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Report to the Chairman, Subcommittee on Defense, Committee on Appropriations, House of Representatives

August 2003

DEFENSE INVENTORY

Several Actions Are Needed to Further DLA's Efforts to Mitigate Shortages of Critical Parts

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GAO-03-709

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Highlights

Highlights of GAO-03-709, a report to the Chairman, Subcommittee on Defense, Committee on Appropriations, House of Representatives

Why GAO Did This Study

DOD's management, funding, and reporting of spending for spare parts programs have been a focus of GAO high risk reports for over a decade. They noted that spare parts shortages adversely affect military operations and readiness. Despite funding of about $1.9 billion over fiscal years 1999-2002 to increase availability of spare parts, managing to mitigate shortages still challenges the Defense Logistics Agency (DLA).

GAO examined if (1) DLA's strategic planning addresses mitigating critical spare parts shortages that affect readiness, (2) strategic initiatives will likely mitigate these shortages, (3) a DOD-directed initiative has improved availability of critical aviation parts, and (4) DLA can identify the impact of added investment on parts availability.

What GAO Recommends

GAO recommends DOD direct DLA to (1) submit requests for waivers to a DOD regulation to allow the investment necessary to attain a minimum 85-percent availability goal for each critical part that affects readiness, (2) change its aggregate supply availability goal to an 85-percent minimum goal and establish annual performance targets for measuring progress, and (3) prioritize funding to achieve the minimum 85-percent goal.
In written comments, DOD generally concurred with the intent of our recommendations, but not with all of the specific actions.

www.gao.gov/cgi-bin/getrpt?GAO-03-709.

To view the full product, including the scope and methodology, click on the link above. For more information, contact William M. Solis at (202) 512-8365 or solisw@gao.gov.

What GAO Found

DLA's Strategic Management System, meant to transform its 2002-2007 logistics operations, addresses the mitigation of readiness-affecting shortages of critical spare parts. The system includes a strategic plan with goals, strategies, and objectives; a balanced scorecard to monitor progress; and a business plan that contains 97 initiatives. Of these initiatives, DLA identified 24 as linked to spare parts shortages. The DLA strategic system incorporates attributes of strategic planning outlined in the Government Performance and Results Act of 1993.

The 24 initiatives, if fully implemented, could help mitigate critical spare parts shortages and improve supply readiness because, in part, they address causes for the shortages. Of the 24 DLA-identified initiatives, 18 should improve availability of parts identified by the services as critical to readiness; and 6 should indirectly improve parts availability through modernized logistics systems and business processes.

A $500-million DOD-directed aviation investment initiative, not part of DLA's strategic system, increased critical parts availability and likely supply readiness. It improved the aggregate, or total average, availability of three critical groups of DLA-managed parts in the first 3 fiscal years—2000-2002—of the 4-year initiative. However, DLA's aggregate 85-percent goal does not clearly reveal that many parts are still far below 85 percent. For example, at the end of fiscal year 2002, of the 10,291 critical aviation parts selected for investment, about 4,900 met or exceeded the aggregate measure, but over 5,400 did not. Of these, about 2,900 parts were available under 35 percent of the time. A DOD regulation, since revised to allow waivers, caused 3,342 parts to be below the 85-percent availability goal.

Aviation Initiative's Effect on Parts Availability over 3 Years

Parts availability (percent)	No. of parts before investment	No. of parts after investment
85 and above	1,397	4,877
84 to 75	881	641
74 to 65	905	524
64 to 55	860	455
54 to 45	803	516
44 to 35	791	374
Below 35	4654	2,904
Total	**10,291**	**10,291**

Source: GAO analysis of DLA data.

DLA can estimate the impact of increased funding on supply availability. Investment costs, however, will be significant—DLA estimated $748 million to obtain an 85-percent minimum availability of the 219,071 most critical parts. Also, necessary inventory levels may take years to build, and increases in unit readiness are not assured because supply is only one readiness factor.

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Abbreviations

DLA	Defense Logistics Agency
DOD	Department of Defense
GPRA	Government Performance and Results Act

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Accountability * Integrity * Reliability

United States General Accounting Office
Washington, D.C. 20548

August 1, 2003

The Honorable Jerry Lewis
Chairman
Subcommittee on Defense
Committee on Appropriations
House of Representatives

Dear Mr. Chairman:

The Defense Logistics Agency (DLA) manages about 4.6 million consumable items, including weapon systems spare parts, with sales of over $20 billion in fiscal year 2002. In the Department of Defense's (DOD) February 2003 budget submission to the Congress, DLA reported achieving an aggregate weapon system supply availability rate of 85 percent. DLA began to strategically address ways to mitigate spare parts shortages and improve its logistics infrastructure and operations as early as 1988. However, managing to mitigate critical spare parts shortages is a continuing challenge for DLA and defense managers, even though over $1.9 billion was devoted to increasing the availability of spare parts in the fiscal years 1999-2002 period. Concerns remain about DOD's continuing shortages of critical spare parts for aircraft, ships, vehicles, and weapons systems and their resulting detrimental effect on military readiness. Also, since 1990, we have repeatedly reported that DOD's inventory management systems and procedures were ineffective and wasteful, putting DOD at high risk for unnecessary spending that, through good stewardship, could be directed to higher priorities such as modernization or readiness. In our January 2003 High Risk Series report,[1] we wrote that DOD was experiencing equipment readiness problems because of a lack of key spare parts; and we recommended that DOD act to address these shortages. While recognizing that spare parts shortages will never be eliminated, it is reasonable to expect DOD and DLA to place a high priority on mitigating, or reducing, the shortages that adversely impact readiness. Such priority would be inherent in the overall stewardship of funds and accountability for making spare parts investment decisions that provide a

[1] U.S. General Accounting Office, *Major Management Challenges and Program Risks: Department of Defense*, GAO-03-98 (Washington, D.C., Jan. 2003).

good readiness return. As recently as August 2002, DOD recognized the need to overcome critical spare parts shortages and recommended changes to improve the readiness of weapon systems.[2]

This report is one in a series of reports[3] that responds to your request that we identify ways to improve the availability of spare parts. As agreed, this report focuses on DLA's strategic efforts to transform the way it conducts its logistics business operations, including spare parts. More specifically, this report focuses on whether (1) DLA's strategic planning addresses mitigating critical spare parts shortages that adversely affect readiness,[4] (2) DLA's strategic logistics initiatives will likely help mitigate spare parts shortages that affect readiness, (3) a separate DOD-directed aviation initiative has improved the availability of critical aviation parts, and (4) DLA can identify the impact of increased investments on the availability of critical spare parts.

To accomplish these objectives, we analyzed DLA plans, initiatives, and performance metrics applicable to the management and oversight of DLA's Strategic Management System. We interviewed officials, as well as obtained and analyzed information on inventory management practices and critical spare part shortages, at DLA headquarters, Fort Belvoir, Virginia, and the inventory control point for aviation in Richmond, Virginia. Our criteria for evaluating DLA's strategy and initiatives included the Government Performance and Results Act (GPRA) of 1993,[5] previous GAO reports, and appropriate DOD reports and guidance. Our scope and methodology are discussed in further detail in appendix I.

[2] Office of the Secretary of Defense, *Inventory Management Study* (Washington, D.C.: Aug. 2002).

[3] U.S. General Accounting Office, *Defense Inventory: The Army Needs a Plan to Overcome Critical Spare Parts Shortages*, GAO-03-705 (Washington, D.C.: June 27, 2003); *Defense Inventory: Air Force Plans and Initiatives to Mitigate Spare Parts Shortages Need Better Implementation*, GAO-03-706 (Washington, D.C.: June 27, 2003); *Defense Inventory: The Department Needs a Focused Effort to Overcome Critical Spare Parts Shortages*, GAO-03-707 (Washington, D.C.: June 27, 2003); *Defense Inventory: Navy Logistics Strategy and Initiatives Need to Address Spare Parts Shortages*, GAO-03-708 (Washington, D.C.: June 27, 2003).

[4] For this report, we used "critical spare parts" to mean those parts that directly affect the readiness of weapon systems. For example, DLA periodically identifies parts, such as complete engines and engine components for various aircraft, as "top degraders" of weapon system readiness.

[5] Pub. L. No. 103-62, Aug. 3, 1993.

Results in Brief

DLA's strategic logistics planning specifically addresses mitigating critical spare parts shortages that adversely affect readiness through a major component of its Strategic Management System—the business plan. The business plan does so by focusing initiatives on some of the primary causes of critical shortages and increasing investment in the safety level of parts—the number of parts in the inventory that triggers reordering. The Strategic Management System incorporates four components: (1) a strategic plan that contains DLA's corporate goals, objectives, and strategies; (2) a balanced scorecard that provides a basis for assessing how well the strategic plan is working; (3) a business plan containing 97 initiatives in varying stages of implementation that specify the actions needed to achieve the strategic plan's goals, strategies, and objectives; and (4) a review and analysis process that assesses performance. The 2002-2007 strategic management system is an improvement over previous efforts because it contains performance metrics and management feedback mechanisms for measuring performance progress consistent with key attributes of strategic planning included in GPRA. The system is also designed to incorporate future changes as necessary to reflect and improve business operations.

If fully implemented as planned by 2009, 24 of the 97 initiatives contained in DLA's business plan could either directly or indirectly contribute to mitigating spare parts shortages and improve supply support readiness. A group of 18 initiatives is aimed at mitigating critical spare parts shortages by improving the availability of specific parts that the services have identified as critical to readiness. For example, a few initiatives in this group are designed to obtain sources of supply for critical, hard-to-find parts or to identify and contract with key material suppliers for low-demand, long-lead-time parts. Others in the group focus on addressing some of the recurring causes of spare parts shortages. A second group of six initiatives seeks to modernize DLA's entire logistics management system to improve business processes and systems and better support its customers. While these initiatives show potential, until they are fully implemented the extent to which they will contribute to mitigating spare parts shortages is not certain.

A separate initiative not included in DLA's business plan—a $500-million aviation investment initiative—has steadily improved the supply availability of DLA-managed critical aviation spare parts. Nonetheless, shortages exist, in part because the aggregate supply availability measure DLA used to assess its effectiveness does not reveal the lower supply availability rates of many critical spare parts. Furthermore, DLA's progress in buying these critical spare parts was impeded by a DOD regulation that has since been revised (May 23, 2003) to allow a waiver for such purchases. The availability of critical aviation parts increased over the first 3 fiscal years (2000-2002) of the 4-year initiative that is aimed at achieving DLA's aggregate, or total average, supply availability goal of 85 percent. This means that the parts, on average, will be available to meet customer demand 85 percent of the time. Using this aggregate goal, however, does not reveal the actual availability of many critical aviation spare parts because many parts are at or over 85 percent, while others continue to be far less available. For example, by fiscal year 2002, of the about 10,300 critical parts that were selected for aviation investment, almost 4,900, or 48 percent, met or exceeded the DLA goal of 85 percent.[6] The remaining 5,400 parts were available less than 85 percent of the time. Of these, over 2,900—such as engine mount fittings for the B-52 bomber, shoulder bolts for the F-14 Tomcat, and landing gear axles for the UH-60A helicopter—were available less than 35 percent of the time. Furthermore, the availability of 3,342 of these critical parts was below the 85-percent aggregate goal because a DOD regulation, recently revised, constrained how many DLA could buy based on the lead time required to acquire the part. A subsequent investment initiative, planned for fiscal year 2004, is designed to increase availability of aviation, as well as land and maritime, critical spare parts and may improve supply readiness. This initiative has an 80-percent minimum availability goal for each of the critical DLA-managed parts but is dependent on funding as well as a waiver of the lead-time requirement as allowed in the revised DOD regulation.

