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Report to the Secretary of Defense

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DEFENSE INVENTORY

Top Management Attention Is Crucial

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The Honorable Richard B. Cheney
The Secretary of Defense

Dear Mr. Secretary:

In January 1990, the Comptroller General identified the Department of Defense's (DOD) inventory management as an area of particular risk for mismanagement, fraud, and abuse. The Office of Management and Budget has also identified this as a vulnerable area. Over the last 20 years, we have issued more than 100 reports dealing with specific aspects and problems in DOD's inventory management. In May 1986,[1] we issued a summary report of over 300 prior DOD and GAO reports discussing problems in accountability and security of DOD inventories which showed that most of the systemic problems identified have existed for years.

DOD promised corrective actions in response to our recommendations, and it has made improvements in some specific areas, such as improving or amending policies and procedures for following up inventory inaccuracies. However, these corrective actions have not been effectively implemented, and the basic problems in DOD's inventory management remain.

This report summarizes past work we have done in DOD's inventory management and related areas. Appendix I discusses DOD's inventory management and its problems, and appendix II contains brief summaries of selected reports dealing with DOD's inventory management.

This report also discusses the practices the private sector is using to improve the economy and efficiency of its inventory management activities. Although DOD and the private sector have differences in mission, we believe DOD can benefit from the techniques the private sector is using to reduce and manage inventory. For example, to meet the goal of reducing inventory while maintaining customer service levels, private companies are using just-in-time inspired techniques for improving the flow of inventory.

[1] Inventory Management: Problems in Accountability and Security of DOD Supply Inventories (GAO/NSIAD-86-106BR, May 23, 1986).

DOD's goal is to have the right part, at the right place, at the right time. These objectives are important but having the right quantities (and not too much) is also important. Although DOD officials say that economy is part of its goal, performance measures used throughout the system belie that statement. Little management attention has been focused on economy and efficiency. For example, the cost to store stock is not measured. DOD's emphasis on having the parts in stock, coupled with more than adequate resources over the past 10 years, has produced overcrowded warehouses. With the emphasis on obligating appropriated funds, there seems to have been little, if any, motivation to change.

To meet the demand of a rapidly changing environment and decreasing dollars, DOD needs to change its mindset and reform the way it manages its inventory. This means requiring and rewarding efficient management practices while still satisfying customer demands. It also means top management involvement to effect reform. Private companies have found active top management involvement to be a key ingredient in innovative inventory reduction programs. DOD has often agreed with our report recommendations and has published revised policies and procedures which call for better controls. What was missing, however, was the next step—to follow up to ensure that the policies and procedures were being implemented.

Recurring Problems

Serious problems continue to impede DOD's ability to effectively manage many aspects of its inventories. Its inventory remains highly susceptible to mismanagement, fraud, and abuse. The following conditions make it especially susceptible to such problems.

- DOD's inventory grew by 138 percent in the 1980s, while DOD's unrequired inventory[2] increased by 233 percent.
- Duplication of stock has occurred due to multiple inventory levels. For example, 13 Army retail-level activities we reviewed had over $184 million worth of spare and repair parts that were excess to their needs, and had not reported them as excess, while other activities were buying some of these items.
- Inventory records are inaccurate. At two naval air stations, we recently found that 38 and 21 percent of the inventory we sampled had errors.
- Physical security of DOD's inventory is inadequate. According to an October 1989 DOD report, military installations have a high property loss rate.

[2]Unrequired inventory is inventory not needed to meet current needs and war reserve requirements.

- DOD has inadequate controls over material and equipment furnished to government contractors. As of September 1988, contractors reported to DOD that they had $56.5 billion of property. However, DOD keeps no records of these items and does not verify or validate contractors' reports.
- The services are buying spare parts before they are needed and are often not canceling orders for unneeded items. As of September 30, 1988, the Defense Logistics Agency's supply centers reported $471 million of excess material on order. This contributes to excess stock and to the possibility of items being purchased that may later become obsolete.
- Other problems exist in the areas of controls over shipments, cataloging of supply items, procurement practices, buying new items rather than using available assets for repair programs, overcrowded warehouses, and automated systems.

Correcting the Problems

The observations we make in this report are based on past reports which contain numerous specific recommendations. The purpose of this report is to emphasize, not to repeat, recommendations made previously. However, we believe DOD needs to take some critical steps for correcting the problems we have discussed. Fundamental to this process is strong leadership and a change in corporate culture. A key element is a management agenda that places greater value on economy and efficiency than exists today. The agenda should include a number of items.

- A commitment is needed to update DOD's inventory management and take advantage of private sector experience.
- Managers should have reliable management data that would be available in a timely manner. This would enhance the decision-making process. Accurate inventory records, coupled with sound physical security, would make DOD's inventories less vulnerable to mismanagement and other abuses.
- Management incentives should discourage buying unnecessary inventory. DOD's inventory management attention focuses on filling orders within a specific time frame and timely obligation of funds. However, the services need to have a corresponding emphasis on reducing costs and promoting economy and efficiency.
- The services need to establish annual goals for reducing existing inventory to minimize the overall vulnerability and abuse. The sheer size of the inventory complicates the management of an already cumbersome system.

We do see some movement towards correcting these problems. Through its Defense Management Review, DOD has targeted its inventory management as an area where it can make substantial cost savings. DOD is seeking ways to streamline its inventory management, and it appears that significant management actions may be taken to address some, but not all, of the inventory management problems. For example, DOD is considering consolidating supply depots and inventory control points. Also, on March 6, 1990, the Deputy Secretary of Defense testified before the Senate Committee on Governmental Affairs and expressed a commitment to change DOD's inventory management and involve top management in such change.

We are sending copies of this report to the Chairmen, Senate Committee on Governmental Affairs, the House Committee on Government Operations, and the House and Senate Committees on Appropriations and on Armed Services; the Director, Office of Management and Budget; and other interested parties. We will make copies available to others upon request.

This report was prepared under the direction of Donna M. Heivilin, Director, Logistics Issues (275-8412).

Sincerely yours,

Frank C. Conahan
Assistant Comptroller General

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Abbreviations

DLA	Defense Logistics Agency
DOD	Department of Defense

Discussion of DOD's Inventory Management and Its Problems

This appendix presents a general discussion of DOD's inventory management problems with some specific examples of our work. Appendix II contains a more complete and more detailed listing of our reports dealing with DOD's inventory management.

DOD's Inventories Have Grown

DOD's inventories have grown significantly. DOD's inventory of secondary items[1] grew from $43 billion, as of September 30, 1980, to $103 billion as of September 30, 1988, an increase of 138 percent. Some of this growth can be attributed to inflation, and some to force structure expansion and modernization and long-needed readiness enhancements based on life-cycle equipment support costs. However, a study by the Logistics Management Institute attributed much of the growth in DOD inventories to specific management policies and procedures.[2]

We found that aircraft parts[3] grew from $17.3 billion in 1980 to $53.6 billion in 1988. Unrequired aircraft parts[4] increased at a faster rate than required stocks. Procurement practices were the major contributor to growth in stock beyond current requirements.

The Navy's inventory of ship and submarine parts increased from $2.7 billion in 1980 to $9.3 billion in 1988, or 244 percent.[5] In 1988, 40 percent ($3.7 billion) of the Navy's inventory of ship and submarine parts was unrequired. From our sample of 100 randomly selected items, we found that the major causes for the unrequired inventory were requirements that did not materialize, deactivation of older ships, and replacement and phasing out of equipment.

[1]DOD defines secondary items as minor end items; replacement, spare, and repair components; personnel support and consumable items. Examples of secondary items include aircraft, tank, and ship components; construction, medical, and dental supplies; and food, clothing, and fuel.

[2]Inventory Management: Beneficial Practices from the Private Sector (Feb. 1985).

[3]Defense Inventory: Growth in Air Force and Navy Unrequired Aircraft Parts (GAO/NSIAD-90-100, Mar. 6, 1990).

[4]Unrequired inventory is inventory not needed to meet current needs and war reserve requirements.

[5]Defense Inventory: Growth in Navy Ship and Submarine Parts (GAO/NSIAD-90-111, Mar. 6, 1990).

For the 5-year period ending September 30, 1988, the Army's wholesale level inventory increased from $6.1 billion to $12 billion.[6] As of September 30, 1988, unrequired inventory represented $2.6 billion, or 22 percent of the Army's total inventory. That is a growth of 168 percent, compared to a 96-percent growth for the overall inventories since 1983. The largest growth, in terms of dollars, of unrequired inventory occurred at the Aviation Systems Command, one of the six Army buying commands. Its total inventory increased from $1.7 billion to $4 billion, an increase of 134 percent. However, its unrequired inventory increased from $207 million to $804 million, an increase of 289 percent. At this Command, we found that the unrequired inventory had increased primarily for the following reasons:

- Inventory was being retained to support end items that were being phased out of the Army's system.
- Demands forecasted for items often did not materialize.
- The database that computed requirements contained erroneous data.

In July 1988, we reported[7] on our visits to seven private sector companies to identify their inventory management practices and obtain their views on such practices. We found that in the 1980s, the private sector's view of inventory management changed. Companies focused their attention on reducing their overall investment in inventory, while maintaining levels of sales and customer support. Top managers—Chief Executive Officers and Chairmen of the Board—established goals to significantly lower inventory, thereby forcing their companies to rethink the way they did business.

To meet the goal of reducing inventory while maintaining customer service levels, private companies began using just-in-time inspired techniques for improving the flow of inventory. Their changes took advantage of advances in transportation and automation. Some of the common techniques include simplifying the inventory-handling and decision-making processes; automating the processes where appropriate; integrating the processes between the company and its suppliers, carriers, and customers, and within the company itself; and establishing controls in systems and operations.

[6]Army Inventory: Growth in Inventories That Exceed Requirements (GAO/NSIAD-90-68, Mar. 22, 1990).

[7]Inventory Management: Practices of Selected Private Sector Companies (GAO/NSIAD-88-143BR, July 11, 1988).

We realize that total adoption of private practices by DOD is not possible due to their different missions. However, we believe that DOD could make substantial improvements through greater use of private industry approaches. We also believe DOD can improve its inventory management by instituting private sector concepts and procedures found to be successful in reducing inventory levels, such as top management involvement and aspects of the just-in-time concept. The Office of the Secretary of Defense has encouraged the military services to utilize the inventory management expertise available in the private sector, and the Navy has an Inventory Management Improvement Program. This is a step in the right direction, but top management needs to monitor implementation of such initiatives.

Duplication Occurs Due to Multiple Inventory Levels

Since at least 1975, we have consistently advocated that DOD adopt a management philosophy where the wholesale item manager has visibility, ownership, and control over items until the final user receives them. We also believe the duplication due to multiple inventory levels can be reduced. This offers considerable potential to reduce the amount of excess inventory and holding costs and to better control existing inventory.

For example, the Army's supply system consists of two levels—wholesale and retail. When the Army wholesale level inventory manager issues an item, responsibility, accountability, and control over the item pass to the retail level inventory manager. Therefore, the wholesale level relies on the retail level to provide information on items that are excess to the retail level's needs and are available for redistribution.

Army wholesale item managers are often unaware that excess items may be at some locations and in short supply at others. This occurs primarily because retail level item managers do not report all of the excess items. Consequently, wholesale level item managers procure items that are excess at the retail level. Since 1975, we have noted that excess items in one location may not be reported and may be short in another location and be bought again.

In January 1990, we reported[8] that 13 Army retail-level activities we reviewed had over $184 million worth of spare and repair parts that were excess to their needs and had not been reported to the wholesale

[8]Army Inventory: A Single Supply System Would Enhance Inventory Management and Readiness (GAO/NSIAD-90-53, Jan. 25, 1990).

level. These activities had $33 million of shortages, of which $8.4 million was for items that were excess at other locations. At the same time, managers at the three buying commands we reviewed were in the process of spending $66.9 million for the same items that were excess at the retail level. We recommended that the Secretary of the Army establish a single supply system that provides the inventory supply system manager with systemwide asset visibility and the authority to redistribute excesses from locations where they are not needed to locations where they are. DOD agreed that a single integrated supply system would improve the efficiency and effectiveness of item management and said one of its fundamental goals is to ensure that the item manager has visibility of retail assets and the authority to direct the redistribution of assets among retail activities.

The Navy has three levels of inventories: consumer inventories to fill demands from one activity, intermediate inventories to fill requisitions from several activities in a geographic area, and wholesale inventories to fill requisitions from the other inventory levels. For the most part, consumer inventories are located at a using activity and provide the quickest response to supply requests. Intermediate and wholesale inventories often are positioned together at supply centers and other stock points.

