United States Government Accountability Office

GAO

Report to Congressional Committees

August 2004

DEFENSE INVENTORY

Analysis of Consumption of Inventory Exceeding Current Operating Requirements Since September 30, 2001

GAO-04-689

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GAO Accountability • Integrity • Reliability

Highlights

Highlights of GAO-04-689, a report to Senate and House Committees on Armed Services and the Subcommittees on Defense, Senate and House Committees on Appropriations

Why GAO Did This Study

Since 1990, GAO has identified the Department of Defense's (DOD) inventory management as a high-risk area. Ineffective management practices—such as the use of inaccurate data, lack of inventory controls and visibility, and information system weaknesses—have contributed to high levels of inventory. DOD has reduced its inventory since 1990, from about $100 billion to about $67 billion as of September 30, 2002. However, at the start of Operation Enduring Freedom, about half of the inventory exceeded current operating requirements.

GAO, under its statutory authority, analyzed the extent to which inventory that exceeded current operating requirements as of September 30, 2001, was consumed through cutoff dates ranging from March through October 2003 and identified three ineffective and inefficient inventory management practices.

What GAO Recommends

GAO recommends that DOD take actions to correct inventory management practices related to the military components' use of inventory storage cost estimates, the lack of an Air Force system-wide process for correcting causes of inventory discrepancies, and the improper coding of items that the Air Force wants to retain.

In its comments, DOD generally concurred with GAO's report and recommendations.

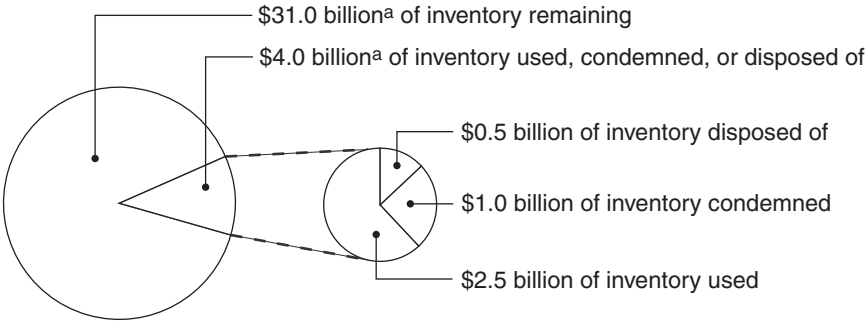
www.gao.gov/cgi-bin/getrpt?GAO-04-689.

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

GAO's analysis of 1.5 million items with $35.1 billion of inventory on hand that exceeded current operating requirements as of September 30, 2001, showed that about $4.0 billion was consumed—$2.5 billion was used, $0.5 billion was disposed of, and $1.0 billion was condemned—since the onset of Operation Enduring Freedom and through the initial phases of Operation Iraqi Freedom. GAO found that, once disposals and condemnations were accounted for, 539,000 items had inventory that was used, 18,000 had inventory gains, and 937,000 had neither inventory usage nor gains. Of the 1.5 million items, customers did not make demands for 923,000 items during the period of review.

Consumption of Inventory Exceeding September 30, 2001, Current Operating Requirements



Source: GAO analysis of DOD data.

[a]Inventory amounts do not total to $35.1 billion because of rounding.

GAO also identified three ineffective and inefficient inventory management practices that may affect inventory levels, including the inventory exceeding current operating requirements. First, although Defense Logistics Agency (DLA) has begun to charge its customers for inventory storage based on the actual space occupied by items, the military components are not using the DLA storage cost data, and instead continue to use estimated storage costs in their inventory management decision-making processes. Second, the Air Force does not have a systemwide process for correcting the causes of discrepancies between the inventory for which item managers are accountable and the inventory reported by bases and repair centers. Third, Air Force item managers are not required to enter codes into the Air Force inventory system for items that are categorized as potential reutilization and/or disposal materiel, but that the Air Force wants to retain; thus, the items are not properly categorized and are at risk of disposal.

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Abbreviations

DLA	Defense Logistics Agency
DOD	Department of Defense

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United States Government Accountability Office
Washington, DC 20548

August 2, 2004

Congressional Committees

The Department of Defense (DOD) maintains a secondary inventory of spare and repair parts[1] to support its war- and peace-time missions. The effective and efficient management of this inventory is critical to ensure that the warfighter is supplied with the right items at the right time, especially as the department and the services are called upon for new missions in locations such as Afghanistan, Iraq, and the Philippines, as well as protecting the homeland.

DOD's inventory management comprises several major functions, including determining what is needed; buying needed items; and storing, maintaining, distributing, and disposing of inventory. DOD retains inventory that exceeds items' requirements objectives[2] for different reasons, including: (1) to satisfy projected demands for 2 fiscal years beyond the current operating requirements; (2) for economic reasons, because it would be less costly to retain rather than dispose of and repurchase the items; and (3) for specific contingencies, such as when the source of supply for an item—a specific parts manufacturer, for example—is no longer available.

Since 1990, we have identified the department's management of its inventory as a high-risk area and have reported on and made recommendations to address issues that contribute to ineffective and inefficient inventory management.[3] We have reported on such issues as inaccurate data, not canceling orders for inventory that is no longer

[1] DOD's inventory consists of a wide variety of parts that includes communication and detection equipment; electrical and electronic equipment components; engines, turbines, and their components; aircraft components and accessories; instruments and laboratory equipment; aircraft and airframe structural components; fire control equipment; guided missiles; electric wire and power and distribution equipment; medical supplies; and clothing and textiles.

[2] DOD refers to the amount of inventory that it needs to have on hand or on order to support current operations as the requirements objective. Hereinafter, we refer to an item's requirements objective as its current operating requirements.

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

needed, lack of controls and visibility over inventory, and information system weaknesses. For example, in May 2001, we reported[4] that the military components[5] did not have sound analytical support for determining when it is economical to retain or dispose of inventory that exceeds current operating requirements. Taken together, these and other issues have contributed to the accumulation of high levels of inventory.

DOD maintains that, while it does not purchase inventory that exceeds current operating requirements, much of the inventory, once purchased, will eventually be needed. Nevertheless, in response to our work and to congressionally mandated inventory-reduction goals, DOD reduced its overall inventory levels throughout the 1990s—from over $100 billion in 1990 to a low of about $61 billion as of September 30, 1998. However, in recent years the trend has been reversed, with inventory levels increasing to about $67 billion as of September 30, 2002.

DOD further maintains that seeking inventory-reduction goals leads to inefficient management. However, in response to our May 2001 report, and because Congress had directed[6] the department to examine its retention practices, DOD is reviewing its policies and procedures for retaining inventory that exceeds the items' current operating requirements.

