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

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AIR FORCE DEPOT MAINTENANCE

Budgeting Difficulties and Operational Inefficiencies

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Accounting and Information
Management Division

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The Honorable Herbert H. Bateman
Chairman, Subcommittee on Military Readiness
Committee on Armed Services
House of Representatives

Dear Mr. Chairman:

The Air Force depot maintenance activity group supports combat readiness by providing the depot repair services necessary to keep Air Force units operating worldwide. The group generates about $5 billion in annual revenue principally by repairing and overhauling a wide range of assets including aircraft, missiles, aircraft engines, electronics, avionics, software, and repairable inventory items for military services, other government agencies, and foreign governments. In doing so, this 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.

This is the second report in response to your request that we review financial and management issues related to the depot maintenance activity group of the Air Force Working Capital Fund. In December 1999, we reported[1] that the depot maintenance activity group incurred losses totaling about $623 million[2] during fiscal years 1994 through 1998 on sales of about $21.8 billion. We also reported on the different methods that the Air Force used to recover the losses. This second report addresses how financial operations have been and may continue to be adversely affected by (1) higher-than-budgeted material costs and inadequate internal controls over material, (2) lower-than-budgeted productivity, and (3) the failure to attain expected savings from reform initiatives.

[1] *Air Force Depot Maintenance: Analysis of Its Financial Operations* (GAO/AIMD/NSIAD-00-38, December 10, 1999).

[2] The $623 million loss includes a $98.8 million accounting adjustment that does not need to be recovered from customers.

Results in Brief

For years the depot maintenance activity group has experienced difficulties in accurately budgeting for material costs, workforce productivity, and savings to be achieved through productivity improvements and other reform initiatives. These difficulties have adversely impacted the activity group's financial operations, resulting in hundreds of millions of dollars in operating losses and limited the group's ability to provide timely support to its customers. Although actions are underway to improve some problems, such as poor budget estimation and operational inefficiencies including declining productivity rates, it is uncertain to what extent the Air Force's long-standing problems are likely to be resolved in the short-term. More specifically, we found the following.

- Because of inaccurate pricing information from the Air Force's supply management activity group and ineffective internal controls over depot material costs and usage, the depot maintenance activity group's actual material costs per direct labor hour of work accomplished were $12.40 higher than the budgeted amount in fiscal year 1998; $7.13 higher in fiscal year 1999; and $21.48 (45 percent) higher during the first 6 months of fiscal year 2000. These increases resulted in overall material costs that were about $361 million and $307 million higher than the group's budget estimate in fiscal years 1998 and 1999, respectively, and contributed to operating losses. The Air Force is acting to resolve the higher-than-budgeted material cost problem in several ways, including (1) stabilizing the supply management activity group's price-setting process and (2) having the Air Force Audit Agency review the accuracy of the proposed prices that the supply management activity group will charge the depot maintenance activity group for material. The Air Force is also strengthening controls over material usage.
- An 11.3 percent decline in reported worker productivity that occurred from fiscal year 1992 through fiscal year 1999 caused a corresponding increase in labor costs per unit of work accomplished. Additionally, because budget estimates for fiscal years 1994 through 1999 were repeatedly based on overly optimistic productivity assumptions, the workforce did not accomplish as much work as projected. This, in turn, (1) caused labor costs for the work that was accomplished to be about $838 million higher than budget estimates and (2) created a higher backlog of work which, in turn, limited the group's ability to provide timely support to customers. The group's fiscal year 2001 budget estimate assumes that productivity will improve about 13.4 percent over the actual productivity level for the first half of fiscal year 2000. However, our analysis indicates that improvements of this magnitude

will be difficult to achieve and that productivity shortfalls against goals are, therefore, likely to continue.

- The depot maintenance activity group budgeted to save an average of $77 million a year from fiscal years 1996 through 1999 through planned management reforms. However, the activity group repeatedly revised the original budgeted savings downward to an average of $30 million a year—a 61 percent reduction—in subsequent budget estimates, which were developed the following year based on updated information. Since projected savings were a factor used to set customer prices, these revisions, in turn, increased the group's financial losses. The activity group now has major initiatives underway that it expects will result in even higher savings, equal to an average annual amount of $347 million, about $2.8 billion from fiscal years 2000 through 2007. The Air Force has recently acted to better estimate savings by involving the air logistics centers—which are to achieve the savings—in the estimation process. Because of the magnitude of these savings, it is important that the Air Force accurately determine the amount of actual savings achieved each year so that it can effectively adjust the activity group's subsequent years' budgets and prices. However, the Air Force does not have the systems and processes in place necessary to do so.

