection.

f. Be sure that the fuze has not separated from the grenade when in the packaging container.

g. To preclude fuze pins from being inadvertently pulled, users are cautioned to comply with the following procedures:

(1) Retain the grenade in packaging container until they are to be used/inspected.

(2) Always store and transport grenades in packaging container.

(3) Prior to removing the grenade from the packaging container, observe the fuze safety pin(s). If either one is missing, do not remove the grenade/fuze cartridge from the packaging container. If both legs of the pin(s) are straight or if one leg is straight and the other is bent to an angle less than 45 degrees, bend the/a leg to at least 60 degrees.

h. The confidence clip has been added or will be added to a number of grenades in an effort to prevent the taping of grenades. Removal of the pull ring from the confidence clip can damage/distort the head of the safety pin and should not be reengaged.

AG-3. Testing and Equipment Requirements. No inspection tests applicable. ASRP tests will be conducted under the CCFTP program.

AG-4. Inspection Category and Sampling Plan.

a. GG04, GG09, GG17, GG19: Inspection Category Z; Periodic inspection interval, two years.

b. GG18: Inspection Category W; Periodic inspection interval, five years

c. Sampling plan for inspection is according to Chapter 2.

d. Inspection criteria for fuzes are contained in Appendix S.

e. Item will be inspected and classified according to Chapter 2 and Table AG-1.

AG-5. Inspection Description and Notes.

a. Grenade sticky or tacky. This refers to the rubber body of the grenade having this condition. The stickiness of the grenades may be an indication of degraded rubber body and could result in excessive duds. These grenades should not be used.

b. Grenades should be protected from exposure to direct sunlight and high humidity. Grenades exposed to these conditions should be inspected prior to issue/use for a sticky texture on the rubber body. A sticky/tacky grenade body is an indication of storage at high temperatures. Exposure to high humidity conditions which may also cause excessive dud rates.

c. Do not reinsert the pull ring into the confidence clip. Reclassify grenade to CC-F for refuzing – defect code FZ151 applies. A grenade with the pull ring disengaged from the confidence clip should not be considered unsafe unless evidence of damage to the safety pin is present to the extent that it endangers the user. This defect criteria does not apply to grenades manufactured without a confidence clip.

AG-6. References.

a. TB 9-1330-211-14.

b. TM 9-1330-200-12.

c. TM 9-1330-200-34.

d. TM 43-0001-29.

Table AG-1. Item Defects and Method of Inspection			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Incorrect model fuze assembled to grenade.	All	Visual	
b. Safety pin(s) missing, or insecurely assembled to the extent that it endangers the user.	All	Visual	
c. Grenades mixed within lot which can result in hazardous or unsafe conditions for persons using or maintaining items.	All	Visual	
d. Grenade packed upside down in packaging container.	All	Visual	
e. Grenade contents spilling out.	All	Visual	
2. Major:			
a. Missing rubber ball projectiles.	GG04	Visual	
b. Fuze block assembly tape missing or loose.	GG04	Visual	
c. Fuze assembly loose.	All	Visual	
d. Grenade type and/or lot number incorrect or missing.	All	Visual	
e. Rust or corrosion on grenade/fuze components to the extent that item cannot be used as intended.	All	Visual	
f. Grenades cannot be removed from container.	All	Visual	
g. Damage to rubber body or sticky/tacky texture.	GG04		AG-5a.
h. Pull ring detached from confidence clip.	As applicable	Visual	AG-5b.
i. Damage to steel body.	M84, M102	Visual	
3. Minor:			
a. Marking incomplete or illegible but type of grenade and lot number are identifiable.	All	Visual	
b. Minor rust/corrosion.	All	Visual	
c. Markings incorrect or missing on container.	All	Visual	

APPENDIX AH
PROJECTILE, 155-MM, ER, PG, UNITARY, HE, XM982 (EXCALIBUR)

AH-1. Item Description.

a. FSC: 1320.

b. Ammunition Type: Projectile, 155mm, ER, PG, Unitary, HE, XM982.

c. Item is a separate loading, extended range, precision guided, high explosive projectile, XM982, also known as the Excalibur Projectile.

AH-2. Unique Safety Precautions.

a. Use extreme care when handling XM982 (Excalibur) projectiles. Removal from container requires use of integrated extraction strap and two person lift technique. Do not lift projectile by nose section or base hood located at the projectile base end as damage to these areas may result.

b. XM982 Excalibur Containers contain a desiccant bag in the container cap which contains silica pellets that are harmful to exposed skin and lungs. Handle broken desiccant bags with care. Do not inhale exposed desiccant. Avoid contact with skin. Wear eye protection when handling broken desiccant bags and avoid contact with the eyes. If desiccant comes in contact with eyes, rinse eyes with water thoroughly. If a broken bag becomes wet, the desiccant and bag may become extremely hot and can burn skin if touched. If the bag becomes wet, allow to cool at least five minutes before handling.

AH-3. Testing and Equipment Requirements.

No gaging or special testing is planned as part of the ammunition surveillance portion of the ASRP for this projectile. Extensive developmental testing and detailed ballistic testing will be the primary source of data for reliability estimates according to AR 702-6.

AH-4. Inspection Category and Sampling Plan.

a. RI will be accomplished IAW Chapter 2 and criteria contained in Tables AH-1 and AH-2. During RI and SMI, container will not be opened unless humidity indicator is any color other than blue. RI will consist of container exterior only unless container is damaged or compromised. Container will not be opened unless seal is broken.

b. PI inspection is not required. In lieu of a PI, storage monitoring (SMI) of the XM982 will be performed every 6 months. SMI will consist of 100 percent verification of the humidity indicator. Whenever the container is opened for replacement of desiccant, an inspection of the projectile will be performed according to Table AH-2 and results noted on the DSR.

AH-5. Inspection Description and Notes.

Container and projectile will be inspected according to Chapter 2 and criteria contained in Tables AH-1 and AH-2 (as appropriate). SMI will consist of monitoring the humidity indicator. If required, opening of samples will be performed in such an environment as to limit possibility of moisture entering the container. These inspections will not be performed during periods of high humidity, (such as rainstorms). The time a container remains open or a projectile is removed from container will be kept to a minimum necessary to perform inspection. Accept or reject for the inspection of projectile and inner pack will be 0 and 1 respectively for critical and major defects. Outer pack accept or reject will be according to Chapter 2.

AH-6. Inspection Description and Notes.

a. Humidity indicator.

(1) If the humidity indicator is a color other than blue for XM982, the desiccant must be changed. The humidity indicator is reversible and will change back to blue when exposed to new desiccant.

(2) Inspection of the projectile is required any time desiccant is changed and will be performed according to Table AH-2 and results noted on the DSR.

(3) New humidity indicator is required if damaged or wet.

(4) Time that the projectile, container, and the desiccant bag are open or exposed to the atmosphere should be kept to a minimum. For inspection purposes, do not keep container open any longer than necessary (15 minutes maximum). Unnecessary exposure can limit the shelf life of the bag and compromise the integrity of the projectile and container.

b. Container.

(1) Conduct standard pressure test on container utilizing test port on container end cap any time the desiccant bag is changed. The container must hold an internal pressure of 3-4 psi for a minimum of ten seconds.

(2) If the air test screw is loose, tighten to 30 in-lbs. If the air test screw is missing, replace with suitable replacement and tighten to 30 in-lbs.

c. Serial Numbers.

(1) If any serial numbers are illegible or missing on container, verify with other labels on the container and mark accordingly.

(2) If any serial numbers are illegible or missing on projectile, verify with other label on projectile or labels on container if matching container is available and mark accordingly.

d. Desiccant Bag Breakage.

(1) Handle broken desiccant bags with care. Do not inhale exposed desiccant. Avoid contact with skin. Wear eye protection when handling broken desiccant bags and avoid contact with the eyes. If desiccant comes in contact with eyes, rinse eyes with water thoroughly. If a broken bag becomes wet, the desiccant and bag may become extremely hot and can burn skin if touched. If the bag becomes wet, allow to cool at least five minutes before handling.

(2) Use vacuum and appropriate means to remove desiccant residue from broken bag. Desiccant residue must be removed from container before container can be used.

(3) Replace desiccant bag if missing or broken.

Table AH-1. Metal Container Exterior		
Classification	Inspection Method	Inspection Description
1. Critical: None defined.		
2. Major:		
a. Broken weld on ring or rims	Visual	Replace Container
b. Container body or IM windows dented or cracked enough to affect the ability to maintain seal.	Visual	Replace Container
c. Rope on cover cut or frayed.	Visual	Replace Container
d. Missing screws around IM windows.	Visual	Replace Container
e. Damaged or missing gasket or IM window.	Visual	Replace Container
3. Minor		
a. Any section of the humidity indicator is not blue.	Visual	Para AH-6a
b. Damaged or loose humidity indicator.	Visual	Para AH-6a
c. Wire security seal on cover broken or missing.	Visual	Inspect IAW AH-2
d. Cover air test screw loose or missing.	Visual	Para AH-6b
e. Serial number missing or illegible on container	Visual	Para AH-6c
f. Bar code label missing or illegible.	Visual	Replace Label

Table AH-2. Projectile and Container Interior		
Classification	Inspection Method	Inspection Description
1. Critical:		
a. Evidence of PBXN-9 leakage.	Visual	
b. Any of the 12 warhead IM vent plugs missing or loose.	Visual	
c. Damaged or broken plastic radome.	Visual	
d. Any of the 12 radome screws missing or loose.	Visual	
e. Dented, missing or loose base hood.	Visual	
f. Cracked or deeply gouged obturator.	Visual	
g. Damaged, broken or loose plastic Height of Burst (HOB) nose section.	Visual	
2. Major:		
a. Missing or illegible serial number on projectile.	Visual	Para AH-6c
b. Major rust or pitting on projectile.	Visual	
c. Base foil seal missing or broken.	Visual	
3. Minor		
a. Minor rust or paint deterioration on projectile.	Visual	
b. UID label peeling off or missing.	Visual	
c. The marking "USE AT MACS -3 OR -4 CHARGE ONLY" is missing or illegible for XM982 Projectiles.	Visual	Restore Marking
d. Missing or ripped strap	Visual	Replace Strap
e. Obturator cover latch broken or cover missing.	Visual	Replace
f. Dirt, debris, foreign matter, or desiccant residue from broken bag on projectile.	Visual	Clean Projectile
g. Desiccant bag missing or broken.	Visual	Para AH-6d

AH-7. Collection of Data from RRAPDS-Excalibur Temperature Data Recorders.

a. Some shipments of Excalibur projectiles will have an "RRAPDS-Excalibur Temperature Data Recorder" mounted on the container lid with Velcro and wire cables. The data recorder will monitor the temperature exposure history of the projectile.

b. QASAS personnel shall collect data from RRAPDS-Excalibur temperature data recorders at time of receipt (during receipt inspection), biannually while in storage in theater (during storage monitoring inspection), and immediately prior to issue to unit (pre-issue inspection).

c. Data will be collected using the maintenance support device (MSD) portable computer which will be issued to the supporting QASAS by the supporting Activity/Unit. Instructions for use of the MSD are contained within the MSD itself and are accessed from an icon on its display screen.

d. To perform data collection, the QASAS will:

(1) Remove the RRAPDS device from the Velcro on the lid.

(2) Depress button on case and slide apart the two halves.

(3) Insert mini USB cable end into exposed port on side of RRAPDS-Excalibur temperature data recorder.

(4) Connect larger end of USB cable to the MSD by USB port.

(5) Collect data following instructions on MSD.