In May 2003,[7] we reported a snapshot of DOD's inventory as of September 30, 2001. We reported that large imbalances in the department's inventory continued to exist as of that date—523,000 items needed additional inventory to satisfy current operating requirements while 1.7 million items had inventory on hand and on order that exceeded current operating requirements. Our work showed that about 1.6 million items had about $36.0 billion of inventory on hand that

[4] U.S. General Accounting Office, *Defense Inventory: Approach for Deciding Whether to Retain or Dispose of Items Needs Improvement*, GAO-01-475 (Washington, D.C.: May 25, 2001).

[5] In this report, we refer to the Army, Navy, and Air Force collectively as the military services, and the Army, Navy, Air Force, and the Defense Logistics Agency as the military components.

[6] National Defense Authorization Act for Fiscal Year 2000, Pub. L. No. 106-65, § 362 (1999).

[7] U.S. General Accounting Office, *Defense Inventory: Overall Inventory and Requirements Are Increasing, but Some Reductions in Navy Requirements Are Possible*, GAO-03-355 (Washington, D.C.: May 8, 2003).

exceeded the items' current operating requirements, which amounted to roughly half of DOD's inventory at that time.

We prepared this report under our statutory authority and are providing it to you because of your oversight responsibilities for defense issues. In this report we (1) analyze the extent to which inventory on hand exceeding current operating requirements as of September 30, 2001, was consumed during subsequent operations; and (2) discuss three practices we identified that further contribute to the ineffective and inefficient management of inventory.

Scope and Methodology

To determine how much of the inventory that exceeded current operating requirements as of September 30, 2001, was consumed (used, disposed of, or condemned) since that date, we obtained and analyzed data from the military components for the items that we had identified in our May 2003 report that had inventory exceeding the items' current operating requirements as of September 30, 2001. We interviewed DOD, Defense Logistics Agency (DLA), and service inventory management officials to discuss the data needed and our analytical approach. As a result of these discussions, we requested the following consumption-related data for each item that had inventory exceeding current operating requirements as of September 30, 2001:

- inventory demanded from the supply system (demands);
- inventory returned to the supply system for repair (returns);
- inventory condemned because the parts could not be repaired (condemnations); and
- inventory that was otherwise processed for disposal (disposals).

The data we obtained covers different periods, depending on the military component providing the data. Although the period of review for all of the military components began on October 1, 2001, the data we obtained had different cutoff dates as follows:

- For the Navy and Air Force, the cutoff date was March 31, 2003.
- For the Army, the cutoff dates ranged from June 2003 through October 2003, depending on the inventory control location that provided the data.
- For DLA, the cutoff date was September 30, 2003.

According to the officials providing the data, 119,000 items of the 1.6 million items that had on-hand inventory exceeding current operating requirements as of September 30, 2001, were no longer in the military components' inventory systems as of the data cutoff dates. The 119,000 items had about $966 million of on-hand inventory that exceeded current operating requirements as of September 30, 2001. Therefore, our analysis only concerns the remaining 1.5 million items with $35.1 billion of on-hand inventory exceeding current operating requirements as of September 30, 2001.

Our analysis to determine how much of the inventory that exceeded current operating requirements was consumed since September 30, 2001, involved several steps. For each of the 1.5 million items:

- We first subtracted the quantity that was disposed of from the quantity that exceeded current operating requirements.
- Next, we subtracted the quantity of inventory that was condemned.
- For each item, we also computed net demands by subtracting the inventory returns from inventory demands.
- To determine how much of the inventory was used, we then compared the net demands to the inventory exceeding current operating requirements that had not been disposed of or condemned.

We limited the quantities of inventory that were disposed of, condemned, or used to the inventory that exceeded current operating requirements as of September 30, 2001. We considered items with more returns than inventory disposals, condemnations, and demands to have inventory gains; items with returns equal to disposals, condemnations, and demands were considered to have neither inventory usage nor gains. We used the above methodology to determine how many of the items had their entire inventory exceeding current operating requirements consumed. We further used the demand data provided to determine how many of the items had and did not have demands during the period of our review. In our analyses, unless otherwise indicated, inventory values are expressed in billions of dollars, and items are rounded to the nearest thousand. We did not revalue the inventory that needs to be repaired to recognize the repair cost, and we did not value inventory that is to be disposed of at salvage prices. Also, our analyses did not include fuel, certain inventory held in units, and Marine Corps inventory. Fuel and inventories held by units are not stratified by requirement, and the Marine Corps inventory represents a small part of the universe. In addition, to ascertain some of the reasons why inventory exceeding current operating requirements was being retained, we selected non-representative samples

of 78 Army items and 118 Air Force items with inventory that exceeded current operating requirements as of September 30, 2001, prepared detailed questionnaires for item managers, and visited the Army Aviation and Missile Command, Huntsville, Alabama, and Warner Robins Air Logistics Center, Warner Robins, Georgia, to collect and analyze the responses. We selected these inventory control locations based upon the value of the inventory they managed that exceeded current operating requirements as of September 30, 2001, when compared to other Army and Air Force inventory control locations. Because we used non-representative samples, we cannot project these observations to the universe. Although our work highlights the large amount of inventory exceeding current operating requirements that DOD retains, we neither performed detailed analyses of DOD's policies and procedures relating to that inventory, nor selected samples of Navy and DLA items, because we have initiated a separate review of DOD inventory retention policies.

To address the inventory management practices that we identified in the course of assessing our non-representative samples, we obtained information and data from DLA about how it determines what to charge the military components for storing secondary inventory, and interviewed responsible officials from the military components to determine whether they were using this data to make relevant management decisions. We also reviewed Air Force policies related to, and interviewed responsible Air Force officials about, the reconciliation of inventory discrepancies, and the retention of inventory categorized as potential reutilization and/or disposal materiel. Through our analysis of the DLA storage cost charges and by examining our non-representative sample of Air Force items, we identified specific examples of these inefficient and ineffective management practices. We also obtained information from the 2001 *Supply System Inventory Report* to get a rough estimate of how the department revalues inventory held as potential reutilization and/or disposal materiel.

We assessed the reliability of the data used in this report by (1) performing electronic testing of required data elements, (2) reviewing existing information about the data and the systems that produced them, and (3) interviewing officials knowledgeable about the data. We determined that the data were sufficiently reliable for the purposes of this report. We performed our review from June 2003 through May 2004 in accordance with generally accepted government auditing standards.

