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DEPARTMENT OF DEFENSE INVENTORY GROWTH AND MANAGEMENT PROBLEMS CONTINUE

STATEMENT FOR THE RECORD OF
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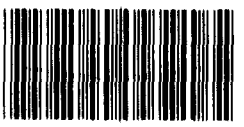
SENIOR ASSOCIATE DIRECTOR

BEFORE THE
SUBCOMMITTEE ON READINESS
COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF
REPRESENTATIVES



GAO/T-NSIAD-88-14

Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss inventory management in the Department of Defense. We will discuss the data we are currently developing on overall DOD and Defense Logistics Agency (DLA) inventory growth problems and summarize for all the services and DLA what we have recently reported on in 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.

Overall, we believe that the growth in inventories has exacerbated a long history of inventory management problems within the military services and DLA. We are reporting on these problems and are recommending corrective actions which DOD says it will generally implement.

Still, in an upcoming era of constrained Defense budgets, DOD is going to have to make tough trade-off decisions on weapon systems, force structure, and manpower, while at the same time maintaining readiness. More efficient inventory management should result in reduced inventories, which could free Defense dollars for other areas without reducing readiness.

BACKGROUND

In May 1986, we reported to the Chairman of the Senate Armed Services Committee's Task Force on DOD Inventory Management that there was a wide range of DOD inventory management problems.[1] Because we found problems at all 30 locations we visited, we considered our findings representative of DOD inventory management problems. However, within the scope of that effort we could not identify the magnitude of the problems, the causes, and the corrective actions needed. As a result, we have been taking a more detailed look at several aspects of DOD inventory management and reporting on them.

MAGNITUDE OF DOD SUPPLY SYSTEM

To support its weapon systems, base operations, and other activities, DOD's supply system contains an estimated 4.8 million different items. DOD estimates its total inventory of secondary items, such as spare and repair parts and supplies at $162 billion. At the wholesale level--DOD supply depots and storage sites--the latest data shows inventories of over $95 billion. There is no comparable supply system anywhere. While the sheer magnitude makes it a challenge to manage, the magnitude also makes it imperative to have good management to promote efficient and effective operations,

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

support military missions, and protect the inventories from fraud, waste, and abuse.

LONG-STANDING PROBLEMS PERSIST

Over the years there have been numerous reports by us and DOD audit agencies which reported on various DOD supply system problems. Such reports have led to congressional concern and DOD actions. For example:

-- In 1981, the Congress investigated large increases in the value of inventory adjustments at naval supply centers--from $67 million in fiscal year 1978 to $504 million in fiscal year 1981. The investigation and later hearings in February 1982 established that the large increases were symptomatic of serious inventory management deficiencies, e.g., lack of management concern and accountability and ineffective physical inventory controls.[2]

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[2]House Armed Services Committee, Subcommittee on Readiness (1) Staff Report on Investigation of Losses at Naval Supply Centers, (Feb. 10, 1982), and (2) hearing on Inventory Management Control Policies and Practices: Resource Accountability and Losses at the Norfolk Naval Supply Center (Feb. 19, 1982).

-- In April 1983, follow-up hearings were held on the military supply systems inventory-control problems.[3] At that time, we reported that the Navy had 73 initiatives, completed or ongoing, designed to improve physical inventory controls and records accuracy. However, we also reported that the magnitude and impact of the inventory accuracy problems in the Army, Air Force, and DLA were much greater than DOD previously recognized.[4] DOD, at that time, was developing a physical inventory improvement plan that called for a series of actions through fiscal year 1985 intended to identify improvements needed in policies, procedures, and standards for upgrading inventory records accuracy.

-- During the period from August 1983 through September 1984, the DOD Inspector General and the service audit groups performed a defense-wide audit to respond to supply system problems identified by the Congress. In August 1985, the DOD Inspector General reported that DOD and its components were responding to the congressional criticism; however, some procedures needed to be refined or revised, and the

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[3]House Armed Services Committee, Subcommittee on Readiness, Progress Made by the Navy in Improving Physical Inventory Controls and the Magnitude, Causes, and Impact of Physical Inventory Adjustments in the Army, Air Force, and Defense Logistics Agency (Apr. 27, 1983).

[4]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).

execution of others was still seriously deficient. For example, methods used to select items to be inventoried did not meet DOD policy, and causative research did not identifying and correcting causes of inventory discrepancies.[5]

In January 1986, DOD revised its 1982 5-year improvement plan to address specific inventory-management problems. After we issued our report in May 1986, DOD identified, for the first time, inventory controls as a DOD-wide concern in its annual Federal Managers' Financial Integrity Act report to the President and the Congress.[6] In October 1987, DOD again revised its 5-year improvement plan to address the issues we have been reporting on.

INVENTORY GROWTH HAS INCREASED PROBLEMS

DOD's supply-system problems and congressional concerns are not unique to the 1980s--rather, their roots go back to the 1960s and 1970s. The recent large-scale military buildup, however, has added to previous problems. For example, the value of DOD's wholesale inventory of secondary items--such as repair parts, supplies, and clothing--has grown substantially--from $48 billion in fiscal year

[5]Defense-wide Audit of Physical Inventory Adjustments, Office of the Inspector General, Department of Defense (Aug. 16, 1985).

[6]Department of Defense Annual Statement of Assurance for Fiscal Year 1986 (Dec. 30, 1986).

1981 to over $95 billion today. Between 1981 and the beginning of fiscal year 1987 almost all of the growth occurred in four areas

-- Aircraft components and parts grew $31.2 billion (181 percent increase).

-- Ship and submarine parts grew $7.1 billion (1,086 percent).

-- Construction, industrial, and general supplies grew $3.7 billion (211 percent).

-- Uncategorized minor equipment, material, and supplies grew $3.6 billion (121 percent).

According to DOD, the growth primarily resulted from increased costs and the need to support its large weapon systems modernization program. However, the growth can also be attributed in part to other reasons. For example, the lead times necessary to procure inventories have lengthened for several reasons. Administrative lead time has increased to compensate for DOD and congressional initiatives to expand competition. Longer lead times result in larger inventory investment to support systems during this period. DOD estimates that an average day of its procurement lead time may add up to $40 million to the budget.

While DOD's readiness and sustainability missions and goals require it to maintain a certain level of inventory, there are indicators that DOD's inventory growth may be resulting in substantial investment beyond that needed by the services to meet their missions. These indicators are

-- a significant increase in the amount of inventory excess to requirements;

-- DOD may be buying too much too early to support the newer, more sophisticated weapon systems; and

-- DOD's warehouses are filled to capacity, resulting in its relaxing its policy of not disposing of any item supporting a system still being used.

Excess items

In January 1987, we reported that excess inventory levels in the Air Force were growing.[7] For the 1-year period ending March 31, 1986, the Air Force's on-hand and on-order excess aircraft spare parts had increased from $3.4 billion to $9.4 billion. As a percentage of total inventory, the excesses grew from 9.6 percent to 25.1 percent. The $9.4 billion figure was developed jointly by

[7]Air Force Budget: Potential for Reducing Requirements and Funding for Aircraft Spares (GAO/NSIAD-87-46BR, Jan. 13, 1987).

GAO and the Air Force Logistics Command and was concurred with by DOD in commenting on the report. In February 1988, the Air Force reported that the $9.4 billion amount included previously undetected Air Force errors and that $5.9 billion was a more accurate figure for on-hand and on-order spare parts in excess of requirements as of March 31, 1986.