(6) Reverse above process and reattach to the container lid.

e. The RRAPDS device is to remain on the container lid until the Excalibur round is fired. After firing, the RRAPDS device will be removed by the firing unit and returned to:

Office of PM Excalibur
SFAE-AMO-CAS-EX, BLDG 172
Picatinny Arsenal, NJ 07806-5000

by inserting it into the postage paid envelope found under the handle on top of the container lid

NOTE: only one RRAPDS device is allowed to be sent by envelop.

Highest return rates will help ensure greatest benefit from RRAPDS data collection efforts.

f. If a fired round had a RRAPDS-Excalibur temperature data recorder present on the container, units will annotate this fact on the firing report for that specific round.

APPENDIX AJ
BRADLEY FIGHTING VEHICLE REACTIVE ARMOR TILES VEHICLE SET (BRAT)

AJ-1. Item Description.

a. FSC: 1375.

b. Ammunition Type: Armor Tile, Vehicle Sets.

c. BRAT sets consist of various low-sensitive tile components, which when mounted on the vehicle will provide protection from small arms fire and RPG rounds.

AJ-2. References:

a. TM 9-1375-217-14&P, Technical Manual Operator, Field, And Sustainment Maintenance Manual (Including Repair Parts And Special Tools List) For Bradley Reactive Armor Tiles (BRAT): Vehicle Set (M3 Thru M7) (1375-01-453-7834) Vehicle Set (M3A1 Thru M7A1) (1375-01-453-7835) Vehicle Set (M3A2, M4A2, M5A2, M6A1, AND M7A1) (1375-01-516-2441) Vehicle Set (M3A2, M4A2, M5A2, M6A1, AND M7A1) (1375-01-530-5634) Installation Kit (5340-01-275-2566) Installation Kit (5340-01-537-8673) Vehicle Modification Kit (2350-01-521-4750) And Camouflage Cover (1080-01-541-2475) Cloaking Assembly (2350-01-424-9697) For M2A2/M2A2ODS /M2A3 Infantry Fighting Vehicle And M3A2/M3A2 ODS/M3A3 Cavalry Fighting Vehicle - Dated 30 MAY 2008.

b. TB 9-1375-234-12 Technical Bulletin, Operator And Unit Information For Installation Kit: Armor Tile, NSN 5340-01-537-8673, Dated 10 May 2006.

AJ-3. Components/Configuration: (See Table AJ-1 and AJ-2):

a. First generation BRAT sets – A0 version - (DODIC MN42) consist of 105 ea armor tiles:

(1) 26 ea M3 tiles.

(2) 9 ea M4 tiles.

(3) 55 ea M5 tiles.

(4) 7 ea M6 tiles.

(5) 8 ea M7 tiles.

b. Second Generation BRAT sets – A1 version - (DODIC MN43) consists of 105 ea armor tiles:

(1) 26 ea M3A1 tiles.

(2) 9 ea M4A1 tiles.

(3) 55 ea M5A1 tiles.

(4) 7 ea M6A1 tiles.

(5) 8 ea M7A1 tiles.

c. Third Generation BRAT sets – A1/A2 version - (DODIC MN94) consist of 96 ea armor tiles with either LF2 or LBR6 explosive filler.

(1) 18 ea M3A2 tiles.

(2) 8 ea M4A2 tiles.

(3) 55 ea M5A2 tiles.

(4) 7 ea M6A1 tiles.

(5) 8 ea M7A1 tiles.

AJ-4. Explosive Filler (See Table AJ-3):

a. LF2 explosive is a flexible sheet explosive used in both A1 and A2 tiles. LF2 is a low sensitivity / low flammability explosive.

b. LBR6 explosive is used as the flexible explosive sheets in addition to LF-2. LBR6 is also a low Sensitivity / low flammability, flexible sheet explosive developed specifically for reactive armor.

c. In addition to a change in NSNs, armor tiles loaded with LF2 will have serial numbers beginning with "LF". For LBR6 loaded tiles the serial numbers will begin with "LB".

AJ-5. Physical Differences Between A1 And A2 Versions Of Tiles: (See Table AJ-3):

a. The M3A2 tile is 64.8 lbs, which is 25 lbs heavier than the M3A1 tile. It is also approximately 3 inches thicker.

b. The M4A2 tile is a combination of the M4A1 and M3A1 tile.

c. The M5A2 tiles did not change in size, but they are 6 lbs heavier.

AJ-6. Mounting:

Mounting Instructions are covered in TM 9-1375-217-14&P.

Table AJ-1 – Armor Tile Vehicle Sets

Vehicle Set (P/N)	NSN	DODIC	Pallets
A0 (12982782)	1375-01-453-7834	MN42	3 Pallets Of M5, 1 Combination Pallet Of M3, M4, M6, M7
A1 (12982783)	1375-01-453-7835	MN43	3 Pallets Of M5A1 Tiles, 1 Combination Pallet Of M3A1, M4A1, M6A1, M7A1
A1/A2 With LF-2 (13004403)	1375-01-516-2441	MN94	3 Pallets Of M5A2 Tiles, 1 Pallet M4A2, 1 Combination Pallet Of M3A2, M5A2, M6A1, M7A1, Bolt Box
A1/A2 With LBR6 (13011748)	1375-01-530-5634	MN94	3 Pallets Of M5A2 Tiles, 1 Pallet M4A2, 1 Combination Pallet Of M3A2, M5A2, M6A1, M7A1, Bolt Box

Table AJ-2 – Components Of Armor Tile Vehicle Sets				
	NSN	**DODIC**	**COAI Drawing #**	**Number Of Tiles Per Set**
VEHICLE SET A0	1375-01-453-7834	MN42	12982782	
M3	1375-01-257-3981	ML93	12576353	26
M4	1375-01-257-3982	ML94	12576354	9
M5	1375-01-257-3983	ML95	12576355	55
M6	1375-01-257-3984	ML98	12576356	7
M7	1375-01-257-3985	ML99	12576357	8
VEHICLE SET A1	1375-01-453-7835	MN43	12982783	
M3A1	1375-01-410-7414	ML93	12972559	26
M4A1	1375-01-410-7413	ML94	12972560	9
M5A1	1375-01-410-7416	ML95	12972561	55
M6A1	1375-01-410-7415	ML98	12972562	7
M7A1	1375-01-410-7417	ML99	12972563	8
VEHICLE SET A1/A2 (WITH LF-2)	1375-01-516-2441	MN94	13004403	
M3A2	1375-01-516-1625	MN92	13004402	18
M4A2	1375-01-516-1623	MN93	13004401	8
M5A2	1375-01-516-1642	ML95	13004400	55
M6A1	1375-01-410-7415	ML98	12972562	7
M7A1	1375-01-410-7417	ML99	12972563	8
VEHICLE SET A1/A2 (WITH LBR6)	1375-01-530-5634	MN94	13011748	
M3A2	1375-01-530-5625	MN92	13011599	18
M4A2	1375-01-530-5627	MN93	13011598	8
M5A2	1375-01-530-5628	ML95	13011597	55
M6A1	1375-01-530-5630	ML98	13011596	7
M7A1	1375-01-530-5633	ML99	13011595	8
INSTALLATION KITS				
INSTALLATION KIT	5340-01-275-2566		12576358	
INSTALLATION KIT	5340-01-537-8673 (new mounting kit)		13011862	

Table AJ-3 - A1 And A2 Tile Specifications							
DODIC	**NSN**	**P/N**	**TILE**	**EXPL**	**Dimensions (IN)**	**WT (LBS)**	**NEW (LBS)**
ML93	1375-01-410-7414	12909997	M3A1	LF2	12.91x12.13x3.29	37.5	4.02
ML94	1375-01-410-7413	12909998	M4A1	LF2	7.96x12.13x3.61	7.14	0.64
ML95	1375-01-410-7416	12909999	M5A1	LF2	12.89x15.65x12.16	88.0	5.93
ML95	1375-01-516-1642	13004397	M5A2	LF2	12.94x15.65x12.16	94.58	8.47
ML95	1375-01-530-5628	13004397-2	M5A2	LBR6	12.94x15.65x12.16	93.68	7.57
ML98	1375-01-410-7415	12972562	M6A1	LF2	7.49x7.90x11.40	30.25	2.40
ML98	1375-01-530-5630	13011596	M6A1	LBR6	7.49x7.90x11.40	29.95	2.1
ML99	1375-01-410-7417	12972563	M7A1	LF2	7.49x7.90x11.40	22.45	1.81
ML99	1375-01-530-5633	13011595	M7A1	LBR6	7.49x7.90x11.40	22.0	1.62
MN92	1375-01-516-1625	13004402	M3A2	LF2	12.90x12.13x6.27	64.60	6.16
MN92	1375-01-530-5625	13011599	M3A2	LBR6	12.90x12.13x6.27	64.38	5.94
MN93	1375-01-516-1623	13004401	M4A2	LF2	16.85x12.13x6.28	57.1	6.16
MN93	1375-01-530-5627	13011598	M4A2	LBR6	16.85x12.13x6.28	56.23	5.29

Table AJ-4 - New Mounting Bolts			
NSN	**Part Number**	**Description**	**QTY**
5305-01-521-4710	13005627-1	8 Inch Bolt, 3/8” UNC	96 Each
5306-01-521-4555	13005627-2	5 Inch Bolt, 3/8” UNC	20 Each
2350-01-521-4750	13006119	Bolt Box	1 Per Kit

Table AJ-5 – Item Defects And Method Of Inspection			
Classification	**Application**	**Inspection Method**	**Inspection Description**
1. Critical: none			
2. Major:			
a. Holes / punctures 1 inch or greater	All	Visual	Para AJ-8b(1) & TM 9-1375-217-14&P, page 0019 00-1
b. Cracks	All	Visual	Para AJ-8d(1)
c. Distortion	All	Visual	Para AJ-8e(2)
d. Corrosion	All	Visual	Para AJ-8f(2)
e. Expose to external fire	All	Visual	Para AJ-8h(2)
f. Cover missing	All	Visual	Para AJ-8i
g. Foreign Matter inside tile	All	Visual	Para AJ-8j
h. Damaged / rusted mounting brackets	All	Visual	Para AJ-9b
3. Minor:			
a. Holes / punctures smaller than 1 inch	All	Visual	Para AJ-8c(1) & TM 9-1375-217-14&P, page 0019 00-1
b. Distortion	All	Visual	Para AJ-8e(1)
c. Corrosion	All	Visual	Para AJ-8f(1)
d. Scratches	All	Visual	Para AJ-8g(1)
e. Expose to external fire	All	Visual	Para AJ-8h(1)
f. Damaged / rusted mounting brackets	All	Visual	Para AJ-9a

AJ-7. Fielded Tile Serviceability:

******ATTENTION******

All damaged tiles deemed to be unserviceable must be considered to have unconsumed explosives in them, even those thought to be burned out.

All damaged tiles must be turned into the ASP for retrograde to an authorized demilitarization location (outside of SWA). Current EOD policy prohibits demilitarization in theater. Units should turn in their damaged tiles to the ASP on a DA Form 581 with a supporting DA Form 5811-R (Certificate - Lost or Damaged Class 5 Ammunition Items) stating the circumstances and signed by the first 05 in the unit chain of command.

a. TM 9-1375-217-14&P provides Preventive Maintenance Checks and Services (PMCS) guidance. Any internal damage to a tile will have degraded performance in the immediate location of the damage. However, several tests have been conducted on damaged tiles impacted by small arms with generally good results. The tests were done at least 2 inches from the damaged areas and it is the technical community's position that a damaged armor tile is better than no tile.

b. Areas where the tile has been penetrated and detonated will probably be ineffective against future attacks. Areas around the tile that have not been penetrated or detonated will probably remain very effective against future attacks.

c. Units may have patched tiles in one of the following manners to keep excessive foreign matter, such as sand, out of the armor tile:

(1) Tape would be the most expedient patch method.

