

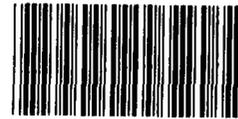
GAO

Report to the Chairman, Subcommittee  
on Readiness, Committee on Armed  
Services, House of Representatives

September 1991

# ARMY LOGISTICS

## Low Returns of Reparable Assets Are Costing the Army Millions



144975

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

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**National Security and  
International Affairs Division**

B-245594

September 25, 1991

The Honorable Earl Hutto  
Chairman, Subcommittee on Readiness  
Committee on Armed Services  
House of Representatives

Dear Mr. Chairman:

As you requested, we examined the Department of the Army's efforts in returning assets in need of repair to reduce procurement costs and improve military readiness. Our work revealed that Army units returned fewer assets for repair than expected, which resulted in the purchase of additional assets to fill user demands. This report makes several recommendations to the Secretary of the Army to improve the Army's management of its materiel returns program.

Unless you publicly announce its contents earlier, we plan no further distribution of this report until 14 days from the date of this letter. At that time, we will send copies to the Secretaries of Defense and the Army and the Director of the Office of Management and Budget. We will also send copies to interested parties and make copies available to others upon request.

Please contact me at (202) 275-4141 if you or your staff have any questions concerning the report. Major contributors to this report are listed in appendix II.

Sincerely yours,

A handwritten signature in cursive script that reads 'Richard Davis'.

Richard Davis  
Director, Army Issues

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# Executive Summary

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## Purpose

The Army manages more than 37,000 items that require depot-level repair to keep its aircraft, vehicles, weapons, and support equipment up-to-date and combat ready. These items are designated as "reparable" because generally they can be repaired more economically than buying new ones. The Army's goal is to return 85 percent of assets that need repair. For fiscal year 1990, users returned items valued at about \$3.3 billion.

The Chairman of the Subcommittee on Readiness, House Committee on Armed Services, requested that GAO determine whether (1) the Army has bought more assets or cancelled repairs because it has not met its return-rate goal, (2) the Army's reported return rate accurately reflects the actual rate of return, (3) the Army's 85-percent goal was established to maximize savings and efficiency, and (4) the Army's efforts to improve rates-of-return will strengthen its materiel returns program.

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## Background

The Army Materiel Command manages six inventory control points that compute wholesale requirements for items needed by users, maintain stock inventories, and issue stock to users. In issuing reparable assets to users, the control points expect the return of like assets that need to be repaired. The Army measures the success of its returns program by comparing the actual return rate to an expected rate. The Army's minimum acceptable return rate is 85 percent; that is, for every 100 assets issued, 85 are expected to be returned. The actual rate-of-return is computed by dividing the number of returns, plus the number of assets disposed of by retail-level activities, by the number of assets issued.

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## Results in Brief

The Army is purchasing additional assets and reducing the quantity of assets scheduled for repair because returns are not meeting its minimum goal. Although many problems contribute to low return rates, GAO believes that the Army has not sufficiently emphasized the return of assets needing repair, as indicated by limited and infrequent actions to improve returns. To meet user demands, the control points sometimes purchase assets instead of repairing them when returns are below the Army's minimum acceptable rate of 85 percent. For example, GAO visited four of the Army's six inventory control points and found that they were buying between \$369 million and \$815 million of assets that need not have been bought if returns had been at the 85-percent goal. One inventory control point, however, had shown that return rates could be improved through increased management emphasis.

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The Army reported a return rate of 75 percent for fiscal year 1990, but this figure does not accurately reflect the program's effectiveness. The rate is skewed because included in its calculation are items that the Army does not expect to be returned and items that will not be subsequently reissued. GAO found that the return-rate goal was based on computations of historical rates without a detailed analysis of what the rate should be.

The Army anticipates that its returns program will receive more intensive emphasis from incentives that encourage assets to be returned and from increased visibility over the returns process.

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## Principal Findings

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### The Army Could Minimize Procurement Costs by Increasing Return Rates

Item managers at the four Army inventory control points GAO visited had initiated purchases for new assets and had reduced the number of assets scheduled for repair because returns had been less than the Army's minimum acceptable return-rate goal of 85 percent. GAO randomly selected and analyzed 121 of 7,811 reparable items managed by the four control points that did not meet the 85-percent goal. In 34 of the 121 cases, the Army was buying new assets that would not have been bought if it had met the minimum return-rate goal. On the basis of its sample results, GAO projects, with a 95-percent confidence level, that the Army could have reduced procurement costs between \$369 million and \$815 million for the 7,811 items if returns of assets needing repair had been at the minimum goal.

Both the Army and GAO have identified an array of long-standing problems contributing to low rates-of-return, ranging from deficiencies in automated systems for processing requisitions and returns data to inadequate compliance with established procedures for returning assets needing repair. GAO believes that these problems have generally resulted from the Army's inattention to its returns program. One inventory control point, the Missile Command, has improved returns management by (1) identifying items with low returns and requiring item managers to determine the causes and report on the actions taken to improve them, (2) visiting users to reinforce the need to promptly turn in reparable assets, and (3) providing monthly management updates on the progress in improving rates.

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**Overall Return Rate Is Misleading**

The Army reported an average rate-of-return for fiscal year 1990 at 75 percent. GAO found that the Army's methodology for computing the overall rate does not accurately measure the extent to which assets are being returned because extremes in the data base skew the rate computation. For example, GAO analyzed records on 24,635 items for the 1-year period ending June 1990 and found that 8,723 items had a zero return rate and 6,602 had return rates that exceeded 100 percent. More than 12,000 items had return rates of 50 percent or less.

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**No Analysis of What the Minimum Acceptable Rate-Of-Return Should Be**

GAO noted that the Army's return-rate goal was based on computations of historical rates without a detailed analysis of what the rate should be. A program standard that anticipates a rate-of-return for reparable assets at 100 percent, less a percentage that represents the number of assets authorized to be disposed of at the retail level, would be a sound materiel returns standard.

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**Efforts to Improve Returns Need Management Emphasis**

Prior GAO audits and Army studies have identified many supply management problems contributing to shortfalls in return rates. The audits and studies confirmed that users had little financial incentive to return reparable assets once they received replacements. The Secretary of the Army initially included the impact of low returns as a material weakness in his 1984 annual report on internal controls required under the Federal Managers' Financial Integrity Act. With increased management attention, the return rates reached what the Army believed to be acceptable levels, and in 1987 the Army reported that corrective actions had been completed and that no further reporting on this topic was required. The problem with low rates is again being experienced.

The Army has a long-range objective to develop a single supply system that is intended to enhance oversight of the materiel returns process. The Army believes that a single supply system can (1) provide the capability to more intensively manage the return of assets needing repair and (2) increase the potential for streamlining the supply system, minimizing inventory costs, and improving readiness.

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**Recommendations**

GAO recommends that the Secretary of the Army direct the Commander of the Army Materiel Command to (1) adopt techniques similar to those used by the Missile Command to improve the return rates; (2) include in the Army's calculation of return rates only items that have assets which

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are routinely issued and returned; and (3) report, as the Army had previously, the shortfall in the return rate for reparable items as a material weakness in the Army's next assessment of internal controls as required by the Federal Managers' Financial Integrity Act. GAO also makes several other recommendations to the Secretary of the Army to help ensure that assets needing repair are returned promptly.

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## Agency Comments

The Department of Defense did not provide written comments on this report. However, after reviewing a draft of this report, Department officials stated that (1) the Department generally agreed with GAO's findings and recommendations and (2) the Secretary of the Army plans to take the recommended actions by December 1991.

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**Abbreviations**

AMC	Army Materiel Command
AVSCOM	Aviation Systems Command
CECOM	Communications-Electronics Command
DOD	Department of Defense
GAO	General Accounting Office
ICP	inventory control point
MICOM	Missile Command
NSN	National Stock Number
RDES	Requirements Determination and Execution System
SLA	Strategic Logistics Agency
TACOM	Tank-Automotive Command

# Introduction

The Army supports the operational and readiness demands of its forces worldwide with more than 300,000 items representing billions of dollars in spare and repair parts. About 37,000 of these items are designated as “depot-level reparable” because, generally, future requirements often can be met cheaper and quicker through repairs at depots than through additional procurement. Replenishing inventories by repairing parts that wear out, deteriorate, or fail through day-to-day operations helps the Army to minimize inventory costs and to avoid shortages of critically needed parts.