[6] It may take up to 2 years before an increase in supply availability of a specific spare part is evident because current demands and backorders are filled first before safety levels are increased.

DLA can estimate how additional investments in critical spare parts can improve supply availability to the military services. For example, based on a DLA November 2002 estimate, a one-time cost of $748 million would achieve a minimum 85-percent availability for each of DLA's 219,071 aviation, land, and maritime most critical items. The cost to achieve a 90-percent minimum availability for each of these items would be about $1.3 billion and the cost to achieve a 95-percent minimum would be about $2.2 billion. However, while selectively buying more critical spare parts will likely increase supply availability, doing so will not necessarily increase the overall readiness posture of the forces because supply is only one of several factors[7] that contribute to the overall readiness posture of operating units. Therefore, an operating unit having sufficient spare parts could still have readiness deficiencies due to factors such as maintenance or training needs.

We are making several recommendations to help ensure that DLA's service customers have an adequate supply of critical spare parts that affect the readiness of weapon systems. These involve (1) DLA's submission of needed waivers as allowed in the recently revised DOD regulation that limits the safety level investment in critical spare parts, (2) a change in DLA's current aggregate supply availability goal to a minimum 85-percent goal, and (3) prioritizing funding to achieve the 85-percent goal. DOD concurred with the report and the intent of our recommendations but did not agree with all actions we prescribed. The department's comments and our evaluation of them are on page 25 of this report.

[7] Factors impacting readiness posture include supply, maintenance, equipment, training, and personnel.

Background

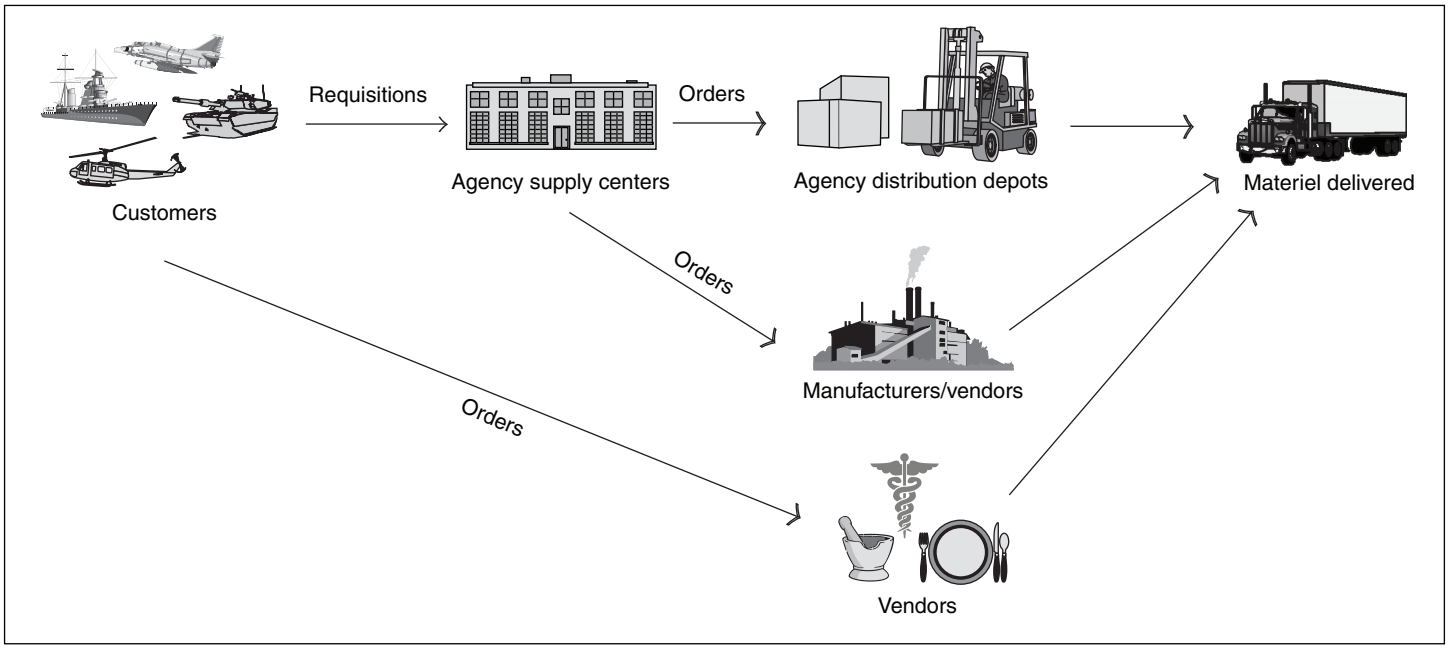
DLA is a DOD Combat Support Agency under the supervision, direction, authority, and control of the Under Secretary of Defense for Acquisition, Technology, and Logistics. DLA's mission is "To provide best value logistics support to America's Armed Forces, in peace and war…around the clock, around the world." In carrying out its mission, DLA manages an $80.5 billion inventory comprised of about 4.6 million consumable items including commodities such as energy, food, clothing, and medical supplies. DLA also buys and distributes hardware and electronics items used in the maintenance and repair of equipment and weapons systems. DLA sales and services amounted to over $20 billion in fiscal year 2002.

Customers, mainly the military services, determine their requirements for material and supplies and submit requisitions to any of four DLA supply centers.[8] The centers then consolidate the requirements and procure the supplies for their customers. DLA provides its customers with requested supplies in one of two ways. Some items are delivered directly to customers from commercial vendors while other items are stored and distributed through worldwide distribution depots owned and managed by both DLA and the military services. DLA refers to this ordering and delivery process as materiel management or supply-chain management.[9] Figure 1 depicts this process.

[8] DLA's four supply centers are (1) Defense Supply Center, Columbus, Ohio, which is responsible for land, maritime, and missile support; (2) Defense Energy Support Center, Fort Belvoir, Va., the lead center for comprehensive energy solutions, such as contract support and the management of petroleum-based fuels; (3) Defense Supply Center, Richmond, Va., which is responsible for air, aviation, and space support; and (4) Defense Supply Center, Philadelphia, Pa., the lead center for troop support items, such as food, clothing, and medical supplies.

[9] The materiel management or supply chain management process incorporates five major DLA business functions. These functions include distributing materiel ordered from its inventory; purchasing fuels for DOD and the U.S. government; storing strategic materiel; marketing surplus DOD materiel for reuse, reutilization, or disposal; and providing numerous information services, such as item cataloging, for DOD and the United States and selected foreign governments.

Figure 1: DLA's Supply-Chain Management Process



Source: GAO's analysis of DLA's process.

GPRA requires establishment of a strategic plan for program activities by each agency that includes, among other things, a mission statement covering major functions and operations, outcome-related goals and objectives, and a description of how those goals and objectives are to be achieved.

DLA has been guided by formal strategic plans since 1988. The 1988 plan did not identify strategic measures or performance targets for achieving strategic goals and objectives. Subsequent strategic plans incorporated GPRA attributes but still lacked strategic measures.

DLA approved the current 6-year 2002-2007 Strategic Plan—on February 19, 2002, updating DLA's 2000 Strategic Plan. The DLA Strategic Management System formalizes, aligns, and integrates planning and performance measurement processes. The system incorporates four components: a strategic plan with goals and objectives; a balanced scorecard,[10] with strategies and performance measures; a business plan containing initiatives; and a review and analysis process that assesses performance. The balanced scorecard and business plan reflect decisions on the initiatives in which DLA will invest, and these investments and performance target levels form the basis for DLA's budget request. The strategies, performance measures, and objectives address mitigating critical spare parts shortages. Performance measures provide DLA management a means of assessing progress and making adjustments as necessary to achieve its goals and strategies. The system's review and analysis process involves examining progress against objectives and targets to make necessary adjustments to plans and objectives to meet customer requirements. In developing and revising the Strategic Management System, DLA's procedures require it to incorporate higher-level plans such as, the National Military Strategy, the Quadrennial Defense Review, and Defense Planning Guidance. According to a DLA planning official, DLA's first corporate assessment of the 2002-2007 Strategic Plan is scheduled for 2003. Appendix III graphically displays the DLA Strategic Management System.

DLA's Strategic Management System Addresses Mitigating Critical Spare Parts Shortages That Adversely Affect Readiness

DLA's Strategic Management System's business plan specifically addresses mitigating critical spare parts shortages that adversely affect readiness. The strategic logistics planning process, currently being implemented, is DLA's framework for logistics transformation, strategic measurement, and performance management. Three of its components—a strategic plan, a balanced scorecard, and a business plan—incorporate GPRA attributes, address spare parts shortages, and act to improve overall logistics systems and business processes, all of which could improve overall supply support to DOD customers.

[10] The balanced scorecard, introduced by Professor Robert Kaplan and Dr. David Norton in 1992, is a component of the Strategic Management System that links strategic goals, strategies, objectives, and measures to an organization's strategic plan.

DLA's 2002-2007 Strategic Plan

The DLA strategic plan covers a 6-year period that includes the year of publication—2002—and 5 additional years consistent with GPRA guidelines. It focuses on long-term outcomes and contains DLA's corporate mission, vision, and values statements and the agency's 4 strategic goals, 13 strategic strategies, and 39 strategic objectives. The goals that address customer service, customer outcomes, or management of DLA resources for customer value address spare parts shortages directly or indirectly through improved service to the military service customers. Table 1 identifies DLA's four strategic goals and the respective number of strategies, objectives, and initiatives to be measured for achieving the plan's strategic goals and strategies. Table 2 illustrates the relationships between the Customer Goal (strategic goal 1) and representative strategic strategies, objectives, and action plan initiatives, relative to spare parts and customer service.

Table 1: DLA's 2002-2007 Strategic Goals and the Number of Strategies, Objectives, and Initiatives

DLA strategic goal	Number of strategies	Number of objectives	Number of initiatives
Goal 1—Provide responsive, best value supplies and services consistently to our customers.	3	8	8
Goal 2—Structure internal processes to deliver customer outcomes effectively and efficiently.	4	18	37
Goal 3—Ensure our workforce is enabled and empowered to deliver and sustain logistics excellence.	3	5	36
Goal 4—Manage DLA resources for best customer value.	3	8	16
Total	**13**	**39**	**97**

Source: GAO analysis of DLA data.

