

GAO

Report to the Chairman, Subcommittee  
on Defense, Committee on  
Appropriations, House of  
Representatives

---

June 2002

# AIR FORCE DEPOT MAINTENANCE

## Management Improvements Needed for Backlog of Funded Contract Maintenance Work





---

# Contents

---

---

|        |  |    |
|--------|--|----|
| Letter |  | 1  |
|        | Results in Brief   | 2  |
|        | Background   | 3  |
|        | Reported Carryover Exceeded DOD Standard but Is Unreliable and Understated | 7  |
|        | Causes of Reported Carryover   | 12 |
|        | Conclusions  | 20 |
|        | Recommendations for Executive Action                                       | 21 |
|        | Agency Comments and Our Evaluation   | 22 |

---

## Appendixes

|  |    |
|--|----|
| <b>Appendix I: Scope and Methodology</b>                     | 24 |
| <b>Appendix II: Sample Element Disposition Table</b>         | 27 |
| <b>Appendix III: Comments From the Department of Defense</b> | 29 |
| <b>Appendix IV: GAO Contact and Staff Acknowledgments</b>    | 32 |
| GAO Contact  | 32 |
| Acknowledgments  | 32 |

---

## Tables

|  |    |
|--|----|
| Table 1: Unfilled Orders, Work-In-Process, and Carryover at the End of Fiscal Year 2000 and Fiscal Year 2001 | 9  |
| Table 2: Causes of the Depot Maintenance Activity Group's Unfilled Orders as of September 30, 2000           | 13 |
| Table 3: Delayed Repair Times for KC-135 Aircraft Due to Unanticipated Work                                  | 15 |
| Table 4: Population Estimates as of September 30, 2000, for Normal and Problem Carryover Balances            | 25 |

---

---



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

June 20, 2002

The Honorable Jerry Lewis  
Chairman, Subcommittee on Defense  
Committee on Appropriations  
House of Representatives

Dear Mr. Chairman:

This is the second in a planned series of reports that discusses the Defense Working Capital Fund fiscal year-end workload funding issue, generally referred to as “carryover.” Section 1051 of the National Defense Authorization Act For Fiscal Year 2001 (Public Law 106-398) required that we review various aspects of the Department of Defense (DOD) policy that allows Defense Working Capital Fund activities to carry over a 3-month level of work from one fiscal year to the next. In May 2001, we reported<sup>1</sup> that (1) DOD did not have a sound analytical basis for its current 3-month carryover standard, (2) military services used different methods to calculate the number of months of carryover, and (3) some activity groups underestimated their budgeted carryover year after year, thereby providing decisionmakers with misleading year-end carryover information resulting in more funding being provided than was intended.

As requested and agreed to with your office, this report assesses carryover<sup>2</sup> related to the contract portion of the Air Force depot maintenance activity group. The DOD 3-month carryover standard applies to all DOD activity groups except for the contract portion of the Air Force depot maintenance activity group, for which DOD established a 4.5-month carryover standard because of the additional administrative functions associated with awarding contracts. Specifically, our objectives were to (1) determine if the reported carryover balance accurately reflected the amount of

---

<sup>1</sup>U.S. General Accounting Office, *Defense Working Capital Fund: Improvements Needed for Managing the Backlog of Funded Work*, GAO-01-559 (Washington, D.C.: May 30, 2001).

<sup>2</sup>The carryover amount includes work for which obligations have been made but which has not yet started and the cost to complete work that has been started. The Air Force calculates carryover by subtracting the amount of work-in-process from the amount of unfilled orders. Unfilled orders equals the dollar value of customer orders received less revenue earned. Revenue is earned as repairs on undelivered items are completed. Work-in-process is the cost of the materials, labor, and indirect costs used in producing an end item or service on an order that is not yet complete.

---

unfinished work on hand at the end of fiscal year 2000 and (2) identify the causes of carryover at the end of fiscal year 2000.

In February 2002, the Air Force began to consider removing the contract portion of the depot maintenance activity group from the working capital fund. In April 2002, Air Force headquarters directed the Air Force Materiel Command to begin planning for this transition. If the contract portion is removed from the working capital fund, all of the issues identified in this report will still need to be addressed except for matters dealing with carryover under the DOD working capital fund requirements.

Our review was performed from July 2001 through May 2002 in accordance with U. S. generally accepted government auditing standards. The production and financial information we used and referred to in this report was provided by the Air Force, and we did not verify it. We worked with Air Force officials to validate the reliability of the information in its system in determining the reasons for the work not being completed at the end of fiscal year 2000. We did not assess the work performed by the in-house operations of the depot maintenance activity group. Further details on our scope and methodology can be found in appendixes I and II. We requested comments on a draft of this report from the Secretary of Defense or his designee. Written comments from the Under Secretary of Defense (Comptroller) are reprinted in appendix III.

---

## Results in Brief

Reported carryover balances for fiscal years 2000 and 2001 were inaccurate and, therefore, the balances were not reliable for decision-making or budget review purposes. The reported carryover balances were not accurate due to (1) faulty assumptions used in calculating work-in-process and (2) records not accurately reflecting work that was actually completed by year-end. As a result, the amount of carryover reported by the Air Force was understated by tens of millions of dollars and customers' funds were idle that could have been used for other purposes during the fiscal year. Even though the carryover was understated, Air Force reports show that the contract portion of the depot maintenance activity group exceeded the 4.5-month carryover standard at the end of fiscal year 2000 and fiscal year 2001 by about \$44 million and \$134 million, respectively. Air Force headquarters officials stated that the primary reason that they exceeded the 4.5-month standard for fiscal year 2001 was the receipt of a large amount of orders late in the fiscal year.

---

Our analysis of about \$1.6 billion of reported unfilled orders showed that a substantial amount of the work that the activity group carried over into fiscal year 2001 was work that it had planned to, but did not, complete prior to the end of fiscal year 2000 due to logistical and production problems. Specifically, we estimated that about \$530 million<sup>3</sup> of work was not completed for two key reasons. First, repairs took longer than planned primarily because (1) parts needed to perform the repairs were not available from DOD, (2) more work was needed to repair the assets than originally planned by the Air Force, and (3) contractors had capacity constraints related to personnel, facilities, and equipment. Second, work on some assets was not started as planned because of the delayed induction of items into production at contractors' facilities. Further, we could not determine the causes for an estimated \$191 million<sup>4</sup> of work not being done primarily because reliable information was not available on the status of contracts that were previously managed by the two air logistics centers that were closed in fiscal year 2001. In addition, we estimate that about \$913 million<sup>5</sup> of unfilled orders was for work that either (1) had not been planned for completion until after fiscal year 2000—normal carryover or (2) had actually been completed but not recorded as completed in the production and cost system.

We are making recommendations to the Secretary of the Air Force to improve the management and reporting of the carryover for the contract portion of the Air Force depot maintenance activity group, including (1) improving the assumptions used in calculating work-in-process, (2) improving the accuracy of the data in systems, and (3) correcting the problems associated with work not being completed as planned, such as the long-standing problem related to the lack of parts to fix assets. In its comments on a draft of this report, DOD agreed with our recommendations and briefly outlined its planned actions for addressing them.

---

## Background

The Air Force depot maintenance activity group supports combat readiness by providing depot repair services necessary to keep Air Force units

---

<sup>3</sup>Estimate made as a 95 percent confidence level with a confidence interval of +/- \$81 million.

<sup>4</sup>Estimate made at a 95 percent confidence level with a confidence interval of +/- \$58 million.

<sup>5</sup>Estimate made at a 95 percent confidence level with a confidence interval of +/- \$87 million.