The Army has supply organizations that manage inventories at both the wholesale and retail levels. At the wholesale level, the Army Materiel Command (AMC) manages six inventory control points (ICP) whose mission is to determine asset requirements, buy replacement assets or schedule assets for repair, issue them to retail-level users, and monitor the return of assets needing repair. Retail-level organizations, primarily Army installations, requisition assets from the wholesale level, issue them to user units, and accept assets needing repair from users for forwarding to the wholesale level. The retail-level organizations also dispose of assets that cannot be repaired.

In its fiscal year 1991 budget, the Army projected sales of spare and repair parts to user units to be about \$8 billion. While depot-level reparable assets accounted for only about 11 percent of the items sold, they represented about 75 percent of the total value—over \$6 billion. The Army’s budget for fiscal year 1991 included about \$1.7 billion to purchase new assets and about \$686 million to repair assets. For fiscal year 1990, retail-level users returned about \$3.3 billion in reparable secondary assets to the wholesale level.<sup>1</sup>

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## Reparable Assets Reduce Inventory Costs and Enhance Readiness

Department of Defense (DOD) and Army policy is to maintain military readiness at the least investment cost. In achieving this objective, the defense community generally recycles assets that need repair whenever it is cheaper and quicker than buying new ones. Reusing assets minimizes investment costs and improves readiness by stabilizing the depot maintenance process, which can provide critically needed assets in less time than it takes to buy them.

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<sup>1</sup>Secondary assets include spare parts, repair parts, and supplies for principal assets such as tanks, vehicles, and helicopters.

For supply management purposes, the Army classifies each item either as reparable or consumable and, on the basis of its dollar value, essentiality, and repairability, assigns it standard DOD source, maintenance, and recoverability codes. These codes are intended to communicate and control the disposition of assets needing repair. For example, items with "D" or "L" codes are depot-level reparable and must be returned to the supply system when they need repair. Items with "O," "F," or "H" codes are generally designated for repair at field-level activities. Consumable items are not intended for reuse and are to be disposed of once they become inoperative.

Until 1990, reparable items were purchased by the wholesale system with procurement funds, repaired with operation and maintenance funds, and issued free of charge to users. In October 1990, the Army transferred the funding for depot-level reparables from the procurement appropriation accounts to the Army stock fund. Under the stock funding concept, users will reimburse the fund for the costs of assets issued or repaired to meet their demands. Field-level reparable items and consumable items were already included in the Army stock fund account.

## Procedures for the Return and Repair of Assets

In general, users requesting assets for recurring demands normally must turn in the ones needing repair or provide a written justification why they are unable to do so. Supply managers at the wholesale and retail levels use recurring demands to identify the items that are expected to be returned and to maintain authorized stock levels. Conversely, turn-ins are not required for nonrecurring demands, such as for initial issue, increased stock level, temporary loan, and lost or destroyed items. The Army has established its minimum acceptable return-rate standard for recurring demands as 85 percent—that is, for every 100 assets issued, 85 are expected in return to be repaired.

Users are required to turn in their assets concurrent with requests for new ones to their supply support activity, which is located at the direct support level or the intermediate support level. The supply support activity verifies the condition of the assets turned in and notifies the ICP that they are being returned to a depot.<sup>2</sup> This is the first time that the ICP learns that there are assets needing repair. If the supply support

<sup>2</sup>An automatic return item list identifies the transportation priority and maintenance depot to which the item should be returned. To be selected for automatic return, an item must have a recoverability code of "D" or "L" unless a funded depot-level repair program exists for it. If the item is not on the list, the supply support activity notifies the managing ICP that the assets are excess to the reporting activity. In turn, the ICP directs the activity to ship the assets to a depot.

activity needs a serviceable replacement, it submits a requisition at the same time.

The depot receives the assets, verifies their condition, and notifies the ICP that the assets are on hand. If the supply support activity has requisitioned assets, the ICP notifies the depot to ship them from on-hand stock. If no serviceable assets are in stock, the ICP backorders the requisition until its inventories can be replenished through repair or purchase of new assets. In calculating stock requirements to replenish inventories, ICPS use assets that are economical to repair for reducing the number of new assets that must be bought.

Assets remain at the depots until the ICPS generate repair schedules showing the number of assets to be repaired and the dates the assets are needed. When the work year begins, the repair facility receives the assets from the supply system, repairs them, and returns the assets to supply for storage or issue to customers. Repair schedules often change for several reasons. For example, the users may return fewer assets needing repair to the depots than expected.

If repairing the assets is not feasible or additional assets are needed to support requirements, the ICPS release procurement work directives to initiate the contract solicitation and award process. Like repair schedules, procurement directives may be modified whenever changes occur in the requirements for the assets. After production, the new assets are delivered to depots for storage until they are issued, or they are shipped directly to the user.

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## Automated Systems Support Management of the Asset Returns Process

The Army has computerized management systems that automate asset requisitions, issues, receipts, and returns. These systems are intended to assist managers in monitoring the return of assets needing repair and in determining whether to repair them or buy new ones to replenish stock inventories.

The ICPS use the Requirements Determination and Execution System (RDES) for monitoring the return of assets and for initiating repair programs or buy actions to replenish stock inventories. RDES computes an item's rate-of-return using up to 24 months of asset demand and return data. It also periodically compares authorized requirements to quantities on hand and on order for all items and identifies whether repair programs or buy actions are needed to replenish depleted inventories.

Other programs available to wholesale managers include the Selected Item Management System-Expanded for visibility and control over assets in the supply system and the Aviation Intensive Management Item for intensive management of selected aviation items that are in critical status because of their procurement value, overhaul cost, or short supply.

At the retail-level supply support activities, the Direct Support Unit Standard Supply System is intended to identify and record issues and turn-ins of economically repairable assets and provides a monthly listing by user of assets issued without corresponding turn-ins. The system feeds supply information into the Standard Army Intermediate Level Supply System, located at installations and corps, which is expected to perform stock location, physical inventory, and shipment planning functions and is to serve as a feeder system from the retail to the wholesale supply levels.

In addition to its automated management systems, the Army has a separate organization—the Logistic Control Activity—that accumulates data on repairable assets issued to users and on corresponding returns to the wholesale level. From this information, the Activity computes an overall return rate to enable supply managers to measure how well returns compare to the Army's program standard. Information on return rates is transmitted quarterly to the ICPS and is intended for their use in monitoring return rates.

## Objectives, Scope, and Methodology

The Chairman of the Subcommittee on Readiness, House Committee on Armed Services, asked us to determine whether (1) the Army has bought additional assets or cancelled repairs because it has not met its return-rate goal, (2) the Army's reported return rate accurately reflects the actual rate-of-return, (3) the Army's 85-percent goal was established to maximize savings and efficiency, and (4) the Army's efforts to improve rates-of-return will strengthen its materiel returns program.

We performed our work at Army headquarters and at four of AMC's ICPS—the Aviation Systems Command (AVSCOM), St. Louis, Missouri; the Communications-Electronics Command (CECOM), Fort Monmouth, New Jersey; the Missile Command (MICOM), Huntsville, Alabama; and the Tank-Automotive Command (TACOM), Warren, Michigan. We reviewed pertinent DOD and Army regulations, policies, procedures, and internal

studies; interviewed supply and maintenance officials and item managers; and analyzed Army plans for improving its materiel returns program. Also, we visited installation supply support activities at Fort Campbell, Kentucky; Fort Hood, Texas; and Fort Rucker, Alabama, to gain insight into how these activities were emphasizing the return of assets for repair.

From its materiel returns program, we asked AMC's Logistic Control Activity to identify items designated for depot-level repair for which the Army monitors rates-of-return. The Activity provided data on 24,635 depot-level repairable items for the 1-year period ending in June 1990. For the 16,926 items managed by the four ICPS we visited, 7,811 items had rates-of-return below the Army's 85-percent rate. For 121 randomly selected items, we examined the impact of low return rates on the ICPS' decisions to buy or repair assets to satisfy user demands.