In August 1987, we reported that the Air Force was terminating less than 3 percent of its contracts for on-order recoverable aircraft spares, which it subsequently found exceeded requirements. We recommended actions to improve its termination process.[8] In February 1988, we reported that the value of contracts for on-order spares exceeding requirements had grown since our 1987 report, but that actions taken or planned by the Air Force should improve the effectiveness of its efforts to terminate such contracts.[9] For the year ended March 31, 1987, the total value of contracts, valued at $1 million or more as validated by the Air Force, for on-order spares exceeding requirements increased from $675.7 million to $972.6 million. However, the Air Force had terminated $126.8 million, or 13 percent, of the $972.6 million.

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

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

According to Air Force officials, the increase in contract terminations was attributable to renewed emphasis caused by continuing congressional and GAO interest. These officials also advised us that terminations would increase even more significantly when policy and procedural revisions being made in response to our 1987 report recommendations were implemented. In this regard, the Air Force had developed and planned to begin using a software package, based on a formula we had recommended, which would assist in identifying cost-effective terminations.

In our current analysis of DOD's overall inventory growth, we found that for all of DOD the amount of secondary items identified as excess has grown almost 200 percent between fiscal years 1981 and 1987.[10] These excesses were valued at $29.5 billion, up from $10.2 billion in 1981.

While excesses can develop as items become obsolete because new weapon systems are fielded, there are indications that too much was bought to support new weapon systems. This is a difficult area to manage and needs continuing attention.

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[10]Excesses are identified when analysis shows that they are in "long-supply," i.e., that they exceed known requirements. Dollar figures are as of the beginning of the fiscal year.

Support of new systems

There is uncertainty about what is needed to support the newer, more sophisticated weapon systems being fielded today. As a result, DOD may be buying too much too early, which contributes to inventory growth. Initially, the amount of repair parts needed are estimated and usually provided with the systems when they are fielded. In May 1986, we reported that repair parts inventories in Europe became too large for Army units to manage effectively--most parts were not needed to support the weapon systems in their first 2 years of fielding. Army units in Europe later returned 70 to 80 percent of these repair parts as excess to Army depots in the United States. Army officials told us that they bought too much because they did not have the engineers needed to adequately assess what the contractors said was needed to support the systems.

We also found early buys of large quantities of parts for the B-1B aircraft. The cost of spares purchased through fiscal year 1986 for the B-1B totaled about $2.3 billion. The Air Force acquired the spares under a concept called "expanded advance buy," which involves procuring combined initial and replenishment spares in quantities anticipated to be needed to support the aircraft for 4 years. The Air Force expected cost savings of about $150 million by enabling contractors to reduce production and administrative costs.

However, because of the high degree of concurrent development and production on the B-1B, an increased risk of unstable systems and obsolete parts existed. The B-1B defensive avionics system is unstable and will require extensive modification over the next several years. As a result, some portion of the spare parts procured for this system (over $740 million as of March 1988) will likely become obsolete and require either modification or disposal.

For those items that the services ask DLA to stock in support of new weapon systems, DLA data shows that on average there is no demand for 56 percent of these items during the first 2 years after a system is fielded and no demand for 44 percent during the first 3 years. In the 4- to 6-year range, there is still no demand for about 35 percent of the items.

Warehouses filled to capacity

In December 1986, DOD notified the services and DLA that warehouses were almost filled to capacity. Data showed that DOD warehouses were filled at the 88-percent level, with several large depots filled much higher. As of June 1987, the level filled had increased to over 90 percent. According to DOD, when warehouses are filled above 85 percent, depot efficiency and productivity suffer. As a result, DOD relaxed its requirement to retain all items held to support weapon systems currently in the inventory.

However, the services have responded that they will generally still retain these items. They also said that many of their inactive or slow-moving items are being moved out of their depots to other storage sites around the country. The original retention policy was required because DOD found that it was disposing of spare parts for some systems and then buying them later, often at much higher prices.

While large inventories should enable the supply systems to provide military units with what they need, the question is whether this can be done more economically and efficiently. Overcrowded warehouses make it more difficult to properly store and locate inventories.

DOD statistics in figures I.1 and I.2 show that while the warehouses have been filling up, customer demands peaked at 31.8 million in fiscal year 1984 and have since decreased to 28.4 million. Meanwhile, wholesale level stock availability (how often demands for items are filled with stock-on-hand) ranged from about 84 to 87 percent.

Figure 1.1 DOD Customer Demands
(FY 80 - 87)

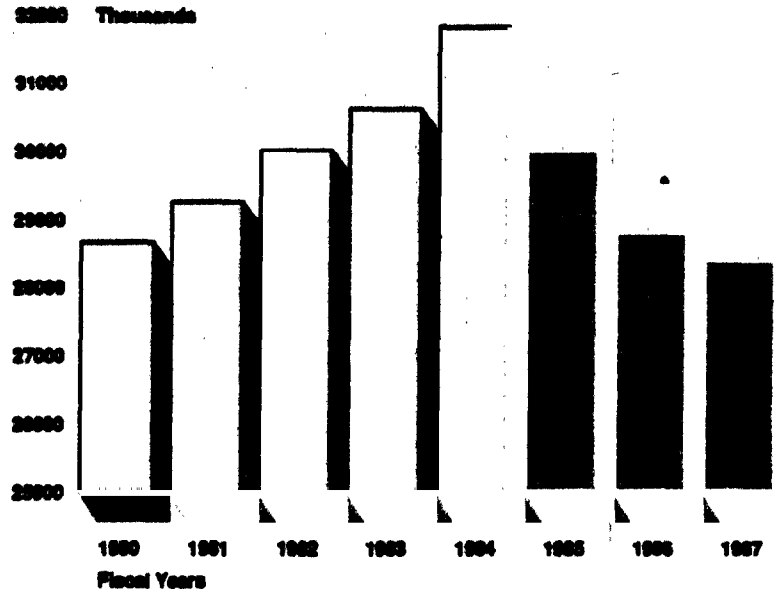
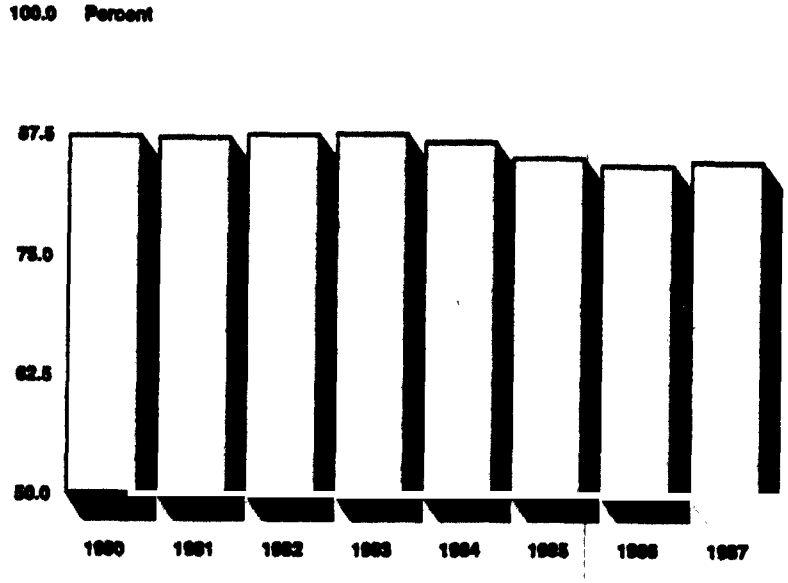


Figure 1.2 DOD Supply Availability
(FY 80 - 87)



DOD statistics in figure I.3 show that with the large-scale inventory increases since fiscal year 1980, the Army's and Navy's wholesale level stocks availability improved somewhat while DLA's dropped slightly.