---

operating worldwide. The group generates between \$5 billion to \$6 billion in annual revenue principally by repairing and overhauling a wide range of assets including aircraft, missiles, aircraft engines, software, and exchangeable inventory items for military services, other government agencies, and foreign governments. In performing these services, the group performs the work in-house at its depots or through contracts with private industry or other government agencies. The group operates under the working capital fund concept, where customers are to be charged the anticipated actual costs of providing goods and services to them.

---

## Contract Depot Maintenance Process and Key Controls Used to Manage Contracted Work

Customers place orders with the Air Force depot maintenance activity group. When the activity group accepts the order, the customer's funds are obligated. The customer uses the activity group as its purchasing agent when it needs a contractor to perform depot-level maintenance work. The activity group awards the contract and manages the work performed by the contractor. The contract portion of the depot maintenance activity group generates between \$2 billion and \$3 billion in annual revenue. In accomplishing this work, the Air Force has about 5,000 contracts with about 750 contractors that are located in the United States as well as overseas.

The Air Force air logistics centers use the contract depot maintenance production and cost system (known as G072D) as a means of combining financial and production data for the management of work that is being performed by contractors. The Air Force has also established procedures and internal controls for the contract portion of the depot maintenance activity group, which are described in two Air Force Materiel Command Instructions. Command Instruction 21-113 discusses the contract maintenance program for the depot maintenance activity group and Command Instruction 21-134 discusses the end item transaction reporting system (known as G009) and the reporting procedures for contractors. Some of the procedures and controls in these two instructions follow.

- Contracts can be awarded for a 12-month period anytime during the year. All the items to be repaired will be funded from the appropriation of the initial fiscal year. However, work must be started on at least one item during the initial fiscal year for the entire job cost to be properly charged to appropriated funds for that year.
- At a minimum, assets planned to be sent to contractors for repair should be reviewed quarterly. If the assets are not received by the contractors



---

and will not be received within a reasonable amount of time (60 days), the planned quantities to be repaired and related obligated dollars must be reduced accordingly and the contract amended, if necessary.

- Contractors are required to report, at least monthly, on the status of the assets being repaired, such as when the (1) assets were received, (2) assets were inducted for repair, and (3) work was completed on the assets. The production management specialists at the air logistics centers are responsible for ensuring that the information provided by the contractors is accurate.
- A review of the contract maintenance ledger produced from the production and cost system must be performed quarterly. Particular attention should be directed to (1) contractors beginning work on assets compared to the plan and (2) contractors completing work on assets compared to the plan. Any questionable information must be annotated and reviewed and corrections made prior to the next monthly processing cycle.

### What Is Carryover and Why Is It Important?

Carryover is the dollar value of work that has been ordered and funded (obligated) by customers but not yet completed by working capital fund activities at the end of the fiscal year. Carryover consists of both the unfinished portion of work started but not yet completed, as well as requested work that has not yet commenced. To manage carryover, DOD converts the dollar amount of carryover to months of work. This is done to put the magnitude of the carryover in proper perspective. For example, if an activity group performs \$100 million of work in a year and had \$100 million in carryover at year-end, it would have 12 months of carryover. However, if another activity group performs \$400 million of work in a year and had \$100 million in carryover at year-end, this group would have 3 months of carryover.

A DOD regulation allows for some carryover at fiscal year-end to allow working capital funds to operate efficiently and effectively. In 1996, DOD established a 3-month carryover standard for all the working capital fund activities except for the contract portion of the Air Force depot maintenance activity group. The Air Force is the only military service that includes its contract depot maintenance operation in its working capital fund. To reflect this difference, DOD established a 4.5-month carryover standard to account for the additional administrative functions associated

---

with awarding contracts. In May 2001, we reported<sup>6</sup> that DOD did not have a basis for its carryover standard and recommended that Defense determine the appropriate carryover standard for the depot maintenance, ordnance, and research and development activity groups. DOD is in the process of assessing its carryover standards. Too little carryover could result in some depot maintenance activity not having work to perform at the beginning of the fiscal year, resulting in the inefficient use of personnel. On the other hand, too much carryover could result in an activity group receiving funds from customers in one fiscal year but not performing the work until well into the next fiscal year or subsequent years. By minimizing the amount of the carryover, DOD can use its resources most effectively and minimize the “banking” of funds for work and programs to be performed in subsequent years.

---

### Plans to Remove the Contract Portion of Depot Maintenance from the Working Capital Fund

In February 2002, the Air Force began to consider financing the contract portion of the depot maintenance activity group with direct appropriations. In an April 19, 2002, memorandum, the Air Force stated that the overall financial health of the depot maintenance activity group has been negatively impacted by the contract operations. Further, without direct control over contractor costs, the working capital fund mechanism is an inappropriate choice for the contract operations. The memorandum directed the Air Force Materiel Command to begin planning for the transition of contract depot maintenance operations out of the working capital fund immediately. This would be a significant change in the financing and accounting for these contracts. Under the plan, contracts would be financed with direct appropriations, which is how the Army and Navy finance contract depot maintenance work, and carryover would no longer be associated with the work being performed by the contractor. Instead, funds would be managed in terms of the percent of funds obligated and expensed during a fiscal year. Further, the Air Force plans on using existing direct appropriation fund systems to track repairs and account for the funds and would not use its current working capital fund systems.

---

<sup>6</sup>U.S. General Accounting Office, *Defense Working Capital Fund: Improvements Needed for Managing the Backlog of Funded Work*, GAO-01-559 (Washington, D.C.: May 30, 2001).

---

---

## Reported Carryover Exceeded DOD Standard but Is Unreliable and Understated

The lack of accurate carryover information results in the Congress and DOD officials not having the information they need to oversee and manage the repair of assets. Air Force reports show that the contract portion of the depot maintenance activity group exceeded the 4.5-month carryover standard at the end of fiscal years 2000 and 2001 by about \$44 million and \$134 million, respectively, thereby resulting in more funds being provided than allowed by the DOD carryover standard. However, we found that the reported carryover balance did not accurately reflect the amount of unfinished work on hand at the end of fiscal year 2000 due to (1) faulty assumptions used in calculating work-in-process and (2) records not accurately reflecting work that was actually completed by year-end. As a result, the amount of carryover reported by the Air Force was understated by tens of millions of dollars.

Air Force reports show that the contract portion of the depot maintenance activity group exceeded the 4.5-month carryover standard at the end of fiscal years 2000 and 2001. The Air Force reported that it had about \$835 million, which is 4.7 months, of carryover at the end of fiscal year 2000, and about \$1.1 billion, which is 5.1 months, at the end of fiscal year 2001. In the past, the Office of the Under Secretary of Defense (Comptroller) and/or the congressional defense committees used carryover information to determine whether the working capital fund activity groups had too much carryover. For example, the Congress reduced the Army's and Air Force's fiscal year 2001 Operation and Maintenance appropriations by \$40.5 million and \$52.2 million, respectively, because the depot maintenance operations in their working capital funds had too much carryover. Similarly, in 2001, the Under Secretary of Defense (Comptroller) reduced the Air Force's fiscal year 2003 customers' budget requests by \$185 million because the contract portion of the depot maintenance activity group would have too much carryover at the end of fiscal year 2003.

---

## Work-In-Process Calculation Is Based on Faulty Assumptions

As stated previously, carryover is the amount of unfilled orders less the amount of work-in-process. We found that the Air Force does not have actual information on the amount of work-in-process performed by contractors and, therefore, uses a formula to estimate the amount based on the assumption that the contractor will start and complete work as planned. However, the assumptions were faulty because the contractors did not always start and/or complete the work as planned. Using its formula, the Air Force reduced the amount of unfilled orders due to work-in-process by about \$1 billion, which is 5.6 months, and \$835 million, which

---

is 4.1 months, in fiscal year 2000 and fiscal year 2001, respectively, to determine the amount of carryover for these 2 years.

