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Report to the Secretary of the Army and
the Director of the Defense Logistics
Agency

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FINANCIAL
MANAGEMENT

Poor Internal Control
Has Led to Increased
Maintenance Costs and
Deterioration of
Equipment



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The Honorable Michael P. W. Stone
Secretary of the Army

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This report presents the results of our review of the internal controls and financial systems used to control depot level maintenance functions for the Department of the Army's weapons and equipment. These functions were recently transferred from the Army Materiel Command's Depot System Command to the Defense Logistics Agency. The report also discusses how Army units prepare weapons and equipment for shipment to depots for repair and overhaul.

In fiscal year 1991, the Army spent more than \$1 billion to overhaul weapons and equipment. Millions of dollars, however, may be wasted because of poor internal controls and inadequate systems which do not protect weapons and equipment from deterioration and theft during shipment to depots and during the maintenance process.

This report contains recommendations to you. The head of a federal agency is required by 31 U.S.C. 720 to submit a written statement on actions taken on these recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the Secretary of Defense, interested congressional committees, and other interested parties. Copies will be made available to others on request. Please contact me at (202) 275-7095 if you or your staff have any questions concerning the report. Major contributors to this report are listed in appendix IV.

David M. Connor
Director, Defense Financial Audits

Executive Summary

Purpose

The depot maintenance function is a critical link in the Army's efforts to ensure readiness and mobility. In fiscal year 1991, the Army spent about \$1.2 billion to repair, rebuild, and overhaul its weapon systems and equipment. Financing, accounting for, and controlling the maintenance of these repairables is one of Army's key financial management responsibilities.

As part of its audit of the Army's financial statements, GAO reviewed internal controls over the maintenance process at four of the Army's six maintenance depots. Specifically, GAO examined whether controls had been implemented to (1) protect weapon systems and equipment awaiting entry into maintenance from physical deterioration and theft, (2) account for repairables stored at the depot and support Army-wide accountability for repairables, and (3) record and report maintenance costs needed to bill the depots' customers and support the Army's cost reduction initiatives, which included a fiscal year 1991 pilot program to compete selected maintenance jobs between the six maintenance depots and private sector suppliers of maintenance services.

Background

The Depot System Command (DESCOM) oversees the operations of 10 depots (6 maintenance and 4 supply) and 5 depot activities. DESCOM is 1 of 10 major subordinate commands in the Army Materiel Command. Six of the other major subordinate commands—known as commodity commands—are the Army's wholesale managers for particular commodities or groups of commodities. The commodity commands define materiel requirements, procure supplies and equipment, and develop the annual depot-level maintenance and supply programs.

The depots have the primary responsibility for the maintenance, overhaul, and repair of items as large as tanks and helicopters and as small and intricate as communications and electronic components. Depot employees also upgrade older items to improved configurations and perform limited fabrication and manufacturing.

Subsequent to the completion of GAO's audit work, certain functions carried out under the maintenance mission of DESCOM were transferred to the Defense Logistics Agency. Consequently, several of the recommendations in this report originally directed to the Secretary of the Army have been redirected to the Director of the Defense Logistics Agency.

Results in Brief

Internal controls at four Army depots did not always adequately safeguard millions of dollars of weapons and equipment during the maintenance process. Because many repairables were stored, often for years, with inadequate protection, they were highly vulnerable to corrosion and rust, which increased scrappage rates and maintenance costs.

In fiscal year 1991, personnel at the four depots performed only 30 percent of the physical inventories required to account for repairables at the depots. Also, improper stacking and other inadequate storage practices made it difficult to account for and control items at two of the four depots. GAO's physical counts of selected items disclosed numerous discrepancies between what was on hand and what was recorded in the Standard Depot System (SDS), which accounts for repairables. Because this information was reported to systems providing Army-wide management information, the Army could be making decisions about equipment needs based on unreliable data.

The Standard Depot System's cost accounting system did not accurately record and report maintenance costs for specific job orders. Because of ineffective maintenance shop processes and weak accounting controls, costs were not always charged to the proper job order or inappropriate nonmaintenance costs were sometimes included.

Principal Findings

Poor Storage Practices Have Increased Maintenance Costs

The four depots GAO reviewed did not in all cases follow Army requirements for outdoor storage of repairables, such as covering them with protective wrapping, while they were awaiting entrance into the maintenance process. This allowed extensive corrosion, which caused excessively high scrappage rates and maintenance costs. Diesel engines for a variety of vehicles overhauled at Tooele Army Depot experienced 70-percent scrappage rates and additional maintenance costs of up to \$1.2 million on an individual maintenance order because of excessive corrosion and rust of internal engine parts. Army units shipped many of these kinds of engines without adequate packaging, and Tooele stored the engines as received, unprotected from rain and snow, in an open 250-acre field that has been used for storage since the Vietnam War. This excessive corrosion and rust could have occurred at other Army entities before the

engines were shipped or as a result of continued inadequate storage at the depot. Two depots improperly stored hazardous materials, including corrosive acids and radioactive materials. Finally, inadequate supervision may have contributed to thefts of gas-powered generators at Tooele Army Depot, and inadequate inventory records prevented Letterkenny Army Depot from determining the full extent of thefts of copper wire.

Depot Inventory Records Not Accurate

The Standard Depot System, as operated by the four depots reviewed, did not reflect the actual number of repairables on hand awaiting or in maintenance. For example, four physical inventories of helicopter engines disclosed wide differences between the number of engines on hand and the number recorded in SDS at Corpus Christi Army Depot. After 4 months of research, depot personnel resolved a difference of 150 engines—valued at more than \$74,000 each—by determining that the engines were accounted for in a manual record rather than the SDS mission account. GAO's physical inventories of repairables at Anniston Army Depot disclosed more than 1,400 items on hand valued at more than \$17 million that were not reflected in Anniston's SDS.

Army Materiel Command regulations require depots to conduct periodic physical inventories of repairables on hand to disclose discrepancies between information in SDS and items on hand, research the discrepancies, and appropriately adjust the information in SDS. The four depots reviewed conducted only 30 percent of the required physical inventories for fiscal year 1991. Depot officials told GAO that all required inventories were not done because of funding constraints and personnel shortages resulting from the need to support Desert Shield and Desert Storm. GAO internal control tests disclosed that inadequate information in SDS and the previously discussed improper storage of repairables were also major impediments to completing required inventories.

Cost Accounting System Did Not Capture Actual Job Costs

Internal control weaknesses in the SDS cost accounting subsystem allowed overhaul costs to be inflated or charged to the wrong job. GAO observed that new parts were ordered in lieu of using reclaimed parts, contrary to established policy. Specifically, GAO's control tests at Anniston and Letterkenny Army depots disclosed that weaknesses in the materiel requisitioning process resulted in excess new spare and reclaimed parts (useable parts removed from scrapped weapons or equipment), parts used on one job being billed to another job, and new parts being ordered in lieu of using reclaimed parts. One depot official at Anniston Army Depot

estimated that the depot had a 20-year supply of reclaimed parts for a tank engine.

Letterkenny Army Depot charged 700 direct labor hours to a 2-1/2 ton truck overhaul job for unrelated activities. Including these costs was inappropriate because they were not depot financed costs related to the maintenance operations. These costs included training for Army reservists, clerical work for the Supply Directorate, and painting other vehicles in preparation for a visit by headquarters officials.

Depots bill customers using standardized labor, material, and overhead rates which are used for an entire fiscal year. Because billings are based on estimated job costs determined before work is started, any nonmaintenance, non-depot financed costs or unexpected overruns charged to a customer order result in a loss on the order, which is recorded in the depot's Net Operating Results account. Any accumulated depot operating loss for a fiscal year is one of several factors used in determining depot billing rates for future years. Including nonmaintenance, non-depot financed costs and prior year losses in standard customer billing rates inflates the costs of maintenance jobs. Also, because depot standard billing rates and the resulting customer billings for in-house maintenance jobs frequently misstate the actual costs of maintenance work, these rates and prior customer billings could not be used by depots to develop bids under the fiscal year 1991 pilot program to compete maintenance jobs among the depots and private sector suppliers. Instead, depots set up special task forces to develop bids under the competitive program.

Recommendations

GAO is recommending that the Secretary of the Army (1) direct Commanders of major commands to enforce Department of Defense and Army regulations for packaging repairables shipped to maintenance depots and (2) improve the accuracy of actual costs by job order in the cost accounting system.

GAO is also recommending that the Director of the Defense Logistics Agency take actions to (1) protect repairables from exposure to the elements and minimize the risk of theft and (2) upgrade the data and procedures used to ensure accountability for depot inventory. Chapters 2 through 4 contain GAO's specific recommendations.

Agency Comments

Although GAO requested written comments from the Department of Defense on a draft of this report, they were received too late to be included in the report. However, the written comments are the same as comments provided earlier by responsible Department of Defense officials. These comments are discussed and evaluated in chapters 2 through 4. The Department of Defense concurred with all of GAO's recommendations and has actions underway and planned to respond to them. If these corrective actions are fully implemented, they should adequately address the weaknesses GAO identified.

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Abbreviations

AIF	Army Industrial Fund
AMC	Army Materiel Command
CBS-X	Continuing Balance System—Expanded
CCSS	Commodity Command Standard System
CID	Criminal Investigation Division
DESCOM	Depot System Command
DLA	Defense Logistics Agency
DOD	Department of Defense
DSS	Distribution Standard System
FBI	Federal Bureau of Investigation
FMFIA	Federal Managers' Financial Integrity Act
NOR	Net Operating Results
NSN	National Stock Number
SDS	Standard Depot System

Introduction

The Army spent about \$1.2 billion in fiscal year 1991 to repair, rebuild, and overhaul weapons and equipment and major components. Much of this maintenance work was carried out by Army depots under the direction of the Depot System Command (DESCOM). Financing, accounting for, and controlling the maintenance of weapons and other equipment is a major aspect of Army's financial management responsibilities and operations. This report focuses on depot-level maintenance and the internal controls in place at DESCOM and its constituent depots over the maintenance process.

Background

The frequency and type of weapon and equipment maintenance is determined by the Army Materiel Command (AMC) through its six commodity commands. The commodity commands initially acquire and issue to Army units weapon systems and other equipment. The commodity commands subsequently determine and schedule maintenance to keep the items operable. Specifically, they define materiel requirements, procure supplies and equipment, and develop the annual depot-level maintenance and supply programs. They schedule the maintenance to be done at various levels, including the depot. The commodity commands also determine the spare parts to be procured and held by the Army Stock Fund to support all levels of maintenance for these items.

DESCOM, an AMC major subordinate command like the commodity commands, is responsible for carrying out commodity command orders regarding (1) the storage and maintenance of repairables and (2) the receipt, storage, and issuance of materiel. DESCOM executes its responsibilities through 10 depots and 5 depot activities (see appendix I). Maintenance depots overhaul, rebuild, convert, renovate, modify, repair, inspect and test, and, on occasion, fabricate all major Army weapon systems and other equipment, including tanks, howitzers, aircraft, combat and support vehicles, and missiles.

At the time of our review, 6 of the 10 depots had assigned maintenance missions, as shown in table 1.1.

Table 1.1: Army's Major Maintenance Depots and Their Assigned Missions

Army Depot	Assigned Maintenance Missions
Anniston (Alabama)	Tracked combat vehicles; small arms; and the Hellfire, Multiple Launch Rocket System; and Tube Launched, Optically Tracked, Wire-Guided Lance and Dragon missiles.
Corpus Christi (Texas)	Army helicopters: UH-1 Huey, AH-1S Cobra, AH- 64 Apache, and UH-60A Black Hawk, OH-58 Kiowa, and CH-47 Chinook.
Letterkenny (Pennsylvania)	Self-propelled and towed artillery systems, light recovery vehicles, and Improved Hawk and Patriot air defense guided missile systems.
Tooele (Utah)	Tactical wheeled vehicles, generators, rail locomotives, and Redeye Anti-Aircraft Missiles
Tobyhanna (Pennsylvania)	Strategic and tactical communications and electronic equipment, including satellite communications terminals, communications shelters, and automatic test equipment.
Red River (Texas)	Light armored vehicles, M2 and M3 Bradley Fighting Vehicles, and Multiple Launch Rocket System.