To determine whether low rates caused the Army to purchase additional assets, we examined buys initiated for the period July 1988 through December 1990. For each buy, we compared the quantity of assets returned for repair that the ICPS used to reduce the buy amount to the quantity they would have had if assets had been returned at the Army's 85-percent rate. The difference between the actual rate-of-return for assets and the 85-percent rate was the shortfall quantity. We then calculated the additional procurement costs by multiplying the shortfall quantity by the asset's unit cost. Also, for the 121 items we analyzed the reasons for variances between the number of assets scheduled for repair and the number actually repaired for fiscal year 1990.

While we used the Logistic Control Activity's records to identify items with low returns, we relied on data maintained by the ICPS to evaluate the effect of low rates on procurement because their buy decisions were based on this data. Another factor influencing this decision was that the Activity had included items for which return rates should not be computed. Additional details on our methodology for identifying assets and computing the additional procurement costs are contained in appendix

To determine whether an overall rate provided a realistic measure of program performance, we analyzed records on rates-of-returns and procedures that the Logistic Control Activity was using to compute an overall rate-of-return. In addition, we discussed the use of an overall rate as a program performance indicator with Army officials.

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To identify the Army's efforts to improve return rates, we examined implementation plans and other documents that disclosed its plans and actions to improve the return of assets needing repair. We also discussed these initiatives with Army officials.

To assess the adequacy of internal controls, we identified the pertinent requirements for returning assets that need repair and replenishing depleted inventories with new or repaired assets. At each location we visited, we examined the most recent annual assurance statement available to determine whether material weaknesses regarding returns had been reported.

DOD officials orally provided the Department's comments on a draft of this report. We incorporated their comments as appropriate. We performed our work from July 1990 through April 1991 in accordance with generally accepted government auditing standards.

# The Army Can Minimize Procurement Costs and Stabilize Depot Maintenance Programs by Increasing Return Rates

The Army is purchasing additional assets and reducing the quantity of assets scheduled for repair because reparable assets are not being returned in sufficient quantity. This practice is inconsistent with Army supply policy, which requires item managers to rely on returns as the primary and most economical source for restocking inventories.

For 34 of the 121 items sampled, the ICPS were buying assets that need not have been bought because assets needing repair were not returned at the Army's minimum acceptable return rate of 85 percent. Projecting this sample, we estimate, at the 95-percent confidence level, that between 1,262 and 2,789 of the 7,811 items that had not met the Army's minimum acceptable return rate required purchases of additional assets. If returns had met the minimum rate, we project that the ICPS could have reduced their procurement cost by between \$369 million and \$815 million.

Similarly, for the 50 items in our sample that were scheduled for repair, the ICPS had to reduce repair programs for 11 because the assets needing repair were not returned as expected. We estimate, at the 95-percent confidence level, that between 154 and 1,007 repair programs for the 7,811 items were reduced because asset returns were less than the minimum rate. Reducing repair programs can result in inefficient and costly supply support if normal resupply procedures are interrupted to meet user demands and repair facilities cannot fully use their work force.

Although many problems contribute to low return rates, we believe that the Army has not given its materiel returns program the emphasis needed to ensure that its policy on inventory management of reparable items is being followed. Supply managers' actions to improve returns, which have been limited and infrequent, indicate that the Army has not focused sufficient attention on the return of assets as a low-cost means to restock inventories and improve readiness.

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## DOD and Army Policies Expect the Repair of Reparable Items to Minimize Inventory Costs

Various DOD instructions and Army regulations stress the return of assets that are economical to repair as a cost-effective and responsive approach to preclude critical shortages of needed stock. For instance, DOD Instruction 4140.42, "Determination of Initial Requirements for Secondary Item Spare and Repair Parts," dated August 1974, requires that in achieving minimum supply response times, the military services be cost-effective in ordering and holding inventories. In computing requirements, the services are to assume that reparable assets will be returned for repair.

Army Regulation 710-1, "Centralized Inventory Management of the Army Supply System," effective March 1988, requires the ICPS to include assets that can be economically repaired and reissued when computing the number of assets needed to meet forecasted requirements. Army Regulation 750-1, "Army Materiel Maintenance Policy and Retail Maintenance Operations," effective April 1988, requires reparable assets to be reused when, after considering economy and operational effectiveness, repair is more cost-effective than replacement. AMC Regulation 750-28, "Maintenance of Supplies and Equipment," dated July 1, 1982, provides that supply managers will take action to expedite turn-ins of reparable assets needing repair.

Army Pamphlet 710-4, "Management of Excess Materiel and Materiel Returns," dated February 1987, provides that all assets that need repair but cannot be repaired by retail maintenance activities will be turned in immediately to their supply support activity. Army Regulation 710-2, "Supply Policy Below the Wholesale Level," effective October 1989, provides that the activities are to ensure the turn-in of assets needing repair by accepting them at the time users are provided replacement items or by accounting for them until users turn them in.

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## Low Rates-Of-Return Increase Inventory Costs and Disrupt Depot Maintenance Operations

The low rates-of-return resulted in the procurement of additional assets and reductions in the number of assets scheduled for repair. For 34 of the 121 items we sampled, the ICPS were buying additional assets to replace the ones that had not been returned for repair. In addition, for 11 of the 121 items, the ICPS had reduced the quantity of assets scheduled for repair because the ones needing repair were not returned as expected. For the remaining items in our sample, low return rates had not yet affected the ICPS' procurement or repair decisions.

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## Additional Procurement of New Assets

Documentation supporting buy decisions showed that if returns had met the Army's minimum acceptable rate, more assets needing repair would have been available for repair, thereby allowing the ICPS to reduce procurement. For 34 of the 121 items, the ICPS could have avoided as much as \$18.2 million in procurement costs. On the basis of our sample results, we projected, at the 95-percent level, that for the 7,811 items, the ICPS' costs to buy additional assets ranged between \$369 and \$815 million. Table 2.1 summarizes our analysis of the additional procurement costs for the sampled 34 items, and appendix I provides more details.

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**and Stabilize Depot Maintenance Programs**  
**by Increasing Return Rates**

**Table 2.1: Procurement Costs for 34 Sample Items That Could Have Been Avoided**

Dollars in millions		
ICP	Number of items	Unnecessary procurement cost
AVSCOM	13	\$14.0
CECOM	5	0.3
MICOM	7	0.3
TACOM	9	3.6
<b>Total</b>	<b>34</b>	<b>\$18.2</b>

For example, at TACOM we found additional procurement cost associated with a tractor diesel engine (National Stock Number [NSN] 2815-01-241-9193) totaling about \$132,000. According to the Logistic Control Activity's records, the rate-of-return for this item was 36 percent—11 assets issued for recurring demands with 4 returns from July 1989 to June 1990. TACOM's records showed that in February 1989 TACOM initiated a buy for 12 engines and in October 1989 exercised an option to purchase an additional 12 engines for a total procurement cost of \$288,700. The RDES studies supporting TACOM's buy decisions showed that the return rate was zero based on 11 assets being issued in response to recurring demands with no assets being returned during the 2 years prior to the buys.

The item manager told us that, although she was aware of the low rate, returns were not anticipated because retail maintenance activities performed any necessary repairs. Items reparable at the depot level receive some maintenance by retail-level activities, but, as required by Army regulations, they must be returned to the depot for major repair work. Recurring demands received by TACOM indicate that users had engines needing repair that should have been returned in exchange for those engines being issued. TACOM's records provided no explanation for the shortfall in the return of engines needing repair.

We calculated that if returns had met the Army's minimum acceptable rate of 85 percent, 11 more engines needing repair would have been available for TACOM's use in reducing the number of assets being purchased. Because of the shortfall in engines needing repair, TACOM spent an additional \$132,000 to purchase new engines. Moreover, purchasing the new engines took about 14 months longer than it would have taken to repair the returned engines.

In another example at MICOM, we found additional procurement cost associated with a circuit card assembly for the Patriot missile system

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(NSN 1430-01-151-2866) totaling \$47,900. The Logistic Control Activity's data showed that the rate-of-return for this item was 33 percent—three assets issued for recurring demands and one return from July 1989 to June 1990. MICOM's records showed that in October 1990 MICOM initiated a buy for 131 assemblies totaling \$232,394. The RDES study supporting the buy showed that the return rate was 26 percent based on 46 assemblies issued for recurring demands and 12 returns during the 2 years prior to the buy.

