



Department of Defense MANUAL

NUMBER 4140.01, Volume 2
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USD(AT&L)

SUBJECT: DoD Supply Chain Materiel Management Procedures: Demand and Supply Planning

References: See Enclosure 1

1. PURPOSE

a. Manual. This manual is composed of several volumes, each containing its own purpose, and reissues DoD 4140.1-R (Reference (a)). The purpose of the overall manual, in accordance with the authority in DoD Directive 5134.12 (Reference (b)), is to:

(1) Implement policy, assign responsibilities, and provide procedures for DoD materiel managers and others who work within or with the DoD supply system consistent with DoD Instruction (DoDI) 4140.01 (Reference (c)).

(2) Establish standard terminology for use in DoD supply chain materiel management.

b. Volume. This volume implements policies in Reference (c) and describes procedures for the DoD supply chain materiel management processes associated with demand and supply planning.

2. APPLICABILITY. This volume applies to OSD, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the DoD (referred to collectively in this volume as the "DoD Components").

3. RESPONSIBILITIES. See Enclosure 2.

4. PROCEDURES. See Enclosure 3.

5. RELEASABILITY. **Unlimited**. This volume is approved for public release and is available on the Internet from the DoD Issuances Website at <http://www.dtic.mil/whs/directives>.

6. EFFECTIVE DATE. This volume:

a. Is effective February 10, 2014.

b. Must be reissued, cancelled, or certified current within 5 years of its publication to be considered current in accordance with DoDI 5025.01 (Reference (d)).

c. Will expire effective February 10, 2024 and be removed from the DoD Issuances Website if it hasn't been reissued or cancelled in accordance with Reference (d).



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Enclosures

1. References
2. Responsibilities
3. Procedures

Glossary

TABLE OF CONTENTS

ENCLOSURE 1. REFERENCES4

ENCLOSURE 2. RESPONSIBILITIES6

 ASSISTANT SECRETARY OF DEFENSE FOR LOGISTICS AND MATERIEL
 READINESS (ASD(L&MR))6

 DoD COMPONENT HEADS.....6

 SECRETARIES OF THE MILITARY DEPARTMENTS AND DIRECTOR OF THE
 DEFENSE LOGISTICS AGENCY (DLA)6

ENCLOSURE 3. PROCEDURES7

 DEMAND AND SUPPLY PLANNING7

 PROVISIONING10

 ITEM CLASSIFICATION AND CODING FOR STOCKAGE REQUIREMENTS14

 SUPPORT GOALS FOR SECONDARY ITEMS16

 FORECASTING CUSTOMER DEMAND.....18

 MATERIEL STOCKAGE COMPUTATIONS.....20

 SECONDARY ITEM WAR RESERVE REQUIREMENTS32

APPENDIXES

 1. RBS COMPUTATIONS.....34

 2. PROVISIONING DATA AND ORGANIC REQUIREMENTS PROCEDURES37

 3. RETAIL REASON FOR STOCKAGE CATEGORY (RSC) CODES41

 4. REPAIR-CYCLE TIME43

GLOSSARY47

 PART I: ABBREVIATIONS AND ACRONYMS47

 PART II: DEFINITIONS.....48

ENCLOSURE 1

REFERENCES

- (a) DoD 4140.1-R, "DoD Supply Chain Materiel Management Regulation," May 23, 2003 (cancelled by Volume 1 of this manual)
- (b) DoD Directive 5134.12, "Assistant Secretary of Defense for Logistics and Materiel Readiness (ASD(L&MR)), May 25, 2000, as amended
- (c) DoD Instruction 4140.01, "DoD Supply Chain Materiel Management Policy," December 14, 2011
- (d) DoD Instruction 5025.01, "DoD Directives Program," September 26, 2012, as amended
- (e) Title 10, United States Code
- (f) DoD Instruction 3110.06, "War Reserve Materiel (WRM) Policy," June 23, 2008
- (g) Joint Publication 4.0, "Joint Logistics," July 18, 2008
- (h) DoD Instruction 5200.39, "Critical Program Information (CPI) Protection within the Department of Defense," July 16, 2008, as amended
- (i) DoD Instruction 5200.44, "Protection of Mission Critical Functions to Achieve Trusted Systems and Networks," November 5, 2012
- (j) Government Electronics and Information Technology Association (GEIA) Standard 0007, 2008¹
- (k) Military Handbook 502, "Department of Defense Handbook Acquisition Logistics," May 30, 1997
- (l) DoD 4140.27-M, "Shelf-Life Item Management Manual," May 5, 2003
- (m) DoD 4100.39-M, "Federal Logistics Information System (FLIS) Procedures Manual," dates vary by volume
- (n) DoD 4140.26-M, "DoD Integrated Materiel Management (IMM) for Consumable Items," September 24, 2010
- (o) Defense Federal Acquisition Regulation Supplement, subparts 227.7102-1 and 217.103, current edition
- (p) AR 700-82/OPNAVINST 4410.2A/MCO 4400.120, "Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes," October 10, 2007²
- (q) Defense Logistics Manual 4000.2, Volume 2, "Defense Logistics Management System: Supply Standards and Procedures," June 5, 2012³
- (r) Defense Logistics Manual 4000.25-2, "Military Standard Transaction Reporting and Accountability Procedures (MILSTRAP)," June 13, 2012³
- (s) DoD 7000.14-R, "Department of Defense Financial Management Regulations (FMRs)," Volumes 1-15, dates vary by volume
- (t) AMC-R 700-99/NAVSUPINST 4790.7/AFMCR 400-21/MCO P4410.22C, "Wholesale Inventory Management and Logistics Support of Multiservice Used Non-consumable Items," April 27, 1990⁴

¹ Available on the internet at <http://www.techstreet.com/TechStreet>

² Available on the internet at http://www.army.mil/usapa/epubs/pdf/r700_82.pdf

³ Available on the internet at www2.dla.mil/j-6/dlmsso/elibrary/manuals/dlm/dlm_pubs.asp

⁴ Available on the internet at <https://acc.dau.mil/CommunityBrowser.aspx?id=103972>

- (u) Defense Logistics Manual 4000.25-1, “Military Standard Requisitioning and Issue Procedures (MILSTRIP),” June 13, 2012³

ENCLOSURE 2

RESPONSIBILITIES

1. ASSISTANT SECRETARY OF DEFENSE FOR LOGISTICS AND MATERIEL READINESS (ASD(L&MR)). In accordance with Reference (b) and under the authority, direction, and control of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)), the ASD(L&MR) oversees the DoD supply chain planning process to optimize resources to meet established support strategies and customers' needs in a collaborative manner between support providers and the customers.

2. DoD COMPONENT HEADS. The DoD Component heads:

- a. Implement the procedures prescribed in this volume and ensure that supplemental guidance and procedures are in accordance with Reference (c) and this volume.
- b. Conduct demand and supply planning to optimize DoD supply chain resources to meet mission effectiveness as efficiently and securely as possible using collaboration between support providers and their customers.
- c. Plan and provide resources for all elements of the DoD supply chain to meet customer demand by developing and establishing support strategies to meet DoD supply chain requirements for the future while guarding against risks.

3. SECRETARIES OF THE MILITARY DEPARTMENTS AND DIRECTOR, DEFENSE LOGISTICS AGENCY (DLA). In addition to the responsibilities in section 2 of this enclosure, the Secretaries of the Military Departments and the Director, DLA (the Director is under the authority, direction, and control of the USD(AT&L), through the ASD(L&MR)):

- a. Share information on their requirements with their sources of supply (such as vendors, maintenance activities, or contingency contracting organizations) to support cost-effective collaborative planning with end-to-end visibility across the DoD supply chain.
- b. Ensure that new items are properly cataloged, classified, and coded according to sections 2451-2458 of Title 10, United States Code (Reference (e)) as described in Volume 8 of this manual.
- c. Establish and maintain within authorized funding a war reserve materiel program for secondary items needed to meet the operational requirements of the planning scenarios approved in the Secretary of Defense Strategic Planning Guidance, in accordance with DoD Manual 3110.06 (Reference (f)).

ENCLOSURE 3

PROCEDURES

1. DEMAND AND SUPPLY PLANNING

a. Performance-based Logistics (PBL). As part of a PBL strategy, materiel managers:

(1) Plan and provide resources for all elements of the DoD supply chain to meet customer demand.

(2) Collaborate with customers and maintenance and distribution or transportation managers to determine optimal support strategies that meet documented performance requirements.

(3) Maximize the use of DoD-owned inventory (across all components) on all PBL arrangements and partnering agreements before procuring inventory items from commercial sources. For commercial items of supply, performance requirements must be in PBL contracts with commercial suppliers. For organic items of supply, those requirements must be in performance-based agreements between suppliers and their customers.

(4) Identify, prioritize, and aggregate customer demand of organic sources of supply.

(a) Identify. Collaborate with customers on their future needs when classifying and coding items for requirements.

(b) Prioritize. Set parameters or goals for computing inventory levels that meet documented performance requirements at minimum total cost.

(c) Aggregate. Accumulate and forecast customer demand for products or services at the appropriate category, organizational level, and time interval.

(5) Work with customers to understand the military value of reducing the scale of the logistics supply chain in operations and thus reduce the risks from interruptions and interdiction of supplies.

(6) Plan inventory to efficiently meet customer demand.

(a) For items stocked by the DoD Components, plan inventory to provision new materiel. Determine peacetime, wartime, and high tempo operating condition replenishment stock levels by location (i.e., stockage location and echelon) to satisfy customer demands efficiently.

(b) Consider planning factors described in Joint Publication 4-0 (Reference (g)), including total supply chain costs like inventory holding, materiel handling, transportation, and the cost to protect the supply chain from tactical and operational interruptions.

(7) Manage a planning infrastructure. In addition to demand and supply planning, the supply chain processes of source, make and maintain, deliver, and return (discussed in Volumes 3 through 6 of this manual) all require planning. The DoD Components will provide for and manage an integrated planning infrastructure.

(8) Establish and communicate DoD supply chain plans. DoD supply chain planning involves establishing and communicating support strategies over an appropriate time-defined (long-term, annual, monthly, weekly) planning horizon or interval to ensure efficient use of all available resources to meet supply chain requirements.

b. Demand and Supply Planning. In planning demand and supply, materiel managers will:

(1) Consider performance attributes of consistency, responsiveness, flexibility, cost, security, equipment reliability, and asset allocation.

(2) Address ways to mitigate risks to the DoD supply chain from manmade or natural disruptions.

(3) Establish DoD supply chains that support time-definite delivery and quality of order fulfillment, e.g., right quantity, right condition, right documentation.

(4) Establish supply chains that meet readiness-based customer support goals for weapon system items.

(5) Design supply chains with flexibility and resources to manage volatility of customer demand, the supplier cycle fluctuations, and identified risks while meeting customer needs.

(6) Protect critical program information throughout the military life cycle of the defense system, in accordance with DoDI 5200.39 (Reference (h)).

(7) Protect critical components throughout the system or network life cycle in accordance with DoDI 5200.44 (Reference (i)).

(8) Use DoD asset visibility capabilities to make maximum use of existing inventories, DLA-managed assets, or Component-owned assets at storage locations throughout DoD.

(9) Use DLA's In-Storage Visibility program for standard transactions for DoD on-hand assets to offset procurements and to fulfill open backorders for consumable materiel.

(10) Participate in the DLA In-Storage Visibility program and minimize restrictions on the use of available consumable inventories to offset other Component's orders. Exceptions include:

(a) Forward-deployed and overseas units with limited or prohibitively costly access to transportation resources.

(b) Contingency locations that cannot divert manpower to support redistribution.

(11) Develop and establish support strategies as prescribed in this enclosure and in Volume 3 of this manual.

(12) Strive toward integrated supply chains to optimize demand and supply planning.

(13) Use all applicable planning information including operating programs, customer requirements, supply chain resources, and total assets to maximize supply chain productivity.