Figure 1.3 DLA and Service Supply Availability (FY 80 - 87) (Includes Subsistence)

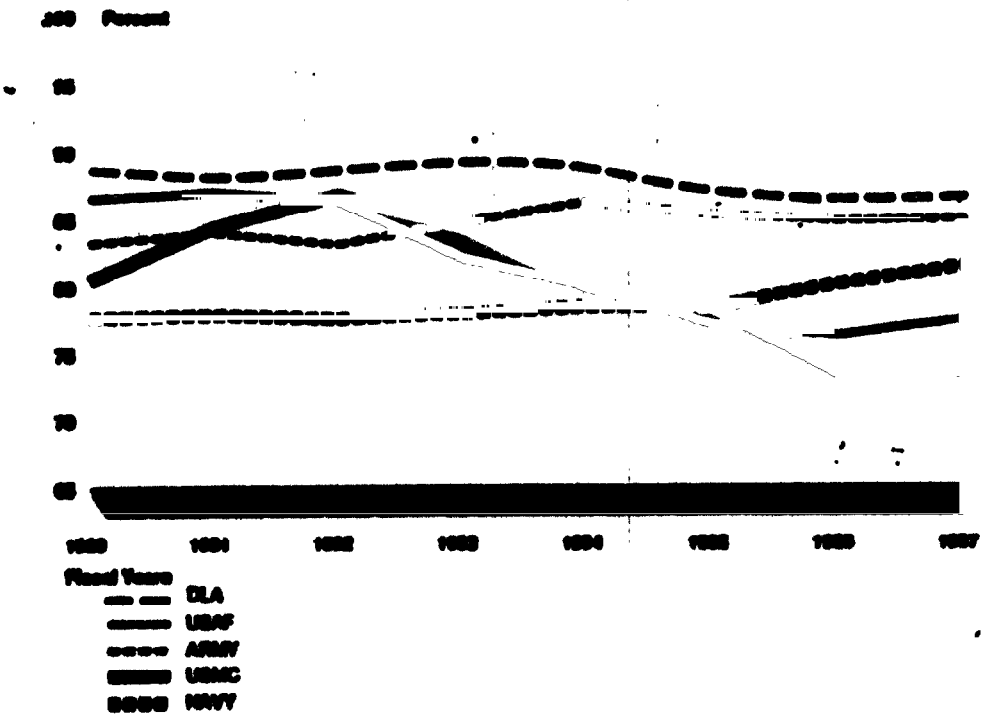


Figure I.3 also shows that stock availability in the Air Force and Marines decreased significantly. According to DOD, this was because (1) the Air Force has moved many items to the user level which decreased demands on the wholesale level and (2) the Marines have transferred most consumable items to DLA and now manage mostly reparables.

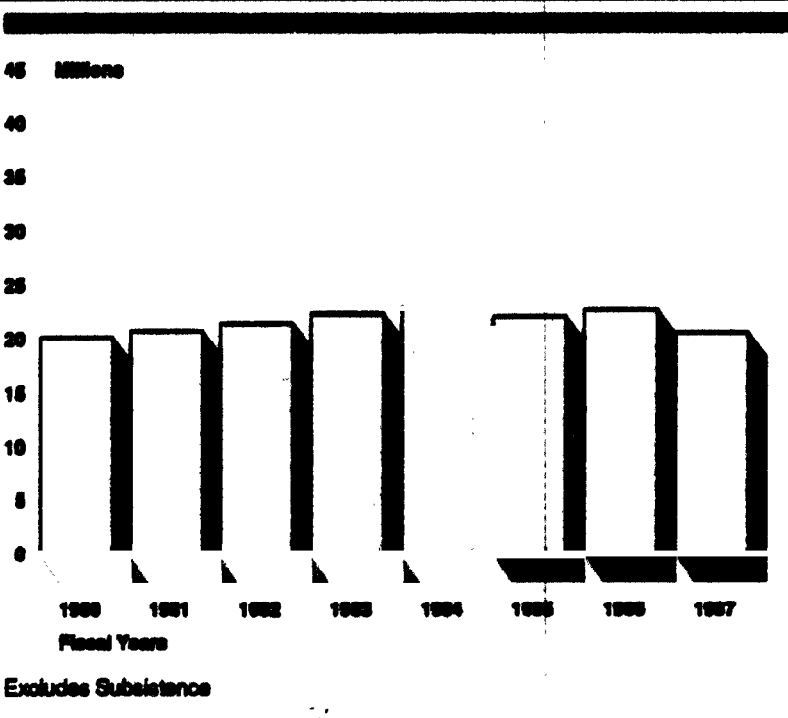
DLA's inventory growth

DLA's inventory of secondary items, excluding fuel, is valued at $9 billion and its depots were filled at the 92 percent level as of

June 1987. From the end of fiscal year 1981 to the end of fiscal year 1987, the value of DLA's inventory more than doubled from $4.1 billion to $9 billion,[11] and the number of stocked items increased by 44 percent to 1.93 million. Moreover, at the end of fiscal year 1987, 37 percent of DLA's inventory, or about $3.3 billion, was excess to its operating and war reserve requirements.

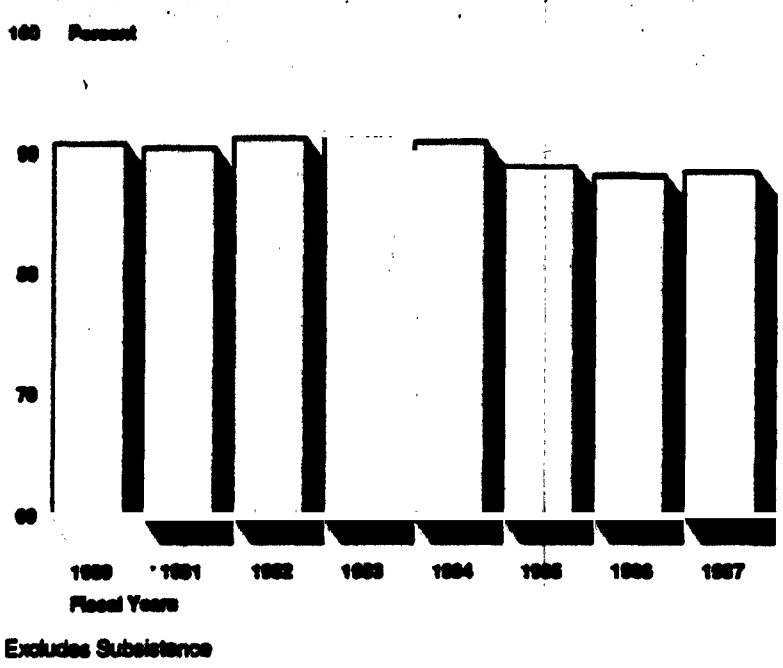
Figures I.4 and I.5 show that (1) during the past 8 fiscal years, the number of annual customer demands, excluding subsistence items, ranged from about 20 to 23 million per year, and (2) during the same period supply availability decreased slightly from a high of 91 percent to 88 percent.