Table 2: Representative Strategies, Objectives, and Action Plan Initiatives of DLA's 2002-2007 Strategic Plan Customer Goal (strategic goal 1)

DLA strategic goal	Strategic strategies	Strategic objectives	Strategic action plan initiatives
Goal 1—Provide responsive, best value supplies and services consistently to customers.	Focus, manage, and measure logistics support by customer segment based on customer requirements.	Improve customer satisfaction to 90% by the end of fiscal year 2007.	Refine customer satisfaction survey. Implement customer Relationship Management. Service Level Agreements with major customer segments.
		Supply availability, for weapons systems and overall, shall be equal to or greater than 85% for each military service for each fiscal year.	Improved supply availability.
		Implement measurement of Customer Wait Time as the DOD logistics timeliness metric by the end of fiscal year 2007.	Customer Wait Time as the DOD Logistics Timeliness Measure.
		Reduce hardware backorders to 250,000 by the end of fiscal year 2007.	Backorder Reduction.
	Negotiate and honor performance agreements with customer segments.	Improve responsiveness by all modes of customer contact so that 85% of customer contacts meet standards by fiscal year 2007.	Establishment of practical responsiveness standards for each mode of customer contact with DLA and actions to improve responsiveness for each mode.
		Cost-effectively increase hardware combat support capability through utilizing Strategic Materiel Sourcing techniques and partnering with industry by forging 17 long-term strategic supplier alliances by fiscal year 2004.	

Source: GAO summary of DLA data.

The Balanced Scorecard

The balanced scorecard component of DLA's strategic system identifies and links DLA's strategic goals and strategies to transform DLA operations, including customer service, over the next 2 to 5 years. It also provides metrics to measure strategic plan progress including "lead" and "lag" indicators. For example, a lead performance indicator for a Goal 1 strategy—"Negotiate and honor performance agreements with customer segments"—measures the percent of customer agreements negotiated. A lag performance indicator for that same strategy measures the percent of negotiated agreements fulfilled.

DLA's balanced scorecard component "cascades" to each of its Defense Supply Centers located in Richmond, Virginia; Columbus, Ohio; and

Philadelphia, Pennsylvania. The centers' balanced scorecards identify the "how and to what extent" their strategies support DLA's corporate balanced scorecard. The centers' scorecards are expected to reflect DLA's overall vision of "Right Item, Right Time, Right Place, Right Price, Every Time…Best Value Solutions for America's Warfighters" and, in this way, provide a consistent vision to DLA customers, stakeholders, and employees.

The Business Plan

DLA's business plan is a 2-year, agency-wide operating plan that (1) tracks DLA's 97 initiatives in varying stages of implementation and (2) highlights the investments and actions necessary to achieve strategies and business objectives in the near-term. DLA considers 43 of these initiatives as strategic because they are required to achieve DLA's vision and strategy. Another 45 initiatives DLA considers critical to maintain or improve DLA operations and guarantee both effectiveness and efficiency. Also, DLA considers nine initiatives mandatory because they are directed by higher authority and may also be strategic or critical. The 97 initiatives, at the time of our review, were in varying stages of implementation.

DLA's business plan, issued in May 2002, is the newest component of the Strategic Management System. Its initiatives are described in action plans, which cite who is responsible for the action; the amount of investment required; how the action supports strategic plan goals, strategies, and objectives; and the major events and time frames to achieve the action. Of the 97 DLA initiatives contained in DLA's Strategic Management System, DLA identified 18 that are aimed specifically at mitigating spare parts shortages and 6 that are aimed at improving DLA's internal logistics operating systems and processes that may improve logistics support to customers and thus help reduce critical readiness-degrading spare part shortages affecting the military forces. The remaining 73 initiatives relate to DLA's financial, human capital, and information technology areas that could improve DLA's ability to better serve its customers but do not specifically relate to acquiring spare parts to fill shortages. Thus, they are not addressed in this report.

Some Strategic Initiatives Could Help Mitigate Spare Parts Shortages and Improve Supply Readiness

DLA has a number of initiatives that, if fully implemented, could either directly or indirectly contribute to mitigating critical spare parts shortages and may improve supply support readiness. Twenty-four of the 97 initiatives contained in its Strategic Management System, and 1 separate ongoing DOD-directed initiative, according to DLA, are aimed at achieving these results. Such improvements are likely, in part, because some of the 24 initiatives address recurring causes for the shortages.

If Fully Implemented, DLA Initiatives Could Directly Reduce Critical Shortages and Improve Supply Support Readiness

If fully implemented as planned by the end of 2009, 18 initiatives in DLA's Strategic Management System could directly help mitigate spare parts shortages and may improve supply support readiness. These initiatives focus heavily on (1) obtaining strategic sourcing, which involves alliances and long-term agreements with suppliers of critical parts; (2) partnerships and agreements with customers; (3) an improved supply availability to customers; (4) a reduction of backorders; and (5) the development of a national inventory system. Several of these initiatives also address some recurring causes of shortages. For example, one initiative is aimed at reducing spare parts shortages by identifying manufacturers that produce parts, such as cast and forged parts and microcircuits, that are no longer produced by the original equipment manufacturers, yet are still critical components of weapon systems. Another initiative will likely mitigate spare parts shortages because it is designed to guarantee DLA sources of low-demand, high-dollar items by forming long-term contracts with their manufacturers. Another initiative is designed to develop agreements between suppliers and DLA to arrange long-term contracts for sole-source items.

Some of the initiatives more specifically address recurring causes for critical spare parts shortages. For example, a Defense Supply Center Richmond official identified two predominant causes for a number of critical spare parts shortages—unexpected service demand and sole source manufacturers not producing quantities DLA needed to fill customer orders. The customer relationship management initiative is designed to address unexpected service demands by using collaborative demand planning between DLA and the services to determine how much of a particular part is needed during wartime as opposed to peacetime.

According to DOD, this initiative addresses the readiness-based sparing concept[11] by using service level agreements to provide tailored support levels for weapon systems parts. Several supplier relationship initiatives are aimed at addressing problems with sole source manufacturers not producing quantities DLA needs to fill customer orders.

Table 3 briefly describes the 18 initiatives DLA Logistics Operations officials identified in the Strategic Management System's business plan component that are currently aimed at mitigating spare parts shortages. It also provides an estimated completion date for the ongoing initiatives. Appendix IV describes the initiatives in more detail.

[11] The readiness-based sparing concept tailors different support level goals by item with a link between the item's availability and desired readiness levels, according to DOD.

Table 3: DLA Initiatives Specifically Aimed at Improving Spare Parts Shortages

Initiative	Description	Estimated completion date
Strategic Materiel Sourcing	Procure items needed for readiness by applying commercial best practices to several initiatives that fall under the initiative's "umbrella" including Strategic Supplier Alliances, Strategic Materiel Sourcing/Rapid Manufacturing initiative, Supplier Relationship Management, Corporate Contracts, and Prime Vendor Contracts.	Fiscal year 2005
Strategic Supplier Alliances	Develops agreements between suppliers and DLA to arrange long-term contracts for sole-source items using best commercial practices.	Fiscal year 2005
Strategic Materiel Sourcing/Rapid Manufacturing Initiative	Guarantee DLA sources of low-demand, high-dollar items by forming long-term contracts with their manufacturers stipulating that DLA will also purchase other low-priced, higher-demand items from those same manufacturers.	Ongoing business practice[a]
Supplier Relationship Management	Facilitates communication between DLA and its suppliers with the end goal of receiving the desired quantity of a particular item when it is needed.	Fiscal year 2005
Corporate Contracts	Long-term contracts with a single source that provides multiple items, which reduces spot buying activity and business transaction costs.	Ongoing business practice[a]
Prime Vendor Contracts	Long-term contracting that allows military customers to requisition market ready or commercial products directly from a commercial distributor as the items are needed.	Ongoing business practice[a]
Manufacturing on Demand	Identifies manufacturers for parts that are no longer produced by the original source, yet are still critical components of weapon systems. Includes Casting and Forging, the Generalized Emulation of Microcircuits, Warstoppers, and the Strategic Material Sourcing/Rapid Manufacturing initiative.	Ongoing business practice[a]
Casting and Forging	Obtains cast and forged spare parts that are difficult to find and often are no longer produced by the original manufacturer.	Ongoing business practice[a]
Generalized Emulation of Microcircuits	Identifies sources of replacement microcircuits that are critical components of older weapons systems still used by the services.	Ongoing business practice[a]
Warstoppers	Identifies (1) critical, mission-essential items with long production lead-times that are low-demand items during peacetime but experience high demand during periods of war and (2) vendors that will be able to meet the wartime surge and sustain wartime requirements for those items.	Ongoing business practice[a]
Organic Manufacturing	Production process of items that must be produced by government owned and operated facilities because the private sector no longer produces the parts.	Ongoing business practice[a]
Improved Supply Availability	Increases supply availability in accordance with DLA's goal of improving supply availability, specifically, maintaining aggregate 85 percent, or greater, supply availability for weapon systems for each of the military services for each fiscal year.	Assessed and reported in monthly reviews

(Continued From Previous Page)

Initiative	Description	Estimated completion date
Backorder Reduction	Reduce backorders to increase supply availability and customer support.	Assessed and reported in monthly reviews
Customer Relationship Management	Incorporates customer input into DLA's business practices to improve customer service and anticipate customer needs.	Initial Operational Capability fiscal year 2005; Full Operational Capability fiscal year 2009
Service Level Agreements	Establishes a set of common expectations between DLA and customers and encourages collaboration between them to improve customer satisfaction.	Fiscal year 2004
National Inventory Management Strategy	Combines the consumable inventories of the services, with DLA's inventory, resulting in a single national inventory that will improve supply performance by eliminating redundancy and improving asset visibility.	Fiscal year 2009
Inventory Accuracy Improvement	Improve inventory record accuracy by using independent contractors to perform sample inventories of DLA items.	Fiscal year 2007
DLA Product Conformance, Aviation	Conducts monthly quality assurance testing to baseline aviation products to identify necessary improvements to meet performance goals for critical items.	Assessed and reported in monthly reviews

Source: DLA (data), GAO (presentation).

[a]A business practice that DLA has implemented to fulfill specific goals and to better meet customers' needs. Such practices have performance targets and measures that are assessed periodically.