The amount of work-in-process recorded monthly is affected or is determined by the nature of the work, the estimated/actual start date of the work, and the expected time to complete the work. For work that is planned to be completed in less than 150 days, the Air Force assumes that one-fifth of the work will be completed each month and records work-in-process accordingly. The calculation for the different workload categories is outlined below.

- For workload categories involving exchangeable inventory items, other major end items, and software, the amount of work-in-process is based on when the work is planned to begin and assumes that the work will be completed within 5 months. Thus, the contractor does not have to begin actual work, and the items to be repaired do not even have to be at the contractors' plant in order to record work-in-process on those specific orders.
- For workload categories involving aircraft, engines, and missiles, the amount of work-in-process is based on when the work actually begins at the contractor's plant and assumes that the work will be completed within 5 months from that point in time.

For work planned to be completed in more than 150 days, the Air Force has a different calculation to determine the amount of work-in-process. The calculation for the different workload categories is outlined below.

- For workload categories involving exchangeable inventory items, other major end items, and software, the amount of work-in-process is based on when the work is planned to begin and assumes that the work will be completed in the estimated number of days as planned. For example, if the Air Force estimates that the work will be completed in 1 year, it will record one-twelfth of the amount of the order as work-in-process each month. The contractor does not have to begin actual work in order to start recording work-in-process.
- For workload categories involving aircraft, engines, and missiles, the amount of work-in-process is based on when the work actually begins at the contractor's plant and assumes that the work will be completed in the estimated number of days as planned.

For fiscal years 2000 and 2001, the amount of reported work-in-process had a significant impact on the amount of carryover, reducing each fiscal year's carryover by at least \$835 million. Table 1 shows the actual reported year-end unfilled orders, work-in process, and carryover, in dollars and months for fiscal year 2000 and fiscal year 2001. It also shows the amount of carryover in excess of the 4.5-month standard.

**Table 1: Unfilled Orders, Work-In-Process, and Carryover at the End of Fiscal Year 2000 and Fiscal Year 2001**

| Description                                      | Fiscal year 2000 |                  | Fiscal year 2001 |                               |
|--|------------------|------------------|------------------|-------------------------------|
|  | Dollar amount    | Number of months | Dollar amount    | Number of months <sup>a</sup> |
| Unfilled orders                                  | \$1,819.4        | 10.3             | \$1,965.7        | 9.5                           |
| Less work-in-process                             | 984.9            | 5.6              | 835.5            | 4.1                           |
| Carryover  | 834.5            | 4.7              | 1,130.2          | 5.5                           |
| Air Force adjustment to carryover <sup>b</sup>   | 0.0              | 0.0              | 68.9             | 0.3                           |
| Revised carryover                                | 834.5            | 4.7              | 1,061.3          | 5.1                           |
| <b>Carryover in excess of 4.5 month standard</b> | <b>\$43.5</b>    |                  | <b>\$133.6</b>   |                               |

<sup>a</sup>Figures do not add due to rounding.

<sup>b</sup>In accordance with DOD policy, beginning in fiscal year 2001, the Air Force began excluding certain work, such as work for foreign countries, from its carryover. In May 2001, we recommended in GAO-01-559 that DOD clarify its policy on these adjustments, and DOD is currently reviewing its policy on calculating carryover.

Source: Air Force budget and accounting reports.

According to Air Force Materiel Command officials, the primary reason that they exceeded the 4.5-month standard for fiscal year 2001 was the receipt of a large amount of orders late in the fiscal year. Specifically, actual customer orders exceeded planned customer orders by \$311 million for fiscal year 2001, with \$292 million of that amount received in August 2001. Large quantities of orders placed late in the fiscal year provide the Air Force limited opportunity to perform the work by the end of the fiscal year.

Air Force officials also stated that the current systems used by contract depot maintenance cannot produce a reliable work-in-process amount. They further stated that the assumptions used for calculating work-in-process do not provide an accurate work-in-process amount, particularly the assumption that the work will begin as planned. Air Force officials told

---

us, and we agree, that a more accurate way to calculate work-in-process would be to eliminate the assumption that the contractor will start work as planned and base all work-in-process calculations on when the contractor actually starts work. The officials said making such a change to the calculation would provide a financial incentive for contract depot maintenance to ensure that data on when the work actually started is entered into the system in a timely manner. The incentive to do so stems from the fact that contract depot maintenance bills customers based on the work-in-process amount that is recorded in the production and cost system. If work-in-process is based on when the contractor actually starts work, the depot maintenance activity group cannot bill customers until the date that the work actually started is recorded in the system.

---

### Unfilled Order Data in the Production and Cost System Are Unreliable

As previously discussed, because the air logistics centers use the production and cost system to manage the work performed by contractors, it is critical that the unfilled order data be entered into the system in an accurate and timely manner. The data in this system are also used in the Air Force's budget process and are the basis for determining the amount of carryover, which is reported to the Congress each fiscal year. However, we found that much of the unfilled order data in the system was inaccurate or incomplete because the production management specialists, who are primarily responsible for data accuracy, did not always (1) ensure that contractor production data in the system were correct or (2) enter contract information for new customer orders into the production and cost system in a timely manner, as the following two examples illustrate.

- Based on our analysis of a stratified random sample of unfilled maintenance requirements at the end of fiscal year 2000, we estimate that \$256 million<sup>7</sup> of the work was actually completed but not reflected in the system because the production management specialists did not ensure that the data were correct.
- When contract depot maintenance receives a customer order for work, it enters into a contractual relationship for the performance of the work and then records information on the contract in the production and cost system. Any customer order for which there is no contractual information in the system is referred to as "unscheduled" work. We

---

<sup>7</sup>Estimate made at a 95 percent confidence level with a confidence interval of +/- \$65 million.

---

found that as of September 30, 2000, contract depot maintenance had at least \$59.9 million of unscheduled work for which the contracts were awarded but the contract information was not recorded in the system. Our analysis of the \$59.9 million showed that \$8.6 million was not entered into the system for at least 3 months to 5 months after the contracts were awarded, while about \$15 million was not entered for at least 6 months or longer. For example, in one case, an order for \$3.6 million was not entered in the system for 7 months after the contract was awarded. In another case, an order for \$802,000 was not entered into the system for 20 months after the contract was awarded. In both cases, the lack of production management specialist oversight due to either heavy workload or inexperience was cited as the reason for not entering the data in a timely manner. Without the contract data in the system, there was no information in the system for managing repair actions and monitoring the status of the contracts.

We found that (1) in some cases, the production management specialists were not following the regulations regarding data accuracy, (2) in other cases, the production management specialists did not know the correct treatment for recording data accurately, and (3) standard operating procedures for use by the production management specialists did not exist to provide detailed instructions on their responsibilities for data accuracy. Air logistics center officials also told us that production management specialists need training that is specific to their day-to-day responsibilities and that such training would enhance the production management specialists' awareness of the importance of data accuracy.

Air Force Materiel Command officials stated there is a data discipline problem that centered around the production management specialists not ensuring that the data in the production and cost system are correct and up to date. The officials attributed this problem, in part, to the lack of clear guidance and detailed operating procedures related to how the production management specialists should go about performing their day-to-day responsibilities. The officials further told us that there is a lack of internal controls or processes to ensure data accuracy, such as the use of metrics that could act as "red flags" to alert management to possible data problems. In discussing the data accuracy problem with Air Force headquarter officials, they told us that a contributing factor was the disruption to operations when the Air Force hired about 150 new production management specialists in fiscal year 2000 because of the closing of two air logistics centers and transferring the oversight of their contracts to the remaining centers.