In an October 1986 report,[9] we concluded that the Navy could substantially reduce total inventories without increasing supply response time by (1) eliminating intermediate inventories that duplicate wholesale inventories, (2) eliminating intermediate inventories that duplicate consumer inventories, and (3) using average rather than maximum inventory levels to compute intermediate inventory requirements.

Inventory Records Are Inaccurate

Accurate inventory records are essential if management is to meet the needs of the operating units it supports and operate in a cost-effective manner. Inaccurate inventory records can result in stock that cannot be found, unnecessary purchases, critical supply shortages, and excess stock. All of these can have an adverse effect on the readiness and capability of U.S. forces. In addition, if an agency does not know what it should have, it cannot tell when or if stock is stolen.

[9]Navy Supply: Intermediate Inventories Can Be Reduced (GAO/NSIAD-87-19, Oct. 28, 1986).

We have repeatedly reported on inaccurate inventory records. In December 1989,[10] we reported on inventory accuracy problems at two naval air stations. Between 38 percent and 21 percent of the inventory records sampled at the respective air stations had errors. In December 1987,[11] we indicated that data reported by the Defense Logistics Agency (DLA) did not reflect actual inventory accuracy, which was worse than reported.

Failure to promptly follow up and determine the causes of inaccurate inventory records has continued to be a problem. Although DOD has improved the policies and procedures that govern follow-up actions on inventory inaccuracies, they are not being routinely implemented.

Physical Security of Inventory Is Inadequate

Adequate physical security of inventory assets is an integral part of sound management controls. We have issued numerous reports citing the need to improve physical security for DOD's inventory. There have been publicized cases involving stolen items, such as F-16 engines in Utah and weapon parts in New York.

In October 1989, DOD issued a master plan for physical security, which is an important step towards improving physical security throughout DOD. One of the major systemic deficiencies cited in the plan was that despite the need for a focus on the potential of theft, no such emphasis appears to exist at either DOD or service staff levels. In its threat analysis, the master plan identifies pilferage and theft as the most common and annoying threat for security personnel. The analysis also says that yearly military installation property loss is high and will likely increase by millions of dollars if left uncontrolled.[12]

Congressional, defense audit, and our reports over the past 15 years have shown the need to establish a minimum level of security standards for DOD resources. According to the master plan, effective resource allocation, establishment of priorities for physical security upgrades, and trade-off decisions cannot be made effectively until DOD establishes what items need to be secured and how to secure them.

[10]Navy Supply: Naval Air Stations Have Inventory Accuracy Problems (GAO/NSIAD-90-45, Dec. 7, 1989).

[11]Inventory Management: Defense Logistics Agency Inventory Accuracy Problems (GAO/NSIAD-88-39, Dec. 24, 1987).

[12]Department of Defense Physical Security Master Plan (Oct. 20, 1989).

Controls Over Property Furnished to Contractors Are Inadequate

As of September 1988, DOD reported it had $56.5 billion of property with contractors. Since 1967, congressional committees and we have criticized DOD and the services for not having accountability and financial accounting controls over government property (material and equipment) furnished to contractors. Our May 1988 report[13] stated that the government has no assurance that its sizeable investment in property has been adequately protected, that the potential for mismanagement, fraud, and abuse has been minimized, and that it has received maximum benefits.

Included in the $56.5 billion of DOD property with contractors is $14.3 billion of government-furnished material. Since 1981, DOD and the services have repeatedly testified before the Congress that they were going to establish a financial management system to record, monitor, and account for the issuance of government material furnished to defense contractors. However, 9 years later the financial system still has not been established. As a result, contractors continue to maintain the government's only accountable record for billions of dollars of material that they requisition free of charge from DOD.

Spare Parts Are Bought Too Early and in Amounts That Exceed Current Needs

Purchasing spares and repair parts prematurely or excess to requirements could cause higher storage costs, unless requirements increase. In August 1989,[14] we reported that for 31 items procured by the Army Tank-Automotive Command, an estimated $87 million in spare and repair parts had been bought prematurely. Of these buys, about $30 million, or more than 34 percent of the original purchase amount, was no longer needed to meet requirements that had been projected at the time the purchases were initiated.

Our January 1988 report[15] showed that the Navy's stock that exceeded requirements by a 24- or 30-month supply had significantly increased in recent years and was expected to rise to $14 billion in fiscal year 1988. The report discussed a number of changes that could be made in the requirements determination process to lower inventory levels and reduce excess inventory. For example, Navy policy required that when the economic order quantity is calculated to be less than 1 year, a year's

[13]Government Property: DOD's Management of the Property It Furnishes to Contractors (GAO/NSIAD-88-151, May 26, 1988).

[14]Military Logistics: Buying Army Spares Too Soon Creates Excess Stocks and Increases Costs (GAO/NSIAD-89-196, Aug. 28, 1989).

[15]Economic Order Quantity and Item Essentiality Need More Consideration (GAO/NSIAD-88-64, Jan. 6, 1988).

supply of material should be ordered. By ordering the economic order quantity rather than a 1-year supply, the Navy could reduce the potential for increasing excess stock and storage costs. We also reported that of $1 billion in procurement actions made by the Navy's Aviation Supply Office, the Office had bought $133.7 million too early.

This report also discussed safety level requirements. Maintaining a safety level of stock on hand is a form of insurance against unexpected demands or delays in delivery. We have reported that the methods used for determining safety levels do not consider whether the items are essential to carry out a military mission. Our 1988 report noted that the Navy's Aviation Supply Office increased safety level requirements by an estimated $80.6 million by lowering the acceptable risk of being out of stock. We noted that Navy policies on acceptable risks and on mission essentiality have enabled almost every inventory item to have a safety level of stock.

Our reviews recommending reduced initial buys of spare parts go back to at least 1972. We reported in March 1989 that $2.2 million was spent for initial spare parts for the AV-8B aircraft.[16] However, almost $203,000 of this was spent for spare parts that probably would not be required during the plane's first years of service.

In July 1988,[17] we reported that the Air Force had purchased about $742 million in parts for the B-1B defensive avionics system. Many of the defensive avionics system's parts already delivered were unusable or could be made unusable by the continuing development of the system. Unusable parts, at a minimum, would require additional funds for modification. We concluded that the Air Force should reassess the quantities of parts on order because (1) many of the parts on order were in addition to an initial 4 years of supply, (2) configuration changes were making the parts already delivered obsolete, (3) more changes were anticipated, and (4) testing had not been completed.

We believe that requirements computations need to be carefully reviewed to ensure items are not bought too early or in excessive quantities. Much is happening that would encourage lower DOD inventory

[16]Navy Supply: Questionable Decisions Increased Initial Spares Costs for AV-8B Aircraft (GAO/NSIAD-89-103, Mar. 2, 1989).

[17]Strategic Bombers: B-1B Parts Problems Continue to Impede Operations (GAO/NSIAD-88-190, July 26, 1988).

levels. For example, reductions in total force levels are likely; anticipated warning time for a conventional war in Europe has increased; Cold War tensions are lessening; and DOD's budget seems likely to decrease. We have made many recommendations in the past that could help lead to lower inventory levels.

Unneeded Buys Are Not Canceled

Since at least 1974, defense audit agencies and we have reported that the services are not canceling purchases for unneeded material. With DOD's overcrowded warehouses, excess inventories, and reduced funding availability, it is extremely important that unneeded items are not bought.

In our March 1990 report,[18] we noted that DLA established relatively high thresholds for considering orders for cancellation. For example, at the Construction Supply Center contracts falling below $25,000 were not considered for termination, which excluded 98.5 percent of the Center's contracts. Also, item managers were incorrectly recomputing requirements or arbitrarily increasing requirements to avoid recommending terminations. Questionable decisions not to terminate were not reversed due to lax or nonexistent supervision. In addition, recommended terminations were ignored, and the required cost benefit analyses were not conducted. In our 1989 report,[19] we noted that the Air Force had significant amounts of invalid backorders for aircraft items. The Air Force had not conducted periodic checks to detect and cancel invalid backorders.

Other Areas Needing Improvements

DOD has a number of other areas we have identified that need to be considered when improving the DOD supply system to reduce the possibility of theft, waste, and inefficiency. More specifically, we found that (1) controls over shipments are lax, (2) deficiencies exist in cataloging supply items, (3) deficiencies exist in procurement of Air Force spare parts, (4) the services are not always using excess stocks, (5) warehouses are overcrowded, and (6) computerized systems have experienced problems.

[18]Defense Inventory: Defense Logistics Agency's Excess Materiel on Order (GAO/NSIAD-90-105, Mar. 6, 1990).

[19]Military Logistics: Air Force's Management of Backordered Aircraft Items Needs Improvement (GAO/NSIAD-89-82, June 2, 1989).

Controls Over Shipments Are Lax

DOD needs to improve its controls over material being shipped from one location to another. For example, in July 1988,[20] we reported that supply depots did not accurately report receipts, and that DOD could not confirm receipt for 87 of 453 shipments in our sample. DOD could not determine whether the shipments were stolen or were received at depots but misplaced. In general, the military services and DLA have not implemented adequate procedures to ensure that items they paid for are received.

Deficiencies Exist in the Cataloging of Supply Items

The Federal Catalog System was established to improve accountability and safeguard against buying items already in stock. However, the system is not achieving these goals. Our May 1988 report[21] noted that the Federal Catalog System continues to fall short of its legislated mandate to distinguish unique items and prevent duplication of items. Many cataloged items still are improperly named, inadequately described, incorrectly classified, and improperly numbered. Inadequate identification not only results in poor cataloging, but is likely to result in buying duplicative stock and stocking the same items under different identification numbers and somewhat different descriptions. Besides spending money for duplicative stock, millions of dollars can be spent needlessly to enter and maintain the duplicate items in the catalog system.

Deficiencies Exist in the Procurement of Air Force Spare Parts

Our reports have noted that the Air Force missed opportunities to save costs by buying parts directly from the manufacturer for the C-5B aircraft and the B-1B aircraft.

In May 1988,[22] we reported that inappropriate procurement practices may have resulted in the Air Force paying between $13 and $19 million more than necessary for C-5B spare parts. The additional costs were incurred because the Air Force purchased the spare parts indirectly through the prime contractor rather than directly from the parts vendor. This action was contrary to Air Force policy.

[20] Inventory Management: Receipt Confirmation Problems (GAO/NSIAD-88-179, July 14, 1988).

[21] Federal Catalog System: Continuing Item Identification Problems (GAO/NSIAD-88-121, May 5, 1988).

[22] Procurement: Spare Parts and Support Equipment for Air Force C-5 Transport Aircraft (GAO/NSIAD-88-57BR, May 23, 1988).

In November 1987,[23] we reported that the Air Force did not take full advantage of breakout opportunities during initial provisioning for the B-1B. Our analysis of 34 parts included in the initial procurements of B-1B spares disclosed that none were bought directly from the manufacturers even though 25 of the items qualified for direct purchase, and for some of the parts identical items had been purchased from the manufacturers at lower prices.

The Services Are Not Always Using Excess Stocks

In November 1989,[24] we reported that the Army could reduce costs in its depot-level repair program by using excess stock. Depot-level repair programs involve complex repair, such as engine overhaul or rebuilding, and could use these assets and save repair costs.

The Army's program to identify excess stock available for these repair programs is not effective because it cannot match the excess stock to the depot repair programs. However, one inventory control point developed a method to match these stocks with the applicable program. At our request, five inventory control points used that methodology to identify $59.6 million in stock that could have been used in fiscal year 1989. By using these stocks instead of repairing unserviceable ones, we estimate the Army could have reduced its repair costs by $14.9 million.

In June 1989,[25] we reported that the Air Force's fiscal year 1989 requirements for stock-funded aircraft items did not consider $185.2 million of applicable depot supply level assets that were available to satisfy these requirements. As a result, requirements for the affected items were overstated.

Warehouses Are Full

Normally, using 85 percent of available warehouse space is considered the optimum level required to avoid multiple handling and rewarehousing of material and to maintain inventory location accuracy. In December 1986, DOD notified the services and DLA that warehouses were almost filled to 88-percent capacity, with several large depots filled much higher. In a September 1989 report on supply facilities, DOD pointed out

[23] Air Force Procurement: More B-1B Spares Should Have Been Bought Directly From Manufacturers (GAO/NSIAD-88-13, Nov. 18, 1987).