(2) Common silicone or acrylic caulk could be used to seal cracks or patch small holes, or to hold a sheet metal patch in place. Care should be taken to not get excessive caulk in the tile.

*******WARNING*******

Repair methods that require heat (welding, soldering, torch, heat lamps, etc.) and shock (riveting, hammering, etc.) should not be used.

It is important that any damaged tile be used if there is no replacement BRAT available. Having any BRAT is better than no armor tile at all. But if a damaged armor tile is used, then it should be patched with any available materials to keep it from being contaminated from moisture and debris.

AJ-8. Inspection Category And Criteria For Armor Tiles - this inspection criteria is for all versions of armor tiles (M3, M3A1, M3A2, M4, M4A1, M4A2, M5, M5A1, M5A2, M6, M6A1, M7, AND M7A1):

a. Inspection Category X – 4yr. Periodic inspection sample size and accept/reject criteria will be according to Chapter 2.

b. Inspection of armor tiles with punctures/holes of 1 inch diameter or greater:

(1) If the hole is at an impact angle such that the internal plates have been disrupted, detached, or separated, the armor tile should be declared unserviceable and replaced when a replacement is available.

(2) If the tile has partially detonated, but there is no replacement available, the tile can still be used. It is recommended that the part of the tile that has been damaged be sealed with locally available materials (tape, etc.) to prevent damage from moisture contamination or debris. The armor tile should be replaced when a replacement is available.

c. Inspection of armor tiles with punctures/holes of 1 inch diameter or smaller:

(1) Tiles should be considered serviceable if the holes are covered up (using tape, etc.). If there are multiple holes, then the tile may still be considered serviceable, but it should be replaced if replacement tiles are available.

(2) Holes should be sealed to prevent damage from moisture and debris (tape, "bondo", or caulk, etc). Care should be taken to prevent excessive material from entering the armor tile.

d. Inspection procedures of armor tiles with cracks:

(1) Armor tiles are considered serviceable if the crack does not affect how the armor tile is mounted, and if there is no noticeable internal contamination.

(2) Cracked seams should be caulked, if possible, to eliminate possible contamination from moisture or debris.

e. Inspection procedures of armor tiles with distortion:

(1) Tiles with minor distortion and no other visible damage, which can still be mounted securely, should be considered serviceable.

(2) If the tile has major distortion, it should be replaced. However, if there is no replacement for the armor tile, the tile should still be considered serviceable, providing that the tile can still be mounted securely.

f. Inspection procedures of armor tiles with corrosion:

(1) Minor exterior corrosion is acceptable.

(2) Tiles should be considered unserviceable if major external corrosion is present, especially if the corrosion penetrates to the inside of the armor tile. If there is no replacement for the armor tile, the tile can still be considered serviceable, providing that the tile can still be mounted securely.

g. Inspection procedures of armor tiles with scratches:

(1) All tiles with minor surface scratches are considered serviceable.

(2) Scratches can be touched up, if necessary, at the Ammunition Supply Point (ASP).

h. Inspection procedures to armor tiles exposed to external fire:

(1) If there is cosmetic damage to the paint and outer-surface of the armor tile and the tile can still be securely mounted, the armor tile should be considered serviceable. It is recommended that, when the tiles are turned in, they are cleaned up and repainted at the ASP.

(2) If the tile has noticeable bulging due to exposure to fire, the tile should be deemed unserviceable and replaced.

(3) Touchup surface/paint damage, if necessary, at the ASP.

i. If the cover of the armor tile is missing, then it should be considered unserviceable.

j. If it is known that water, dirt or other external elements are in the armor tile before it gets patched up, the tile should be drained/emptied out and given time to dry prior to patching/sealing.

AJ-9. Inspections For Mounting Brackets And Tile Guard:

a. If there are rust, broken welds, or broken brackets that do not affect the function/purpose of the equipment, then it is considered serviceable if there are no replacements available. It is recommended that the damaged equipment be patched/sealed up with any available materials.

b. Replace/repair any damaged mounting brackets and tile guards at the ASP. Again, if no replacements exist, repair the damaged equipment with any available materials to consider the equipment serviceable.

APPENDIX AK
MUNITION, CROWD CONTROL MODULAR, NON-LETHAL: M5 (1346-WA97)

AK-1. Item Description.

a. DODACs: 1346-WA97.

b. Ammunition Type:

Munition, Crowd Control, Modular, Non-Lethal: M5.

c. Munition, Crowd Control, Modular, Non-Lethal: M5 (WA97) is known as the MCCM. The MCCM delivers non-lethal effects to personnel without penetrating the body by delivering a strong blow with multiple submunitions. The MCCM has two configurations:

(1) NSN 1346-01-464-2606 (old configuration) is packaged with separate items consisting of: a 100 foot shock tube, a blasting cap, a separate M81 igniter, a sealing nut, and a shock tube cutter.

(2) NSN 1346-01-524-3348 (new configuration) is packaged with a mini detonation assembly (which is a single assembly of 100 foot shock tube, igniter and blasting cap).

Both MCCM configurations contain 600 PVC balls inserted in a plastic case with a sheet explosive sandwiched between two foam sheets. A bandoleer is used to contain each individual MCCM and initiation system, along with an instruction sheet. The MCCM comes six munitions to a fiberboard box inside the wirebound box (wooden). The fiberboard box is wrapped in an overpack barrier bag. The MCCM and blasting cap assembly in each bandoleer are wrapped in individual barrier bags. The back color of the MCCM is a light green and states “BACK NON-LETHAL MCCM, M5”. The front looks similar to the claymore mine with a dark green covering and lettering “FRONT TOWARD ENEMY”.

AK-2. Unique Safety Precautions.

a. Assure that the Safety Pin is in place on the blasting cap assembly. "Missing safety pin is a critical defect IAW Table AK-1.1.a. Critical defects will be handled IAW paragraph 2-3.c.(7).

b. All personnel must stay outside of the SDZ during operation.

c. Always wear proper safety equipment.

d. Assure that MCCM is intact.

AK-3. Testing and Equipment Requirements.

No inspection tests applicable. ASRP tests will be conducted under the CCFTP program.

AK-4. Inspection Category and Sampling Plan.

a. Inspection Category Z; Periodic inspection interval, two (2) years.

b. Sampling plan for inspection is IAW Chapter 2.

c. Item will be inspected and classified according to Chapter 2, paragraph 2-7, and Table AK-1.

d. Barrier bags will be resealed upon completion of inspection.

AK-5. Inspection Description and Notes.

a. NSN 1346-01-464-2606 was initially produced under NSN 1377-01-464-2606 until the federal supply class (FSC) was changed from 1377 to 1346. Lots LS-01B002-001 to LS-03E002-044 have outer packs which were marked with FSC 1377. When shipping less than pallet size, remark single boxes with correct FSC (1346); when shipping pallets, apply correct NSN on two weather resistant boards placed on adjacent sides of pallet. Full remarking would be accomplished during future depot maintenance/renovation if lots are to be scheduled for rework.

b. NSN 1346-01-524-3348: Lots LS-04K003A001 to LS-07C005-005 were incorrectly marked M5A1 instead of M5. ADCs for these lots also reflect M5A1 as per the contractual agreement. These lots are acceptable as is and do not require changing markings. Remarking would be accomplished during future depot maintenance/renovation if lots are to be scheduled for rework.

c. The NEI barrier bag is only to be opened at the depot level during IRIs and scheduled cyclic inspections. The contents will be inspected for serviceability; the barrier bag reheat-sealed; and if bag requires replacement, Barrier Material, Vaporproofed, Flexible MIL-PRF-131 (8135-00-282-0565) is to be utilized. When unspooled, the minimum length of the NEI’s shock tube is 65.5 meters (215 feet).

AK-6. References.

a. DMWR 9-1346-WA97-X1.

b. FM 3-19.4.

c. FM 3-19.15.

d. TM 9-1346-215-10.

e. TM 9-1377-617-12.

f. TM 43-0001-61.

Table AK-1. Item Defects and Method of Inspection			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Safety pin missing from igniter.	Both configurations	Visual	Para 2-3c.(13)
b. MCCM cover not glued together or damaged with exposed explosives.	Both configurations	Visual	Para 2-3c.(13)
c. Blasting cap cracked, split, or has exposed explosive.	Both configurations	Visual	Para 2-3c.(13)
d. Shock tube cracked, split, or has exposed explosive.	Both configurations	Visual	Para 2-3c.(13)
2. Major:			
a. M81 blasting cap/100-foot shock tube assembly (other than 1.c. and 1.d. above) or igniter damaged.	1346-01-464-2606	Visual	
b. Mini detonation assembly damaged (other than 1.c. and 1.d. above).	1346-01-524-3348	Visual	
c. MCCM covers separating or damaged.	Both configurations	Visual	
d. Barrier bag missing.	Both configurations	Visual	
e. Shipping plug damaged or improperly assembled.	Both configurations	Manual/Visual	
f. Leg assemblies twisted, bent or otherwise damaged.	Both configurations	Visual	
g. Components missing.	Both configurations	Visual	
h. Rust on mini detonation assembly safety pin.	Both configurations	Visual	
i. Cup well damaged where blasting cap cannot be placed into it.	Both configurations	Visual	
3. Minor:			
a. Marking incomplete or missing on wirebound box or barrier bags (other than those mentioned in Para AK-5).	Both configurations	Visual	
b. Instruction sheet missing on bandoleer.	Both configurations	Visual	
c. Minor rust/corrosion.	Both configurations	Visual	

APPENDIX AL
CLASS V COMPONENTS OF THE SPIDER M7 DISPENSING SET, MUNITION NETWORK COMMAND.

AL-1. Item Description.

a. DODACs: 1346- TS01
TS02
TS04

b. Ammunition Type:

(1) M8, Launcher and Grenade, Network Command Munition (TS01).

(2) M9, Launcher and Line, Network Command Munition (TS02).

(3) M10, Munition, Control Unit (TS04).

c. The Spider M7 is a networked munitions system used as an anti-personnel landmine alternative. Its design provides perimeter defense and flank protection to the warfighter.

d. M8, Launcher and Grenade: this is the Miniature Grenade Launcher (MGL), which includes Grenade Initiation Module (GIM) and the grenade. The grenade itself uses the energetic materiel PAX-41, and is a lethal munition. The GIM features a low-energy exploding foil initiator (LEEFI) to detonate the grenade once it has left the launch tube, via an impulse cartridge. The impulse cartridge is a small energetic that propels the grenade from the body. This is all enclosed within the grenade launch tube, which attaches to the command unit.

e. M9, Launcher and Line: this is the Extended Range Tripline Sensor (ERTS), which provide a silent (from the enemy perspective) intrusion detection capability. Six light weight triplines are launched from the ERTS module, which is on top of the control unit, in 60° increments (aligning with MGLs on the control unit), via a gas generator. Once a tripline is triggered, it will send a message to the soldier overseeing the field, specifying what unit as tripped thus providing the opportunity to engage or not to.

f. M10, Munition Control Unit: the Munition Control Unit (MCU) is the unit which launches the MGL and ERTS. It can communicate with the field overseer and launch the six MGLs or single ERTS that can attach to it. The munitions can be fired in any sequence or combination. It features six tripline interfaces (for each munition port), a visual safe indicator, LED status indicator and on/off switch. There is a battery carriage incorporated into the MCU to provide power for over 30 days, depending on usage.