Several DLA Initiatives Focus on Improving Logistics Systems and Processes That Indirectly Reduce Spare Parts Shortages

DLA also identified six Strategic Management System initiatives that could decrease shortages and increase supply availability by developing or adjusting systems and business processes to improve its logistics operations and better serve its customers. However, some of these initiatives are not expected to be fully implemented until 2007. These initiatives include Business Systems Modernization, Distribution Planning and Management System, Strategic Distribution, Logistics Response Time Reduction, Direct Vendor Delivery Processing Time, and Improving Overall Purchase Request Processing Time. Business System Modernization faces a number of challenges before being fully implemented. In June 2001, we reported some information technology concerns with the initiative, which increased program risk that DOD agreed to address.[12] Table 4 identifies the system and process initiatives and provides a brief description of intended results. It also provides an

[12] U.S. General Accounting Office, *Information Technology: DLA Should Strengthen Business Systems Modernization Architecture and Investment Activities*, GAO-01-631 (Washington, D.C.: June 29, 2001).

estimated completion date for the ongoing initiatives. Appendix V describes each initiative in greater detail.

Table 4: DLA System and Process Initiatives

Initiative	Description	Estimated completion date
Business Systems Modernization	Transformation of how DLA conducts its logistics operations including the replacement of legacy systems with new software, reengineering by fielding best practices, improving customer service through collaboration with customers and suppliers, and providing best value solutions.	Fiscal year 2006
Distribution Planning and Management System	Improves DLA business processes by enhancing existing systems with new commercial best practices that include reengineered logistics processes and industry-based integrated supply chain solutions. Electronic logistics data will provide real-time information about orders, including asset visibility of requisitioned spare parts, as they are in transit to the customer.	Fiscal year 2007
Strategic Distribution	Identifies international locations that can be used as strategic distribution points.	Fiscal year 2007
Logistics Response Time Reduction	Improves supply chain performance by reducing the number of days that its customers must wait for medical, pharmaceutical, clothing, and textile items, as well as repair parts.	Assessed and reported in monthly reviews
Direct Vendor Delivery Processing Time	Improves the average processing time to 13 days for planned direct vendor delivery from the inventory control point/vendor.	Assessed and reported in monthly reviews
Improve Overall Purchase Request Processing Time	Improve purchase request processing time by reducing inventory control point processing time.	Assessed and reported in monthly reviews

Source: DLA (data), GAO (presentation).

A Separate DOD-Directed Aviation Investment Initiative Has Significantly Increased Availability of Some Critical Aviation Parts, but Others Remain in Short Supply

A separate DOD-directed, $500 million aviation investment initiative—although not included in DLA's business plan—has significantly improved the availability of many critical aviation spare parts and most likely supply readiness. During its first 3 fiscal years, 2000-2002, the initiative, called the Aviation Investment Strategy, significantly improved critical aviation parts. Shortages, however, will continue, in part, because the 85-percent aggregate goal does not reveal that while 47 percent of the critical aviation spare parts were raised to this level, many—5,414 (53 percent) as of the end of fiscal year 2002—are below the goal. Of that number, 2,904 parts, or over half, were available less than 35 percent of the time. In addition, DLA officials informed us that DLA's progress in buying these critical spare parts was impeded by a DOD regulation that has since been revised on May 23, 2003, to allow a waiver for such purchases.

DOD transferred $500 million from the services' operations and maintenance funds to support the initiative. The low availability of critical aviation parts had occurred because of (1) steady declines in inventory levels during the 1990s and (2) inventory models that optimized total stock availability, while constrained by total cost, and did not favor investing in low-demand, high-cost parts regardless of readiness impact. These conditions prompted the Office of the Secretary of Defense in 1999 to direct DLA's investment of $500 million, through the initiative, in safety level inventories of selected aviation critical parts to achieve the aggregate 85-percent goal. Our analysis of over 10,000, out of a total of over 15,000, critical aviation parts before and after investment indicates that their availability significantly improved over the fiscal years 2000-2002 period. Also, additional improvement could result as DLA invests the initiative's remaining $119 million in fiscal year 2004—the fourth and last year of investment allocation—in the initiative's remaining parts.[13] However, 5,414 of these critical aviation parts were below DLA's 85-percent goal as of the end of fiscal year 2002.

DLA measures its supply support effectiveness by its ability to provide customers the parts they need based on meeting an aggregate 85-percent availability rate. This means that the first time a customer requisitions a part, it will be available for delivery, on average, 85 percent of the time. Using an aggregate measure means that the actual supply availability for individual parts will vary—some items will be above 85 percent and some well below 85 percent. But DLA targets the average availability of the group at 85 percent.

Our analysis shows significant improvement in the availability of critical aviation spare parts resulting from investments made during fiscal years 2000 to 2002. It also shows that many critical aviation parts will continue to be available well below 85 percent of the time. This occurred, in part, because of DLA's 85-percent aggregate measure of supply support effectiveness that was applied to each of three critical part groups,[14] and

[13] As of December 2002, there were 15,708 parts in the Aviation Investment Strategy initiative. We excluded 5,412 parts that remained for targeted investment in the initiative's fourth year, fiscal year 2003, because the investment results of those parts were not available. Additionally, we excluded five parts for which the Marine Corps was the predominant user, leaving a balance for our analysis of 10,291.

[14] As identified by the military services, Tier 1 parts are the most critical, Tier 2 parts are critical, and Tier 3 parts are the least critical.

not individual parts, and a DOD regulation that until recently limited the safety level inventory investment. Thus, many parts in the initiative will have availability rates at 85 percent or higher after they receive investment allocation, but other parts will continue to experience low availability until further investment is made. For example, of the 10,291 parts that received investment through fiscal year 2002, 1,397 had supply rates greater than or equal to 85 percent before the initiative's investment. After investment through the initiative for 3 years, that number increased to 4,877—about a 250-percent increase. However, 5,414 parts still had availability rates less than the DLA 85-percent aggregate goal; and 2,904, or 54 percent, of these parts—such as engine mount fittings for the B-52 bomber, shoulder bolts for the F-14 Tomcat, and landing gear axles for the UH-60A helicopter—were available below 35 percent of the time. Nearly 2,400 of these were tier 1, or the most critical, spare parts.

Tables 5 through 8 illustrate that this trend holds true, not only for all parts in the Aviation Investment Strategy initiative as a whole, but also for each of the three critical part groups. Table 5 shows the aggregate improvement for 10,291 DLA-managed critical aviation parts through investment year 2002 by various availability percent stratifications. Table 6 shows the same information for the 8,300 Tier 1 parts, the most critical group; table 7 reflects the results of the 1,415 parts in the Tier 2 critical part group, and table 8 shows the results of the 576 parts in the Tier 3 least critical part group. Furthermore, similar improvement occurred in each of the military services over the same period.

Table 5: Impact of Investment Results on All Tier Groups of Critical Aviation Parts, as of the End of Fiscal Year 2002

Supply availability percent stratification	Status before investment (number of items in base year preceding investment)	Status after investment (number of items)	Difference	Percent change
85 and above	1,397	4,877	3,480	249
84 to 75	881	641	-240	-27
74 to 65	905	524	-381	-42
64 to 55	860	455	-405	-47
54 to 45	803	516	-287	-36
44 to 35	791	374	-417	-53
Below 35	4,654	2,904	-1,750	-38
Total	**10,291**	**10,291**		

Source: GAO analysis of DLA data.

Table 6: Impact of Investment Results on Tier 1 Most Critical Aviation Parts, as of the End of Fiscal Year 2002

Supply availability percent stratification	Status before investment (number of items in base year preceding investment)	Status after investment (number of items)	Difference	Percent change
85 and above	1,101	3,886	2,785	253
84 to 75	694	495	-199	-29
74 to 65	730	436	-294	-40
64 to 55	690	373	-317	-46
54 to 45	657	422	-235	-36
44 to 35	636	293	-343	-54
Below 35	3,792	2,395	-1,397	-37
Total	**8,300**	**8,300**		

Source: GAO analysis of DLA data.

Table 7: Impact of Investment Results on Tier 2 Critical Aviation Parts, as of the End of Fiscal Year 2002

Supply availability percent stratification	Status before investment (number of items in base year preceding investment)	Status after investment (number of items)	Difference	Percent change
85 and above	222	706	484	218
84 to 75	125	106	-19	-15
74 to 65	123	64	-59	-48
64 to 55	126	59	-67	-53
54 to 45	112	61	-51	-46
44 to 35	98	57	-41	-42
Below 35	609	362	-247	-41
Total	**1,415**	**1,415**		

Source: GAO analysis of DLA data.

Table 8: Impact of Investment Results on Tier 3 Least Critical Aviation Parts, as of the End of Fiscal Year 2002

Supply availability percent stratification	Status before investment (number of items in base year preceding investment)	Status after investment (number of items)	Difference	Percent change
85 and above	74	285	211	285
84 to 75	62	40	-22	-35
74 to 65	52	24	-28	-54
64 to 55	44	23	-21	-48
54 to 45	34	33	-1	-3
44 to 35	57	24	-33	-58
Below 35	253	147	-106	-42
Total	**576**	**576**		

Source: GAO analysis of DLA data.

Furthermore, our analysis of information provided by DLA revealed that 3,342 of the 15,708 critical aviation parts in the Aviation Investment Strategy initiative as of December 2002 could remain below DLA's 85 percent aggregate availability rate, regardless of funds available for investment. According to DOD officials, this is because DOD Supply Chain Materiel Management Regulation 4140.1-R limits safety level investments by requiring they meet a specific demand limit unless that limit is waived in cases where application of the limit significantly impairs weapon system support.[15] Without such a waiver, these spare parts could continually be below DLA's availability goal, adversely affect readiness, and increase DLA backorders. Furthermore, DLA's supply support effectiveness and critical aviation spare parts availability to customers could continue to be limited.

DLA is planning another investment strategy, scheduled to begin in fiscal year 2004 called Weapon System Readiness Improvement, subsequent to

[15] Section C2.6.3.2.6.1 of DOD's Supply Chain Materiel Management Regulation 4140.1-R states that to dampen any overstatement of safety level requirements due to imprecise safety level models and thereby avoid unnecessary procurement or repair actions, an item's safety level shall be constrained to a maximum of three standard deviations of lead-time demand or the lead-time demand, whichever is less. Lead-time demand for a particular supply item is the number of the item needed in a specified time period multiplied by the projected lead time for the item. The regulation was amended on May 23, 2003, to allow waivers. Under the amended regulation, the lead-time demand limit may be waived for weapon system items where credible evidence exists that its application significantly impairs weapon system support.

the conclusion of the Aviation Investment Strategy initiative that could also improve supply readiness. It is expected to target critical aviation, land, and maritime weapon systems spare parts for investment to achieve a minimum availability of 80 percent for each part. However, the same lead-time constraints contained in DOD's Supply Chain Materiel Management Regulation 4140.1-R could also prevent some of these critical spare parts from reaching the 80-percent availability goal, meaning they will not be available to customers when needed.

