

CHAPTER 10

PACKAGING AND PRESERVATIONA. GENERAL POLICIES

The objectives of this chapter are to promote inter-Service coordination and standardization of **ammunition** packaging and establish procedures for attaining such coordination and standardization. The procedures in this chapter supplement DoD and Military Service packaging and preservation guidance (Appendix G) and are mandatory for **ammunition** assigned to the **SMCA**. They may be adopted for **non-SMCA** ammunition at the discretion of the Military Services.

1. Packaging Functional Interfaces. Packaging interfaces functionally with operations throughout the logistics pipeline. The main interfaces are with the following:

- a. Production facilities and equipment, both active and inactive.
- b. Storage facilities.
- c. Production line operations, to ensure that production line and packaging operations are compatible, safe, and efficient.
- d. Intra-activity handling of packaged or unitized loads.
- e. Transportation handling methods and equipment for loading on or off carriers, as well as restraint systems.
- f. The MTMC routing authorities.
- g. Transportation modes, including rail, truck, ship, and aircraft.
- h. Transshipment receipt, handling, and storage.
- i. Ship loading and unloading, including transportation to dockside; handling to, within, and from the ship; and dunnage within the ship.
- j. Receipt, handling, and storage at operational activities.
- k. Retrograde shipments, including packaging preparation, handling, and shipment.
- l. Demilitarization, including disposition of packaging items and components.

m. Recycling, inventory, and disposal of packaging items and components.

n. Regulatory requirements for packaging, transportation, and physical security.

2. Standardization. Packaging, including quantity per package for a specific round of ammunition and its components, shall be standardized among the Military Services, **insofar as** such standardization is practical and consistent with the tactical needs of the respective Military Services.

3. Standardization Methods. Maximum interchangeability and standardization shall be sought constantly as follows: ‘

a. By freely using existing container designs while maintaining configuration control.

b. Before undertaking new container design, querying the CDRS maintained at AD, **Eglin** Air Force Base, to ensure maximum use of existing designs or design features.

c. By maintaining full interchange of information, beginning with the exploratory development stage and continuing throughout the life cycle of the end item.

4. Maintaining the Container Data Base. Data for each **final** design of a specialized container shall be added to the CDRS as soon after formal release as practicable.

5. Continuing Dialogue Requirements. The round or component design activity shall keep the packaging design activity fully informed on item configuration (and changes thereto) affecting package design throughout the life **cycle** of the round. All design activities shall keep logistics activities **fully** informed of package design changes.

6. Validating the Packaging Design. The packaging design activity shall ensure the acceptability of the design for use (multi-Service use, if applicable) throughout the logistics system, satisfying all identified interfaces.

7. Coordination with Related JOCG Functional Groups and **MTMC.** **Packaging** activities shall maintain **close** coordination with the JOCG **Safety; Security;** and Handling, Transportation, and Traffic Management Functional Groups, as well as with **MTMC.**

B. RESEARCH AND EXPLORATORY DEVELOPMENT

1. **Purpose.** This section states policies and procedures for inter-Service coordination among organizations charged with the R&ED of packaging for ammunition. The objectives of the coordination are to achieve the following:

- a. Avoid duplication of effort.
- b. Ensure efforts are undertaken in all necessary areas concerned with ammunition packaging.
- c. Exploit applicable findings of other Military Services.
- d. Anticipate requirements brought about by changing user practices.
- e. Stimulate development of new methods and techniques for better protection of ammunition at reduced cost and to ease the logistic burden on the user.

2. Military Service R&ED Responsibilities. Each Military Service shall:

- a. Develop and fund its own R&ED packaging programs. Appropriate funding support may be given by the other Military Services.
- b. Take maximum advantage of Department of Defense and JLC guidance of general application on packaging R&ED.
- c. In developing its program, coordinate its proposed tasks with the other Military Services and the transportation operating agencies.

(1) POCs for this purpose shall include the members of the JOCG Packaging and Preservation Functional Group.