AL-2. Unique Safety Precautions.

a. Maintain MGLs, ERTS, and MCUs modules in appropriate containers until removal for inspection.

b. MGLs and ERTSs should not be stored, transported, or tested in severe electromagnetic environments.

c. MGLs and ERTSs will be stored with their EMI gaskets in place and inside their approved packaging for storage and transportation.

d. Consult local Surveillance SOPs for any additional safety requirements.

AL-3. Testing and Equipment Requirements.

None applicable.

AL-4. Inspection Category and Sampling Plan.

a. Inspection Categories:

(1) Category Y for 1346-TS01.

(2) Category W for 1346-TS02.

(3) Category W for 1346-TS04.

b. Sampling plan for inspection is IAW Chapter 2.

c. Item will be classified and inspected according to Chapter 2, paragraph 2-7 and Table AL-1.

AL-5. Inspection Description and Notes.

a. Remove the connector's dust and moisture seal cap from the M8 to inspect the Electromagnetic Interference (EMI) shield/gasket, the environmental O-ring and the connector. A missing connector cap (even with a present EMI shield/gasket) is a critical defect since the M8 would now be susceptible to EMI; a cap damaged to the extent that it can no longer provide EMI protection would also be a critical defect. Utilize foil wrap (secured with tape) over connector as a temporary fix until cap can be replaced or item properly disposed of.

b. Remove the M8 locking cover to inspect the foil seal.

c. The MCU battery cover requires removal for full inspection of cover, battery holder assembly, contact plate, and battery compartment interior. The MCU is non-mission capable if the battery cover does not seal properly and/or contains holes not preventing liquid from entering the battery compartment.

d. The MCU is non-mission capable if the lifting handle on the battery holder assembly is not present or functional; the assembly is cracked, split and/or dented/bent preventing retention of batteries; the assembly does not properly sit/lock into bottom of MCU; and/or corrosion/presence of foreign matter on assembly terminals prevents functionality.

e. Lift the MCU selector switch cover and ensure that it returns to original (closed) position.

f. Ensure the MCU selector switch interlocks at each position (hear/feel for 'click' of switch). The MCU is non-mission capable if the switch does not click at each position.

g. Test each MCU Hardwire Tripline Sensor (HWTS) for uninhibited (sticking effect) movement by turning 180° counter-clockwise and releasing. The sensor should spring back to its original position. The MCU is non-mission capable if the sensor does not spring back into place.

AL-6. References.

a. TM 9-1230-782-13&P.

b. TM 43-0001-61.

c. JMC DMWR 9-1346-TS01-X1.

d. JMC DMWR 9-1346-TS02-X1.

Table AL-1: Item Defects and Method of Inspection			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. EMI shield/gasket missing or damaged.	M8, M10	Visual/Manual	Para AL-5a
b. Connector's dust and moisture seal cap missing.	M8	Visual	Para AL-5a
2. Major:			
a. Body damaged - cracked, split, perforated and/or bent.	All	Visual	
b. Lot number missing or obliterated.	All	Visual	
c. Locking lever (latch) missing and/or damaged.	M8	Visual	
d. Connector's dust and moisture seal cap damaged/unserviceable.	M8	Visual	Para AL-5a
e. Connector damaged/unserviceable.	M8	Visual	
f. Locking cover and/or foil seal missing or damaged.	M8	Visual/Manual	Para AL-5b
g. Environmental O-ring missing or damaged.	M8	Visual	
h. Contact plates corroded or damaged.	M9	Visual	
i. Damaged alignment bridges (4).	M9	Visual	
j. Corrosion on the electronic components contacts.	M9, M10	Visual	
k. Battery cover with cracks, splits, holes, non-functional bends or damaged alignment bridges (4).	M10	Visual	
l. Battery cover not properly sealing/aligning.	M10	Visual/Manual	Para AL-5c
m. Battery holder assembly missing and/or damaged.	M10	Visual/Manual	Para AL-5d
n. Battery contact plate corroded, cracked, or damaged.	M10	Visual	
o. Battery compartment environmental seal missing, improperly attached, or damaged.	M10	Visual	
p. Selector switch missing, damaged, or inoperative.	M10	Visual/Manual	Para AL-5f
q. Tri-segment LED display and/or VSI (Visual Safe indicator) glass broken, cracked or damaged.	M10	Visual	
r. VSI seal missing.	M10	Visual	
s. VSI not in safe mode (Green).	M10	Visual	
t. HWTS damaged/inoperative.	M10	Visual/Manual	Para AL-5g
u. MCU's MGL connectors missing, damaged, corroded and/or missing pins.	M10	Visual	
v. Antenna connector missing, damaged or corroded.	M10	Visual	
w. Short range antenna missing or with broken or stained parts/tips.	M10	Visual	
3. Minor:			
a. Olive drab color chipped or missing.	All	Visual	
b. Markings (other than lot number) missing, obliterated or incorrect.	All	Visual	
c. Tripwire caps missing or unserviceable.	M9	Visual	
d. Dust and moisture seal caps for MGL ports, antenna connector, or HWTS missing or unserviceable.	M10	Visual	
e. Selector switch guard missing or damaged.	M10	Visual/Manual	Para AL-5e
f. Sandbags missing or unserviceable.	M10	Visual	
g. Stakes missing or unserviceable.	M10	Visual	
h. Hardwire tripline spools missing or unserviceable.	M10	Visual	

APPENDIX AM
ANTI-PERSONNEL OBSTACLE BREACHING SYSTEM (APOBS)

AM-1. Item Description.

a. DODACs: 1375- MN79
MN84

b. Ammunition Type:

(1) Anti-Personnel Obstacle Breaching System (APOBS) MK 7 MOD 1 and MK 7 MOD 2 (MN79)

(2) Anti-Personnel Obstacle Breaching System (APOBS), Inert (MN84)

c. The APOBS (MN79) is a self-contained, one-shot expendable linear demolition charge system, which can be transported and deployed by a two-person team. The APOBS is used by assault elements to breach lanes, approximately 45 meters long (147.6 feet) and 0.6 meters wide (2.0 feet), through encountered wire and anti-personnel mine obstacles. The MK 7 MOD 1 (Electric Squid) and the MK 7 MOD 2 (Non-Electric Initiator (NEI)) are the two current configurations.

d. The APOBS trainer (MN84) is a non-explosive, inert system used for training only. Operation is the same for both types of APOBS except that there will be no firing with the trainer.

e. The APOBS (MN79) can withstand storage conditions of -60 °F (-51 °C) to 160 °F (71 °C).

AM-2. Unique Safety Precautions.

a. The MK 19 MOD 0 electric squib, when out of its sealed barrier bag, can be detonated by radio frequency energy from a nearby source such as radio or radar transmitter. Ensure a safe separation of at least 2 meters (6.6 feet).

b. Keep the electric squib (with blast guard installed) in the sealed barrier bag to avoid accidental initiation from RF energy or electrostatic discharge.

c. If the electric squib's barrier bag is not sealed, it is not considered HERO safe.

d. Ensure the electric squib is pointed away from personnel at all times.

e. The Safe/Arm (S/A) indicators are a red ring on the large diameter end of the fuze and a red O-ring on the small diameter end of the fuze. If either is visible, the fuze is armed. Clear the area immediately and notify the Explosive Ordnance Disposal (EOD) Unit covering your installation/storage site.

f. When/if safety pins are not present, do not pull or twist on the rear fuze.

g. When/if safety pins are not present, do not pull or twist on the front fuze.

h. Ensure the NEI squib subassembly is pointed away from personnel at all times.

AM-3. Testing and Equipment Requirements.

None applicable.

AM-4. Inspection Category and Sampling Plan.

a. Inspection Categories:

(1) Category X (4 years) for 1375-MN79.

(2) Category W (5 years) for 1375-MN84.

b. Sampling plan for inspection is IAW Chapter 2.

c. Item will be classified and inspected according to Chapter 2 and Table AM-1.

AM-5. Inspection Description and Notes.

a. Remove the safety pin securing the front fuze blast guard. Remove the blast guard. Check that the S/A indicator is in the safe position. Check that the retaining clip is present, serviceable and properly installed. Reinstall the blast guard and safety pin to the front fuze.

b. Without opening the sealed barrier bag, feel through the package to verify that the blast guard is screwed onto the MK 19 MOD 0 electric squib.

NOTE: The Non-Electric Initiator (NEI), with or without its sealed barrier bag is insensitive to HERO (Hazards of Electromagnetic Radiation to Ordnance) as well as electrostatic discharges, including helicopter-induced discharge.

c. The NEI barrier bag is only to be opened at the depot level during IRIs and scheduled cyclic inspections. The contents will be inspected for serviceability; the barrier bag reheat-sealed; and if bag requires replacement, Barrier Material, Vaporproofed, Flexible MIL-PRF-131 (8135-00-282-0565) is to be utilized. When unspooled, the minimum length of the NEI's shock tube is 65.5 meters (215 feet).

d. Remove the safety pin securing the rear fuze blast guard. Remove the blast guard. Check that the S/A indicator is in the safe position. Check that the retaining clip is present, serviceable and properly installed. Reinstall the blast guard and safety pin to the rear fuze.

e. SMIs will be conducted on an annual basis. When stored in a high humidity environment, as determined by the Surveillance Chief, SMIs will be conducted on a quarterly basis. When required, humidity indicator and dessicant change will be accomplished IAW TM 9-1375-219-13&P.

f. Remove the foam pad (positioned on top of the grenades) from the opened backpacks to perform the inspection of the demo charges and the braided sleeves. Only inspect the visible portions of the items, do not uncoil the demo charges. Replace pads upon completion of the inspection.

g. Damage or obstruction preventing full insertion of the launch rod into the launch tube is cause for rejection. When questionable, obtain the launch rod from the front backpack and insert into the launch tube, do not force. If the launch rod does not completely enter the launch tube, reject.

AM-6. References.

a. TM 9-1375-219-13&P.

b. USMC 9-1375-PLAN-X02.