Note: Subsequent to our review, certain missions were moved to other depots. For example, the maintenance of artillery systems was transferred from Letterkenny to Red River Army Depot.

Army's Internal Control and Accountability Systems

In each AMC commodity command, an item manager and a National Maintenance Point maintenance manager catalog, arrange transportation for, set packaging requirements for, and manage the distribution of specific end items (see appendix II). They determine the maintenance, scheduling, and depot workload for end items and refine final maintenance requirements. In addition, item managers accumulate supply and demand data for items, such as which Army units currently have the items, which units need them, and which items should be replaced.

When demand brings an item's issuable stock below a certain level, the item manager must initiate action to either (1) overhaul items currently on-hand at depots and return them to stock or (2) buy new items. If the shortages will be satisfied by overhauling items already on-hand, the item manager initiates the overhaul program by issuing a Procurement Request Order Number through DESCOM to an appropriate Army depot.

DESCOM is the liaison between the commodity commands and its constituent depots. DESCOM manages the depots' staff resources, finances, materiel, and facilities by controlling the workloads assigned to them. In turn, the depots report a variety of information that DESCOM summarizes and submits to the commodity commands. For instance, depots report items entered into maintenance, items completed, scrapped items, and

parts used in the maintenance process. Depots also report program cost, production, and scheduling information to DESCOM to facilitate billing the commodity commands for work performed. Further, the depots provide information on shop capabilities and capacity to DESCOM to support DESCOM depot workload decisions.

Depots have a standardized automated system, the Standard Depot System (SDS), that receives incoming data, compiles and stores the information, and generates outgoing information. SDS routinely provides information to DESCOM and the commodity commands. For example, SDS transmits maintenance order information to the DESCOM maintenance system. Once accepted, that information is submitted to the depot maintenance directorate in the form of a work authorization. In return, the depot SDS provides parts consumption data to the Commodity Command Standard System (CCSS)—the commodity commands' automated logistics system. Also, SDS sends depot maintenance program response information and depot capability and capacity information to DESCOM.

AMC commodity commands own and are accountable for Army's weapons and other equipment. The actual weapons and equipment may be either (1) in use at a tactical unit, nontactical unit, or installation, (2) in storage or in maintenance at a depot, or (3) in-transit between the manufacturer and the unit/depot or between a depot and a unit. AMC and its commodity commands maintain Army-wide accountability for weapons and other equipment through standard systems. AMC uses the Continuing Balance System-Expanded (CBS-X) to maintain the official Army-wide, detailed inventory of weapons and equipment such as tanks, howitzers, and 2-1/2 ton trucks. The commodity commands use CCSS to maintain inventories of items at the maintenance depots.

Subsequent to the completion of our audit work, certain functions carried out under DESCOM's maintenance mission were transferred to the Defense Logistics Agency (DLA) along with the related staff, facilities, and inventory resources that DESCOM used to carry out the transferred functions. DLA continues to use the automated information systems used by DESCOM to support the transferred functions. Consequently, several of the recommendations in this report originally directed to the Secretary of the Army have been redirected to the Director of the Defense Logistics Agency.

The Army Industrial Fund Covers Three Major Army Activities

To help control costs, the Congress authorized the Department of Defense (DOD) to manage and finance depot maintenance and similar military support operations through working capital funds that operate much like private business enterprises. Subsequently, DOD established the Army Industrial Fund (AIF) to manage and finance DESCOM's operations.

DOD established AIF to (1) accumulate, record, and report the full cost of providing a commercial service like depot-level maintenance to other military components, (2) bill customers for the cost of services rendered, and (3) provide incentives to offer services at the most cost-effective price by competing maintenance work among other military services, DESCOM's depots, and private sector contractors.

In financial terms, DESCOM accounts for the majority of AIF's activities, as detailed in table 1.2.

Table 1.2: Key AIF and DESCOM Financial Statistics for Fiscal Year 1991

Dollars in billions			
	DESCOM	Total AIF	DESCOM percentage of AIF
Total assets	\$1.85	\$2.92	63
Sales revenue	\$2.09	\$3.38	62
Cost of goods and services sold	\$2.11	\$2.54	83

AIF is intended to break even over the long term—neither earning a profit nor incurring a loss. At its inception, AIF received a permanent appropriation from the Congress giving it the capital to initiate depot level maintenance work: that is, to obtain the materials, direct labor, and overhead items to carry out maintenance work. Customer payments replenish AIF for the cost of work performed.

In fiscal year 1991, DOD and Army initiated a major cost reduction that will affect the maintenance of weapons and equipment. Specifically, this initiative involves increasing competition among depots and private sector contractors for Army maintenance work. Army officials stated that this initiative is intended to reduce maintenance costs and help achieve congressional objectives set when AIF was established.

Objectives, Scope, and Methodology

This review was part of our first comprehensive audit of the Army's financial management operations, for which the objectives were to evaluate Army's systems of internal controls and to opine on Army's fiscal year 1991 balance sheet.

This report focuses on how effectively DESCOM and its maintenance depots support Army-wide internal control and accountability systems for weapons and other equipment, the largest items on the Army's balance sheet. Specifically, we evaluated whether the depots' internal control systems adequately (1) protect weapon systems and other equipment awaiting entry into the maintenance process from physical deterioration and theft and minimize maintenance costs, (2) account for the repairables stored at the depots to effectively support Army wide accountability and control of the repairables, and (3) record and report maintenance costs to bill AIF's customers and to support DOD and Army cost reduction initiatives, especially the current depot competition pilot project.

We selected 4 of the 6 Army maintenance depots for detailed testing of control systems because they accounted for the majority of DESCOM's AIF maintenance revenues and covered a broad range of Army weapons and other equipment. The four selected depots were

- Anniston Army Depot, Anniston, Alabama;
- Corpus Christi Army Depot, Corpus Christi, Texas;
- Tooele Army Depot, Tooele, Utah; and
- Letterkenny Army Depot, Chambersburg, Pennsylvania.

To determine whether internal control systems protected weapons and other equipment awaiting entry into the maintenance process and optimized maintenance costs we

- observed and photographed the types and condition of indoor and outdoor physical storage locations and the condition and physical security of the stored items,
- evaluated inventory storage and security practices in relation to Army and DOD storage and security requirements, and
- determined whether the Army was experiencing excess maintenance costs and scrappage rates due to inadequate protection of the repairables by analyzing cost data for selected maintenance orders.

To assess whether internal controls at the depots effectively supported Army-wide accountability and control of the repairables we

- performed and observed inventory counts for 38 judgmentally selected national stock numbers and reconciled the results to depot supply records and
- reconciled those results to Army-wide accountability records.

To determine whether maintenance costs were accurately recorded and reported to support the billing of AIF customers and DOD and Army cost reduction initiatives, we

- determined whether maintenance orders were properly established in the depot cost accounting system by reviewing project files for newly established maintenance job orders;
- assessed whether all maintenance costs were approved, recorded, and reported by reviewing project files for in-process maintenance job orders;
- determined whether recorded maintenance costs were appropriately billed to customers and whether any nonmaintenance costs had been included by reviewing project files for completed maintenance job orders;
- compared competitive bid prices for maintenance orders with actual costs accumulated on similar in-house maintenance programs;
- observed storage areas and selected maintenance reports to identify excess inventory stocks; and
- observed the receipt and issuance of repair parts to assess the accountability, control, and security exercised over such parts.

We conducted our work from October 1990 through February 1992 in accordance with generally accepted government auditing standards. Although we requested written comments from DOD on a draft of this report, they were received too late to be included in the report. However, the written comments are the same as comments provided earlier by responsible DOD officials. These comments are discussed and evaluated in the "Agency Comments and Our Evaluation" sections at the end of chapters 2 through 4.

Inadequate Depot Storage Increased Maintenance Costs and Scrappage Rates

Depot storage of materiel awaiting repair and overhaul did not in all cases meet Army requirements and can result in increased scrappage rates, maintenance costs, and losses due to thefts. Many of these repairable items were not protected from the weather to prevent deterioration. Inadequate physical security may have contributed to thefts of items such as gas powered generators and copper wire. In addition, two depots improperly stored hazardous materials, including corrosive acids and radioactive materials. According to depot officials, many of the repairables are received without protective packaging, and inadequate funding prevented them from providing safe and proper storage for repairables and hazardous materials.

Noncompliance With Packaging and Storage Requirements by Army Units and Depots Increased Scrappage Rates and Maintenance Costs

The four depots reviewed had extensive outdoor storage of many repairables awaiting entry into the depot maintenance process. These repairables ranged from major end items, such as helicopters, trucks, tanks, and artillery pieces, to major components of end items, such as helicopter engines and transmissions; truck engines, transmissions, and axle assemblies; and tank engines, transmissions, and turret assemblies. As custodians of repairables, Army depots are responsible for physically safeguarding the items in their custody and for effectively supporting Army-wide accountability and control systems for these items. Army regulations require that repairables be protected from physical deterioration while in storage. The nature of an item determines the type and extent of protection needed to prevent deterioration. Shipping and handling, as well as length of storage considerations, dictate the type of materials selected for preservation and packaging.

Table 2.1 summarizes pertinent Army and DOD physical storage regulations which provide guidance for storage of repairables.

**Chapter 2
Inadequate Depot Storage Increased
Maintenance Costs and Scrappage Rates**

Table 2.1: Regulations Governing the Storage of Army Repairables

Regulation	Summary of Guidance
DOD Regulation 4145.19-R-1	Establishes uniform storage and materiel handling policies, procedures, and responsibilities for use by DOD supply installations involved in the receipt, storage, issuance, and care of military supplies and equipment. With regard to wheeled and tracked vehicles, if only open storage is available, increase (1) the degree of protection and (2) the frequency and thoroughness of inspection of items in storage above and beyond what is required for items placed in covered storage areas.
Army Regulation 700-15	The storage activity must develop procedures for selecting and applying packaging protection to prevent damage and deterioration. Shipping and storage activities are to provide the required packaging for materiel being shipped or placed in storage. For unserviceable repairable materiel, the shipping activity must provide sufficient packaging to ensure that the item does not deteriorate to a lower condition code.
Army Supply Bulletin 740-98-1	Materiel in unserviceable condition codes F and M may be placed in open or shed storage when general purpose warehouse space is not available. However, adequate protection must be afforded to maintain these items in an "as is" condition. Materiel so stored is to be inspected at frequencies designated for open or shed environments so that the degree of unserviceability does not increase.

Storage methods at the four depots ranged from indoor heated and unheated warehouse facilities to outdoor storage in packaging such as wooden crates or metallic canisters, to outdoor, unprotected storage in open fields. Helicopter engines and transmissions were stored out-of-doors in canisters. Truck engines, transmissions, and axle assemblies were generally stored out-of-doors, unprotected from the elements; and partially disassembled tanks and artillery pieces were stored out-of-doors, again unprotected from the elements. Figure 2.1 illustrates the types of storage we found.

**Chapter 2
Inadequate Depot Storage Increased
Maintenance Costs and Scrappage Rates**

Figure 2.1: Protected and Unprotected Storage of Unserviceable/Repairable Equipment at Tooele Army Depot



Many of the repairables awaiting entry into the depot maintenance process had been received from Army units without required packaging, stored by the depots as received, and held for extended periods of time. During shipment and storage, the improperly packaged repairables suffered extensive corrosion damage which resulted in the repairables moving from a repairable condition code to a lower condition code designating them as scrap. Some of this corrosion had begun during shipment from the field.