Results in Brief

Our analysis of approximately 1.5 million items with inventory on hand valued at $35.1 billion that exceeded current operating requirements as of September 30, 2001, showed that about $4.0 billion was consumed—including $2.5 billion that was used, $0.5 billion disposed of, and $1.0 billion condemned—since the onset of Operation Enduring Freedom and through the initial phases of Operation Iraqi Freedom. Additional analyses of the 1.5 million items showed that:

- After we accounted for parts that were disposed of or condemned, (1) about 539,000 items had demands that exceeded the amount of parts returned for repair by about $2.5 billion; (2) nearly 18,000 items had inventory gains of $0.9 billion, where more broken parts were returned for repair than were demanded, condemned, or disposed of; and (3) about 937,000 items with $24.4 billion of on-hand inventory exceeding current operating requirements as of September 30, 2001, had neither inventory usage nor inventory gains.
- About 199,000 items had their entire $1.8 billion of on-hand inventory exceeding current operating requirements as of September 30, 2001, used, disposed of, or condemned since that date.
- About 923,000 items with on-hand inventory of $14.8 billion exceeding current operating requirements as of September 30, 2001, had no demands during the period of review, while the remaining 571,000 items with $20.2 billion of on-hand inventory exceeding current operating requirements as of September 30, 2001, had demands.

Our analysis of non-representative samples of Army and Air Force items, performed to ascertain some of the reasons why the 1.5 million items with on-hand inventory exceeding current operating requirements were being retained, showed that the items in the samples supported a variety of weapon systems and that most of the items (1) had inventory categorized as either economic or contingency retention stock; and (2) had been in the inventory system for 15 or more years, including several that had been first placed into service during the 1960s.

While reviewing Air Force and Army items to determine why inventory exceeding current operating requirements was being retained, we identified three inventory management practices that may affect inventory levels, including the inventory exceeding requirements. These inefficiencies do not necessarily lead to the accumulation of inventory exceeding current operating requirements. Instead, they can lead to having critical items in short supply, to persistent difficulties in accurately and reliably forecasting the availability of assets, and to the inappropriate disposal of inventory.

- First, the military components use storage cost estimates rather than actual storage cost data in making key decisions, such as determining the levels of inventory that are needed to be retained or ordered. DLA now determines how much to charge the military components for storage on a per-item basis and provides this data to the components. Because computations based on the actual storage cost data would be more accurate, the military components could be purchasing or retaining inappropriate amounts of inventory. For example, depending on the item, DLA's actual charges for storage could be either less than or greater than the item's estimated storage costs, which would make it more or less economical to retain the same amount of inventory. To assess the significance of these differences, we compared the actual storage costs charged by DLA to the Army, Navy, and DLA with the components' storage cost estimates for about 1.5 million inventory items and found that, for about half of the items reviewed, the estimated storage costs were at least 10 times greater than the costs charged by DLA. However, because DLA has only recently begun to compute the storage charges on a per-item basis, the Army, Navy, and DLA have not determined whether it would be beneficial to use the DLA storage cost data rather than estimated storage costs in their inventory management decision-making processes.
- Second, the Air Force does not have a systemwide process for correcting the causes of discrepancies between the inventory for which item managers are accountable and the inventory reported by bases and repair centers.[8] Because accurate data is necessary to make accurate decisions, item managers—who are responsible for purchasing inventory—must persistently deal with inventory discrepancies, cannot accurately determine the number of available assets, and cannot reliably forecast the availability of assets. Consequently, in some instances the Air Force is at risk of buying inventory that it does not need and in other instances of not buying enough inventory. At the Warner Robins Air Logistics Center, we identified 35 out of 118 items with inventory valued at $135 million that was recorded on item managers' records, but was not accounted for by bases and repair centers.
- Third, Air Force item managers are not required to enter codes into the Air Force inventory system for items that are categorized as potential reutilization and/or disposal materiel, but that the Air Force wants to

[8] We did not identify discrepancies in the Army inventory records based on the review of our non-representative sample of Army items. Therefore, this analysis is limited only to the Air Force.

retain.[9] As a result, the items are not properly categorized and the Air Force is at risk of disposing inventory that it may need to later repurchase. Air Force policy allows item managers to retain inventory categorized as potential reutilization and/or disposal materiel when there is a valid reason for doing so. Item managers, when justified, are authorized but are not required to enter a deferred disposal code that will result in the inventory being recategorized as contingency retention stock. We observed at the Warner Robins Air Logistics Center that $277 million[10] of inventory remained categorized as potential reutilization and/or disposal materiel even though the Air Force expressed a valid reason for retaining it. For example, the center had 50 transmitter drivers used on an electronic warfare system for the B-1B aircraft that were categorized as potential reutilization and/or disposal materiel. The center was retaining the drivers to support the aircraft until the year 2040 when the Air Force expects to remove the last of the aircraft from its inventory. However, no code was entered into the system. Additionally, DOD reports the value of inventory categorized as potential reutilization and/or disposal materiel at a rate of approximately 2 percent of its latest acquisition cost and, therefore, is significantly understating the amount of inventory it is retaining in a key inventory management report.

Because we have initiated a separate review of DOD's inventory retention policies, we are not making recommendations regarding the retention of inventory exceeding current operating requirements that had no demands. We are, however, recommending that the Secretary of Defense take actions to improve the inventory management practices we identified, including the components' use of inventory storage cost estimates, the lack of an Air Force systemwide process for correcting causes of inventory discrepancies, and the improper coding of items that the Air Force wants to retain.

In written comments on a draft of this report, DOD generally concurred with the report and our recommendations. Our evaluation of DOD's comments is discussed on page 23.

[9] While we selected a non-representative sample of Army items, the available Army data did not identify items categorized as potential reutilization and/or disposal materiel. Therefore, this analysis is limited only to the Air Force.

[10] Inventory valued at latest acquisition cost.

Background

DOD defines the requirements objective (current operating requirements) as the amount of inventory needed to be on hand or on order to support current operations. The current operating requirements includes inventory requirements for a reorder point and an economic order quantity.[11] The reorder point is the point at which inventory replenishment will normally prevent out-of-stock situations from occurring and includes:

- war reserves, requisitions that have not been filled, and a "safety level" of stock;[12]
- stock to satisfy demands while broken items are being repaired; and
- stock to satisfy demands during the "lead time"—the period between the placement of orders and their receipt.

Because the reorder point provides for inventory to be used during the time needed to order and receive inventory and for a safety level, item managers are able to place orders so that the orders arrive before out-of-stock situations occur.

Generally, an item manager purchases an amount of inventory needed to satisfy the reorder point and an economic order quantity—a quantity that, when ordered and received, results in the lowest total cost for ordering and holding inventory.

The approved acquisition objective defines the amount of inventory that DOD budgets for and includes inventory needed to satisfy the current operating requirements, 2 years of demand above the current operating requirements, and, if applicable, additional war reserves. While DOD budgets funds to purchase inventory to satisfy the approved acquisition objective, item managers do not purchase inventory unless an item's inventory falls to or below its reorder point; therefore, item managers do not purchase inventory to satisfy the approved acquisition objective.