Table AM-1: Item Defects and Method of Inspection			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
a. Rocket motor safety pin and/or firing pin pull ring missing (stored in soft pack).	MN79	Visual	
b. Blast guard missing from front (black) fuze (stored in soft pack).	MN79	Visual	
c. Front (black) fuze armed (safety pins missing and red ring or o-ring visible) (stored in soft pack).	MN79	Visual	Para AM-5a
d. Blast guard missing from MK 19 MOD 0 electric squib (stored in soft pack).	1375-01-426-1376 MN79 (MK 7 MOD 1)	Manual	Para AM-5b
e. Electric squib foil bag open, torn or missing (stored in soft pack).	1375-01-426-1376 MN79 (MK 7 MOD 1)	Visual	
f. Non-Electric Initiator (NEI): M81 igniter missing safety pin and/or squib subassembly missing blast guard (stored in soft pack).	MN79	Visual	Para AM-5c
g. Blast guard missing from rear (green) fuze (stored in rear backpack assembly).	MN79	Visual	
h. Rear (green) fuze armed (safety pins missing and red ring or o-ring visible) (stored in rear backpack assembly).	MN79	Visual	Para AM-5d
2. Major:			
a. Structural damage to shipping & storage container exposing contents, or preventing intended use (punctures, dents, etc.).	All	Visual	
b. Pink shipping & storage container humidity indicator.	MN79	Visual	Para AM-5e
c. Shipping & storage container with missing or illegible lot number and/or NSN markings.	All	Visual	
d. Rust or corrosion compromising shipping & storage container integrity.	All	Visual	
e. Shipping & storage container interior components (to include backpack assemblies and soft pack contents) wet.	All	Visual/Manual	
f. Shipping & storage container missing one or more of its assemblies (front backpack, soft pack, rear backpack).	All	Visual	
g. Damage to front/rear backpack assemblies and/or soft pack exposing contents or preventing intended use (punctures, dents, rips, etc).	All	Visual	
h. Backpacks straps missing and/or damaged preventing intended use (rips, cuts, not adjustable, etc).	All	Visual	
i. Placement of linear demo charges in the front and/or rear backpack is incorrect (not factory packed to ensure free running).	MN79	Visual	Para AM-5f
j. Torn/cut polyester braided sleeve (overbraid), exposed grenades or det cord (front and rear backpack assemblies).	MN79	Visual	Para AM-5f
k. Launching rod missing or damaged (stored in front backpack assembly).	MN79	Visual	
l. Launch rod bracket missing or damaged (front backpack assembly).	MN79	Visual	
m. Male (black) and female (silver) connectors bent, broken, or otherwise damaged (front backpack assembly).	MN79	Visual	
n. Female connector with non-removable foreign matter in cavity (front backpack assembly).	MN79	Visual	
o. Female connector retaining clip missing or damaged (front backpack assembly).	MN79	Visual	
p. Rear (green) fuze missing, damaged, with	MN79	Visual	Para AM-5d

non-removable foreign matter in cavity and/or with missing/damaged retaining clip (stored in rear backpack assembly)			
q. Male connectors (one green, one silver) bent, broken, or otherwise damaged (rear backpack assembly).	MN79	Visual	
r. Front (black) fuze missing, damaged, with non-removable foreign matter in cavity and/or with missing/damaged retaining clip (stored in soft pack).	MN79	Visual	Para AM-5a
s. Rocket motor missing or damaged; attached launched tube damaged or with non-removable obstruction (stored in soft pack).	MN79	Visual	Para AM-5g
t. Steel bridle missing or damaged (stored in soft pack).	MN79	Visual	
u. Field card missing or unreadable (stored in soft pack).	MN79	Visual	
v. Electric squib missing (stored in soft pack).	1375-01-426-1376 MN79 (MK 7 MOD 1)	Visual	
w. Non-Electric Initiator (NEI): M81 igniter, squib assembly, shock-tube, shock tube loop, and/or spool missing or with damage/defects preventing intended use (stored in soft pack).	1375-01-508-4975 MN79 (MK 7 MOD 2)	Visual	
x. Missing and/or damaged components which would prevent use of the APOBS trainer.	MN84	Visual	
y. Missing or incorrect warning labels.	All	Visual	
3. Minor:			
a. Shipping & storage container markings (other than lot number and NSN) missing, misleading or unidentifiable.	All	Visual	
b. Damage to shipping & storage container NOT exposing contents or preventing intended use.	All	Visual	
c. Front backpack assembly, soft pack, and/or rear backpack assembly markings missing, misleading, incorrect or unidentifiable.	All	Visual	
d. Damage to front/rear backpack assemblies and/or soft pack NOT preventing intended use.	All	Visual	
e. Protective foam pads located inside front and/or rear backpack missing or damaged.	MN79	Visual	
f. Non-Electric Initiator (NEI): pre-assembled cable tie missing; protective foam pads, missing or damaged; spool with damage NOT preventing intended use (stored in soft pack).	1375-01-508-4975 MN79 (MK 7 MOD 2)	Visual	
g. Soft pack carrying strap missing and/or damaged.	All	Visual	
h. Foam cover missing or damaged (soft pack).	MN79	Visual	
i. Tool kit missing (stored in soft pack).	MN79	Visual	
j. Tool kit bag has missing or damaged components (2 pairs of ear plugs, 2 ea retaining clips, 1 screwdriver) (stored in soft pack).	MN79	Visual	
k. Tool kit bag has missing or damaged WD 1/TT wire (trainer only) (stored in soft pack).	MN84	Visual	
l. Missing and/or damaged components which would NOT prevent use of the APOBS trainer.	MN84	Visual	

APPENDIX AN
CARTRIDGE, 40MM

AN-1. Item Description.

a. DODACs and Ammunition Type:

(1) 1310-B504: Cartridge, 40mm, Green Star, Parachute, M661.

(2) 1310-B505: Cartridge, 40mm, Red Star, Parachute, M662.

(3) 1310-B506: Cartridge, 40mm, Red Smoke, M713.

(4) 1310-B508: Cartridge, 40mm, Green Smoke, M715.

(5) 1310-B509: Cartridge, 40mm, Yellow Smoke, M716.

(6) 1310-B519: Cartridge, 40mm, Practice, M781.

(7) 1310-B534: Cartridge, 40mm, Multi Purpose, M576.

(8) 1310-B535: Cartridge, 40mm, White Star Parachute, M583A1.

(9) 1310-B536: Cartridge, 40mm, White Star Cluster, M585.

(10) 1310-B537: Cartridge, 40mm, Chemical Agent, CS, M674.

(11) 1310-B542: Cartridge, 40mm, High Explosive Dual Purpose (HEDP), M430A1.

(12) 1310-B546: Cartridge, 40mm, High Explosive Dual Purpose (HEDP), M433.

(13) 1310-B567: Cartridge, 40mm, Tactical, CS, M651.

(14) 1310-B568: Cartridge, 40mm, HE, M406.

(15) 1310-B569: Cartridge, 40mm, HE, M397A1.

(16) 1310-B571: Cartridge, 40mm, HE, M383.

(17) 1310-B574: Cartridge, 40mm, HE, M386.

(18) 1310-B575: Cartridge, 40mm, HE, M441

(19) 1310-B576: Cartridge, 40mm, Practice, M385A1.

(20) 1310-B584: Cartridge, 40mm, Target Practice, M918.

(21) 1310-BA03: Cartridge, 40mm, Infrared, Illuminant, M992.

(22) 1310-BA06: Cartridge, 40mm, Non-Lethal, M1006.

(23) 1310-BA11: Cartridge, 40mm, Canister, M1001.

(24) 1310-BA12: Cartridge, 40mm, Practice, MK281 MOD0.

(25) 1310-BA13: Cartridge, 40mm, Non-Lethal, Crowd Dispersal, M1029.

(26) 1310-BA30: Cartridge, 40mm, Target Practice, M918 and M385A1, Linked (2:1).

NOTE:

The M386, M397, M406, M433, M441, M576, M583, M585, M651, M661, M662, M713, M715, M716, M781, M992, M1006, and M1029 are low velocity 40mm ammunition and only authorized to be fired from the M203 and M320 40mm Grenade Launchers. The M383, M385A1, M430A1, M918, M1001, MK281 MOD0, and M918/M385A1 Mixed Belt are high velocity 40mm ammunition and only authorized to be fired from the MK19 MOD3 Grenade Machine Gun (GMG). The M674 is a hand-held 40mm ammunition and is not intended to be fired from any weapon system.

b. Cartridge, 40mm, Green Star, Parachute, M661; Cartridge, 40mm, Red Star, Parachute, M662; and Cartridge, 40mm, White Star Parachute, M583A1 are designed for illumination and signaling with less weight and bulk and greater accuracy than comparable hand-held signals. They are fired from the M203 and M320 40mm Grenade Launchers. The weapon firing pin strikes the primer igniting the propelling charge. Gases from the burning propellant expand in the high-pressure chamber. This pressure ruptures the propellant cup, and the pressure escapes through the vent holes into the low-pressure chamber, propelling the projectile forward with the velocity required to reach the burst altitude. The burning propellant also ignites the 5.5-second delay element in the base of the projectile. The rotating band engages the rifling in the launcher tube to impart a spin of 3,750 rpm to the projectile. At the end of the delay, the delay element ignites the ejection charge. The ejection charge ignites the candle and blows the candle assembly out through the top of the projectile body. The attached parachute deploys upon ejection to lower the candle at 7 feet per second. The candle burns for approximately 40 seconds. The candle functions at an altitude of 500 to 700 feet when fired vertically and is visible to an air observer at a slant range of at least 3 miles from 3,000 feet altitude.

c. Cartridge, 40mm, Red Smoke, M713; Cartridge, 40mm, Green Smoke, M715; and Cartridge, 40mm, Yellow Smoke, M716 are ground marking munitions used to provide aerial identification and location of troops on the ground and are designed to be fired from the M203 and M320 40mm Grenade Launchers. The weapon firing pin strikes the primer igniting the propelling charge. In turn, the projectile is accelerated down the launcher barrel where as spin of 3,750 rpm is imparted by the barrel rifling. A muzzle velocity of approximately 350 fps is attained. In addition to launching the projectile, the propellant gases ignite the first fire mixture of the fuze in the base of the projectile. The first fire mixture ignites a high-temperature transfer mixture contained in the steel cup. The transfer mixture burns during the first 15 meters of projectile flight. When the projectile is between 15 and 45 meters from the launcher muzzle, heat transfer through the steel cup ignites the delay mixture. Upon impact, the delay casing breaks and the burning portion flies forward out of the fuze support, contacting and igniting the pyrotechnic

smoke mixture. Ignition of the smoke mixture causes a buildup of pressure which dislodges the fuze support at the aft end of the projectile thus allowing smoke to be emitted at the aft end of the projectile. Projectile impact prior to the minimum arming distance of 15 meters results in a dud. Between 15 and 45 meters from the launcher muzzle, the fuze may or may not function on impact. In the event the fuze fails to function upon impact, the output mixture provided in the front end of the delay casing acts as a backup to the impact feature. When the flame reaches this point (8 to 10 seconds after launch) the output mixture flashes and ignites the smoke mixture.

d. Cartridge, 40mm, Practice, M781 is a fixed, practice type ammunition designed to be fired from the M203 and M320 40mm Grenade Launchers. The weapon firing pin strikes the .38 caliber blank cartridge primer igniting the propelling charge. The burning propellant charge generates sufficient pressure to release the expanding propellant gases through the vent hole into the low-pressure chamber. The rotating band around the projectile engages the rifling in the launcher tube imparting a spin of 3,600 rpm to the projectile. The pressure created by the expanding propellant gases in the low-pressure chamber forces the projectile through the tube with a velocity of 76 meters per second. Upon impact with the target, the frangible ogive ruptures and releases the dye causing a puff of yellow-orange smoke which simulates explosive impact.

e. Cartridge, 40mm, Multi Purpose, M576 is intended for use in counter-insurgency and conventional operations in jungle environments, particularly during periods of poor visibility where personnel targets appear at short distances without warning and are vulnerably exposed only fleetingly. It is designed to be fired from the M203 and M320 40mm Grenade launchers. The weapon firing pin strikes the primer which ignites the propelling charge. Gases from the burning propellant expand in the high-pressure chamber. The pressure ruptures the copper disk allowing the expanding gases to escape through the vent holes into the low-pressure chamber. Continuing gas expansion forces the projectile through the launcher tube. Setback force from cartridge ignition causes the pellet cup in the sabot carrier to move rearward. This movement disengages the cap from the pellet cup. Upon reaching the muzzle, the sabot carrier and pellet cup are discarded allowing the metal pellets free flight to the target.