---

---

## New System Effort Terminated

Since 1996, the Air Force has recognized the need to improve the reliability of the data in the production and cost system and, until February 2002, was developing a new system, the Contract Maintenance Accounting and Production System—known as G501—to accomplish this. According to Air Force officials, implementing the new system would have helped alleviate the type of data problems we found because it was to be a single, fully integrated real-time web-based system, which, among other things, would have streamlined contractor reporting of production data. The Air Force had planned to implement the new system at the three air logistics centers and at approximately 900 contractor facilities. The development of the new system initially started in 1996 as an effort to redesign the existing production and cost system. It was later decided that this system and two other legacy systems that currently perform production and accounting functions for the contract portion of the depot maintenance activity group needed to be replaced since they interacted with each other. Thus, in September 1999, a contract was awarded for the development project with an estimated completion date of December 2001, which was later revised to fiscal year 2005.

In February 2002, the Air Force began to consider stopping its financing of the contract portion of the depot maintenance activity group in the working capital fund. As a result, the Air Force has stopped working on developing the new system after spending about \$7.8 million. The Air Force plans to use other systems to perform the production and accounting functions.

---

## Causes of Reported Carryover

Our analysis of about \$1.6 billion of reported unfilled orders showed that a substantial amount of the work that the activity group carried over into fiscal year 2001 was work that it had planned to complete prior to the end of fiscal year 2000 but did not due to logistical and production problems. Specifically, we estimated that about \$530 million<sup>8</sup> of work was not completed for two key reasons. First, repairs took longer than planned primarily because (1) parts needed to perform the repairs were not available from DOD, (2) more work was needed to repair the assets than originally planned by the Air Force, and (3) contractors had capacity constraints related to personnel, facilities, and equipment. Second, work on some assets was not started as planned because of the delayed induction of items into production at contractors' facilities. Further, we

---

<sup>8</sup>Estimate made at a 95 percent confidence level with a confidence interval of +/- \$81 million.



could not determine the causes for an estimated \$191 million<sup>9</sup> of work not being done primarily because Air Force officials could not provide reliable information on the status of contracts that were previously managed by the two air logistics centers that were closed in fiscal year 2001.

In addition, we estimated that about \$657 million<sup>10</sup> of the unfilled orders that the activity group carried over into fiscal year 2001 was for work that was planned to be completed in fiscal year 2001. Since this work was expected to be carried over, we classified it as normal carryover. The results of our analysis are summarized in table 2 and discussed in greater detail in the following sections.

**Table 2: Causes of the Depot Maintenance Activity Group's Unfilled Orders as of September 30, 2000**

| Cause             | Dollars in millions |   |
|-------------------|---------------------|---|
|                   | Point estimate      | Confidence interval at 95% confidence level |
| Repair problem    | \$322.4             | +/- \$61.7                                  |
| Induction problem | \$208.0             | +/- \$53.2                                  |
| Unknown problem   | \$191.3             | +/- \$57.5                                  |
| Normal carryover  | \$656.8             | +/- \$58.3                                  |

## Repair Problems Are a Major Cause of Carryover

As shown in table 2, we estimated that about \$322 million<sup>11</sup> of the activity group's unfilled orders as of September 30, 2000, were for work that was scheduled to be completed prior to September 30, but was not completed by then because of longer than expected repair times. As the following examples illustrate, our work showed that the primary causes of these longer than expected repair times were (1) shortages of component parts, (2) unanticipated problems, and (3) contractor capacity constraints.

<sup>9</sup>Estimate made at a 95 percent confidence level with a confidence interval of +/- \$58 million.

<sup>10</sup>Estimate made at a 95 percent confidence level with a confidence interval of +/- \$58 million.

<sup>11</sup>Estimate made at a 95 percent confidence level with a confidence interval of +/- \$62 million.

---

## Shortages of Component Parts

For the exchangeable and engine workload categories, a shortage of component parts was a major cause of untimely repairs. For example, a requirement for the repair of a leading-edge aircraft part<sup>12</sup> was placed on a contract in December 1999 for a unit sales price of \$39,268 and with an expected completion date of June 2000. In January 2000, the contractor inspected the item and determined that defective seals would have to be replaced. Because the seals were government-furnished material, the contractor submitted a requisition to the Defense Logistics Agency. When the seals had not arrived by the expected delivery date (May 2000), the contractor requisitioned them again and, when the Defense Logistics Agency subsequently advised the contractor that the seals were not available, the contractor requested and was granted permission to manufacture them. As of November 2001, the projected completion date for the manufacture of the seals was March 2002, and the leading-edge aircraft part was expected to be repaired and available for shipment to the customer almost immediately after that—about 21 months longer than expected.

The Air Force Materiel Command recently completed a study of this long-standing and well-documented problem<sup>13</sup> that the Air Force refers to as “awaiting parts.” Additionally, it developed an action plan to correct some of the underlying causes of the awaiting parts problem that were identified in the study. The scope of both the study and the action plan was limited to depot maintenance work that is performed in-house at the three air logistics centers and did not cover the contract portion of the activity group.

Air Force Materiel Command officials have acknowledged that contract depot maintenance has unique awaiting parts problems because the contract portion of this activity group uses different systems than the in-house portion of the group. They indicated that the plan to remove contract depot maintenance operations from the Air Force Working Capital Fund and to discontinue, as previously discussed, the development of the new production and cost system have caused them to put virtually all contract depot maintenance initiatives on hold.

---

<sup>12</sup>The leading edge is a part located in front of the engine on a C-5 aircraft that helps direct air into the engine.

<sup>13</sup>This problem is discussed in our report entitled, U.S. General Accounting Office, *Air Force Supply: Management Actions Create Spare Parts Shortages and Operational Problems*, GAO/NSIAD/AIMD-99-77 (Washington, D.C.: April 29, 1999).

---

## Unanticipated Problems

Unanticipated problems were another major cause of repairs not being performed as planned, especially for the aircraft workload category. For example, for the last several years, the contract repair of KC-135 aircraft, which have an average age of about 40 years, has been a large and problematic workload. Specifically, due primarily to unanticipated problems, such as the need for major structural repairs, work on these aircraft has taken much longer than expected to complete. According to data in the production and cost system, as of September 30, 2000, a contractor had not completed work on 11 KC-135 aircraft that were originally scheduled to be completed during fiscal year 2000 and two aircraft that were originally scheduled to be completed during fiscal years 1997 and 1999, respectively. Additionally, as of September 30, 2000, another contractor had not completed work on 16 KC-135 aircraft that were originally scheduled to be completed during fiscal years 1999 and 2000.

The magnitude of this problem is illustrated in table 3, which compares the initial and actual repair times for KC-135 aircraft at the second contractor's facilities during fiscal years 1999 and 2000.

---

**Table 3: Delayed Repair Times for KC-135 Aircraft Due to Unanticipated Work**

| Fiscal year | Number of aircraft repaired | Average negotiated repair days | Average actual repair days | Variance |
|-------------|-----------------------------|--------------------------------|----------------------------|----------|
| 1999        | 11 <sup>a</sup>             | 202                            | 433                        | 231      |
| 2000        | 21 <sup>b</sup>             | 175                            | 418                        | 243      |

<sup>a</sup>Does not include one aircraft that work was started on in September 1999 and was still not finished as of February 2002.