(14) Use visibility of assets in all issuable or potentially issuable condition codes and requirements of retail supply activities to satisfy requirements across the supply chain.

(a) Retail-level activities will provide the materiel manager the asset and requirements information needed to make decisions on procurement, maintenance, and lateral redistribution as described in Volume 5 of this manual.

(b) A multi-echelon requirements computation process may use knowledge of wholesale and retail assets to compute requirements levels. Where cost effective, retail level supply activities will make their asset quantities (excluding assets in the hands of the user) visible to the requirements computation system of the managing DoD Component to support the process.

(15) The materiel manager will use visibility of assets in all condition codes transferred to the DLA Disposition Services to recall serviceable items for use instead of initiating a procurement or depot repair action for those items.

(16) The Military Departments headquarters, subordinate units, and the weapon system managers will have sufficient visibility of retail-level assets and requirements within their respective Military Departments to assess the capability to support operational and contingency plans and to support weapon system readiness.

(17) To provide for in-theater operational planning and for repositioning or redirecting of assets to support critical operations, the Combatant Commands will have:

(a) Visibility of materiel assets on hand, in transit, and on order to their area of responsibility.

(b) In-theater joint Deployment and Distribution Operations Centers to effect cross-docking of assets between units, increase asset visibility, improve movement of materiel to and within theater, and move materiel out of theater.

(18) Materiel managers will consider the context and perspective of joint theater operations for demand and supply planning as directed in Reference (g).

(19) The DoD Components will ensure that all supply chain work centers and organizations understand their impact on supply and demand balancing.

(20) The DoD Components will use the procedures for accessing and sharing information used in demand and supply planning in Volume 7 of this manual.

2. PROVISIONING

a. Provisioning Planning. Provisioning planning begins with program initiation for the planning and acquisition of initial spares to support a new or existing weapon system or major end item and continues through the system acquisition.

(1) Materiel managers and primary inventory control activities (PICA) will work with program managers to:

(a) Address logistics requirements and related supply chain costs (e.g., materiel, storage, and transportation) within the total life-cycle systems management.

(b) Ensure that item technical and logistics data relevant to end item supply support are documented and accessible to DoD and commercial materiel managers responsible for provisioning, follow-on support, and evaluation of supply chain performance. The objective of provisioning data management is timely access to all data required to identify, acquire, and assess support items.

(c) In accordance with section 2451 of Reference (e), catalog items repeatedly used, bought, stocked, or distributed. Generally, catalog new items before first units are equipped. Emphasize reduction of the variety of parts and associated documentation required by weapon systems or end items through provisioning screening.

(2) When the DoD Components are the preferred source of supply for a new major system, they will integrate provisioning requirements and activities with the system acquisition process through PBL or performance based agreements with program managers.

(3) Items not associated with the acquisition of a new major system may be provisioned. Examples include newly introduced items and items associated with the modification of a system or the introduction of a new subsystem or component. In such cases, materiel managers, together with user representatives, will set support goals according to section 4 of this enclosure, and evaluate various supply support strategies (e.g., organic and contractor) as described in Volume 3 of this manual. (Special procedures for introducing new clothing and textile items are in Volume 9 of this manual.)

b. Readiness-based Sparing (RBS). To determine the inventory investment required for the fielding of a new weapon system, the DoD Components will use RBS methods, where feasible. When use of RBS is infeasible and a demand-based methodology is used, the limitations listed in Appendix 1 of this enclosure apply.

(1) Consider end item population build-ups during provisioning for demand and supply planning. When procuring support items for DoD stocks, DoD Components will:

(a) Phase procurement of support items based on weapon system or end item program development and delivery schedules.

(b) Procure support items a procurement lead time before the fielding of an organically supported weapon system or end item.

(2) Establish quality standards to measure the effectiveness of provisioning performance, tools, and process improvement initiatives.

c. Provisioning Data Management

(1) Material managers will:

(a) Provide program managers with applicable provisioning data requirements, data requirements, and deliverables for incorporation into end item acquisition solicitation documents. (Appendix 2 of this enclosure provides additional procedures for item data requirements.)

(b) Submit data requirements such as provisioning technical documentation (PTD) and engineering data for provisioning (EDFP) according to Government Electronics and Information Technology Association Standard 0007 (Reference (j)) and Military Handbook 502 (Reference (k)).

(c) Verify that the PTD and EDFP are sufficient to support procuring additional required support items. Identify and correct data deficiencies during the provisioning review process if possible, but, if not possible, before the end item contractual obligations expire.

(2) During acquisition, materiel managers will ensure that provisioned support items are coded and reviewed for shelf-life considerations and assign a shelf-life code according to the DoD Shelf-Life Item Management Program as described in Volume 5 of this manual, the procedures of DoD 4140.27-M (Reference (l)), and the codes identified in DoD 4100.39-M (Reference (m)). Emphasize identification of shelf-life characteristics of an item and ascertain the identification and potential use of non-hazardous, non-shelf-life, longer shelf-life, or recycled items where possible.

(3) During provisioning, materiel managers will ensure that the engineering support activity performs a criticality determination for each new item. Aviation and ship items that have flight safety critical characteristics have additional requirements outlined in Volume 9 of this manual.

d. Provisioning Screening

(1) The Integrated Materiel Management Committee, in accordance with DoD 4140.26-M (Reference (n)), oversees the uniform DoD-wide guidance for improving the overall efficiency and effectiveness of procedures and program controls for consumable items subject to item management coding and non-consumable items subject to non-consumable item materiel support codes (NIMSC) within the DoD and other applicable federal agencies.

(2) The DoD Components will:

(a) Screen manufacturers' part numbers and other reference numbers during the provisioning process to prevent unnecessary or duplicate items from entering the supply system.

(b) When provisioning screening reveals that a support item or an acceptable substitute item is already established (that is, already assigned a national stock number (NSN)), fill the requirement from existing stocks or through normal replenishment procurement. This additional provisioning requirement must be coordinated with the materiel manager.

(c) Facilitate electronic access to Federal Catalog System files by contractors who are under current weapon system development or production contracts.

(d) Use the DLA Logistics Information Service for additional screening support as needed and to enter new state-of-the-art technology into the supply system by developing new cataloging nomenclature and descriptive methods.

e. Transition Support. When transition from initial contractor support to organic supply support is required, materiel managers will develop:

(1) A transition schedule based on design stability and supply support concept compatibility with maintenance concepts and other logistics support elements including logistics data.

(2) Schedules from contractor to organic supply support transition that are consistent with the system and equipment logistics support plan. Consider phased support to allow for the cost-effective transition to organic supply support.

(3) Transition of some or all of the support for weapon system from organic assets if possible, including supply support for established items, when a contractor will provide supply support.

f. Provisioning Requirements Determination

(1) Materiel managers will use tools that implement RBS methodologies for provisioning new weapon systems to determine the optimum range and quantity of items required at all stockage and user locations to meet approved weapon system readiness goals.

(2) DoD Component logistics headquarters will retain procedural control over RBS tools and processes.

(3) Appendix 1 of this enclosure addresses using a demand-based process when an RBS process does not apply or is not feasible.

g. Procuring Provisioned Support Items

(1) When selected as the preferred source of supply, procuring DoD Components will:

(a) Create interactive support management plans that enable incremental scheduling and implementation of support, based on configuration indenture and delivery of weapon systems and equipment.

(b) Develop and implement:

1. Provisioning retail procurement levels based on end item density factors and site activation schedules.

2. Provisioning wholesale procurement levels based on a time-weighted average month's program, which is the average number of end items supported each month.

(2) The procuring DoD Component may award an advance procurement, as outlined in Defense Federal Acquisition Regulation Supplement, subpart 217.172 (Reference (o)), to obtain limited quantities of long lead time support items which require early ordering to ensure timely delivery due to their complexity of design, complicated manufacturing processes, or limited production.

(3) DoD Components should release procurement orders for provisioned support items incrementally so the funds are obligated based on the procurement lead time required to ensure the support items arrive for the scheduled initial outfitting support dates. When releasing orders incrementally is uneconomical, the procuring DoD Component may use an alternative method to ensure the support items arrive for the scheduled initial outfitting support dates.

(4) DoD materiel managers, with product support managers and product support integrators selected by program managers, will acquire initial spares and replenishing spares as early in the production process as possible.

h. Provisioning Performance Measures

(1) When DoD Components are the preferred source of supply, they will develop and maintain provisioning performance measures.

(2) DoD Components will include measurement criteria in these customer-oriented and performance-oriented measurement goals in accordance with the policy in Reference (c):

- (a) Assessment of provisioning contribution to readiness or other PBL objectives in program performance agreements.
- (b) Accuracy of provisioning buys, projected use versus actual use.
- (c) Ability to meet provisioning milestones.
- (d) Accuracy of provisioning documentation.
- (e) Inventory efficiency, as measured by minimal inactive inventories.

3. ITEM CLASSIFICATION AND CODING FOR STOCKAGE REQUIREMENTS

a. The DoD Components will ensure their initial classification of items as “consumable,” “field-level reparable” or “depot-level reparable” and their source, maintenance, and recoverability (SMR) code assignments provide the most economical support throughout the life of the item.

b. Essentiality coding identifies secondary items needed to sustain weapon system readiness. Accordingly:

(1) In generating weapon system application files, the Military Departments will ensure component items receive essentiality codes and those codes are accessible to materiel managers.

(2) The DoD Components will allocate management resources for each item based on its essentiality coding.

c. Code a new item in the DoD supply system initially at wholesale and retail levels of supply as stocked (either with readiness-based, demand-based, limited-demand, or non-demand-based requirements) or non-stocked. The initial coding may change if a support alternative is selected for an item due to economics or readiness considerations as described in section 6 of this enclosure.

d. The DoD Components will:

(1) Assign the uniform SMR codes prescribed by AR 700-82/OPNAVINST 4410.2A/MCO 4400.120 (Reference (p)).

(2) Coordinate coding decisions among the users to promote maximum inter-Service maintenance and supply support for end items used by multiple Military Departments.

(3) Review SMR code assignments for reparable items when repair costs are greater than 65 percent of their replacement prices and for consumable items with a high annual demand value or significant field repair experience.

e. The Military Departments will ensure the weapon system group codes and item essentiality codes listed in paragraphs 3f(1) through 3f(2) of this enclosure are assigned and maintained. The Military Departments will reconcile the weapon system group codes annually and provide updates to the DLA weapon system support program manager. They may tailor essentiality coding to meet operational needs as required.

f. For inter-DoD Component exchange of weapon system or item essentiality data, the DoD Components will use the coding scheme in paragraphs 3f(1) through 3f(2):

(1) Weapon system group codes indicate how essential each weapon system or end item is to the mission of the Military Service. The Military Departments will specify the essentiality of their weapon systems and end items using these codes:

(a) Code A. Highest Priority Mission-Essential. Only a limited number of weapon systems are designated Code A.

(b) Code B. Lower Priority Mission-Essential.

(c) Code C. Not Mission-Essential.

(2) Item essentiality codes indicate the degree to which failure of a secondary item that is part of an end item affects the ability of the end item to perform its intended operation. The five levels of item essentiality are:

(a) Code 1. Failure of the item renders the end item inoperable.

(b) Code 3. Failure of the item does not render the end item inoperable.

(c) Code 5. Item does not qualify for the assignment of Code 1, but is needed for personal safety.

(d) Code 6. Item does not qualify for the assignment of Code 1, but is needed for legal, climatic, or other requirements peculiar to the planned operational environment of the end item.