An Office of the Secretary of Defense Inventory Management Study conducted in August 2002 addressed a need for a focused investment in critical spare parts that affect supply readiness. The study concluded that low stockage levels for high-cost, low-demand consumable parts were the predominate cause of supply-related Not Mission Capable rates in the Air Force and Navy. Furthermore, it stated that DLA's optimization requirements models favor the procurement of the higher-demand, lower-cost parts, continuing the low availability trend for critical spare parts. The Comptroller, Office of the Under Secretary of Defense, recommended in the August 2002 DOD management study that DLA and the services should continue efforts to ensure that high-cost, low-demand items that would improve weapon system readiness are available when needed—an effort that might require DLA to prioritize its funding to increase appropriate weapon system inventories to meet higher availability of critical parts.

The August 2002 Office of the Secretary of Defense Inventory Management Study stated that additional efforts are required to improve the supply managers ability to make purchase decisions based on readiness impacts instead of aggregate availability goals. It recommended long and short-term actions intended to more closely align supply management accountability with readiness. The long-term recommendation was to ensure that the department's logistics systems provide the data needed to link readiness and supply management decisions supporting readiness based sparing models. It noted that the Army, Navy and DLA are in the process of changing their supply management functions from legacy systems to new commercial systems, but this change to new commercial systems introduces an interoperability risk because the department does not have an overarching enterprise architecture defining the interoperability requirements. Therefore, the study also recommended that in the interim time remaining before the new systems are implemented the military departments should continue to apply higher supply targets to the inventory items associated with weapons systems that report readiness

rates below established goals. It specified that these supply targets should be measured by several factors including supply availability.

DLA Can Estimate the Impact of Additional Investment on Supply Availability, Which Contributes to Supply Readiness

DLA can estimate that added investment in safety level inventories of critical readiness-related spare parts will increase parts availability and will likely improve supply readiness of the military services. However, there is no assurance that increased investments would affect overall unit readiness.

At our request, the DLA Office of Operations Research and Resource Analysis provided investment estimates[16] as of November 2002 to indicate what it would cost to achieve supply availability rates of 85, 90, and 95 percent for over 219,000 of the spare parts most critical to readiness. Part criticality was determined by the military services. Estimates disregard DOD's limiting regulatory requirement and are based on a minimum availability rate for each part instead of an aggregate. Because DLA maintains some parts at rates higher than 85 percent, the overall rate for the group will generally be higher than the minimum. Table 9 shows the investment cost estimates at the various supply availability rates and the effective overall availability rate for 219,071 of the military services' most critical aviation, land, and maritime parts. For example, an investment of $748 million was estimated to achieve a minimum supply availability rate of 85 percent for the most critical parts. When all parts that exceed the minimum rate are considered, the overall supply availability rate is estimated at 92 percent. As indicated in table 9, investment costs increase considerably to achieve the 5 percent increments at the higher minimum availability rates with little effect on the overall rate.

[16] We did not validate the accuracy of these estimates.

Table 9: Estimated Investment to Achieve Various Minimum Supply Availability Rates for the Most Critical Aviation, Land, and Maritime Military Service Parts

Dollars in millions

Supply availability minimum rate	85 percent	90 percent	95 percent
Estimated investment	$748	$1,256	$2,215
Overall supply availability rate	92 percent	93 percent	96 percent
Number of critical items	219,071	219,071	219,071

Source: GAO analysis of DLA data.

Inventory quantities needed to achieve these supply levels could take years to acquire and affect a part's availability rate. It takes up to 3 years in some cases to procure certain critical parts; and when delivered, the purchased quantities do not necessarily have an immediate impact on supply availability rates. Some parts, particularly aviation parts, have several years of acquisition lead time.[17] For example, 351 critical aviation parts contained in the Aviation Investment Strategy initiative have acquisition lead times of 2 years or greater. Several parts even exceeded 3 years. In addition to this acquisition lead time, an initiative official told us that it generally takes about 2 years before parts received from vendors actually affect or increase supply availability rates because initial investment dollars are used to fill an item's backorders before increasing the part's safety level quantities. Thus, it could take as long as 5 years in total to improve the supply availability of long acquisition lead-time parts.

Increasing safety levels of critical spare parts inventories will likely increase supply availability and therefore supply support readiness. However, because of the multiple factors that affect a unit's readiness—including supply, equipment, training, and personnel—investment in critical parts does not necessarily mean that a unit's overall readiness posture will improve. For example, an operating unit having sufficient spare parts could still have impaired readiness due to maintenance, training, and personnel problems.

[17] Acquisition lead time is the administrative and production time required between identification of a need to buy and the letting of a contract or the placing of an order and receipt into the supply system of materiel purchased.

Conclusions

It is important for DLA, the procurer and manager of most spare parts for the military services, to have effective supply acquisition, inventory management, and distribution systems to ensure DOD's readiness. The agency's strategy for its logistics planning system and its initiatives have the attributes that, if fully implemented, could help resolve causes for shortages and improve supply support. The strategy and initiatives also provide a baseline for measuring progress. However, three things—DOD's Supply Chain Materiel Management Regulation 4140.1-R, DLA's aggregate measurement goal for assessing supply effectiveness, DLA's requirements models that do not prioritize high-cost, low-demand critical spare parts—could significantly lessen DLA's potential to mitigate critical spare parts shortages and increase military readiness. Unless waivers to the lead-time demand limits are requested and approved as appropriate under the current regulation, the availability of certain critical spare parts for customers could continue to be less than 85 percent—many even below 35 percent. Thus, DLA's follow-on investment initiative scheduled to begin in fiscal year 2004 will not be as effective as it could be in increasing the availability of critical parts that, in turn, may increase military readiness. Continuing to manage critical spare parts based on an 85-percent aggregate availability goal also contributes to the disparity in the availability of these parts. Absent a minimum availability goal for buying and stocking critical spare parts and annual performance targets for assessing progress toward that goal, many critical spare parts shortages that impede readiness could continue. Furthermore, prioritizing investments in spare parts is important. Had DOD not directed DLA to focus $500 million on critical aviation parts in the Aviation Investment Strategy, DLA would likely have continued using quantitative models that prioritized buying and stocking low-cost, high-demand parts and not those high-cost, low-demand parts that most impact readiness. The success of the DOD-directed initiative has shown that prioritizing funding for critical spare parts can improve their availability over several years and likely enhance supply readiness. Such a focused investment is also consistent with the recommendation of the Comptroller, Office of the Under Secretary of Defense, to invest in those high-cost, low-demand items that are critical to supply readiness. Linking funding to the annual performance targets could be an effective management tool for decision makers.

Recommendations for Executive Action

To improve the supply availability of critical readiness degrading spare parts that may improve the overall readiness posture of the military services, we recommend that the Secretary of Defense direct the Director of the Defense Logistics Agency to

- submit, as appropriate, requests for waiver(s) of the provisions of the DOD Supply Chain Materiel Management Regulation 4140.1-R that limit the safety level of supply parts to specific demand levels. Such waivers would allow DLA to buy sufficient critical spare parts that affect readiness of service weapon systems to attain an 85-percent minimum availability goal;

- change the agency's current aggregate 85-percent supply availability goal for critical spare parts that affect readiness, to a minimum 85-percent supply availability goal for each critical spare part, and because of the long lead times in acquiring certain critical parts, establish annual performance targets for achieving the 85-percent minimum goal; and

- prioritize funding as necessary to achieve the annual performance targets and ultimately the 85-percent minimum supply availability goal.

Agency Comments and Our Evaluation

In written comments on this report, DOD generally concurred with the draft report and the intent of the recommendations, but not all of the specified actions we recommended. Furthermore, DOD concluded its proposed actions regarding each of our recommendations are sufficient and no further directions or actions are required. DOD's written comments are reprinted in their entirety in appendix II.

In concurring with the first recommendation, DOD acknowledged that the amended DOD 4140.1-R, dated May 2003, gives the military services and DLA authority to waive the lead-time demand maximum in cases where creditable evidence exists. We agree with that action.

Although DOD concurred with the intent of our second and third recommendations, DOD did not agree with the need to replace the aggregate 85-percent supply availability goal with a minimum 85-percent supply availability goal for critical spare parts, establish annual performance targets for achieving the minimum goal, or prioritize funding to achieve it. Instead, DOD said DLA is working toward a readiness-based sparing concept of tailoring different support level goals by item with a link

between an item's availability and desired inventory levels rather than one standard level of support for all critical items. Additionally, DOD stated that setting an 85-percent minimum goal across the universe of critical items would undermine the efficiencies of optimization that may be achieved by working toward different supply availability goals for different parts based on readiness impact. It cited that its Customer Relationship Management initiative, which is scheduled to start in fiscal year 2005 and be fully operational in fiscal year 2009, will use service level agreements to provide this type of tailored support. It stated that funding would then be prioritized accordingly in concert with the implementation of the new tailored approach.

We disagree that the actions DOD prescribes will be sufficient, particularly in the near term, to address the need for DLA to increase critical spare parts availability. As our report notes, DLA is responsible for managing hundreds of thousands of critical parts that the services have identified as crucial to weapons systems readiness. However, many of these parts are not available to meet service needs. DLA has been using the same 85-percent aggregate goal for stocking these critical parts as it has for non-critical parts. Based on our work, DLA was not managing its inventory by developing individual item supply availability targets tailored to desired readiness levels. Although DLA has started using service level agreements, which are a component of DLA's Customer Relationship Management initiative, as our report notes, these agreements have a limited scope and are considered a work in progress. DLA plans to execute 11 agreements by the end of fiscal year 2003 and as noted, full implementation for the Customer Relationship Management initiative is scheduled for fiscal year 2009. Furthermore, managing to an 85-percent aggregate goal does not reveal the significant shortages in availability of many individual critical parts. For example, after 3 years of focused investment to increase the availability of over 10,000 critical aviation parts, 53 percent were not available at the 85-percent aggregate goal and over half of these parts were available below 35 percent of the time.

DOD's response proposes, what we agree is, an optimum approach that is consistent with the desire expressed in the August 2002 Office of Secretary of Defense Inventory Management Study for supply managers to make purchase decisions based on readiness impacts instead of aggregate availability goals. However, according to the August report, implementing this approach is a long-term effort dependent on DLA and the services' logistics systems providing the data needed to link readiness and supply management decisions that has interoperability risks because the

department does not have an overarching architecture for integrating such systems. The August report, therefore, recommended that until these new systems are implemented to provide more visibility into the relationship between inventory levels and weapon system readiness, DLA and the military departments should continue to apply higher supply availability targets to the inventory items associated with weapon systems where readiness is below established goals.

As DLA plans another investment strategy, subsequent to the conclusion of the Aviation Investment Strategy initiative, that will expand the number of critical parts that are targeted for investment by including land and maritime items, it needs a clear minimum goal for the availability of these parts, annual performance targets for measuring progress, and focused funding. Therefore, until the systems, initiatives, and agreements are in place to support the department's prescribed approach for optimizing efficiencies of supply availability and investment, we continue to believe our recommendations to set a minimum goal of 85 percent for each critical spare part, establish annual performance targets for achieving the goal, and prioritize funding accordingly are reasonable interim actions to meet the services' readiness goals for parts they have identified as critical to readiness.