The item manager said that MICOM had backordered the users' requisitions because sufficient stock was not on hand to fill them. In addition, MICOM had placed a high-priority buy to obtain the needed assets. She stated that the shortfall in returns had caused MICOM to buy additional assets.

Using the Army's minimum rate of 85 percent, we calculated that returns at that rate would have provided an additional 27 assemblies needing repair for MICOM's use in reducing the procurement quantity. We computed that this shortfall in returns caused MICOM to spend an additional \$47,900 to purchase new assemblies. Repairing the assemblies, which had an ongoing depot-level repair program, took about 30 months less than procuring them.

**Assets Unavailable for Repair**

During fiscal year 1990, the four ICPS had scheduled repairs for 50 of the 121 sampled items. For 11 items, returns at less than the 85-percent standard resulted in fewer assets being repaired than planned to meet user demands. We estimate, with a 95-percent confidence level, that the Army reduced between 154 and 1,007 depot-level repair programs associated with the 7,811 items because assets were not returned for repair in sufficient quantity. Table 2.2 summarizes our analysis of the repair programs reduced for the 11 items.

**Table 2.2: Repair Programs Reduced for the 11 Sample Items**

<b>ICP</b>	<b>Number of scheduled repair programs</b>	<b>Number reduced</b>
AVSCOM	22	6
CECOM	12	1
MICOM	10	2
TACOM	6	2
<b>Total</b>	<b>50</b>	<b>11</b>

In some instances, the ICPS had to deviate from their normal supply procedures to meet user demands because assets were not available for repair. For example, AVSCOM scheduled 32 Apache helicopter fault detector panels (NSN 1680-01-240-1781) for repair during fiscal year 1990. The Logistic Control Activity's rate-of-return for this item was 47 percent compared with the RDES rate of 42 percent. Because of the low return rate, AVSCOM reduced the scheduled repair program from 32 panels to 2 panels. The unavailability of assets for repair also caused AVSCOM to accelerate the delivery of panels due in from procurement, initiate another procurement action, and encourage users to attempt repairing assets before ordering new ones.

Maintenance officials at MICOM, the Depot System Command, and the Anniston Army Depot told us that changes to repair programs could adversely affect depot operations. They pointed out that depots have staffed a work force to meet planned repair requirements and reductions to those requirements could result in workers being unproductive or being assigned tasks that do not fully use their skills. For example, the Chief of the Production, Programming, Planning, and Control Division, Directorate of Maintenance, at the Anniston Army Depot said that the depot had to assign welders to lesser-skilled jobs or leave them without work because a program was cancelled. Another repercussion is that parts bought but not used for program repairs may become excess to current needs. According to Army Regulation 710-1, depots normally requisition a 90-day supply of repair parts prior to the scheduled program start date. If assets are not available for repair, the program may be delayed or reduced and the repair parts may become excess.

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## **Return of Assets Needing Repair Is Not Sufficiently Emphasized**

Supply management representatives at the four ICPS we visited agreed that low returns caused them to buy additional assets and to reduce scheduled repairs. They identified a number of reasons that they believed were contributing to low returns, such as (1) supply personnel coding demands as recurring when they should have been nonrecurring (2) automated system deficiencies that default blank demand codes to recurring demands, (3) limited visibility over the process for returning assets needing repair, and (4) a supply discipline that places a high priority on obtaining assets but not on returning them. Several retail supply managers identified similar causes. However, as discussed further in chapter 4, we believe that these reasons are indicative of the Army's inattention to its materiel returns program. Our review illustrates that for the Army to have an effective program, supply manager

at all levels must increase their emphasis over the return of assets needing repair.

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### Efforts to Increase Return Rates Have Been Untimely and Ineffective

The Army has identified methods that supply managers can use in improving rates-of-return for assets needing repair, but they have not been effectively implemented. To improve returns through increased visibility and command emphasis, AMC's Logistic Control Activity provides the ICPS a quarterly report that identifies rates-of-return for major Army commands. The Army has encouraged the ICPS to use the report to the maximum extent possible for monitoring the return of assets needing repair. Although they were receiving the report, three of the four ICPS we visited were not using it to monitor return rates. Supply managers said that the report was not useful because information on return rates was inaccurate. They preferred instead to use the ICPS' "Demand Return and Disposal File" (in RDES), which provided item managers more current and accurate data for monitoring return rates. However, the supply managers had no systematic procedures to evaluate the extent to which item managers were monitoring the rates.

The majority of the item managers for our sampled items at three of the four ICPS said that they had never heard of the Logistic Control Activity's quarterly report. The majority of the those who were familiar with the report confirmed that they were not using it. In relying on the RDES data, they cited a number of actions to improve return rates, including (1) requests to turn in assets in general publications such as periodic supply information letters and (2) calls or letters to specific users.

We found evidence of monitoring return rates for 15 of the 121 sampled items, but the actions taken to improve low rates appeared neither timely nor effective. For instance, the rate-of-return for circuit card assemblies for the M1A1 Abrams tank (NSN 5998-01-197-8324) had been only 60 percent or less for 2 years ending in December 1990. In January 1991, TACOM notified users that returns for this item were needed to preclude unnecessary procurement and to support depot repair programs. TACOM's records indicated that had the item manager taken similar actions before TACOM completed final procurement of these assemblies in February 1990, it might have reduced the number of new assets purchased.

Similarly, we found that retail-level supply activities may not be taking timely and effective actions to ensure the return of assets needing

repair. At the retail level, supply activities have the capability to monitor the return of assets through suspense files on assets due-in. When returns are not processed with users' requests for replacement assets, the Standard Army Intermediate Supply System generates a transaction card showing that returns are due. The suspense is cleared when users return the cards stating the disposition of the assets.

At Fort Hood, the Directorate of Logistics sent suspense cards to users, but many of the cards were not being returned. The Directorate did not follow up to determine why the cards were not being returned or whether the reasons stated for not returning the assets on the cards were valid. A Directorate official said that although he suspected many responses were incorrect, he had neither the time nor staff to validate the responses.

Retail-level supply managers also can identify users that owe them returns from the Direct Support Unit Standard Supply System, which generates a recoverable item control list of assets issued without corresponding turn-ins. A supply official in the 2nd Armor Division Materiel Management Center at Fort Hood told us that the supply system report at his unit was not being used to reconcile issues with returns. In addition, a direct support supply accountability official at Fort Hood told us that a common practice among his users was to replace all usable components with broken ones before turning the asset in. A user told us that he had to stockpile assets because the installation turn-in point limited him to about one-half the quantity he needed to turn in daily. The accountability official confirmed that he limited returns because he did not have sufficient staff to process them and that he, in turn, was limited by the Directorate of Logistics on the number of times that assets could be turned in.

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**MICOM's Intensive  
Management Effort  
Improved Return Rates**

MICOM has improved its rate-of-return for reparable assets by increasing the level of management attention to its returns program. Records maintained by MICOM's Materiel Management Directorate showed that MICOM's rates-of-return increased from 85.4 percent in October 1989 to 98.0 percent in September 1990. Representatives from the Directorate's Technical Staff Office attributed the increase to MICOM's intensive management effort to improve rates-of-return.

In 1989, the Directorate established a plan to improve rates-of-return that included identifying causes for low rates, training item managers on monitoring requirements, analyzing their actions to increase returns,

and visiting users to highlight the problem with low rates. For example, in July 1989 representatives from the Directorate and from the 200th Theater Army Materiel Management Center evaluated system and procedural deficiencies to determine why some users in Europe had low rates-of-return.

To emphasize returns management, the Directorate monthly identifies assets with return rates that are below the Army's minimum acceptable rate using RDES data. The Directorate also uses the Logistic Control Activity's data for monitoring return rates. Item managers are required to examine items with low return rates, determine reasons for low returns, and provide management a written analysis of their actions to improve returns. They also must select assets in critical supply for MICOM's logistics assistance representatives in the field to help identify causes and locate needed assets. (One representative noted in his May-June 1990 monthly report that a unit he was assisting in turning in assets needing repair had no knowledge of proper turn-in procedures.) Once the item managers report their actions, the Directorate has a quarterly program review to evaluate its progress in improving rates.