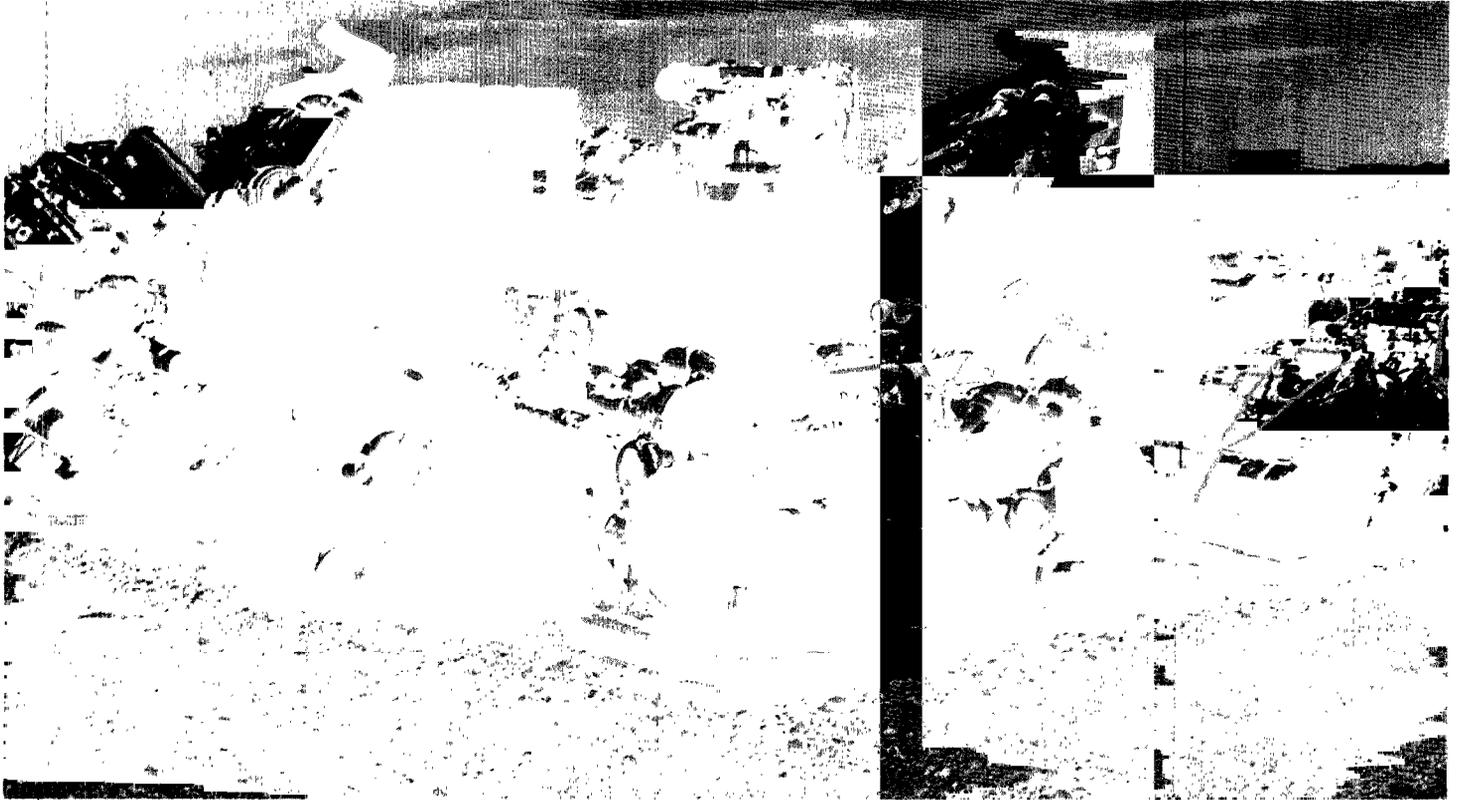
Depot officials stated that due to limited funding, repairables are generally stored in the condition in which they are shipped and received.

**Inadequate Storage of
Many Repairables at
Tooele Army Depot**

Tooele Army Depot repairs and overhauls tactical wheeled vehicles, power generation equipment, and items such as trailers, engines, transmissions, and axles, all of which are held in warehouses or outdoor storage areas. Tooele's major outdoor storage area is a 250-acre field euphemistically called "Iron Mountain," started during the Vietnam War. We toured Iron Mountain and found thousands of items classified as repairable supposedly awaiting entry into the maintenance process. Depot officials told us that many items had been stored there for up to 10 years.

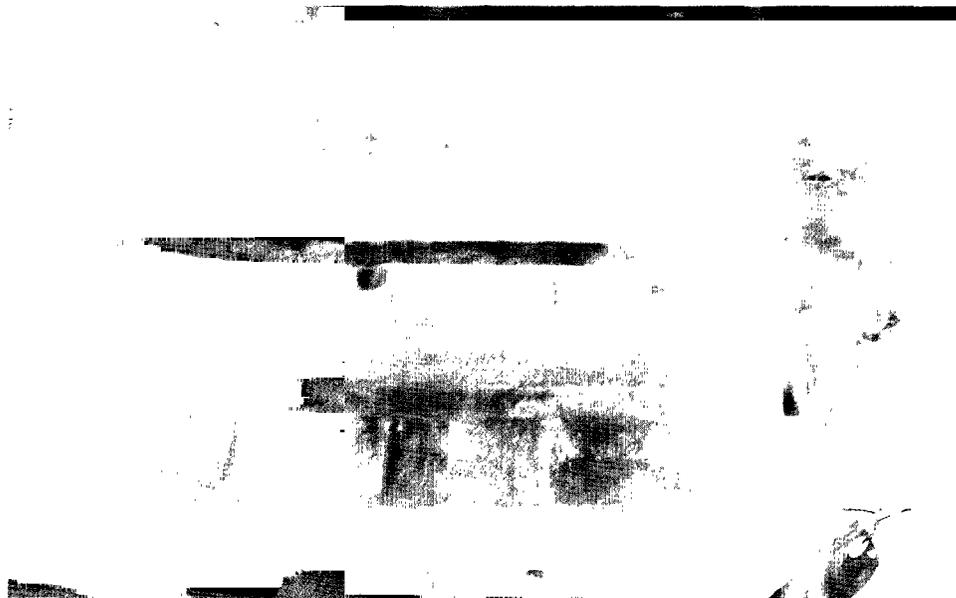
Figure 2.2 illustrates the conditions we found in the Iron Mountain area. We observed that many vehicle engines, transmissions, and axle assemblies were simply piled on the ground or on pallets in the open field, totally unprotected from the elements. Although some engines were stored in wooden crates or wrapped in plastic coverings, many engines had the manifold totally or partially uncovered, allowing rain water to run into the manifolds. The unprotected items had extensive rust on all unpainted areas and some were overgrown with weeds and other vegetation. Where engines were stored in wooden crates, we observed that many of the wooden crates were broken and/or so weathered that all markings identifying their contents were undiscernible. We could not effectively sample and count the number of improperly stored items at the depots reviewed for several reasons. First, as discussed in detail in chapter 3, the Standard Depot System (SDS) which the depots use to account for repairables in their custody did not record the information needed to statistically sample repairables for physical inventories. Second, the manner in which repairables were stored at depots precluded accurate physical inventories of repairables.

Figure 2.2: Outdoor Storage of Unserviceable/Repairable Diesel Engines at Tooele Army Depot



Tooele Maintenance Directorate officials acknowledged that current storage practices resulted in maintenance cost overruns because of corrosion—rusting and pitting—that could have been avoided. According to these officials, corrosion problems begin when repairables are shipped to the depot. Depot officials told us that Army units often remove engines from vehicles and ship them to the depot unprotected from the elements. The depot, however, did not address the storage of repairables in its Federal Managers' Financial Integrity Act (FMFIA) reports. Water entering manifolds rusts the pistons and cylinder walls, as shown in figure 2.3.

Figure 2.3: Rusted Pistons and
Cylinder Walls in 6.2 Liter Diesel
Engine in Maintenance at Tooele Army
Depot



The corrosion resulting from inadequate protection of repairables during shipment and storage at depots has led to increased overhaul costs and excessive scrapping of repairables. Depot maintenance Directorate officials told us that often the extensive corrosion and increased costs only become evident after the engines are disassembled for overhaul, which takes about 15 direct labor hours per engine. Furthermore, engines that become rusted require more work to rebuild, as the rust must be bored out of the cylinder walls. Depot officials further commented that after doing this, many of the walls do not meet Army specifications for thickness and the entire engine must be scrapped. The net effect in these cases is that costs are incurred without producing usable results (overhauled engines).

To determine the maintenance cost and scrapage rate effects of inadequately stored repairables, we performed detailed control tests for the 6.2 liter, 8-cylinder diesel engine, which powers the Commercial Utility Cargo Vehicle and High Mobility Multi-Purpose Wheeled Vehicle. We reviewed cost data for three completed programs and one in-process program.

Actual costs incurred by the depot, as reported by the depot SDS cost accounting subsystem, exceeded the initial estimated maintenance costs,

which are based on engineering assessments of the work needed for each item and predetermined labor hours and rates. The increased costs for three engine programs were \$0.6 million, \$0.1 million, and \$1.2 million, representing cost overruns of 89 percent, 62 percent, and 42 percent, respectively. In one completed program, the maintenance cost incurred per engine repaired was only \$312 less than the current acquisition cost of a new engine. The actual maintenance cost per unit was \$5,467—142 percent of the \$3,895 authorized unit funded cost for that particular engine repair program. For the in-process program, maintenance officials projected a \$1.5 million cost overrun. While 65 percent of the authorized funds had been expended for this program, only 34 percent of the engines to be overhauled had been completed.

Our examination of the in-process program showed the scrappage rate was approximately 70 percent, with almost 300 engines being scrapped because of internal and external cracks and pitted cylinders. For one completed program, depot officials estimated that approximately 80 percent of the program's cost overrun could be attributed to the poor condition of the engines, which resulted in 561 out of 1284 engines being scrapped, a 44 percent "washout" rate. According to depot officials, at least 314 of the 561 scrapped engines, or approximately 25 percent of the overall program workload, were scrapped due to rust and other forms of corrosion that resulted from inadequate packaging and preservation during the time Army units shipped them to the depot for maintenance and/or while they were in storage at the depot. The remaining 247 engines were scrapped for other reasons, such as excessive engine wear. With a \$5,779 unit price, the 314 scrapped engines would have cost over \$1.8 million new.

Inadequate Storage of Repairables at Three Other Army Depots

We also found a variety of storage deficiencies at Letterkenny, Corpus Christi, and Anniston Army Depots. These deficiencies involved the inadequate packaging and preservation of repairables, poor storage of reclaimed and repair parts, and improper storage of hazardous materials. As in the case of Tooele Army Depot, increased maintenance costs resulted. The storage of hazardous materials at the Corpus Christi and Anniston Army depots exposed employees to risk.