[24] Army Logistics: Use of Long Supply Assets in Depot-Level Repair Programs Could Reduce Costs (GAO/NSIAD-90-27, Nov. 16, 1989).

[25] Military Logistics: Air Force's Management of Backordered Aircraft Items Needs Improvement (GAO/NSIAD-89-82, June 2, 1989).

that overcrowded warehouses affect how efficiently a depot can be run. This report says DOD's warehouses are about 91 percent full (Army—86 percent; Navy—96 percent; Air Force—97 percent; and DLA—93 percent).

Even though large inventories should enable item managers to fill orders, overcrowded warehouses can make it more difficult for them to properly store and locate stock. Inaccurate records further complicate this. Further, smaller better targeted inventories should result in more efficient warehousing at a much reduced cost.

Automated Systems Have Problems

According to DOD, new computer systems will fix the problems identified in some of our reports. However, this often does not occur because of delays or design problems. In addition, new computer systems are not always being procured in the most cost-effective manner.

In May 1989,[26] we reported on the Air Force Logistics Command's Logistics Management System Modernization Program. This program, which began in 1984, consists of 9 separate acquisition projects designed to replace and modernize 94 computer systems that help the Command manage spare parts and keep weapons systems in a state of readiness. The total cost will likely exceed $2 billion. We found that the Command (1) had reduced the scope of the original program by removing 20 of the existing systems it originally intended to replace and (2) could adequately support only about $1.9 billion of the about $12.2 billion in cost savings originally projected to result from the modernization program.

In December 1988,[27] we reported that the Navy should assess less costly ways to implement its stock point system.[28] The Navy decided to keep the existing system with 38 stock points as host sites and 65 satellite sites.[29] However, two Navy studies indicated that the cost of implementing and operating automated systems such as this one can be reduced by

[26] Air Force ADP: Evaluations Needed to Substantiate Modernization Program Benefits (GAO/IMTEC-89-29, May 5, 1989).

[27] Computer Systems: Navy Needs to Assess Less Costly Ways to Implement Its Stock Point System (GAO/IMTEC-89-2, Dec. 14, 1988).

[28] Spare parts for Navy ships and aircraft are warehoused at and distributed from stock points. Stock points rely extensively on automation to manage Navy inventory valued at about $30 billion.

[29] The Navy uses host and satellite hardware arrangements—the host stock point has the mainframe computer and maintains the database. Satellite stock points use terminals or microcomputers to access information from the host's database by various forms of telecommunications.

decreasing the number of host sites and increasing the number of satellite sites.

Top Management Attention Is Crucial

To cure its inventory management problems, DOD needs to change its "corporate culture" and streamline its organizational structure. A change in management's mindset is needed. Because of budget deficits and efforts to reduce defense funding, DOD needs to act on past recommendations for reducing the cost of its inventories.

The Defense Management Report with its emphasis on streamlining seems to be a step in the right direction. However, too often in the past good intentions have produced little change. DOD needs to ensure that this does not happen again. With the Defense Management Report's focus on reducing costs, care needs to be taken so the final result is a supply system that operates smoothly and efficiently, and does not degrade readiness, but has in place substantial controls to prevent mismanagement, fraud, and abuse.

The key to resolving the long-standing logistics issues rests with top management in the services and DOD. Until such time that logistics issues receive their fair share of attention from top management, including follow-up to ensure that proposed corrective actions are taken, it is unlikely that any of the lower level managers will give serious attention to the matters.

A 1985 study by the Logistics Management Institute[30] found that top management in the private sector was extensively involved and committed in all the successful companies surveyed. Active, positive, and energetic direction from the highest management levels within the corporation was a key ingredient in the innovative inventory reduction programs reviewed.

Typically, this management direction came in two distinct phases. This two-stage corporate approach first concentrated on easy inventory reduction targets and then used a highly visible management program to attack more difficult areas requiring procedural or systems changes. This program imposed changes from top management and made inventory reduction a corporate-level issue.

[30]Inventory Management: Beneficial Practices from the Private Sector (Feb. 1985).

In the initial stage, broad inventory-reduction goals were established without the benefit of extensive analysis and without major changes to established inventory management systems and procedures. The assumption behind these first stage inventory reductions—one that proved to be quite accurate in all cases—was that there was enough cushion in current inventories to absorb these basic cuts. Reduction objectives of 20 to 30 percent of current inventories were common. Although the goals were arbitrary, the importance of inventory reduction to corporate survival was well understood throughout the company, and the inventory reduction initiative was a part of a highly visible, corporatewide program. In the second stage, the inventory reduction effort was expanded to an analysis of policies, procedures, and inventory management systems to meet a goal of reducing inventory in specific areas where potential savings were feasible after related operating changes.

In our study of inventory management practices of private sector firms,[31] all seven companies we visited had inventory reduction goals. Two consistent factors seemed to characterize companies that were striving for significant and enduring reductions in their levels of inventory. First, top management was dedicated to and persistent in bringing about operational change. Second, the companies were managing change by focusing on the entire business or operation cycle.

We believe DOD can learn much from the experiences of the private sector. Top management involvement is crucial. We also think DOD needs to establish indicators that concentrate on items in addition to "fill" rates and carefully review inventory requirements based on changing conditions and item essentiality. Also, top management needs to ensure that recommendations for improvements by others and us are actually implemented and not just added to policies and procedures.

[31] Inventory Management: Practices of Selected Private Sector Companies (GAO/NSIAD-88-143BR, July 11, 1988).

Summaries of Selected GAO Reports on DOD's Inventory Management

DOD Inventory Management: Revised Policies Needed (GAO/NSIAD-88-75, Jan. 14, 1988)

On October 27, 1987, we testified on DOD inventory management before the Senate Committee on Governmental Affairs. Our testimony focused on three areas: (1) the accuracy of inventory records, (2) the effectiveness of research to identify the causes of inventory discrepancies, and (3) the physical protection of DOD assets. We discussed these issues within the framework of the increased growth in the value of DOD's inventory of secondary items.

In the last several years, DOD audit agencies and we have issued numerous reports addressing serious inventory management deficiencies, such as inaccurate inventory records, poor physical inventory controls, and inadequate controls and accountability over government property furnished to contractors.

DOD was supposed to evaluate how the services and DLA manage inventories in their custody, yet it does not have accurate data to do this. If DOD is to tackle the problem of inventory accuracy, we believe that it has to go beyond what it has been doing or trying to do for several years—refining current policies and procedures and attempting to monitor compliance.

DOD needs to place emphasis on identifying the systemic causes of inventory accuracy problems. However, because of causative research problems, DOD does not have the data it needs to assess where the basic problems are. We believe that there is too much emphasis on making adjustments which are then researched primarily to determine whether the adjustments can be reversed. In this case, the goal is apparently to report higher inventory accuracy rates. Additionally, the services sometimes do not correct their inventory records when discrepancies are discovered. The records should be corrected to reflect what inventories are actually on hand because item managers need such information to make day-to-day supply management decisions.

Inventory Management: Problems in Accountability and Security of DOD Supply Inventories (GAO/NSIAD-86-106BR, May 23, 1986)

We identified potentially significant supply-management problems at all levels in the areas of receipt confirmation, records accuracy, inventory taking, reconciliation and research of inventory discrepancies, and physical security. Also, our concurrent review of over 300 prior DOD and GAO

reports showed that most of these systemic problems have existed for years.

Although the DOD components have taken some corrective actions in response to these past reports, their actions have not corrected the root causes of these repetitive problems. The services and DLA continue to experience significant inaccuracies in inventory records and physical inventory adjustments. In many cases, causative research cannot determine the underlying reasons for the inventory discrepancies. Until these deficiencies are corrected, adequate accountability over supply system inventories will not be achieved. In addition, the lack of adequate physical security over some inventories results in a great potential for theft, waste, and misplacement.

DOD's Inventories Have Grown

Army Inventory: Growth in Inventories That Exceed Requirements (GAO/NSIAD-90-68, Mar. 22, 1990)

As of September 30, 1988, unrequired inventory (items that exceeded approved requirements) represented $2.6 billion, or 22 percent of the Army's total inventory. That is a growth of 168 percent compared to 96 percent growth for the overall inventories since 1983. The largest growth, in terms of dollars, in unrequired inventory occurred at the Aviation Systems Command, one of the six Army buying commands.

We determined that more timely and aggressive actions by item management officials could have reduced the procurement of unneeded items. In some cases, information was available to show that the items were not needed before the procurement contracts were awarded. In other cases, such information became available shortly after the contract award. However, the Army has not developed a systematic approach to evaluating when unneeded purchases should be canceled, reduced, or allowed to proceed. We also found that inaccurate data in the requirements database contributed to the growth of unrequired inventory.

Defense Inventory: Growth in Navy Ship and Submarine Parts (GAO/NSIAD-90-111, Mar. 6, 1990)

The Navy's inventory of ship and submarine parts increased from $2.7 billion in 1980 to $9.3 billion in 1988, or 244 percent. In 1988, 40 percent ($3.7 billion) of the Navy's inventory of ship and submarine parts was unrequired. We sampled these stocks and found that the major causes

for the unrequired inventory were requirements that did not materialize, deactivation of older ships, and replacement and phasing out of equipment. We also found that unrequired inventory could be minimized by ensuring that items being replaced or phased out are not unnecessarily purchased or repaired. We estimated that the Navy was spending $24 million annually to store and manage 140,000 items that could never be used.

Defense Inventory: Growth in Air Force and Navy Unrequired Aircraft Parts (GAO/NSIAD-90-100, Mar. 6, 1990)

DOD's inventory of aircraft parts grew from $17.3 billion in 1980 to $53.6 billion in 1988. The inventory of unrequired aircraft parts increased at a faster rate than required stocks. Among the major causes of unrequired inventory growth for aircraft items, we found procurement management practices was a contributor to growth in unrequired stock. Also, some DOD and Air Force initiatives to improve their reports could reduce visibility over unrequired stock and, consequently, mask the need for management attention. Required stocks held to meet other than current-year requirements grew significantly, and were more likely to become obsolete or experience declining demand before they were needed.

The reduced oversight and growth in years of required stock suggested that unrequired stocks could continue to grow. Also, holding more years of stock resulted in larger required inventories without a stated policy to increase requirements.

Defense Inventory: Growth in Secondary Items (GAO/NSIAD-88-189BR, July 19, 1988)

The value of DOD's secondary inventories increased about $51 billion between 1980 and 1987, from about $43 billion to about $94 billion. Navy and Air Force inventories grew the most, with increases of about $19 billion and $18 billion, respectively. The greatest growth throughout DOD was in aircraft components and parts, which grew $30.6 billion.

Required stocks grew about $27 billion between 1980 and 1987, while stocks in excess of requirements grew about $19 billion. About $5 billion of the inventory growth was unstratified. The percentage increase in unrequired stocks (186 percent) was more than double the percentage increase in required stocks (84 percent).

Inventory Management: Practices of Selected Private Sector Companies (GAO/NSIAD-88-143BR, July 11, 1988)

We visited seven private sector companies to identify their inventory management practices and to obtain their views on such practices. Because the private sector changed its views during the 1980s, companies began to focus their attention on reducing overall investment in inventory while maintaining levels of sales and customer support. Top managers—Chief Executive Officers and Chairmen of the Board—established goals that significantly lowered inventory, thereby forcing their companies to rethink the way they did business. To accomplish this, companies formed multidisciplinary planning groups since inventory affects many aspects of company operations. To meet the goals of reducing inventory while maintaining customer service levels, these companies began using just-in-time inspired techniques for improving the flow of inventory.

All seven companies we visited had inventory reduction goals. For example, one company had set a goal of a 50-percent reduction in inventory over the next 5 years. The operating unit within this company had set a 2-year goal of reducing inventory by 20 percent in 1987 and another 10 percent in 1988. This unit stated it had actually reduced inventory by about 13 percent over an 8-month period ending in March 1987.

Two consistent factors seemed to characterize companies that were striving for significant and enduring reductions in their inventory levels. First, top management was dedicated to and persistent in bringing about operational change. Second, the companies were managing change by focusing on the entire business or operation cycle. The officials addressed such basic questions as "What is our business?" and "How can we improve our business?"