(2) Methods of coordination (mail, telephone, and personal visits) are left up to the individual Military Service.

d. Submit copies of normal quarterly and final R&ED packaging tasks to counterpart contacts. These reports are in addition to other reports that may be sent routinely to other Military Services.

e. For its own ammunition packaging, perform the following:

(1.) Review advances in packaging state-of-the-art (foreign, commercial, and nonammunition oriented) for possible exploitation.

(2) Review feedback reports to determine packaging shortcomings that appear on an across-the-board basis.

(3) Review user doctrine to determine future operational plans in **the final** delivery to user phase of the logistics cycle.

(4) Evaluate user requirement documents to **establish** trends in future packaging needs.

(5) Review value engineering change proposals and beneficial suggestions to **ascertain general** areas-requiring attention.

(6) Evaluate the general impact on packaging requirements resulting from plant modernization, changes in user tactics, and changes in the transportation system. Examples of the latter two are mechanization of materials handling equipment in the user's organization, more use of airlift, and containerization of cargo.

c. ENGINEERING DEVELOPMENT

This section establishes policies and procedures to ensure that upon completion of engineering development of a specific ammunition round, fully tested and documented packaging materials, procedures, and container designs are available as a part of the round's product base line.

1. Engineering Development Policies

a. Development Responsibility. The ammunition end item acquisition or project manager assigns responsibility for development of packaging for new ammunition items. The assignment shall be consistent with the standing procedures of the manager's Military Service.

(1) If the round is **likely** to be cross-serviced, the special packaging needs of the affected Military Service(s) **shall** be solicited and fulfilled whenever practicable.

(2) If **the SMCA** is to be the producer and wholesale **distributor**, early coordination shall be undertaken to ensure producibility and transportability.

b. Funding. Packaging engineering development costs for a specific **ammunition** item, and for any or all its components, shall be funded as a part of the ammunition end item development cost. The product, development, or acquisition manager for the end item shall ensure adequate and timely funding support.

c. Time Phasing. Packaging engineering development for a specific ammunition round, or for any or all its components, shall be started early enough to ensure that: .

(1) Prototype production packaging is available for any required hazard classification testing, such as Class A, B, or C **explosive**.

(2) prototype production packaging is available for round test and evaluation (including **OT&E**) according to the approved round development plan.

(3) Prototype production packaging is available for any required transportability testing or demonstration.

(4) The final production release documentation for the ammunition item includes a complete, proven by test, producible design disclosure for its packaging.

d. CM. Packaging for **ammunition** shall be an integral part of the **applicable** ammunition item or component baseline. Packaging development criteria shall be generated as a part of the conceptual phase of the ammunition item. This must produce the following:

(1) The equivalent of a packaging allocated baseline at the end of round advanced development.

(2) A packaging product baseline before the round is released for production.

e. Engineering for Transportability

(1) All ammunition must be transportable. When packaged properly, relatively few **ammunition** items need be considered transportability problem items because they are not configured so as to:

(a) Exceed the dimensional thresholds of MIL-STD 1366, thus requiring special routing studies or aircraft **loadability** analyses.

(b) Contain combinations of substances normally not permitted in combination by DoT regulations (for example, rocket **ammunition** with fuze and warhead and a liquid fuel) requiring action through channels to obtain exemptions for their shipment.

(c) Be of such a dangerous or sensitive nature as to require technical escort during transportation.

(2) The developing Military Service shall identify those few true transportability problem items to MTMC and the Military Services' designated transportability agents early enough to ensure shipment capability.

(3) A fundamental purpose of packaging is to make the **ammunition** item transportable. Therefore, packaging shall be designed to

ensure safe and efficient loading and handling into rail cars, trucks, cargo aircraft, break bulk shipping, and large transport containers, and to meet physical security needs.

(4) Engineering for **transportability** is part of the round **development process**. Neither the **package** nor the round shall **be** released-for full-scale production until **all** transportability engineering is complete. This includes coordination with logistics centers and documentation and approval of car loading, truck loading, ship loading (where necessary), transport container loading (stuffing), and aircraft loading procedures (if necessary). These data shall form a part of the product baseline that is released to production. Each Military Service shall prescribe procedures for accomplishing engineering for transportability.