<sup>b</sup>Does not include one aircraft that work was started on in November 1999 and was still not finished as of February 2002.

Source: *Aircraft and Missile Maintenance Production/Compression Report*.

Altogether, the 29 KC-135 aircraft that were scheduled to be completed prior to the end of fiscal year 2000, but were not, had an unfilled order value of about \$86.6 million.

## Contractor Capacity Constraints

Contractor capacity constraints are a third cause of repair problems. For example, one of the items in the sample was a \$1.4 million requirement to repair 15 power supply units at a unit sales price of \$94,879 and with an estimated repair time of 45 days. All work on this item, which is a component of an electronic warfare system, was scheduled to be completed by June 30, 2000. However, as of September 30, 2000, only eight

---

items had been repaired and, as of September 30, 2001, one item had still not been repaired. The prime contractor attributed the delayed repairs to personnel constraints. Specifically, at one time, there was a steady repair workload for this item, and a subcontractor employed three to four people to work on nothing but this requirement. When the workload declined, the subcontractor released all but one of the employees trained to make the repairs. According to the prime contractor, when an order was received in late 1999, the subcontractor had difficulty finding qualified people to do the work. However, the prime contractor also indicated that the subcontractor has gradually redeveloped a repair capability in this area, is now repairing two items a month, and expects to build up his capability to three a month in the near future.

---

### Delayed Induction of Assets Is Another Major Cause of Carryover

As shown in table 2, we estimated that about \$208 million<sup>14</sup> of the activity group's unfilled orders as of September 30, 2000, were for work that was scheduled to be completed prior to September 30, but was not completed by then because work on the items was not started as planned at contractors' facilities. A \$9.8 million order to repair 24 exchangeable inventory items is an example of a requirement that we placed in the delayed induction category. In this case, the estimated repair time was 90 days, and data in the production and cost system indicated that the contractor was expected to complete work on all 24 items by the end of fiscal year 1999. However, as of the end of fiscal year 2000, the contractor had received only 19 of the inventory items. The remaining five inventory items—which had an unfilled customer order value of about \$2 million—were not received by the contractor until the third quarter of fiscal year 2001 and we, therefore, included \$2 million in the delayed induction category.

One of the underlying causes of the activity group's induction problem is that the Air Force Materiel Command has not established effective internal control procedures to ensure that production management specialists are complying with its policy guidance. For example, Air Force Materiel Command Instruction 21-113 states that, at a minimum, "review of asset generation should be done on a quarterly basis and, if assets will not generate within a reasonable period of time (60 days), the scheduled input quantities and obligated dollars must be reduced accordingly." However,

---

<sup>14</sup>Estimate made at a 95 percent confidence level with a confidence interval of +/- \$53 million.

---

our analysis showed and the Air Force Materiel Command agreed that there is no systematic process or effective internal controls to ensure that the production management specialists are complying with this guidance. A second cause is that some of the guidance is inconsistent. For example, Air Force Materiel Command Instruction 21-113, "Contract Maintenance Program for Depot Maintenance Activity Group (DMAG)," states that work must be started on at least one asset during the fiscal year that an order is placed. However, the Air Force Logistics Command supplement to Air Force Regulation 170-8 states that the contract depot maintenance activity group has until December 31 to get a customer's requirement in a contract (January 31 for some requirements). Accordingly, one regulation requires work to be started on an asset before the fiscal year-end, but another regulation does not even require that the contract be awarded until the end of the calendar year.

---

### The Activity Group Is Not Managing a Major Portion of Its Contract Workload

As shown in table 2, we could not determine the cause of the problem for about \$191 million<sup>15</sup> of unfilled orders that were scheduled to be completed prior to September 30, 2000, but were not. We could not make this determination because production management specialists did not have documentation on the status of the repairs needed to make this determination. The two primary reasons that information was not available were that production management specialists (1) did not have required documentation for many of the contracts that were transferred from the Sacramento and San Antonio Air Logistics Centers to two of the three remaining centers in October 2000 and (2) did not maintain information on the status of software projects.<sup>16</sup>

### Inadequate Documentation on Transferred Contracts Prevents Effective Management

In October 2000, the Sacramento and San Antonio Air Logistics Centers discontinued their contract depot maintenance operations<sup>17</sup> and transferred management responsibility for their contracts to the three

---

<sup>15</sup>Estimate made at a 95 percent confidence level with a confidence interval of +/- \$58 million.

<sup>16</sup>Although this problem applied primarily to software workloads, we found similar problems with other workloads that have an output expressed as a level of effort, such as months or hours of work, rather than items repaired.

<sup>17</sup>In fiscal year 2001, the Air Force completed the closure of the Sacramento and San Antonio Air Logistics Centers, as directed by the 1995 Base Realignment and Closure Commission.

---

remaining centers (Warner Robins, Oklahoma City, and Ogden). As part of this management transfer, the Sacramento and San Antonio centers shipped contract files and related customer order files to the three centers that assumed responsibility for the work. However, in many instances, two of the centers that assumed responsibility for the work either did not receive the required files or received incomplete files. Additionally, for the files they did receive, they found numerous and significant discrepancies between the information in the contract files and related customer files. Discrepancies were also found between these manual records and the data in the production and cost system. As a result of these problems, two of the three remaining centers have had to reconstruct many of the files and reconcile numerous discrepancies.<sup>18</sup> Because the Air Force does not know the status of these contracts, (1) it is potentially vulnerable to paying for goods and services not received or performed and is subject to fraud, waste, and abuse, (2) work may have been accomplished but not recorded in the system, or (3) the Air Force may not be taking prompt and appropriate action to resolve problems that are delaying the completion of the work.

A contract depot maintenance manager at one of the remaining centers characterized this records reconstruction and reconciliation effort as “overwhelming.” Specifically, he noted that his center had assumed responsibility for 627 contracts (about 20 percent of its total workload), and pointed out that the contracts went back to 1981 and each contract could have as many as 800 line items. The manager also stated that, as of October 2001 (1 year after the transfer), center staff had not even looked at many of the contracts and had unreconciled problems with many of the contracts that they had reviewed. To further illustrate the magnitude of the reconciliation problem, he pointed out that their research thus far had determined that (1) they did not have contracts for \$41 million of work that was recorded in the production and cost system and about \$3 million in contractor payments, (2) the production and cost system contained no information on 74 contracts with a total contract amount of \$12.6 million,

---

<sup>18</sup>We did not find this to be a significant problem at one of the remaining air logistics centers primarily because an entire product directorate, including key personnel from the contract depot maintenance function, transferred with the workload from one of the closing air logistics centers. Personnel from the contract function brought the contract information (e.g., contract files) with them in order to avoid any problems with missing data. According to officials at the remaining center, the work that the transferred product directorate performs accounts for about 65 percent of the remaining center’s total workload.

---

and (3) contractors were providing automated production data for less than 15 percent of the transferred contracts.

The lack of documentation for contracts that were transferred from a closing facility had resulted in the lack of management oversight. For example, 10 of the sample items, with a total unfilled order value of \$4.5 million as of September 30, 2000, were requirements for work on hush houses<sup>19</sup> that were contracted for by one of the closing air logistics centers. Work on several of these hush houses was supposed to be completed prior to the end of fiscal year 2000, and work on all of them was supposed to be completed prior to the end of fiscal year 2001. However, as of December 2001, the air logistics center that assumed management responsibility for the contracts was still trying to determine the status of the work since it had not received the required documentation from the closing center.

