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**Supply**

**DETERMINING MATERIEL REQUIREMENT  
FOR AIR FORCE-MANAGED CONSUMABLE  
ITEMS**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements AFR 23-1, *Requirements and Stockage of Materiel*. It provides guidelines for managing and determining materiel requirements, including goods necessary to equip organizations, accomplish mission assignments, and establish readiness positions. For more detailed procedures, see AFMCR 57-6, *Policy and Procedures for Computing Consumable Type Item Requirements*, and AFMAN 23-110, *USAF Supply Manual* (formerly AFM 67-1). **Attachment 1** lists terms used in this instruction.

**SUMMARY OF REVISIONS**

This is the initial publication of AFI 23-103. The changes substantially revises AFR 57-1.

This instruction is provided to improve guidance in managing consumable materiel.

**1. Overview:**

- 1.1. Materiel requirements include the items of supply needed to maintain wholesale and retail inventories. Various techniques used to determine these requirements are outlined in this instruction.
- 1.2. Wholesale inventory is stock held at an inventory control point. Managers at Air Force Materiel Command (AFMC) Air Logistics Centers (ALC) calculate the worldwide need for each item, maintain asset visibility, and distribute inventory.
- 1.3. Retail inventory is stock managed locally by the Air Force and other Department of Defense (DoD) supply organizations.

**2. Responsibilities:**

2.1. The *Air Force Stockage Policy Work Group*, under HQ USAF/LG, studies, evaluates, develops, and refines techniques for stocking and managing distribution of consumables. It serves as the final authority for all procedures covered in this instruction.

2.2. Air Force Commands manage materiel according to logistics policies and procedures established by the *Air Force Stockage Policy Work Group*.

2.3. HQ Air Force Materiel Command (HQ AFMC) administers wholesale materiel for Air Force centrally procured items, and inventories each item in stock. Other agencies and military departments that buy centrally-procured goods from the Air Force also fall under HQ AFMC's auspices.

2.3.1. ALC inventory managers:

- Oversee wholesale level inventory.
- Refer to historical information and background information from supply organizations and contractors in order to purchase goods that meet Air Force requirements.
- Decides when to terminate contracts and disposes of or reuse inventory.

2.3.2. The Directorate of Nuclear Weapons at Kelly AFB, Texas manages specialized inventory and coordinates logistics support with the Defense Nuclear Agency and the Department of Energy.

2.4. The Air Force Standard Systems Center computes retail requirements in the Standard Base Supply System and develops a retail inventory stratification report that categorizes each item in stock.

2.5. Base and other commanders determine materiel requirements for their missions.

2.6. Other commands and agencies (for example, the United States Air Force Intelligence Command) determine requirements for specialized purposes.

### **3. Objectives:**

3.1. All personnel engaged in determining what consumable items to stock.

3.1.1. Purchase needed consumables at minimal ordering and holding cost.

3.1.2. Make maximum use of available assets before acquiring additional materiel by:

- Substituting interchangeable items where differences are minor.
- Modifying items if considered suitable and economical.
- Using assets from the Defense Reutilization Marketing Office (DRMO).
- Using reconditioned serviceable assets and assets from reclamation.

3.1.3. Allocate resources (materiel, facilities, personnel and funds) by weighing factors such as the availability of goods, consumer needs, mission priorities, and unit priorities.

3.1.4. Implement the most recent planning and programming document when computing stock requirements including war readiness materiel (WRM) and supplemental program data such as missile months and projected flying hours.

3.1.5. Update standard catalog and stock fund price information whenever changes are made.

3.1.6. Establish flexible supply management procedures in order to facilitate continuous support in a volatile situation and adverse environment.

- 3.1.7. Stock new units.
- 3.1.8. Stock contingencies.
- 3.1.9. Establish quantitative goals for inventory.
- 3.1.10. Reutilize materiel and dispose of inactive and obsolete goods.
- 3.1.11. Reduce or cancel purchase request and terminate contracts when goods are no longer required.
- 3.1.12. Verify accuracy of orders and use the data to categorize items in stock.
- 3.1.13. Establish quality control procedures for verifying computations.