2. Engineering Development Concepts. Packaging engineering **development** shall be conducted within the framework of the following concepts:

a. Guiding Documents. Packaging development shall be according to the guidelines in DoD and Military Service packaging and preservation guidance. Appendix H lists the applicable publications.

b. Criticality. By definition, packaging for **ammunition shall** be considered critical, as defined in **MIL-STD 490**. The developing activity shall impose configuration management at the appropriate time, but not later than release for full-scale production.

c. Cost Goals. The basic cost **goal** for ammunition packaging shall be the lowest life cycle cost of the round, not the lowest acquisition cost of its packaging. In weighing methods of attaining this goal, the packaging development activity shall consider the following:

- (1) Engineering development cost.
- (2) Procurement costs for elements of the package.
- (3) Labor costs for packaging and **unpackaging**.
- (4) Costs for return of empty containers (if applicable) and forward area** repackaging costs for retrograde ammunition.
- (5) Handling and shipping costs for empty and **loaded containers**.
- (6) Efficient and cost-effective transport **vehicle** loading, including containerization.
- (7) Cost savings from secondary uses of packaging materials.

(8) Maintenance and storage costs.

(9) Disposal costs and environmental impact.

d. **Safety.** There shall be no compromise with explosives safety or with systems safety.

e. Legal Constraints. Effectiveness criteria shall include satisfying, or obtaining necessary waivers from, the constraints imposed on packaging **ammunition** by the DoT, the EPA, the Department of Labor, and the Public Health Service.

f. Tradeoff Studies. Effectiveness criteria and lowest life cycle cost shall be established, insofar as practical, by tradeoff studies, including studies of reusable versus nonreusable containers. If reusable containers are **being** considered, tradeoff studies shall include container logistics **support** and contributions to system **reliability** and maintainability.

g. Delivery to the User. While user needs, as identified by a particular Military Service, must be satisfied, every effort shall be made to keep package design-proliferation to a minimum in the interest of production efficiency. This countervailing goal will assume greater importance as use of automated packaging techniques increases. Packaging shall be designed for effective, safe delivery to the ultimate user and safe, efficient storage, handling, unpacking, and disposal by this ultimate user. This design **goal** recognizes that more than one package may be needed for a given ammunition item so as to take into account such factors as the following:

(1) Differing user needs for quantity per package.

(2) Differing package configuration dictated by mode of delivery to consumer (e.g., helicopter delivery to a battery, delivery by **organic** surface transportation, and transfer at sea).

(3) Storage space available in ship, airplane, combat support, or ground combat vehicle.

h. Unit Loads. In developing unit load configurations, consideration **shall** be given to the weight handling limitations of the using organization and to optimizing the dimensions. The latter area includes taking into account the dimensional constraints of transportation media and ensuring safe, economical restraint in these media. The design guidelines in **MIL-STD 1660** shall **be followed**.

3. Engineering Development Procedures

a. CDRS Interrogation. Before starting design of a new specialized container, the design activity shall interrogate the CDRS to

determine whether there is an existing surplus container or existing design that can be used as is or with minor modification. The inquiry should be submitted as soon as preliminary container design needs are formulated. The design activity prepares the inquiry in the format shown in **MIL-STD 1510** and sends it to Armament Division **(YXC), Eglin AFB, FL 32542**.

(1) Feedback from CDRS. Feedback from the CDRS shall be considered for the proposed container and in detailing the design. The design activity shall obtain candidate surplus containers from their item managers or up-to-date drawing packages from the **CDRS**.

(2) Using Existing Container Designs. When a design activity determines an existing container or container design can be used as is, or with minor modification, the activity with design knowledge of the existing container and the CDRS Management Office shall be informed.

(3) Support Agreement. When a container becomes **common** to more than one Military Service through the foregoing process, specific agreement shall be reached on procurement responsibility, intermediate and depot level maintenance responsibilities, and other supply support to ensure effective supply management. When a reusable container is being designed or adopted and the SMCA will have production responsibility, specific plans should be coordinated with that activity.