The two centers that have a significant problem in this area have recently dedicated several personnel to the resolution of problems related to the transferred contracts. However, this work is a time-consuming and labor-intensive process, and the Air Force Materiel Command has not established either a milestone for completing the work or a methodology for monitoring progress. Consequently, it is uncertain when the centers will have all of the information they need to manage these transferred contracts.

**Lack of Actual Production Data Makes Software Unfilled Order Data Highly Questionable**

We estimate that \$68 million<sup>20</sup> of the unfilled orders in the software workload category of the sample was for work that was scheduled to be completed prior to September 30, 2000, but was not completed as of that date. However, we were unable to determine why the completion of this work was delayed because production management specialists are not required to monitor the status of software projects and did not have the documentation needed to identify problems and determine their underlying causes.

For most nonsoftware workloads, the requirement is to repair a specific quantity of items within a specified period of time, and contractors are

---

<sup>19</sup>Hush houses are structures that contain noise suppression systems. They are used to reduce the noise associated with engine tests.

<sup>20</sup>Estimate made at a 95 percent confidence level with a confidence interval of +/- \$10 million.

---

required to submit automated production reports that show when they (1) receive the items that are to be repaired, (2) started work on the items, (3) complete the repairs, and (4) ship repaired items to customers. Additionally, production management specialists are required to develop schedules that show when work on the items is scheduled to start and when repairs are expected to be completed. If done properly, this approach ensures that production management specialists have the information they need to (1) monitor the status of the work, (2) identify problems, and (3) take prompt corrective action, when appropriate.

However, for software workloads, the requirement is not to repair a certain number of items, but rather to accomplish certain tasks. For example, the task could be to (1) attend and support any lab, ground, and flight tests performed on a weapon system, (2) analyze test data, or (3) revise weapon system software that does not perform as intended, such as an electronic warfare system that does not perform effectively in high electro-static environments. As a result, most software workloads are expressed as a level of effort, such as in number of hours or months to be worked.

Because production management specialists do not have reliable data on the status of software projects, the “actual” production data that they enter into the production and cost system are estimates that are based on the frequently erroneous assumption that work will begin and be accomplished as planned. This problem, which is similar to the previously discussed problem with the activity group’s work-in-process data, makes the reported value of software unfilled orders highly questionable. Further, because the reported value of software carryover is based on highly questionable estimates for both work-in-process and undelivered orders, it cannot be relied on.

---

## Conclusions

The Air Force does not have reliable information on the dollar amount of carryover for its contract depot maintenance operation due to faulty assumptions used in calculating work-in-process and records not accurately reflecting work done at year-end. Until the problems are corrected, congressional and Defense decisionmakers will be forced to make key budget decisions, such as whether or not to enhance or reduce customer budgets, based on unreliable information. In addition, due to logistical and production problems, hundreds of millions of dollars of work was not done as planned and was carried over into the next fiscal year. These problems resulted in idle funds that could have been used for near-term readiness or other priorities. For the contract portion of this activity



---

group to operate more effectively, managers at the Air Force Materiel Command and the air logistics centers must be held accountable for (1) the accuracy and timeliness of the production and financial management information used for decision-making and (2) ensuring that the work is completed as planned. Until these weaknesses are resolved, concerns will continue to be raised about the amount of carryover related to the contract portion of this activity group.

---

## Recommendations for Executive Action

We recommend that the Secretary of the Air Force direct the Commander, Air Force Materiel Command, to do the following.

- Use the date contractors actually start work, rather than the planned start date, to calculate work-in-process for all workload categories as long as the contract portion of the activity group remains in the working capital fund.
- Improve the accuracy of the data in its systems that track repair actions and account for costs by (1) holding managers accountable for ensuring the accuracy of the data, (2) developing standard operating procedures that provide detailed guidance on production management specialists' day-to-day responsibilities, particularly in the area of ensuring data accuracy, (3) providing additional training to production management specialists on these procedures, and (4) developing metrics that act as "red flags" to alert management of possible data problems. At a minimum, the systems should provide timely and accurate information on when contractors receive broken items for repair, repair work starts on the items, repairs are completed, and repaired items are returned to customers.
- Develop accurate and complete information on contracts that were awarded by the San Antonio and Sacramento Air Logistics Centers and subsequently transferred to the three remaining centers to avoid loss of control that may result in fraud, waste, and abuse. This will require, at a minimum, (1) establishing milestones for completing both the review of transferred contracts and resolving data problems identified during the reviews, (2) using metrics to monitor progress, and (3) ensuring that sufficient resources are dedicated to the resolution of the problem.
- Identify the underlying causes of the contract depot maintenance "awaiting parts" problem.

- 
- Develop an action plan to address the underlying causes for the “awaiting parts” problems similar to the plan that was recently developed to address the “awaiting parts” problems for the air logistics centers’ in-house depot maintenance operations.
  - Provide clear and consistent guidance on how, when, and by whom the induction of assets should be monitored.
  - Establish internal control procedures to ensure that the guidance on the induction of assets is followed.

---

## Agency Comments and Our Evaluation

DOD provided written comments on a draft of this report. DOD concurred with our seven recommendations and identified actions it was taking to correct the identified deficiencies. For example, to improve the accuracy of the data in its systems that track repair actions and account for costs, the Air Force is in the process of developing and providing training courses to the production management specialists. DOD’s comments are reprinted in appendix III.

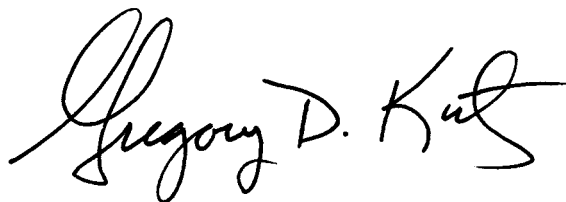
---

We are sending copies of this report to the Secretary of Defense; the Secretary of the Air Force; the Chairmen and Ranking Minority Members of the Senate Committee on Armed Services; the Subcommittee on Readiness and Management Support, Senate Committee on Armed Services; the Subcommittee on Defense, Senate Committee on Appropriations; the House Committee on Armed Services; the Subcommittee on Military Readiness, House Committee on Armed Services; the Ranking Minority Member, Subcommittee on Defense, House Committee on Appropriations; and other interested parties. Copies will be made available to others upon request. Please contact Greg Pugnetti, Assistant Director, at (703) 695-6922

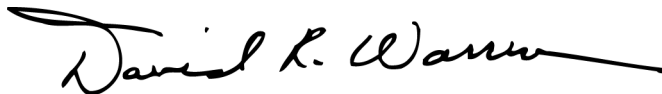
---

if you or your staff have any questions concerning this report. Other key contributors to this report are listed in appendix IV.

Sincerely yours,

A handwritten signature in black ink that reads "Gregory D. Kutz". The signature is written in a cursive style with a large initial 'G' and a long horizontal stroke at the end.

Gregory D. Kutz,  
Director, Financial Management and Assurance

A handwritten signature in black ink that reads "David R. Warren". The signature is written in a cursive style with a large initial 'D' and a long horizontal stroke at the end.

David R. Warren,  
Director, Defense Capabilities and Management

---

# Scope and Methodology

---

To determine if the reported carryover balances accurately reflected the amount of unfinished work on hand at the end of fiscal year 2000, we obtained and analyzed the air logistics centers' logistical and financial reports that provided information on unfilled orders. We also reviewed the computation that the Air Force uses to determine the dollar amount and number of months of carryover. This computation is the dollar amount of unfilled orders at fiscal year-end less the dollar amount of work-in-process which equates to the amount of funds that carryover to the next fiscal year. We reviewed the two factors (unfilled orders and work-in-process) that are used in the computation and obtained documentation that supported the information. Since the work-in-process amount is a calculated figure and is not based on actual work performed by the contractors, we obtained and analyzed the methodology used by the Air Force Materiel Command and the air logistics centers to compute the amount of work-in-process. In addition, to determine if any of the work had actually been completed, we selected and reviewed a stratified random sample of unfilled orders.