f. Cartridge, 40mm, White Star Cluster, M585 is designed for illumination and signaling with less weight and built and greater accuracy than comparable hand-held signals. It is designed to be fired from the M203 and M320 40mm Grenade Launchers. The weapon firing pin strikes the primer igniting the propelling charge. Gases from the burning propellant expand in the high-pressure chamber. The pressure ruptures the propellant cup and the gas pressure escapes through the vents into the low-pressure chamber. The expanding gases propel the projectile through the launcher tube with a muzzle velocity of 76 mps and reaches a burst altitude of 550 feet at a quadrant elevation of 85 degrees. The burning propellant also ignites the delay element in the base of the projectile. Within 4 to 5 seconds after firing, the delay element ignites the ejection charge. The ejection charge ignites the star charge and blows the candle assembly out through the top of the projectile body. The individual starts burn for approximately 7 seconds during free fall and produce 55,000 candle power.

g. Cartridge, 40mm, Chemical Agent, CS, M674 is a intended for use against any target vulnerable to CS agent. It is to be hand-held when fired and is not designed to be fired from any weapon system. The primer fires when struck by the firing pin. The black powder ignites, generating propellant gas. The burning black powder in turn ignites the initial pelletized first-fire mixture through a flash hole in the spacer and closure cap. Gas pressure increases in the space between the spacer, cartridge barrel, and primer holder, which forces the body assembly out of the cartridge barrel. The initial first-fire mixture, ignited by the black powder, ignites the second first-fire mixture. The second first-fire mixture in turn ignites the third first-fire mixture. The third first-fire mixture burns through the plastic cup seal and ignites the CS pyrotechnic mixture contained in the body assembly. Increased pressure inside the body assembly bursts one or more of the four emission-hole walls in the neck end of the body assembly and releases smoke produced by the burning CS pyrotechnic mixture. Functioning of the munition will occur from 2 to 7 seconds after firing.

h. Cartridge, 40mm, High Explosive Dual Purpose (HEDP), M430A1 is a high explosive, dual purpose, impact type round designed to penetrate three inches of steel armor at 0 angle of obliquity and inflict personnel casualties in the target area. It is designed to be fired from the MK19 MOD3 40mm Grenade Machine Gun. The weapon firing pin strikes the percussion primer igniting the propelling charge. Pressure, generated by the burning propellant in the high-pressure chamber, forces the expanding gases through the vent holes into the low-pressure chamber, and propels the projectile forward. The rotating band around the projectile engages the rifling in the launcher tube, imparting a spin of 12,000 rpm to the projectile. The expanding gases in the low-pressure chamber force the projectile through the barrel attaining a muzzle velocity of 241 meters per second. Prior to firing, the detonator in the fuze rotor is held out of line by the position of a setback pin against the rotor and gear assembly. Upon firing, setback force frees the rotor from the pin. The spin of the projectile causes the safety spring assembly to disengage from the rotor and gear assembly. The detonator then begins to move toward the armed position under the influence of centrifugal force on the eccentrically located rotor. The movement of the rotor and gear assembly is resisted by an escapement mechanism, providing the required time delay in the arming of the fuze. The detonator reaches the armed position when the projectile has traveled a distance of 18 to 40 meters from the launcher. Upon impact with the target, the firing pin is driven into the detonator. The effect of the detonator initiates the spit-back charge producing a jet which in turn initiates the main charge. Detonation of the main charge provides both the armor piercing effect of the shaped charge and fragmentation of the steel body.

i. Cartridge, 40mm, High Explosive Dual Purpose (HEDP), M433 is a dual purpose impact type round

designed to penetrate at least two inches of steel armor at 0 angle of obliquity and inflict personnel casualties in the target area. It is designed to be fired from the M203 and M320 40mm Grenade Launchers. The weapon firing pin strikes the percussion primer, which ignites the propelling charge. Pressure created by the burning propellant in the high-pressure chamber causes the propellant cup to rupture. The propellant gases escape through vent holes into the low-pressure chamber. The rotating band around the projectile engages the rifling in the launcher tube to impart a spin of 3,750 rpm to the projectile. Expanding gases in the low-pressure chamber force the projectile through the tube with a muzzle velocity of 76 meters per second. After the projectile leaves the launcher tube, initial rotation causes the fuze detent to free the fuze rotor. Centrifugal force causes three hammer weights to move radially outward, allowing a conical spring to move the firing pin forward, disengaging the rotor. Dynamic imbalance of the rotor causes it to rotate to the armed position, aligning the M55 detonator with the firing pin and the spit-back shaped charge. A fuze escapement mechanism retards rotor movement, delaying arming until the projectile has traveled at least 45 feet from the launcher tube. Upon impact with the target, the firing pin is driven into the detonator, triggering the spit-back shaped charge and producing a jet blast which detonated the HE bursting charge. Detonation of the bursting charge forms an armor-piercing jet of molten metal and fragmentation of the projectile body.

j. Cartridge, 40mm, Tactical, CS, M651 is intended for use against any target vulnerable to CS agent. The projectile will penetrate window glass or up to ¾ inch pine wood at 200 meters and release CS after penetrations. The projectile will also function against other materials such as earth, gravel, brush, sandbags, and bamboo. It is designed to be fired from the M203 and M320 40mm Grenade Launchers. When the primer is struck by the firing pin, expanding gases from the propellant burst through the brass cup through the vent holes in the propellant cup into the space behind the driver cup. This causes the driver cup to unroll rapidly as a glove unrolls inside-out. The unrolling forces the projectile forward down the barrel. At the end of the driver cup stroke, the disk in the driver cup blows out to free the gas and flame of the burning propellant. Before firing the fuze rotor is held in the unarmed position by a setback pin and a centrifugal lock. Upon firing, setback force caused the setback pin to free the rotor for movement. The projectile rotation in flight causes continued centrifugal force that releases the centrifugal lock. The fuze is then armed by the release of an escapement mechanism that delays rotor motion to the armed position until the projectile has traveled 10 meters from the launcher. Between 10 and 30 meters, the rotor moves into the armed position and carries the detonator into line with the firing pin and the ignition train. Upon impact at any angle between 0 and 85 degrees, inertial forces cause the firing pin to strike the detonator. Then another percussion primer is ignited which in turn ignites the ignition mixture, the first-fire mixture and the CS-pyrotechnic mixture. Pressure developed by the burning CS-pyrotechnic mixture forces the plug out of the vent hole in the base of the projectile to release the CS. Burning (approximately 25 seconds) is accompanied by a hissing sound and a dense white cloud of CS.

k. Cartridge, 40mm, HE, M406 is a high explosive round designed to inflict personnel casualties using ground burst effect. It is designed to be fired from the M203 and M320 40mm Grenade Launchers. The weapon firing pin strikes the percussion primer igniting the propelling charge in the high-pressure chamber. The burning propelling charge generates sufficient pressure to rupture the propelling cup forcing the expanding gases through the vent holes into the low-pressure chamber. The rotating band around the projectile engages the rifling in the launcher tube imparting a spin of 3,600 rpm to the projectile. The pressure created by the expanding propellant gasses in the low-pressure chamber force the projectile through the tube with a muzzle velocity of 76 meters per second. When the projectile is fired, setback forces cause the fuze setback pin to retract from the fuze rotor. The rotor is held in an unarmed position by a firing pin, a centrifugal lock, and the setback pin in the fuze assembly. Centrifugal force, generated by the rotation of the projectile, causes the three pivoted inertia weights and the centrifugal lock in the fuze to move outward. In turn, the spring loaded firing pin and the lock retract from the rotor and fuze gear train, respectively. The rotor, now free to rotate, lines up the fuze detonator with the explosive train. A fuze escapement mechanism delays arming by controlling rotor movement. The fuze arms after the projectile has traveled at least 14 meters from the launcher tube. Upon impact with the target, the firing pin is forced into the detonator. Concurrently the detonator triggers the booster charge, in turn, detonating the high explosive bursting charge, which produces a blast and fragmentation of the projectile body. The projectile body is wire wrapped so that fragmentation is more uniform on impact.

l. Cartridge, 40mm, HE, M397A1 is a high explosive round designed to inflict personnel casualties using airburst effect. It is designed to be fired from the M203 and M320 40mm Grenade Launchers. The weapon firing pin strikes the percussion primer igniting the propelling charge in the high-pressure chamber. The burning propelling charge generates sufficient pressure to rupture the propellant cup forcing the expanding gases from the burning propellant through the vent holes in the low-pressure chamber. The rotating band around the projectile engages the rifling in the launcher tube, imparting spin to the projectile. The pressure, created by the expanding propellant gases in the low-pressure chamber, forces the projectile through the tube with a muzzle velocity of 76 meters per second. When the projectile is fired, setback forces cause the fuze setback pin to retract from the fuze rotor causing the Bellville type washer to be crushed. This permits the fuze housing assembly containing the rotor to retract from the stationary fuze firing pin. In the unarmed position, a setback pin, a firing pin, and a centrifugal lock in the fuze assembly, combine to prevent movement of the rotor. This keeps the fuze detonator from aligning with the separate charge assembly. Centrifugal force, from rotation of the projectile, causes the centrifugal lock to retract from the fuze gear train. The rotor, now free to rotate, lines up the detonator with the separation charge assembly. A fuze escapement mechanism delays arming by controlling

rotor movement. The fuze arms after the projectile has traveled at least 14 meters from the launcher tube. Upon impact with the target, the M55 detonator within the setback sleeve and housing assembly is driven forward into the firing pin. In turn, the detonator ignites the separation charge assembly which initiates the delay detonator of the auxiliary fuze in the ball assembly. Gas pressure drives the delay detonator into the armed position. Concurrently, the ball assembly with the auxiliary fuze ejects from the rear of the projectile into the air. The pyrotechnic delay detonates the booster charge, in turn, detonating the bursting charge 80 milliseconds after ejection. This results in a blast and fragmentation of the ball assembly 5 feet above the impact point.

m. Cartridge, 40mm, HE, M383 is a high explosive round designed to inflict personnel casualties in the target area using ground burst effect. It is designed to be fired from the MK19 MOD3 40mm Grenade Machine Gun. The weapon firing pin strikes the percussion primer igniting the propelling charge. Pressure generated by the burning propellant in the high-pressure chamber, forces the expanding gases through the vent holes into the low-pressure chamber and propels the projectile forward. The rotating band around the projectile engages the rifling in the launcher barrel imparting a spin of 12,000 rpm to the projectile. The expanding gasses in the low-pressure chamber force the projectile through the barrel with a muzzle velocity of 244 meters per second. After the projectile leaves the launcher tube, setback forces cause the fuze setback pin, which keeps the rotor out of line with the detonator, to be disengaged from the rotor. The rotor is secured in position by a centrifugal lock which engages the star wheel in the timing mechanism of the fuze assembly. The centrifugal lock releases the star wheel and arming of the fuze begins when the projectile attains sufficient spin. The rotor springs start rotation of the rotor which is sustained by centrifugal force. The escapement assembly delays arming of the fuze for approximately 0.07 to 0.16 seconds. The rotor is then locked in the armed position, and the fuze is armed at approximately 18 to 36 meters from the launcher tube. Upon graze or impact with the target, the inertial force from impact causes bracket weights to pivot inward forcing the firing pin into the detonator. Concurrently, the detonator detonates the explosive charge causing a blast and fragmentation of the projectile body.