(4) Inputs to CDRS. As soon as practicable after release of a new container design (or a modified design if the modifications were of sufficient magnitude to cause a change in formal nomenclature, such as Mod 0 to Mod 1), the design activity shall furnish pertinent data to the Armament Division **(YXC), Eglin AFB, FL 32542**, for incorporation into CDRS. Data on the container and its contents shall be in substantial conformity with **MIL-STD 1510**. Even if an existing container is being used as is, data on the contents, keyed to the existing container, shall be furnished.

b. Data Exchange. In addition to the foregoing, the Military Services shall exchange data on the results of any packaging development effort, as authorized in section A., above.

c. Coordination. The life cycle implications of engineering developments in packaging shall be recognized and provided for through mandatory coordination between development and logistics centers early in the development cycle, and at appropriate development and testing stages thereafter. This coordination **is** to ensure adequate provision for logistics considerations. It is important especially when the designer and the producer are in different Military Services.

4. Compliance With DoT Regulations. The Military Services are bound by Act of Congress to ship **ammunition** in conformance with the hazardous materials regulations of the DoT. These regulations have specific restrictions on types of containers to be used and, in many

instances, restrictions on the gross weight or weight of contents allowable in a single container. The regulations do, however, grant substantial leeway to the Department of Defense to vary from the letter of the DoT restrictions and also provide for exemptions in certain cases. The following specific procedures should be followed in interpreting the authority granted to the Department of Defense:

a. Authority. Title 49, CFR, section 173.7(a), stipulates that shipments of hazardous materials offered by, or consigned to, the Department of Defense must be packaged, including limitations of weight, according to the regulations, or in containers of equal or greater strength and efficiency as those required by DoD regulations. In 1971, the DoT issued a written interpretation of this provision, stating that the phrase "limitations of weight" did not apply to containers meeting DoD specifications provided that determination is made that a package is of equal or greater strength and efficiency than the prescribed DoD container. The DoT has not defined officially what it means by "equal or greater strength and efficiency." What follows constitutes joint agreement on the meaning of equal or greater strength and efficiency, how to demonstrate it, and who may certify compliance with the cited paragraph of a regulation issued pursuant to public law.

b. Options. Three options are open to the container designer:

(1) Comply with all requirements of 49 CFR 173.24 and with the individual commodity requirements of 49 CFR 172.101.

(2) Comply through certification under 49 CFR 173.7(a).

(3) Seek exemption. This is the least desirable choice.

c. Compliance Requirements. Title 49, CFR, compliance consists of determining that the container either satisfies sections 173.24 and 172.101 or is certified under section 173.7(a). Testing to ensure compliance with these requirements may be performed in conjunction with, or as a part of, Military Service design tests. Service design tests are those prescribed by such joint publications as AR 70-44, OPNAVINST 4600.22A, AFR 80-18, MCO 4610.14B, and DLAR 4500.25, Engineering for Transportability, and TB 700-2, NAVSEAINST 8020.8, TO 11A-1-47, and DLAR 8220.1, as well as other Military Service development and product improvement directives. Changes to approved packages shall be controlled according to AR 70-37, NAVMATINST 4130.1A, MCO 4130.1A, AFR 65-3, DLAR 8250.4, NSA-CSS 80-14, DCAC 100-50, and DNA INST 5010.181. Containers are designed and controlled to meet the CFR requirements for DoD containers of equal or greater strength than DoT prescribed containers. The mere use of either a DoD or DoT specification container without attendant supporting design data relating the container to the item does not constitute compliance with CFR requirements.

d. Certification Requirements. Container certification shall be according to AFLC/AFSCR 800-29, DARCOM-R 700-103, NAVMATINST 4030.11, and DLAR 4145.37.

e. Seeking Exemption. Exemption from the DoT regulations may only be granted by the DoT OHMR. The required procedures and data are in 49 CFR 107 and are lengthy and complex. Further, an exemption is not permanent; it must be renewed at least once every 2 years. Because of this complexity, exemptions shall be sought only if it is contemplated that shipment of the ammunition or explosive will involve items forbidden by the DoT regulations, not specifically classifiable thereunder, or requiring transportation vehicle configurations prohibited thereby. Nonexclusive examples of these categories are: nitroglycerin desensitized with a material whose vapor pressure is below that of nitroglycerin; a rocket or missile round complete with fuze, warhead, and liquid fuel; an item so temperature sensitive as to need temperature control devices in a transport vehicle powered by any flame-producing mechanism. No specific cut-and-dried procedure to guarantee that the DoT will grant an exemption on the first try can be formulated. The following procedures shall prevail:

(1) Planning. As soon as it becomes clear that an exemption will be needed, the project, acquisition, and integrated logistics support managers and the design agents for the round or the round's packaging shall, collectively or severally, contact the approving command, preferably informally. The purposes of this contact are to ensure that item safety data will be available in the depth required by the DoT and packaging or transportation concepts (or both) are definable in enough depth to satisfy the DoT. The DoT regulations require formal docketing of exemption requests 120 days before the proposed effective date, unless it can be shown that an emergency requires otherwise. In the normal engineering development of a new round or ingredient, 120 days is ample time.

(2) Preparing the Petition. When satisfied that enough data is at-hand to warrant submittal to the DoT, the approving command shall prepare a petition to the DoT for exemption from the pertinent regulation. The petition must be in the form and to the depth required by 49 CFR 107. The approving command shall submit the petition to the OHMR through the Commander, MTMC, or as provided otherwise in DoD Directives. The approving command shall also ensure prompt submittal of any further data or clarifications requested by OHMR, plus any necessary replies to comments for exemption in the Federal Register.

(3) Annotating Drawings. After receiving notice of approval of a request for exemption, the design activity shall annotate all drawings required by the DoT exemption with the reference data of the OHMR notice of approval.

(4) Notifying the Shippers. Using its standard procedures, the approving command shall notify all shippers and potential shippers (including transshipment points) of the existence of the exemption, any

conditions attached thereto by OHMR, and the expiration date of the exemption.

(5) Renewals. The approving **command** shall initiate action for timely renewal of exemptions according to 49 CFR 107. **If**, after approximately two renewals (or less if a substantial number of shipments have occurred), it appears that the need for shipping exemption will continue to exist, the approving command should prepare a petition for formal rule making under 49 CFR 106.

(6) Exception. **In unusual circumstances, such as** when the complete "package" involves major investment in a limited number of items, the approving command may consider requests for certification or exemption without prototype hardware having been built or tested. Data required for review includes drawings suitable for critical design review, supported by such calculations as stress analyses and shock and vibration performance predictions, a safety analysis (preferably in the form of a fault tree), and description of critical proof of **design tests** to be performed.

f. Retroactivity. The procedural rules outlined above shall not be interpreted as requiring action to comply therewith on existing approved designs. **If** existing special permits or exemptions are scheduled to expire, however, compliance with 49 CFR 107 is mandatory.

D. PRODUCTION AND SERVICE PHASES

The procedures in this section apply to the control of packaging while the round is being produced or is in service.

1. Packaging

a. Configuration Control. The activity with engineering responsibility for an end item's packaging shall maintain configuration control of ammunition end item packaging after the item is released for production.

b. Waivers, Deviations, and Changes. The preferred methods of requesting and supporting packaging waivers, deviations, and changes are in **MIL-STD 480** and **MIL-STD 481**. Activities not using these two military standards shall provide adequate documentation and justification for proposed changes to a package or container when the **design is controlled** by another Military Service.

c. Processing Requests for Waivers, Deviations, and Changes. Such **requests** shall be processed according to Chapter 4.

2. Packaging Concepts for the Production and Service Phases

a. Sources of Changes. Changes in packaging can arise from many sources. Causes include changes brought about by changing use concepts, enhancing producibility, correcting deficiencies, updating the

procurement package because of specification changes, value engineering proposals or beneficial suggestions, and formally established product improvement engineering efforts.

b. Change Control. Changes that improve safety or reliability, or reduce life cycle costs without degrading safety or reliability, obviously are desirable. Such changes must, however, be incorporated in a responsible way, without harming the interests of any user or producer Military Service.

c. Costing Changes. In analyzing the packaging cost impacts of **proposed changes**, the cost elements shown in paragraph **C.3.c.**, above, shall be considered. In many cases, this will justify an increase in packaging costs in order to attain a larger cost saving elsewhere in the system, such as in transportation. Cost impact should be analyzed on the basis of current and projected production rates as shown in the FYDP. In peacetime, cost impact should also be figured on the full planned mobilization production rate.