We are making recommendations to the Secretary of the Air Force to improve the depot maintenance activity group's (1) budget estimates and (2) management of material costs and usage. In its comments on a draft of this report, the Air Force concurred with our recommendations and identified actions it was taking to correct the identified deficiencies. For example, the Air Force plans to require an analysis of material usage as a matter of policy and develop material management metrics that will allow Air Force depot maintenance officials to monitor and determine causes of material cost variances. The Department of Defense's comments are included in appendix I.

Background

The Air Force depot maintenance activity group is part of the Air Force Working Capital Fund, a revolving fund that relies on sales revenue rather than direct congressional appropriations to finance its operations. Department of Defense (DOD) policy requires working capital fund activity groups to (1) establish sales prices that allow them to recover their expected costs from their customers and (2) operate on a break-even basis over time—that is, not make a profit nor incur a loss. DOD policy also requires the activity groups to establish their sales prices prior to the start of each fiscal year and to apply these predetermined or "stabilized" prices

to most orders received during the year—regardless of when the work is actually accomplished or what costs are actually incurred.

The process that activity groups use to develop their stabilized prices begins as early as 2 years before the prices go into effect, with each activity group developing workload projections for the budget year. After an activity group estimates its workload based on customer input, it (1) uses productivity projections to estimate how many people it will need to accomplish the work, (2) prepares a budget that identifies the labor, material, and other expected costs, as well as projected cost savings, and (3) develops sales prices that, when applied to the projected workload, should allow it to recover operating costs from its customers.

In order for an activity group to operate on a break-even basis, it is extremely important that the activity group accurately estimate the work it will perform and the costs of performing the work. Higher-than-expected costs or lower-than-expected customer demand for goods and services can cause activity groups to incur losses. Conversely, lower-than-expected costs or higher-than-expected customer demand for goods and services can result in profits. However, with sales prices based on assumptions that are made as long as 2 years before the prices go into effect, some variance between expected and actual costs is inevitable.

Major Changes Affecting the Activity Group's Operations

As discussed in our December 1999 report, the depot maintenance activity group has undergone major changes since the early 1990s that have affected the activity group's financial operations. More specifically, as discussed below, these changes significantly affected the scope and mix of workload to be performed by the depot maintenance activity group and the productivity of its workforce.

- In response to the declining force structure and the increasing amount of work that is being contracted out, the Air Force reduced the number of activity group employees from about 31,000 permanent employees at the end of fiscal year 1991 to about 21,000 at the end of fiscal year 1999—about a 32-percent reduction. This reduction of employees affected the experience and skills of workers.
- From fiscal year 1993 through fiscal year 1997, the Air Force converted its existing three-level depot maintenance operations (organization, intermediate, and depot) to two levels (organization and depot) for selected avionics and engine items. This resulted in more engine work being performed by the depot maintenance activity group. Since the

engine work was very material intensive, the average material cost per hour charged by the activity group and the average customer price per hour both increased.
- From fiscal year 1995 to the present, the Air Force has been in the process of closing two air logistics centers and transferring their work to other sources of repair. For example, during fiscal years 1998 and 1999, about one-third of the group's workload was competed or realigned. This (1) affected the location and the amount of work performed by the depots, (2) significantly increased hiring and training needs at the gaining activities, and (3) affected the productivity of the workforce.

The Activity Group's Financial Reports Are Not Accurate

We have previously reported that DOD has had long-standing problems in preparing accurate working capital fund financial reports. In addition, the DOD Inspector General and/or the Air Force Audit Agency have not been able to express an opinion on the accuracy of the working capital fund[3] financial statements for fiscal years 1993 through 1999. The auditors reported that the financial information was unreliable and financial systems and processes, as well as associated internal control structures, were inadequate to produce reliable financial information. For example, the Air Force depot maintenance systems lacked a single transaction-driven general ledger for reliable financial reporting, did not follow the percentage-of-completion method of accounting for revenue, and continued to account for cost of goods sold and work-in-process at estimated amounts instead of actual costs.