Duplication Occurs Due to Multiple Inventory Levels

Army Inventory: A Single Supply System Would Enhance Inventory Management and Readiness (GAO/NSIAD-90-53, Jan. 25, 1990)

The 13 retail-level activities (division-sized units) that we reviewed had over $184 million worth of spare and repair parts that were excess to their needs and had not been reported to the wholesale level. These units had $33 million of shortages, of which $8.4 million was for items that were excess at other locations. At the same time, managers at the three buying commands we reviewed were in the process of procuring

$66.9 million for 1,669 of the same items that were excess at the retail level. The inability of the Army to redistribute the excesses impairs the readiness of the units that need the items and results in unnecessary costs.

At the time of our report, the alternatives the Army was pursuing to solve many of the problems did not provide for complete vertical integration between the wholesale and retail levels. Thus, we concluded these improvements would not fully address the excess inventory and redistribution problems we identified.

The retail-level activities were not complying with Army regulations that require that excess items be reported and returned to the wholesale-level supply system. Therefore, we recommended that the Secretary of the Army establish a single supply system that would provide the inventory supply system manager with systemwide asset visibility and the authority to redistribute excesses from locations where they are not needed to locations where they are.

Inventory Management: Army Needs to Reduce Retail Level Excesses (GAO/NSIAD-87-197, Sept. 2, 1987)

Item managers at the National Inventory Control Points were often unaware that items were excess at certain locations and in short supply at other locations. This occurred primarily because item managers at the retail level did not report all of the excess items. Consequently, situations developed where excess items at the retail level were also being procured by the National Inventory Control Points. If the item managers had had complete and accurate information on excess retail level items, the items could have been redistributed to locations where they were needed. Thus, procurements could have been delayed or reduced.

Navy Supply: Intermediate Inventories Can Be Reduced (GAO/NSIAD-87-19, Oct. 28, 1986)

We reported that the Navy could substantially reduce total inventories without increasing supply response times by

- eliminating intermediate inventories that were collocated with wholesale inventories,
- eliminating intermediate inventories that duplicated consumer inventories, and

- using average rather than maximum inventory levels to compute intermediate inventory requirements.

The Navy also could have reduced supply response times without increasing inventories by (1) exerting more control over the requisition priority system and (2) improving systems for reviewing and processing requisitions and for updating inventory records.

The Army Has Not Effectively Used Vertical Inventory Management Techniques (PLRD-83-11, Oct. 28, 1982)

In prior reports we strongly advocated adoption of vertical management techniques to improve supply performance. We remained convinced that vertical management was the approach to use. In support of our position, the Navy and Air Force implemented vertical management controls over large segments of their inventories.

The Army lagged far behind the other services in adopting vertical management. It had not embraced the concept as a whole, and its primary attempt at vertical management, the Selected Item Management System-Expanded (SIMS-X), had been replete with problems and delays. We believed that most Army items should be vertically managed, although first the problems in implementing SIMS-X needed to be solved, and at a minimum the Army needed to use manual procedures to redistribute excess assets until the computer systems were installed.

Improved Management of Fleet Supplies and Spare Parts Can Save Millions Without Affecting Readiness (PLRD-81-59, Sept. 11, 1981)

Our prior reviews on the Navy's supply support for submarines, aircraft carriers, and non-automated combat surface ships disclosed large excesses of spare parts and supplies on some ships which were not available when needed to fill shortages on other ships. Also, substantial investments were made for unneeded parts and supplies, while other critically needed items were in short supply. We concluded that future investments in stocks for those ships could be reduced substantially and recommended specific actions to achieve the reductions.

In this review, we found that the Navy had acted on some of the earlier recommendations and had achieved savings of at least $89 million. However, the Navy had taken little or no action on other recommendations. We believed additional opportunities were available for the Navy to save as much as $94 million over a 5-year period on the procurement of

repair parts and supplies. We believed these savings could be accomplished by improving

- shipboard supply management policies and controls to ensure that (1) excess inventories were not retained aboard ship after supply overhauls and (2) the Navy adopted a stockage criterion which is standard among the Atlantic and Pacific Fleets and one that would produce the best results in terms of requisitions and stock excessing actions;
- visibility over shipboard supply by insisting that authorized allowances be adhered to;
- the process for identifying, redistributing, and off-loading excess materials on a timely basis; and
- the accuracy rate of physical inventories.

Opportunities Still Exist for the Army to Save Millions Annually through Improved Retail Inventory Management (LCD-81-16, Jan. 19, 1981)

We reported to the Secretary of Defense in November 1975 that the Army could save tens of millions of dollars annually through improved management of inventories at installations and divisions (called retail inventories). DOD agreed and advised us of a number of corrective actions that the Army would take to bring about the desired improvements. We found that the Army had made little progress in resolving the previously disclosed retail inventory management problems and that opportunities for savings of $126 million existed. For example, Army retail supply activities continued to hold for prolonged periods tens of millions of dollars of stock excesses that were critically needed elsewhere. These problems continued to exist because prescribed policies and procedures were either inadequate or were not being followed and because of inadequacies in computerized logistics systems.

The Air Force Can Reduce Inventories by Eliminating Unneeded Stock Levels (LCD-76-425, June 17, 1977)

We had previously reported on opportunities available to the Air Force for reducing its inventory investment, suggesting that it eliminate unneeded demand-supported and war reserve requirements. This report discussed ways the Air Force could have further reduced its inventories by eliminating unneeded stock levels. Based on our suggestions, we believed the Air Force could have reduced its funds tied up in inventories by getting rid of unnecessary special level and safety level stocks.

We pointed out the potential for eliminating redundant stockage levels by increased reliance on item managers to manage the item throughout the entire Air Force supply system redistributing assets when needed, instead of establishing additional stock levels.

Improved Inventory Management Could Provide Substantial Economies for the Army (LCD-76-205, Nov. 21, 1975)

In 1975, Army installations and combat divisions in the continental United States stocked and managed over $200 million worth of inventories. Our prior reviews and Army Audit Agency reviews revealed management problems of these inventories which adversely affected supply responsiveness and economy.

Previously disclosed problems still existed at the five installations and four divisions we reviewed. Also, additional opportunities for significant improvements existed. For example, we found that invalid past demands were used to compute stock requirements, stock excesses were not identified and canceled or redistributed in a timely manner, and acceptable levels of stock record accuracy were not achieved.

As a result of these problems, we estimated that Army installations and divisions in the continental United States were over-requisitioning and holding in excess of local needs tens of millions of dollars worth of stock yearly that were needed elsewhere.

These problems continued to exist primarily because of inadequacies in computerized logistics systems and because prescribed policies and procedures were either not being observed or were inadequate.

Department of Defense Stock Funds—Accomplishments, Problems, and Ways to Improve (B-159797, Apr. 2, 1974)

Along with improved communications, transportation, and electronic data processing, stock funds contributed to better supply management. Significant reductions in inventory could be directly attributable to stock fund management.

DOD urged the military services to discontinue using a horizontal (inventory at wholesale level owned by wholesale stock fund managers and inventory at retail level owned by retail stock fund managers) stock fund system and to use a vertical (inventory at both wholesale and retail levels owned by same stock fund manager) stock fund system.

However, only the Air Force indicated a willingness to use a vertical stock fund system. We believed that all the military services should have used the vertical system since it offered several advantages over the horizontal system. For example:

- Inventories could be significantly reduced since the user would get direct support from wholesale stocks.
- Duplicate inventory functions could be eliminated which would result in significant savings.
- The specialized support depots operated by the Defense Supply Agency could be eliminated.

A June 1973 report by the Logistics Management Institute, Financing of Army Inventory, recommended that the Army change to a vertical stock fund system. The Institute cited advantages for changing to a vertical stock fund similar to those listed above and estimated that the Army could save 600 staff years by reducing administrative work load in billing and reconciliations between fund levels.

Economies Available through Improved Management of Navy Shipboard Inventories (B-125057, Apr. 9, 1973)

An estimated $5.8 million worth of excess inventories were loaded on 57 new ships because of delays in applying an improved supply support concept to these ships. Excess ship repair parts valued at $2.3 million were accumulated at two private shipyards because outfitting inventories for 14 ships were purchased before firm requirements were established. Millions of dollars worth of excess outfitting were held at private shipyards for periods of up to 5 years.

An estimated $59 million worth of excess inventories were accumulated aboard Navy ships during the 3-year period between supply overhauls. Between $11 and $29 million worth could have been used to support other ships. The Navy did not have an adequate system for promptly identifying and redistributing some ships' excesses. As a result, inventory excesses were held on board ships for periods of up to 3 years. Inaccurate recordkeeping and improper requisitioning practices contributed to the accumulation of shipboard excesses.

Inventory Records Are Inaccurate

Navy Supply: Naval Air Stations Have Inventory Accuracy Problems (GAO/NSIAD-90-45, Dec. 7, 1989)

We found that air station inventory records had a high rate of error. Also, internal controls that would have helped ensure record accuracy were not in place, and key management indicators showed a picture of much more accurate inventory records than actually existed. At the two air stations, we found that 38 percent and 21 percent of the inventory records sampled had errors.

Inventory Management: Air Force Inventory Accuracy Problems (GAO/NSIAD-88-133, May 12, 1988)

We reported that the Air Force had implemented a variety of policies and practices to improve inventory management and the accuracy of inventory reports. However, although the Air Force had made considerable progress in improving inventory control, record accuracy—how often the inventory record and the on-hand material balances agree—continued to be a problem. The Air Force also continued to experience problems in conducting adequate causative research into the differences between physical inventory counts and its records. Physical security over inventory assets also needed to be improved.

Navy Inventory Management: Inventory Accuracy Problems (GAO/NSIAD-88-69, Mar. 4, 1988)

Although the Navy had improved its inventory management procedures, the Norfolk Naval Supply Center and the Ships Parts Control Center still had problems maintaining accurate inventory records. Inventory accuracy reporting remained unreliable, thereby impairing the accuracy of information available to Navy decisionmakers.

Inventory Management: Supply Problems at the 90th Army Reserve Command (GAO/NSIAD-88-86BR, Feb. 5, 1988)

Our work at the units suggested that, although steps had been taken to improve supply management, problems identified by the Army Audit Agency persisted. Unit officers believed that these problems resulted, in part, from difficulties inherent in reserve components. We concluded that although such difficulties could have made supply and property accountability problems at the reserve level challenging to resolve, improvements were possible.

Inventory Management: Defense Logistics Agency Inventory Accuracy Problems (GAO/NSIAD-88-39, Dec. 24, 1987)

We found that data reported by DLA, as required in DOD's Inventory Control Effectiveness report, did not reflect actual inventory accuracy conditions at DLA depots. Criteria for reporting record accuracy, which is based only on variances over $800, may not have been appropriate for DLA which, unlike the services, manages a large volume of low value, consumable items. We also found that although efforts were made to determine the causes of inventory inaccuracies, causative research could have been more effective had DLA researched a sample of adjustments of $800 or less to determine if there were trends or systemic concerns that needed attention. Finally, physical security over inventories continued to need improvement.

Navy's Progress in Improving Physical Inventory Controls and the Magnitude, Causes, and Impact of Inventory Record Inaccuracies in the Army, Air Force and Defense Logistics Agency (GAO/NSIAD-84-9, Nov. 4, 1983)

We reported that the Navy had made good progress in executing a plan of action to improve physical inventory controls and security over supply system inventories. However, the magnitude and impact of the inventory accuracy problems in the Army, Air Force, and DLA were much greater than previously recognized by DOD and its components. The value of physical inventory adjustments reported by these agencies significantly understated the true extent of their inventory record inaccuracies. Acceptable levels of inventory record accuracy were not being achieved because the basic causes of recurring errors were generally not being identified and corrected. These conditions were due to inadequate management emphasis and priority, noncompliance with DOD's policy, as well as inadequacies in the policy and implementing procedures and practices, a shortage of qualified personnel, and a lack of individual accountability for action affecting inventory record accuracy.

Our review and agency audits showed that continuing significant inventory record inaccuracies in the Army, Air Force, and DLA frequently had an adverse impact on supply economies and degraded the readiness of military forces. For example, at an Air Force logistics center, three unresolved physical inventory losses of cable assemblies over a 35-day period in 1982 contributed to the grounding of 40 C-141 aircraft. We

also found that improvements were needed in the procedures and practices followed by the Army, Air Force, and DLA in identifying and correcting the causes of recurring major inventory record errors.

The Air Force Equipment Management System Still Does Not Assure Control of Nonexpendable Equipment (GAO/NSIAD-83-20, July 28, 1983)

We reviewed how the Air Force Equipment Management System accounted for nonexpendable equipment valued at over $15 billion. The system was intended to help managers efficiently equip individual units and develop effective budget and procurement plans.