#### **4. Categories and Characteristics of Consumable Items:**

- 4.1. An item categorized as a consumable must be consumed in use, be a component part, or both.
- 4.2. Categorize consumables according to the expendability, recoverability, and repairability-category (ERRC). See AFMAN 23-110 for the ERRC designators.
  - 4.2.1. Consumables may be either expendable and nonrepairable (XB3) or expendable and field repairable (XF3).
    - 4.2.1.1. XB3 items have characteristics that rule out repair. If they fail or wear out, remove them from inventory and replace them with a new item. XB3 items may be reconditioned (cleaned, painted, straightened, sharpened, etc.) by users.
    - 4.2.1.2. XF3 items cost \$50 or more. Authorize repair at organizational and intermediate levels. Don't return unserviceable goods marked XF3 to the depot or specialized repair unit. Mark XF3 items that cannot be restored at the retail maintenance level and transfer them to servicing DRMO.
- 4.3. Use two funding categories for consumables items--Defense Business Operations Fund (DBOF) and non-DBOF.
  - 4.3.1. Designate most consumables as DBOF which means you can recoup costs through revolving funds as goods are consumed.
  - 4.3.2. Designate non-DBOF items for funding with money earmarked to support specific programs or organizational activities. Non-DBOF items fall under the Economic Order Quantity (EOQ) requirements.
    - 4.3.2.1. Derive the EOQ requirement from a mathematical equation both for wholesale and retail. For consistency, wholesale and retail activities share computational methodology.

#### **5. Consumable Item Computational Guidance:**

- 5.1. Use the EOQ to:
  - Minimize the total cost of ordering and holding inventories.
  - Compute peacetime and WRM purchasing requirements for consumables.
  - Develop categories for budgeting and evaluating inventory.

5.2. Consider the importance of each mission in the equation for determining which requirements to fill.

## **6. Computing Requirements:**

6.1. Determine EOQ at the wholesale level for a maximum of 24 months' demand. To determine the minimum EOQ, use either the administrative lead time (ALT) or 6 months, whichever is less.

6.1.1. You may override the EOQ minimum if you can show that a lesser quantity would be more cost effective.

6.1.2. HQ AFMC may adjust the maximum EOQ downward to ensure that ALCs operate within budget.

6.1.3. Adjust EOQ downward for phased-out end items or items declining in demand.

6.2. Determine EOQ at the retail level-for a maximum of 12 months' demand.

6.2.1. Adjust EOQ downward for phased-out end items or declining in demand.

6.2.2. Override the targeted EOQ requirement when you can document more cost-effective quantity.

6.3. Estimate projections for demand-based requirements on past records of recurring demand. Factor in serviceable returns.

6.3.1. Purchase demand-based items when demand for items exceeds goods on-hand and on-order.

6.3.2. Determine the reorder point by adding the acquisition leadtime to the stock due-out to the variable safety level to the applicable nondemand-based additive requirements.

6.3.2.1. Determine the variable safety level to augment the operating level of supply. Allows for continuous operations when demand rises steeply or when leadtime is extended. Decrease safety levels as fluctuations even out.

6.3.2.2. Determine nondemand-based requirements for goods that have limited or no demand history, but qualify for purchase based on other criteria. Two types of nondemand-based requirements are insurance and calendar time change items.

6.3.2.3. Identify essential items with no demand records or forecast for failure reports and stock them at the wholesale level as insurance items. These should not exceed the cost of one minimum replacement unit unless you can document and justify the added cost.

6.3.2.4. Determine additive requirements to identify items that are not supported by past demand records.

6.3.2.4.1. Document and validate these requirement for authorization at both the retail and wholesale levels.

6.3.2.4.2. Request authorization for additive requirements when laying in stock at a base or adding stock to support a net increase in end item population or in base deployments.

6.3.2.4.3. Use the additive requirement for items such as those with calendar time changes, short shelf-life and short program life.

6.3.2.4.4. Request additive requirement authorization for modified items and applications that can't adapt for use with the EOQ formula.

## **7. Reducing Requirements:**

- 7.1. Major commands (MAJCOM) establish coordinators to cancel purchase requests or give prompt consideration of terminating items under contract.
- 7.2. Terminate a contract only after determining that termination is cost-effective and in the best interest of the Government.
- 7.3. Compare the cost of holding items in inventory with the cost of terminating a contract. Factor in replacement cost when possible.
- 7.4. Use estimates based on termination cost models if you cannot determine actual costs.