Inventory that exceeds the approved acquisition objective is categorized as economic retention, contingency retention, and potential reutilization and/or disposal materiel:

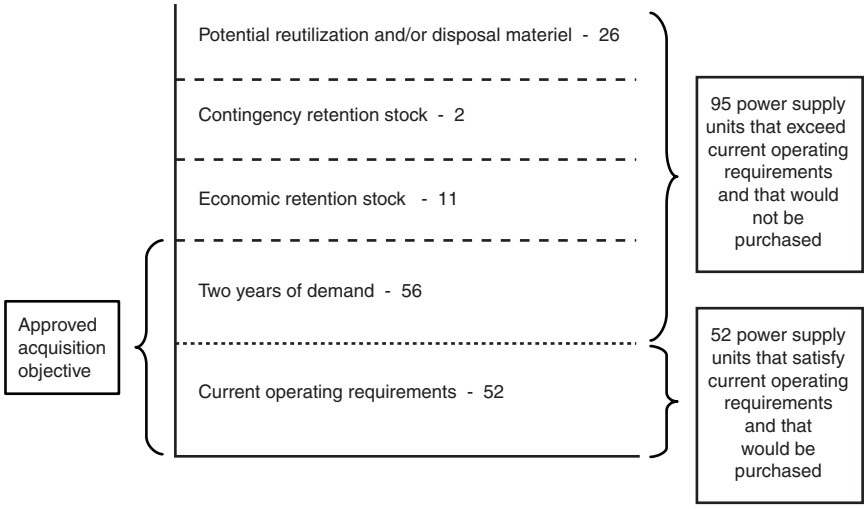
[11] The Air Force requirements computation system does not include an economic order quantity.

[12] War reserves are authorized to be purchased to ensure fast mobilization in the event of war. A safety level is stock kept on hand in case of minor interruptions in the resupply process or unpredictable demand.

- Economic retention inventory exceeds the approved acquisition objective and has been determined to be more economical to keep than to dispose of because it is likely to be needed in the future.
- Contingency retention inventory exceeds the economic retention inventory and would normally be categorized as potential reutilization and/or disposal materiel, but is instead retained for specific contingencies.
- Potential reutilization and/or disposal materiel exceeds contingency retention inventory and has been identified for possible disposal but with potential for reutilization.

A Navy computer power supply used on the radar for the FA-18 aircraft demonstrates the above inventory categories. On September 30, 2003, the Navy had 147 of the $353,000 power supplies on hand. As shown in figure 1, 52 of the power supplies satisfied the item's current operating requirements. Of the remaining 95 power supplies, 56 were designated to satisfy the 2 years of additional demand, 11 were held as economic retention stock, 2 were held as contingency retention stock, and 26 were categorized as potential reutilization and/or disposal materiel.

Figure 1: Categorization of Inventory for a Navy Power Supply



Source: GAO analysis of Navy data.

Overall, the amount of DOD's inventory exceeding current operating requirements has decreased since 1996. On-hand inventory that exceeded current operating requirements decreased from $41.3 billion, or 59 percent, of the $69.7 billion of on-hand inventory on September 30, 1996, to $36.0 billion, or 52 percent, of the $69.8 billion inventory on hand on September 30, 2001.

DOD annually summarizes its secondary inventory in its *Supply System Inventory Report*. This report is based on financial inventory and other inventory reports prepared by the military components. The report summarizes inventories by DOD component and inventory category. DOD officials use the report as a management tool to monitor changes in the levels of its inventory. These officials include the Under Secretary of Defense for Acquisition, Technology, and Logistics, who is responsible for developing and ensuring the uniform implementation of DOD inventory management policies throughout the department, for monitoring the overall effectiveness and efficiency of the DOD logistics system, and for continually developing improvements. In addition, the Secretaries of the Army, the Navy, and the Air Force, and the Director, DLA, are responsible for implementing DOD inventory policies and procedures.

About $4.0 Billion of the Inventory Exceeding Current Operating Requirements Was Consumed Since September 30, 2001

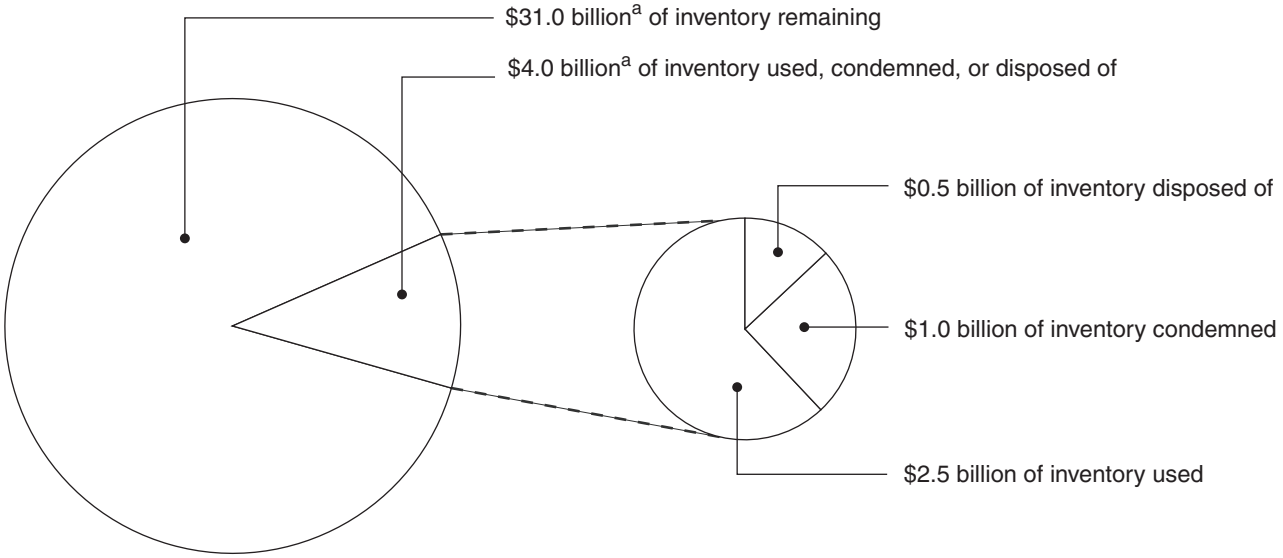
Our analysis of approximately 1.5 million items with inventory on hand valued at $35.1 billion[13] that exceeded current operating requirements as of September 30, 2001, showed that about $2.5 billion of the inventory was used, $0.5 billion was disposed of, and $1.0 billion was condemned since the onset of Operation Enduring Freedom and through the initial phases of Operation Iraqi Freedom. As illustrated in figure 2, the inventory exceeding current operating requirements that was consumed[14] since September 30, 2001—that is, the sum of the inventory used, disposed of, or condemned—amounted to $4.0 billion. Roughly $31.0 billion[15] of the on-hand inventory that exceeded current operating requirements as of September 30, 2001, was not used, disposed of, or condemned during the period of our review.