3. Packaging Procedures in the Production and Service Phases

a. Proposing Changes. Any Military Service or ammunition producer using an ammunition item may propose changes in the packaging of that item.

b. Coordination. If the specific ammunition stock number is used only by the requesting Military Service and the packaging (including the outer container) is peculiar to that Military Service, further engineering coordination is not necessary. The change must be coordinated with the producing Military Service to determine production cost impact and an effective date. If the proposed change involves a change in the configuration of an outer container used by more than one Military Service, the change must be coordinated according to paragraph C.4.C., above. The normal format for proposing changes is that for engineering change proposals (**MIL-STD 480** or **MIL-STD 481**). This applies whether the proposer is in the customer Military Service or the producing Military Service (for example, the **SMCA**).

c. Updating Documentation. The only packaging changes not requiring coordination with users or producers are simple reference changes in drawings or specifications to update these references. An example would be updating the specification number of a prescribed paint. Making such changes is the prerogative of the activity with design responsibility for the container.

d. Other Changes. Each Military Service shall set up procedures for preliminary feasibility review of value engineering proposals and beneficial suggestions. If such proposals prove worthy of further evaluation, they, together with appropriate **comments**, shall be forwarded to the activity with design responsibility for the package for final evaluation.

e. Ammunition Stock Numbering. If a stock number change is needed, the proposed change shall be coordinated with the DLSC, through the individual Military Service's inventory or item manager, using established procedures. For items managed by the **SMCA, DLSC** coordination shall be through the **SMCA**, using the procedures in Chapter 7, section B. A new stock number is required for any of the following packaging changes:

(1) Changes in Quantity Per Package. If the pallet is the unit package (such as for bombs or separately loaded projectiles), this rule also applies to **the quantity** per pallet.

(2) Significant Changes in the External Configuration of the Unit Container. Examples are significant changes in dimensions; changes in container material, such as wood to metal; and changes in container type, such as substituting the M548 box for the Navy MK 1 ammunition box.

f. Cataloging of Packaging Data. Package descriptions are a part of packaging data.

(1) Each Military Service shall set up procedures to ensure that supply cataloging data includes appropriate descriptions of items in their packaged configuration.

(2) When design responsibility is vested in one Military Service and another Military Service is a user or has wholesale supply responsibility, the Military Service having design responsibility shall provide packaging data to the other Military Service(s).

(3) **If the SMCA** is to be the producer and wholesale **distributor**, early coordination shall be undertaken to ensure packaging data is placed in the SMCA'S automated retrieval system for storage, distribution, and contingency planning purposes. In such cases, the Military Service having package design responsibility shall notify the SMCA of packaging changes so that changes may be made to data stored in the automated system.

E. CONTAINER AND PALLET MANAGEMENT

This section sets forth policies and procedures for supply **management** of containers and pallets, with particular emphasis on reusable containers and pallets.

1. Concepts for Container and Pallet Management

a. Economical Use of Containers and Pallets. Economical operation requires the fullest practical use of **all** assets, particularly those that may be reused.

b. Container Reusability. The degrees of container reusability range from fully reusable to simply **recloseable**. These varying degrees

of reusability are defined in **MIL-STD 1367**. The unit costs of reusable containers range from a few cents to thousands of dollars.

c. Pallet Reusability. All pallets are reusable. Metal pallets have a longer service life than wooden pallets, especially when exposed to an adverse environment.

d. Deciding When to Reuse Containers and Pallets. The decision to reuse an available asset is primarily an economic one in which the costs of refurbishment and retrograde transportation play a large role. This is true especially if the asset happens to be overseas and is needed at a CONUS production facility. Therefore, such decisions must be on an item-by-item basis and tempered by the urgency of need for the particular asset.