We are sending copies of this report to the Secretary of Defense; the Director, Defense Logistics Agency; the Director, Office of Management and Budget; and other interested congressional committees and parties. We will also make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov.

Please contact me on (202) 512-8365 or Richard Payne on (757) 552-8119 if you or your staff have any questions concerning this report. Other contacts and key contributors are listed in appendix VI.

Sincerely yours,

William M. Solis, Director
Defense Capabilities and Management

Scope and Methodology

To determine the adequacy of DLA's strategic plans to address critical spare parts shortages and their effect on readiness, we obtained and analyzed DLA planning documents that pertained to spare parts or logistics. We assessed the adequacy of DLA's strategic planning by comparing DLA planning to the requirements outlined in the Government Performance and Results Act of 1993 to determine if DLA's planning contained key management attributes that are necessary to reduce spare parts shortages. We interviewed DLA officials at DLA Headquarters, Fort Belvoir, Virginia, regarding DLA strategic planning efforts and to determine the extent to which DLA's strategic planning had been coordinated with the Office of the Secretary of Defense and the services.

To determine the likelihood that DLA's strategic logistics initiatives will achieve their intended results and help mitigate spare parts shortages that affect readiness, we obtained and analyzed information and documentation related to (1) initiatives to overcome shortages, (2) chronic shortage items degrading the readiness of forces, and (3) chronic and recurring causes for shortages. We obtained a list of initiatives that DLA officials identified as either specifically improving spare parts shortages or improving systems and processes that could impact shortages. We analyzed the initiatives to see if they contained performance measures and milestones to track the progress of the initiatives.

To determine the impact of a $500 million DOD-directed aviation investment to improve the availability of critical spare parts, we obtained and analyzed DOD-directed aviation investment data on supply availability. We sorted the data by critical part group, predominant user, funding year, fiscal year, and supply availability percentage increments/stratifications (85 percent and greater, 84 to 75 percent, 74 to 65 percent, 64 to 55 percent, 54 to 45 percent, 44 to 35 percent, and less than 35 percent) to detail changes in parts availability before and after investment. We interviewed program and budget officials at DLA Headquarters concerning which initiatives contained in their strategic planning would impact spare parts shortages. We also interviewed officials at the Defense Supply Center in Richmond, Virginia, concerning the separate DOD-directed Aviation Investment Initiative and the spare parts shortages that the services identified as critical to weapon system readiness, as well as the key DLA-identified initiatives. We focused on the Richmond Supply center because it is the lead center for aviation and because aviation items have been predominant readiness degrading items for the Air Force and Navy.

To determine the extent to which DLA can identify how increased investment impacts critical spare parts inventories and readiness, we requested DLA's Office of Operations Research and Resource Analysis to estimate the investment cost necessary to increase supply availability of critical aviation spare parts to a minimum rate of 85 percent. However, we did not independently validate or verify the accuracy of DLA's estimates that show the relationship between investment and supply availability or of DLA's optimization models that determine logistics requirements, given funding constraints.

We performed our work from August 2002 to May 2003 in accordance with generally accepted government auditing standards.

Comments from the Department of Defense

DEPUTY UNDER SECRETARY OF DEFENSE FOR
LOGISTICS AND MATERIEL READINESS
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

JUL 23 2003

Mr. William Solis, Director
Defense Capabilities and Management
U.S. General Accounting Office
441 G Street, N.W.
Washington, DC 20548

Dear Mr. Solis:

This is the Department of Defense (DoD) response to the GAO draft GAO-03-709, "DEFENSE INVENTORY: Several Actions Are Needed to Further DLA's Efforts to Mitigate Shortages of Critical Parts," dated June 10, 2003 (GAO Code 350251). The DoD generally concurs with the intent of the recommendations in the draft report.

Detailed comments on the draft report recommendations are included in the enclosure. The DoD appreciates the opportunity to comment on the draft report.

Sincerely,

Diane K. Morales

Enclosure

DEPARTMENT OF DEFENSE COMMENTS TO THE RECOMMENDATIONS

GAO-03-709 / CODE 350251

"DEFENSE INVENTORY: Several Actions Are Needed to Further DLA's Efforts to Mitigate Shortages of Critical Parts"

RECOMMENDATION 1: To improve the supply availability of critical readiness degrading spare parts that may improve the overall readiness posture of the Military Services, GAO recommended that the Secretary of Defense direct the Director of the Defense Logistics Agency (DLA) to submit, as appropriate, requests for waiver(s) of the provisions of the Materiel Management Regulation 4140.1-R that limit the safety level of supply parts to specific demand levels. Such waivers would allow DLA to buy sufficient critical spare parts that affect readiness of service weapon systems to attain an 85 percent minimum availability goal. (p. 27/GAO Draft Report)

DoD RESPONSE: Concur with intent. The DoD 4140.1R dated May 2003 gives the Military Services and DLA authority to waive the lead time demand maximum in cases where creditable evidence exists. Therefore, no further direction is required and action consistent with this recommendation is complete.

RECOMMENDATION 2: The GAO recommended that the Secretary of Defense direct the Director of the Defense Logistics Agency to change the agency's current aggregate 85 percent supply availability goal for critical spare parts that affect readiness, to a minimum 85 percent supply availability goal for each critical spare part, and because of the long lead times in acquiring certain critical parts, establish annual performance targets for achieving the 85 percent minimum goal. (p. 27/GAO Draft Report)

DoD RESPONSE: Concur with intent. We agree that in some cases critical items should be reviewed for higher levels of supply availability based on readiness impact. However, we do not agree with replacing the aggregate 85 percent supply availability goal with an 85 percent minimum goal. DLA is working towards a readiness based sparing concept of tailoring different support level goals by item with a link between the item's availability and desired readiness levels, rather than working towards achieving one standard level of support for all critical weapons system items. Setting an 85 percent minimum goal across the universe of critical items would undermine the efficiencies of optimization that may be achieved by working towards different supply availability goals for different parts, based no their readiness impact. No further direction is required and action consistent with this recommendation is complete.

RECOMMENDATION 3: The GAO recommended that the Secretary of Defense direct the Director of the Defense Logistics Agency to prioritize funding as necessary to achieve the annual performance targets and ultimately the 85 percent minimum supply availability goal. (p. 27/GAO Draft Report).

DoD RESPONSE: Concur with intent. We do not agree with funding towards an 85 percent minimum supply availability goal. However, as DLA implements the tailored approach defined in the response to recommendation 2, funding will be prioritized according to the new approach. As part of its Customer Relationship Management (CRM) initiative and customer facing business operations, DLA continues to work with its customers to develop and execute performance level agreements, identified by DLA as service level agreements (SLAs), focused on providing the type of tailored support addressed in the response to recommendation 2. Initial operating capability for CRM is scheduled for FY 05, with full operational capability scheduled for FY 09. Development of SLAs is an ongoing business process with no discrete due date. No further direction is required and action consistent with this recommendation is complete.

Schematic of Defense Logistics Agency Strategic Management System

Source: DLA.

Description of DLA Initiatives Aimed at Mitigating Spare Parts Shortages

DLA identified 18 strategic initiatives in varying stages of implementation in its Strategic Management System that are aimed at mitigating shortages of spare parts, including critical ones. Of these, three—Strategic Material Sourcing, Manufacturing on Demand, Customer Relationship Management—are umbrella initiatives with five, three, and one additional initiative, respectively, under them. What follows is DLA's description of the initiatives. We have not verified the details of these descriptions.

Strategic Materiel Sourcing Initiative

The Strategic Materiel Sourcing initiative represents DLA's attempt to procure items needed for readiness by applying commercial best practices to several initiatives that fall under that initiative's "umbrella," including Strategic Supplier Alliances, Strategic Materiel Sourcing/Rapid Manufacturing initiative, Supplier Relationship Management, Corporate Contracts, and Prime Vendor Contracts.

Strategic Supplier Alliance Initiative

The Strategic Supplier Alliance develops agreements between suppliers and DLA to arrange long-term contracts for sole-source items using best commercial practices such as partner-driven, integrated supply chain management whereby the buyer and seller cooperate to maximize their mutual benefit. One of the initiative's goals is to improve the readiness of weapon systems, and this is accomplished in part by reducing the customer wait time for spare parts. Other potential benefits include improved capacity utilization, increased process reliability, reduced inventories, reduced cycle times, leveraging of shareholder strength, increased flexibility, increased customer service, shared innovations and technologies, and reduced total system costs. The initiative is composed of a charter, goals, improvements, and metrics.

According to a March 2002 report by the DOD Inspector General, a Strategic Supplier Alliance with Honeywell International has had positive results. The DOD Inspector General report stated that a DLA alliance with Honeywell produced three primary sole-source contracts for spare parts that resulted in improved wait time, reduced inventory for DLA to manage, and lower prices for DLA customers. The report also noted that (1) the contracts had resulted in a $9.8 million cost reduction of DLA managed inventory for the first 221 catalog contract items and (2) the alliance contracts will ultimately result in a price reduction of $59 million over 12 years for the first 594 items placed on the three contracts. Additionally, administrative lead–time for one of the contract items was reduced from

180 to 10 days. Other potential suppliers that DLA had identified as Strategic Supplier Alliance candidates include Lockheed Martin, Northrop Grumman, and Rolls Royce.

Strategic Material Sourcing/Rapid Manufacturing Initiative

The Strategic Material Sourcing/Rapid Manufacturing initiative is likely to improve spare parts shortages because it is intended to guarantee DLA sources of low-demand, high-dollar items by forming long-term contracts with their manufacturers, stipulating that DLA will also purchase other low-priced, higher-demand items from those same manufacturers. The group of low-demand, high-priced items and the high-demand, low-priced items to be purchased through one of the initiative's contracts is referred to as a "market basket." Insurance or numeric stockage objective and replenishment items with production lead-times of 60 days or greater that are projected to be purchased within the next 5 years will be included in the program, but critical weapon system parts will be excluded. At the time of our review, this initiative was still in the demonstration phase; and items were being identified to include in the market baskets. According to DLA officials, the demonstration phase will involve 18 groups of items covering approximately 11,000 individual items. The candidate population for the initiative includes 39,000 items with an annual demand of $67 million. Also, long-term sources for hard-to-find spare parts can be obtained by agreements tailored to the Strategic Material Sourcing/Rapid Manufacturing Initiative program. The initiative's contracts to produce a market basket's items for DLA can last up to 11 years: 5 years under the original contract and as many as three additional 2-year options if performance targets are met.

Supplier Relationship Management Initiative

The Supplier Relationship Management program seeks to improve spare parts shortages by facilitating communication between DLA and its suppliers with the end goal of receiving the desired quantity of a particular item when it is needed. Supply Relationship Managers meet periodically with the suppliers to ensure that the supplier will meet the performance levels and targets, which are specified in the contract with DLA, to provide spare parts.