n. Cartridge, 40mm, HE, M386 is a high explosive round designed to inflict personnel casualties from ground burst effect. It is designed to be fired from the M203 and M320 40mm Grenade Launchers. The weapon firing pin strikes the percussion primer igniting the propelling charge in the high-pressure chamber. The burning propelling charge generates sufficient pressure to rupture the propellant cup and force the exploding gases through the vent holes into the low-pressure chamber. The rotating band around the projectile engages the rifling in the launcher tube imparting spin to the projectile. The pressure created by the expanding propellant gases in the low-pressure chamber forces the projectile through the tube with a muzzle velocity of 76 meters per second. After the projectile leaves the launcher tube, setback causes a fuze setback pin to move rearward and clear the fuze rotor which is held in an unarmed position by a firing pin, centrifugal lock, and the setback pin in the fuze assembly. Centrifugal force, generated by the rotation in the projectile, causes three pivoted inertial weights and the fuze centrifugal lock to move outward. This action causes the spring loaded firing pin and lock to retract from the rotor and gear train, respectively. The rotor, now free to rotate, aligns the fuze detonator with the explosive train. A fuze escapement mechanism delays arming by controlling rotor movement. The fuze arms after the projectile has traveled at least 14 meters from the launcher tube. Upon impact with the target, the firing pin is forced into the detonator. The detonator triggers the booster charge, in turn, detonating the high-explosive bursting charge, producing a blast and fragmentation of the projectile body.

o. Cartridge, 40mm, HE, M441 is a high explosive round designed to inflict personnel casualties using ground burst effect. It is designed to be fired from the M203 and M320 40mm Grenade Launchers. The weapon firing pin strikes the primer igniting the propelling charge. Gases from the burning propellant expand in the high-pressure chamber. This pressure ruptures the propellant cup, forcing the gases to escape through the vents into the low-pressure chamber. The rotating band around the projectile engages the rifling in the launcher tube imparting spin to the projectile. Expanding gases in the low-pressure tube with a muzzle velocity of 76 meters per second. At the time of firing, setback causes the firing pin to be withdrawn from the fuze rotor detent. Prior to this action, the detonator in the rotor is held out of line with the explosive train. With the rotor free, centrifugal force causes the rotor ball to turn and align the detonator with the firing pin. The fuze arms after the projectile has traveled approximately 2 to 4 meters from the launcher tube. Upon graze or impact, inertia throws the inertial ring forward against the push pins. The push pins pivot the levers inward to drive the firing pin into the detonator. The detonator initiates the booster to detonate the high explosive charge resulting in blast and fragmentation of the projectile body.

p. Cartridge, 40mm, Practice, M385A1 is designed only for practice or proof testing weapons. It is designed to be fired from the MK19 MOD3 40mm Grenade Machine Gun. The weapon firing pin strikes the percussion primer to ignite the propelling charge. The expanding gases from the burning propellant are forced from the high-pressure chamber, through vent holes into the low-pressure chamber. The rotating band around the projectile engages the rifling in the launcher tube imparting a spin of 12,000 rpm to the projectile. The expanding gases in the low-pressure chamber force the projectile through the tube with a muzzle velocity of 242 meters per second. Because it is inert, the projectile does not function upon impact with the target.

q. Cartridge, 40mm, Target Practice, M918 is a target practice round designed to simulate the M430(A1) cartridge in appearance and ballistics. It is designed to be fired from the MK19 MOD3 40mm Grenade Machine Gun. The weapon firing pin strikes the percussion primer igniting the propelling charge. Pressure generated by the burning propellant in the high-pressure chamber, forces the expanding gases through the vent holes into the low-pressure chamber

and propels the projectile forward. The rotating band around the projectile engages the rifling in the launcher tube imparting a spin of 12,000 rpm to the projectile. The expanding gases in the low-pressure chamber force the projectile through the barrel with a velocity of 242 meters per second. When the projectile is fired, setback force causes the fuze setback pin to move rearward from the fuze rotor. The rotor is held out of line with the fuze detonator by the setback pin and fuze centrifugal lock which engages the gear teeth of the fuze rotor. When the projectile attains sufficient spin, the centrifugal lock releases the rotor and arming begins. The rotor begins rotation toward the center of the projectile. The rotor gear engaged with the pinion shaft delays arming of the fuze. After the projectile has traveled 18 to 30 meters from the launcher tube, the rotor is locked in the armed position and the fuze is armed. Upon impact with the target, the entire escapement moves forward compressing the rubber hose and driving the detonator into the firing pin, which in turn flashes through the small hole of the body insert and ignites the flash powder. Gases generated by the burning powder are concentrated upon the base of the projectile body causing it to rupture and producing a flash, smoke, and a loud report. Rupture begins at the very center of the projectile base forming hinged petals.

r. Cartridge, 40mm, Infrared, Illuminant, M992 is an infrared illuminant cartridge to enhance night visibility while using night vision devices. It is designed to be fired from the M203 and M320 40mm Grenade Launchers. The weapon firing pin strikes the primer igniting the propelling charge. Gases from the burning propellant expand in the high-pressure chamber. This pressure ruptures the propellant cup, and the pressure escapes through the vent holes into the low-pressure chamber, propelling the projectile forward with the velocity required to reach the burst altitude. The burning propellant also ignites the 5-second delay element in the base of the projectile. The rotating band engages the rifling in the launcher tube to impart a spin of 3,750 rpm to the projectile. At the end of the delay, the delay element ignites the ejection charge. The ejection charge ignites the candle and blows the candle assembly out through the top of the projectile body. The attaché parachute deploys upon ejection for approximately 40 seconds. The candle functions at an altitude of 500 to 700 feet when fired vertically.

s. Cartridge, 40mm, Non-Lethal, M1006 is used to incapacitate personnel without penetrating the person's body. It is used for riot control, policing, and peace keeping situations. It is designed to be fired from the M203 and M320 40mm Grenade Launchers. The weapon firing pin strikes the primer igniting the propelling charge. The burning propelling charge generates sufficient pressure to release the expanding propellant gases through the vent holes into the low-pressure chamber. The rotating band around the projectile engages the rifling in the launcher tube imparting a spin of 3,600 rpm to the projectile. The pressure, created by the expanding gases in the low-pressure chamber, forces the projectile through the tube with a velocity of 265 feet per second. Upon impact with an individual, force is generated to incapacitate without causing a fatality.

t. Cartridge, 40mm, Canister, M1001 is used against personnel out to 100 meters from the weapon It is designed to be fired from the MK19 MOD3 40mm Grenade Machine Gun. The weapon firing pin strikes the percussion primer igniting the propelling charge. Pressure generated by the burning propellant in the high-pressure chamber, forces the expanding gases through the vent holes into the low-pressure chamber and propels the projectile forward. Propellant gas is bled into the base of the canister projectile through a hole in the bottom of the sabot body. The force of the gas acting on the valve plate pushes it forward against a spring and opens the plenum chamber. Propelling gas ignites the expulsion charge located in the plenum chamber, and expulsion charge gas pushes the valve plate closed and pushes the pusher cup forward. The pusher cup is loaded with 107 flechettes. The forward motion of the pusher cup and the flechettes releases the nosecap. Once the nosecap is released, the pusher cup and flechettes are free to deploy.

u. Cartridge, 40mm, Practice, MK281 MOD0 is a high velocity 40mm training round that utilizes an inert powdered dye marker to indicate the point of target hit. It is designed to be fired from the MK19 MOD3 40mm Grenade Machine Gun. The weapon firing pin strikes the percussion primer igniting the propelling charge. Pressure generated by the burning propellant in the high-pressure chamber, forces the expanding gases through the vent holes into the low-pressure chamber and propels the projectile forward. The steel high-pressure chamber which is threaded into the aluminum cartridge case is also threaded to the steel projectile by a shaft. This threaded shaft has a specified tensile breaking point for consistent projectile extraction force yielding greater accuracy. Upon target impact, the plastic ogive breaks, marking the target with bright orange dye.

v. Cartridge, 40mm, Non-Lethal, Crowd Dispersal, M1029 is used to incapacitate personnel without any penetrations to the individual's body. It is used for riot control, policing, and peace keeping situations. It is designed to be fired from the M203 and M320 40mm Grenade Launchers. When the primer is struck by the firing pin, expanding gases from the propellant push against the gas seal. This causes the fiberboard sleeve to push the upper wad down the muzzle and expel the rubber balls.

w. Cartridge, 40mm, Target Practice, M918 and M385A1, Linked (2:1) is a training ammunition created to lower the cost of training when compared to training strictly with the M385A1 ammunition. It is designed to be fired from the MK19 MOD3 40mm Grenade Machine Gun. The rounds are linked with two rounds of M918 followed by 1 round of M385A1, and repeated throughout the 32 round belt of ammunition. The M918 and M385A1 behave as described in (q) and (p), respectively.

AN-2. Unique Safety Precautions.

a. Reasonable care will be taken during inspection and handling. 40mm ammunition may function if primer is inadvertently struck.

b. To preclude the mixing and use of various 40mm ammunition, the following minimum precautions will be taken:

(1) Conduct no operations involving the

combining of high velocity and low velocity 40mm ammunition. Although it may fit in its counterparts weapon, each ammunition type was designed only for its approved weapon system.

(2) Inspect all equipment and work areas prior to use to insure only the proper ammunition is present.

(3) Restrict the use of additional 40mm ammunition on a weapon until all operations with prior 40mm ammunition is completed.

(4) Incorporate controls on linking machines that will prevent linking of any 40mm low velocity ammunition.

(5) Conduct a 100-percent visual inspection of all rounds prior to linking and packing and another 100-percent inspection before final packing to insure that only the designated 40mm ammunition is packed in the ammunition canister and lot integrity in maintained.

(6) High velocity ammunition is not to be delinked, or relinked, unless outfitted with the proper gold colored coupling. When the coupling is available and ammunition in combined, lot integrity must be kept at all times.

(7) Personnel should not carry any unauthorized wireless/electric devices when performing uploading, downloading, and pre-firing operations.

(8) Adhere to all safety warnings, cautions, and notes as called out in references listed in paragraph AN-7.

AN-3. Testing and Equipment Requirements.

None applicable.

AN-4. Inspection Category and Sampling Plan.

Inspection intervals will be set IAW the Conventional Ammunition Inspection Interval Listing (paragraph 1-5d(21)g) and sampling plans IAW Chapter 2.

AN-5. Specific Inspection Points.

Items will be inspected and classified according to the appropriate paragraphs of Chapter 2 and Table AN-1.

AN-6. Additional Guidance for 40mm Ammunition.

a. All 40mm ammunition with lost lot integrity will be picked up to accountable records in condition code K pending inspection and classification.

b. Ammunition determined by inspection to be serviceable, with identifiable lot number, will be assigned appropriate condition code. Ammunition determined by inspection to be unserviceable, with or without identifiable lot number, will be assigned appropriate condition code and reported through command channels to the commodity command.

AN-7. References.

a. TM 9-1010-221-10.

b. TM 9-1010-230-10.

c. TM 9-1010-230-23&P.

d. TM 9-1010-232-10.

e. TM 9-1010-232-23&P.

f. TM 9-1300-251-20&P.

g. TM 9-1300-251-34&P.

h. TM 43-0001-28.