[13] While we identified 1.6 million items with $36.0 billion of inventory on hand that exceeded current operating requirements as of September 30, 2001, in our prior work, the analysis in this report did not include about 119,000 items with about $966 million of inventory on hand that exceeded current operating requirement as of September 30, 2001, because the items were no longer in the inventory as of the data cutoff dates.

[14] According to a DOD official, DOD considers an item to be consumed when a demand for an item occurs, regardless of whether or not a broken part is returned.

[15] The total inventory consumed and the total not consumed do not add to $35.1 billion because of rounding.

Figure 2: Consumption of Inventory Exceeding September 30, 2001, Current Operating Requirements



Source: GAO analysis of DOD data.

[a]Inventory amounts do not total to $35.1 billion because of rounding.

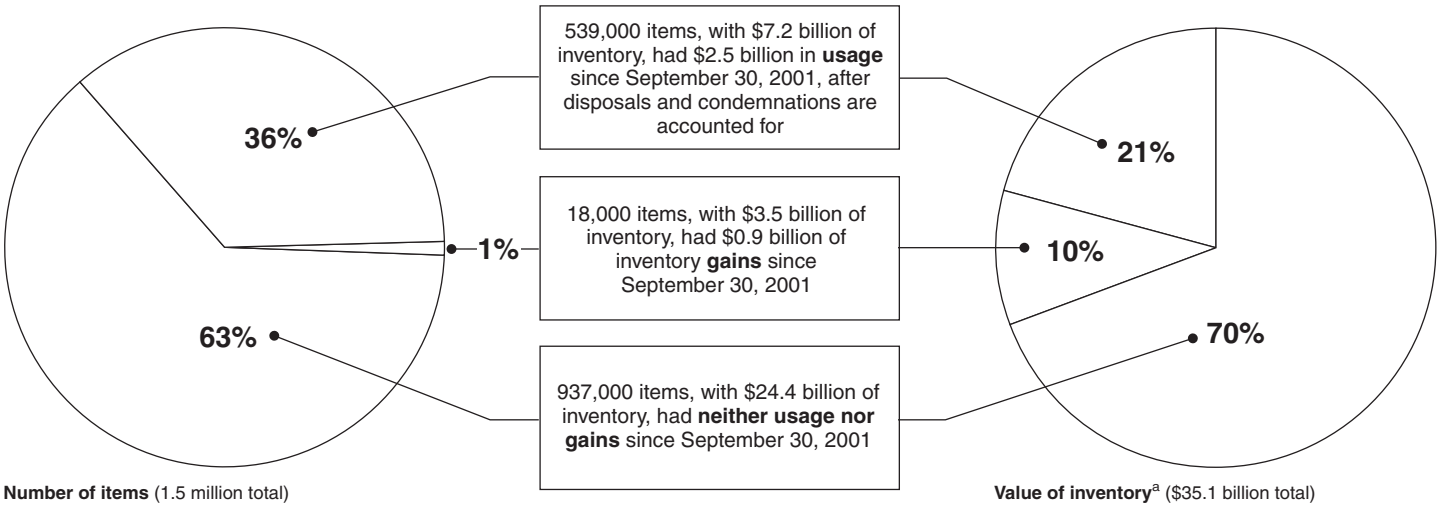
Our analysis also identified how many of the 1.5 million items had inventory that was used, how many had inventory gains, and how many had neither inventory that was used nor inventory gains. As depicted in figure 3, our analysis showed:

- About 539,000 items with $7.2 billion of on-hand inventory that exceeded current operating requirements as of September 30, 2001, had $2.5 billion of that inventory used since then. That is, once disposals and condemnations were accounted for, demands exceeded returns by $2.5 billion. For example, the Navy had seven infrared receivers, used on FA-18 E/F aircraft, which exceeded current operating requirements as of September 30, 2001. Through March 2003, two of the $1,610 receivers were disposed of, four were condemned, and one was used as a result of demands exceeding returns. The 539,000 items, or 36 percent of the 1.5 million items reviewed, had 21 percent of the $35.1 billion of on-hand inventory that exceeded current operating requirements as of September 30, 2001.
- About 18,000 items with $3.5 billion of on-hand inventory exceeding current operating requirements as of September 30, 2001, had $0.9 billion in inventory gains as a result of more broken parts returned for repair than demands, disposals, or condemnations during the period of review. For example, the Army had two AH-64 helicopter capacitor assemblies, each

valued at $554, which exceeded current operating requirements as of September 30, 2001. Through August 2003, one of the assemblies was condemned and the other was demanded. However, four assemblies were returned for repair, resulting in a gain of two assemblies to the inventory. The 18,000 items, or 1 percent of the 1.5 million items, had 10 percent of the $35.1 billion of on-hand inventory that exceeded current operating requirements as of September 30, 2001.

- About 937,000 items with $24.4 billion of on-hand inventory exceeding current operating requirements as of September 30, 2001, had neither inventory usage nor gains during the period of review—these items had an equal amount of inventory returned for repair as was disposed of, condemned, and demanded. For example, DLA had 294 men's overcoats, valued at $265 apiece, that exceeded current operating requirements as of September 30, 2001. Through September 2003, these overcoats had no disposals, no condemnations, and no demands. The 937,000 items, or 63 percent of the 1.5 million items, had 70 percent of the on-hand inventory that exceeded current operating requirements as of September 30, 2001.

Figure 3: Percent Distribution of Items and Value of Inventory Exceeding Current Operating Requirements as of September 30, 2001, by Usage Since That Date



Source: GAO analysis of DOD data.

[a]Percent total does not add to 100 due to rounding.

We also analyzed the 1.5 million items to determine if the entire inventory exceeding current operating requirements was consumed for any of the items. Our analyses showed that, for about 199,000 of the 1.5 million items, all inventory that exceeded the items' September 30, 2001, current operating requirements was used, condemned, or disposed of since that date. The 199,000 items had on-hand inventory valued at about $1.8 billion that exceeded current operating requirements. For about 1.3 million items, either some or none of the inventory exceeding current operating requirements was consumed.

Further, 923,000 of the 1.5 million items had no customer demands. These items represented about $14.8 billion of inventory on hand that exceeded current operating requirements as of September 30, 2001. The remaining 571,000 items had $26.0 billion of demands and $20.7 billion of broken parts returned for repair. These items represented about $20.2 billion of inventory that exceeded current operating requirements, as of September 30, 2001.