Recognizing long-standing problems, the Air Force modernized its Equipment Management System and tried to establish inventory baseline data for all assets, but system weaknesses limited assurance that requirements were based on accurate and complete information. To determine net requirements for inclusion in its budget, the Air Force identified gross requirements and subtracted equipment on hand. However, the system's problems in accounting for equipment on hand hindered the Air Force's ability to compute quantities of equipment to include in its budget. For example, key feeder systems to the system's data bank were not providing accurate and complete data, and certain categories of assets continued to present problems. Also, the modernized system was not yet validating and reconciling reported data, and item managers were no longer performing the required manual reconciliations.

Army and Navy Controls Over Inventories (LCD-78-247, Oct. 24, 1978)

Reports issued several years[1] before this report described extensive inaccuracies in inventory records. Since that time, DOD and individual military services issued regulations and took other actions designed to improve the controls over inventories. Nevertheless, this study showed that established performance standards often still were not met and that further improvements were possible.

This study showed that the inaccuracies and other inventory problems had continued. Because the deficiencies and their causes had continued from earlier reviews and indicated problems which continued to occur

[1] Improved Inventory Controls Needed for the Army, Navy, and Air Force, and Defense Supply Agency (B-146828, Nov. 14, 1967); Army Inventories—Inaccuracies, Effects, and Ways to Improve (B-146828, Feb. 26, 1971); and Air Force Physical Inventory Problems Still Exist (B-146828, Sept. 28, 1971).

despite DOD efforts to correct them, it was difficult to devise a specific solution.

We noted that due to the importance of the physical inventory program and its benefits to supply management effectiveness, both had to be emphasized. Also, top management officials needed to be more critical when performance standards were not met and get more directly involved in correcting the inventory problems. Increased internal audit coverage was also needed. Further, DOD should not overlook the possibility of fraud and theft as causes for the large inventory discrepancies we reported.

Improvements Needed in Managing Nonexpendable End-Item Equipment in the Air Force (LCD-74-410, Feb. 26, 1974)

We tested the accuracy of the Air Force's new Equipment Management System to determine whether management was provided with current, complete, and accurate information on which to base budget, procurement, and other decisions concerning this equipment. We had previously reported on weaknesses in the system for managing this equipment.

We reported that, because unreliable data were used to compute requirements, the need to buy equipment valued at $532 million as determined by the Air Force was questionable. Also, causes for unreliable data being used could have been eliminated or minimized within the system by (1) strengthening system design and procedures and improving the accuracy of source data, (2) emphasizing to the Air Force commands and bases the need to report accurate and complete data into the system, and (3) providing intensive training of personnel and ensuring in-depth management review of system products. Management was not always provided with reliable data for making decisions to buy, budget, hold or release equipment.

Need for Improvement in the System for Managing Nonexpendable Equipment (B-133361, Dec. 5, 1967)

As in 1961, this review was limited to nonexpendable equipment in the Air Force supply system, such as generators, shop and test equipment, and machine tools—items which were not considered consumed when issued, nor did they lose their identity during use.

We found that the Air Force had made significant improvements in its procedures for managing nonexpendable equipment. We believed, however, that there was a need for further improvement in management controls over the two major elements of the equipment management system—the accuracy of reports of assets in use and the validity of equipment requirements.

We found that incomplete inventory information was reported and used in the fiscal year 1966 requirements computations. Our review showed that equipment valued at about $44 million was neither reported for use in computing requirements nor otherwise accounted for. In addition, we found that the practices followed at the base level in taking physical inventories did not provide the necessary controls over assets to ensure that all assets would be counted and that the same assets would not be counted twice.

Review of Management Within the Department of the Air Force of Replacement Equipment (B-133361, June 30, 1961)

We found that millions of dollars' worth of replacement equipment was needlessly purchased in fiscal year 1960 because the Air Force did not have an effective means of knowing the quantity and location of the equipment it already owned. Our review was limited to about 1 percent of the items and 12 percent of the value of the $2.8 billion inventory reported. In this review we established that about $164 million worth of the items selected for examination had been previously procured, but was neither included by using organizations in the inventory reports used in computing the requirements nor otherwise accounted for.

On the basis of our review, we estimated that over $6.7 million worth of replacement equipment purchased in fiscal year 1960 could have been avoided, and requirements for another $12.8 million, on which procurement was deferred principally for lack of funds, could have been eliminated had the Air Force maintained effective control over the equipment procured and received in the supply system.

Physical Security of Inventory Is Inadequate

Supply Security: Air Force Controls Need to Be Strengthened (GAO/NSIAD-89-34, Jan. 12, 1989)

We found that the Clark Air Base 3rd Supply Squadron processed most material receipts as required. However, we found several weaknesses that increased the chance of fraud, waste, and abuse. These weaknesses

included not reporting certain shipping discrepancies, not verifying and analyzing discrepancies, inadequate physical security, and insufficiently separating duties for the receipt and issuance of supplies.

Ammunition and Explosives: Improved Controls Are Needed to Reduce Thefts at Fort Bragg and Camp Pendleton (GAO/NSIAD-89-3, Nov. 22, 1988)

We found that, generally, the appropriate ammunition and explosive procedures were followed and provided a substantial measure of control at Camp Pendleton. However, some ammunition and explosives were still being stolen and further improvements in controls were necessary. Some units had not complied with the base's controls for ammunition and explosives management and accountability. Also, Camp Pendleton commands had not used the results of their compliance inspections, and inspections of training ranges were not thorough. Marines were not always searched for ammunition and explosives when leaving the training ranges because searches, while allowed at the discretion of commanding officers, were not required.

Although Fort Bragg had improved its ammunition and explosives controls, we found that opportunities still existed for improvement. Fort Bragg's policies and practices discouraged soldiers from promptly returning ammunition and explosives to its ammunition supply point after training, thereby increasing the opportunity for theft. Officials often did not correct deficiencies noted during compliance inspections.

Physical Security: Protection of Assets at U.S. Navy Bases (GAO/NSIAD-88-6, Oct. 26, 1987)

We reviewed the Navy's internal controls for protecting assets and facilities. We found that the Navy had placed increased emphasis on physical security at U.S. installations. This emphasis had resulted in an increased awareness of physical security and a general improvement in physical security procedures. However, our review also disclosed a number of security control issues that reduced the overall effectiveness of the security provided for Navy assets. These include protection of restricted areas, control of commercial vehicles, protection of waterfront property, compliance with fencing requirements, access by private boats and airplanes, and designation of "restricted" and "secure" waterways.

Army Inventory Management: Inventory and Physical Security Problems Continue (GAO/NSIAD-88-11, Oct. 9, 1987)

We found that the inventory effectiveness indicators, although they generally complied with DOD policy, were misleading and did not reflect the degree of inventory inaccuracies that existed at the wholesale and retail levels. As a result, Army and DOD management may not have had complete and accurate information for making many important inventory decisions.

Physical security over sensitive munitions was also a problem. The lack of proper storage facilities, insufficient serial number control over the munitions, and guard personnel problems all added up to increased vulnerability of these types of weapons.

Many of the same inventory management problems had been previously reported by us and others over the past several years, and promised corrective actions had either not been taken or had not proven effective.

Ammunition and Explosives: Improved Controls and Accountability at Fort Bragg (GAO/NSIAD-87-44BR, Nov. 13, 1986)

The Army's lack of control over ammunition and explosives, especially at Fort Bragg, was the focus of several reports about this time. We reviewed ammunition and explosives accountability at Fort Bragg and found that the Army and Fort Bragg had made or were making several improvements in control, management, and accountability procedures for ammunition and explosives.

To improve accountability and controls over ammunition and explosives at Fort Bragg, we recommended that Fort Bragg

- increase inspections on the fort to instill in personnel the need for strict adherence to Army regulations regarding control and accountability for ammunition and explosives, and
- administer penalties to individuals found to have unauthorized ammunition or explosives immediately after training.

Controls Over Property in Custody of Military Units Can Be Improved (LCD-80-66, June 6, 1980)

We reported that weaknesses in controls over property in the custody of military units had allowed much material to be lost. If more emphasis

had been placed on property accountability, losses could have been substantially reduced. We also reported that responsible parties had rarely been identified and held liable for property losses. Procedures for determining liability should have been simplified and strengthened.

Controls Over Property Furnished to Contractors Are Inadequate

Internal Controls: Controls Over Material Furnished to Navy Contractors Can Be Improved (GAO/NSIAD-88-150, June 21, 1988)

We reported that the Navy had made little progress in implementing DOD policies for adequately controlling government-furnished material provided to contractors. Also, Navy contractors did not have effective property control systems, and government oversight of these control systems was inadequate. Finally, the Navy had made only limited progress in developing and implementing property accountability and financial accounting systems that would account adequately for the material provided to and used by contractors. These control weaknesses could have resulted in the failure to report government-furnished material valued in the millions of dollars as potential excess material being held by contractors and increased the potential for fraud, waste, and abuse.

Government Property: DOD's Management of the Property It Furnishes to Contractors (GAO/NSIAD-88-151, May 26, 1988)

Based on our reviews in each service and DLA, we concluded that several factors had contributed to long-standing problems in controlling and accounting for material furnished to contractors. First, DOD had not effectively implemented the basic government policy of relying on contractors to provide the material needed for government contracts, except when it is determined in the government's best interest to provide needed material. Second, DOD and service regulations designed to control contractor material requisitions to the DOD supply system had either not been implemented or had been inadequately implemented. Third, the provisions of the Federal Acquisition Regulation requiring contractors to account for and safeguard government material in their possession and for the government to oversee the contractors' management of this material had not been adequately enforced. Fourth, DOD and the services had made slow progress in developing and implementing financial property accounting systems. Most of the problems associated with providing government-furnished material to contractors were also applicable to government-furnished equipment.

Internal Controls: Air Force Can Improve Controls Over Contractor Access to DOD Supply System (GAO/NSIAD-88-99, Mar. 18, 1988)

The Air Force had not adequately implemented controls at the wholesale level and had not yet established a target date for implementing such controls at the retail level. As a result, it could not ensure that contractors requisitioned, received, and used only the items and amounts of needed government-furnished material provided for in their contracts. Also, after government-furnished material had been issued to contractors, government property administrators had not performed required annual surveys or identified excess government-furnished material inventories at contractors' facilities. Air Force accounting systems did not provide adequate identification of or control over the total amount of government-furnished material provided to contractors. These control weaknesses offered the potential for fraud, waste, and abuse of government-furnished material.

Internal Controls: Status of Army Efforts to Control Contractor Access to the DOD Supply System (GAO/NSIAD-88-98, Mar. 11, 1988)

We reported that the Army had made little progress in implementing the management control and reporting systems that DOD requires to adequately control government-furnished material provided to contractors. Also, the Army had not yet developed an accounting system that would provide an independent means of identifying how much government-furnished material the contractors had on hand, received annually, and how it was being used. These control weaknesses offered the potential for fraud, waste, and abuse of government-furnished material.

Internal Controls: Controls Over Expedited Payments to Defense Suppliers Need Improvement (GAO/NSIAD-88-113, Feb. 29, 1988)

DLA had not implemented the Office of Management and Budget's revised fast pay requirements and, consequently, was continuing to routinely use rather than curtail fast pay procedures in inappropriate circumstances.

Internal controls established by the two DLA purchasing offices that we reviewed were not adequate. As a result, the government paid for some items it did not receive. In other cases, contractors received and used government funds for a number of months before the overpayments were discovered and refunded.

Government Equipment: Defense Should Further Reduce the Amount It Furnishes to Contractors (GAO/NSIAD-86-109, June 19, 1986)

We reported that since 1971 DOD and the services had made little progress in implementing overall government policies which call for minimizing the amount of equipment the government furnishes to contractors. Major factors impeding progress, in our opinion, included

- vagueness of Federal Acquisition Regulation (FAR) and Defense FAR Supplement provisions, which allow government officials to permit contractors to acquire new, general purpose equipment;
- limited DOD efforts to motivate contractors to provide their own equipment;
- inadequate equipment-acquisition guidelines, especially for service contractors; and
- continuing management oversight problems at field and headquarters levels over the acquisition, use and retention, and disposal of government furnished equipment.

Further Improvements Needed In Controls Over Government-Owned Plant Equipment In Custody of Contractors (LCD-73-12, Aug. 29, 1972)

On November 24, 1967, we reported that controls over government-owned property in contractors' plants needed to be improved. Subsequent internal reviews by DOD showed the situation had continued. This review was directed chiefly toward DOD management of a major part of such property—plant equipment—to examine the underlying causes of the problems.