To identify the primary causes of contract depot maintenance carryover, we reviewed a stratified random sample of 369 contract depot maintenance requirements that, according to the group's production and cost system, had been funded by customers, but not yet completed by contractors as of September 30, 2000. These 369 depot maintenance requirements were selected from five major workload categories (aircraft, engines, exchangeable inventory items, missiles and other major end items, and software). They accounted for \$744.1 million, about 41.2 percent, of the \$1.806 billion of unfilled orders that the activity group reported at the end of fiscal year 2000. Of the \$1.806 billion, about \$124 million of the September 30, 2000, unfilled orders were customer requirements that, according to the production and cost system, had not yet been placed on contract. These requirements and an additional \$48 million of relatively small orders were excluded from our analysis. The remaining \$1.634 billion represents total unfilled orders. The confidence level used for estimating the value of completed and uncompleted work was 95 percent and the expected tolerable amount in error (test materiality) was \$163,392,642. See appendix II for the Sample Element Disposition Table. Table 4 discloses the estimates and confidence intervals in total and individually for normal carryover, total problem carryover, and each of the carryover problems for the carryover balances as of September 30, 2000.

**Appendix I  
Scope and Methodology**

**Table 4: Population Estimates as of September 30, 2000, for Normal and Problem Carryover Balances**

Dollars in millions

| Description                                    | Problem carryover and type of problem |                                      |                                 |                              |                               | Reporting problems <sup>f</sup> |
|--|---------------------------------------|--------------------------------------|---------------------------------|------------------------------|-------------------------------|---------------------------------|
|  | Normal carryover <sup>a</sup>         | Total problem carryover <sup>b</sup> | Induction problems <sup>c</sup> | Repair problems <sup>d</sup> | Unknown problems <sup>e</sup> |                                 |
| Point estimate                                 | \$656.8                               | \$721.3                              | \$208.0                         | \$322.4                      | \$191.3                       | \$255.8                         |
| Confidence interval +/- @ 95% confidence level | \$58.3                                | \$72.2                               | \$53.2                          | \$61.7                       | \$57.5                        | \$65.3                          |
| Lower error limit                              | \$598.5                               | \$649.2                              | \$154.8                         | \$260.7                      | \$133.8                       | \$190.5                         |
| Upper error limit                              | \$715.1                               | \$793.5                              | \$261.2                         | \$384.0                      | \$248.8                       | \$321.0                         |

<sup>a</sup>Normal carryover--an unfilled order at the end of a fiscal year that is planned to be completed after fiscal year 2000 because the order arrived too late in the fiscal year for production to be completed or the nature of the work required a long time.

<sup>b</sup>Problem carryover--an unfilled order at the end of a fiscal year that was planned to be completed by the end of the fiscal year but for various reasons was not completed, according to the contract production and cost system.

<sup>c</sup>Induction problem--work not started at contractor facilities as of September 30, 2000, as scheduled or was started late in the fiscal year, which prevented the work from being completed as planned.

<sup>d</sup>Repair problem--work not repaired by the contractor as planned because of a parts problem, a capacity problem, such as manpower shortages, or more work needed to be performed than originally planned.

<sup>e</sup>Unknown problem--neither air logistics center officials nor we could determine the cause or the dollar amount of work not completed as planned as of September 30, 2000, because the information was not available.

<sup>f</sup>Reporting problem--work that was completed as of September 30, 2000, but shown as not completed in the contract production and cost system.

We obtained information on the contractor performing the work, financial data, and production data for each item in the sample from the production and cost system. This information follows: (1) contract number, (2) contract line item number, (3) end item identity, (4) fiscal year of order financing the work, (5) production management specialist office responsible for overseeing the work, (6) unit sales price for the work, (7) quantities of items planned to be repaired and when, (8) quantities of items repaired as of September 30, 2000, and September 30, 2001, and (9) dollar amount of unfilled orders as of September 30, 2000. We analyzed the above information to determine if the work was accomplished in fiscal year 2000 as planned and, if not, we obtained explanations from the air logistics centers about why the work was not completed.

We performed our review at the headquarters offices of the Under Secretary of Defense (Comptroller) and the Secretary of the Air Force, Washington, D.C.; Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio; the Oklahoma City Air Logistics Center, Tinker Air Force Base, Oklahoma; the Ogden Air Logistics Center, Hill Air Force Base, Utah; and the Warner Robins Air Logistics Center, Robins Air Force Base, Georgia. Our review was performed from July 2001 through May 2002 in accordance with U. S. generally accepted government auditing standards. The production and financial information referred to in this report was provided by the Air Force. We worked with Air Force officials to validate the reliability of the information in the system to determine the reasons for the work not being completed at the end of fiscal year 2000. We requested comments on a draft of this report from the Secretary of Defense or his designee. DOD provided written comments and these comments are presented in the “Agency Comments and Our Evaluation” section of this report and are reprinted in appendix III.

# Sample Element Disposition Table

## Category: Aircraft

| Stratum # | Stratum range<br>(Low) | Stratum range<br>(High) | Total number of<br>transactions in the<br>population | Total number<br>of items<br>sampled |
|-----------|------------------------|-------------------------|--|-------------------------------------|
| 1         | \$50,000.00            | \$1,000,000.00          | 238  | 30                                  |
| 2         | \$1,000,000.00         | \$4,600,000.00          | 60   | 30                                  |
| 3         | \$4,600,000.00         | \$55,000,000.00         | 12   | 12                                  |
| Total     |                        |                         | 310  | 72                                  |

## Category: Engines

| Stratum # | Stratum range<br>(Low) | Stratum range<br>(High) | Total number of<br>transactions in the<br>population | Total number<br>of items<br>sampled |
|-----------|------------------------|-------------------------|--|-------------------------------------|
| 1         | \$50,000.00            | \$2,000,000.00          | 36   | 30                                  |
| 2         | \$2,000,000.00         | \$42,000,000.00         | 9  | 9                                   |
| Total     |                        |                         | 45   | 39                                  |

## Category: Exchangeable

| Stratum # | Stratum range<br>(Low) | Stratum range<br>(High) | Total number of<br>transactions in the<br>population | Total number<br>of items<br>sampled |
|-----------|------------------------|-------------------------|--|-------------------------------------|
| 1         | \$20,000.00            | \$175,000.00            | 3,270  | 30                                  |
| 2         | \$175,000.00           | \$725,000.00            | 748  | 30                                  |
| 3         | \$725,000.00           | \$4,000,000.00          | 178  | 30                                  |
| 4         | \$4,000,000.00         | \$43,000,000.00         | 19   | 19                                  |
| Total     |                        |                         | 4,215  | 109                                 |

**Appendix II  
Sample Element Disposition Table**

**Category: Missiles & Other**

| <b>Stratum #</b> | <b>Stratum range<br/>(Low)</b> | <b>Stratum range<br/>(High)</b> | <b>Total number of<br/>transactions in the<br/>population</b> | <b>Total number<br/>of items<br/>sampled</b> |
|------------------|--------------------------------|---------------------------------|---|--|
| 1                | \$50,000.00                    | \$250,000.00                    | 160   | 30   |
| 2                | \$250,000.00                   | \$900,000.00                    | 67  | 30   |
| 3                | \$900,000.00                   | \$2,600,000.00                  | 15  | 15   |
| <b>Total</b>     |                                |                                 | <u>242</u>  | <u>75</u>                                    |

**Category: Software**

| <b>Stratum #</b> | <b>Stratum range<br/>(Low)</b> | <b>Stratum range<br/>(High)</b> | <b>Total number of<br/>transactions in the<br/>population</b> | <b>Total number<br/>of items<br/>sampled</b> |
|------------------|--------------------------------|---------------------------------|---|--|
| 1                | \$50,000.00                    | \$500,000.00                    | 189   | 30   |
| 2                | \$500,000.00                   | \$2,000,000.00                  | 61  | 30   |
| 3                | \$2,000,000.00                 | \$27,000,000.00                 | 14  | 14   |
| <b>Total</b>     |                                |                                 | <u>264</u>  | <u>74</u>                                    |
| <b>Totals</b>    |                                |                                 | <u>5,076</u>  | <u>369</u>                                   |

Source: GAO.