In Letterkenny's outdoor storage areas, some repairables had suffered physical deterioration due to unnecessary exposure to the elements. For example, as shown in figure 2.4, some cases containing sensitive optical

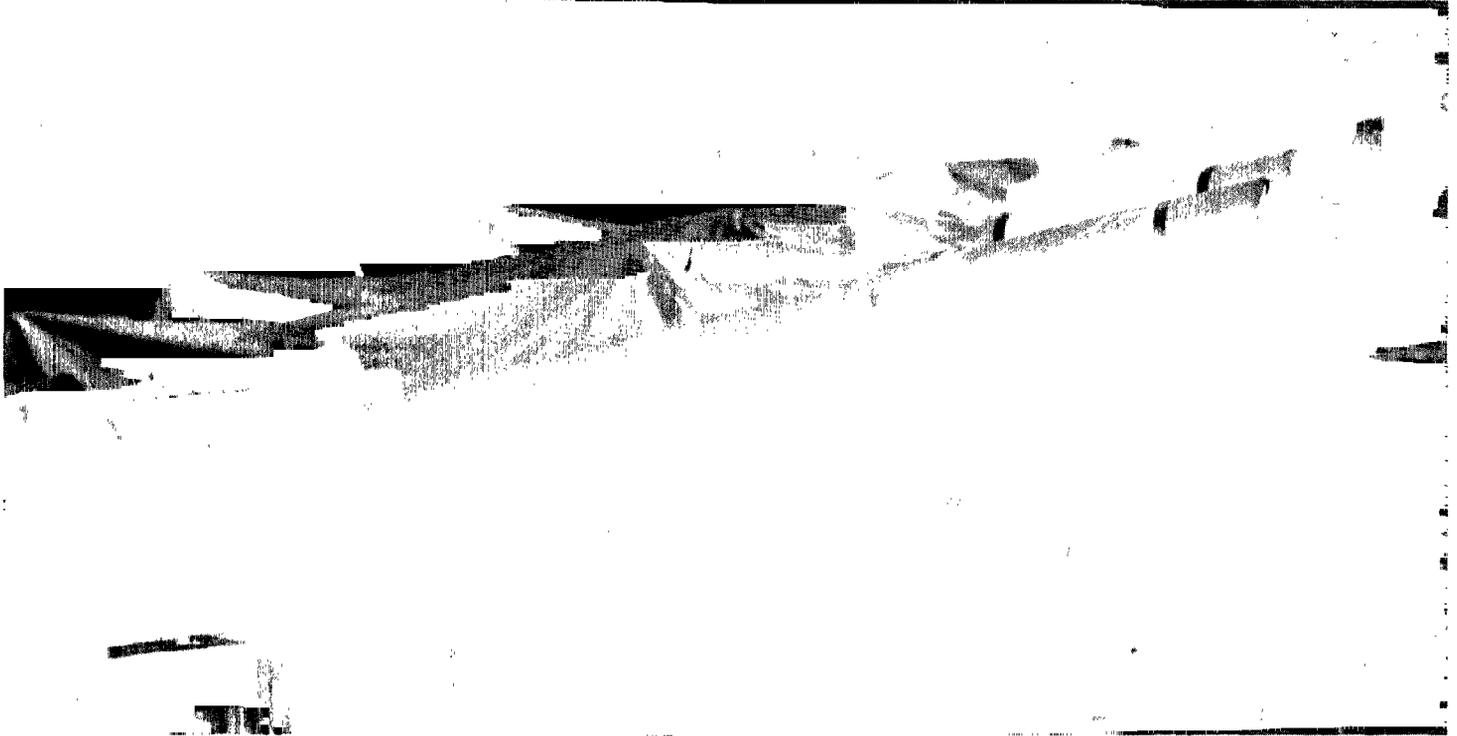
sighting devices and other equipment for M102 howitzers had been left open. We noted that the cases had filled with stagnant rainwater.

Figure 2.4: Lid Left Open on Case Containing Sophisticated Sighting Equipment for M102 Howitzer



All of the larger repairables, including a variety of trucks, missile launchers, and towed and self-propelled howitzers, were stored outdoors at Letterkenny Army Depot and many lacked adequate protection from the elements. As shown in figure 2.5, some of the howitzer bodies were wrapped in protective coverings and had their gun tubes capped or plugged with plywood to keep rainwater and snow out, but many did not. Many of the uncapped or unplugged gun tubes were rusted inside and outside and will have to be reamed out during overhaul. Some may subsequently need to be scrapped because the process for removing rust may leave the gun tube walls too thin to meet specifications.

Figure 2.5: Protected and Unprotected Outdoor Storage of Howitzers at Letterkenny Army Depot



Unforecasted parts usage and extra labor hours to correct unanticipated physical deterioration will cause actual job costs to exceed estimated costs. Letterkenny depot officials call such unplanned costs "unmeasured costs." Letterkenny Army Depot, however, did not include storage of repairables as an area of weakness in its FMFIA report. To evaluate unmeasured cost increases, we selected a M109 A3 Self-Propelled Howitzer program. Based on depot records and discussion with maintenance officials, we determined that the program's costs increased by \$1.2 million due to a 18,451 direct labor hour overrun, 5,059 hours of which were due to unanticipated physical deterioration of equipment. A 2-1/2 ton truck program we reviewed included approximately \$539,000 in additional rework costs arising from the outdoor storage of previously sandblasted trucks which had to be sandblasted a second time before continuation of the repair program.

Because of Corpus Christi Army Depot's proximity to Corpus Christi Bay and its associated humidity levels, the potential for corrosive damage to its

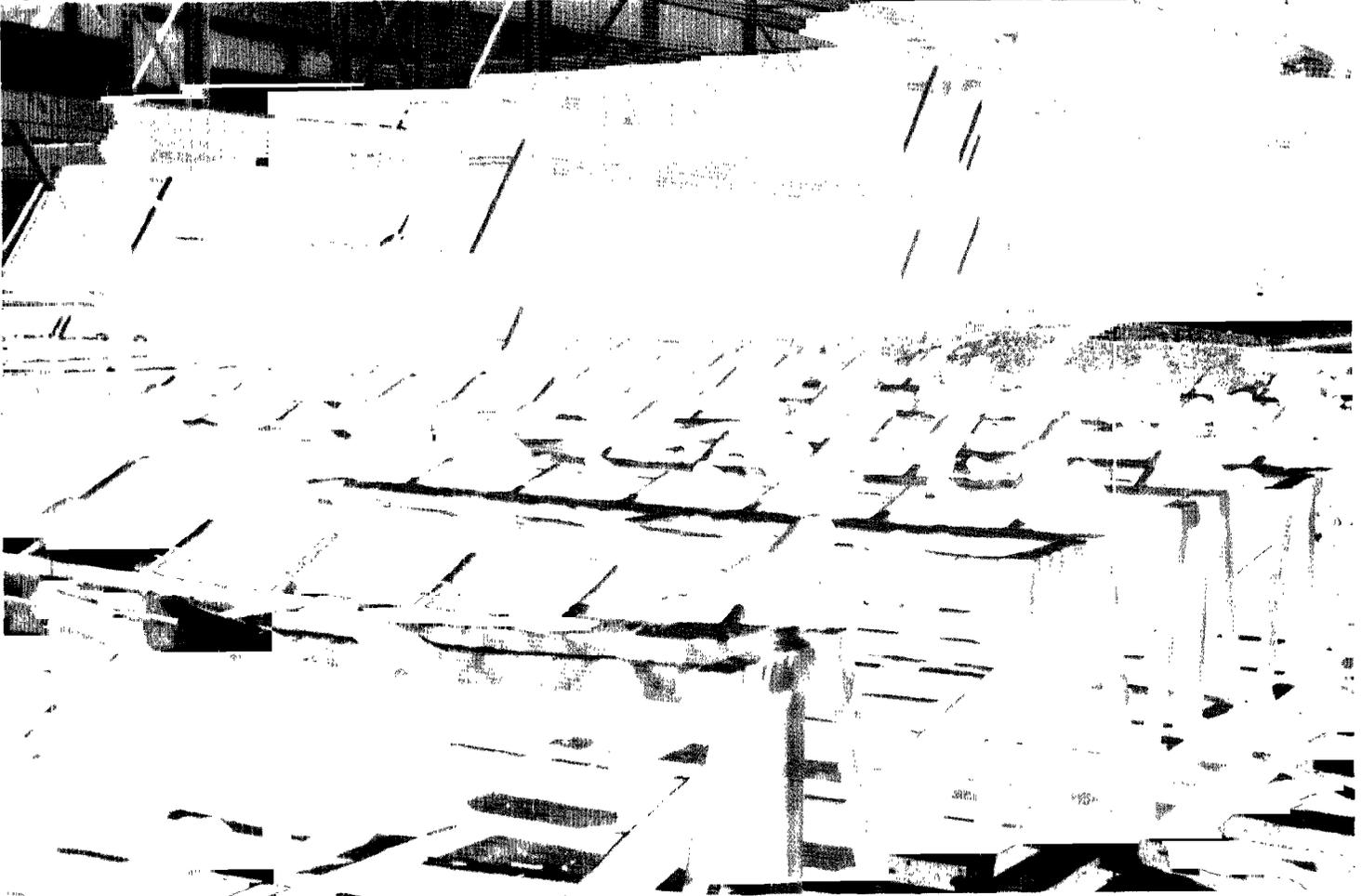
repairables in storage is high. According to a recent Corpus Christi Army Depot internal review report, corrosion and its costly impact on maintenance programs is a long-standing problem at the depot. The depot internal review audit team attempted to assess the impact of corrosion on direct labor hours expended on the UH-1H helicopter overhaul program. However, neither an analysis of the days the helicopters had been in storage nor a calculation of the added costs from excessive corrosion damage was performed because the needed records were unavailable.

Beginning with its fiscal year 1988 FMFIA evaluation, the Corpus Christi Army Depot reported to DESCOM that storage deficiencies were internal control weaknesses. Specifically, the depot's report stated that almost 6,600 components valued at over \$678 million were at risk of corrosion because inside storage was not available. Further, the report pointed out that components were being scrapped due to extensive corrosion damage. The depot's fiscal year 1990 FMFIA report estimated that storage deficiencies had a \$5.2 million impact on depot operations for that year. Further, a recent Criminal Investigation Division (CID) report pointed out that humidity indicators on helicopter engine and transmission storage canisters at Corpus Christi Army Depot had been painted over, thus rendering them useless. The stored engines and transmissions were being subjected to undetected corrosion. The CID team identified six transmissions that had to be scrapped because of corrosion during storage for a total loss of \$3.2 million.¹

At Anniston Army Depot, reclaimed parts—usable parts removed from cannibalized tanks—and parts cleaned and repaired during overhaul were stored outside in bins, on racks, or on pallets totally unprotected from the elements. We observed reclaimed parts that were severely rusted and would require sandblasting before use in the maintenance process. These included about 50 reclaimed rusted and pitted tank roadwheel arms stored on outside racks, as shown in figure 2.6. Like Letterkenny, Anniston Army Depot did not include storage of repairables as an area of weakness in its FMFIA report.

¹Criminal Investigation Division, Crime Prevention Survey, 0280-92-CID044-9A3.

Figure 2.6: Reclaimed Parts That Have Rusted During Outdoor Storage at Anniston Army Depot

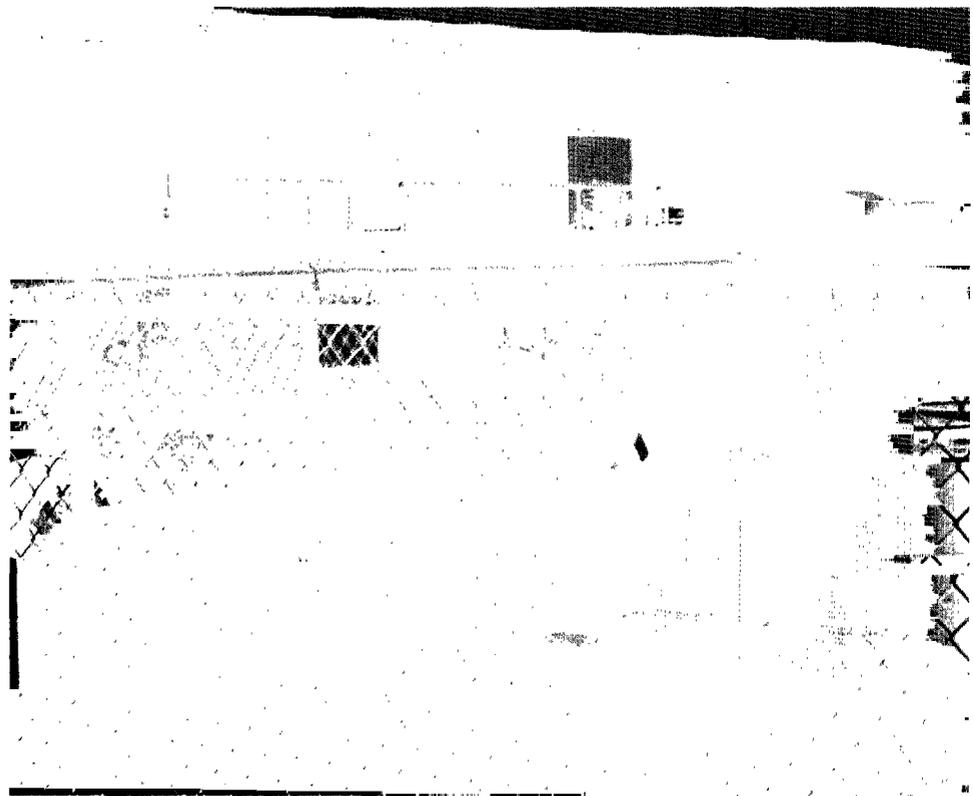


In Anniston Army Depot's storage areas, hazardous materials, some of them radioactive, were stored in the depot's tank farm—a collection of 34 enclosed cylindrical structures providing storage for a variety of equipment and other materials. In these structures, 55-gallon drums were stacked on unstable wooden pallets. Some of the pallets' wooden planks were brittle and easily broken. Drums stored on these pallets were leaning against adjacent drums. The lack of climate control and overhead lighting in the storage tanks further compounded this dangerous situation.