(e) Code 7. Item does not qualify for the assignment of Code 1, but is needed to prevent the impairment or temporary reduction of operational effectiveness of the end item.

g. The using DoD Component will include the current essentiality code on supply support requests to other DoD Components.

h. If weapon system application files, described in Volume 8 of this manual, indicate that a secondary item has multiple applications, DoD Components will normally assign it the highest applicable essentiality code. A secondary item may have a different essentiality code for each of its end item applications.

i. The DoD Components will validate the assignment of essentiality codes annually to ensure they reflect the current status of the items.

j. To ensure the DoD materiel managers have accurate item application data, the using DoD Component will:

(1) Provide equipment application data to DoD materiel managers and the DLA Weapon System Support Program within 90 days of criteria change or when items or weapon systems become obsolete.

(2) Research, correct, and resubmit the application data within 90 calendar days of the date of rejection, when a change to the equipment application data results in a computer-generated rejection notice.

(3) Annually reconcile the Service weapon system application information and the DLA Weapon System Support Program database, to include reconciliation of Weapon System Group Codes.

(4) Use standard electronic reporting methods prescribed by Defense Logistics Manual (DLM) 4000.25, Volume 2 (Reference (q)) in the Weapon Item Data Transaction process.

4. SUPPORT GOALS FOR SECONDARY ITEMS

a. DoD Components will:

(1) Establish support goals for all DoD secondary items to ensure the supply system uses available resources to meet RBS weapon system targets, weapon system and equipment performance objectives, and unit readiness objectives at the least cost. Establishing these goals is required regardless of the source or method of support (e.g., organic, inter-governmental, private contractor, and partnership).

(2) Base support goals on the performance agreements negotiated with customers or, where no agreement exists, on the enterprise metrics the DoD Components have adopted for support.

(3) Establish support goals to provide logistics managers with weapons system and unit readiness capability-based quantitative targets to meet in supply planning and asset allocation, to achieve goals while minimizing costs.

(4) Use support goals to assess the performance of the DoD supply chain and to evaluate the effectiveness and benefits of process improvements.

(5) Consistently measure and provide oversight across the DoD when implementing support goal calculation rules.

(6) Set target support goals that reflect both peacetime and wartime needs. Synchronize support goals with the programming and budgeting process to ensure consistency with management decisions about priorities and the resources committed to those priorities.

(7) To permit cost tradeoffs, quantify support goals that apply to item populations (i.e., organizational, commodity, equipment, or weapon system). The DoD Components may have individual item goals when they are required to meet specific customer requirements or when they are generated by a process that considers cost tradeoffs in meeting a population readiness or other established support goal.

(8) Emphasize timely receipt of items ordered by customers of the supply system to achieve responsive, consistent, and reliable support and contribute to the overall confidence of customers in the DoD supply system. All organizations in the supply chain should emphasize the importance of time in support goals for their respective logistics functions.

b. In setting support goals that encompass the total responsiveness of the supply system, the DoD Components will consider both the performance they can expect from having the right materiel in inventory and the time to deliver materiel in response to a customer order.

c. DoD materiel management activities (e.g., organic or commercial inventory control points (ICPs) and retail supply activities) that manage secondary items will establish and use applicable inventory performance goals as an integral part of the process to compute stockage requirements and asset allocation.

d. For items essential to weapon system performance, inventory performance goals will support the readiness goal of the weapon system throughout its life cycle, e.g., operational availability, mission capable rates. DoD Components will:

(1) Set weapon system readiness goals with weapon system managers or operational commands.

(2) Set inventory performance goals to:

(a) Meet readiness goals of a weapon system throughout its life cycle.

(b) Balance with stock positioning goals to minimize total costs.

(c) Synchronize with inventory planning, distribution, integrity, and security requirements.

e. For items not essential to weapon systems or non-weapon system items, DoD Components will base the inventory performance goals on the time to fill a customer's order and whether that order is a requisition to an ICP or a demand request to a retail supply activity. Those time goals may be established by organizational, commodity, equipment, or weapon system groupings for application to individual item requirements computations.

f. Program managers or materiel managers will negotiate goals with the commercial sources for secondary items being supported through contractual arrangements providing direct materiel support from commercial sources to DoD operational or using activities. This includes contracted support goals that the commercial sources can use to size their supporting inventories. Overall inventory performance goals will be considered when negotiating contract performance requirements.

g. For timely delivery and process improvement in responding to requisitions to the ICPs, the DoD Components will use negotiated time-definite delivery standards or, where no standards exist, the general delivery standards described in Volume 8 of this manual.

h. The DoD Components will provide an automated capability to store and retrieve support goals and related item data that permits historical performance analysis at an enterprise, group, or item level. Include data for items supported from both organic and commercial sources. Maintain this capability throughout the life cycle of the supported end item or for as long as the DoD Component deems necessary.

5. FORECASTING CUSTOMER DEMAND

a. DoD Components will use quantitative models to forecast future demand except when one of these conditions apply:

(1) The demand is based solely on the potential of a catastrophic event.

(2) Demand for the item is limited, that is, the historical demands or future engineering estimates are too few to support any quantitative model.

(3) Demand for the item is not limited but it is intermittent and has high variation to the extent that a model would not produce viable forecasts

b. Since no universal model exists for forecasting demand for all items, DoD Components will:

(1) Determine how to use forecasting models by:

(a) Using demand intermittency and variation to identify items as forecastable or non-forecastable.

(b) Using cost and performance trade-offs and ease of implementation to select the best models for forecastable items. Cost is evaluated in terms of value of inventory while the evaluation of performance is based on business outcomes, such as number of backorders, average response time, numbers and value of procurements, and numbers and value of repair actions for reparable items.

(2) Identify and exclude or adjust atypical data that might unduly influence the forecast, when using models that rely on historical data.

(3) As delineated in Appendix 2 of this enclosure, use engineering estimates to forecast future demand at the beginning of the demand development period when needed. After the demand development period, DoD Components will use actual demand data, augmented with program data, to forecast future demand. However, use engineering estimates if one of these conditions apply:

(a) An item has insufficient representative operating time to adjust the forecast with a valid statistical technique.

(b) An engineering problem or forthcoming design change means past demands are not indicative of future demands.

c. To improve the accuracy of demand forecasts, materiel managers and supply providers will collaborate with their customers to establish a future demand. Forecasts can be supported with demand forecasting models, special one-time events, or factors that will systematically change demand.

d. The DoD Components will extend collaborative forecasting to commercial suppliers to improve the performance and reduce the cost of the support those suppliers provide.

e. Materiel managers will flag variances in demand forecasts which are outside established parameters for management analysis and action.

f. To forecast the demand expected to be placed on the supply system within a specified time, DoD Components may use models that consider only historical demand, models that combine future program data with historical demand or failure data, and past and future program data to generate forecasts. DoD Components will:

(1) Retain sufficient historical demand or failure data and program data to continue application of a model and to allow transition to another model.

(2) Maintain records of historical failure data with maintenance replacement data or supply requisition data. Record demand data, including reparable generations and maintenance replacements, in a timely manner on the records of the intermediate level supply point.

(3) Maintain records of past and future program data exchanged as part of collaborative forecasting with actual quantitative measures of operation, such as the actual and planned number of hours flown or operated, component reliability experience, expected operating environment, the weapon system or end item density, or the number of overhauls or scheduled depot maintenance actions accomplished or planned. Use estimates where actual data are not available. Follow procedures in Volume 8 of this manual for storing and accessing weapon system data.

(4) Where feasible, capture actual customer demands and usage at point of sale and, along with collaborative forecasting, use the demand and usage to update future demand forecasts for each echelon of supply.

g. Except for atypical occurrences and selected foreign military sales (FMS), DoD Components will use all demand to build forecasts to compute item requirements levels. The materiel manager will use data filtering to identify and exclude atypical data. Exclude FMS that are not under cooperative logistics supply support arrangements (CLSSA). Include demand that customers identify as non-recurring to the extent that the materiel manager is able to demonstrate that a particular quantity of non-recurring demands will improve its forecasts.

h. Each DoD Component will provide within its management information systems the capability to rapidly revise demand forecasts affected by introducing or phasing-out of weapon systems or equipment, as well as erroneous, incomplete, or inapplicable data.

i. For collaborative forecasting between materiel managers and their customers, the using DoD Components may use tools such as special program requirements (SPRs) or a materiel manager demand data exchange (DDE) program. SPRs allow customers to communicate special future requirements directly to materiel managers. For an applicable materiel manager and customer location, a DDE program allows the customer to provide the materiel manager with demand quantities for future months for customer-selected items in lieu of SPRs.

(1) The using DoD Components may submit SPRs to the materiel manager to forecast special program or project requirements that are non-repetitive and may not be forecasted based on historical demand data. SPRs will not be used for subsistence, war reserve, provisioning, and other requirements based on recurring demand. A using DoD Component can submit item future demand quantities as either an SPR or as input to a DDE program but not both.

(2) The using DoD Components will establish internal controls and maintain supporting documentation to ensure the appropriateness and accuracy of SPR and DDE submissions, correlate requisitions with related SPRs and DDEs, and ensure timely and accurate reporting of significant changes.

(3) The DoD Components receiving SPRs and DDEs will establish internal controls to ensure investment in inventory to support SPRs and DDEs does not lead to excessive growth.

(4) DoD Components will follow the standard processing and accounting methods prescribed by Reference (q) and DLM 4000.25-2 (Reference (r)) used in the SPR process. Use standard processing methods prescribed by Reference (r) in the DDE.

6. MATERIEL STOCKAGE COMPUTATIONS. To minimize total supply chain costs, the Military Departments and DLA will use the methodologies in this section as well as the methodology prescribed in section 7 of this enclosure for war reserve materiel.

a. Computational Methodologies

(1) The DoD Components will categorize stockage requirements and associated levels of inventory as either wholesale or retail.

(a) Manage retail assets regardless of ownership under the retail inventory policies delineated in this section.

(b) Manage wholesale assets regardless of where positioned under wholesale inventory policies delineated in this section.

(2) To compute wholesale and retail stockage requirements for secondary items, the DoD Components will use readiness-based, demand-based, and non-demand-based methodologies. (See Volume 11 of this manual for guidance on the requirements computations of ammunition items). The selection of the specific methodology used to compute stockage requirements for a secondary item is based on the type of item (reparable or consumable), the supply performance goal (weapon system readiness or time to fill a demand), and the demand forecastability for the item.

(3) The DoD Components will use the methodologies and sparing models prescribed in section 6 of this enclosure to compute sustainment requirements for stocking and replenishing secondary items. Use methodologies and models compatible with those developed to achieve optimum stockage during provisioning. They should share comparable target objective functions, data elements, and computational techniques.

(4) For weapon system items, materiel managers will use RBS modeling, when possible, to:

(a) Optimize their inventory to achieve weapon system performance objectives.

(b) Optimize support across both the wholesale and retail supply echelons.

(c) Account for the indenture level of items being spared, the essentiality of items to the operational design of the weapon system, and the levels of maintenance for the items and their higher assemblies.

(5) When RBS modeling is not possible for weapon system items and DoD Components must use demand-based models, materiel managers and weapon system managers must establish time goals for those models through a collaborative process that links those time goals to the readiness goals of the particular weapon system.

(6) DoD Components will project stockage quantities to satisfy national and international CLSSA item requirements.

(7) For secondary items that have support goals related to weapon system readiness, the DoD Components will compute requirements with RBS models that relate range and depth of

stock to their effect on the operational availability of the weapon system. Use models that optimize support to achieve weapon system readiness goals for the least cost or maximize weapon system readiness for a specified level of funding.

(8) For secondary items that have time goals, the DoD Components will:

(a) Compute requirements using sparing models that relate range and depth of stock to a target time.

(b) Include both the time to fill immediate issues and the time to fill back orders, minimizing the expected customer response time.

(c) Use models that optimize stockage to achieve the target time at the least cost or minimize the expected fill time within a specified budget.

(9) For depot-level repairable items, DoD Components will apply these additional procedures:

(a) Compute the total requirements for each repairable item assigned so that an item may be:

1. Supplied to authorized using activities at the organizational level (e.g., post, base, field, or ship) if failure of a repairable component prevents an end item or weapon system from achieving its mission.