Corporate Contracts

Corporate contracts are a form of long-term contract that DLA uses to negotiate an agreement with a manufacturer to supply a range of items. With such a contract, DLA can use a single source to provide an assortment of items that are managed by one or more inventory control points. The one contract thus reduces spot buying activity and business transaction costs. According to DLA, additional benefits potentially include lower production costs, improved delivery, ease of use, and reduced customer support infrastructure. Further, corporate contracts will likely improve spare parts shortages by locating a long-term source of spare parts with improved delivery, and this improved delivery will increase supply availability, which contributes to readiness. As of the beginning of fiscal year 2002, there were nearly 100 suppliers that had entered into corporate contracts with DLA.

Prime Vendor Initiative

The Prime Vendor initiative is another DLA supply support vehicle that uses single commercial distributors to supply customers through long-term contracting in a particular region. Prime Vendor's long-term contracts allow military customers to requisition market-ready or commercial products directly from a commercial distributor as the items are needed. The DLA supply centers negotiate the long-term contracts with the vendors, and the customers can order the items directly from the supplier via an electronic catalog. According to this initiative, with Prime Vendor, the customer receives an order confirmation within minutes; and the delivery is to occur within 24 to 48 hours.

According to DLA, because the military customers can direct-order items when they need them directly from the vendor and receive them within 48 hours, spare parts shortages will improve, supply availability will increase and readiness may be improved. Another benefit is the reduced inventory management costs to DLA because there will be no need for DLA to maintain items long-term in its warehouses if the customers are ordering items directly from the manufacturer when they are needed. Virtual Prime Vendor is the advancement of the Prime Vendor concept and is designed to anticipate customer needs and provide items or services as they are needed. Virtual Prime Vendor includes additional logistics support and other services such as forecasting requirements, inventory management, engineering support, technical services, and other services related to customer satisfaction.

Manufacturing on Demand

The Manufacturing on Demand initiative seeks to improve spare parts shortages by identifying manufacturers for parts that are no longer produced by the original source, yet are still critical components of weapon systems, such as cast and forged parts and microcircuits. Such spare parts often cannot be purchased from the original source because the original manufacturer does not produce the part anymore or the original manufacturer is no longer in business. Manufacturing on Demand is the umbrella initiative for the Casting and Forging, the Generalized Emulation of Microcircuits, and the Warstoppers initiatives. In addition, it includes, in part, the Strategic Material Sourcing/Rapid Manufacturing initiative, which is also under the Strategic Materiel Sourcing initiative and is discussed there.

Casting and Forging Initiative

DLA's Casting and Forging initiative seeks to improve spare parts shortages by obtaining cast and forged spare parts that were difficult to find and often no longer produced by the original manufacturer. Typically, foundries and forging operations are known as "third tier" suppliers that do not manufacture spare parts for a weapon system once it is out of production. DLA coordinates with the American Metalcasting Consortium and the Forging Defense Manufacturing Consortium to locate manufacturers that will produce critically needed spare parts with materials and processes that DLA and the consortiums deemed suitable. The American Metalcasting Consortium alone involves 230 companies, 37 contractors, and 94 shops that account for the production of 455 parts for 59 weapon systems. In sum, as of January 2003, the casting and forging program was producing over 560 parts from 65 different weapon systems, according to DLA officials.

Generalized Emulation of Microcircuits Initiative

The Generalized Emulation of Microcircuits initiative was designed to identify a source of replacement microcircuits that are critical components of older weapon systems still used by the services. The original microcircuits on older weapon systems are now obsolete because technology has advanced since their introduction, and the original manufacturers do not produce the microcircuits anymore because the commercial demand is not high enough to encourage them to incur production costs. However, these microcircuits are still critically needed on several weapon systems; therefore, DLA currently has a contract with the Sarnoff Corporation to provide replacements for the microcircuits that are no longer in production by imitating their original designs. This initiative seeks to improve the supply of these critically needed spare

parts through the development of a steady supply source, and high supply availability could contribute to supply readiness. Other potential benefits of emulated microcircuits include the elimination of redesign costs, audited reliability testing/screening, indefinite supply availability, and direct orders placed with the supplier. Additionally, the replacement supply of microcircuits could provide another option for maintaining mission-ready status for weapons systems such as MLRS, Patriot, AV-8B, B-2, and the B-52. As of May 2003, this initiative has emulated over 300 designs from the government-owned library and has supplied over 45,000 microcircuit devices to customers, which include DLA, Hanscom Air Force Base, Naval Surface Warfare, Warner Robins Air Force Base, and the National Aeronautics and Space Administration.

Warstoppers Initiative

The Warstoppers initiative seeks to impact the shortage of spare parts by identifying (1) critical, mission-essential items with long production lead-times that are low-demand items during peacetime but experience high demand during periods of war and (2) vendors that will be able to meet the wartime surge and sustain wartime requirements for those items. An integral part of this initiative is DLA's industrial base evaluation tool known as the World Wide Web Industrial Capabilities Assessment Program. The program is DLA's effort to collect current data directly from private industry, via the Internet, on thousands of parts and then analyze that data to identify actual or potential part availability problems when there is a surge in demand for those parts in wartime. The program also emphasizes investment in technology resources and the pre-positioning of raw materials so that items can be produced as needed during wartime with reduced lead-times, rather than procuring items and storing them as war reserves. According to this initiative, it is more cost effective to invest in the industrial base that will produce critical items than to store quantities of those same items as war reserve inventory until they are needed.

In July 2002, we reported[1] that the World Wide Web Industrial Capabilities Assessment Program "has several attributes reflecting sound management practices that are required for reliable industrial base capability assessments." According to DLA, benefits of Warstoppers include reduced lead-times, reduced prices, and reduced wartime inventory costs.

[1] U.S. General Accounting Office, *Defense Inventory: Improved Industrial Base Assessments for Army War Reserve Spares Could Save Money*, GAO-02-650 (Washington, D.C., July 12, 2002).

Examples of acquisitions for weapon system spare parts that benefited from the Warstoppers program include DC motors for the H-2, H-60, AH-1, and UH-1 helicopters; hydraulic tubes for the F-15 fighter; and the clip-on nut used on several weapon system engines.

Organic Manufacturing Initiative

Organic Manufacturing refers to the production of items by government-owned and -operated facilities because the private sector cannot meet the need for those parts. Government facilities that produce these parts include arsenals, military repair depots, and other DOD–operated factories. These facilities produce the hard to find items when no offer is received to produce them, there is no source, the part is an Emergency Supply Operations Center Requirement, the private sector price is unacceptable, or the private sector delivery time frame is unacceptable. Organic manufacturing improves spare part shortages by producing items for 34 Level–A (most critical) weapon systems including multiple weapon systems at 35 organic manufacturing sources.

Improved Supply Availability Initiative

DLA uses supply availability as a measure of supply effectiveness. DLA's goal is to maintain an aggregate 85 percent, or greater, supply availability for weapon systems parts for each of the military services for each fiscal year. By increasing supply availability, backorders for spare parts are reduced, and the readiness of weapon systems could increase because the critical spare parts essential to mission performance would be available at a higher rate.

The 85-percent supply availability initiative supports DLA Strategic Plan Goal 1—to provide responsive, best value supplies and services consistently to its customers. According to DLA officials, the 85-percent target availability rate is based on the statistical rule that 85 percent of the population lies within one standard deviation of the mean. Further, DLA officials maintain that 85 percent is an acceptable supply availability goal because it is cost-effective, and supplying items at rates above 85 percent would be cost prohibitive. However, as discussed earlier in this report, the 85-percent availability rate is an aggregate rate, meaning that DLA's items are to be available 85 percent of the time on average. The 85-percent measure does not specifically relate to each individual item that DLA manages. Rather, it is an average measure of the supply availability of each item, which means that some items are available at rates greater than

85 percent of the time, and other items are available at rates well below 85 percent.

Backorder Reduction Initiative

Backorder reductions support DLA's Strategic Plan Goal 1; and the backorder reduction initiative supports the DLA strategy to focus, manage, and measure logistics support by customer segment, based on customer requirements. Through the initiative, DLA plans to reduce hardware backorders to 250,000 by the end of fiscal year 2007. A benefit to backorder reductions in addition to contributing to readiness, according to a DLA official, is the reduction of cannibalization, where parts are taken from one system and used on another. DLA officials also stated that backorders are filled on average in 80 days and about one-third are filled within 30 days. DLA reported in the spring of 2003 that backorders had been reduced from a high of approximately 525,000 in May 2000 to a little over 314,000 in September 2002. This means that more items are available to DLA customers.

Customer Relationship Management and Service Level Agreements Initiatives

The Customer Relationship Management program is an initiative designed to foster a better relationship between DLA and the services by incorporating input from the services. The customer relationship management element of DLA's business practices is designed to use information obtained to provide customer service and anticipate the individual needs of each customer. The focus of the initiative is on collaborative demand planning between DLA and the customer to determine how much of a particular part is needed for wartime activities as opposed to peacetime activities. Through its processes and system that emphasizes customer satisfaction, the Customer Relationship Management initiative supports the DLA plan to (1) provide responsive, best value supplies and services; (2) focus, manage, and measure logistics support; and (3) improve customer support.

The Service Level Agreements initiative is an integral component of the Customer Relationship Management initiative. Service level agreements are formally negotiated between DLA and its customers and set priorities to meet customer needs, performance measures, and targets. The initiative seeks to establish a set of common expectations between DLA and its customers and to encourage collaboration. This collaboration seeks to improve customer satisfaction, which is an objective DLA is targeting at 90 percent by the end of fiscal year 2007. The application of service level

agreements also seeks to support DLA's plan to (1) provide responsive, best value supplies and services consistently to its customers and (2) negotiate and honor performance agreements with its customers. Each service level agreement typically is composed of a scope/objective, detail of service to be provided, and the performance measurement standards to be met. According to DOD this initiative addresses the readiness based sparing concept by using service level agreements to provide tailored support levels for weapon systems parts.

Service Level Agreements have a limited scope and are considered a work in progress. According to a DLA official, DLA is negotiating with the Air Force Materiel Command to develop a service level agreement, and other agreements are planned with NADEP and NAVAIR. In total, DLA plans to execute 11 agreements by the end of fiscal year 2003. The Service Level Agreement initiative is likely to improve spare parts shortages by its existence as a contracting instrument of the CRM program that is a product of encouraged communication between the customers and DLA to anticipate customer demand.

Other Customer Relationship Management initiatives involve

- identifying the appropriate customers to receive service level agreement offers,
- establishing a process to approach and train customers,
- designing the future DLA organization focusing on customer interactions,
- establishing key performance indicators consistent with BSC,
- developing the right customer communication plan, and
- determining the customers to contact personally.