At Corpus Christi, hazardous materials, including various chemicals used in the maintenance process at its transmission shops, were stored in

drums—some of which were rusted and corroded—in an open outdoor area surrounded by a 4-foot chainlink fence, as shown in figure 2.7. This area borders a depot road. Depot officials acknowledged that while the Texas Water Commission and the Navy Inspector General reviewed Corpus Christi's operations and found no safety violations, the storage methods employed at this site were not optimal. The officials further stated that they lacked funding to correct the problem.

Figure 2.7: Hazardous Material Storage Area at Corpus Christi Army Depot



Poor Physical Controls Over Repairables

Repairables had recently been stolen at three of the four depots reviewed. At two of the depots, we observed serious weaknesses in physical security, primarily related to insufficient measures to prevent unauthorized access to storage areas. Prior audit reports have cited physical security deficiencies, inadequate resource accountability, and control weaknesses as factors contributing to thefts.

Poor physical security at Tooele Army Depot made repairables susceptible to theft. For example, during one of our visits to the Iron Mountain

outdoor storage area, the guard's gatehouse was unattended. The only physical barrier to the storage area was a barbed wire fence that, in certain locations, was low enough to step over and, in other locations, had holes. Also, warehouses containing pilferable and repairable items in good condition were unlocked and oftentimes unattended. Certain of the stored items, such as electric generators, have a market value.

At Corpus Christi Army Depot, helicopters and helicopter repairables, assemblies, and subassemblies were stored in unfenced areas accessible to depot roads. Our audit team toured the outdoor storage areas and the maintenance hangars on a Friday when no work was scheduled (the depot has a Monday through Thursday 4-day work week) and was challenged by a depot employee only once during a 5-hour, self-guided tour. After entering the depot, any visitor would have free access to all the outdoor storage areas as none of them were fenced, guarded, or otherwise segregated from depot traffic. Using nothing more than a screwdriver, pilferable items like altimeters, other gauges, and electronics could be removed from the helicopters in these unsecured outdoor storage areas.

Two recent Army CID reports² pointed out that lax physical security over multiple storage locations for repairables at Corpus Christi Army Depot would allow unscrupulous employees or anyone having access to the depot to steal engines and other equipment without detection. One report pointed out that employees at Corpus Christi stole two helicopter rotor blades, which were subsequently located at a civilian firm in Venezuela.

Army Depot Control
Weaknesses Reported
Previously

Internal control weaknesses, primarily physical security deficiencies similar to those we observed, have been pointed out in previously issued reports.

According to an Army CID report, no physical control was found over helicopter turbine engines—many of which were stored in unsecured outside areas—in multiple locations around Corpus Christi Army depot.³ The report concluded that this method of storage could allow unscrupulous employees or anyone having access to the depot to steal engines or other stored equipment without detection.

²Criminal Investigation Division, Crime Prevention Survey, 0510-91-CID-044-9A3 and 0100-92-CID-044-9A2.

³Criminal Investigation Division Report, Crime Prevention Survey, 0100-92-CID044-9A2.

One of our previous reports disclosed that at three of the four depots reviewed, security—including infrastructure, security procedures, and guard forces—was generally not targeted to address the threat of employee theft.⁴ Moreover, depot managers were not using their available resources to enhance the security of assets. Commanders had wide discretion over security because Army regulations do not establish minimum standards for protecting depot warehouse areas. Finally, oversight by higher commands was generally ineffective in addressing the long-standing, known control deficiencies we identified.

Our report on Operation Punchout,⁵ a Federal Bureau of Investigation (FBI) sting operation designed to identify and apprehend surplus dealers who bought and sold stolen government property from DOD facilities in Utah, highlighted ineffective internal controls at Tooele Army Depot that allowed thefts to go undetected. Specifically, at least three depot shipment receiving area employees colluded to steal shipped materiel, such as generators and compressors, and to sell the stolen goods to surplus dealers. Inadequate day-to-day supervision allowed the three employees to destroy shipping documents and not record the receipt of items. Since the employees had the only record of the number and type of items received, it was relatively easy for them to steal items that they could then sell to others. Depot officials have taken actions to strengthen internal controls by requiring supervisory personnel to continually observe receiving area operations. The effectiveness of these actions has not yet been assessed.

Weak internal controls over inventory at Letterkenny Army Depot hindered the timely detection of the theft of approximately \$8,000 in copper wire. According to a CID official, three or four persons gained access to the depot by driving a truck through a corn field, cutting through the depot's perimeter fence, and breaking a lock on the gate of the chainlink fence surrounding the outdoor storage area in which the wire was being stored. The CID report estimated that over 1,000 pounds—at least 12 small rolls weighing 10 to 12 pounds each and 3 large rolls weighing 300 to 400 pounds each—of copper wire had been stolen. Poor inventory records made it difficult to precisely determine the actual quantity of wire stolen.

A CID report disclosed conditions conducive to crime pertaining to the receipt and accountability of helicopter tailrotor blades by the Supply

⁴Inventory Management: Strengthened Controls Needed to Detect and Deter Small Arms Parts Thefts (GAO/NSIAD-91-186, July 17, 1991).

⁵Internal Controls: Theft at Three Defense Facilities in Utah (GAO/NSIAD-91-215, August 22, 1991).

Directorate at Corpus Christi Army depot.⁶ Helicopter tailrotor blades, with a unit cost of \$1,199, were received from a contractor in bulk shipment. The parts, however, were not recorded by serial number, which could allow unscrupulous depot employees to steal the rotor blades. Furthermore, receiving dock employees were accepting shipments of tailrotor blades without having the contractor's identification number on the shipping document. Without this number, it was virtually impossible to determine if a shipment was received at the depot because the rotor blades were not being accounted for by serial number.

Conclusions

Because Army units and depots were not in all cases following packaging, storage, and security requirements for repairables sent to depots for overhaul and maintenance, maintenance costs were increased by millions of dollars. Many repairables stored at depots had deteriorated to the point where scrapage rates were as high as 70 percent and actual overhaul and maintenance costs exceeded estimated costs by 42 to 89 percent because of remedial repair work needed to undo physical deterioration that occurred during shipment and storage. Further, inadequate storage practices and records precluded determining the extent of losses due to thefts. Only Corpus Christi Army Depot reported the storage of repairables as a material weakness in its FMFIA report.

Recommendations

We recommend that the Secretary of the Army direct the Commanders of major commands that ship repairables to maintenance depots to enforce DOD and Army regulations concerning packaging of repairables. We also recommend that the Director, Defense Logistics Agency, enforce DOD regulations concerning storage and security of Army repairables at depots to

- protect repairables from exposure to the elements,
- safeguard repairables stored at the depots from theft, and
- properly store hazardous materials.

We further recommend that the Director, Defense Logistics Agency, include compliance with DOD regulations regarding physical security over and storage of repairables and hazardous materials as areas of emphasis in maintenance depot annual FMFIA reviews and report actions needed to correct identified weaknesses.

⁶Criminal Investigation Division Report, Crime Prevention Survey, 0510-91-CID044-9A3.

Agency Comments and Our Evaluation

Department of Defense officials concurred with our findings and recommendations and stated that corrective actions have been initiated. Specifically, the officials stated the following:

- The Army will issue a compliance directive requiring all units to follow packaging instructions in DOD and Army regulations when shipping repairables.
- DLA will review all decisions on storage of items based on the characteristics of the items and not just condition codes. DLA's policy is to store expensive, fragile, and highly corrodible items indoors. If this is not possible, the items will be protected against the elements.
- DLA Regional Security Officers are developing corrective actions to ensure that installations provide acceptable security and police support to protect mission stock, including a personnel challenge policy to ensure that all personnel working in an area are authorized to be there.
- DLA is currently reviewing the storage of hazardous materials at the facilities it took over from the Army. Corrective actions based this review will include ensuring proper storage by relocating stock to compliant storage facilities or constructing new or modified facilities for hazardous materials storage.
- In an October 26, 1992, written directive, DLA required its personnel to include physical security and storage of repairables and hazardous materials as areas of emphasis in its FMFIA reviews.

If these actions are fully carried out as described, they will correct the weaknesses discussed in the report.

Standard Depot System Did Not Adequately Account for or Control Repairables

The Standard Depot System (SDS) did not produce the reliable information that AMC and its constituent commodity commands needed to maintain Army-wide accountability and control over repairables. Our tests at four depots disclosed that (1) SDS Mission Accounts did not accurately report the number of repairables on hand, (2) required physical inventories of repairables were not performed, and (3) the results of completed physical inventories were not reconciled with SDS Mission Accounts or, at one depot, with Army-wide inventories of repairables maintained by AMC's commodity commands. Not completing physical inventories and performing reconciliations negates two basic controls to detect inaccurate reporting and allows continued erroneous balances both at the depot level and for the commodity commands' Army-wide records. Thus, Army officials were making procurement and repair decisions using unreliable data. Inadequate controls over depot maintenance materiel have been an ongoing problem in the Army. Appendix III lists some recent reports addressing deficiencies in the management and control of materiel.

SDS Mission Accounts Control Repairables at Army Depots

The Standard Depot System is supposed to account for several kinds of repairable property, including major end items—like tanks, trucks, helicopters, and artillery pieces—and secondary items—like engines, transmissions, axle assemblies, and helicopter blades—that have been sent to the depots for maintenance. While the depots are the custodians of these items, the property belongs to the cognizant AMC commodity commands. For example, the Aviation Systems Command owns the helicopters and related secondary items sent to Corpus Christi Army depot. The SDS Mission Account is intended to control and account for these items, which are called repairables. The SDS Property Account is intended to control and account for equipment owned and used by the depots to carry out their maintenance mission.

The SDS Mission Accounts are the source of entries into the Commodity Command Standard System (CCSS) and the Continuing Balance System Expanded (CBS-X), the standard logistics systems that maintain Army-wide accountability and control over weapons and equipment. Depots are supposed to update the SDS Mission Account when (1) repairables are received from Army installations or units and placed in storage awaiting entry into the maintenance process, (2) repairables are pulled from storage and entered into the maintenance process, (3) refurbished repairables move from the maintenance process into storage awaiting reissuance to Army installations and units, and (4) refurbished repairables, on instructions from the cognizant commodity command, are shipped to

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Army installations and/or units. Daily transactions, such as receipts and issues of repairables recorded in the SDS Mission Account, are to be automatically reported to the cognizant commodity command via the Automated Digital Network for entry into the commodity command's CCSS. Quarterly reconciliations between the SDS Mission Account balance and the CCSS balance are to be performed.

The SDS Mission Account and CCSS are organized by National Stock Number (NSN) and within each NSN by condition code. Table 3.1 presents the condition codes.

Table 3.1: AMC Property Condition Codes

Condition Code	Definition
A	Serviceable/Issuable without qualification
B	Serviceable/Qualified Issue
C	Serviceable (Priority Issue)
F	Unserviceable/Repairable
G	Unserviceable (Incomplete)
H	Condemnable/Disposal
L	Litigation
M	Entered into maintenance
P	Unserviceable (Reclamation)

When a depot receives repairables, the supply section is supposed to enter the items in the SDS Mission Account under condition code F. When the commodity command instructs the cognizant depot to bring a repairable into the maintenance process the depot should enter code M for the item in the SDS Mission Account. Upon completion of the maintenance work, the depot should code the item either A or B. If an item is determined unrepairable, it should be coded H.