## **8. Reporting Stratification:**

- 8.1. Use stratification reports to develop item purchasing and depot maintenance budgets; determine readiness status of inventories; and relate assets to the approved acquisition objective, other authorized retention of stock, and potential for reusing or disposing of materiel.
  - 8.1.1. Submit an audit trail if you use a method other than stratification for budgeting.
- 8.2. Develop wholesale and retail dollar value stratification summaries, outlining individual item asset and requirement comparison. Stratify consumable items at least semiannually to reflect inventory as of September 30 (consulted during inventory reporting and funding reviews) and once to reflect inventory as of March 31 (used for budget preparation).

## **9. Reviewing:**

- 9.1. All Air Force Personnel responsible for materiel management:
  - Continually evaluate and verify data and factors used in determining stock requirements.
  - Establish effective policies and procedures.
  - Refine the time of the initial computation through all echelons of review.
  - Document the rationale applied in the refinements and validate it.
- 9.2. Materiel managers will conduct periodic reviews at the wholesale level. These reviews will include detailed analysis of individual item computation worksheets, procurement histories, repair schedules, and other documentation used to support management actions.
- 9.3. MAJCOMs evaluate retail level stockage analysis. These evaluations include an analysis of items that could come down from wholesale, a review of EOQ modeling techniques and an assessment of stratification practices for on-hand and on-order inventory.

JOHN M. NOWAK, Lt General, USAF  
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## Attachment 1

### GLOSSARY OF TERMS

#### *Terms*

**Acquisition Lead Time (AQLT)**—Forecast of the likely future interval between identifying a requirement and receiving materiel from the procurement source. AQLT consists of two consecutive time periods: administrative lead time and production lead time.

**Additive Requirement**—Requirements that are supported by projected requirements (e.g., modifications) rather than past demand experience.

**Administrative Lead Time**—The time interval between identifying a needed item by submitting a purchase request and the date of contract award.

**Approved Acquisition Objective**—The level of stock authorized to equip and sustain the United States and allied forces through peacetime and wartime from Dday to Pday, according to the latest Secretary of Defense policy guidelines (also known as Approved Force Acquisition Objective).

**Calendar Time Change Items**—Items requiring replacement at regular intervals. Refer to appropriate technical orders for scheduling.

**Central Procurement**—The purchase of materiel, supplies or services by officially designated commands or agencies with funds provided specially for this purpose.

**Central Secondary Item Stratification (CSIS)**—A prioritized database showing accumulation, extraction, and display of wholesale supply data relating assets to requirements over time.

**Consumable Item**—An item of supply that is normally consumed in use and thrown away. (*EXCEPTIONS:* Explosive, ordnance, major end items of equipment, and reparable.)

**Contract Termination**—Cancelling contracts or subcontracts when contractor fails to abide by the terms or when the Government's cancels a contract at its option.

**Defense Business Operations Fund (DBOF)**—Department of Defensewide revolving fund. Supply Management Business Area of the DBOF replaced the role of the old Air Force Stock Fund.

**Demand**—Valid request for materiel placed by authorized customers create demand, which categorized as recurring or nonrecurring based customers' coding.

**DemandBased Item**—An item for which projected requirements are determined based on past usage.

**Depot Level Maintenance (DLM)**—Maintenance performed on materiel requiring major overhaul or a complete rebuilding, including manufacture, modifications, testing, and recycling of parts, assemblies, subassemblies, and end items.

**Economic Order Quantity (EOQ)**—The quantity derived from the mathematical equation and used to determine the optimum (lowest) total variable costs for ordering and holding inventory.

**Expendability, Recoverability, Repairability Category (ERRC) Code:**—

- Code used to categorize Air Force inventory into various management groups.
- Each item in stock is coded to reflect the management and maintenance concepts used throughout the logistics cycle. Computational methods are also factored in when codes are assigned.

- ERRC codes are key elements in collecting and reporting asset and usage data.
- The single position ERRC code is used to reduce the demand on data processing programs. The three position ERRC designator can be used interchangeably with the single-position code.