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## Conclusions

Low rates-of-return for assets needing depot-level repair are causing the Army to buy assets that need not have been bought and to cancel repairs that otherwise would have been made to satisfy user demands. The Army provides its supply managers with systems and returns data to let them know that assets needing repair are not being returned at its minimum acceptable rate of 85 percent. Yet, their actions to ensure the return of assets indicate that the Army's emphasis on returns often is too late and insufficient to prevent the unnecessary procurement of assets and the inefficient use of the depot-level repair work force.

Without the emphasis on returns, the Army has not been able to maximize the use of assets needing repair to minimize inventory costs and improve readiness. On the basis of our analysis, we estimate that the four ICPS could have avoided millions of dollars in additional procurement costs and would have repaired more assets if returns had been at least at the Army's minimum acceptable rate of 85 percent. When the Army has assets available for repair, it not only can reduce its procurement costs, but also improve readiness because repairs take less time and assets are available for users sooner.

Because effective returns management is a shared responsibility, users and managers at all levels of the supply system should recognize their

responsibilities and the impact that low returns have on costs and readiness. MICOM has demonstrated that emphasizing returns management can increase this awareness and rates-of-return for assets needing repair.

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## Recommendations

We recommend that the Secretary of the Army take the following actions:

- Reemphasize to the commanders of all major Army commands the importance of complying with Army policy and requirements for the prompt return of assets needing repair.
- Direct the Commander of the Army Materiel Command to instruct its inventory control points to adopt management emphasis techniques similar to those used by the Missile Command to improve the rates-of-return for reparable items. Management emphasis should include early detection of items with low rates, determination of causes, identification and execution of specific actions to improve returns, and follow-up analysis to determine whether return rates have improved.

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## Agency Comments and Our Evaluation

DOD concurred with our recommendations. DOD indicated that, by December 1991, the Secretary of the Army plans to (1) publish instructions for all major Army commands to emphasize the return of reparable assets for repair and (2) direct the Commander of the Army Materiel Command to examine the Missile Command's techniques for managing the return of assets needing repair with the intent of requiring all major subordinate commands to adopt similar procedures.

DOD commented that return rates were understated for some of the items we sampled, particularly items that field units send directly to contractor repair facilities, and that, as a result, our cost projections were high. To compensate for the data shortfall, item managers substituted a higher rate in computing buy quantities. DOD also stated that other items had no return data because they were not intended to be returned separately for repair by field units. Instead, they were to be repaired as needed only at the depot level. Finally, DOD stated that the additional procurement costs should have been reduced by the estimated costs to repair the assets.

We believe that our estimate to quantify the procurement costs is a fair assessment based on the records maintained by the Army's ICPS. We used the ICPS' records to identify actual issues for recurring demands and corresponding returns of assets needing repair. The ICPS' records

were to identify all returns, including those shipped directly to contractor repair facilities. On the basis of actual issues for recurring demands, we calculated the quantity of recoverable assets needing repair that would have been on hand if the Army had met its return-rate goal of 85 percent and compared that quantity with the number of assets that were actually returned to be repaired. For our analysis, the difference between these two quantities represented the number of recoverable assets needing repair that the ICPS would have used in computing the buy quantities. In short, larger quantities of recoverable assets needing repair will reduce the quantity of assets being purchased.

We agree with DOD that assets removed and repaired at the depot level would not have a return rate computed and would not result in additional procurement costs. Demands for these assets are shown in the ICPS' "Demand, Return, and Disposal File" as a program demand. As with nonrecurring demands, we excluded issues for program demands from our analysis.

DOD has a valid point in that costs to repair assets should be recognized in a comparison between procurement cost and repair cost. However, our primary focus for this analysis was to identify unnecessary procurement costs due to inadequate returns for assets needing repair. Therefore, we did not attempt to determine estimated repair costs for assets that had not been returned to the wholesale level as required.

# Shortfall in Returns Greater Than Indicated by Overall Rate

The Army has a more significant shortfall in the return of depot-level reparable assets than indicated by its reported overall return rate. For fiscal year 1990, the Army reported that returns averaged 75 percent, or 10 percent short of its minimum acceptable return-rate goal of 85 percent. Supply managers are expected to use this return-rate information for evaluating the user units' performance in returning assets. The Army based the minimum acceptable return-rate goal for its returns program on historical information. However, the inclusion of extreme values and the inaccurate reporting of supply activity for many items have skewed the average rate. As a result, its usefulness for measuring or analyzing user performance and for validating what the minimum acceptable return rate should be has been limited.

## Overall Return Rate Conceals Program Effectiveness

The overall reported return rate does not accurately reflect the effectiveness of the Army's materiel returns program because its computation is significantly skewed. AMC's Logistic Control Activity computes return rates (returns plus authorized disposal divided by recurring issues) and, through a series of quarterly reports under the Recovery Improvement Program Reporting System, provides that information for the Army to evaluate program performance. The Army believes that one measure of the program's success can be made by comparing the overall rate-of-return computed by the Activity to its minimum acceptable return-rate goal for reparable assets.

## Extreme Values Skew Average Rate

The Activity's computed overall return rate is being skewed by items that have extreme rates-of-return. A generally accepted statistical principle for computing averages is that extreme values will skew the resulting computation and, if skewed, use of an average to represent the data is questionable. The Activity's overall return rate is the sum of all issues, disposal, and returns for assets that make a record on its data base. According to a supply analyst in the Activity's Supply Operations Branch, no provisions are made to identify extreme values or determine whether they should be used in computing the overall return rate.

To test for extremes in the Activity's data base, we analyzed the Activity's records on 24,635 items for the year ending June 1990. For 8,723 items the return rates were zero, and for 6,602 items the rates exceeded 100 percent, with the highest return rate at 130,300 percent. Given that extreme values skew the computation of an overall rate, we computed the median value for the 24,635 items (the point at which an equal number of values fall above and below it) and found that about

**Chapter 3**  
**Shortfall in Returns Greater Than Indicated**  
**by Overall Rate**

one-half (12,712) had a rate-of-return of 50 percent or less. Our analysis also showed that 14,559 items, or about 59 percent, had return rates that were below the Army's minimum acceptable return rate of 85 percent. Table 3.1 summarizes our analysis.

**Table 3.1: Reported Rates-Of-Return for the 24,635 Items**

<b>Rate-of-return percentage</b>	<b>Number of items</b>	<b>Percent of total</b>	<b>Cumulative percent of total</b>
0	8,723	35.4	35.4
1 to 50	3,989	16.2	51.6
51 to 84	1,847	7.5	59.1
85 to 100	3,474	14.1	73.2
101 or greater	6,602	26.8	100.0
<b>Total</b>	<b>24,635</b>	<b>100.0</b>	

**Return Rates Inaccurately Reported for Some Items**

For 57 of the 121 sampled items, the Activity's procedure for computing return rates skewed the results. Our analysis of the supply histories for these items showed that the Activity's data base for computing return rates included (1) 3 items for which returns were expected but had no corresponding issues because the assets were no longer being used; (2) 24 items that should have been rolled or grouped together with the prime item rather than treated separately; and (3) 30 items for which issues were made but no returns anticipated, such as assets repaired below the depot level.

For example, the Logistic Control Activity reported that the return rate for a transmission gearbox for the Blackhawk helicopter (NSN 1615-01-280-4444) was 27 percent for the 12-month period ending in July 1990. AVSCOM's records showed that this NSN was the latest configuration and that two related NSNs (prior versions of the gearbox) were being upgraded to its specifications as they were turned in for repair. Users were returning all three configurations using the three NSNs, but AVSCOM issued them replacements only under the prime NSN or one of the related NSNs. The Activity reported rates-of-return for the three NSNs as 27 percent for the prime NSN and 60 percent and zero for the related NSNs. In contrast, AVSCOM accurately computed a rate of 102 percent by combining the issue and return data for all three NSNs.