Figure 1.4 DLA Customer Demands (FY 1980 - 87)



[11]The $9 billion represents $7.4 billion in 1981 dollars.

Figure 1.5 DLA Supply Availability
(FY 1980 - 87)



At the end of fiscal year 1987, DLA reported that it had not received any demands during the last 12 or 24 months for 814,146 (almost 42 percent) of its items. Stocks of these no-demand items were valued at $1.56 billion.

An internal DLA study attributed the inventory growth, excluding that due to inflation, primarily to the following factors:

1. Customers (mainly the services) order and receive large amounts of material from DLA that they later declare excess to their needs and subsequently return to DLA depots.

2. Receipts of new material from procurement exceed sales to customers.

3. The transfer of consumable items for stockage and management to DLA from the services' inventories.

We have just completed a general analysis of the growth due to these factors and the following sections discuss our tentative findings.

Customer returns of DLA material

DOD established its "Material Returns Program" to allow its customers--primarily the military services--to return to the supply system those items that they ordered but do not need. Between the beginning of fiscal year 1981 and the end of fiscal year 1987, DLA's inventory increased $2.6 billion, due to material returned by customers to its depots. These returns, which amount to about 29 percent of DLA's current $9 billion inventory, have created a great deal of additional work at the depots, which have to receive, identify, and store the material. For example, in fiscal year 1987 the depots processed almost 1.2 million shipping and receiving documents for customer returns involving items valued at $440 million. According to DLA, the returns involved more than 50 percent of the depots' receipts, based on the receipt documents processed.

Another concern with the returns is that customers returning items only get full credit for the items returned if DLA needs them. DLA statistics show that customers receive credits for only 45 percent of the material returned and also pay the transportation costs. Therefore, the services are losing large amounts of operations and maintenance funds for the items they buy and return for no credit.

Figure I.6 shows customer returns of $3.35 billion over the past 11 fiscal years. Returns increased moderately until fiscal years 1982 and 1983 when there were large increases of over $100 million per year. Returns then remained at the now high level.

Figure 1.6 Customer Returns To DLA (FY 1977 - 87)

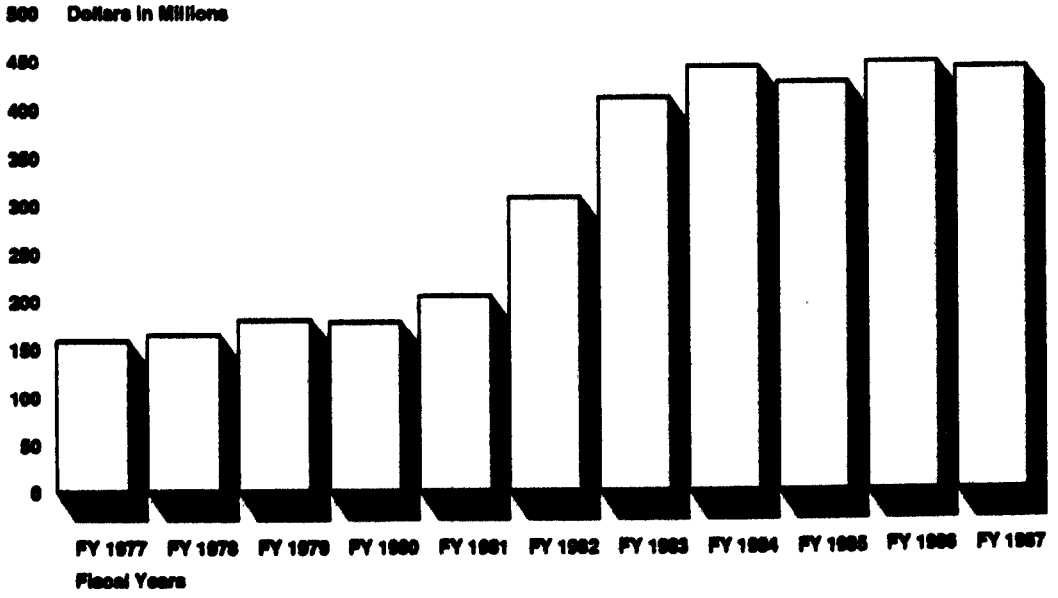
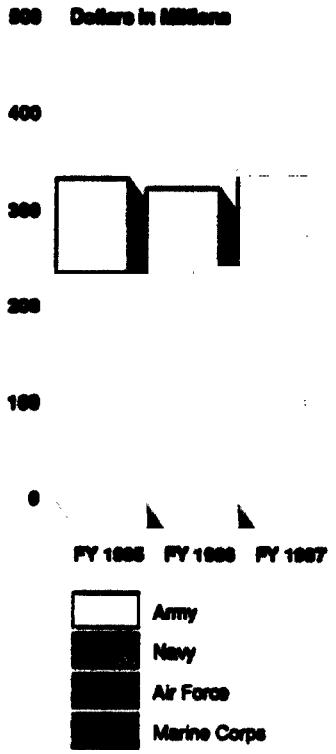


Figure I.7 shows the services' share of the returns--over $300 million per year for the last 3 fiscal years.

Figure 1.7 Service Returns To DLA (FY 85 - 87)



A DLA study included an analysis of what the services later reordered and, as shown in figure I.8, found that overall, customers that returned the items reordered 19 percent of the same items within 1 year of their return.

Figure I.8: Analysis of Post Return Shipments by Service

	First Quarter FY 1987 Returns			FY 1987 Shipments			
Service	Items[a]	Quantity returned (millions)	Number of returns	Items[a]	Quantity returned (millions)	Number of returns	Percent reordered
Air Force	42,064	4.4	44,458	9,607	2.0	23,288	22.8
Navy	76,136	4.4	81,052	10,651	1.5	22,231	14.0
Army	47,258	4.2	53,554	11,136	3.1	40,699	23.6
Marines	6,000	.4	6,436	1,111	.1	2,353	18.5
Other	2,133	.2	2,245	475	.3	1,395	22.3
Total	173,591	13.6	187,745	32,980	7.0	89,966	19.0

[a]Number of different items.

In order to better manage the "Material Returns Program" DLA identified the top 100 organizations by service that were returning and shortly thereafter reordering the same items. DLA sent the top 10 in each service a letter bringing this matter to their attention and asked them to do a better job of ordering and returning material in the future. The respondents cited a myriad of problems causing the overordering and returning of items. For example, the respondents said that oftentimes DLA sends a substitute for the item ordered, and the services' systems do not recognize it as a substitute, so the item is returned to DLA. The respondents also

said that the magnitude of their returns may not have been as large as the DLA data indicated.

Receipts of new material exceed sales

From the beginning of fiscal year 1981 through fiscal year 1987, DLA's inventory grew $1.8 billion because receipts of new material from vendors exceeded sales to its customers. While part of the inventory increase resulted from decreased customer demands for material, much of the increase resulted from buying items that ended up excess to requirements even before they were delivered to DLA's depots. Also contributing to the over-procurement problem are large quantity buys of items--called life-of-type buys--made because the sole-source manufacturers are going to quit making the items. Finally, part of DLA's inventory growth can be attributed to increases in procurement lead time and safety level requirements.

Excess stocks on-order

At the beginning of fiscal year 1984, DLA supply centers had a total of $289 million in excess on-order items. In January 1984, we recommended that DLA establish controls for monitoring and evaluating item manager performance in canceling unneeded on-order

material.[12] Although DLA has implemented some automated monitoring procedures, its records show that the total value of excess items on order is still over $450 million as shown in figure I.9.