To ascertain some of the reasons why the 1.5 million items with on-hand inventory exceeding current operating requirements was being retained, we selected non-representative samples of Army and Air Force items. We found that most of these sample items had inventory categorized as either economic or contingency retention stock and had been in the inventory system for 15 or more years. At the Army and Air Force inventory control locations that we visited, we observed that 121 out of 190 items, or 64 percent of the items reviewed, had been placed in service prior to 1989. These items had about $1.6 billion of inventory that exceeded the current operating requirements as of September 30, 2001. Seventeen of the items, with about $107 million of inventory on hand that exceeded current operating requirements, were placed in service during the 1960s. These items included antennae, aircraft rudders, auxiliary power units, propeller blades, and circuit card assemblies that were used on versions of the Air Force's C-130 and F-15 aircraft, the Army's UH-60 helicopter, and other weapon systems.

Some DOD Practices Contribute to Ineffective and Inefficient Inventory Management

While reviewing Air Force and Army items to determine why inventory exceeding current operating requirements was being retained, we identified three ineffective and inefficient inventory management practices that may affect inventory levels, including the inventory exceeding current operating requirements. First, although DLA has begun to charge its customers for inventory storage based on the actual space occupied by items, the military components are not using the DLA storage cost data, and instead continue to use estimated storage costs in their inventory management decision-making processes. Second, the Air Force does not have a systemwide process for correcting the causes of discrepancies between the inventory for which item managers are accountable and the inventory reported by bases and repair centers.[16] Third, Air Force item managers are not required to enter codes into the Air Force inventory system for items that are categorized as potential reutilization and/or disposal materiel, but that the Air Force wants to retain; thus, the items are not properly categorized and are at risk of disposal.[17] The inefficiencies we identified do not necessarily lead to the accumulation of inventory exceeding current operating requirements; however, they can lead to having critical items in short supply, to persistent difficulties in accurately and reliably forecasting the availability of assets, and to inappropriately disposing of inventory.

Military Components Are Not Using Actual Storage Cost Data in Making Inventory Management Decisions

Although DLA has begun to charge its customers for inventory storage based on the actual space occupied by items, the military components are not using the DLA data, and instead continue to use estimated storage costs in their inventory management decision-making processes. We noted that the estimated storage costs ranged from being over 1,000 times more than the actual costs charged to customers, to being up to 10 times less than the actual charges. Because using actual storage cost data would result in more accurate computations, the military components could be purchasing or retaining inappropriate amounts of inventory. However, because DLA only recently began to compute the storage charges on a per-item basis, the Army, Navy, and DLA have not determined whether it would be beneficial to use actual data rather than estimated storage costs in their inventory management decision-making processes.

[16] This analysis is limited only to the Air Force, because our analysis of our Army sample did not identify inventory records discrepancies as a problem in the Army.

[17] This analysis is limited only to the Air Force, because the available Army data did not identify items categorized as potential reutilization and/or disposal materiel.

The Defense Logistics Agency is responsible for storing inventory for the military services and for its own defense supply centers. Beginning in fiscal year 2003, DLA began charging for inventory stored in its warehouses by (1) determining the cubic-feet of space occupied by an individual item, (2) multiplying the space occupied by a single item by the number of items stored to yield the total space occupied, and (3) multiplying the stored items' total occupied space by a rate charged for the type of storage space used (open, covered, or specialized). As a result, the DLA computes storage costs charged to its customers on a per-item basis.

According to DLA officials, the agency provides data to the military services and the DLA supply centers on a quarterly basis that would allow them to take these charges into account when making inventory management decisions. Such decisions might include:

- determining how much inventory to retain for safety level requirements, which is the amount of inventory held in case of minor interruptions in the resupply process or fluctuations of demand;
- computing economic order quantities, which are the quantities of an item that are purchased that results in the lowest cost for ordering and holding inventory;
- determining when it is more economical to retain extra inventory, as opposed to disposing of it and then satisfying future requirements through new procurements and/or repairs of broken items; and
- determining whether orders for inventory that is no longer needed are economical to cancel.

The consideration of storage costs as a factor in making these kinds of inventory management decisions varies among the components. For example, the Army, Navy, and DLA factor in storage costs when computing economic order quantities. The Air Force's requirements computation system does not compute an economic order quantity. The Army and Navy models for determining economic retention levels factor in storage costs, whereas the Air Force and DLA set economic retention levels based on years of supply. And, the Army, Air Force, and DLA factor in storage costs when determining whether it is economical to cancel or cut back orders for inventory that is no longer needed to satisfy requirements.

When the military components factor in storage costs to make inventory management decisions, they use estimated storage costs—as they have done historically—rather than the actual, per-item costs now charged by

DLA. For example, the Army, Navy, and DLA estimate storage costs to be equal to 1 percent of the inventory value. According to an Air Force Materiel Command official, the Air Force uses estimated charges from the DLA *Storage Occupancy Report*. However, according to a DLA official, the report, which is no longer issued, identifies the space occupied by items, but not the cost of storing a specific item.

Generally, storage costs charged to customers are lower than the estimated costs (1 percent of inventory value) currently used by the Army, Navy, and DLA. In order to ascertain the significance of using estimated costs in lieu of actual charges, we compared the actual storage costs charged by DLA to the Army, Navy, and DLA with 1-percent cost estimates for about 1.5 million inventory items. We found that for about half of the items, the estimated storage costs were at least 10 times greater than the costs charged by DLA for storing the inventory. For over 242,000 items, about 16 percent of the items in our analysis, the estimated storage costs were at least 100 times greater than the costs charged for storing the items (see table 1).

Table 1: Comparison of Differences between Estimated Storage Costs and Storage Costs Charged by DLA for Army, Navy, and DLA Items

	Number of items				
Estimated storage cost was:	**Army**	**Navy**	**DLA**	**Total**	**Percent**
1,000 or more times greater than actual charge	1,829	4,247	39,950	**46,026**	3
100 times up to 1,000 times greater than actual charge	4,094	18,368	173,900	**196,362**	13
10 times up to 100 times greater than actual charge	13,525	43,101	456,508	**513,134**	34
0 times up to 10 times greater than actual charge	15,495	32,044	516,160	**563,699**	37
up to 10 times less than actual charge	6,132	8,183	192,778	**207,093**	14
Total	**41,075**	**105,943**	**1,379,296**	**1,526,314**	**100**[a]

Source: GAO analysis of DOD data.

Notes: We used 1 percent of the September 30, 2001, inventory values to determine the estimated storage costs, and DLA's fiscal year 2003 storage rates to determine the actual storage cost charges.

[a]Percent total does not add to 100 due to rounding.