2. Container and Pallet Management Policies

a. Financial Management. The Military Service having **need** for a reusable container or pallet shall plan, program, and budget for refurbishment of necessary assets according to Chapter 8 of **this** manual.

b. Technical Management. The container or **pallet** design activity shall ensure refurbishment instructions (technical order, maintenance manuals, and repair procedures) are adequate and available before releasing the container or pallet for production.

c. Asset Management. The **ammunition** procuring activity **shall** coordinate all procurement with both the retail owning Military Service and its own reusable container or pallet **IM**, to ensure use of available containers and their repair parts.

3. Procedures for Container and Pallet Management

a. Cataloging. Reusable containers and pallets shall be cataloged. The developing Military Service shall start action to obtain an NSN as soon as the design is stable and drawings are available.

b. Return Instructions. Each Military Service, using its own procedures, shall ensure the return of assets, when needed, to designated points. If an asset is used by more than one Military Service, the managing Military Service **shall** inform the appropriate **IM** of each using Military Service when a reusable asset exceeds its known requirements.

c. Storage. Pallets and containers returned to stock after munitions have been expended shall be stored at authorized sites in the appropriate condition and ownership codes.

d. Stock Management. Chapter 7 applies to wholesale stock management. The following additional procedures also apply specifically to containers and pallets:

(1) Reusable container and pallet IMs shall maintain constant surveillance over all such inventories and take prompt disposition action on obsolete, unserviceable, or uneconomical-to-repair assets. This is to prevent unnecessary storage and transportation costs.

(2) The SMCA shall normally procure containers and pallets for items procured by the SMCA using funds allocated for this purpose.

(3) Military Services placing MIPRs or other orders on the SMCA shall include the following specific information:

(a) Quantity of new reusable containers and pallets and the exact configuration to be procured.

(b) Source and availability of empty customer Military Service-owned assets.

(c) Whether empty assets will be furnished to the designated producing plants in ready-for-issue condition or must be repaired or refurbished by the SMCA.

e. Stocks Held by Other Military Services. Some reusable containers and pallets are multi-Service items. The following procedures are designed to optimize the use of these assets:

(1) Military Services requiring reusable containers and pallets used by other Military Services shall query those Military Services on the availability of such assets on either a reimbursable or nonreimbursable basis.

(2) After the pallet IM receives a validated requirement from the ammunition IM, he shall begin refurbishment action. The objective is to put the desired assets into serviceable condition on schedules to match the production schedules.

(3) Refurbishment shall be performed according to the policy in paragraph E.2.b., above. If no written procedure exists, a work statement shall be attached to, and made a part of, the work order, MIPR, or contract. Procedures in appropriate parts of Chapters 7 and 8 shall be used in container and pallet refurbishment actions.

F. RETROGRADE AMMUNITION

This section provides policies and procedures for the packaging or repackaging of ammunition to be retrograded from a forward activity (or ship) to CONUS or to a major overseas depot-type activity.

1. Concepts for Retrograde Packaging

a. Retrograde shipments are an essential part of the overall ammunition logistics system.

b. Retrograde problems arise because the existing package is either deteriorated from exposure to an adverse environment or it is not the approved package for the ammunition.

c. Use of defective packaging has grave safety implications for those involved in transporting and handling the ammunition, as well as for the civilian population. At a minimum, packaging that does not conform to subsection C.4., above, causes delay or unacceptable additional work load at the first U.S. port of entry before it can be moved legally through the U.S. transportation network. Similar problems may be encountered in other countries.

2. Retrograde Packaging Policies

a. Repackaging. Repackaging for retrograde movement shall be held to the minimum, consistent with safe and efficient movement.

b. Military Service-Peculiar Packaging. Packaging designs that have been approved by the responsible engineering activity of any one Military Service for the movement of a specific item by a specific mode of transportation shall be acceptable to all Military Services for retrograde of that item in that mode.

c. Obsolete or Superseded Package Design. These package designs (including markings), whether Military Service-peculiar or common to more than one Military Service, shall be acceptable for retrograde purposes. This does not apply, however, if the Military Service with design responsibility has declared that particular design to be unsafe for movement by the mode(s) of transportation involved.