DOD was rebuilding existing equipment at contractors' plants without determining if a need existed. Also, the reuse potential of government-owned industrial plant equipment had not been fully realized because of weaknesses in the procedures for reporting unneeded equipment to the Defense Industrial Plant Equipment Center for screening and redistribution.

Some contractors used government equipment for commercial work without obtaining the approval required in advance of the actual use. When obtained, this approval normally limited the commercial use to 25 percent of available machine time. At one contractor's plant, however, we found that during 1 year over 80 percent of recorded sales of products produced using government-owned equipment were not under government contract.

Spare Parts Are Bought Too Early and in Amounts Which Exceed Current Needs

Air Force Budget: Potential for Reducing Funding for Aircraft Spares (GAO/NSIAD-90-18, Nov. 28, 1989)

We identified potential budget reductions and/or rescissions for aircraft spares for various reasons, including premature and unauthorized buy requirements and terminating procurements of excess materiel on order.

Military Logistics: Buying Army Spares Too Soon Creates Excess Stocks and Increases Costs (GAO/NSIAD-89-196, Aug. 28, 1989)

The two Army buying commands we visited regularly initiated item purchases earlier than they should have and also purchased quantities exceeding authorized requirements. Purchasing spares and repair parts prematurely or excess to requirements resulted in unnecessary inventory investment which, unless requirements increased, would cause higher inventory holding costs. These problems occurred, in part, because the two commands had misinterpreted Army guidance on obligating procurement funds.

Our review also showed that the Army Materiel Command should have strengthened its internal control practices to ensure that buying commands (1) comply with established guidance for canceling or reducing excessive on-order quantities of material, (2) adequately document item management and procurement decisions, and (3) follow existing regulations on the approval of procurement actions based on dollar-value thresholds.

Navy Supply: Questionable Decisions Increased Initial Spares Costs for AV-8B Aircraft (GAO/NSIAD-89-103, Mar. 2, 1989)

Although DOD guidance states that initial provisioning should be provided through a cost-effective approach, we found that the Navy's Aviation Supply Office did not follow this guidance when placing orders for AV-8B spares for three principal reasons. First, it provided formulas for calculating initial requirements that followed the DOD guidance, but the AV-8B section adopted a minimum buy policy that authorized purchases for every type of spare regardless of the outcome of the requirements formula. Second, in some cases it did not consider prior orders when placing subsequent orders. Third, it increased spare parts orders due to contractor-imposed minimum order requirements. Internal controls were not in place to focus the attention of Navy managers on these matters.

Air Force Budget: Potential for Reducing Requirements and Funding for Aircraft Spares (GAO/NSIAD-88-90BR, Feb. 18, 1988)

The Air Force's fiscal year 1988 updated procurement requirements for aircraft replenishment spares were $1.6 billion less than the budgeted requirements on which its funding request was based. Additionally, the Air Force was experiencing substantial shortfalls in obligating prior years' funding appropriated for the procurement of aircraft replenishment spares.

Economic Order Quantity and Item Essentiality Need More Consideration (GAO/NSIAD-88-64, Jan. 6, 1988)

Navy policy requires that when the economic order quantity is calculated to be less than 1 year, a year's supply of material must still be ordered. About 50 percent of the stock items reviewed by us had economic order quantities under a year. The Navy could have reduced the potential for increasing its stocks beyond current needs (long supply) and minimized the costs of ordering and holding inventory by purchasing the economic order quantity rather than a 1-year supply.

Navy policies on acceptable risk of running out of stock and on mission essentiality enable almost every inventory item to have a safety level of stock. The Navy could reduce the potential for increasing its stocks beyond current needs by revising these policies.

We evaluated selected procurement actions taken by the Aviation Supply Office in fiscal year 1986, which amounted to $1 billion. We found this office had ordered $133.7 million in material that exceeded the economic order quantity. This material resulted in additional costs of $10.5 million because the increased holding costs of the larger inventories more than offset the decreases in ordering costs and the implied cost of shortages.

We reported that the Navy's inventory of stock exceeding requirements by a 24- or 30-month supply had shown dramatic increases in recent years and was expected to rise to $14 billion in fiscal year 1988. Also, the policy of ordering a year's supply of material rather than the economic order quantity (when it is less than 1 year) increased the risk of overbuying material with a potential for increasing its stocks beyond current needs.

Air Force Budget: Potential for Reducing Requirements and Funding for Aircraft Spares (GAO/NSIAD-87-48BR, Jan. 13, 1987)

We identified potential budget reductions for aircraft spares for various reasons, including deferral of requirements for aircraft replenishment spares purchased more than a year prematurely, elimination of excessive administrative leadtime requirements, and terminations of on-order aircraft spare excesses.

Military Logistics: Buying Spares Too Early Increases Air Force Costs and Budget Outlays (GAO/NSIAD-86-149, Aug. 1, 1986)

We reviewed the Air Force's practices for purchasing recoverable (reusable) aircraft spare parts to determine whether it was buying them at the appropriate time. Two of the Air Force's five air logistics centers regularly bought recoverable spares up to 14 months earlier than necessary. As a result, for contracts awarded during 1984, the two centers prematurely invested about $374.5 million in spare parts inventories, thus increasing their inventory holding costs by about $52.2 million. About $125.4 million of the total amount invested prematurely represented purchases made more than 1 year too early. Requests for appropriations to fund these purchases could have been deferred for 1 year if the centers had planned to buy spares at the appropriate times.

We reported that because all five air logistics centers followed the same early procurement practice, eliminating this practice would result in significant Air Force-wide reductions in inventory holding costs and deferrals in procurement outlays and budget requests.

The Army's Safety Level Requirements for Secondary Items May Be Inaccurate and Excessive (GAO/NSIAD-85-160, Sept. 30, 1985)

Our survey of the Army Materiel Command's 6 major subordinate commands showed that safety level requirements for 48,399 secondary items (spares and repair parts) exceeded procurement leadtime requirements for a number of items valued at about $76 million. DOD requires that safety levels be at least equal to the procurement leadtime requirements. We observed that the economic order quantity/variable safety level formula used to compute requirements for stock produced quantities that were erratic, could be excessive, and did not materially improve supply support.

Actions Taken by DOD on GAO Recommendations to Improve Spare Parts Requirements Determination (GAO/NSIAD-85-61, Apr. 30, 1985)

We found that actions taken by the military services and DOD to improve the spare parts requirements determination process, in response to our prior report recommendations, had resulted in estimated cost savings of over $800 million during the past 5 years. We also believe that additional actions in process then would result in further estimated savings of over $500 million.

The Army's Use of Serviceable Returns in Requirements Computations (GAO/NSIAD-85-59, Apr. 9, 1985)

The volume of serviceable returns for the three activities was up by 11.7 percent in fiscal year 1984 as compared with fiscal year 1983, and the dollar value of these returns increased from $34.6 to $69.8 million. Nearly 50 percent of the reported serviceable material was accepted by the wholesale supply activities. Although these returns were recorded as assets on hand, they received limited consideration in forecasting requirements. Consequently, unnecessary procurement and rework costs could result.

The Air Force Can Improve Its Forecasts of Aircraft Spare Parts Requirements (GAO/NSIAD-85-2, Nov. 19, 1984)

The two air logistics centers reviewed overstated their need for some parts for aircraft being phased down or phased out. Based on a sample, we projected the overstatement to be $31.1 million. At the same time, the centers understated their parts need for aircraft with expected increases in flying hours and for new aircraft entering the inventory. We projected the understatement to be $28.8 million.

Thus, with its existing forecast methodology the Air Force could spend millions of dollars to buy parts before they were needed or that could never be needed, while not purchasing millions of dollars worth of needed parts.

Excessive Air Force Inventories Result From Duplicative Spare Parts Requirements (GAO/NSIAD-85-7, Oct. 25, 1984)

Programming logic used to compute total Air Force consumable spare parts requirements resulted in some depot maintenance requirements being counted twice. As of March 31, 1983, the Air Force was investing

$119 million in unnecessary inventory because of this duplication and about $21.5 million annually in maintaining this inventory.

Improved Processes Can Reduce Requirements for Air Force War Reserve Spare Parts (PLRD-83-81, July 8, 1983)

Our review showed that war reserve requirements on 20 of the 32 sample items used on the F-15's radar system were overstated by about $12.6 million. Requirements were inaccurate and unrealistic because computations were not adjusted to reflect (1) changes in item failure rates or (2) configuration changes in aircraft components.

Air Force Uses Inaccurate Production Leadtime to Compute Spare Parts Requirements (PLRD-83-85, June 16, 1983)

The two air logistics centers reviewed overstated requirements for many consumable parts by an estimated $137.5 million and understated requirements for others by about $12 million. Also, they were unnecessarily stocking an estimated $16.7 million worth of parts as safety level material with annual holding costs of $2.9 million. We believed that the primary reason for the invalid requirements determination was the use of outdated leadtime data in computing requirements. We believed that the centers were not using up-to-date leadtimes because (1) regulations did not require them to periodically obtain timely leadtime data from contractors and (2) management practices encouraged the use of long leadtimes as a buffer to avoid shortages.

Excessive Administrative Leadtime Used to Determine Requirements in the Air Force's System Support Stock Fund (PLRD-82-110, Aug. 13, 1982)

We reviewed the administrative leadtime for items in the automated System Support Stock Fund at the Ogden Air Logistics Center. We found that inaccurate administrative leadtimes were being used in determining inventory needs. These inaccuracies could have resulted in unnecessary procurements of up to $6.3 million to accommodate the excessive leadtime.

The Air Force Needs to Exercise More Control Over Equipment Authorizations (PLRD-82-100, July 27, 1982)

The Air Force had a reasonable management system to authorize equipment, but at two locations we visited, lack of emphasis on monitoring and validating equipment authorizations had weakened critical systems

controls. Internal Air Force tests showed that similar problems existed elsewhere in the Air Force. We recommended increased attention to monitoring and validation and suggested alternative ways to do this.

Requirements and Production Capabilities Are Uncertain For Some Air Force, Navy, and Marine Corps Aircraft Spares and Repair Parts (PLRD-82-77, July 22, 1982)

We reported that constantly changing requirements and the absence of a management information system to predict production problems made it difficult to determine whether all of the Air Force, Navy, and Marine Corps appropriations requests for aircraft spares and repair parts were needed and whether the industrial base had the capability to produce such items.

We also reported that until the underlying systemic shortcomings in the requirements determination processes were corrected, the total annual budgets for aircraft spares and repair parts, which are based in part on the requirements data, would remain questionable.

Mission Item Essentiality: An Important Management Tool for Making More Informed Logistics Decisions (PLRD-82-25, Jan. 13, 1982)

We reported that the services could have made more informed logistics decisions in determining peacetime and wartime requirements, allocating resources, and setting repair priorities by ensuring that the more essential items received increased management attention and funding priorities.

More Credibility Needed in Air Force Requirements Determination Process (PLRD-82-22, Jan. 7, 1982)

Lack of knowledge of system operations, ineffective supervision, and questionable quality control practices were major contributors to inaccurate requirements determinations at Warner Robins Air Logistics Center. Because the Air Force used a standardized system for computing requirements for reparable items, we believed that deficiencies noted during this review may have existed at other air logistics centers.

The two basic reasons for invalid requirements and buy actions were (1) failure of item managers to follow established policies and procedures and (2) inaccurate data in the requirements system.

The Aviation Supply Office Continues To Have Problems With the Accuracy of Its Requirements Determinations (PLRD-82-20, Dec. 22, 1981)

The Navy's Aviation Supply Office had major problems with the accuracy of its requirements determinations. Its automated requirements system contained vast amounts of invalid data, which had caused requirements to be significantly overstated. As a result, extensive manual adjustments were needed before data could be used for determining what items and how many to buy.

The Army Should Improve Its Requirements Determination System (PLRD-82-19, Dec. 1, 1981)

We found that the Army Missile Command's requirements computations for August 1980 were overstated by $12.6 million for certain items and understated by about $400,000 for other items because requirements computations were based on inaccurate delivery, administrative, and production leadtimes. In addition, leadtime requirements were overstated because of the method used to determine requirements for items requiring first article testing.

Although we performed the review at only one Army location, the nature of the findings, coupled with the Army's use of a standardized requirements determination system, could have indicated systemic requirements problems at the other Army inventory management activities.