## No Analysis to Support 85 Percent as a Minimum Acceptable Return Rate

In establishing its minimum acceptable return-rate goal, the Army made no analysis to support the optimum level at which returns promote readiness and reduce inventory costs. Through its policy on reparable asset management, the Army has determined that the return of items for repair can decrease inventory costs and improve readiness. The policy implies that the potential for minimizing costs and increasing supply availability is greater whenever rates-of-return are high. However, as the Logistic Control Activity's formula for computing return rates demonstrates, shortfalls in returns do occur, such as for assets the ICPS have authorized for local disposal. In view of this and the need for its supply managers to know whether returns are at an acceptable level, the Army established 85 percent as the minimum acceptable return rate (85 returns are expected for every 100 assets issued for recurring demands). The rate was 90 percent for a period of 8 months between October 1989 and June 1990, at which time the Army reduced it back to 85 percent.

In discussing the rate with Army supply officials, we found that the rate was based on the Activity's computation of actual historical rates. No analysis had been made to determine whether returns at the 85-percent level maximized the goals of the Army's materiel returns program. Officials in the Army's Office of the Deputy Chief of Staff for Logistics said that they did not know why the rate had changed, but that it was based primarily on the history of actual return rates as computed by the Activity. Officials in AMC's Office of the Deputy Chief of Staff for Supply, Maintenance, and Transportation did not know of any analyses done to validate the minimum rate. Likewise, an official in AMC's Inventory Research Office told us that he knew of no analyses made to establish the minimum acceptable rate.

## Conclusions

The Army computes an overall rate-of-return for assets needing repair to evaluate the effectiveness of its materiel returns program and to determine what its minimum acceptable return rate should be. However, the rate being reported provides neither a meaningful representation of program performance nor a sound basis for establishing a standard for returns. Extreme values in calculating the average are skewing the results and, in turn, mask the more significant problems with individual items. The average rate is further distorted by items for which the Army should not compute return rates and by items which should be combined for calculating a rate-of-return.

The Army could improve its analysis and review of the materiel returns program by providing supply managers rates-of-return for items they need to closely monitor in order to reduce costs and enhance readiness. Excluding items for which returns are not anticipated would avoid burdening supply managers with the unnecessary task of responding to them. Likewise, grouping items with related NSNs together would provide a realistic return rate.

The Army maintains that whenever rates-of-return for assets needing repair are high, its goal to save inventory costs and improve readiness can be better achieved. But with no supporting analysis of what the optimum rate should be, the standard of 85 percent provides no assurance that rates-of-return at that level are maximizing the Army's goal. Establishing a higher standard and then lowering it near to averages provided by the Logistic Control Activity indicates the Army's uncertainty about the level at which a standard should be set. A standard return rate approximating a one-for-one exchange of those assets needing repair with the ones issued to users—less the shortfall in returns resulting from its ICPS' authorized disposal of assets that cannot be repaired—would better represent the Army's intent to reuse its existing inventory to minimize inventory costs and improve military readiness.

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## Recommendations

We recommend that the Secretary of the Army direct the Commander of the Army Materiel Command to take the following actions:

- Direct the Logistic Control Activity to include in its calculation of return rates only items with assets the Army routinely issues and requires corresponding returns of assets needing repair and to group related items together for calculating rates-of-return.
- Establish a reparable asset rate-of-return standard that assumes all assets will be returned except for the shortfall due to disposal of assets authorized at the retail level.

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## Agency Comments

DOD agreed with our recommendations. DOD stated that by December 1991 the Secretary of the Army will direct the Commander of the Army Materiel Command to take the recommended actions.

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# Actions to Improve Supply Operations Can Strengthen Management of Asset Returns

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DOD and the Army are taking several actions to increase the return of assets needing repair. Prior GAO and Army studies have identified many of the problems contributing to low return rates. DOD and the Army have addressed many of them through their efforts to improve supply operations. One action under way is DOD's concept of stock funding depot-level reparable to give users the option to either repair or buy assets to meet their demands. Another, but longer-range, goal is to integrate the retail and wholesale supply levels to enhance oversight of the returns process. The results of our review showed that incentives for returning assets and increasing the capability for supply managers to oversee the returns process could strengthen the Army's materiel returns program.

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## Management Emphasis Needed to Address Persistent Problems Contributing to Low Rates

The Army has long recognized the need for management emphasis to correct problems contributing to low rates-of-return for assets needing repair. The conditions addressed in this report and by other audits and studies made since 1975 illustrate the long-standing nature of problems contributing to low rates. The following are some examples of other audits and studies demonstrating that continued management emphasis is required to correct them.

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## Automated System and Procedural Deficiencies

In a 1975 report, Improved Inventory Management Could Provide Substantial Economies for the Army (LCD-76-205, Nov. 1975), we reported that the Army incurred millions of dollars in additional procurement costs because users assigned recurring demands codes to orders for assets representing nonrecurring demands, automated systems at the retail-level converted nonrecurring demands to recurring demands, and automated system problems and inadequate supply discipline precluded prompt recovery and repair of assets. The Army agreed with our recommendations to (1) remove the automated capability to erroneously change demand codes, (2) verify demand codes, and (3) follow its procedures for accounting and controlling the timely turn-in of assets.

MICOM's 1989 evaluation of low return rates from Europe identified similar problems with automated systems and Army procedures for returns. It found that nonrecurring demands were erroneously being coded as recurring demands and, if no code was used, the Direct Support Unit Standard Supply System automatically defaulted the demand code to recurring. The Standard Army Retail Supply System provided no automated history of transactions to monitor the turn-in of assets. To improve returns, MICOM reported to AMC that Army regulations should

give emphasis to the return of assets equal to that for ordering assets and that automated system changes should be made to provide a means for monitoring and tracking returns.

In an October 1989 conference, the Army concluded that erroneous demand codes were occurring because the Direct Support Unit Standard Supply System incorrectly coded initial issues (nonrecurring demands) as recurring issues. Changes in the system were considered to be uneconomical, but the problem would be corrected with the Standard Army Retail Supply System.<sup>1</sup> AMC's Logistic Control Activity reported that for a 12-month period it had received approximately 750,000 requisitions, of which 116,000 had blanks in the demand code, despite regulations that required there were to be no blanks. Counting demand codes left blank as recurring demands could erroneously lower return rates. The Army directed AMC to work with the Activity in correcting the causes for blanks. Also, the Army noted that 17 publications addressed the returns program but that it was updating regulations to provide supply managers a single reference document.

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## No Linkage Among the Supply Levels

In March 1989, we testified before the Subcommittee on Readiness, House Committee on Armed Services, that users accumulated excess items while other users experienced shortages for the same items, and ICPS procured the same items because managers at the wholesale level did not have visibility and control over items at the retail level.<sup>2</sup> We commented that the Army needed to adopt a supply system that enabled managers at the wholesale level to have total visibility of inventories at the retail level. The Army's Director of Supply and Maintenance, Office of the Deputy Chief of Staff for Logistics, told the Subcommittee that a prototype system being developed by the Army demonstrated significant potential for streamlining its supply system and for reducing investment costs without affecting readiness. Also, he said that asset visibility at the wholesale level was being enhanced with improvements to the Selected Item Management System-Expanded.

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

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<sup>1</sup>The Army plans to replace the Direct Support Unit Standard Supply System and the Standard Army Intermediate Level Supply System with the Standard Army Retail Supply System, which is intended as a multilevel supply management and stock control system. The new system is expected to improve asset visibility within the retail-level systems by the mid-1990s.

<sup>2</sup>Needed Improvements in the Army's Inventory Management System (GAO/T-NSIAD-89-19, Mar. 23, 1989).

summarizes a theme common to previous audits and studies that the Army has no interface between its wholesale and retail supply systems. Wholesale-level managers lose visibility over items once they are issued from the wholesale system. Consequently, their decisions to replenish stock are made without knowing whether the retail system has items that could be returned to the wholesale system in order to reduce planned procurement. Pointing out they were not using the Selected Item Management System-Expanded because of outdated and inaccurate data, managers at the wholesale level supported a single supply system for visibility and control over items at the retail level. DOD agreed with our recommendation to establish a single supply system for improving the efficiency and effectiveness of item management.