3. Procedures for Retrograde Packaging

a. Inspection Before Retrograde. **Ammunition** identified as a retrograde candidate shall be inspected to determine its suitability for transportation to its intended destination. If possible, this inspection should be conducted by an ammunition QA specialist, an EOD team member, or a member of a Mobile Ammunition Evaluation and Repair Unit.

b. Criteria for Suitability for Transportation. Suitability for transportation shall be based on Military Service drawings and standards, coupled with the requirements of DoT regulations. Packaging materials shall be inspected before use, to ensure the absence of rodents, snails, or insect infestation. Unless specifically waived, insecticides, fungicides, and rodenticides shall be used as prescribed by Military Service, agriculture, or health directives pertaining to the geographic area.

c. Repackaging. If an item's packaging must be replaced, the following priorities apply:

(1) Priority 1. Replace with packaging material generated as a result of consumption of like items.

(2) Priority 2. Replace with packing material requisitioned through the supply system.

(3) Priority 3. Use a nonstandard package, following the instructions in subparagraph **F.3.d.(3)**, below.

d. Operating Guidelines

(1) If an item that requires repackaging is being consumed in a theater by any Military Service, it is almost certain that serviceable packaging material is available for reuse. Transfer of packaging and **palletizing** assets between commands and Military Services is **encouraged**. When this is done, the respective Military Services' retail **IMs** should be advised. Both the supply of packaging components from CONUS and the offshore procurement or manufacture of packaging are costly and time consuming, compared to using consumption-generated material. When searching for available consumption-generated material, it should be kept in mind that packaging material for several versions of the basic item may be **interchangeable**. For example, the wooden container used for the MK 10 MOD 4 charge may be functionally interchangeable with the metal container used for the MK 10 MOD 1 charge, or the pallet used for small arms ammunition may be identical to a pallet used for propelling charges. If a metal box is used to package an item instead of a wooden box, the **palletizing** procedures normally prescribed for the metal box should be used. Various other **palletizing** procedures may have been tested and may also be authorized for retrograde use by the aware CONUS design activity.

(2) Packaging material requisitioned through the supply system or locally manufactured to meet design requirements, normally requires less stringent inspection before use than does packaging material reclaimed by the user. The in-theater supply systems of all Military Services **should** be queried for available materials before manufacturing or requisitioning from CONUS. If packaging material is to be manufactured in an overseas theater, it is possible that the raw materials (such as **as-wood** species) may not meet the design description. In such cases, contact the responsible CONUS activity (**NAVSEA**, NAVAIR, AMCCOM, AD, or Ogden ALC) to verify suitability for use. When converting dimensions, such as inches to millimeters, is necessary, the rule will be to use a metric dimension that is larger than its inch equivalent unless specific authority to the contrary is obtained from the responsible CONUS activity.

(3) When it is impossible or impractical to obtain packaging materials specifically approved for an item, or when exigencies so dictate, it may be necessary to use packaging or methods that are not used for packaging ammunition for issue. Before using improvised packaging methods, the responsible prime Military Service activity in the theater and in CONUS shall be queried on the acceptability of the method and the availability of alternate methods that may have been tested and approved for such contingency use. Improvised packaging methods are

subject to the same regulatory restrictions as those applying to standard issue packages for that same portion of the logistics pipeline. Although deviating from requirements may ease a problem situation at one location, it may create a greater problem at another. The total impact of improvised packaging must **be** considered before use.

e. Documentation. Documentation for retrograde **ammunition** shall be the same as for other movements of ammunition. Any deviation from standard issue packaging practices (including marking) shall be noted on the shipping documents. Such deviations must be made known immediately to intended recipients so that appropriate planning may be done.

f. Reports. The prime Military Service shall obtain reports and document the results of shipments using improvised packaging. That Military Service shall evaluate the effectiveness of the shipment. The objective of the evaluation is to facilitate later use of effective methods **while** eliminating use of packaging methods having undesirable characteristics. The resulting documentation should be furnished to the aware elements of the other Military Services so that they also may benefit from the experience.