National Inventory Management Strategy Initiative

According to DLA, the National Inventory Management Strategy initiative seeks to achieve a DLA managed single National Inventory combining military service managed consumable inventories with DLA's inventory. DLA anticipates that a national inventory will provide total asset visibility to DOD-wide inventories and improve supply performance by eliminating redundancy in all levels of inventory and information systems managed by DLA and the services. DLA expects the National Inventory Management Strategy to increase DLA efficiency in providing items to its customers because it allows DLA to locate all of the parts that the services previously managed. This total visibility will allow DLA to determine how many parts are in the inventory, which parts have shortages, and where they are needed. The faster DLA can locate a part, the faster it can supply that part to the customer. Table 10 highlights some of the expected initiative benefits to the services and to DLA.

Table 10: Expected Benefits of the National Inventory Management Strategy to the Services and DLA

Benefits to the services	Benefits to DLA
Higher levels of supply readiness	Supplier of choice
Tailored logistics support solutions	Core competencies
Optimized supply chain	Better decisions
Focus on core competency	Resource allocation
Better resource use	

Source: DLA (data), GAO (presentation).

In addition, according to DLA, a uniform DLA-managed system will help reduce wait time for items because supplies will be regionally located according to regional usage and customer input. Reducing customer wait time should increase the availability of many spare parts, and the increase in parts availability will contribute to the supply readiness of the military services. The National Inventory Management Strategy initiative also incorporates milestones for completion, and performance metrics will be jointly established by DLA and the services. According to a DLA official, the initiative's metrics include (1) supply chain availability, (2) item transfer, (3) customer relations, and (4) resource management. The initiative supports DLA's Strategic Plan to structure internal processes to deliver customer outcomes effectively and efficiently, reduce redundant

DOD inventory and improve responsiveness, and improve supply chain effectiveness.

DLA has over a hundred potential sites to include in the National Inventory Management Strategy initiative; and current pilot sites using the initiative, according to a DLA official, include the Defense Depot Yokosuka, Japan, where DLA has assumed control of managing 11,000 items previously owned by the Navy; Naval Air Station Lemoore, California, where DLA has improved supply support; and Naval Air Italy. Additional pilot program sites, according to a DLA official, will include Fort Carson, Colorado; Camp Lejeune, North Carolina; Tinker Air Force Base, Oklahoma; and Ingleside Navy Base, Texas. The National Inventory Management Strategy is being developed in four phases. As of April 2003, this initiative was in its testing period (Phase III) with the DOD-wide implementation process scheduled from fiscal years 2004 into 2009.

Inventory Accuracy Improvement Initiative

The Inventory Accuracy Improvement initiative is designed to improve inventory record accuracy by using independent contractors to perform sample inventories for over 4 million DLA-managed items. This initiative seeks to support DLA's plan to structure internal processes to deliver customer outcomes effectively and efficiently and improve processes. Also, DLA plans to improve inventory accuracy for high-dollar, general supplies to at least 99 percent by the end of fiscal year 2007, and it plans to achieve a 95-percent accuracy level for all other items by the end of fiscal year 2007 as well. Improved inventory accuracy will likely improve spare parts shortages by giving inventory managers better supply information about items that are critically needed for systems that affect readiness. This information can factor into the decision to purchase more of those critical spare parts to increase their supply availability, which in turn can contribute to supply readiness of the services. DLA developed the inventory improvement accuracy initiative based on a GAO report released in June 1999.[2]

[2] U.S. General Accounting Office, *Financial Management: Better Controls Essential to Improve the Reliability of DOD's Depot Inventory Records*, GAO/AIMD-99-132 (Washington, D.C., June 28, 1999).

Product Conformance, Aviation

DLA expects that the Product Conformance initiative is designed to improve aviation spare parts shortages by conducting monthly quality assurance testing to baseline aviation products and identifying where improvements are necessary to meet performance goals for items that the services have identified as critical. According to a DLA official, the Product Conformance initiative has four metrics: (1) identification of critical items by the services, (2) the impact the critical items will have on readiness, (3) identification by the services of procurement sources to procure those items, and (4) the cost of the items. DLA's aim is to achieve 97-percent production conformance for critical aviation material on hand by the end of fiscal year 2005 and 99 percent conformance by the end of fiscal year 2007. Also, DLA explains that Product Conformance supports DLA's plan to (1) structure internal processes to deliver customer outcomes effectively and efficiently, (2) improve processes, and (3) leverage industry.

Description of DLA Initiatives Aimed at Improving Logistics Systems and Processes

DLA identified six strategic initiatives in varying stages of implementation in its Strategic Management system that seek to modernize and improve DLA's logistics processes and systems and better serve its customers. DLA believes that doing so will indirectly improve spare parts availability and supply readiness. The six include the Business Systems Modernization, Distribution Planning and Management System, Strategic Distribution, Logistics Response Time Reduction, Direct Vendor Delivery Processing time, and Overall Purchase Request Processing Time Improvement initiatives.

Business Systems Modernization Initiative

Business Systems Modernization is an approximately $850-million initiative that seeks to transform how DLA conducts its logistics operations. The transition initiative includes the eventual replacement of DLA's older logistics materiel management systems, or legacy systems, with commercial off-the-shelf software by January 2006. The Standard Automated Materiel Management System and the DLA Integrated Subsistence Management System are the legacy logistics systems that DLA has used to manage its inventory for over 30 years. Other initiative objectives that DLA seeks to achieve by the end of 2005 are reengineering by fielding best practices, improved customer service through collaboration with customers and suppliers, and providing best value solutions.

DLA explains that according to this initiative, commercial off-the-shelf software will replace the legacy systems as a single, integrated system. All order fulfillment, planning, and financial management activities will be supported by the new software that impacts DLA's financial, material management, and sales and distribution logistics operations. DOD approved the initiative on December 21, 1999, and DLA began a concept demonstration test phase, also referred to as "Release 1," of the new initiative software on July 31, 2002. DLA transferred about 170,000 items for the initial test phase from its legacy systems among its three inventory supply centers at Columbus, Ohio; Philadelphia, Pennsylvania; and Richmond, Virginia. About 2.5 million customer orders have been made using the new BSM technology involving around $500 million in sales. A follow-on test phase, or "Release 2," of the initiative is scheduled to begin in July 2004, and it will include 50 percent of the remaining items that DLA manages. As of April 2003, initiative implementation across DLA was targeted for January 2006.

Distribution Planning and Management System Initiative

The Distribution Planning and Management System initiative seeks to improve DLA business processes by enhancing existing systems with new commercial best practices that include re-engineered logistics processes and industry-based integrated supply chain solutions. Electronic logistics data will provide real-time information about orders, including asset visibility of requisitioned spare parts, as they are in-transit to the customer. The initiative supports DLA's plan to structure internal processes to (1) deliver customer outcomes effectively and efficiently, (2) design and implement a best value enterprise information technology environment, and (3) improve distribution responsiveness and reduce costs. By improving the supply process by which spare parts are provided to customers, as well as reducing wait time, the Distribution Planning and Management System initiative could contribute to the improvement of spare parts shortages and potentially the readiness of the military services. The initiative seeks to meet assigned objectives for weapon systems readiness support. According to DLA, additional benefits include cost reductions for transportation and overall distribution; greater use of DOD negotiated rates, more consolidated shipments, and increased productivity of distribution and transportation operations. Additionally, DLA projects that the completion of the initiative will result in net projected savings to the agency of $63 million by the end of fiscal year 2007.

Strategic Distribution Initiative

The Strategic Distribution initiative is intended to reduce transportation costs by identifying international locations that can be used as strategic distribution points. Because critically needed items at the distribution points are located closer to the customer, customer wait time is reduced. A reduction in customer wait time could improve spare parts shortages by providing items to the customer faster than if the items had to be delivered from more distant distribution points. An additional benefit could be reduced shipping costs because strategic distribution emphasizes the use of other shipping methods, such as dedicated trucks for deliveries within the United States and surface transports for overseas shipping, to replace air transport, which has a higher material shipping cost. According to DLA officials, Strategic Distribution has been used for 2 years in three locations: Germansheim, Yokosuka, and Pearl Harbor.

Logistics Response Time Reduction Initiative

The Logistics Response Time Reduction initiative is a DLA effort to improve supply chain performance by reducing the number of days that its customers must wait for subsistence, medical, pharmaceutical, clothing, and textile items, as well as repair parts. According to DLA officials, the initiative complements the Business Systems Modernization initiative and is an integral part of the DLA transition from older business practices and logistics management. Also, the Logistics Response Time Reduction initiative supports DLA's strategic goal to improve average performance for customer delivery by the end of fiscal year 2007. Table 11 demonstrates the improvement in response time for categories of DLA-managed items.

Table 11: Response Time Improvement by Item Category

Item category	Response time improvement
Repair Parts	15 days
Medical and Pharmaceutical	1.9 days
Subsistence	2.5 days
Clothing and Textile	21 days

Source: DLA.

The Logistics Response Time Reduction initiative also supports DLA's strategic plan to structure internal processes to deliver customer outcomes effectively and efficiently and improve supply chain effectiveness. According to DLA, by improving the response time of DLA's system for spare parts delivery, the availability of those parts will increase, which could contribute to readiness.

Direct Vendor Delivery Processing Time Initiative

Direct vendor delivery is the DLA arrangement with suppliers that allows its customers to receive items from the suppliers directly, instead of DLA receiving the items first and then distributing them to the customers. Although DLA does not take delivery of the items, it still monitors the delivery performance of the suppliers, and it is also involved in the direct vendor delivery planning and procurement processes. Customers may take direct delivery from direct vendor delivery sales, but DLA obligates and commits the funds to pay the supplier. The aim of the Direct Vendor Delivery Processing Time initiative is to improve the average processing time for the planned direct vendor delivery inventory control point/vendor to 13 days by the end of fiscal year 2003, which matches the Uniform

Materiel Movement Issue Priority System processing time. By improving delivery time, customer wait time is reduced, and supply availability is increased, which can positively affect readiness. The Direct Vendor Delivery Processing Time initiative also supports DLA's plan to structure internal processes to deliver customer outcomes effectively and efficiently, as well as leverage industry.

Overall Purchase Request Processing Time Improvement Initiative

The Overall Purchase Request Processing Time Improvement initiative is intended to improve purchase request processing time by reducing inventory control point processing, as well as meeting lead-time processing requirements 75 percent of the time by the end of fiscal year 2007. Another objective is to reduce the number of open purchase requests, according to a DLA official. This initiative seeks to improve spare parts shortages by reducing customer wait time to receive critically needed items, thus improving supply support. Also, this initiative could also improve unit readiness by delivering critical parts as they are needed to operate systems used by the military services. According to a DLA official, the metrics developed for this process improvement include (1) monitoring the number of open purchase requests and (2) monitoring the number of purchase requests that exceeded the administrative lead-time processing requirements. This initiative supports DLA's plan to structure internal processes to deliver customer outcomes effectively and efficiently as well as improve processes.

GAO Contacts and Staff Acknowledgments

GAO Contacts

Richard G. Payne (757) 552-8119
Dudley C. Roache, Jr. (757) 552-8117

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