The SDS Mission Account reports, among other things, the quantity of each NSN held and the indoor or outdoor storage locations. The Mission Account, however, does not record and report how many items are at each storage location, their serial numbers, or when they were received at the depot. Consequently, to reconcile repairables recorded and reported by the Mission Account with repairables actually on hand, all items of an NSN at all storage locations have to be physically inventoried.

Depots Not Performing Physical Inventories Required to Validate Mission Account Information

The four depots we reviewed completed only about 30 percent of the required inventories for fiscal year 1991. Furthermore, the most recent wall-to-wall inventory at any of the four depots was taken during 1984 and one depot had never conducted a wall-to-wall inventory. Because complete physical inventories were not performed, the depots had no assurance that their SDS Mission Accounts and the transaction information sent to the cognizant commodity commands reflected the actual number of repairables on hand. Managerial decisions, including procurement and fielding decisions, could be made based on unreliable inventory data.

Army and AMC regulations require depots to (1) label repairables to facilitate physical inventories, (2) stack and store repairables so that inventories can be done without moving or restacking items, and (3) conduct routine inventories of repairables. The results of the inventories are to be used to

- reconcile items on hand with the SDS Mission Account,
- validate the reliability of transaction information sent to the cognizant commodity command for entry into CCSS, and
- develop appropriate adjustments to the SDS Mission Account and CCSS to reflect the items actually on hand.

AMC regulations require two kinds of physical inventories. First, sensitive items like small arms or other items the Army has selected for special control are to be inventoried on prescribed time frames, usually once a year. These inventories are scheduled automatically. Second, when discrepancies in inventory records are noted by auditors and/or when items are not available for issue because records overstate the quantities on hand, special physical inventories are to be scheduled. In most cases, commodity commands direct that these inventories be performed.

Once the inventory is performed, its results should be entered into the SDS Mission Account. SDS should sort the inventory counts by stock number/condition code and compare them to the balances recorded in the appropriate Mission Account. Depot personnel should validate the counts, determine discrepancies, and determine what, if any, adjustments should be made. After inventory reconciliations to account for the discrepancies are completed, appropriate adjustments should be posted to the SDS Mission Account. The system should subsequently provide custodial record balances and transaction history data to Army and AMC commodity command owners of item inventories by NSN.

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Table 3.2 summarizes the fiscal year 1991 required and completed inventories for the four depots reviewed. Completion rates ranged from 12.9 percent at Corpus Christi Army Depot to 62.3 percent at Anniston Army Depot.

**Table 3.2: Physical Inventories
 Required and Accomplished During
 Fiscal Year 1991**

Depot	Number required	Number completed	Percentage completed	Year of last wall-to-wall
Anniston	21,885	13,642	62.3	1984
Corpus Christi	20,982	2,715	12.9	^a
Letterkenny	33,434	6,924	20.7	1979
Tooele	21,144	9,140	43.2	1980
Total	97,445	32,421	33.3	

^aCorpus Christi Army Depot has never conducted a wall-to-wall inventory.

Depot officials told us that they did not perform all the fiscal year 1991 required inventories because of funding constraints, personnel shortages resulting from the need to support Operations Desert Shield and Desert Storm, and reductions in force. We did not determine the inventories completed in prior years because they would not have an impact on the reliability of current inventory balances.

**Physical Counts
 Identified Unreliable
 SDS Mission Account
 Balances**

SDS Mission Account inventory balances did not accurately reflect the actual number of repairables awaiting entry into the maintenance process or in maintenance at Army depots. Since the four depots cumulatively completed only one-third of required inventories, we conducted test inventories and performed SDS Mission Account reconciliations for 38 NSNS at the depots to assess the reliability of SDS Mission Account data. Because of poor stacking procedures, we could not count all the items selected for review or complete our test inventories. For those items that we could count, our inventory counts for most selected NSNS were significantly different from the number of items that were supposed to be on hand according to the SDS Mission Accounts.

The discrepancies resulted from weak internal controls over processing receipts and issues, which resulted in items being recorded under the wrong condition code or in the wrong quantity and receipt and issue/scrap transactions not being recorded. Finally, for the one depot where we compared depot and AMC data, we could not reconcile information in the SDS Mission Account with information recorded in the cognizant

commodity command's inventory records. As a result, Army officials did not have assurance that their data for decision-making purposes were reliable.

SDS Balances Significantly Misstated Inventory on Hand at Corpus Christi Army Depot

We found major differences between the items we counted and information in the SDS Mission Account for three different classes of helicopter engines at Corpus Christi Army Depot. Records supporting the Mission Account for these engines were in such disarray that it took depot personnel over 4 months to correct recordkeeping errors and resolve the differences. Depot Supply Directorate officials said that they had also identified a myriad of recordkeeping errors—for example, duplicate hand receipts recorded in the SDS Mission Account and improper recording of transfers between condition codes—that accounted for the differences between the physical counts and SDS Mission Account balances. Because of the volume of records involved in this reconciliation, we were unable to validate the depot's reconciliation of the SDS Mission Account and the physical inventories.

Because a large number of T63-A700 engines were stored at Corpus Christi Army Depot, we selected this engine for our physical inventory. We counted 609 of these engines (condition code F) compared to 535 engines that should have been on hand according to Corpus Christi's SDS inventory records. Because the difference of 74 engines could not be easily resolved, Depot Supply Directorate officials suggested taking an inventory of the T63-A720, a sister engine, believing that the two types of engines might have been misclassified. The presumption was that if we found fewer engines during the physical count of the second engine, this would help explain the apparent overage in the T63-A700 engine. This second inventory showed that the depot had 22 fewer engines than the depot's SDS Mission Account balance for condition code F.

Because of these differences, Depot Supply Directorate officials conducted a complete inventory of these two helicopter engines and a third engine, the T700. The physical inventories of these three engines disclosed cumulatively fewer engines on hand than indicated in the SDS Mission Account balances.

Because of the differences in the inventory counts, Depot Supply Directorate officials undertook a second physical inventory of the three helicopter engines. This inventory disclosed further differences. It took depot supply officials almost 4 months to research and resolve the

discrepancies identified for the T63-A720 and the T700 engines. A difference of 150 T63-A700 engines remained unresolved until February 1992. The 150 engines were subsequently found on a separate manual record maintained at Corpus Christi Depot, having been deleted from the SDS Mission Account.¹

A recent Army CID report² disclosed similar findings regarding poor asset accountability at Corpus Christi Army Depot. Aviation Systems Command requested CID to investigate a 1989 Report of Survey which arbitrarily dropped 29 helicopter engines—valued at \$10.2 million—from accountable records. The CID report disclosed serious weaknesses in SDS Mission Account records and inventory procedures that prevented adequate reconciliations between assets on hand and recorded inventory balances.

Poor recordkeeping hampered the CID investigation of the 29 missing helicopter engines. The investigator concluded it was impossible to determine whether a loss had occurred or to identify where a loss might have occurred because the \$350,000 helicopter engines were not being accounted for by serial number. Additionally, weak internal controls allowed numerous record processing errors to occur: wrong NSNs were posted to the records, condition codes were changed without supporting documentation, gains and losses were recorded without any substantiated reconciliation of the documents and the inventory balances, and transfer documents were not posted to the records in a timely manner. The CID investigation also found that depots were not conducting required inventories.

Improper Storage of Repairables Inhibited Inventory Count at Tooele Army Depot

We selected the 1.5 kilowatt gas-powered generator for test counts at Tooele Army Depot because it has a commercial market and is, therefore, vulnerable to theft and because it was one of the stolen items purchased by FBI agents from depot employees in Operation Punchout, discussed in chapter 2.

Because of poor stacking, we could not accurately count the majority of the generators in condition code F (unserviceable but repairable), assets typically inducted into the maintenance process. In conducting our physical counts, we found the condition code F generators piled on top of

¹In this case, the Army had ordered that these 150 helicopters be disassembled so that salvageable components could be reused on the remaining repairable engines. Because the engines had not yet been labeled for disassembly or moved from the general storage area, it was not readily apparent that they were no longer considered repairable or thus countable under condition code F.

²Criminal Investigation Division, Crime Prevention Survey, 0100-92-CID044-9A2.

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each other in a totally disorganized manner, as shown in figure 3.1. No space was provided between many of the pallets on which the generators were stored, many of the pallets were unstable, and many generators were barely visible, making it difficult to distinguish the different types. Depot officials acknowledged that prior counts of these generators had resulted in mixed stock/classification problems because staff could not get close enough to the items to make an accurate count.

Figure 3.1: Unprotected Outdoor Storage and Improper Stacking of 1.5 Kw Generator at Tooele Army Depot



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Frames on these 1.5 KW generators were damaged due to improper stacking at Tooele Army Depot.

Because our physical counts of the 1.5 kilowatt generators disclosed 11 fewer generators than the 162 recorded in the SDS Mission Account, Tooele Depot Supply Directorate officials conducted a second inventory to research and resolve the discrepancy. As a result of their inventory and research, they made five adjustments to the inventory records to resolve the 11 unlocated generators.

An AMC Inventory Control Effectiveness program report also disclosed internal control weaknesses in Tooele Army Depot's accountability and control over its inventory.³ This report identified (1) inaccuracies in both the reported quantity and the recorded storage locations, (2) materiel received without shipping documents, (3) no independent verification of the accuracy and processing of receiving documents, (4) adjustments to inventory records made without physical counts, (5) \$6 million of Mission

³AMC Inventory Control Effectiveness Review, Tooele Army Depot, Tooele, Utah, April 23-26, 1990.

Account assets not included on accountable records and the loss of these assets, and (6) inconclusive research into the causes of these problems.

Inventory Levels Significantly Higher Than SDS Balances at Anniston Army Depot

Our physical counts of selected items at Anniston Army Depot showed major variances between the items actually on hand and the balances recorded in the depot's SDS Mission Account. In contrast to the results of our physical counts at Corpus Christi and Tooele Army Depots, we found 1,402 more items on hand at Anniston, valued at more than \$21 million new, than were recorded in the SDS Mission Account. We also found major differences totalling almost \$19 million between the SDS Mission Account balances and the cognizant commodity command accountable records. Finally, we observed poor storage practices at Anniston similar to those at Tooele Army Depot.

Major Differences Between Our Physical Counts and SDS Mission Account Balances

Anniston Army Depot's SDS Mission Account balances did not reflect the number of items actually on hand. We test counted 20 randomly selected NSNS and 10 judgmentally selected NSNS (items in condition code F that had not been recently inventoried). Out of the 30 selected NSNS, our test counts for 15 NSNS differed from balances in the SDS Mission Account. For 10 of the 15 NSNS, more items were actually on-hand than were recorded in the Mission Account. Some of the largest overages are presented in table 3.3.

Table 3.3: SDS Balances and Results of Inventory Count for Selected Repairables at Anniston Army Depot as of August 28, 1991

Item	SDS balance	Inventory count	Difference		
			Number	Unit cost	Dollar value (millions)
Engine	63	91	+28	\$400,909	\$11.2
Engine	76	108	+32	\$130,201	\$ 4.2
Engine	0	21	+21	\$153,635	\$ 3.2
Transmission	62	72	+10	\$ 84,088	\$.8

Overall, the 10 NSNS for which the physical counts of items actually on hand exceeded SDS Mission Account balances had a value of about \$21 million, while the 5 NSNS for which items on hand were under SDS Mission Account balances had a value of almost \$2.2 million. We provided details on our test count results to depot personnel, who researched and identified the causes for the differences. They provided a number of explanations, including errors in recording transactions to move repairables between condition codes—such as those awaiting repair (F)

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and those in maintenance (M)—incorrect condition codes, inaccurate posting of receipts, and incorrect NSNs. The depot personnel resolved all of these discrepancies and adjusted the custodial records to correctly reflect the assets on hand.

**Major Differences Between
SDS Mission Account and CCSS
Balances**

As of September 30, 1991, Anniston Army Depot's SDS Mission Account balances of repairables were not consistent with the cognizant commodity command CCSS records. Using the 30 NSNs previously test counted, we found differences in the quantities recorded in the SDS Mission Account and the CCSS records for 14 NSNs totalling almost \$19 million. Table 3.4 presents some of the largest differences.