Figure I.9: Value of Excess on Order

DLA Supply Center	End of Fiscal Year 1984	1985	1986	1987
	(In thousands)			
Industrial	$ 45,635	$ 72,500	$ 89,274	$ 82,012
General	23,900	34,052	44,693	39,796
Construction	29,587	36,642	58,608	34,822
Electronics	48,041	99,991	110,359	81,649
Personnel - Medical	21,834	22,334	31,562	56,059
Personnel - Clothing	150,267	170,984	199,210	163,000
Total	$319,264	$436,503	$533,706	$457,338

Procurements of unneeded material occur as a result of (1) decreased demand patterns, (2) human error, or (3) because contractors impose minimum production requirements. For example:

-- In October 1985, DLA purchased 210,000 bottles of baby aspirin based on an initial quarterly demand forecast of 44,200 bottles, as provided by the services' estimates.

[12]Defense Logistics Agency Could Better Identity and Cancel Unneeded On-order Material (GAO/NSIAD-84-42, January 10, 1984).

The demand did not materialize, and in September 1987, the computer generated a cancellation recommendation for 24,577 bottles valued at about $8,100. Since the contract was already awarded, no effort was made to evaluate if the contract should be cancelled (for example, would DLA have to pay termination costs) because the item manager believed demand would eventually materialize.

-- In July 1987, DLA computed a buy requirement for 864 bottles of Naproxen tablets. However, the contract was erroneously awarded for a quantity of 6,751 bottles, due to a computer input error. The item manager failed to take corrective action to an October 1987 cancellation recommendation. After we discussed this matter with responsible DLA officials, the contract was reduced (at no cost to the government) from 6,751 bottles to the proper quantity of 864 bottles for a savings of $1,050,000.

-- As of August 1987, DLA's records showed that it had a 22-year supply of bubonic plague vaccine on hand valued at $4.4 million. The sole-source vendor has established a minimum annual production quantity of 66,000 units (valued at about $780,000), even though only 16,895 units are used annually. As a result, the item will always be in an overprocurement status. DLA officials said that about 75 percent of the annual vaccine procurement is eventually

thrown away due to its 18-month shelf life; however, they continued to buy the item to maintain an active production base. We intend looking into this matter further to see if there is a better way to provide for the plague vaccine, if it is needed.

DLA's over-procurements will continue to be a problem for DLA until it does a better job of determining its requirements and canceling excess stocks on order, once they are known.

Life-of-type buys

Often sole source defense manufacturers stop producing parts needed to support the services' weapons systems. As a result, DOD established the Diminishing Manufacturing Source Program to minimize the impact of production termination. The program is to ensure the continued availability of needed spare parts to support current and future requirements. For example, under this program, DLA's Electronics Supply Center has some 6,140 electronics items valued at nearly $300 million. Center officials told us that two-thirds of these items have quantities substantially in excess of estimated future requirements.

The Diminishing Manufacturing Source Program requires DOD program managers faced with the loss of a supplier to

-- encourage the existing source to continue production,

-- find another source,

-- find a substitute,

-- redefine military specifications and consider buying from a commercial source,

-- buy sufficient quantities to insure continued production and suppliers' profitability until such time as the stock on-hand is sufficient to support all future requirements, or

-- make a life-of-type buy.

Center officials also told us that often the above alternatives to a life-of-type buy could not be done because the services' advance notice of a supplier discontinuing production was less than the 6 months needed to explore the alternatives.

As a result, a life-of-type buy is quickly initiated to guarantee an assured stock for future support of the services' weapons systems without assurance the quantities to be bought will be needed.

The Center has made life-of-type buys of spare parts to support the newer, more sophisticated weapons systems being fielded today. Of the 6,140 life-of-type items, 2,077 are used on 402 different weapon systems. There are 8,637 applications for these items since they can be and are used in multiple weapons systems. Figure I.10 shows the number of life-of-type items for some of the newer weapons systems

Figure I.10: Life-of-type Items For Selected Weapons Systems

Weapon system	Number of life-of-type items
M-1 Tank	5
B-1B Bomber	33
B-1 support equipment	45
E-3A AWACS Aircraft	47
F-14A Aircraft	87
F-15 Aircraft	92
F-15 aircraft support equipment	144
F/A-18 Aircraft	51
MX missile	26
Trident (and Poseidon) Submarines	1,080

The Center's status reports as of October 27, 1987, show that many of the life-of-type items in stock are excess to the services' requirements. Figure I.11 shows a breakdown of the estimated years of stock on hand based on past demand for the items.

Figure I.11: Life-of-Type Items Stock Status

Years of supply on hand	Number of different items	Value (in millions)
0-10	2,603	$ 71.4
10.1-25	1,464	121.9
25.1-50	832	37.6
50.1 & over	1,241	65.0
Total	6,140[a]	$295.9

[a]According to DLA, only 4,400 of these items were actually bought because enough stock was already on hand for the other items.

As a worst case example, the Center made a life-of-type buy in 1984 of a die used in the manufacturer of four different hybrid circuits on the F-14A aircraft. It is one of nine different dies involved in this life-of-type buy. The Center's current status report shows it has 52,628 of the dies on-hand, valued at over $2.4 million--a 13,157 year supply.

In this case the Navy's Aviation Supply Office found out in April 1984 that the supplier was going to quit making the die but did not notify DLA until June 1984. When notified, DLA had less than 10 days to make the purchase, which it did based on the quantity the Navy asked it to buy.

Increased procurement lead time and safety level requirements

Part of DLA's inventory growth is due to increased procurement lead times and safety level requirements. Procurement lead time includes both administrative lead time required to award a contract and the production lead time, which is the time between the contract award and receipt of the items at the depot storage activity. The safety level provides for additional items in the event that abnormal delays are experienced in the delivery of supplies to the depot. While procurement lead time and safety level requirements have grown substantially, supply availability rates (how often demands for items are filled with on hand stock) have decreased slightly. The DLA supply centers that GAO visited (Electronics, Construction, and Medical commodities) estimate that each day of procurement lead time equates to a combined inventory investment of $5.7 million.

Figure I.12 provides a breakdown of the increases in procurement lead time and safety level requirements for each DLA commodity.

Figure I.12: Total Procurement Lead Times and Safety Levels and Changes from Fiscal Year 1981 Through Fiscal Year 1987

Commodity		Days of Supply Required Increase (Decrease)		
	Total Days[a]	Procurement Lead Time	Safety Level	Total
Construction	488	17	76	93
Electronics	451	25	15	40
General	443	29	52	81
Industrial	511	108	32	140
Medical	316	(54)	3	(51)
Subsistence	148	21	5	26
Textile	500	125	13	138
DLA Average	408	39	28	67

[a]Total days of procurement lead times and safety levels at the end of FY 1987.

In December 1986 the Under Secretary of Defense (Acquisition) noted that procurement lead times had increased dramatically over the last few years throughout DOD. He further noted that unnecessary lead times waste scarce defense dollars and degrade readiness. The Under Secretary directed that lead time requirements should be reduced approximately 25 percent by the end of fiscal year 1988. The DLA Director, in July 1987, established goals for reducing procurement lead times and safety levels for each supply center.

In total, DLA expects to reduce their average procurement lead time from 320 days at the end of fiscal year 1987 to an average of 295 days by the end of fiscal year 1988. Safety level requirements, however, will remain about the same. According to DLA, administrative lead time accounts for about 80 percent of the procurement lead time and the remaining 20 percent is production lead time.