**Expendability, Recoverability, Repairability Category (ERRC) Designator**—Same as ERRC code except the ERRC designator is a threeposition Air Force peculiar data element that is normally used for visual reference such as correspondence and publications.

**Holding Costs**—Cost based on inventory losses, obsolescence, storage and other variables.

**Inactive Item**—A national stock number that hasn't been in wholesale demand for 5 years and for which neither the integrated materiel manager nor any registered user can foresee future requirements.

**Initial Provisioning**—The process of determining the range and quantity of items required to support new systems or increases in end item population for an initial period of service.

**Insurance Item**—A nondemandbased, yet essential item for which minimal stock is needed to satisfy requirements.

**Integrated Materiel Manager (IMM)**—Any Department of Defense activity or agency that has been assigned wholesale IMM responsibilities including cataloging; determining requirements; procuring goods; distributing stock; overhauling; repairing, and disposing of materiel. The terms integrated materiel manager, inventory control point, and materiel manager are used synonymously.

**Interchangeable Item**—Item equal in performance, reliability and maintainability that can be used without alteration or selection for fit and performance of it or adjoining items.

**Inventory Control Point**—See Integrated Materiel Manager.

**Local Secondary Item Stratification (LSIS)**—The process that provides for accumulation, extraction and display of basic retail supply data for requirements in a specific priority and time sequence. The LSIS when the retail requirement or asset position hasn't been automatically calculated.

**Materiel Manager**—See integrated materiel manager.

**Minimum Replacement Unit (MRU)**—The minimum quantity of an item normally replaced during a maintenance action. (Often MRU is determined by referring to the quantity of any component used per end item.)

**Nondemandbased Inventory**—Inventory such as insurance and calendar time change items that have no forecasted demands but qualifies for stockage based on other criteria.

**Nonstock Fund EOQ Items**—Items that are procured with appropriated funds and whose peculiar characteristics lend themselves to an EOQ management methodology.

**Operating Level of Supply**—The quantity of materiel required to sustain operations in the interval between requisitions or the arrival of successive shipments.

**Ordering Cost**—Variable costs involved in determining requirements, administrative costs of processing purchase request and cost associated with taking contract actions i.e., all cost from receipt of the order through fulfillment.

**Organizational Intermediate Maintenance (OIM)**—That maintenance that organizations are responsible for performing on their assigned equipment. These responsibilities include inspecting, servicing, lubricating, adjusting, and replacing minor assemblies, and subassemblies.

**Potential Reutilization/Disposal Materiel**—Inventory identified for possible disposal but with potential for reutilization; or materiel that has the potential for being sent by an inventory manager to the Defense Reutilization Marketing Office for possible reutilization by another component or by a federal, state, or local government agency, or for disposal through sale to the public.

**Production Lead Time**—The interval between the date of contract award and receipt of the ordered materiel into the supply system.

**Requirements Computation**—Any mathematical calculation performed to determine supply requirements.

**Retail Inventory**—Stock held in the custody or on the records of a supply organization below the wholesale level.

**ShelfLife Item**—An item of supply possessing deteriorative or unstable characteristics to the degree that a storage time period must be assigned to ensure that it will perform satisfactorily in service.

**Stock Fund**—A revolving fund established to finance costs of inventories of supply. It is authorized by specific provision of law to finance a continuing cycle of operations (see DBOF).

**Stratification**—The process of applying assets, by type, for an individual item against the requirements for the same item in a prescribed priority and time sequence.

**Substitutable Item**—See **Interchangeable Items**.

**Variable Safety Level**—The level of supply needed to ensure continuous operations in the event of minor interruption of normal replenishment or fluctuations in demand.

**War Readiness Materiel**—Materiel required to equip and support the approved forces specified under Secretary of Defense guidelines through the prescribed period for war materiel planning purposes.

**Wholesale Inventory**—Inventory, controlled by the Air Logistic Center item manager to meet worldwide requirements, regardless of funding sources.

**Wholesale Level**—The highest level of organized Department of Defense supply. Personnel at this level, procures, repairs, and maintains stocks to resupply the retail levels of supply.