**Table 3.4: Selected Anniston Army
Depot SDS Mission Account Balances
and CCSS Balances as of
September 30, 1991**

Item	Balance		Difference	
	CCSS	SDS	Number over (under)	Dollar value (millions)
Engine	18	38	(20)	(\$3.1)
Vehicle	1	0	1	\$3.9
Transmission Module	124	92	32	\$2.4
Engine	127	142	(15)	(\$2.0)
Nightviewer	890	28	862	\$1.6
Trainer set	0	1	(1)	(\$1.7)
Engine	64	56	8	\$3.2

In nine cases, the depot's inventory records had more repairables, valued at almost \$12 million, than the commodity command's inventory records; in five cases, the depot's records had fewer assets, valued at almost \$7 million, than the commodity command's inventory records. The inconsistencies were widespread and not related to any one commodity command.

Poor Storage Methods

Like Tooele Army Depot, the Anniston Army Depot employed poor storage practices at various storage facilities. We found items stacked on pallets with little or no space to walk between the pallets. Other items were jammed into storage facilities, sometimes from floor to ceiling. Items were stacked one on top of the other, with little or no space in the aisles.

A depot official admitted that some of the storage facilities, especially the storage tanks, were not set up to store assets so that timely and cost-effective inventory counts could be performed. To physically count the assets, the official stated, it would be necessary to move the assets out

of the storage facilities and return them once the count was completed. Furthermore, because poor storage methods hindered physical inventories, the depot official explained that pallet count cards, which indicate how many of a particular item are on a pallet or at a particular storage location, were used in lieu of conducting physical inventories.

With regard to tracked vehicles, the depot official explained that because the outdoor storage area was unpaved, tanks could not be parked in a straight line. Additionally, different models of tanks were parked so closely together that an accurate physical count would be difficult to conduct.

Conclusions

Army depots did not adequately account for or control Army repairables, thus inhibiting effective management decisions regarding millions of dollars of inventory items. Improper storage of items at the depots prevented item managers from efficiently meeting inventory requirements. Furthermore, inaccurate inventory record balances of weapon systems and other equipment in the custody of Army depots can skew budgetary and procurement decisions.

The SDS Mission Account did not support efficient and effective periodic inventories—an essential aspect of management's efforts to deter and detect fraud—of repairables stored at Army depots. Inventory records were incomplete and did not contain the information necessary to conduct periodic inventories and verify the accuracy of depot asset records and storage locations. Thus, inventory controls were not adequate to deter and detect thefts of repairables.

While the SDS Mission Account recorded and reported the total number of each item on hand by NSN, it did not record and report the number of each NSN at each indoor and outdoor storage location. Consequently, to reconcile the inventory records with equipment on hand, all items in all storage locations for a particular NSN had to be counted. Thus, statistical sampling by storage location—an inventory efficiency technique—could not be employed.

Recommendations

To help maintain accurate and reliable inventory records, we recommend that the Director, Defense Logistics Agency,

- upgrade SDS to capture all pertinent information, including the number of items by model at each depot storage location;
- store repairables in accordance with Army and DOD regulations to facilitate timely and accurate inventory counts;
- perform required physical inventories of repairables stored at the depot using appropriate statistical sampling techniques; and
- reconcile the results of physical inventories with SDS Mission Account data and related information recorded in the appropriate Commodity Command Standard System.

Agency Comments and Our Evaluation

Department of Defense officials concurred with our findings and recommendations and stated that corrective actions are underway. Specifically, the officials stated the following:

- Army's Standard Depot System is being replaced by DLA's Distribution Standard System (DSS) for all Defense Distribution Depots. When DSS is fully implemented in calendar year 1995, it will record all pertinent information, including the model number by storage location.
- In an October 26, 1992, letter, DLA instructed its personnel to comply with existing storage policies and procedures and stated that it will follow up with visits to depots to ensure compliance.
- DLA is instituting its inventory program at the four depots we reviewed. While this program does not require wall-to-wall inventories, it does require inventories for (1) identified discrepancies between records and items on hand, (2) controlled items, and (3) statistical samples.
- DLA is implementing its inventory integrity program, which requires (1) annual surveys of all storage locations for repairables to ensure the accuracy of depot custodial records and (2) reconciliation audits between the depot custodial records and the commodity commands' accountable records.

These actions, if fully implemented as described, will correct the weaknesses discussed in this report.

Depot Maintenance Cost Accounting Subsystem as Operated Misstated Costs

Our review of judgmentally selected maintenance work orders at four depots disclosed that ineffective maintenance shop processes and weak accounting controls did not ensure that only costs associated with specific job orders were charged to those jobs. In addition, we found that in some cases costs, such as training and routine upkeep of maintenance facilities and equipment, were being charged to depot job orders as direct labor even though the costs were paid out of other appropriated funds or included in overhead rates and billed to customers. It is important to properly allocate costs among repair and nonrepair activities because maintenance charges are used to determine future standard billing rates. Because the costs were not properly allocated to jobs and may be somewhat inflated, there was no assurance that depots were developing reasonable standard rates for labor, material, and overhead. Furthermore, data were not reliable to support the Army's cost reduction initiatives, especially the pilot project to compete maintenance jobs among the depots and private sector contractors.

SDS Did Not Always Accurately Accumulate Maintenance Costs

We found that depots (1) ordered excessive parts and charged them to the wrong jobs, (2) incurred extensive direct labor overruns, and (3) inappropriately included certain nonmission costs as costs of repair jobs. The SDS cost accounting subsystem is operated to bill most customers for estimated maintenance costs developed before work is started, not the actual costs incurred on maintenance work. As discussed below, it bills at predetermined rates using standardized material costs, direct labor hours and rates, and indirect labor hours and rates. However, to calculate future billing rates, SDS attempts to collect actual costs per job order. In summary, the SDS cost accounting subsystem is designed to

- collect cost and production data,
- accumulate unit maintenance costs,
- provide the basis of billing for work performed, and
- provide the data necessary to prepare budgets.

Each customer maintenance work order is assigned a job order number. After a job is accepted and before work starts, the depot physically inspects items to be repaired and on that basis estimates (1) the materials needed to complete the maintenance work based on lists of materials used in the past to overhaul each type of weapon or equipment and (2) the number of direct labor hours based on schedules listing time and standards to carry out that specific work. Overhead is estimated based on the calculated direct labor hours. The materials for the customer order are

priced based on standard costs established annually by DOD for all materials (spare parts) purchased and issued through the Army Stock Fund. The direct labor hours and overhead are charged using standard rates annually established by Army and DOD that reflect estimated costs for the current year, DOD policy decisions, and gains or losses from prior years.

As the maintenance work is done, the SDS cost accounting subsystem is supposed to accumulate by job order number (1) the actual materials issued to the maintenance shop floor and their standard costs, (2) the actual direct labor hours charged to each job on worker timecards and their standard labor rates, and (3) standard overhead charges for the job. At the completion of each job, most customers are to be billed for the estimated maintenance costs established for each job before work was started and not the actual costs accumulated by the SDS cost accounting subsystem while the work is being done. Under this approach, customers do not pay and are not provided with the actual maintenance costs the depot incurs.

Any differences between job estimated and actual costs—job order profit or loss—are accumulated in the depot's Net Operating Results (NOR) account. The aggregate, annual depot profit or loss becomes one factor used in determining the next year's standard direct labor and overhead billing rates. Consequently, customer billings do not reflect the actual costs of carrying out maintenance work, and depot standard billing rates inflate the costs of doing maintenance work because they may include prior year losses.

Lack of Control Over Material

Our review of selected jobs at Anniston and Letterkenny Army depots disclosed that controls over materials—spare parts, major components, and maintenance supplies— were not adequate to avoid unnecessary purchases or to ensure that material issued was actually used and/or charged to the job for which it was ordered. Control weaknesses over the material requisitioning process resulted in excess parts being requisitioned for maintenance job orders, unneeded parts not being returned to the warehouse at the completion of maintenance job orders but simply being stockpiled by the maintenance shops, and parts billed to one job being used on another job.

During our internal control tests at Anniston Army Depot, we observed reclaimed parts (usable parts removed from scrapped weapons or

equipment) for the M1790 engine in the maintenance storage areas. Reclaimed parts are not routinely recorded in depot inventory systems with the result that the depot does not have reliable data on the quantity and status of available reclaimed parts that can be used for maintenance jobs. One depot official estimated that certain reclaimed tank engine parts on hand could last 20 years. Depot officials told us that because these parts are not in the inventory system, new parts are ordered in some cases in lieu of using the reclaimed parts on maintenance jobs, thus unnecessarily increasing costs.

We also identified weaknesses in material requisitioning, accountability, and control at Anniston Army Depot. The Army has lists which identify the type and quantity of materials used in the past to overhaul each weapon and equipment item in use. However, one Anniston official stated that some parts managers stockpile materials to avoid future job stoppages by requisitioning more materials than are needed on maintenance jobs and storing the unused portion on the shop floor.

Mechanics at Anniston Army Depot have free access to all materials stored on the shop floor and they can use those stored materials on any job, not just the job to which the materials were charged. They are not required to record the bin stock item or quantity of the item retrieved or to identify the job on which the material was used. These factors undermine the reliability of material costs charged to individual jobs and can distort the historical data on material costs for the various types of maintenance work performed.

Our review of the fiscal year 1991 Hawk missile launcher overhaul program at Letterkenny Army Depot disclosed a \$70,000 cost overrun due, in large part, to questionable material charges. A memo in the job order file cited various reasons for the material overruns, including parts price increases, parts fabrication costs, and local procurement costs. However, an unidentified number of parts charged to the Hawk job were sent to Saudi Arabia in support of Desert Storm and Desert Shield. According to the parts manager, the material expeditors—the depot employees responsible for ordering repair parts used in the maintenance process—did not prepare the proper paperwork to transfer cost and material. The parts manager stated that all of the jobs in the maintenance shop during Desert Storm and Desert Shield could have been subject to such erroneous charges.

We found similar problems with material costs at Letterkenny Army Depot. Material expeditors were not using the Parts Analysis Report—which contains the parts manager's projected total requirements for a particular maintenance program—when ordering parts and were requisitioning more materials than needed. Further, according to a depot official, the expeditors often ordered and charged parts for multiple jobs against one maintenance program in lieu of preparing separate requisitions for each job.

Other audit reports have discussed weaknesses in requisitioning, accountability, and control for materials used on maintenance jobs similar to the weaknesses we identified. For example, a Tooele Army Depot internal audit of the maintenance shop floor system disclosed internal control weaknesses over material reporting.¹ The report pointed out that excess repair parts were not promptly turned in, required signatures were not obtained on issue documents, and maintenance programs were closed prior to properly analyzing repair material for redistribution to other maintenance jobs. As a result, material was not properly controlled and an inordinate amount of unreported excess material accumulated.

A follow-up audit also disclosed serious problems with excess material.² The audit disclosed that about 15 percent of the fiscal year 1991 material purchases were declared excess during the following 12-month period.

**Lack of Control Over
Direct Labor and Overhead
Costs**

SDS control weaknesses at Letterkenny Army Depot resulted in charging direct labor hours for work that was not related to those specific maintenance jobs. Since overhead is charged as a percentage of direct labor, this would have the effect of inflating both direct labor and depot overhead costs applied to maintenance jobs.

On the fiscal year 1990 2-1/2 ton truck overhaul program at Letterkenny, direct labor hour overruns caused almost \$500,000 in additional costs over the depot's original estimate when the job entered the maintenance process. Direct labor hours averaged 750 per unit—55 more than the original estimate. Although some of this direct labor overrun resulted from the unexpectedly poor physical condition of the equipment being overhauled, questionable direct labor charges included 457 hours of Army

¹Tooele Army Depot Complex Internal Review and Audit Compliance Office Report, Audit of the Maintenance Shop Floor System (TE-IR-15-90, June 28, 1990).

²Tooele Army Depot Complex Internal Review and Audit Compliance Office Report, Audit Follow-Up of the Maintenance Shop Floor System (TE-FR-19-91, September 9, 1991).