2. Provided to replace a repairable item that has been determined to be beyond economical repair during the depot-repair process as described in Chapter 2 of Volume 11A of DoD 7000.14-R (Reference (s)), or that may not be repaired within the same length of time as its next higher assembly.

(b) Project item requirements and assets with enough lead time to place the order and receive the item before the actual need. Project serviceable and unserviceable asset quantities for repairable items by month or quarter which will allow the projection of repair requirements and procurement requirements in the same computation. Consider serviceable returns in requirements computations from both the asset and requirements perspectives described in Volume 6 of this manual.

(c) Use asset visibility capabilities to make serviceable assets and those that need repair at all supply levels (organic or commercial) visible and available to the materiel manager (supply system) to satisfy requirements at both the wholesale and retail levels. Ensure assets are visible and use them to offset requirements (consumer, intermediate, retail, or wholesale).

(d) Establish intermediate-level supply management system procedures (except afloat) to facilitate total system asset management of depot-level repairable items. Report to the applicable materiel manager a daily summary of the supply transactions that affect the demand base or stock status of materiel. Use actual consumer demands to make requirements

computations, procurement decisions, and stock positioning decisions for items with daily summary transaction reporting.

1. This requirement applies to DoD Component-owned inventory at contractor-operated intermediate-level activities as well as inventory within the DoD Component supply management systems.
2. Maintain item accounting (as opposed to dollar value inventory accounting) at the intermediate level for all items the materiel manager has determined require daily summary transaction reporting. The DoD Components may assign that requirement to selected consumer-level inventories.
3. For reparable assets held at the intermediate level, items may be placed in rotatable pools or positioned near expected consumers.

b. Readiness-Based Sparing Computations

(1) DoD Components will manage weapon-essential items on the basis of multi-echelon RBS models in the authorized stockage objective quantities that the models determine. Where multi-echelon RBS models are not yet available, base wholesale stockage of weapon-essential items either on demand-based requirements with readiness-oriented time goals (e.g., goals that support weapon system availability targets) or on limited-demand or non-demand-based requirements.

(2) DoD Components will manage weapon-essential items on the basis of single-echelon or multi-echelon RBS models in the authorized stockage objective quantities that the models determine. Where RBS models are not available, base retail stockage of weapon-essential items on demand-based requirements that have their support goals driven by weapon system readiness or on non-demand-based requirements.

(3) To support RBS computations, each Military Service will establish a secondary item application or configuration file for each of its weapon systems. Show the indenture structure and essentiality of all reparable and consumable items that are part of the weapon system, whether peculiar to that system or common to other systems.

(4) Each Military Service will use the RBS tools to compute requirements levels for replenishing stock for different echelons of supply and different locations within echelons to minimize total costs, not just inventory costs.

(5) Each Military Service will use computations in an RBS tool to maximize weapon system performance required to support unit mission effectiveness for a given level of investment or minimize investment for a target level of weapon system performance. Guidance on RBS computations is contained in Appendix 1 of this enclosure.

c. Wholesale Demand-Based Sparing Computations

(1) Wholesale demand-based sparing computations provide for cost-effective levels of on-hand and on-order inventory by balancing material, ordering, and holding costs against supply performance goals established with customers. DoD Components will apply these inventory requirements levels or their commercial software equivalents:

(a) Requirements Objective. The requirements objective for a demand-based item establishes the target quantity for replenishing the item's level of stock through procurement.

(b) Economic Order Quantity (EOQ). Using EOQ methods to set target order quantities minimizes the total cost of ordering and holding inventories. When EOQ methods are used, try to purchase materiel under indefinite delivery and indefinite quantity contracts to reduce the order quantity and delivery times. Where enterprise resource planning systems are employed, the systems can use a rules based approach vice a model for determining economic order quantity.

(c) Reorder Point (ROP). The ROP identifies when an order should be placed to replenish stock for an item. It should consider the item's acquisition lead time, quantity, safety level by location, repair cycle level, if applicable, and any non-demand-based levels. Demand-based items may be procured when the assets on hand and on order are equal to or less than the ROP.

(d) Procurement Lead Time Quantity. A procurement lead time quantity satisfies demand throughout the procurement lead time.

1. Procurement lead time is a forecast of the likely future interval between identifying a requirement and receiving the materiel. It consists of two consecutive time periods: administrative lead time (ALT) and production lead time (PLT).

2. The DoD Components will aggressively pursue the lowest possible acquisition lead times.

(e) Levels for Repairable Items. Repair will be the preferred source of supply for repairable items. The following requirements computations support the repair process:

1. Repair Cycle Level (RCL). Set an RCL equal to the minimum number of serviceable assets needed to support demand while unserviceable assets are undergoing depot-level maintenance.

2. Repair Point. Set a repair point to determine when unserviceable assets should be inducted into depot-level maintenance. At a minimum, the repair point should encompass the RCL.

3. Economic Repair Quantity. Use economic repair quantity in production planning to determine total quantities of unserviceable assets to induct into depot-level

maintenance, unless another quantity is specifically justified on a line item basis. To the extent possible, base economic repair quantities on inventory requirements, not maintenance workload requirements.

(f) Safety Level. Due to fluctuations in demand over lead times, repair cycle times, attrition rates, and in other variables, quantities may be stocked as a buffer against backorders. Decrease safety level quantities as fluctuations decrease.

(g) Non-Forecastable Items. Non-forecastable items typically demonstrate limited demand, highly variable demand quantities or highly intermittent demand frequency. For these items, DoD Components will employ materiel management strategies that consider thresholds associated with demand frequency, demand variability, and cost to determine forecastability. DoD Components will set inventory levels for items identified as non-forecastable, using business rules that consider:

1. For items with sufficient demand history, establish a minimum and maximum stockage level, based on trade-offs between inventory investment and performance levels. The minimum and maximum levels are derived from the range of an item's observed demands, time between demands, and unit cost. The levels will also consider current on hand and due-in inventory along with the volume of purchase requests generated. The minimum level is the ROP for the item and the maximum level is the requirements objective for the item.

2. For items with insufficient demand history, formulate ROPs and reorder quantities that consider:

a. Associated weapon system density and item applicability across multiple weapon systems.

b. Stage of weapon system and item life cycle, to more effectively inform reorder quantities for new items and to attrite on-hand balances for items at the end of the life cycle.

c. Projected changes in operational demand or maintenance patterns.

d. Operational costs such as ordering, holding, and obsolescence costs.

3. For all non-forecastable items, the total inventory value of outcomes should reflect order quantities and on-hand inventory levels which do not exceed the total inventory value if traditional forecasting techniques had been used.

(h) Materiel managers may forego the use of minimum and maximum stockage level business rules in paragraph 6c(1)(g) of this enclosure and apply requirements levels based on other factors when appropriate, such as criticality of the item or weapon system and customer collaborative input.

(2) DoD Components will compute requirements levels as well as a “what-if” capability to evaluate changes in demand, changes in technical repair requirements, lead times, cycle times, and other factors and a capability to rapidly re-compute levels as changes occur. The computations that apply include:

(a) Requirements Objective Computation. The requirements objective for items with demand-based requirements is the sum of the EOQ and ROP.

(b) EOQ Computations. Compute target order quantities using either the standard Wilson EOQ, a variation of the Wilson EOQ (e.g., recognizing back orders or quantity discounts), or an EOQ-like method consistent with time-phased demand planning (e.g., Silver-Meal algorithm or Wagner Whitin algorithm).

1. Annually validate and update the cost-to-order and cost-to-hold inventory, which are used to set order quantities. Update immediately when a significant change occurs. The DoD Components should use the cost-to-order and cost-to-hold as defined in the Glossary, but may make adjustments to consider procurement resource constraints, storage constraints, budget constraints, or other real world constraints that would make a purely economical order quantity impractical.

2. Limit EOQs to a maximum of 24 months and a minimum of the ALT demand or 1 month of demand whichever is less. The EOQ minimum may be reduced if a lesser quantity may be ordered economically. The EOQ maximum may be overridden if the head of the procuring activity certifies in writing that the acquisition is necessary for any of these reasons:

a. To achieve an EOQ that is not forecasted to result in an on-hand inventory in excess of 3 years of operating stocks and the need for the item is unlikely to decline during the period for which the acquisition is made.

b. To maintain the industrial base or for other reasons of national security.

c. To satisfy a minimum purchase quantity imposed by the vendor.

3. Adjust EOQ quantities for items associated with an end item that is being phased out or with declining demand accordingly.

4. Use only the demand to be satisfied through procurement to compute EOQs for repairable items. That excludes demand to be satisfied through repair.

5. Adjust target order quantities to account for known minimum vendor production or procurement quantities.

6. If rounding order quantities to periods in time-phased demand planning, minimize the cost-to-order and cost-to-hold inventory.

(c) ROP Computation. An item's ROP is the sum of its acquisition lead time quantity; variable safety level; and repair-cycle quantity, if applicable. Non-demand-based requirements, e.g., war reserve or planned program requirements are additive.

(d) Procurement Lead Time Quantity. DoD Components will use the procurement lead time quantity equal to the expected demand over an acquisition lead time, where procurement lead time is the sum of ALT and PLT.

1. For reparable items, DoD Components will base the expected demand in the lead time quantity computation on attrition or condemnation rates and rates for new future demand and exclude demand satisfied by repairs. Determine activities authorized to condemn reparable items in accordance with Reference (o). Materiel managers will project the quantity of assets that are expected to be condemned over the applicable forecast period.

2. DoD Components will measure ALT:

a. Beginning when an item's wholesale asset level is reduced to the ROP and a purchase request is initiated to ensure the new stock arrives as the assets on hand reach the safety level.

b. Ending on the date the contract is signed.

c. Including the time periods required for identifying the requirement to buy; reviewing, approving, and documenting the purchase request; reviewing technical data and documentation; and processing and executing the contract.

3. DoD Components will measure PLT:

a. Beginning on the date the contract is signed.

b. Ending when the material is received. When all materiel is delivered at the same time, the receipt confirmation date is the end of PLT. When the contract provides for incremental deliveries, the date of confirmation of the first significant delivery (about 10 percent of the contract requirement) is the end of PLT. When incremental deliveries are not part of the contract, the confirmation date is when all materiel is received; however, the resulting PLT may be treated as non-representative.

c. Based on estimates from contractors when appropriate; historical information for representative procurements, provisioning technical documentation, or estimates based on the best judgment of acquisition personnel.

4. The DoD Components will maintain a historical file of ALTs and PLTs for all secondary item procurements. Exclude historical observations that are non-representative of future performance. Exclusion may be based on the materiel manager's knowledge, experience, and judgment or may result from an automated decision process.

5. Provide methods for calculating realistic minimum and maximum ALT and PLT requirements to ensure inventory management personnel can identify unusually long or short lead times. The materiel manager will decide how to use the data derived through such methods.

6. Employ innovative methods of pursuing minimum acquisition lead times. Emphasize the adoption, where applicable, of lead-time reduction methods which have proven successful in either the private or U.S. Government sector. Such methods include multi-year contracting, “just-in-time” procedures, indefinite quantity requirements contracts, phased deliveries, and gradual reduction of vendor required delivery dates.

(e) RCL. DoD Components will measure the RCL for repairable items equal to the expected demand over a repair-cycle time.

1. Depot-level repair cycles begin when a maintenance activity determines that an unserviceable item can be repaired and end when the unserviceable item is restored to serviceable condition and is recorded as such on supply records. Include all time between the beginning and end of the repair cycle in computing repair-cycle requirements, except avoidable time, such as time expended due to the lack of a repair requirement or inefficiency. Beginning and ending points of each segment of the total repair cycle are described in Appendix 4 of this enclosure. Do not include increases to the repair cycle time due to awaiting parts in computing repair cycle.