To help improve the depot maintenance activity group's financial management operations by more accurately accounting for costs in providing goods to customers, the Air Force is in the process of implementing a new system called the Depot Maintenance Accounting and Production System. According to the Air Force, this system—which is scheduled to be implemented by June 2001, will provide accurate cost visibility at the task level to support financial analysis and cost

[3]Prior to fiscal year 1997, the DOD Inspector General was responsible for auditing and rendering an opinion on the financial statements of the Defense working capital funds, which were called the Defense Business Operations Fund at that time. The Defense Working Capital Fund financial statements included the Air Force depot maintenance activity group's financial statements. In 1997, the Department of Defense delegated the responsibility for auditing the Air Force Working Capital Fund financial statements, including the Air Force depot maintenance activity group's statements, to the Air Force Audit Agency.

management. The system will also improve the timeliness, accuracy, completeness, reliability, and consistency of the financial information.

Objectives, Scope, and Methodology

The objectives of our review were to determine how the financial operations of the depot maintenance activity group have been and may continue to be adversely affected by (1) higher-than-budgeted material costs, (2) lower-than-budgeted productivity, and (3) the failure to attain expected savings from reform initiatives. This review is a continuation of our work on the depot maintenance activity group's price increases and financial losses.[4]

To determine how the financial operations of the depot maintenance activity group have been and may continue to be adversely affected by higher-than-budgeted material costs, we obtained and analyzed budget and accounting documents that provided information on budgeted and actual material costs from fiscal year 1997 to fiscal year 2000. When variances occurred between budgeted and actual reported information, we met with responsible budgeting and accounting officials to ascertain why there were differences. We also met with officials to determine what actions they were taking to get a better understanding of why material costs were increasing and how the Air Force Materiel Command could better control and reduce material costs.

To determine how the financial operations of the depot maintenance activity group have been and may continue to be adversely affected by lower-than-budgeted productivity, we obtained and analyzed budget and actual data on (1) hours worked, (2) the amount of work accomplished, (3) worker productivity, and (4) labor and overhead costs. When variances occurred between budgeted and actual reported information, we met with responsible officials to ascertain why there were differences and what actions they were taking to more accurately budget for productivity. Finally, to determine if the productivity improvement goals used to develop the fiscal year 2001 budget estimate are realistic, we documented and evaluated the corrective actions being taken to improve productivity.

To determine how the financial operations of the depot maintenance activity group have been and may continue to be adversely affected by the

[4] *Air Force Depot Maintenance: Analysis of Its Financial Operations* (GAO/AIMD/NSIAD-00-38, December 10, 1999).

failure to attain expected savings from reform initiatives, we obtained and analyzed budget documents that provided information on savings for fiscal years 1996 through 1999. We also obtained and analyzed information on budgeted savings for fiscal year 2000 through fiscal year 2007. When variances occurred between budgeted and actual reported information, we met with responsible officials to ascertain (1) why there were differences, (2) the difficulties they were encountering in determining actual savings, and (3) what actions they were taking to more accurately budget for future savings.

We performed our work 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, Dayton, Ohio; the Oklahoma City Air Logistics Center, Tinker Air Force Base, Oklahoma; the Ogden Air Logistics Center, Hill Air Force Base, Utah; the Sacramento Air Logistics Center, McClellan Air Force Base, California; the Warner Robins Air Logistics Center, Robins Air Force Base, Georgia; and the Air National Guard, Arlington, Virginia. We did not verify the accuracy of the accounting and budget information used in the tables and charts in this report, all of which was provided by the Air Force. We conducted our work from November 1999 through May 2000 in accordance with generally accepted government auditing standards. We requested comments on a draft of this report from the Secretary of Defense or his/her designee. We have reprinted the comments in appendix I of this report.