The Services Should Improve Their Processes for Determining Requirements for Supplies and Spare Parts (PLRD-82-12, Nov. 30, 1981)

We found little consistency and coordination among the services on the best way to determine requirements. Thus, techniques developed by one service which seemed to have merit and offer potential for doing something a better way were not made available to the other services. Consequently, opportunities to refine and improve the requirements determination process were lost. Furthermore, with better supervision and training, the services could have made better use of limited resources and thereby enhanced equipment availability and avoided investments in stock levels beyond real needs.

We selected a statistical sample of items in a buy position during a requirements determination cycle at three locations—one location in each service—and tested the validity of the data elements used in the

requirements determination processes. We found that, oftentimes, the computed requirements were not based on accurate data. As a result, the requirements were overstated and understated by millions of dollars. We noted that the problems could be widespread and significant. The misstated requirements were due to

- inaccurate data in the automated requirements determination systems,
- incorrect adjustments to the data, and
- the failure to follow prescribed leadtime forecasting policies and procedures.

Logistics Managers Need to Consider Operational Readiness in Setting Safety Level Stocks (PLRD-81-52, Aug. 10, 1981)

We reported that maintaining a safety level of stock on hand is a form of insurance against unexpected demands or delays in delivery. However, the methods used for determining safety levels did not consider whether the items were essential to carry out a military mission.

The Army Can Save Millions Annually by Properly Considering Serviceable Returns in Its Requirements Computations (LCD-80-64, May 15, 1980)

The Army's requirements for procurement or rework of demand-support items were inflated because four of the five inventory control points were not using 100 percent of serviceable returns to offset demands in their requirements computations, as required by Army regulations. We recommended that the Army reduce the projected requirements for material by the full amount of forecasted returns of serviceable material from customers.

Army's Requirements for War Reserve Materiel Can Be Reduced Without Impairing Combat Effectiveness (LCD-78-422A, Dec. 14, 1978)

We reviewed the Army's stock fund war reserve program to determine if the Army's requirements are realistic in view of the large dollar deficiencies in its budget requests. We found several major assumptions and factors used by the Army in computing war reserve requirements that were questionable and led to overstated requirements. We recommended ways to reduce the Army's requirements for war reserve material without impairing combat effectiveness.

Determining Requirements for War Reserve Spares and Repair Parts—Importance of the Wartime Planning Process (LCD-78-407A, June 6, 1978)

This report dealt with the Air Force's coordination of overall strategic wartime planning with logistics support and operations, and the planning factors involved which significantly affected material requirements for war. It pointed out that a number of the underlying planning assumptions needed to be reassessed and changed to improve the effectiveness of wartime logistics support.

Submarine Supply Support Costs Can Be Greatly Reduced Without Impairing Readiness (LCD-76-237, June 7, 1977)

We reported that the Navy can reduce future investments in submarine support inventories by as much as $106 million by improving policies and procedures for establishing and maintaining optimum stock levels on submarines and tenders. Although some improvements had been made or promised, we concluded that the Navy could do more.

The Air Force Could Reduce War Reserve Requirements of Spares and Repair Parts for Combat-Ready Units (LCD-75-444, Aug. 27, 1976)

We reported that the cost of acquiring war reserves had increased greatly, and the cost of acquiring stocks to meet the requirements computed by the Air Force far exceeded available funds. We proposed several alternatives for reducing investments in spares and repair parts and, at the same time, providing effective support.

Need to Improve Accuracy of Air Force Requirements System for Reparable Parts (B-146874, Sept. 13, 1972)

We found that errors in several key data elements in the Air Force's system for determining requirements for reparable parts were widespread. Because of the extent of error, questions were raised as to whether management was getting reliable information for making decisions to buy, repair, retain, or dispose of reparable parts. Our review of requirements computations for 110 items selected on a statistical-sampling basis showed that errors had caused inaccurate requirements in about 59 percent of the computations.

Reducing Procurement Of Initial Support Stocks for Navy Ships (B-133058, June 28, 1972)

We reported that much of the backup equipment and spare parts acquired by the Navy as initial support for shipboard equipment was seldom, if ever, used. In addition, we believed the quantities procured could have been reduced significantly without impairing fleet readiness. This reduction would have resulted in savings in inventory investment and in costs of maintaining inventory.

The Navy obtained too many stocks for the following reasons.

- Excessive quantities of items with little or no use expected were purchased as insurance items. One location was carrying an inventory of 34,000 such items which were valued at $142 million. Of these, 23,000 items, having a value of $84 million, had potentially excess quantities on hand.
- Support for equipment installed aboard ships was duplicated by buying backup quantities of the same equipment in addition to spare parts. As of April 30, 1970, the Navy had an inventory of shipboard equipment valued at $298 million, much of which had been acquired as backup equipment.
- Quantities of spare parts were obtained to load aboard tenders. Spare parts were also obtained for storage at depots on shore. All these parts were intended to support the same expected equipment failures on Fleet Ballistic Missile submarines.

Unneeded Buys Are Not Canceled

Defense Inventory: Defense Logistics Agency's Excess Materiel On Order (GAO/NSIAD-90-105, Mar. 6, 1990)

For most excess material on order, item managers are unnecessarily avoiding making termination recommendations to contracting officers. For example, at the Construction Supply Center, contracts falling below $25,000 are not considered for termination. This relatively high threshold excluded 98.5 percent of the Center's contracts. Item managers are also incorrectly recomputing requirements or arbitrarily increasing requirements to avoid recommending terminations. We found that because of lax or nonexistent supervision, questionable decisions not to recommend terminations are not reversed.

Even when items are recommended for termination, contracts are not terminated if the contracting officer is informed by the contractor that

the contract cannot be terminated without cost to the U.S. government. In these cases, item managers are making decisions to accept unneeded items without performing a required cost benefit analysis. Unless item managers receive estimates of termination costs, they do not have a reliable database to determine if acquisition of excess items is in the government's best interest.

Military Logistics: Air Force's Management of Backordered Aircraft Items Needs Improvement (GAO/NSIAD-89-82, June 2, 1989)

We found that the Air Force had significant amounts of invalid backorders that were not being detected and canceled by periodic validation checks. In addition, the Air Force's requirements for aircraft spare parts were overstated because (1) available depot supply level assets were not used to offset requirements for aircraft items procured with stock funds, (2) depot maintenance backorders were included twice in requirement computations for aircraft items procured with appropriated funds, and (3) requirements for stock-funded aircraft items were sometimes based on erroneous backorder data.

The Air Force's process for ensuring compatibility between wholesale and retail level backorder records continued to experience problems. As a result, the Air Force was missing opportunities to cancel invalid backorders.

Military Procurement: Air Force Should Terminate More Contracts for On-Order Excess Spare Parts (GAO/NSIAD-87-141, Aug. 12, 1987)

We found that (1) the Air Force actually terminated less than 3 percent of the excess on-order parts that we reviewed, (2) the Air Force should have terminated about 24 percent of the on-order excess, resulting in savings of approximately $12 million to $36 million depending on whether the items would be reprocured, and (3) the requirements system responsible for generating on-order termination lists contained inaccurate information and was unreliable.

The Navy Can Increase Cancellations of Procurements for Unneeded Material (GAO/NSIAD-86-55, Mar. 22, 1985)

We found that the Navy's procedures and practices for canceling procurements of unneeded material showed that cancellations could be increased, thereby reducing unnecessary procurement and inventory investment costs.

We identified four main reasons why cancellations were not higher. First, the inventory control points had established high dollar review thresholds. Second, the inventory control points applied protection levels to provide an added buffer against running out of stock. Third, inventory managers did not always act on cancellation notices in a timely manner. Fourth, management and supervisory attention over the cancellation process was limited.

Continued Improvements Needed in Air Force Procedures and Practices for Identifying and Canceling Excess On-order Stocks (PLRD-83-36, Feb. 7, 1983)

Our review identified continuing problems which inhibit the identification and potential cancellation of excess on-order stocks valued at tens of millions of dollars annually.

Better Methods for Validating and Reconciling Unfilled Materiel Orders Could Provide Substantial Economies to the Army (PLRD-82-76, June 2, 1982)

The Army continued to spend tens of millions annually on material no longer needed by customers. We reported that it could save an estimated $112 million over a 3-year period and improve the credibility of its database and supply readiness by strengthening its policies, procedures, and practices for periodically validating and reconciling older, outstanding orders.

DOD Can Save Millions of Dollars by Improving the Management of Air Force Inventories (LCD-80-6, Oct. 25, 1979)

Two Air Force air logistics centers had over $50 million in excess material on order, although they had over $8 million of stock on hand exceeding current needs for these items. The Air Force Stock Fund's obligational authority was inflated by an estimated $25.5 million.

To avoid inflating inventories and procurement costs, we reported that DOD should have

- eliminated its permissive overstockage policy,
- revised computer programs so that duplicate requirements are not included in the "buy computations,"
- provided for more timely identification and effective cancellation of excess stock on order, and

- filled war readiness and foreign sales requirements from available stocks to the maximum extent practicable.

Better Methods Needed for Canceling Orders for Material No Longer Required (B-162152, May 21, 1974)

In 1967, we reported that outstanding Air Force orders for material worth $471 million could be reduced by about $103 million if the Air Force more promptly identified and canceled unfilled orders for material no longer required. About this time DOD established a uniform policy and standardized procedures for the military services to follow in verifying the continuing need for material on old, unfilled orders.

After DOD implemented its policy and procedures for verifying continuing need, the military services identified and canceled over $5 billion dollars worth of unfilled orders. However, after analyzing material order validations made by the services for a 3-month period, we found that about $240 million worth of old invalid material orders were either not identified or were identified too late to permit cancellation. In addition, $84 million worth of material demands related to invalid orders were not removed from the databases used to compute requisitioning objectives and buy requirements.

The causes of these problems were the following:

- The requisitioning activities routinely certified the continuing validity of unfilled orders without verifying the requirements.
- The Army and Navy did not validate unfilled orders often enough to permit timely cancellation of invalid orders, and the services incurred avoidable delays in accomplishing periodic material order validations.
- Not all eligible material orders were subjected to validation checks.
- When invalid orders were canceled, the related demands were not eliminated from the demand history, which was used in computing future requirements.

Other Areas Needing Improvements

Computer Acquisition: Navy's Aviation Logistics System Not Ready for Deployment (GAO/IMTEC-90-11, Feb. 9, 1990)

We reported that the Navy was attempting to implement a new automated logistics system for intermediate-level maintenance facilities, e.g. naval air stations and aircraft carriers, before the software had been

properly tested. This was critical because problems detected after a system is operational cost substantially more to correct than those discovered and corrected during system development. We recommended that the Navy fully test the system to ensure problems are detected before the system is fielded, conduct evaluations to verify that the system will provide the cost savings and improvements originally expected, and develop a system maintenance manual to ensure that the system can be cost-effectively maintained.

Air Force ADP: Systems Funded Without Adequate Cost/Benefit Analysis (GAO/IMTEC-90-6, Dec. 28, 1989)

We reported that the Air Force, for four automated logistics system initiatives, had not performed adequate cost/benefit analysis to justify the new systems. The cost/benefit inadequacies fell into three categories: incomplete analysis of alternatives, overstated benefits, and understated costs. As a result, the Air Force could not determine the most cost-effective alternative or, more importantly, whether the benefits of the proposed automated system outweighed the costs.

Army Logistics: Use of Long Supply Assets in Depot-Level Repair Programs Could Reduce Costs (GAO/NSIAD-90-27, Nov. 16, 1989)

We reported that although the Army had developed a program to identify long supply assets available for depot-level repair programs, the program was not effective because it lacked the means to match the large inventories of long supply assets to thousands of depot repair programs. Establishing an effective program was further hindered by a long-standing conflict over the price Army depots should pay for long supply assets purchased through the Army's stock fund.

One inventory control point developed a means to match serviceable long supply assets to applicable depot repair programs. At our request, using that methodology, five of the Army's inventory control points identified about $59.6 million in long supply assets that could have been used in fiscal year 1989 depot repair programs. We estimated that using these assets instead of repairing unserviceable assets would have enabled the Army to reduce its repair costs by about $14.9 million.

Computer Procurement: Hardware Upgrades for Navy Inventory Control System Should Be Delayed (GAO/IMTEC-89-67, Sept. 29, 1989)

We reported that the Navy was procuring upgraded computer hardware for its new automated inventory control point system without adequately defining the need for the new hardware and without determining whether its existing hardware could be more efficiently used.