2. Base the repair-cycle times used to compute requirements on approved item standards for the maintenance turn-around segment (e.g., an industrial engineering standard) and the Military Service-specified standards for the other segments. For items repaired under contract, the negotiated contract delivery requirements may be used. Compare actual repair-cycle times against the standards. Focus management on either improving the repair-cycle process or correcting the standards when actual repair times significantly deviate from the standards.

(f) Safety Level (SL) Computation. DoD Components will measure the wholesale SL computational objective to find the level of safety stock that minimizes the total variable cost of achieving a specified time goal or minimize fill time, subject to a budget constraint and delivering materiel from locations determined to minimize total supply chain costs. Variable costs consist of the cost-to-order, the cost-to-hold, and an implied shortage cost of not achieving a specified time goal.

1. To dampen overstatement of SL requirements due to imprecise SL models and avoid unnecessary procurement or repair actions, constrain an item’s SL to a maximum of three standard deviations of lead-time demand or the lead-time demand, whichever is less. For weapon system items, the lead-time demand maximum may be waived in cases where creditable evidence exists that its application significantly impairs weapon system support.

2. To limit long fill times for customers, the DoD Components may constrain an item's SL computation limiting the expected fill time in the computation to less than or equal to a given maximum time.

d. Retail Sparing Computations

(1) DoD Components will use retail demand-based or RBS computations to minimize the quantity of materiel placed on order and in storage in the DoD supply chain by balancing costs against supply performance goals established with customers. The requirements levels that apply are:

(a) Requisitioning Objective. DoD Components will use the requisitioning objective for a demand-based item to establish the target quantity for replenishing the item's level of stock by requisitioning or procuring it locally.

(b) Operating Level (OL). DoD Components will use the OL as a retail EOQ and, as such, a function of the cost-to-order and cost-to-hold retail inventory. When the order is a requisition placed on the wholesale inventory, the cost-to-order is the cost of requisitioning materiel. When the retail level is replenished by materiel from the wholesale level according to a time-phased demand plan, the target push quantity is the OL and a function of the cost-to-push and cost-to-hold retail inventory.

(c) Retail ROP. DoD Components will identify the ROP when an order should be placed to replenish the stock for an item. Demand-based items may be requisitioned or locally procured when the assets on hand and on order are equal to or less than the ROP.

(d) Order and Shipping Time Level (OSTL). DoD Components will calculate the OSTL as the anticipated number of maintenance replacements that require supply from external sources and the item's order and shipping time.

(e) Local RCL for Repairable Items. DoD Components will calculate the RCL as a function of the anticipated number of maintenance replacements that will be repaired locally and the item's local repair-cycle time.

(f) Retail SL. To determine the degree of risk of being out of stock, the SL considers the probabilities that:

1. The repair-cycle time will be exceeded.
2. The order and shipping time will be exceeded.
3. The maintenance replacement rate will exceed the forecasted SL.
4. A number of maintenance replacements, anticipated for repair at the activity, will require resupply from external sources.

(2) When possible, materiel managers will use an automated capability to compute requirements and a “what-if” capability to evaluate changes in demand, order and shipping times, cycle times, and other factors and a capability to rapidly re-compute levels as changes occur. The following computations apply:

(a) Requisitioning Objective Computation. Materiel managers will calculate the requisitioning objective for a demand-based item as the sum of its OL and retail ROP. Take a replenishment action establishing a requisition or local procurement when the asset position reaches the ROP. Establish the replenishment quantity equal to the requisitioning objective, minus the asset position.

(b) OL Computations. Use the standard Wilson EOQ formula or variations of it to compute the OL when future demand is assumed constant. When future demand varies according to a planned schedule of time-phased requirements, such as demand supporting a depot maintenance program, materiel managers may use a dynamic variation of the EOQ model to compute target order quantities. In addition:

1. In computing an OL for a repairable item, use the demand rate for resupply from external sources, rather than the total demand (maintenance replacements).

2. Limit an OL to a maximum of 12 months. Adjust an OL for items associated with an end item that is being phased out or with declining demand.

(c) Consumable-Item ROP Computation. Materiel managers will calculate the ROP for a demand-based consumable item as the sum of the item’s order and shipping time level, safety level, and any applicable non-demand-based levels.

(d) Repairable-Item ROP Computation. Determine ROPs for repairable items as a function of maintenance replacements and tailor to individual item characteristics based on conditions existing at the individual retail-level supply points, considering factors such as:

1. Forecasted rate of maintenance replacement.

2. The percent of total maintenance replacements locally repaired.

3. The applicable standard for field repair-cycle time.

4. The percent of total maintenance replacements not locally repaired.

5. The order and shipping time.

6. The cost to order materiel and the cost to hold inventory.

(e) Retail SL Computation. Materiel managers will calculate the retail SL computation to protect against being out of stock. Find the level that minimizes the total variable cost of achieving a specified performance goal or maximizes performance, subject to a budget

constraint. Calculate variable costs as the cost-to-order, the cost-to-hold, and an implied shortage cost of not achieving a specified performance goal.

e. Non-Demand-Based Requirements

(1) Numeric Stockage of Essential Items with Limited-Demand Stockage. Materiel managers:

(a) Must constrain stockage and replenishment quantity if an essential item:

1. Has insufficient demand to use a demand forecasting model to determine stockage.
2. Is not a candidate for direct vendor delivery contract.

(b) Apply these guidelines at the retail level:

1. Stockage of limited-demand items is authorized primarily during the initial period of operation of a unit, an activity, or a piece of equipment while demand data for the inventory are being accumulated.

2. In some operational environments, a continuing need may exist to stock some items that do not and are not expected to qualify as demand-based items.

(2) Insurance Stockage. Materiel managers may stock essential items with no failure or demand forecast as non-demand-based insurance items at the wholesale level.

(3) Planned Program Stocks. Materiel managers are authorized to use non-demand-based stockage to satisfy non-recurring requirements evolving from one-time programs.

(4) Life-of-Type (LOT) Items. When production sources of items are no longer available, materiel managers will classify the items as LOT and the total issues anticipated during the life of the end item are forecast and procured at the wholesale level. Explore alternatives for diminishing manufacturing sources addressed in Volume 3 of this manual before a LOT buy. When LOT buys are necessary, procure the items as close as possible to one acquisition lead time away.

(5) Numeric Stockage Objectives for Limited-Demand Items with Insufficient Historical Demand for Demand-Based Stockage. Materiel managers will:

(a) At the wholesale level, stock limited-demand items in quantities no more than two minimum replacement units, except when documented analysis supports a quantity that is more cost effective or is required to meet an explicit customer requirement.

(b) At the retail level, keep stockage to a minimum, consistent with the operational environment and the relative essentiality of the item.

(6) Insurance Stockage. Materiel managers may stock one minimum replacement unit of an item that is procured and stocked for insurance purposes. Replenish insurance items when issued.

(7) Planned Program Stocks. Materiel managers will calculate the authorized stockage as the sum of the approved programmed requirements only. No safety-level or lead-time quantities are authorized. Planned program requirements are supplemental to any demand-based requirements objective for an item.

(8) Non-Demand Based. For limited-demand and all established non-demand-based stockage items at the retail level, these procedures apply:

(a) Except for items being provisioned, the initiator and the DoD Component approval authority will annually validate the continued need for range and depth of stock.

1. The using DoD Component will validate the limited-demand and non-demand-supported stockage levels for provisioning items when concluding the demand development period.

2. If required, the using DoD Component may establish a more frequent review and validation.

3. Materiel managers will promptly delete the authorization for requirements that are not validated, and report and dispose of assets on hand according to the materiel retention and transfer procedures in Enclosure 3 of Volume 6 of this manual.

(b) The DoD Components will establish a requisitioning objective and an ROP when demand is sufficient to warrant stockage. To defer or avoid reinvestment costs, the DoD Components will develop ROP computations that, when accounting for investment cost and risks of being out of stock, may result in a fractional portion of the requisitioning objective ROP instead of an across-the-board policy of the requisitioning objective, less one.

f. Non-Stocked Items

(1) No stockage level is authorized.

(2) Materiel managers initiate the procurement upon receipt of a valid requisition at the wholesale level or a demand signal. At the retail level, materiel managers initiate the requisition quantity upon receipt of a valid demand and normally limit it to the customer demand quantity. Exceptions are allowed on an individual item basis, but must be held to a minimum.

7. SECONDARY ITEM WAR RESERVE REQUIREMENTS

a. Pursuant to Reference (d), the DoD Components will:

(1) Size, manage, and position war reserve materiel to maximize flexibility to respond to a spectrum of regional contingencies, while minimizing the DoD investment in inventories.

(2) Use peacetime operating stocks, training stocks, materiel available through industrial preparedness planning, host-nation support agreements, bilateral military agreements, and commercial sources to:

(a) Offset their investment in inventory to meet war reserve requirements.

(b) Reduce the risk of funding shortfalls.

(c) Ensure the warfighter receives the latest in materiel technology.

(3) Only war reserve stocks for items that cannot be procured and made ready for deployment within required timeframes will be held in wholesale war reserve stocks.

b. Policies related to the computation of war reserve materiel requirements are in Reference (f).

c. As part of their biennial program objective memorandum (POM) and annual budget estimate submissions, the DoD Components will provide information on the methodology used to implement the requirements outlined in paragraph 7a of this enclosure and assign war reserve funding priorities.

d. The DoD Components will use an automated capability to:

(1) Identify, compute, and source war materiel requirements.

(2) Build tailored supply support packages for rapid delivery to deploying or deployed forces.

e. For specific commodities where a DoD Component has been formally designated as the lead agent and assigned responsibility for war reserves, other using DoD Components will compute requirements and report them to the lead agent. The lead agent will combine those requirements into a consolidated requirement for programming and budgeting. Report shortfalls to the submitting DoD Component(s).

Appendixes

1. RBS Computations
2. Provisioning Data and Organic Requirements Procedures
3. Retail Reason for Stockage Category (RSC) Codes
4. Repair-Cycle Time

APPENDIX 1 TO ENCLOSURE 3

RBS COMPUTATIONS

1. APPLICATION

a. Use RBS optimization logic to compute the total requirements for the items essential to a weapon system.

(1) Set RBS levels by item or by group of items with similar characteristics. The computation of RBS levels for an item common to more than one weapon system should consider the total demand for that item and the contribution of the levels to the readiness goals of all respective weapon systems.

(2) The RBS model will be capable of computing optimal item stock levels in a dynamic environment. Where possible, compute item requirements to account for conditions when variables such as rapidly changing sortie rates, operating programs, maintenance capabilities, item usage rates, or transportation resources impact the operating unit's materiel requirements and readiness.

(3) An item's minimum stock level may be equal to its pipeline quantity. When funds are insufficient to get the desired support objectives, the model must be capable of overriding the minimum constraint to attain the optimum mix of stock to maximize weapon system availability for the funds actually available.

(4) The RBS model must produce a list of item requirements to be satisfied initially by the application of serviceable assets, unserviceable repairable assets, and applicable due-in assets. The repair requirement is that portion of the total requirement that is satisfied by repair of unserviceable repairable assets. The replenishment requirement is the deficit remaining after the supply of available assets is exhausted.

b. Where data availability and model capabilities permit, use RBS models to compute combined requirements for a range of weapon systems to minimize the total inventories supporting those weapon systems at individual locations. Use RBS models with the capability to compute those requirements to availability goals that differ by weapon system so that the goals of weapons systems with higher priority missions may be targeted at levels higher than those with lower priority missions.

2. CAPABILITIES

a. Where data availability and model capabilities permit, use RBS models to directly compute both the range and depth for all echelons of supply. Use the multi-echelon capability to:

(1) Account for the hierarchical structure of supply or maintenance activities from the customer or consumer level, through the intermediate level, to the depot or wholesale level.

(2) Trade off the wholesale level of supply with the retail level by modeling the impact of the requisition response time on the retail response time to customer demand.