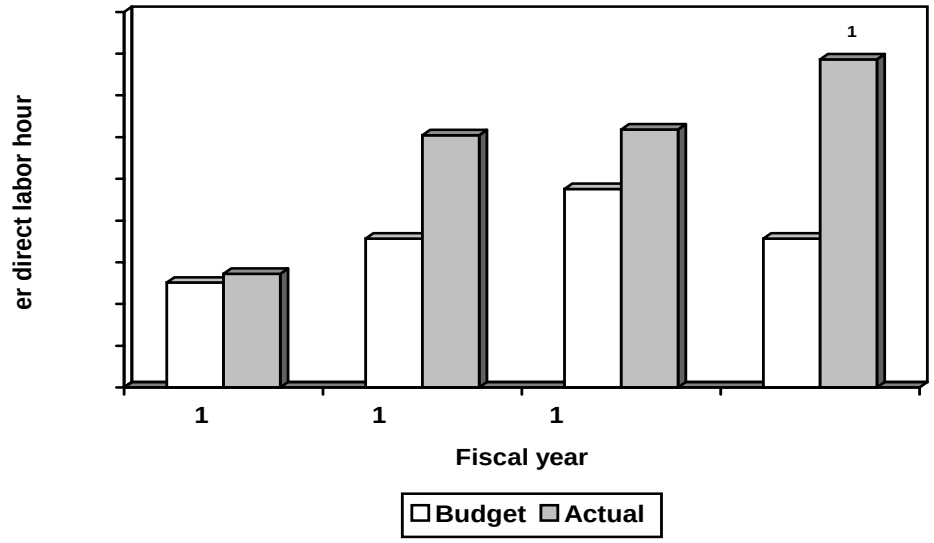
Higher-Than-Budgeted Material Costs and Internal Control Weaknesses Adversely Affected the Activity Group's Financial Operations

The depot maintenance activity group's fiscal year 1998 and 1999 material costs were about $361 million and $307 million higher than its budget estimate, respectively. Such higher-than-expected costs, in turn, negatively affected the group's financial operations. The higher material costs can be attributed primarily to the activity group paying higher prices than budgeted for material purchased from the Air Force supply management activity group. Further, depot maintenance activities were not following internal control procedures designed to control material, and the activity group did not have a systematic process for identifying and analyzing variances between expected and actual material usage.

As shown in both figure 1 and table 1, the activity group's actual material costs per direct labor hour of work accomplished (direct product standard

hours[5]) increased from $43.62 per hour in fiscal year 1997 to $69.31 per hour for the first 6 months of fiscal year 2000, or by about 59 percent. Viewed annually from a budgeting perspective, actual material costs per direct labor hour of work accomplished were $12.40 higher than the budgeted amount in fiscal year 1998; $7.13 higher in fiscal year 1999; and $21.48 (45 percent) higher during the first 6 months of fiscal year 2000.

Figure 1: Depot Maintenance Activity Group's Budgeted and Actual Material Costs per Direct Labor Hour of Work Accomplished



[5]A direct product standard hour is the amount of acceptable quality work that can be accomplished in 1 hour by qualified workers, following prescribed methods, working at a normal pace and experiencing normal fatigue and delays.

Table 1: The Activity Group's Budgeted and Actual Total Material Costs, Direct Labor Hours, and Material Costs per Direct Labor Hour for Fiscal Years 1997 Through 2000

	Fiscal year 1997		Fiscal year 1998		Fiscal year 1999		Fiscal year 2000	
Description	**Budget**	**Actual**	**Budget**	**Actual**	**Budget**	**Actual**	**Budget**	**Actual**
Total material costs (in millions)	$1,204.5	$1,180.9	$1,210.9	$1,571.7	$1,207.7	$1,514.6	$1,038.9	$1,551.5
Direct labor hours (in millions)	28.297	27.075	25.317	26.094	22.451	24.861	21.719	22.386
Material costs per direct labor hour	$42.57	$43.62	$47.83	$60.23	$53.79	$60.92	$47.83	$69.31

Note: Fiscal year 2000 actual data is a straight-line projection of the first 6 months of actual data.

Source: Air Force.

Depot Maintenance Received Inaccurate Material Prices From the Supply Management Activity Group During the Budget Process

Air Force depot maintenance officials believe, and our work confirmed, that the depot maintenance activity group's recent problems with higher-than-budgeted material costs can be attributed largely to inaccurate material prices. These prices came from the Air Force supply management activity group[6] and were developed during the budget process. This became a problem in fiscal year 1998 when the supply group changed its price-setting methodology.