### Prior Deficiencies Reported as Being Corrected

The Federal Managers' Financial Integrity Act (31 U.S.C. 3512[b] and [c]) requires agency management to annually report on material weaknesses in the control and accountability over agency assets. Weaknesses in controls are considered material when, among other things, they exist in a majority of agency components and risk or result in the loss of at least \$10 million. AMC's assessment of internal controls for fiscal years 1989 and 1990 did not identify material weaknesses related to the return of assets needing repair. However, in 1989 and 1990, the Army reported that weaknesses in asset visibility resulted in uneconomical buys and in the disposal of assets.

In 1987 AMC reported that actions to correct a material weakness on failure to return assets needing repair, initially identified in fiscal year 1984, were complete and that it believed further reporting on this topic was not required. In describing the weakness, AMC noted that retail-level activities were not returning assets at an acceptable rate and that item managers did not have a real-time system for monitoring the returns process. This problem was widely known by the ICPS and, for 12 systems over the past 2 years, had resulted in additional procurement costs of \$34 million. Actions to improve return rates included placing all depot-level repairable assets on the automated return item list and emphasizing the significance of returns through letters, messages, and supply bulletins. According to the 1987 AMC report, no further actions were necessary because the overall rate-of-return for assets needing repair had increased from a low of 27 percent in December 1982 to 94 percent in June 1986.

Although AMC has not reported low rates as a material weakness since 1987, the Army's Deputy Chief of Staff for Logistics in November 1990

notified all major commands to review the Logistic Control Activity's return data, identify causes for low returns, and take corrective actions to bring return rates up to the Army's minimum standard.

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## Additional Actions to Improve Return Rates

In 1989 the Army established the Strategic Logistics System Task Force (now the Strategic Logistics Agency [SLA]) to manage the changes occurring in its logistics programs. As a result of the Defense Management Review process, which directed the Army to improve its inventory management, and because of the urgency to meet its requirements, the Army directed the SLA to address, among other issues, the transfer of repairable secondary items to the Army stock fund and the integration of the wholesale and retail elements of the Army's logistics system.

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## Stock Funding Assets Expected to Give Users an Option to Repair or Buy

SLA's plan for implementing stock funding noted that the Army could no longer afford a policy that maximized readiness at any cost. Stock funding would create financial incentives to more intensively manage repairable assets by (1) influencing supply managers to consider the cost of repair or buy decisions and (2) providing them the flexibility to maximize resources, as they will be able to make trade-offs between repairing and requisitioning. Two major goals of stock funding that SLA identified were to reduce recurring demands and to increase the rate-of-return for repairable items.

To reduce wholesale demands for assets without adversely affecting readiness, the Army determined that its users must have an incentive to control the costs of assets. Past practices of purchasing assets with procurement funds and issuing them to users at no cost provided no incentive for users to diagnose problems and repair the assets—users simply requisitioned a replacement from the supply system. According to SLA's plan, today's weapon systems were too expensive to continue to swap out components when the broken asset could be repaired by a maintenance unit below the depot level. Users now will reimburse the stock fund for replacements that they requisition. Given the choice between the higher costs of replacement and the lower costs of repair, users will have the incentive to diagnose malfunctions further and to repair their assets until the needed repairs are beyond their capability. The financial incentive to repair more assets at their level should cause user demands for repairable items to decrease. Although demands should be reduced, SLA also expected readiness to increase because repairing assets at the user level would make more assets available to users quicker than ordering replacements and waiting for them to arrive.

Along with reducing demands, stock funding also is expected to promote an increase in the rate-of-return of assets needing repair. Previously, when the Army issued reparable assets free of charge to users, the turn-in of assets was not considered to be a high priority. SLA's plan for stock funding provides that users are to receive monetary credit for turning in assets needing repair. On the basis of this credit policy, SLA expects that users will have a greater incentive to return assets to receive back a portion of the costs of their assets. SLA also anticipates that this monetary incentive will ensure that returns will become more timely and be monitored more closely.

SLA's plan, updated in April 1991, provided that beginning in October 1990, all reparables are to be purchased through the stock fund. In July 1991, the stock fund was scheduled to finance the overhaul of reparables, and effective April 1992, customers are to reimburse the stock fund for reparable items. At the time of our review, SLA's Acting Chief of Stock Funding of Depot-Level Reparables told us that, while SLA had not yet finalized all policies and procedures for stock funding, he believed that the Army would meet its implementation schedule. He also told us that SLA had contracted for assistance in monitoring implementation and analyzing the results of stock funding. We have other reviews ongoing to evaluate the Army's implementation of the stock funding concept.

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**Integrated Supply System**  
**Expected to Increase**  
**Visibility Over the Returns**  
**Process**

The Army has recognized that without effective visibility over assets, supply managers at the wholesale and retail levels could delay granting credit for returns and could be unable to establish priorities in scheduling repairs to preclude procurement of unneeded assets. As a long-range goal, the Army directed SLA to establish a single supply system that would enhance supply managers' visibility over the return of assets.

SLA's plan for financing reparable assets illustrates the importance of asset visibility. For instance, the success of stock funding and the solvency of both the wholesale and retail stock funds are being based on timely credit for returned assets. The wholesale asset credit policy, in turn, relies on managers having visibility of assets from the time they are turned in until the time credit is granted. To avoid delays in granting credit and ensuing cash flow problems in the Army stock fund, supply managers must be able to determine that assets have been promptly turned in and that returns are being processed in a timely manner.

In the Army's concept of a single supply system, visibility of assets includes all secondary items, down to and including those in the authorized stockage lists of supply support activities. As of September 1991, the Army had not made a final decision about instituting this system and, unlike stock funding, had not yet prepared a separate concept plan and implementation schedule for achieving this goal. SLA officials said that the Army had made no firm decisions on the features of a single supply system or how it would achieve total asset visibility.

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## Conclusions

The Army has yet to have a materiel returns program that optimizes its goal to reduce inventory costs and maximize military readiness. Persistent problems with automated systems, procedures for returns, and separate supply systems have contributed to low returns of assets needing repair. Actions to improve rates-of-return for reparable items are under way, but the Army must continue a high level of management emphasis to fully establish a program that satisfies its goal.

Prior to 1987, AMC had reported the impact of low returns as a material weakness in its annual assessment of internal controls under the Federal Managers' Financial Integrity Act. Although the Army determined in 1987 that this weakness had been corrected, conditions identified in this report illustrate that reporting is again warranted to ensure a focus is maintained on improving the Army's materiel returns program.

The Army's near-term strategy for stock funding reparable assets should help promote the return of assets needing repair. A financial incentive to repair assets at cheaper costs than buying new ones should make users more aware of the significance that returns have in prudently using resources and in maintaining readiness. Timely credit for return and repair of assets is dependent on managers having effective oversight of those assets that users have turned in for repair. Under the Army's concept for a single supply system, managers should have increased visibility over assets at the retail level that can be returned to reduce procurement of new assets.

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## Recommendation

We recommend that the Secretary of the Army direct the Commander of the Army Materiel Command to report again the low rate-of-return for reparable assets as a material weakness in the Army's next assessment of internal controls, as required by the Federal Managers' Financial Integrity Act.

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**Agency Comments**

DOD agreed with our recommendation and stated that the Army will report low return rates as a material weakness in its next assessment of internal controls.



# Methodology for Identifying Items With Low Rates-Of-Return and for Computing Additional Procurement Costs

To identify items that had not met the Army's minimum acceptable return rate of 85 percent, we obtained records for the 12-month period ending in June 1990 from AMC's Logistic Control Activity on all assets reparable at depot or special repair facilities (recoverability codes "D" and "L"). These assets represent the ones monitored by the Activity for calculating rates-of-return for the Army's materiel returns program. We weighted the selection of our sampled items by the dollar value of assets issued during the 12 months ending June 1990.

After identifying assets with return rates below 85 percent, we computed the additional procurement costs. First, we identified the number of recurring demands and returns for the RDES study "Demand, Return, and Disposal File" used by the ICPS in determining the quantity of assets to be bought. We extracted this data from the most recent study available for buys made without a current RDES study. Second, we calculated the number of assets needing repair that should have been available to reduce the procurement quantity by multiplying the number of assets issued times the Army's 85-percent rate. The shortfall quantity was the difference between the number of assets that should have been available at the minimum rate and the number of actual returns.