Our current work indicates that production lead time estimates are sometimes based on historical experience rather than current estimates from suppliers. We believe DLA contracting officers should routinely ask suppliers for the earliest possible delivery schedules, rather than placing orders for supplies based on prior experience. For example:

-- In August 1986, the Defense Construction Supply Center awarded a contract for 280 chain hoists to be delivered within 180 days of the contract award date. Based on the current demand forecast, the Center maintains an inventory of 43 hoists valued at about $28,000 to satisfy expected demands over the 180-day production lead time plus a safety level of 52 hoists. We contacted the supplier and were informed that if they had been requested to do so, the hoists could have been delivered within 60 or 80 days of the contract award date. The supplier stated that the item is commercially available and as such only minor painting

and DLA labeling is required before delivery. Therefore, if the Supply Center had based its requirement determination on current delivery estimates rather than prior experience, their investment in lead time stocks could have been reduced by about 50 percent.

Having discussed inventory growth and, more specifically some preliminary data from our current analysis of DLA's inventory growth, I would now like to summarize our recent reports which addressed inventory accuracy, causative research to determine why there are inventory discrepancies and physical security.[13]

IMPORTANCE OF GOOD CRITERIA FOR MEASURING AND REPORTING INVENTORY ACCURACY

Because of the large defense inventories and volume of transactions--such as receipts and issues and other adjustments to inventory records--DOD inventory records are constantly changed, and the inventories also experience significant "gains" and "losses." If you have more inventory than you think you have, improper management decisions are made because new stocks are

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[13] Army Inventory Management: Inventory and Physical Security Problems Continue (GAO/NSIAD-88-11, Oct. 9, 1987); Navy Inventory Management: Inventory Accuracy Problems (GAO/NSIAD-88-69, March 4, 1988); Inventory Management: Defense Logistics Agency Accuracy Problems (GAO/NSIAD-88-39, Dec. 24, 1987); Protection of Assets at U.S. Navy Bases (GAO/NSIAD-88-6, Oct. 26, 1987); and, DOD Inventory Management: Revised Policies Needed (GAO/NSIAD-88-75, Jan. 14, 1988).

ordered before they are needed. If you have less inventory on hand than your records show, you may not be able to adequately accomplish your mission. In addition, inventories are susceptible to waste or fraud without detection when records do not accurately reflect what is in the warehouse. Therefore, management needs an effective way of identifying inventory accuracy problems, measuring their severity, and determining reasons for the inventory inaccuracies and the corrective actions needed.

REPORTED INVENTORY ACCURACY DATA IS INACCURATE

We found that reported inventory accuracy data did not reflect actual inventory accuracy for three reasons.

1. DOD policies allowed some inaccuracies not to be reported and/or not included in calculating inventory accuracy.

2. The services sometimes took actions which just made reported inventory accuracy look better without contributing to improved management.

3. On the other hand, the basis for DOD inventory accuracy reporting tends to make accuracy look worse than it actually is because of a trend for DOD to do more

inventories directed at investigating a known problem, rather than the inventories being representative of overall inventory condition.

To get an independent, representative assessment of inventory accuracy, we conducted and reported on our own statistically-valid sample inventories and calculated three indexes of accuracy. Because we used a projectable sample, we were also able to analyze our sample results by categories, such as dollar-value or item type.

Reported inventory accuracy data

DOD's Inventory Control Effectiveness (ICE) Report is prepared quarterly and annually and contains data on the services' and DLA's inventories, including inventory value and measures of inventory accuracy. One measure, the "gross monetary adjustment rate," shows the relationship of the value of gross inventory adjustments (gains and losses) to both average inventory value and the value of material inventoried. In fiscal year 1987, DOD's overall inventory accuracy was reported as 97.6 percent based on total average inventory value and 95.4 percent based on the value of items inventoried. (In fiscal year 1987, DOD inventoried 53 percent of its inventory value, up slightly from 50 percent in fiscal year 1986.)

The reported inaccuracy rate based on the value of items inventoried has declined somewhat from 3.3 percent in fiscal year 1984 to 5.2 percent in fiscal year 1986 and 4.6 percent in fiscal year 1987.

The increasing adjustment rate reflects the growing numbers of unscheduled inventories--inventories done to investigate known problems. While a large number of unscheduled inventories are, by themselves, indicators of inventory problems, such inventories would tend to show lower accuracy rates.

The monetary adjustment rates can be inaccurate indicators of inventory accuracy for several other reasons. In addition to normal updates for receipts and issues, inventory records also experience many changes as the services and DLA adjust them on the basis of physical inventories. In addition, DOD allows adjustments to inventory records to be "reversed" when prior adjustments can be used to explain the variances. Although the dollar value of reversals is reported to DOD, it is excluded in the computation of gross monetary adjustment rates and, therefore, management is not using all available data to identify potential inventory management problems. Including reported reversals in total inventory adjustments lowers the overall DOD monetary accuracy rate in fiscal year 1986 from 94.8 to 86.9 percent based on value of items inventoried.

Another measure of inventory accuracy required to be reported in the ICE report is "inventory records accuracy." The accuracy of inventory records--how often a record and a physical count agree--are reported by the services and DLA to be in the 80- to 95-percent range.

Although records accuracy rates are an important measure of inventory accuracy, they do not by themselves show the extent to which the records are inaccurate. For example, although a record showing 100 units in stock is inaccurate if the actual stock on hand is anything less than 100 units, it is important to know whether the on-hand stock is 1 unit or 99 units. To get this type of evaluative information, quantity accuracy has to be measured. DOD does not currently measure quantity accuracy but it is moving in that direction.

In January 1988 we recommended that the Secretary of Defense address these concerns by developing a comprehensive policy on inventory management and measuring inventory accuracy, addressing such areas as (1) the adequacy of the Inventory Control Effectiveness Report for management oversight, and (2) eliminating the practice of reversing prior inventory adjustments. While DOD officials have generally concurred we have not yet received a formal response.

Reported accuracy data is questionable

In addition to the above concerns on reported inventory accuracy data, we found several service practices that were further inhibiting the reporting of correct inventory accuracy data. In response to our reports the services are taking corrective actions.

For example, at the Army's Tank Automotive Command, some inventory adjustments were not being reported. Army personnel sometimes concluded that a current inventory adjustment was not a problem, and therefore not reportable, by going back several years in the inventory records to "reverse" prior transactions or adjustments. This was contrary to DOD policy and to good management practice. Our review of 15 adjustments, each valued at over $20,000, that the Command processed in October 1986 showed that 8 were improperly resolved by reversing old transactions. As an example, an October 1986 physical inventory at the Army's New Cumberland depot revealed a shortage of 11 truck axle assemblies, each costing $11,066. Rather than recording this as an inventory loss of $121,726, the Command ostensibly resolved the loss by partially reversing a June 1980 gain of 25 axles. This action assumed that the 1980 gain transaction and later inventories were erroneous, even though such a gain would not have been posted to the records unless it had been verified by three counts. Such resolutions were not even reported by the Command as "reversals." Rather, they were treated as

"accounting errors" and were never considered in assessing inventory accuracy. More importantly, no emphasis was given to determining why the inventory was short 11 axle assemblies. On February 25, 1988, the Command issued a directive stating that inventory adjustments should not be reversed. The Command also informed us that accounting adjustments are being studied.