A change in the storage cost factor used by the components could affect inventory management decisions. For example, depending on the item, the actual storage cost charged by DLA could be either less than or greater than the item's estimated storage cost, which would make it more or less economical to retain the same amount of inventory. Therefore, by not using the actual storage costs charged by DLA, the military components that take storage costs into account when making inventory management

decisions may be recommending the acquisition or retention of an inappropriate amount of inventory.

According to Army and Navy officials, it may not be cost effective to use the storage cost data provided by DLA, even if using the data resulted in more accurate calculations. Several factors besides storage costs are considered in making inventory decisions. Depending on the calculation, these other factors can include: the cost of an item; the demand for an item; the cost to reduce an order; and other holding cost factors,[18] such as obsolescence and storage loss rates. According to one Navy official, some of these factors have more of an impact on such calculations than do storage costs. Although the Navy and Army have recently concluded that their 1-percent estimates are sufficiently accurate for some of their inventory management decisions, neither service nor DLA has determined if it would be beneficial to use the newly available storage cost data instead of estimated costs in their inventory management decision-making processes.

Air Force Does Not Systematically Correct the Causes of Inventory Discrepancies

The Air Force does not have a systemwide process for correcting the causes of discrepancies between the inventory for which item managers are accountable and the inventory reported by bases and repair centers. Because accurate data is necessary to make accurate decisions, item managers—who are responsible for purchasing inventory—must persistently deal with inventory discrepancies, cannot accurately determine the number of available assets, and cannot reliably forecast the availability of assets. Consequently, in some instances the Air Force is at risk of buying inventory that it does not need and, in other instances, of not buying enough inventory.

Air Force policy provides for asset reconciliation on a quarterly basis. The reconciliation process compares the quantity of inventory for which the item manager is responsible to the quantity that bases and repair centers report as being on hand, in order to identify any variances between the quantities. If there are three consecutive plus or three consecutive minus variances, the policy allows item managers to adjust the inventory quantity by the smallest of the three variances. According to an Air Force Materiel Command official, in instances where an item manager's records account for more inventory than was being reported on hand by bases and repair

[18] Storage costs are one of the factors used to compute holding costs.

centers, the variance is recorded on requirement computations and inventory stratification reports as "due in other" inventory.

At Warner Robins Air Logistics Center, we noted that item manager inventory records for 35 of 118 items we reviewed showed $135 million of "due in other" inventory as of March 31, 2003, that was not accounted for by the bases and repair centers. One item, a countermeasure receiver subassembly valued at about $58,000, demonstrates the persistent nature of inventory variances. From December 2000 through June 2003, the reconciliation process consistently showed that the item manager was accountable for more assets than were being reported by repair centers and bases. According to inventory records, the item manager reduced by eight the quantity that the item manager was responsible for. A first adjustment, which the item manager performed in September 2002, reduced the quantity by six. The adjustment was made because of erroneous data reported by the contractor. A second adjustment, performed in September 2003, occurred because, at the time of the adjustment, the item manager did not have access to all of the condemnation data for the item. Another Air Force official entered this data into a system that feeds the main Air Force inventory system. Had this data been entered before the item manager reviewed the file, there would have been no need for the adjustment.

Because consistent adjustments indicate that there is something wrong with the reported information, Air Force policy instructs item managers to research historical records whenever variances exist and make every effort to identify and correct the underlying problems, when possible. According to an Air Force Materiel Command official, some variances are to be expected. But items that are continuously in variance, or for which particularly large variances exist, are problematic. In such cases, item managers cannot accurately determine the number of available assets and cannot reliably forecast the availability of assets. Knowledge of the correct number of available assets is critical when deciding whether to buy inventory, and determining how much to buy.

According to an Air Force Materiel Command official, the Air Force has sought to identify and correct variances that result from systemic reasons, such as data interface problems between two inventory systems. However, officials from Warner Robins Air Logistics Center and from Air Force Materiel Command say that the Air Force has not systemically addressed and corrected the causes of variances that item managers identify during the reconciliation process.

Air Force Item Managers Are Not Required to Code Items to Prevent Their Disposal

Air Force item managers are not required to enter codes into the Air Force inventory system for items that are categorized as potential reutilization and/or disposal materiel, but that the Air Force wants to retain. As a result, the inventory is not properly categorized, and the Air Force is at risk of disposing of inventory that it may need to later repurchase. Additionally, because DOD reports the value of inventory categorized as potential reutilization and/or disposal materiel at a rate of approximately 2 percent of its latest acquisition cost, the amount of inventory it is retaining is significantly understated in a key inventory management report.

Inventory categorized as potential reutilization and/or disposal materiel is subject to being sent to the Defense Reutilization and Marketing Service, for (1) reutilization by other DOD components or by other federal, state, or local government agencies; or (2) disposal through sale to the public. However, Air Force policy allows potential reutilization and/or disposal materiel to be retained if there are valid reasons for doing so. Item managers, when justified, are authorized but are not required to enter a deferred disposal code into the Air Force inventory system. The deferred disposal code will result in potential reutilization and/or disposal materiel being recategorized as contingency retention stock. Although entering codes is not mandatory, officials from Warner Robins Air Logistics Center, in response to our questions, said that doing so is preferred and that the center intended to mandate that item managers use the codes.

As of March 2003, we found that item managers at the Warner Robins Air Logistics Center had not entered deferred disposal codes for 12 of 27 items that had potential reutilization and/or disposal materiel—valued at $277 million based on the items' latest acquisition cost—that the Air Force wanted to retain. These 12 items thus remained coded as potential reutilization and/or disposal materiel. According to letters and memoranda justifying the retention of the items, the Air Force wanted to retain the items for a variety of reasons, including for potential future use and for foreign military sales. The following are examples of the items that the center had decided to retain, but were not properly coded:

- **Inventory retained for Air Force use.** Warner Robins Air Logistics Center had 50 transmitter drivers used on an electronic warfare system for the B-1B aircraft that were categorized as potential reutilization and/or disposal materiel. The drivers were valued at $644,000 each. Even though the fleet of B-1B aircraft is being reduced, the center was retaining the drivers because the Oklahoma City Air Logistics Center, responsible for management of the B-1B aircraft, had requested that the parts be retained to support the aircraft until the year 2040 when the Air Force expects to

remove the last of the aircraft from its inventory. However, no code was entered into the inventory system that would recategorize the inventory as contingency retention stock.

- **Inventory held for foreign military sales.** According to the item manager responsible for receiver transmitters used on the E-3 aircraft, the items were no longer used by the Air Force. The center had 87 receiver transmitters, valued at about $410,000 each, that were categorized as potential reutilization and/or disposal materiel and were being retained for foreign military sales.

  Warner Robins officials explained that it could take up to 3 months for an item manager to input the code after receiving the request to retain the inventory. Nevertheless, we identified items that had letters justifying their retention dating back to 2001 for which no code had been entered.