# Comments from the Department of Defense



COMPTROLLER

UNDER SECRETARY OF DEFENSE  
1100 DEFENSE PENTAGON  
WASHINGTON DC 20301-1100



MAY 30 2002

Mr. Greg Kutz  
Director, Financial Management and Assurance  
U.S. General Accounting Office  
Washington, D.C. 20548

  
Dear Mr. Kutz:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "Air Force Depot Maintenance: Management Improvements Needed for Backlog of Funded Contract maintenance Work" dated April 22, 2002 (GAO 02-623).

The DoD has reviewed the draft report and concurs with the recommendations. Specific comments for each recommendation are enclosed. My point of contact is Mr. Robert Donnelly, 703-697-1880. The Department appreciates the opportunity to comment on the draft report. An identical letter is being sent to Mr. Warren, who was also responsible for this audit.

Sincerely,

Dov S. Zakheim

Enclosure:  
As stated

cc:  
Under Secretary of Defense for Acquisition, Technology & Logistics  
DoD Inspector General  
Defense Finance & Accounting Service  
Joint Staff (J4)



DoD Comments On The  
Draft General Accounting Office Report, Air Force Depot  
Maintenance: "Management Improvements Needed for Backlog  
of Funded Contract Maintenance Work"  
GAO-02-623

The following comments are provided for each recommendation and its associated findings.

**Recommendation 1:** Use the date contractors actually start work rather than the planned start date to calculate work-in-process for all workload categories as long as the contract portion of the activity group remains in the working capital fund.

**DoD Comments:** Concur. The Air Force has indicated that they intend to request authority to remove contract depot maintenance from the Working Capital Fund (WCF). If this request is approved, work in process (WIP) will no longer be a valid measure of performance. If removed from the WCF, contract depot maintenance efforts will be monitored and reported in the same manner as any other appropriated entity would monitor them.

**Recommendation 2:** Improve the accuracy of the data in its systems that track repair actions and account for costs by (1) holding managers accountable for ensuring the accuracy of the data; (2) developing standard operating procedures that provide detailed guidance on production management specialists' day-to-day responsibilities, particularly in the area of ensuring data accuracy; (3) providing additional training to production management specialists on these procedures; and (4) developing metrics that act as "red flags" to alert management of possible data problems. At a minimum, the systems should provide timely and accurate information on when contractors receive broken items, items are input into work, repairs are completed, and repaired items are returned to customers.

**DoD Comments:** Concur. The recommendations address problems that must be dealt with even if contract depot maintenance is removed from the WCF. To improve performance in this area, the Air Force has hired a number of production management specialists (PMS) and they are in the process of providing various training courses. Air Force has identified and/or developed several training courses to address these weaknesses.

**Recommendation 3:** Develop accurate and complete information on contracts that were awarded by the San Antonio and Sacramento Air Logistic Centers and subsequently transferred to the three remaining centers to avoid loss of control that may result in fraud, waste, and abuse. This will require, at a minimum: (1) establishing milestones for completing both the review of transferred contracts and resolving data problems identified during the reviews; (2) using metrics to monitor progress; and (3) ensuring that sufficient resources are dedicated to the resolution of the problem.

DoD Comments: Concur. The Air Force is taking a two-tiered approach to manage contracts that were transferred from closed Air Logistics Centers (ALC). First, the ALCs have established a formal group that is systematically investigating and reconciling contracts that were transferred from the closed ALCs. During the course of this process, the status of reconciliation will be provided to each respective ALC Commander.

**Recommendation 4:** Identify the underlying causes of the contract depot maintenance awaiting parts problem. Additionally, develop an action plan to address the underlying causes for the awaiting parts problems similar to the plan that was recently developed to address the awaiting parts problems for the ALC's in-house depot maintenance operations.

DoD Comments: Concur. The Air Force has established a team to address the awaiting parts issue for both in-house and contract workload.

**Recommendation 5:** Provide clear and consistent guidance on how, when, and by whom the induction of assets should be monitored.

DoD Comments: Concur. The Air Force will update guidance to address how, when, and by whom the induction of assets should be monitored.

**Recommendation 6:** Establish internal control procedures to ensure that the guidance on the induction of assets is followed.

DoD Comments: Concur. The culmination of the above actions will strengthen the Air Force's internal control over the induction of assets.

# GAO Contact and Staff Acknowledgments

---

---

## GAO Contact

Greg Pugnetti, (703) 695-6922

---

## Acknowledgments

Staff who made key contributions to this report were Sharon Byrd, Francine DeVecchio, Karl Gustafson, William Hill, Ron Tobias, and Eddie Uyekawa.

---

## GAO's Mission

The General Accounting Office, the investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

---

## Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through the Internet. GAO's Web site ([www.gao.gov](http://www.gao.gov)) contains abstracts and full-text files of current reports and testimony and an expanding archive of older products. The Web site features a search engine to help you locate documents using key words and phrases. You can print these documents in their entirety, including charts and other graphics.

Each day, GAO issues a list of newly released reports, testimony, and correspondence. GAO posts this list, known as "Today's Reports," on its Web site daily. The list contains links to the full-text document files. To have GAO e-mail this list to you every afternoon, go to [www.gao.gov](http://www.gao.gov) and select "Subscribe to daily E-mail alert for newly released products" under the GAO Reports heading.

---

## Order by Mail or Phone

The first copy of each printed report is free. Additional copies are \$2 each. A check or money order should be made out to the Superintendent of Documents. GAO also accepts VISA and Mastercard. Orders for 100 or more copies mailed to a single address are discounted 25 percent. Orders should be sent to:

U.S. General Accounting Office  
441 G Street NW, Room LM  
Washington, D.C. 20548

To order by Phone:   Voice: (202) 512-6000  
                                  TDD: (202) 512-2537  
                                  Fax: (202) 512-6061

---

## To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Web site: [www.gao.gov/fraudnet/fraudnet.htm](http://www.gao.gov/fraudnet/fraudnet.htm)

E-mail: [fraudnet@gao.gov](mailto:fraudnet@gao.gov)

Automated answering system: (800) 424-5454 or (202) 512-7470

---

## Public Affairs

Jeff Nelligan, managing director, [NelliganJ@gao.gov](mailto:NelliganJ@gao.gov) (202) 512-4800  
U.S. General Accounting Office, 441 G Street NW, Room 7149  
Washington, D.C. 20548



---

**United States  
General Accounting Office  
Washington, D.C. 20548-0001**

**Official Business  
Penalty for Private Use \$300**

**Address Service Requested**

---

**Presorted Standard  
Postage & Fees Paid  
GAO  
Permit No. GI00**