(3) Account for the transportation and materiel handling cost effects of differences in wholesale stock locations and positioning by echelon.

(4) Cover demand-related pipeline and safety-level requirements and, to avoid unnecessary procurement or repair actions, apply the same constraints as demand-based wholesale safety levels to the safety-level portion of an item's wholesale stock level.

b. Where data availability and model capabilities permit, use RBS models with a multi-indenture capability that:

(1) To the extent practical links each item to its next higher assembly in the weapon system application by modeling the impact of a lower-level assembly (an item whose next higher assembly is another item or subassembly) on the availability of its next higher level assembly or assemblies.

(2) Uses an item indenture structure to tradeoff between items at the first level of indenture (i.e., items whose next higher assembly is the weapon system) and items at lower levels of indenture needed to repair those items. In that way, the impact of each item on each level of indenture, and ultimately on the weapon system itself, is portrayed; and the requirement for the highest level assembly will not be based on assuming 100 percent of its lower level assemblies are available. Models for non-demand-based items may be excluded from the indenture structure requirement.

(3) Interfaces with the field-level reparable or consumable item computation so that a link may be established to consider the impact of the availability of those items on their next higher assemblies and ultimately on the availability of the weapon system, and its procurement or repair requirements may be computed using that link.

3. SPECIAL CONSIDERATIONS

a. Where data availability and model capabilities do not directly compute range and depth for all echelons, a single echelon RBS model that uses expected wholesale resupply times will determine retail stock levels required to support weapon system availability goals.

(1) The process that sets wholesale support objectives and later expected resupply times should consider the impact those times have on retail stock levels and transportation costs.

(2) When funds are insufficient to attain desired wholesale support objectives, the expected resupply time must be extended. The wholesale echelon must be capable of passing the

expected change in the resupply time to the retail level so that weapon system availability may be assessed.

b. For items that one DoD Component uses but another manages, these procedures apply:

(1) The using Military Service will provide the managing DoD Component with demand forecast data for the item and the requisition response time objective for the item by weapon system. The using Military Service will also provide the managing DoD Component with the non-weapon system demand forecast and the number of retail assets above the retail requisitioning objective by item.

(2) Using the data from the using Military Service, the managing DoD Component will compute the items' buy or repair requirements with the goals of attaining the users' weapon system availability objectives within the maximum requisition response times. The managing DoD Component will advise the using Military Service of the achievable requisition response time for each item.

(3) The using Military Service will determine the impact of the achievable requisition response times on cost and weapon system availability.

c. The DoD Components will track actual weapon system performance to determine the impact of budget and funding decisions on actual operational availability and to calibrate their models' predicted support statistics with actual data.

4. READINESS ASSESSMENTS

a. Use the RBS models to:

(1) Compute readiness assessments and requirements.

(2) Measure the effects of various levels of investment in spare parts on end item readiness.

(3) Measure the effects of proposed budget adjustments.

(4) Assess end-item readiness on the basis of various levels of stockage; e.g., assess the capability derived from assets on-hand or assets planned to be repaired or procured.

(5) Differentiate between items that are essential to a weapon system and those that are not and to differentiate among degrees of essentiality.

b. Models used for assessment purposes may be different from those used for requirements determination for purposes of expediency or ease of processing. However, their algorithms must be similar in terms of the logic and computational objectives and must produce comparable results.

APPENDIX 2 TO ENCLOSURE 3

PROVISIONING DATA AND ORGANIC REQUIREMENTS PROCEDURES

1. PROVISIONING DATA PROCEDURES

a. Use provisioning data to:

- (1) Assign SMR coding according to section 3 of this enclosure.
- (2) Do provisioning screening.
- (3) Review for parts standardization.
- (4) Review for potential interchangeability and substitutability.
- (5) Assign item names as prescribed in Volume 3 of Reference (m).
- (6) Assign item management codes (IMCs). Assign uniform IMCs to support items during provisioning, as prescribed in Volume 2 of Reference (m).
- (7) Prepare item identifications for assigning NSNs as prescribed in Reference (m).
- (8) Prepare allowance and issue lists.
- (9) Determine requirements.
- (10) Procure for initial support.

b. The provisioning activity will tailor the EDFP to get electronic three dimensional model based data, product engineering drawings, or commercial drawings.

c. For joint Military Service acquisition programs, establish uniform PTD and EDFP requirements. The materiel manager of the lead DoD Component will coordinate provisioning requirements with the supporting DoD Components to avoid unnecessary duplication of data, formats, procedures, and operations.

d. Digital format is preferred for generating and accepting the PTD and the EDFP.

e. For non-developmental items, use contractor commercial data products as much as possible to satisfy provisioning data requirements. Whenever possible, materiel managers should adopt commercial off-the-shelf software to exchange product data and adopt commercial product data exchange standards as they develop.

2. PROVISIONING PROCEDURES FOR ORGANIC REQUIREMENTS

a. General

(1) Compute requirements for provisioned items using the latest end item program or delivery data and projected mature maintenance replacement rates.

(2) Procurement of partial quantities of computed requirements for selected spare and repair parts may be deferred when program uncertainties or other circumstances during the provisioning period make such calculated risks acceptable in the context of available resources and readiness goals.

(3) The DoD Components will retain documentation that portrays how contractor and U.S. Government factors were evaluated and used to determine provisioning requirements.

(4) Extend provisioning requirements based on engineering data through the demand development period (DDP) for the period of time extending from the initial date of organic supply support for a new end item to a point when requirements can be forecast using actual demands.

(a) The expected initial date of organic supply support is equal to the preliminary operational capability date of the weapon system plus the expected time until first demand (based on reliability of item). For items only used in depot-level repair of a higher assembly, the expected date should be the first scheduled date for depot-level repair of the higher assembly.

(b) The DDP can be no more than 1 year when representative operating time exists, and will not normally exceed 2 years. If sufficient representative operating time has not been accumulated at the end of the 2 year DDP period to adjust the demand forecast, the DDP may be extended up to 3 more years, for a total DDP of 5 years.

(5) Contractors and depot maintenance managers may recommend the range and quantity of support items required.

(6) When an established item is managed by a DoD Component other than the provisioning one, the DoD Component using the item registers the requirement with the materiel manager by submitting supply support requests (SSRs) for consumable items, in accordance with Reference (n), and by submitting non-consumable item materiel support requests (NIMSRs) for repairable items, in accordance with AMC-R 700-99/NAVSUPINST 4790.7/AFMCR 400-21/MCO P4410.22C (Reference (t)).

(7) The SSR and NIMSR process is designed to provide materiel managers with an estimate of the time-phased requirements necessary to support weapon systems as they are activated. The SSRs and NIMSRs submitted to the materiel managers should include a forecasted 12-month requirement, identify how the requirement is computed, and be based on average program requirements during the DDP. The materiel managers will only adjust requirements from the using DoD Components on the basis of affordability. Reflect the dollar

savings in the adjustments resulting from the change and the impact on system or equipment readiness.

b. Demand-Based Methodologies

(1) Demand-based methodologies may be used for non-weapon system support provisioning where readiness requirements for systems or end items are not stated, where data is not available for input to RBS models, or where the application of RBS is not cost-effective.

(2) When using demand-based sparing processes, minimize the costs of achieving a targeted supply performance goal.

(3) Total provisioning stockage computed by demand-based methodologies will not exceed 1-year's worth of projected demand at each echelon in question.

(4) With demand-based methodologies, no SL quantities are authorized for provisioning.

(5) When anticipated demands are insufficient to justify stockage, only limited-demand or insurance items will be stocked.

c. Demand Development

(1) During the DDP, new-item demand is forecasted using an engineering estimate because operating time is not sufficient to use historical data. Once representative operating time is sufficient (the DDP has ended), decrease the weight on the engineering estimate. Increase consideration given to actual demand data, as opposed to provisioning estimates.

(2) When using interim contractor support (ICS), materiel managers will identify the necessary usage data to be collected and delivered by the contractor in a format compatible with the automated system used in the U.S. Government's requirements determination process. When they are representative, use the contractor's usage data, rather than engineering estimates to forecast replenishment spare and repair parts requirements. Possession of the contractor's usage data may eliminate the need to establish a DDP upon transition to organic support. The DDP could occur during the ICS.

(3) The DDP should be measured against an equipment operating standard (hours, miles, and rounds, etc.) instead of calendar time. If that is not possible, use a traditional calendar-based DDP.

(4) Whether using a calendar-based or operating standard-based DDP, when sufficient representative operating time exists to adjust demand forecasts (or after 5 years, the maximum DDP), base stockage, requirements, and retention on actual usage data.

(5) The DoD Components will statistically validate actual usage during the DDP. If actual usage data is not statistically valid, the materiel manager will continue to base demand

estimates for replenishment on both engineering estimates and actual usage data until statistically valid data is obtained.

(6) After the DDP for support items is complete, increases in end item density or operating usage should not be the basis for further procurement of initial spares. Those requirements should be considered replenishment spares and should be satisfied using the requirements process.

APPENDIX 3 TO ENCLOSURE 3

RETAIL REASON FOR STOCKAGE CATEGORY (RSC) CODES

1. PURPOSE

a. For purposes of inventory stratification and management, the Military Departments and DLA will assign an RSC that identifies the applicable rules to all secondary item inventories held at retail supply activities. That categorization applies to inventory held at retail supply activities without regard to the ownership or funding sources for the inventory.

b. Within their materiel management systems, the Military Departments and DLA may use the specific codes listed in this appendix or any data element or combination of data elements to delineate inventory levels.

2. CATEGORY CODES

a. Stocked Readiness. This demand-supported RSC is for an item with readiness-based requirements levels.

b. Stocked Demand. This demand-supported RSC is for an item with demand-based requirements levels.

c. Stocked Limited Demand. This demand-supported RSC is for an item with limited-demand requirements levels because anticipated usage does not warrant demand-based requirements levels.

d. Stocked Insurance. This non-demand-supported RSC is for an essential item for which replacement is not anticipated as a result of normal usage and for which an unacceptable lead time (procurement or order and shipping time) has been established. If failure or loss occurs, through accident, abnormal equipment or system failure, or other unexpected occurrences, the lead time required to obtain a replacement would seriously hamper the operational capability of a critical facility or weapon system.

e. Stocked Provisioning. This non-demand-supported RSC is for an item specifically stocked to support a newly introduced end item until requirements are forecast entirely upon actual demands. That period may not exceed 2 years after actual demand is experienced. The established requirements objective is based upon the asset positioning policy and anticipated usage developed during the provisioning process.

f. Stocked War Reserve. Stock specifically held to support a wartime requirement. The stock for an item can be divided between this category and any other demand-supported or non-demand-supported RSC.

g. Not Stocked. This category is for items with no established requirements levels. Inventory or usage data may or may not be present; however, orders placed on sources of supply are to satisfy materiel obligations to customers and not to replenish stock.

h. Other. This category is meant to be temporary until another RSC is assigned.

APPENDIX 4 TO ENCLOSURE 3

REPAIR-CYCLE TIME

1. GENERAL

a. This appendix describes the repair-cycle time as it applies to the development of standards used to compute repair-cycle requirements for reparable secondary items and to monitor actual times against those standards. All time segments of the repair cycle are described and illustrated in this appendix. Repair-cycle time is described in terms of either the field-repair cycle or the depot-repair cycle, since these are the two mutually exclusive processes by which an unserviceable item is returned to a ready-for-issue condition.

b. An unserviceable item repaired at the organizational or intermediate level of maintenance has been processed through the field-repair cycle. Field-repair cycle times apply to field-level reparable items and may apply to depot-level reparable (DLR) items if they are repaired at the organizational or intermediate maintenance level.

c. An unserviceable item that was beyond the repair capability of the organizational or intermediate level of maintenance and that was repaired at the depot-level has been processed through the depot-repair cycle. Depot-repair cycle times only apply to DLR items.

d. Supply condition codes listed in Reference (p) apply to assets as they go through the stages of the repair cycle.