At the Norfolk Naval Supply Center, in addition to using old transactions to resolve current discrepancies, the Center also overstated the value of items physically inventoried, which made its inventory accuracy look better than it was. Specifically, Supply Center officials included the results of quarterly routine maintenance checks on a small number of high-value items--F-14 engines--as though they were physical inventories. Since such items are closely controlled, their inventory records are highly accurate. However, by counting these engines four times in a single year in the value of the items inventoried (the denominator of the inventory accuracy statistic), the inventory accuracy rate was artificially increased during the reporting period. For example, in fiscal year 1986, engine maintenance checks accounted for $1.06 billion, or 27 percent of the total value of items inventoried. Effective October 1, 1987, the Naval Supply Systems Command directed that this practice be discontinued.

Scheduled versus unscheduled inventories

Scheduled inventories are routinely done as an internal control. In addition, unscheduled inventories are done to investigate a suspected or known problem. A growing trend of unscheduled inventories is, in itself, an indication of inventory accuracy problems. For example, at the Army's New Cumberland Depot unscheduled inventories have grown from 60 percent of all inventories in fiscal year 1984 to over 90 percent in fiscal year 1986. At the Norfolk Naval Supply Center they grew from 63 percent to 75 percent during this same period. Overall, DOD estimates that of approximately 2.6 million inventories conducted annually, more than 75 percent are on known or suspected variances.

GAO STATISTICAL SAMPLES OF INVENTORY ACCURACY

Because of reporting and accuracy problems and the growing trend for the services and DLA to do more unscheduled inventories directed at examining a particular problem, the reported inventory accuracy data were not representative of actual conditions. Therefore, to get an independent assessment of inventory accuracy, we physically inventoried statistically sampled items at one major depot or supply center in the Army, Navy, and DLA. Since the Air

Force, to its credit, already performs an annual sample inventory at each of its Air Logistics Centers, we did not duplicate its effort. We do, however, have some concerns about its methodology and subsequent reported results. The Navy has also begun implementing a statistical-sample methodology, but it is too soon to evaluate its results. Also, in response to our reports, the Army and DLA will now require an inventory sample to provide management a more representative view of inventory accuracy.

Results of GAO sample

We used the results of our sample to calculate three measures of inventory accuracy: (1) records accuracy--how often the inventory records and a physical count agree, (2) quantity accuracy--the quantity of units counted as a percent of the quantity shown on the record, and (3) dollar value accuracy--the dollar values counted as a percent of the dollar values shown on the records.[14] No one measure alone is adequate for evaluating inventory accuracy. Rather, they need to be considered together. Figure I.13 shows records, quantity, and dollar accuracy rates for the services and DLA.

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[14]Our sample results are projectable to Tank-Automotive Command managed items at the Army's New Cumberland Depot, items stored at the Navy's Norfolk Supply Center most of which were managed by the Ships Parts Control Center, and DLA managed items at DLA's Mechanicsburg Depot.

Figure I.13: Indicators of Inventory Accuracy

Activity	Accuracy As A Percentage Of				
	Records	Recorded Quantity		Dollar Value	
	Overall	From	To	From	To
Army Tank and Automotive Command	44	64	99	60	99
Navy Supply Center, Norfolk	69	80	100	72	100
Air Force Logistics Command	68	37	93	76	93
Defense Logistics Agency	63	85	99	82	98

Note: The "records overall" column demonstrates the percentage of times the inventory records showed the number of items on hand that were actually on hand. The ranges shown for quantity and dollar percentages for the Army and Navy were determined by grouping items by dollar value, determining their average accuracy by groups, and arraying them from lowest to highest accuracy. Ranges for DLA were computed and arrayed by commodity types, such as medical or construction items. Ranges for the Air Force were based on the accuracy percentages computed by Air Logistics Center. Air Force data showed quantity accuracy as low as 37 percent at one Center; however, the Air Force subsequently found that the figure was skewed by one item. Excluding the item would change the percentage in the above chart to 74.

We found that inventory record accuracy, that is, how many individual item records agree with a physical count of the assets was between 44 percent and 69 percent. Overall, our records accuracy rate was higher than what DOD's inventories initially find because many of its inventories are unscheduled.

The lower end of our sample range for dollar value accuracy is below the services' and DLA's reported monetary accuracy rates because of the reporting issues and service practices previously discussed, which make the reported rates inaccurate. Only the Air Force currently calculates a quantity-accuracy rate; therefore, there are no other DOD comparisons to our sample results.

Because our samples were stratified by value of items, or by types of commodities for DLA, we identified areas of specific concern that would not be visible in DOD's inventory accuracy reporting. We were surprised by some of our sample results--especially on the lower accuracy rates for controlled items at DLA and for high-dollar value items at the Tank Automotive Command.

In our sample inventory of DLA items, record accuracy rates for controlled items stored in vault and caged areas were about the same as the 63-percent records accuracy rate for all items in our DLA sample. While records were inaccurate for vault-stored items, the monetary and quantity accuracies--of 98.8 percent and 98.6 percent, respectively--were near the 100-percent accuracy one would

expect for this type of controlled storage. The caged items, however, had much lower accuracy levels--90.9 percent for dollar value and only 69.5 percent for quantity accuracy. Medical items accounted for 11 of the 14 losses that occurred in vault storage and 18 of 25 losses in caged storage.

Record accuracy variances for our Army-sampled items were fairly well distributed among the various price ranges. However, when we analyzed gross adjustments and inventory values by unit price and looked at their relationship, we found that inventory accuracy was lower for high-dollar value items--over $50,000 unit price. Subsequently, the Army has investigated this situation and told us that part of the problem was that some items were incorrectly shown as being at the Army depot where we did our analysis when, in fact, they had been sent to contractors for repair.

Since no one indicator is the best measure of inventory management effectiveness, several indicators should be evaluated to get a good picture of inventory accuracy. In fact, measuring inventory effectiveness in terms of the relationship of variances to inventory values identifies only the dollar magnitude of inventory management problems. Management must then take effective action to research the cause of the variance and correct the problems that gave rise to the variances in the first place.

CAUSATIVE RESEARCH DOES NOT EFFECTIVELY IDENTIFY AND HELP TO CORRECT RECURRING CAUSES OF INVENTORY ERROR

Causative research within the services and DLA is not effective because it (1) sometimes is done just to make inventory accuracy reports look better, and (2) generally does not identify the causes of inventory variances. Some DOD officials are now questioning whether such research should be done at all, especially in light of continuous reports by us and others that much of the research that is performed is ineffective.

While eliminating causative research may be an outcome of such questioning, there is currently no substitute for it as a tool to improving inventory management. What is needed is for DOD to direct its research efforts at identifying the causes of inventory problems. Currently, some of the research done is directed at eliminating a physical inventory variance that would have to be reported, rather than at determining the cause of the inventory discrepancy in the first place. We identified numerous instances of this during our field work.