Reserves training, 193 hours of General Supply Directorate clerical support, and 52 hours spent painting vehicles in preparation for a depot visit by AMC and DESCOM officials. According to depot officials, these nonmaintenance costs were paid by other appropriated funds or were included in overhead rates billed to customers and therefore should not have been charged as direct labor costs to perform maintenance work called for in depot customer maintenance orders.

Our review of the fiscal year 1991 M109 A3 Self-Propelled Howitzer overhaul program at Letterkenny disclosed similar problems with labor and overhead costs. The depot originally estimated that the work could be completed in 145,276 hours. However, 163,734 hours were actually used, resulting in an overrun of 18,458 direct labor hours (13 percent) or 385 direct labor hours per howitzer. As a result, direct labor costs exceeded estimates by \$1.2 million; these costs were charged to the depot's Net Operating Results account. The project controller explained that these charges included 257 hours of U.S. Army Reserve on-the-job training charged as direct labor hours. Further, the total direct labor hour overrun added \$88,903 to the overhead costs estimated for this job.

SDS control weaknesses similar to the problems we found have been discussed in prior audit reports. For example, a DESCOM Internal Review and Audit Compliance Office multilocation audit of maintenance activities disclosed inaccurate labor reporting and noncompliance with DESCOM labor reporting policy.³ At the three depots included in the audit, about 26 percent of the employees audited reported maintenance labor time charges inaccurately. In most cases, they charged direct labor time to a maintenance program other than the one on which they were actually working. In some instances, direct time was charged when employees were working on an overhead function.

The DESCOM report cited further noncompliance with DESCOM policy. For example, employees are required to enter their job assignment changes in the SDS cost accounting subsystem. The audit showed, however, that supervisors entered employees' job changes for 25 to 80 percent of the employees sampled. When the supervisors entered the job changes, the error rate was 33 percent; it was 19 percent when employees entered their own changes. Further, although personnel are required to perform random reviews to assess the accuracy of labor reporting, the reviews were often incomplete or not done.

³U.S. Army Depot System Command Audit Report, Maintenance Labor Reporting (HQ-IR-14-89, September 29, 1989).

SDS Did Not Provide Accurate Maintenance Costs for Competitive Bid Initiative

The Deputy Secretary of Defense's June 30, 1990, memorandum entitled, "Strengthening Depot Maintenance Activities," directed the Service Secretaries to develop and implement individual near-term plans, and a joint long-range plan, to identify increased efficiencies and cost reductions for DOD depot maintenance operations for fiscal years 1991 through 1995. In response to this directive, the Secretary of the Army established the fiscal year 1991 pilot program to compete one maintenance program for each of the six maintenance depots in DESCOM with private sector competitors. The purpose of this pilot program was to test the feasibility of routinely competing maintenance programs among DESCOM's depots and private sector suppliers of maintenance services. The pilot program entailed each maintenance depot preparing a bid in response to a solicitation for bids for a maintenance job that was also sent to private sector organizations, with the lowest bidder receiving the work.

The SDS cost accounting subsystem, because of its design, did not produce the information needed by depots to prepare bids under the depot maintenance competition cost pilot program. Because of previously discussed control weaknesses, the subsystem included many nonmaintenance mission costs. In fact, depots did not use standard depot billing rates to prepare bids for the four jobs (one at each depot reviewed) that were part of the fiscal year 1991 pilot test for competing maintenance jobs with the private sector.

Pilot Program Competition Status

To comply with a directive from the Assistant Secretary of Defense to conduct a fiscal year 1991 pilot program to compete depot maintenance work with private sector suppliers, the Army selected a specific maintenance job at each of DESCOM's six maintenance depots for competition with private sector suppliers. DESCOM established special task forces at its headquarters and at the six maintenance depots to conduct the pilot program and prepare bids for the maintenance jobs selected for competition with the private sector suppliers. In developing bids, the depot task forces did not use the standard billing rates used to price in-house maintenance programs or the amounts billed customers under the in-house maintenance programs for similar maintenance jobs. Instead, the depot task forces used selected information from the SDS files and their job experience to develop bids under the pilot competition program. These bids were 25 to 67 percent lower than the prices that would have been charged customers for the work under the in-house maintenance program.

As previously discussed, under the in-house maintenance program, most depot customers are billed the original job cost estimate developed by the depot before actual maintenance work began. Any cost overruns or underruns are accumulated in the depot's Net Operating Results account and are used in setting future standard billing rates. Maintenance jobs can have wide cost overruns and underruns. For example, two helicopter engine overhaul jobs at Corpus Christi Army Depot experienced significantly different financial results. On one job, the Corpus Christi Army Depot estimated that it would cost \$72,412 to overhaul each T-63-A700 gas turbine engine. Actual job costs on 19 engines overhauled as of September 30, 1991, totalled \$58,510 per unit, with the \$13,902 per unit cost underrun flowing to the depot's NOR. On another job, Corpus Christi Army Depot initially estimated that it would cost \$60,496 per unit to overhaul 130 T-63-A720 gas turbine engines. Actual job costs on 87 engines overhauled as of September 30, 1991, totalled \$64,852 per unit, with the \$4,356 per unit cost overrun flowing to the depot's NOR.

As also previously discussed, in-house maintenance job cost overruns and underruns can result from a wide variety of reasons, including inaccurate assessments of the work to be done, excess materials charged to the job, unanticipated physical deterioration of the equipment, and/or nonmaintenance mission costs charged to maintenance jobs. In addition, customer billing rates reflect in financial terms DOD policy decisions as well as the recorded prior costs of maintenance operations. Consequently, as recognized by depot competition program task forces, both the estimated and actual job costs reported by the depot SDS are not reliable starting points or indicators for developing reliable cost bids for maintenance work.

For example, in August 1991, Corpus Christi Army Depot responded to a solicitation of bid to overhaul 175 T63-A700 gas turbine engines. This solicitation was also sent to private sector maintenance contractors. Corpus Christi Army Depot bid a per unit overhaul cost of \$54,286. This is less than the \$58,510 per unit cost the depot charged customers to overhaul the same helicopter engines under its in-house maintenance program in fiscal year 1990. Taken at face value, Corpus Christi Army Depot's bid would result in a total loss on the job of more than \$739,000. According to depot personnel, they would not incur this loss because the actual 1990 in-house overhaul costs covered more extensive work than that called for under the solicitation.

Because the depot bids under the pilot competition program could not be directly traced to the standard customer billing rates for in-house maintenance jobs or the amounts actually billed customers for similar work under the in-house maintenance program, the Army Audit Agency reviewed the depot task forces' methodologies for developing bids under the competitive program and concluded that their methodologies appeared to be reasonable. At the end of our review, the Army Audit Agency and DESCOM were reviewing the individual bids to determine why there were such large differences between the bids and the amounts that would have been charged depot customers for similar maintenance work under the in-house maintenance program using standard billing rates.

Conclusions

The financial integrity of the Army Industrial Fund is jeopardized by the design and operation of the SDS cost accounting subsystem. At the time of our review, its customer billings were neither accurate nor defensible because the subsystem did not accumulate, classify, or summarize reliable cost accounting information. Furthermore, implementation of DOD and Army cost reduction initiatives was hindered by a lack of good cost information.

Recommendation

We recommend that the Secretary of the Army direct the Commander, Army Materiel Command, to ensure the development of reliable cost accounting information by upgrading the SDS cost accounting subsystem to accumulate and report the actual cost of maintenance mission work by individual job.

Agency Comments and Our Evaluation

Department of Defense officials generally concurred with the findings and recommendations in this chapter and commented that corrective actions were already underway. Specifically, the officials stated the following:

- The Army will issue a compliance directive to ensure a more disciplined approach to data input that will provide cost reports by individual job. This directive will remind depot staff to properly report materials used in the maintenance process and to turn in unused materials.
- The Army completed and put into operation a significant redesign of the Standard Depot System on October 1, 1992, after our review work was completed. The redesigned system was able to support the competitive bid initiative.

Chapter 4
Depot Maintenance Cost Accounting
Subsystem as Operated Misstated Costs

The effectiveness of these efforts to correct the weaknesses discussed in this report will depend upon continual management and audit follow-up to ensure ongoing compliance.

U.S. Army Depot System Command

Depots

Anniston Army Depot
Corpus Christi Army Depot
Letterkenny Army Depot
Lexington/Blue Grass Army Depot
Red River Army Depot¹
Sacramento Army Depot
Seneca Army Depot
Sierra Army Depot
Tobyhanna Army Depot
Tooele Army Depot

Depot Activities

Fort Wingate Depot Activity
Pueblo Depot Activity
Navajo Depot Activity
Savannah Depot Activity
Umatilla Depot Activity

¹Supply function transferred to the Defense Logistics Agency as of October 1, 1991.

Weapons Systems and Equipment Responsibilities of AMC Commodity Commands

Commodity Command	Commodities
Armament, Munitions, and Chemical Command Rock Island, Illinois	Conventional and nuclear weapons, ammunition, fire control systems, and chemical warfare and chemical biological defensive materiel.
Aviation Systems Command St. Louis, Missouri	Fixed and rotary wing aircraft, vertical/short takeoff and ground support aircraft, and survivability and aviation life support equipment.
Communications Electronics Command Ft. Monmouth, New Jersey	Communications, avionics, radar, automatic data processing, meteorology, night vision, combat surveillance, and navigation equipment.
Missile Command Redstone Arsenal, Alabama	Missile systems.
Tank-Automotive Command Warren, Michigan	Wheeled and tracked vehicles, construction equipment, and material handling equipment.
Troop Support Command St. Louis, Missouri	Marine, amphibious, and rail equipment; engine generators; camouflage and deception equipment; textiles; clothing; body armor; and footwear.

Prior Audit Reports Regarding Depot Management and Control of Materiel

Supply Operations, Corpus Christi Army Depot, Corpus Christi, Texas, Army Audit Agency, (SW 87-23, July 24, 1987)

Improvements were needed in inventory procedures, turn in of excess, stock management practices, and the Internal Control Program. Army Audit recommended that depot personnel perform wall-to-wall inventories of the parts room; return repair parts charged to completed, canceled, or invalid programs to the supply system; and incorporate internal control responsibilities into job performance standards and appraisals of managers with internal control responsibilities. Management concurred with the findings and recommendations and agreed to take corrective actions.

Depot Automated Storage and Retrieval System, Tobyhanna Army Depot, Army Audit Agency, (NE 89-6, March 24, 1989)

Stored materiel in the automated system was not adequately accounted for. Army Audit estimated that materiel valued as high as \$120 million may be unaccounted for Army-wide. Army Audit recommended that the Logistics Evaluation Agency review shop stock policies and procedures in Army Regulation 710-2 that needed to be changed for maintenance depots with automated storage and retrieval systems. The Army Materiel Command agreed to implement a new policy by June 1989.

Audit of the Maintenance Shop Floor System, (TE-IR-44-90, Tooele Army Depot Internal Review and Audit Compliance Office, May 10, 1990)

Army's Internal Control Program needed improvement to ensure that the Maintenance Shop Floor System was effectively and efficiently providing an accurate amount of repairable items and required repair parts. Material weaknesses totalling about \$7.3 million were identified. Excess disposition was not accomplished monthly, required signatures were not obtained on issue documents, excess repair parts were not properly turned in, and programs were closed before maintenance personnel properly analyzed repair materiel for distribution to active programs, which negated timely cancellation of backorders. As a result, procurements were made for parts that could already have been on hand.

**Appendix III
Prior Audit Reports Regarding Depot
Management and Control of Materiel**

**Accountability and Control of Materiel at Depot Maintenance Facilities,
Inspector General, Department of Defense, (Project 9LB-0062,
September 25, 1990)**

Management of materiel at DOD depot maintenance facilities was not adequate to ensure proper accountability and control of materiel. This condition occurred because the military departments had not developed plans, or followed existing plans, to systematically inventory materiel within the depot maintenance facilities. As a result, the six depot maintenance facilities visited were holding over \$319 million of materiel not recorded on accountable records.

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