Table AN-1. Item Defects and Method of Inspection.			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
Presence of a crack on skirt.	M433	Visual	
2. Major:			
a. Projectile/body marking unidentifiable, missing, improperly placed.	All	Visual	
b. Incorrect projectile color.	All	Visual	
c. Primer damaged.	All	Visual	
d. Cartridge case metal defects	All	Visual	
e. Windshield loose.	M781	Manual	
f. Projectile assembly loose.	All	Visual	
g. Missing or improperly placed groove.	M383, M385A1, M430A1, M918, M1001 and MK281 MOD0	Visual	
h. Presence of cracks on body.	All rounds except M433	Visual	
i. Excessive varnish/sealing compound on exterior surface of primer.	M383, M385A1, M430A1, M918, M1001 and MK281 MOD0	Visual	
j. Link improperly assembled (any of the four (4) link tabs not in groove, link inverted, link damaged, link distorted).	M383, M385A1, M430A1, M918, M1001 and MK281 MOD0	Visual	
k. Cartridge inverted in belt of ammunition.	M383, M385A1, M430A1, M918, M1001, and MK281 MOD0	Visual	
l. Improper body/cartridge case crimp.	All	Visual	
m. O-ring exposed.	M383, M385A1, M430A1, M918, M1001, and MK281 MOD0	Visual	
n. Loose fuze.	M430A1, M433, M918	Manual	
3. Minor:			
a. Evidence of poor workmanship.	All	Visual	
b. Cartridge case marking misleading or unidentifiable.	All	Visual	
c. Improper finish on base plug.	All	Visual	
d. Color incorrect on base plug.	All	Visual	
e. Cartridge case, base plug with protective coating bare spot(s).	All	Visual	
f. Excessive varnish/sealing compound on exterior surface of primer.	M386, M397, M406, M433, M441, M576, M583, M585, M651, M661, M662, M713, M715, M716, M781, M992, M1006 and M1029	Visual	

APPENDIX AO
CARTRIDGE, NON-LETHAL FIRING DEVICE: TASER, XP25

AO-1. Item Description.

a. FSC: 1377.

b. Ammunition Type: Cartridge, DODIC: JN17

c. The XP25 (Extra Penetration – XP, 25 feet) TASER Cartridge is the standard ammunition used with the X26E TASER system. It is connected to the X26E TASER and is used to launch and attach two 25 feet long probes to the target, which allows for an electrical current to be emitted through the attached wires, which will incapacitate the target.

d. The XP25 TASER Cartridge is a black, plastic-housed cartridge used as part of the X26E TASER system, a non-lethal pulsed-energy firing device used to make the subject incapable of movement. It has green blast doors and comes packaged with a clear plastic cartridge clip that covers the blast doors for safety purposes. When used with the X26E TASER, electrical pulses are delivered to the subject, which override the sensory and motor nervous system, causing neuromuscular incapacitation of the subject.

e. The XP25 TASER cartridge, which loads on the front of the TASER X26E, uses compressed nitrogen to launch two barbed probes attached to an insulated wire toward the subject. At the same time, numerous Anti-Felon Identification Tags (AFIDs) contained in each cartridge are dispersed.

f. The XP25 cartridge has a shelf life of 5 years from date of manufacture. Expiration dates (month and year) are printed on the label of each cartridge for early production items and is the date that the shelf life expires. After the initial 5 year shelf life expires, serviceable cartridges will be extended for an additional 5 years and restricted to training use only. For early production cartridges, the lot number may not match up with the date the cartridge was manufactured, and the lot number may not appear on the cartridge label.

g. DoD Hazard Class/Div: NOT REGULATED (only valid when the protective plastic clips are installed to prevent deployment of the barbed tip electrodes during transport).

h. Storage Compatibility Group: S.

AO-2. Unique Safety Precautions.

a. Do not store the Cartridge in direct sunlight. Extended exposure can cause the temperature to rise above the maximum permissible temperature of +122 degree F (+50 deg C), and cause cartridge blow-out when firing, resulting in erratic probe launching. Serious injury to personnel may occur.

b. Prior to handling the XP25 TASER cartridges, personnel must ground themselves by touching a ground point to prevent erratic probe launching from electrostatic discharge. Serious injury to personnel may occur.

c. Dispose of contaminated probes using local SOP for biohazardous material. Always assume biological substances are present and can permanently harm the user upon mishandling and exposure to the biological substance.

d. Do not tamper with any XP25 cartridge. The probes may erratically launch, causing serious injury to personnel. Never point an XP25 cartridge at eyes or face. Always keep hands and body parts away from the front of the XP25 cartridges. Probes may launch if they are struck sharply or receive an electrical shock.

e. Do not handle XP25 cartridges with the blast doors in the palm of hand. Always handle XP25 cartridge from the rear and sides. Probes may launch if XP25 cartridge receives an electrostatic shock. Serious injury to personnel may occur.

f. If blast doors become detached from the XP25 cartridge, discard the XP25 cartridge IAW local SOP. Do not attempt to reattach blast doors, as an external static discharge may cause the probes to launch, seriously injuring personnel.

g. The plastic cartridge clip is the sole safety article for this item and should only be removed prior to use. Cartridge Clip should be reattached by X26E TASER operator prior to return if cartridge is unfired. For safety purposes, if a clip is missing and no spares are available, use the following field expedient methods for handling the TASER cartridge:

(1) Handle cartridge with the green blast doors facing away from personnel.

(2) Using an empty wood box, face cartridge into wood box with blast doors facing downward on the wood.

(3) Store cartridges in this fashion until replacement cartridge clips are obtained.

AO-3. Inspection Category and Sampling Plan.

a. Inspection category W; Periodic Inspection Interval - 5 years.

b. Sampling plan and accept/reject criteria for inspection is IAW Chapter 2.

c. Item will be inspected and classified IAW this appendix.

AO-4. Specific Inspection Points. See Table AO-1.

AO-5. Inspection Description.

a. Electrostatic barrier bags are considered hermetically sealed and will not be opened solely for inspection purposes, unless damage to the interior items is suspected (e.g. soft or crushed interior fiberboard box, etc.).

b. DSR inspection results will include the shelf life expiration date.

AO-6. References.

a. TM 9-1095-213-13&P.

b. TM 9-1377-200-20.

Table AO-1. Item Defects and Method of Inspection			
Classification	Application	Inspection Method	Inspection Description
1. Critical:			
None Identified.			
2. Major:			
a. Cartridge exterior plastic case missing blast doors, missing securing tabs, cracked, and/or bulged.		Visual	
b. Cartridge clip with cracks and/or bulges preventing clip from holding itself over the cartridge blast doors.		Visual	Para AO-2g
3. Minor:			
a. Foam support (inside the fiberboard box) with large holes or tears.		Visual	Replace if unable to secure cartridges.
b. Cartridge label missing and/or with illegible and/or expired Month/Year (MM/YY) shelf life date.		Visual	Appendix D of TB 9-1300-385, and Para AO-1f
c. Electrostatic Discharge (ESD) Bag not sealed (including tears and/or cuts); evidence of moisture in ESD bag.		Visual	Replace the ESD Bag.
d. Defective inner pack (Fiber Box).		Visual	Para 3-8 of TM 9-1377-200-20.
e. Defective outer pack (Wood Box).		Visual	Para 3-8 of TM 9-1377-200-20.
f. Defective Pallet & Strapping.		Visual	Para 3-8 of TM 9-1377-200-20.

ABBREVIATIONS

AADCS automated ammunition data card system
AAP Army ammunition plant
ACALA Armament Chemical and Ammunition Logistics Activity
ADC ammunition data card
AEL airborne exposure limit
AI acceptance inspection
AIC ammunition identification code
AMCOM U.S. Army Missile Command
AMDF Army management data file
AMSAA Army Materiel Systems Analysis Activity
APDS-T armor piercing discarding sabot - tracer
APE ammunition peculiar equipment
APF afloat prepositioned force
AQL acceptable quality level
AR Army regulation
ARNG U.S. Army National Guard
ASIS ammunition surveillance information system
ASP ammunition supply point
ASRP ammunition stockpile reliability program
ASTP ammunition surveillance test procedures
BLI basic load inspection
BB base bleed
BTR ballistic test request
CAD cartridge actuated devices
CAMDS chemical agent munitions disposal system
CBDCOM U.S. Army Chemical, Biological Defense Command
CC condition code
CCFTP centralized control function test program
CFA controlled firing area
CFR code of federal regulation
CONUS continental United States
COR contracting officer representative
CSDP chemical stockpile disposal plant
CTTP centralized trace test program
DA Department of Army
DAC Department of Army civilian
DAMWO Department of Army modification work order
DISREP discrepancy report
DMWR depot maintenance work requirement
DODAC Department of Defense ammunition code
DODIC Department of Defense identification code
DOT Department of Transportation
DRMO Defense Reutilization Marketing Office
DSR depot surveillance record (DA Form 3022-R), automated version in MHP, or other authorized format
DU depleted uranium
EMR electromagnetic radiation
EOD explosive ordnance disposal
ET electronic time
FAA Federal Aviation Administration
FC functional code
FMS foreign military sales
FORSCOM U.S. Army Forces Command
FSC federal supply class
FSC Field Support Command
FY fiscal year
GFM government furnished material
GRA grant aid
HE high explosive
HEAT high explosive antitank
HEI-T high explosive incendiary - tracer
ICM improved conventional munitions
ILLUM illuminating
JMC, U.S. Army Joint Munitions Command
IR infrared
IRI initial receipt inspection
LAP load, assembly, and pack
LCC logistics control code
LCSRP large caliber stockpile reliability program
LOA letter of offer and acceptance
LSFFAR low spin, folding fin aircraft rockets
MACOM major command
MHP munitions history program
MIMEX major items in long supply and excess
MOS military occupational specialty
MPCG man portable chamber gage
MPS maritime prepositioning ships
MPSM multipurpose submunitions
MRO materiel release order
MSC major subordinate command
MT mechanical time
MTSQ mechanical time super quick
MWO modification work order
NDI nondevelopmental item
NICP national inventory control point
NOSIH Naval Ordnance Station, Indian Head
NSN national stock number
OCONUS outside the continental United States
OPA ogive protector
P&P packing and preservation
PAD propellant actuated device
Para paragraph
PCP pentachlorophenol
PD point detonating
PENTA pentachlorophenol
PFF pre formed fragmentation
PG proving ground
PI periodic inspection
PII pre-issue inspection
PMCD program manager for chemical demilitarization
PMCSD project manager for chemical stockpile disposal
PMNSCM project manager for non-stockpile chemical materiel
PPWR prepositioned war reserve
PREPO, AFLOAT Army prepositioned stocks, afloat
QA/QC quality assurance/quality control
QASAS in-charge senior QASAS at an installation
QASAS quality assurance specialist (ammunition surveillance)
RAAMS remote anti-armor mine system
RCRA resource conservation recoverability act
RCS requirement control symbol
RDD required delivery date
REPSHIP report of shipment
RI receipt inspection
ROD report of discrepancy
RRDA resource recovery and disposition account
SA security assistance
SAA small arms ammunition
SAC security assistance coordinators
SB supply bulletin
SCSRP small caliber stockpile reliability program
SDS standard depot system
SFC sergeant first class
SFTI surveillance function test inspection
SI special inspection
SIMU suspended from issue, movement, and use
SIS safety in storage
SLTP stockpile laboratory test program

SMCA single manager for conventional ammunition
SMI storage monitoring inspection
SOP standing operating procedure
SPI special inspection
SPW shipping planning worksheet
SSG staff sergeant
SSI special surveillance instructions
SSWAFAR spin stabilized, wrap around fin aircraft rockets
STL surveillance test lot
SUPLECAM surveillance program lethal chemical agents and munitions
TAMMC Theater Army Materiel Management Center
TB technical bulletin
TCM toxic chemical munitions
TM technical manual
TMDE test, measurement, and diagnostic equipment
TP-T target practice - tracer
TRADOC U.S. Army Training and Doctrine Command
TWA time weighted average
UNO United Nations organization
USAMC U.S. Army Materiel Command
VI visual inspection
VT variable time
WARP worldwide ammunition reporting program
WARS worldwide ammunition inspection and lot number report, part III
WP white phosphorus
WQEC Navy Weapons Quality Evaluation Center

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