2. FIELD-REPAIR CYCLE

a. Beginning. The date the initial request for the repair of an unserviceable item is entered into the supply system as measured by the date of the organizational or intermediate maintenance activity's repair work order.

b. Ending. The date an unserviceable item has been restored to serviceable and issuable condition by the organizational or intermediate maintenance activity and is recorded as such on supply records, or the date when an unserviceable item is determined to be beyond the repair capability of an organizational or intermediate maintenance activity, measured by:

(1) The date the organizational or intermediate supply records indicate the repaired item is serviceable and issuable;

(2) The date of the organizational or intermediate supply activity's turn-in document; or

(3) The closing date of the organizational or intermediate maintenance activity's repair work order.

3. DEPOT-REPAIR CYCLE

a. Retrograde Time

(1) Materiel managers will track and report retrograde time as an item completes the base-processing and in-transit times.

(2) Maintenance managers will track and report the repair turnaround time for an item as it is processing through the transfer-to-maintenance, maintenance shop, and transfer-from-maintenance times.

(3) For requirements computations, the method chosen by the individual DoD Component for computing repair cycle levels will determine if both times or only repair turnaround time is used for depot-repair-cycle time. Depot-repair-cycle time excludes awaiting parts (AWP) time, awaiting maintenance (AWM) time, or awaiting carcasses (AWC) time.

b. Retrograde-Time Segment. Retrograde time is the sum of base-processing time and in-transit time.

(1) Base-processing time begins when an organizational- or intermediate-level maintenance activity turns into supply an unserviceable DLR asset it cannot repair and it ends when the asset is turned over to transportation.

(2) In-transit time begins when transportation receives the ready-for-shipment unserviceable DLR and ends when the receipt of the unserviceable asset by a distribution depot or maintenance contractor is recorded by the materiel manager.

(3) The beginning date for retrograde time is measured by either:

(a) The date of the organizational or intermediate supply activity's requisition (turn-in) document number.

(b) The closing date of the organizational or intermediate maintenance activity's repair work order.

(4) The ending date for retrograde time is measured by:

(a) The "receipt date" in the transaction that updates the ICP records; or

(b) The "receipt date" reported by the commercial or inter-Service depot maintenance activity in its status reports to the ICP.

c. Repair-Turnaround Time Segment. Repair-turnaround time is the sum of transfer-to-maintenance time, maintenance-shop time, and transfer-from-maintenance time. AWC time may occur before or after transfer-to-maintenance time and before maintenance-shop time, but is excluded from both of those times.

(1) Transfer-to-Maintenance Time. The transfer-to-maintenance time segment begins with the request to pull the unserviceable asset from storage and ends when the organic or contractor maintenance activity receives it. Transfers from depots to contractor facilities include transportation time.

(a) The beginning date is measured by the date of the request to transfer an unserviceable repairable item from the depot's supply activity to an organic or contractor maintenance activity.

(b) The ending date is measured by the date of receipt of the unserviceable DLR item at the organic or contractor maintenance activity.

(2) Maintenance-Shop Time. The maintenance-shop time segment begins when maintenance receives the unserviceable DLR and ends when the availability of the serviceable asset is formally reported to storage. (AWP and AWM times may occur during the segment, but are excluded.)

(a) The beginning date is measured by either:

1. The date the condition code is changed from unserviceable (reparable) to suspended (in work) on the ICP's records;

2. The in work date (or receipt date) reported by the commercial or inter-Service depot maintenance activity if no order is required; or

3. The order date reported by the commercial or inter-Service depot maintenance activity if an order is required.

(b) The ending date is measured by:

1. The date the depot maintenance activity reports that the item has been restored to serviceable condition; or

2. The date of the DD Form 250, "Material Inspection and Receiving Report," indicating a commercial or inter-Service depot maintenance activity restored the item to serviceable and issuable condition.

(3) Transfer-from-Maintenance Time. The transfer-from-maintenance time segment begins when the maintenance activity formally reports the availability of the serviceable DLR and ends when the serviceable asset is received in storage and is recorded on the records of the ICP. (Instances where an ICP directs shipment of a repaired asset directly to a customer to fill an outstanding demand should not be included in the development of standards or the monitoring of those standards.) Transfers from contractors' facilities to depots include transportation; transfers to customers do not. Transfer-from-maintenance time does not apply when contractors act as DoD distribution depots, storing materiel and issuing it directly to customers.

(a) The beginning date is measured by either:

1. The date the depot maintenance activity reports that the item has been restored to a serviceable condition; or

2. The date of the DD Form 250 indicating that the contractor has restored the item to a serviceable and issuable condition.

(b) The ending date is measured by:

1. The date an item's condition code is changed from suspended (in work) to serviceable and issuable on the ICP's records; or

2. The date a depot supply activity receives an item in serviceable and issuable condition from a commercial or inter-Service depot maintenance activity, as recorded on the ICP's records.

GLOSSARY

PART I. ABBREVIATIONS AND ACRONYMS

AFMCR	Air Force Materiel Command Regulation
ALT	administrative lead time
AR	Army Regulation
ASD(L&MR)	Assistant Secretary of Defense for Logistics and Materiel Readiness
AWC	awaiting carcasses
AWM	awaiting maintenance
AWP	awaiting parts
CLSSA	cooperative logistics supply support arrangements
DDE	demand data exchange
DDP	demand development period
DLA	Defense Logistics Agency
DLM	Defense Logistics Manual
DLR	depot-level repairable
DoDI	DoD Instruction
EDFP	engineering data for provisioning
EOQ	economic order quantity
FMS	foreign military sales
ICP	inventory control point
ICS	interim contractor support
IMC	item management code
LOT	life-of-type
MCO	Marine Corps Order
MIL-PRF	Military performance specification
NIMSC	non-consumable item materiel support codes
NIMSR	non-consumable item materiel support request
NSN	national stock number
OL	operating level
OPNAVINST	Office of the Chief of Naval Operations Instruction

OSTL	order and shipping time level
PBL	performance-based logistics
PICA	primary inventory control activity
PLT	production lead time
POM	program objective memorandum
PTD	provisioning technical documentation
RBS	readiness-based sparing
RCL	repair cycle level
ROP	reorder point
RSC	reason for stockage category
SL	safety level
SMR	source, maintenance, and recoverability
SPR	special program requirement
SSR	supply support request
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics

PART II. DEFINITIONS

These terms and their definitions are for the purpose of this volume and will serve as standard terminology for DoD supply chain materiel management

acquisition. Obtaining logistics support, supplies, or services under an acquisition agreement or under a cross-servicing agreement. This includes purchasing (whether for payment in currency, replacement-in-kind, or by exchange for equal value), renting, leasing, or any method of temporarily obtaining logistics support, supplies, or services.

ALT. The time interval between initiation of a purchase request and the date of signature of a contract.

assembly. In logistics, an item forming a portion of equipment that can be provisioned and replaced as an entity and which normally incorporates replaceable parts or groups of parts.

cataloging. The process of uniformly identifying, describing, classifying, numbering, and publishing in the Federal Catalog System all items of personal property (items of supply) repetitively procured, stored, issued, or used by federal agencies.

consumable item. An item of supply or an individual item (except explosive ordnance and major end items of equipment) that is normally expended or used up beyond recovery in the use for which it is designed or intended.

cost-to-hold. The sum of the annual charge for funds invested in inventory, storage costs and losses due to obsolescence, inventory losses, misplacement, theft, or damage.

cost-to-order. The sum of the administrative expenses involved in procuring or requisitioning and issuing a single lot of one item regardless of the number of units ordered, their weight, cube, or dollar value. The major tasks contributing to the cost-to-order include requirements determination, order or requisition preparation and recording, receipt processing and stowage of materiel, accounting for the transfer of funds between the ordering activity and the source of supply, and in the case of a requisition filled from a distribution depot, issue processing.

customer response time. A parameter used in sparing models to compute the range and depth of stock according to a time-weighted supply performance goal.

daily summary transaction reporting. Daily reporting to the ICP of supply transactions affecting the demand base or stock status of materiel.

DDP. The period of time extending from the date of preliminary operational capability to the time when spare and repair parts requirements can be forecasted based on actual demands using statistically valid methods

demand. An indication of a requirement, a requisition or similar request for an item of supply or individual item. Demands are categorized as either recurring or non-recurring.

demand-based requirements. A requirements determination process that has a goal targeted at filling a percent of demand or at satisfying demand within a given period of time.

demand-supported items. Items stocked based on forecasted usage. Demand-supported items are stocked on the basis of economic or essentiality considerations.

distribution. The operational process of synchronizing all elements of the logistic system to deliver the right things to the right place at the right time.

DLA Logistics Information Service. A field activity of the DLA located at Battle Creek, Michigan, it serves as the custodian of federal logistics data for suppliers and supply items. DLA Logistics Information Service assigns NSNs, disseminates logistics information, and serves as the U.S. National Codification Bureau.

DLM. A set of manuals that prescribe logistics management responsibilities, procedures, rules, and electronic data communications standards for use in the DoD to conduct logistics operations in functional areas such as supply, maintenance, and finance.

DLR. An item that is designated for repair at depot level, or that is designated for repair below the depot level for which condemnation authority must be exercised by the cognizant depot-level repair activity.

economic repair quantity. The quantity derived from a mathematical technique used to determine the optimum (lowest) total variable costs to repair and hold inventory.

economic stockage or order. An item with demand-based requirements is stocked or ordered based on economics when the cost of being out of stock is equal to or exceeds the cost of holding stock and is stocked at the wholesale level.

EDFP. Technical data that provides definitive identification of dimensional, material, mechanical, electrical, or other characteristics that depict the physical characteristics, location, and function of the item. Also referred to as supplementary provisioning technical data and supplemental data for provisioning, all of which are equivalent to the term form, fit, and function data referred to in section 2320 of Reference (e) and subpart 227.7102-1 of Reference (o).

end item. A final combination of end products, component parts, or materials that is ready for its intended use, e.g., ship, tank, mobile machine shop, or aircraft.

engineering support activity. The organization designated to provide engineering or technical assistance including the development of technical data and engineering criteria, engineering representation, guidance, and decisions.

EOQ. The quantity derived from a mathematical technique used to determine the optimum (lowest) total variable costs to order and hold inventory.

essential item. A support item or a repair part whose absence renders the supported system or end item inoperable.

essentiality code. Weapon system or end item designation used to indicate the measure of an item's military worth in terms of how its failure (if a replacement is not immediately available) would affect the ability of a weapon system, end item, or organization to perform its intended functions. In stockage models, it is the number by which the shortage cost parameter is multiplied to reflect the differences in military worth among items.

field-level repairable item. An item that is normally repaired below the depot level of maintenance and for which condemnation authority may be exercised below the depot level.

forecastability. The ability to forecast demand for an item using a quantitative model. A forecastable item has readiness-based requirements levels or demand-based requirements levels, both of which are based on the item's demand forecast.

ICP. An organizational unit or activity within the DoD supply system assigned the primary responsibility for the materiel management of a group of items either for a particular Military Department or for the DoD as a whole. In addition to materiel management functions, an ICP may perform other logistics functions in support of a particular Military Department or for a particular end item (e.g., centralized computation of retail requirements levels and engineering tasks associated with weapon system components).