For example, during fiscal year 1986, the Army's New Cumberland Depot reported that it resolved inventory variances for 82 of the

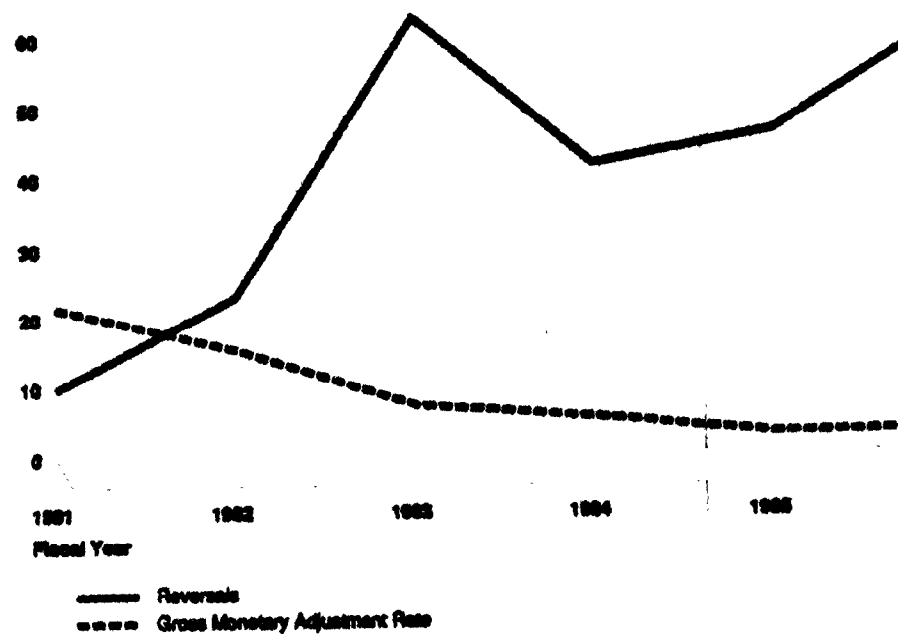
114 causative research requests that the Tank Automotive Command asked it to do. However, the depot considers resolved to mean that it was able to reconcile the inventory variance, not to identify the cause for the variance. Actually, the depot identified causes for only 16 of the 114, or about 14 percent of the inventory variances examined. The causes for the remaining 98 variances were not determined.

An example of what the depot considers a "resolved" variance illustrates the ineffectiveness of its causative research. On January 29, 1986, the depot reported that research showed that the loss of two TOW missile vehicle support assemblies (valued at $15,730) was due to an erroneous gain of four assemblies on April 15, 1985. However, in previously explaining the April 15, 1985, transaction, the depot said that the gain was partially due to an erroneous loss of three assemblies on August 18, 1984. In both cases, the research process was terminated without further investigation to determine the reasons for the gain or loss. The inventory turbulence for this item will likely continue unless the cause can be determined.

At the Norfolk Naval Supply Center, we found that research often merely resulted in an adjustment or reversal. It is interesting to compare the Supply Center's reported inventory accuracy rate with the growing trend of reversals since 1981 when the Congress severely criticized the Supply Center for its accuracy problems.

As shown in figure I.14, in 1981 the Supply Center reported a gro inventory adjustment rate of 21.3 percent and a reversal rate of 9.7 percent. In 1986, the Supply Center reported its gross inventory adjustment rate at 3.2 percent--just over the Navy's 3. percent goal. However, at the same time reversals, that improve the reported inventory accuracy rates, have increased from 9.7 tc 62.5 percent. Although not conclusive, this pattern suggests tha a primary purpose of causative research and reversals is to make inventory accuracy look better.

Figure 1.14 Comparison of Changes of Reversals and Gross Adjustment Rates FY 1981 to FY 1986



Paralleling good causative research should be the ability to identify and analyze trends. For example, overall inventory accuracy data DLA reported to DOD showed a $23.5 million net gain during fiscal year 1986. However, our analysis showed that this net gain included DLA items stored at other service facilities. When we analyzed only the DLA-managed items stored at its own depots, we found that it was experiencing a net loss. For two types of items highly susceptible to theft or diversion--medical and clothing and textile items--DLA had a trend of losses totalling $30 million during fiscal years 1985 and 1986. At DLA, because it is in the business of managing low-value, consumable items, we are concerned because 87 percent of its inventory variances are $800 or under and, therefore, usually not researched.

In the area of causative research we recommended that DOD (1) reemphasize the need for effective causative research that identifies inventory variances and analyzes them to identify systemic problems, and (2) research, on a sample basis, variances under the monetary criteria for causative research. DOD officials generally concurred, but we have not received a formal response to our recommendations.

IMPORTANCE OF GOOD PHYSICAL SECURITY

Good physical security is a prerequisite of good inventory management. When accountability over inventories is a problem, good physical security is necessary to prevent theft and diversion occurring without detection. For example, in 1986 the Air Force Inspector General reported on Air Force supply system vulnerability and concluded that Air Force physical security practices at both wholesale and retail maintenance and supply activities provided numerous opportunities for theft.[15] The Inspector General also found that weaknesses in inventory procedures and adjustment practices could have resulted in inaccurate records at wholesale and retail activities and, therefore, could have resulted in theft or diversion of property. We testified last year that we made undetected entries into Army and Air Force supply warehouses in Europe and could easily have removed items, including spare parts for F-15 and F-16 aircraft.

While the thrust of our recent reports was generally directed at inventory accuracy rather than security, we did review security at some locations and found problems. For example:

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[15] Special Inspection of Supply System Vulnerability. Office of Air Force Inspector General (Feb. 26, 1986). Details of this report are not releasable without permission of the Secretary of the Air Force.

-- In the Army, we found numerous instances where physical security was inadequate. The physical deficiencies we noted applied not only to repair parts but also to sensitive ammunition, explosives, and missiles that could be targets for theft by terrorists. The range of security deficiencies included inadequate and improper storage facilities, inoperative detection devices, poorly equipped and poorly trained guards, and poor accountability for and control over sensitive items.

-- In the Navy, we reviewed security, starting at base perimeters and working towards storage and maintenance facilities. We found problems in several areas: (1) protection of restricted areas, (2) control of commercial vehicles, (3) provision for waterfront security, (4) compliance with fencing requirements, and (5) control over private boats and airplanes on Navy bases.

-- At DLA, we observed inadequate storage and protection over pilferable items and noted that other security concerns were identified in security reviews but did not result in adequate management attention.

The services and DLA began taking corrective actions in response to our bringing these matters to their attention before we issued our reports.

MANAGING INVENTORIES IN AN ERA OF CONSTRAINED DEFENSE BUDGETS

Our reports on inventory management problems and our current work on the reasons for the large inventory growth over the last several years, can provide a foundation for DOD to explore how to better manage its huge inventory investment in the upcoming era of constrained Defense budgets.

DOD and the Congress are discussing what trade offs will be made in weapon systems, force structure and manpower to achieve an affordable Defense budget. We believe that the inventory management concerns we are discussing today--large growth, much of it unneeded, and an inability to effectively account for inventories--should also be addressed in a discussion on affordability. Given the size of the overall inventory ($162 billion) even minor improvements in buying less inventory or managing it better can yield large savings.

We believe that DOD needs to take a hard look at whether it can better manage the investment it has in inventories without degrading the readiness of our military forces, which the inventories are there to support.

Some of the questions that should be addressed include

-- Why has unneeded inventory grown substantially and what can be done to minimize it in the future? In general, what can be done to improve the validity of inventory requirements?

-- Can the time between initiating purchases and the receipt of items be reduced?

-- What can be done to minimize the inventory growth that DLA is experiencing based on (1) the large percentage of customer returns, and (2) the life-of-type buys?

-- How can inventory accuracy and other management information be used to monitor inventory performance?

Mr. Chairman, that concludes my prepared statement. We will be happy to respond to questions.