On the basis of RDES procedures to recognize that some assets cannot be repaired, we reduced the shortfall quantity by multiplying the shortage quantity by the Army's "final recovery rate" (that is, the percentage it expects to repair) for that specific item. We then computed the additional procurement costs by multiplying the adjusted shortfall quantity by the item's most recent unit price.

As a result of our work, we projected statistically that chances are 19 out of 20 (95 percent) that between 1,262 and 2,789 buys at the four ICPS included assets that resulted from the shortfall in returns. Also, we projected that chances are 19 out of 20 that between \$369 million and \$815 million was spent to procure these additional assets. Table I.1 provides the results of our analyses.

**Appendix I  
Methodology for Identifying Items With Low  
Rates-Of-Return and for Computing  
Additional Procurement Costs**

**Table I.1: Procurement Costs Resulting From Shortfalls in Returns**

<b>NSN</b>	<b>Item name</b>	<b>Total assets procured</b>	<b>Procurement cost</b>	<b>Procurements that could have been avoided</b>	<b>Unnecessary procurement cost</b>
<b>AVSCOM</b>					
1270-01-245-0102	Pilot Display Unit	54	\$1,967,724	9	\$337,734
1560-00-836-2247	External Storage Rack	46	82,754	4	7,196
1560-01-012-5788	Lift Linkage Assembly	302	57,380	222	42,180
1560-01-034-4655	Aircraft Floor	18	57,600	18	57,600
1560-01-274-4445	Fuselage Fairing	93	1,347,477	33	478,137
1615-00-571-3675	Structural Support	483	227,493	380	178,980
1615-01-306-6948	Main Rotor Head Assembly	85	13,008,397	81	12,534,213
650-00-906-0284	Hydraulic Servo Valve	195	300,885	15	23,145
680-01-240-1781	Fault Function Panel	57	639,996	12	134,736
110-00-838-7064	Roller Bearing	1,319	324,765	235	57,384
140-01-286-8852	Centrifugal Fan	400	1,081,550	10	24,390
920-01-139-9689	Control Rigging Set	2	5,468	2	5,468
620-01-244-6273	Indicator Unit	8	89,944	8	89,944
<b>ECOM</b>					
320-01-061-7030	Radio Receiver	5	539,130	2	215,652
340-01-072-4576	Circuit Card Assembly	123	624,594	6	30,468
99-01-087-3147	Circuit Card Assembly	147	28,665	21	4,095
99-01-114-4831	Circuit Card Assembly	8	1,776	1	222
99-01-233-0399	Printed Circuit Board	96	61,824	21	13,524
<b>ICOM</b>					
60-01-250-4920	Circuit Card Assembly	30	296,040	17	167,756
30-01-091-4882	Circuit Card Assembly	55	40,260	7	5,124
30-01-151-2866	Circuit Card Assembly	131	232,394	27	47,898
30-01-195-3437	Wiring Harness	13	6,760	2	1,040
40-01-123-3417	Programmer Assembly	5	44,250	5	44,250
39-01-090-9052	Circuit Card Assembly	27	39,636	12	17,616
39-01-217-2434	Circuit Card Assembly	165	202,290	53	64,978
<b>COM</b>					
10-01-067-3873	Transmission Fluid Cooler	308	203,588	14	9,254
10-01-117-3010	Transmission	534	5,506,074	122	1,257,942
10-01-191-1397	Axle Assembly	7	91,252	5	65,180
10-02-102-4713	Solid Rubber Wheel	6,571	637,031	1,052	101,542
10-01-073-0162	Circuit Card Assembly	441	108,486	86	21,156

(continued)

**Appendix I  
Methodology for Identifying Items With Low  
Rates-Of-Return and for Computing  
Additional Procurement Costs**

<b>NSN</b>	<b>Item name</b>	<b>Total assets procured</b>	<b>Procurement cost</b>	<b>Procurements that could have been avoided</b>	<b>Unnecessary procurement cost</b>
2815-01-084-3447	Diesel Engine	482	8,671,068	124	1,970,304
2815-01-241-9193	Diesel Engine	24	288,720	11	132,330
5340-01-124-5071	Mounting Plate	120	9,720	2	162
5998-01-197-8324	Circuit Card Assembly	445	441,885	58	57,594
<b>Total</b>		<b>12,799</b>	<b>\$37,266,876</b>	<b>2,677</b>	<b>\$18,199,194</b>

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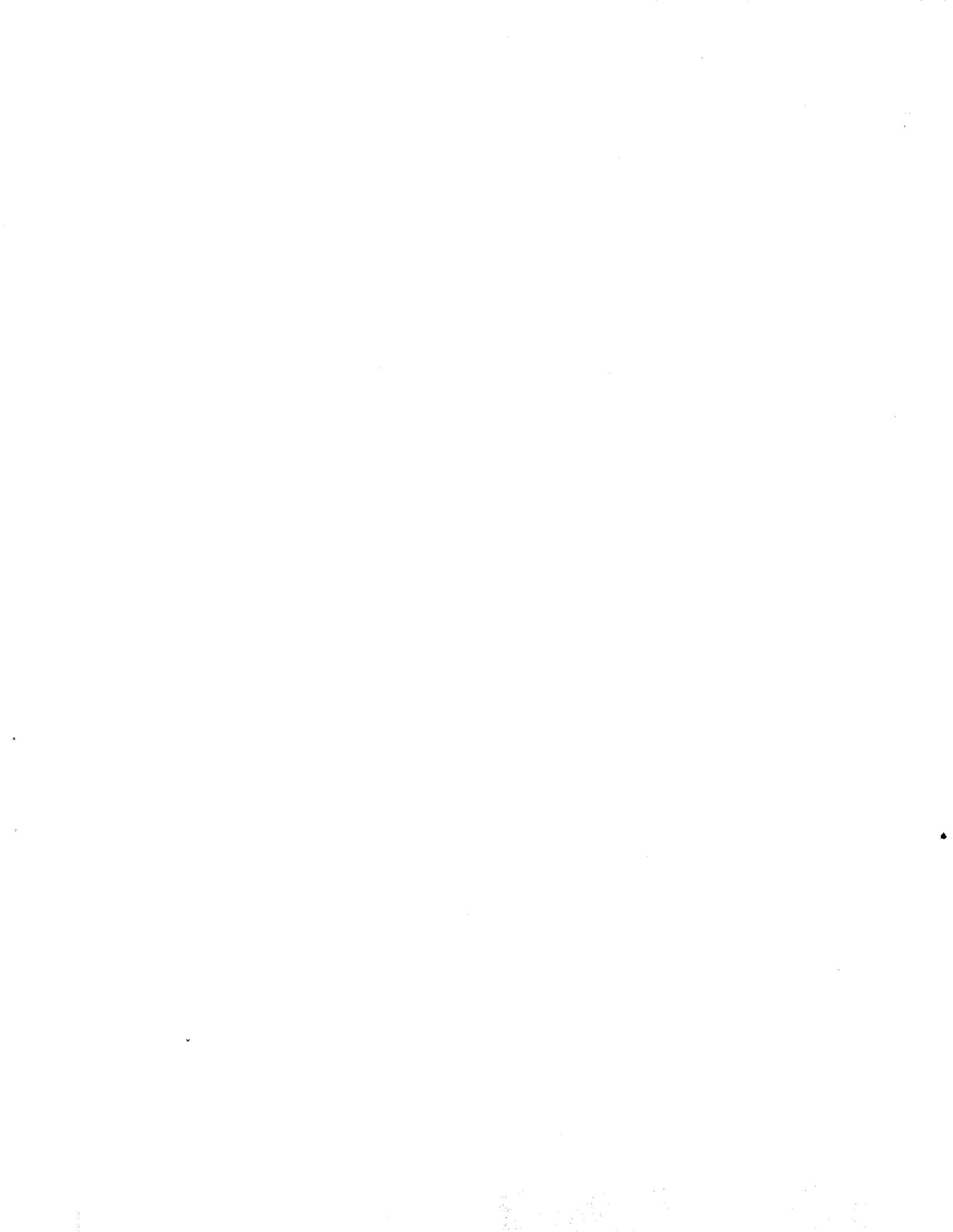
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