In June 1998, we reported[7] that the new price-setting methodology[8] used for allocating the supply management activity group's operational cost to individual inventory items, combined with data reliability problems, resulted in price changes that varied significantly not only from one item to the next but also from one month to the next. Altogether, prices changed

[6]The supply management activity group is part of the Air Force Working Capital Fund and is the depot maintenance activity group's primary source of spare parts.

[7]*Air Force Supply Management: Analysis of Activity Group's Financial Reports, Prices, and Cash Management* (GAO/AIMD/NSIAD-98-118, June 8, 1998).

[8]In October 1997, the Air Force made two major changes in the supply management activity group's cost allocation procedures to better match costs with the prices customers were being charged. First, the supply group identified the estimated costs associated with individual supply activities—the five air logistics centers—and allocated each center's costs to only those items that it managed. Second, the estimated cost of procuring inventory items to replace repairable items that can no longer be repaired economically (condemned items) was recouped by adding a surcharge to the cost of the item being replaced rather than by adding a surcharge to all repairable items, which was the previous practice.

seven times during fiscal year 1998, and the net effect of the changes was that some customers, including the depot maintenance activity group, had to pay more for material than they budgeted, others paid less. Specifically, the depot maintenance activity group had to pay an additional $168 million after Air Force headquarters officials decided to make all of the price changes retroactive to the beginning of fiscal year 1998.

This same problem reoccurred when the supply management activity group changed its price-setting methodology again for fiscal year 2000. Because of this change, the Air Force estimates that the depot maintenance activity group will have higher-than-budgeted material costs of about $119.1 million in fiscal year 2000.

Air Force officials realize that the supply management activity group needs to develop and provide more accurate pricing information and they are undertaking improvement efforts. Specifically, they plan to "stabilize" the supply activity group's price-setting methodology (that is, not change the methodology for setting prices in future years) in order to enable the Air Force to develop more consistent historical trend data on supply group customers' funding needs, which, in turn, should provide a better basis for developing customer budgets.

Additionally, in response to recommendations we made in our June 1998 report, the Air Force is taking steps to ensure that the supply activity group's price changes and customers' budget estimates are more reliable. First, it has begun ensuring that the prices it establishes for individual items are consistent with the approved composite price change.[9] In the July/August 1999 time frame, the Air Force Audit Agency analyzed the supply activity group's fiscal year 2000 prices and, after ensuring that some erroneous prices were corrected, confirmed that the fiscal year 2000 prices would result in a composite price change that was consistent with the approved composite price increase of 0.1 percent.[10] The Air Force Audit

[9]The supply management activity group's composite price change is expressed in terms of a percentage from one year to the next. This change is used to develop customer funding levels. The depot maintenance activity group is a customer of the supply group and buys materials from supply.

[10]The Air Force Audit Agency's analysis indicated that the composite price increase was 1.57 percent for fiscal year 2000. The Air Force Materiel Command determined that fiscal year 1999 prices were 1.5 percent too low, which resulted in an actual difference of .07 percent for fiscal year 2000.

Agency will perform a similar analysis of the supply group's fiscal year 2001 prices.

Second, the supply activity group is beginning to estimate the impact of actual price changes on individual customers. Although the actual composite price increase for fiscal year 2000 was 0.07 percent, an analysis performed by a contractor on behalf of the supply activity group indicated that the impact on individual customers ranged from a 151 percent increase to a 93 percent decrease. For fiscal year 2001, supply group officials plan to determine the impact of their price changes on individual customers prior to the start of the fiscal year so that the information can be used by Air Force headquarters officials to reallocate funds among the activity group's Air Force customers, if necessary.

If properly implemented, these actions should provide reasonable assurance that the supply activity group's price changes are properly synchronized with its customers' budget estimates. However, as the next section further discusses, additional actions are still needed on the part of maintenance depots to effectively control material usage and costs.

Depot Maintenance Activities Are Not Effectively Controlling Material Usage

Our reviews and other studies have shown that the depot maintenance activities were not following internal control procedures designed to manage material and thus were not effectively controlling material usage. While actions have recently been taken to rectify this problem, the Air Force still lacks a mechanism for ensuring their successful implementation.