  Because the Air Force is retaining inventory that it has categorized as potential reutilization and/or disposal materiel, the value of this inventory is significantly understated in the *Supply System Inventory Report*, a key inventory management report prepared annually. Inventory is reported at approximately 2 percent of its latest acquisition cost in these reports, and the $277 million inventory that we identified for our analysis is valued in the reports at approximately $6 million.

Conclusions

The large number of items with no demands during Operation Enduring Freedom and through the initial phases of Operation Iraqi Freedom indicates that further attention to DOD's inventory retention policies may be merited. However, because we have initiated a separate review of these policies, we are not at this time making recommendations regarding the retention of inventory exceeding current operating requirements that had no demands.

While the ineffective and inefficient inventory management practices we identified do not necessarily lead to the accumulation of inventory exceeding current operating requirements, they can affect whether the warfighter is receiving the right items at the right time. For example, the military components are using estimated storage costs to make key management decisions even though more accurate storage cost data are available from DLA. While Army and Navy officials have said that their estimates provide sufficient accuracy, we believe that using more accurate data is a better business practice. Until the services and DLA determine whether it would be beneficial to use the more accurate storage cost data

in their computations instead of using estimated storage costs and include that data in their decision-making models as appropriate, they risk having critical items in short supply when they are needed. Similarly, until the Air Force implements a systemwide process to correct the causes of inventory records discrepancies identified by item managers, the Air Force remains at risk of being unable to fill critical needs, and item managers will continue to encounter difficulties in their efforts to accurately determine the number of available assets and reliably forecast the availability of assets. Moreover, by not requiring item managers to code inventory so that it is properly categorized, the Air Force is at risk of disposing of inventory that it wants to retain.

Recommendations for Executive Action

To address the inventory management shortcomings that we identified, we recommend that the Secretary of Defense take the following three actions:

- direct the military services and the Defense Logistics Agency to determine whether it would be beneficial to use the actual storage cost data provided by DLA in their computations, instead of using estimated storage costs, and include that data in their systems and models as appropriate;
- direct the Secretary of the Air Force to establish and implement a systemwide process for correcting causes of inventory discrepancies between the inventory for which item managers are accountable and the inventory reported by bases and repair centers; and
- direct the Secretary of the Air Force to revise its policy to require item managers to code inventory so that the inventory is properly categorized.

Agency Comments and Our Evaluation

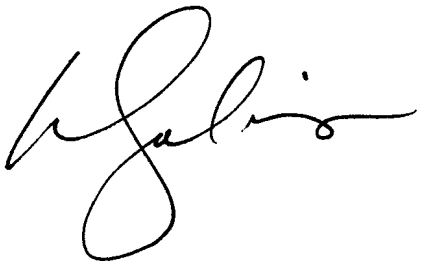
In commenting on a draft of this report, the Acting Deputy Under Secretary of Defense for Logistics and Materiel Readiness generally concurred with this report and all three of our recommendations. DOD's comments also included compliance dates for each of our recommendations. DOD's comments are included in appendix I of this report.

In concurring with our recommendation to direct the Secretary of the Air Force to revise its policy to require item managers to code inventory so that the inventory is properly categorized, DOD stated that this policy already exists for the Air Force. To ensure the implementation of our recommendation, the DOD stated that Air Force Materiel Command would report on how the policy is being implemented. However, our review of the policy citations provided by DOD indicates that the Air Force policy, as stated, does not contain language that would require the use of codes

that would properly categorize the inventory. Therefore, even if the Air Force ensures compliance with its existing policy, it will remain at risk of disposing of inventory that it may need to later repurchase, and the value of the improperly categorized inventory will remain significantly understated in a key inventory management report. Thus, we continue to believe that our recommendation to revise the Air Force policy to require item managers to code inventory so that the inventory is properly categorized is valid.

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

If you or your staff have any questions, please call me at (202) 512-8365. Key contributors to this report were Lawson Gist, Jr.; Louis Modliszewski; Kevin O'Neill; and R.K. Wild.



William M. Solis, Director
Defense Capabilities and Management

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Appendix I: Comments from the Department of Defense

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

July 1, 2004

Mr. William M. Solis
Defense Capabilities and Management
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Solis:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report GAO-04-689, "DEFENSE INVENTORY: Analysis of Consumption of Inventory Exceeding Current Operating Requirements Since September 30, 2001, dated June 2, 2004 (GAO Code 350392). The DoD generally concurs with the 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,

Bradley Berkson
Acting

Enclosure
As stated

GAO DRAFT REPORT – DATED JUNE 2, 2004
GAO CODE 350392/GAO-04-689

"DEFENSE INVENTORY: Analysis of Consumption of Inventory Exceeding Current Operating Requirements Since September 30, 2001"

DEPARTMENT OF DEFENSE COMMENTS TO THE RECOMMENDATIONS

RECOMMENDATION 1: The GAO recommended that the Secretary of Defense direct the Military Services and the Defense Logistics Agency (DLA) to determine whether it would be beneficial to use the actual storage cost data provided by DLA in their computations, instead of using estimated storage costs. (p. 23/GAO Draft Report)

DOD RESPONSE: Concur. The Military Services and DLA will review storage cost data provided by DLA to determine if it would be feasible to use this data instead of an estimated storage cost in their computations. If it is determined that the DLA provided storage costs should be used in computations, this change would be included in the modernized systems efforts of the Military Services and DLA. The review will be finalized not later than January 2005.

RECOMMENDATION 2: The GAO recommended that the Secretary of Defense direct the Secretary of the Air Force to establish and implement a systemwide process for correcting causes of inventory discrepancies between the inventory for which item managers are accountable and the inventory reported by bases and repair centers. (p. 23/GAO Draft Report)

DOD RESPONSE: Concur. The new logistics systems being procured by the Air Force (Expeditionary Combat Support System) scheduled for FY 09-11 implementation will eliminate discrepancies between systems. In the interim, the AFLMA will work with the Major Commands and Air Force Materiel Command to resolve erroneous inventory discrepancies between retail and wholesale data systems. An update on the interim solution will be available January 2005.

RECOMMENDATION 3: The GAO recommended that the Secretary of Defense direct the Secretary of the Air Force to revise its policy to require item managers to code inventory so that the inventory is properly categorized. (p. 23/GAO Draft Report)

DOD RESPONSE: Concur. This is already included in existing policy in AFMAN 23-110, Vol 3, Part 1, Chapter 9 (9.49, 9.63, 9.64.2, 9.64.3, and Attach D-6). Air Force (Installation & Logistics) will direct Air Force Materiel Command to report how they will ensure compliance. Status will be reported September 2005.

(350392)

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