Strategic Bombers: Logistics Decisions Impede B-1B Readiness and Supportability (GAO/NSIAD-89-129, May 19, 1989)

DOD and the Air Force emphasized production schedules and program costs during B-1B development. Trade-offs were made that affected logistics support. Lack of adequate logistics support contributed to significant numbers of grounded aircraft and reduced mission-capable time. This, in turn, delayed crew training and plans for increasing the number of alert aircraft.

We reported that the Air Force continued to face difficult challenges that could require billions of dollars to support full B-1B operations. A comprehensive assessment of B-1B logistics support status could help identify B-1B readiness and supportability issues and needed follow-up actions. In addition, visible and measurable readiness and supportability goals for early operations could assist in achieving DOD's policy of sufficient attention to logistics issues throughout the development and acquisition process.

Automated Information Systems: Schedule Delays and Cost Overruns Plague DOD Systems (GAO/IMTEC-89-36, May 10, 1989)

We reviewed eight automated systems, including DLA's Defense Logistics Services Center, Naval Aviation Logistics Command Information System, and Air Force Requirements Data Bank. All experienced significant cost growth and all but one experienced development delays. Reasons given for cost growth and delays included underestimation of the systems' original costs, design failures, program redirection, and enhancements to the original project scope.

Air Force ADP: Evaluations Needed to Substantiate Modernization Program Benefits (GAO/IMTEC-89-29, May 5, 1989)

We reviewed the Air Force Logistics Command's Logistics Management System Modernization Program. The program, which began in 1984, consists of nine separate acquisition projects designed to replace and modernize 94 computer systems that help the Command manage spare parts and keep weapon systems in a state of readiness. We found the Command could adequately support only about $1.9 billion of the about $12.2 billion in cost savings originally expected from this program.

ADP Acquisition: Air Force Logistics System Modernization Projects (GAO/IMTEC-89-42, Apr. 21, 1989)

We provided information on the cost of three Air Force systems that are part of the Air Force Logistics Management Systems Modernization Program.

ADP Acquisition: Defense Logistics Services Center Modernization Program (GAO/IMTEC-89-32, Mar. 20, 1989)

We provided information on the cost of the Defense Logistics Services Center Modernization Program.

Air Force ADP: Logistics Systems Modernization Costs Continue to Increase (GAO/IMTEC-89-7FS, Dec. 28, 1988)

We found that Air Force estimates to complete the nine initial projects for the Logistics Management Systems Modernization Program increasec from $715.4 million in 1985, to a current estimate of $994.3 million.

Computer Systems: Navy Needs to Assess Less Costly Ways to Implement Its Stock Point System (GAO/IMTEC-89-2, Dec. 14, 1988)

We reported that the Navy's Stock Point automated data processing replacement project is intended to improve supply operations by replac ing the current computer systems with new hardware and software at a cost of $2.3 billion over the system's 24-year life. Although the cost of implementing and operating the project could have been potentially reduced by using fewer host systems than the 38 that were planned, the Navy had not yet studied alternative host/satellite configurations.

ADP Management: Status of the Army's Logistics and Technical Information Initiatives (GAO/IMTEC-89-10, Oct. 31, 1988)

We reviewed the Army's major automation efforts in the logistics and technical information area. We found the Army had not completed implementing its system integration and interoperability strategy.

Strategic Bombers: B-1B Parts Problems Continue to Impede Operations (GAO/NSIAD-88-190, July 26, 1988)

The Air Force was experiencing significant logistics challenges that required extraordinary efforts to support limited B-1B operations. Specifically,

- spare parts shortages continued to seriously limit aircraft availability;
- the Air Force was relying on extensive cannibalization (use of parts from grounded aircraft) to continue operations;
- the Air Force, even with its extraordinary efforts, had not been able to meet training and readiness objectives;
- reliability shortfalls (parts failing faster than expected) continued to be a major cause of spare parts shortages, with other causes contributing to the problems;
- the Air Force's and contractor's attention to priority parts had resolved some parts problems, but a more systemic approach would ensure early and appropriate attention to the problem parts; and
- opportunities for reductions and cost savings might have been found if the Air Force had reviewed and reassessed the quantities ordered for parts that (1) had been or were undergoing reliability improvements, (2) were used on unstable/undeveloped systems such as defensive avionics, (3) were intended to be used as wartime spares, and (4) had potential excess quantities on order.

Inventory Management: Receipt Confirmation Problems (GAO/NSIAD-88-179, July 14, 1988)

We analyzed 453 shipments valued at about $15 million and could not confirm receipts for 87 shipments (19 percent) valued at about $1 million (7 percent). Generally, we found that systems and internal controls in the military services and DLA did not provide DOD management with adequate assurance that material paid for was received at storage activities. We, the service audit groups, and the DOD Inspector General had reported several times on problems experienced by the military services

and DLA in material receipt procedures and controls. We found that systems and internal controls in the military services and DLA did not provide management with adequate assurance that depots received material paid for on the basis of acceptance at the source.

Procedures to follow up on in-transit material either (1) had not been established or (2) where established, were not being followed or were otherwise not effective. Additionally, supply and financial records were not reconciled to ensure that material paid for was actually received.

ADP Modernization: Army Plans to Improve Budget Disclosure for Its Standard Depot System (GAO/IMTEC-88-30, May 25, 1988)

We found that the Army had a structured approach for managing the modernization program for its automated Standard Depot System. However, its budget exhibits did not include enough information to clearly explain the modernization's cost and scope to the Congress.

Procurement: Spare Parts and Support Equipment for Air Force C-5 Transport Aircraft (GAO/NSIAD-88-57BR, May 23, 1988)

Inappropriate procurement practices by the San Antonio Air Logistics Center may have resulted in the Air Force paying between $13 and $19 million more than necessary for C-5B spare parts. The additional costs were incurred because the Center purchased spare parts indirectly through the prime contractor, rather than directly from the parts vendors. This action was contrary to Air Force policy. We believed the issues identified during our review highlighted the continuing need for the Air Force to focus management attention on its spare parts procurement practices.

Computer Procurement: Navy CAD/CAM Acquisition Has Merit but Management Improvements Needed (GAO/IMTEC-88-22, May 11, 1988)

We concluded that the Navy's centrally managed, Navy-wide approach to Computer Aided Design/Computer Aided Manufacturing II had merit because it provided opportunities for equipment standardization across commands and reduced unit costs through large-scale contracts. However, the Navy had not followed DOD regulations governing information system acquisitions and, therefore, had not ensured that it was pursuing the optimal system solution.

Federal Catalog System: Continuing Item Identification Problems (GAO/NSIAD-88-121, May 5, 1988)

The Federal Catalog System was established to improve accountability and safeguard against buying items already in the supply inventories. We reported that it continued to fall short of its legislated mandate to adequately identify supply items so they could be distinguished as unique and not duplicative of items already in the supply cataloging system. Many cataloged items still were inappropriately named, inadequately described, incorrectly classified, and improperly numbered. We reported that poor cataloging could also hinder other logistics functions and cause unnecessary purchases.

Air Force Procurement: More B-1B Spares Should Have Been Bought Directly from Manufacturers (GAO/NSIAD-88-13, Nov. 18, 1987)

The Air Force did not take full advantage of breakout opportunities during initial provisioning for the B-1B. In particular, the Air Force could have used available data to break out individual spare parts for purchase directly from manufacturers as part of the 4-year Expanded Advance Buy, rather than buying all items from associate prime contractors and component manufacturers.

Computer Systems: Navy Stock Point ADP Replacement Program Needs Better Management Controls (GAO/IMTEC-87-30, Sept. 17, 1987)

We believe the Navy could have strengthened its management control over the modernization segment of the stock point automated data processing replacement program.

Strategic Forces: Supportability, Maintainability, and Readiness of the B-1B Bomber (GAO/NSIAD-87-177BR, June 26, 1987)

Spare parts shortages resulted in the temporary grounding of B-1B aircraft, some of which were cannibalized for use in other aircraft. The primary cause was high demand resulting from spare parts that were not as reliable as predicted and from false test failures of parts in operational aircraft.

Air Force Computers: Development Risks of Logistics Modernization Program Can Be Reduced (GAO/IMTEC-87-19, May 15, 1987)

The Air Force took several actions to reduce the risk of a total program failure similar to that which occurred with the Advanced Logistics System. However, the Air Force generally did not complete the required initial planning activities for the individual projects. As a result, it had not ensured that the most cost-effective alternatives were being pursued or that the projects as designed would correct existing system deficiencies and achieve expected benefits. Also, the Air Force had not established the management procedures necessary to ensure that the cost, schedule, and performance status of the projects were accurately measured.

Military Logistics: Improvements Needed in Managing Air Force Special Stock Levels (GAO/NSIAD-87-34, Dec. 23, 1986)

We evaluated the reasonableness and accuracy of the Air Force's procedures and practices for establishing and managing special stock level requirements for recoverable aircraft and missile spare parts. Our review of these stock requirements valued at over $110 million showed that they were overstated by $27.9 million due to procedural deficiencies and item manager errors. Eliminating these deficiencies and errors would have precluded the procurement of unneeded spares.

Computer Systems: Continued Oversight Crucial for Air Force's Requirements Data Bank (GAO/IMTEC-87-6, Dec. 5, 1986)

We found that the Air Force had not exercised firm management control over the Requirements Data Bank (one of nine projects in the Air Force's $1.7 billion Logistics Modernization Program), thus causing schedule delays and cost increases.

Navy Supply Systems: Status of Two Projects for Improving Stock Point Operations (GAO/IMTEC-87-1FS, Oct. 9, 1986)

We provided a status report for two Navy stock point supply system automated data processing development initiatives.

Software Projects: Army Materiel Command Spent Millions Without Knowing Total Costs and Benefits (GAO/IMTEC-86-18, June 20, 1986)

Officials of the Logistics System Review Committee allowed the Commodity Command Standard System to be modified or expanded in violation of Army regulations. This system is extensively used to manage the Army Materiel Command's inventory of supply items.

Computer Buys: Air Force Logistics Modernization Program Should Comply With Brooks Act (GAO/IMTEC-86-16, May 15, 1986)

We found that the Air Force is not complying with the Brooks Act[2] and with implementing regulations of the General Services Administration in procuring equipment and services for its modernization program for its Requirements Data Bank Program (part of the Logistics Management Systems Modernization Program).

The Navy Can Improve Material Management at Naval Shipyards (GAO/NSIAD-85-71, May 6, 1985)

The naval shipyards did not effectively determine direct material requirements for future overhauls because (1) complete and accurate usage data were not collected and (2) historical usage information on prior overhauls was not analyzed. As a result, material shortages and surpluses reduced efficiency and increased costs of shipyard depot maintenance.

The shipyards we visited had not performed required physical inventories of shop stores or effectively identified, analyzed, and disposed of excess material. We believe this was a primary reason that the value of excess shop stores materials steadily increased to $77 million by March 1984.

The shipyards had not been held accountable for implementing systems and procedures provided by the Naval Sea Systems Command to improve material management. The shipyards, in turn, had not held their personnel accountable for implementing prescribed procedures and for improving material management efficiency. As a result, previously identified material management problems remained unresolved.

[2]The Brooks Act (40 U.S.C. 759) provides the Administrator, General Services Administration, the authority to oversee the acquisition of automated data processing equipment by federal agencies.

Utilization of Navy Long Supply Aviation Assets—Improved Coordination and Supervision Needed (PLRD-82-121, Sept. 17, 1982)

We completed a follow-up review of the Navy's program for using long supply aviation assets in producing aircraft airframes, engines, and targets. Based on a 1979 report, DOD had expressed concern about the accumulation of long supply assets and agreed that such assets should be used as government-furnished material. DOD agreed with our conclusions and recommendations and advised us that it would request the Navy to take corrective action in utilizing long supply assets.

Our follow-up review disclosed that the Navy's program for utilizing long supply aviation assets in new production continued to fall short of realizing its optimum effectiveness. We found that coordination was inadequate between the Naval Air Systems Command and the Aviation Supply Office during the screening process and the verification of available items selected by the contractors. In addition, available assets were offered to the contractors too late for use in the applicable production year or they were not offered at all.

Increased Use of Available Aviation Assets in New Production Can Save Millions (LCD-79-201, Mar. 5, 1979)

We found the Navy was incurring procurement and inventory holding costs amounting to millions of dollars annually which could have been avoided by furnishing aviation items in long or surplus supply to contractors for use in producing new aviation equipment.

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