IMC. The process of determining whether items of supply in federal supply classifications assigned for integrated materiel management qualify for management by the individual Components other than DLA or General Services Administration.

implied shortage cost. The derived cost of a shortage of stock based upon a forecast of the number of days of delay in the availability of materiel.

individual item. A single instance of a stock-numbered item, a single assembly, or a single subassembly.

initial spares. Spares stocked to support a newly fielded weapon system or a modification of a weapon system.

insurance item. A non-demand-based, stocked, essential item for which no failure is predicted through normal usage. However, if a failure were to be experienced or a loss should occur through accident, abnormal equipment or system failure, or other unexpected occurrence, lack of replacement item will seriously hamper the operational capability of a weapon system.

intermediate supply. Any level of inventory between the consumer and wholesale level of inventory and considered a retail level or echelon.

inventory. Materiel, titled to the U.S. Government, held for sale or issue, held for repair, or held pending transfer to disposal. This definition covers the same population of items as the definition for inventory in Chapter 4 of Volume 4 of Reference (s). Does not include tangible personal property to be consumed in normal operations, operating materials, and supplies as defined in Reference (s).

item essentiality. A measure of an item's military worth in terms of how its failure (if a replacement is not immediately available) would affect the ability of a weapon system, end item, or organization to perform its intended functions. In stockage models, it is the number by which the shortage cost parameter is multiplied to reflect the differences in military worth among items.

item identification. A collection and compilation of data to establish the essential characteristics of an item that give the item its unique character and differentiate it from other supply items.

item of supply. A category of items identified by a NSN with the same form, fit, and function. The individual items (units) included in this category could be manufactured by multiple sources.

limited-demand item. A non-forecastable item that has limited demand but either has sufficient historical demand to warrant demand-based stockage or qualifies for non-demand-based numeric stockage based on its essentiality. That is, the item qualifies for stockage because the lack of a replacement would seriously hamper the operational readiness of a weapon system.

losses due to obsolescence. Losses resulting from forecast error and obsolescence to include deterioration.

LOT buy. A one-time procurement, when all cost effective and prudent alternatives have been exhausted, for the total future requirement of an item that is no longer expected to be produced. The procurement quantity is based upon demand or engineering estimates of wear out rates or item malfunction or failure sufficient to support the applicable equipment until phased out.

maintenance replacement. The replacement of an unserviceable repairable item by a serviceable one. Unserviceable items include items that are replaced due to malfunction or those that have reached the end of an administratively determined removal interval for preventive maintenance or safety considerations.

materiel management. That phase of military logistics that includes managing, cataloging, demand and supply planning, requirements determinations, procurement, distribution, overhaul, and disposal of materiel.

materiel manager. Any DoD activity or Defense Agency that has been assigned materiel management responsibilities for the DoD and participating federal agencies. The term includes responsibilities performed by either wholesale materiel managers or retail materiel managers: managing, cataloging, demand and supply planning, requirements determination and definition, procurement, distribution, overhaul and repair of repairable materiel, and disposal of materiel.

materiel obligation. That unfilled portion of a requisition (for a stocked or a nonstocked item) that is not immediately available for issue, but is recorded as a commitment for future issue. Synonymous with “back order”.

minimum replacement unit. The minimum quantity of an item normally replaced during a maintenance action, often the quantity of a component used for each end item.

modification. A U.S. Government-approved change in the configuration of a part or item that offers a benefit to the U.S. Government by correcting deficiencies, satisfying a change in operational or logistic support requirements, or effecting a life-cycle cost savings.

NIMSC. Alphanumeric codes assigned to non-consumable items, which indicates the degree of materiel support (numeric) or repair responsibility (alpha).

non-demand-based. A requirements determination process that is not based on forecasted demand, but qualifies stockage based on other criteria. Types of non-demand-based stockage are insurance stockage, LOT buys, and program-based buys.

non-forecastable items. Typically demonstrate limited demand, highly variable demand quantities, or highly intermittent demand frequency.

not stocked. An item for which there is no established requirements objective. Inventory or usage data may be available; however, stock replenishment would not be initiated.

NSN. The 13-digit stock number replacing the 11-digit federal stock number. It consists of the 4-digit federal supply classification code and the 9-digit national item identification number.

The national item identification number consists of a 2-digit National Codification Bureau number designating the central cataloging office (whether North Atlantic Treaty Organization or other friendly country) that assigned the number and a 7-digit (xxx-xxxx) nonsignificant number. Arrange the number as follows: 9999-00-999-9999.

OL. The quantities of materiel or operating stocks required to sustain operations in the interval between replenishment shipments.

organic support. The capability of a Military Service or a Defense Agency to sustain logistics operations through U.S. Government organizational structures.

OSTL. The quantities of materiel required to sustain operations during the interval between the initiation of a replenishment requisition and receipt of the requisitioned materiel.

PBL. Logistics that delineate outcome performance goals of weapon systems, ensure that responsibilities are assigned, provide incentives for attaining these goals, and facilitate the overall life-cycle management of system reliability, supportability, and total ownership costs.

performance-based agreement. A product support agreement that is tied to system, subsystem, or component level performance that describes measurable service and performance level parameters based on customer requirements and expectations.

phased support. An approach whereby a contractor provides interim support for new acquisitions until the U.S. Government attains an organic capability. Phasing may be done by support level (e.g., organization, intermediate, or depot), by subsystem, by design-stable components, or other criteria.

PICA. The service or agency ICP designated as the single activity within the DoD responsible for providing materiel support.

PLT. The interval between the date of signature of a contract and the receipt of the first significant delivery of the purchased materiel into the supply system.

POM. A 5-year projected blueprint of each organization's proposals for updating DoD programs. Each Military Department, Defense Agency, and U.S. Special Operations Command submits it to the Secretary of Defense for approval. The approved POM defines the programs to be supported in the Military Department and the Defense Agency budgets described in greater detail in Reference (s).

preliminary operational capability. The attainment of the capability for equipment or systems to be used by operational units and to function in a manner that is preliminary to, but in support of, the achievement of an initial operating capability.

procurement lead time. The sum of the ALT and PLT. Procurement lead time is the lead time for acquisition of secondary items.

product support integrator. The integrator of required logistical support processes to ensure that level of support is obtained through PBL agreements. The designated product support integrator for a given PBL arrangement may be an original equipment manufacturer, a commercial (private) entity, a U.S. Government (organic) entity, or a combination of a public and private partnership.

provisioning. The management process of determining and acquiring the range and quantity of support items necessary to operate and maintain an end item of materiel for an initial period of service.

RBS. A requirement determination process that computes the levels of secondary item spares needed to support a weapon system readiness goal at least cost. Synonymous with readiness-based requirements and sparing-to-availability.

RBS tool. An analytical capability primarily used to set sparing levels. Examples of other applications that an RBS tool can support include:

- Assessing the inventory investment required for the fielding of a new program (e.g., weapon system or subsystem).

- Negotiating supplier PBL agreements.

- Assessing the impact of reliability, maintainability, or supportability improvements on weapon system readiness.

- Planning and developing budgets.

- Conducting what-if exercises related to deployments..

RCL. The quantity of reparable items required to sustain operations during the repair cycle that commences when a maintenance replacement takes place and ends when the unserviceable asset is returned to stock in a serviceable condition. That includes stages such as removed, awaiting shipment, in-transit, in pre-repair screening, in process of repair, and being returned to serviceable stock. Exclude any extraordinary awaiting-parts delays and any intentional extended-transit, storage, or repair-process delays from the repair cycle.

readiness. A measure or measures of the ability of a system to undertake and sustain a specified set of missions at planned peacetime and wartime utilization rates. Examples of system readiness measures are combat sortie rate, fully mission capable rate, and operational availability. Measures take account of:

- The effects of system design, reliability, maintainability.

- The characteristics of the support system.

- The quantity and location of support resources.

receiving. All actions taken by a receiving activity from the physical turnover of materiel by a carrier until the on-hand balance of the accountable stock record file or in-process receipt file is updated to reflect the received materiel as an asset in storage, or the materiel is issued directly from receiving to the customer.

reparable item. An item of supply subject to economical repair and for which the repair (at either depot or field level) is considered in satisfying computed requirements at any inventory level.

replenishment. Actions to resupply an inventory when it reaches the ROP.

representative procurement. A procurement for replenishing wholesale-level stock, such that the procurement action is routine in nature or the circumstances affecting the procurement are expected to occur on a continuing basis.

requirements computation. Any mathematical calculation performed to support requirements determination functions.

requirements objective. For wholesale stock replenishment, the maximum authorized quantity of stock for an item. It consists of the sum of stock represented by the EOQ, the safety level, the repair-cycle level, and authorized additive levels.

requisition. An order for materiel initiated by an established, authorized organization (i.e., a DoD or non-DoD organization that has been assigned a DoD activity address code) that is transmitted either electronically, by mail, or telephoned to a supply source within the DoD or external to the DoD (the General Services Administration, the Federal Aviation Administration, or other organizations assigned management responsibility for categories of materiel), according to procedures specified in Reference (a) and DLM 4000.25-1-M (Reference (u)).

requisition response time. The mean time between the date that the wholesale ICP receives a requisition and the date ready-for-issue assets are available to satisfy the requisition.

requisitioning objective. The maximum quantity of materiel to be maintained on-hand and on-order to sustain current operations and core war reserves. It consists of the sum of stocks represented by the OL, SL, repair cycle, if applicable, the OSTL, and authorized additive levels.

resupply time. The mean time between the date a retail activity submits a requisition to the wholesale system and the date it receives the requisitioned materiel.

retail. Level of inventory below the wholesale level, either at the consumer level for the purpose of directly providing materiel to ultimate users or at the intermediate or region level for the purpose of supplying consumer levels or ultimate users in a geographical area.

retail-level supply. Those secondary items stored within DoD intermediate and consumer levels of supply down to and including these activities: the Army to authorized stockage list; the Navy to shipboard and shore stations; the Air Force to base supply; and the Marines to base supply and

the Marine Expeditionary Force supplies. Retail-level supply does not include end use secondary item materiel.

ROP. The point when an item's inventory position (i.e., on-hand stock plus stock due in minus stock due out) reaches or breaches, it triggers an order to replenish stock.

RSC. The categorization of an item that indicates the reason or basis for stockage at the retail level of inventory. Those categories reflect the stockage computation or decision rule applicable, and in some cases are used for inventory stratification and supply management purposes.

secondary item. An item of supply that is not defined as a principal item and includes reparable components, subsystems, and assemblies, consumable repair parts, bulk items and material, subsistence, and expendable end items, including clothing and other personal gear.

SL. The quantity of materiel required to be on hand to permit continued operation in the event of a minor interruption of normal replenishment or a fluctuation in demand.

SSR. A transaction identifying requirements for consumable items that is submitted by the DoD Component introducing materiel or a weapon system to the materiel manager.

storage costs. The variable costs of storing materiel. A storage cost factor is not variable (and therefore not considered) if the factor would remain the same after eliminating 50 percent of the stored materiel. Use one percent of the annual average value of the relevant inventory for storage costs unless actual variable storage costs are available.

supplier. Organic or commercial sources for items of supply.

supply chain. The linked activities associated with providing materiel from a raw material stage to an end user as a finished product.

system acquisition process. Process of providing a new or improved materiel capability in response to a validated need.

supply support. The management actions, procedures and techniques necessary to determine requirements to acquire, catalog, receive, store, transfer, issue and dispose of spares, repair parts, and supplies. Supply support includes provisioning for initial support, as well as acquiring, distributing, and replenishing inventories. Proper supply support management results in having the right spares, repair parts, and all classes of supplies available, in the right quantities, at the right place, at the right time, at the right price.

total variable cost. The sum of the variable cost-to-order, variable cost-to-hold, and implied shortage cost. Procurement cycles and safety levels are determined through minimizing these costs for any given group of items in an inventory.

weapon system availability. As used in materiel management, the percent of time that a weapon system does not have a materiel failure that prevents it from performing its intended mission or missions.

wholesale. The highest level of organized DoD supply that procures, repairs, and maintains stocks to resupply the retail levels of supply. Synonymous with wholesale supply, wholesale level of supply, wholesale echelon, and national inventory.

wholesale stock. Stock, regardless of funding sources, over which the materiel manager has asset knowledge and exercises unrestricted asset control to meet worldwide inventory management responsibilities. Synonymous with national inventory.