In the early 1990s, both we[11] and the Air Force Audit Agency reported that Air Force depot maintenance activities did not have adequate internal controls to ensure that issued materials were charged to the appropriate jobs or limited to established job requirements. As a result, materials were issued improperly to jobs and material usage and related costs for specific jobs were not correctly reported. Eight years later, a February 1999 study performed by the Air Force Materiel Command on material standards identified problems similar to the ones found by us and the Air Force Audit Agency, as the following examples illustrate.

[11] Management letter to the Commander, Air Force Logistics Command (GAO/AFMD-91-33ML, February 26, 1991).

- Some material managers either were not receiving or were not analyzing reports that indicated excessive material usage for individual repair tasks. As a result, they could not assess why material usage was higher than expected and, in turn, take effective corrective measures.
- Some material managers were not receiving automated reports that identified the Bill of Material[12] with low accuracy (some information on the Bill of Material document, such as material needed to repair an item, is not accurate) and, therefore, had neither identified nor taken appropriate corrective action to address the causes of the inaccuracies. Also, some material managers who received the automated reports did not determine the reason(s) for the inaccuracies.
- When reviews of excessive material usage were conducted, planners, in many cases, found that material was ordered for the wrong job.
- Required approval for higher-than-expected material usage was not always obtained.

The Air Force Materiel Command study resulted in 102 recommendations made to headquarters and each of the centers, including recommendations that called for policy changes, system changes, new requirements, a new training course, and stricter enforcement of current policies. According to an Air Force Materiel Command official, as of April 2000, 80 of the 102 recommendations contained in the study have been implemented. By the end of the fiscal year, the Air Force expects to implement the final 22.

Air Force Materiel Command logistics officials had originally planned to have the Air Force Inspector General review the air logistics centers' compliance with material management policy during biannual unit compliance inspections. However, the Air Force Materiel Command and the Inspector General subsequently decided, in conducting those inspections, to review only critical items affecting safety of flight or compliance with laws. Since material management did not meet this criteria, it was removed from the unit compliance inspections and made a self-inspection annual requirement. Consequently, at this time, there is no organization external to the air logistics centers monitoring compliance with the material management requirements. Such independent monitoring

[12] A document commonly known as the Bill of Material, or material standard, is a descriptive and quantitative list of the material and component parts that, based on historical data and other factors, are expected to be needed during the manufacture, overhaul, or repair of individual items.

is important given the compliance problems that have existed at the air logistics centers since the early 1990s.

Air Force Has Not Performed an Analysis of Expected and Actual Material Usage and Quantified Its Results

In addition to the problems identified in the 1999 Air Force report, we also found that the activity group did not have a systematic process for identifying and analyzing variances between expected and actual material usage at the depot maintenance activity group level. Such an analysis is normally used in the manufacturing process to determine whether material usage has increased and the effect of the increased material usage on material costs. The analysis could also be used to determine and validate Air Force officials' view that increased material usage is caused by external factors beyond the Air Force Materiel Command's control, such as aging of the aircraft and engine inventory.

Air Force officials told us that the air logistics centers used to perform usage variance analyses; however, the staff who conducted these studies were cut during downsizing efforts that took place during the early and mid-1990s. Officials said that the Command and the centers are presently attempting to hire personnel to perform this type of analysis again.

Air Force Materiel Command officials also stated that they are in the process of developing a data warehouse to serve as a central depository for all depot maintenance data, including material data, in order to enhance material management. By having access to historical and current files in a single database and ensuring that the data are correct, Air Force Materiel Command officials should be able to develop performance metrics necessary to identify problem areas and take appropriate corrective actions.

Productivity-Related Problems Have Adversely Affected the Activity Group's Operations

Productivity-related problems have adversely affected the depot maintenance activity group's financial operations and have limited its ability to provide timely support to its customers. For example, an 11.3 percent decline in reported worker productivity that occurred from fiscal year 1992 through fiscal year 1999 caused a corresponding increase in labor costs per unit of work accomplished. Additionally, because actual productivity from fiscal year 1994 through fiscal year 1999 was consistently less than budget estimates, the workforce did not accomplish as much work as expected. In turn, because labor rates were based on these higher expectations, this resulted in the activity group maintenance depots not

recouping some of their labor and overhead costs and increased the depots' backlog of funded work.

The activity group, which overestimated its workforce's productivity in every budget since fiscal year 1988, based its fiscal year 2001 budget estimate on the assumption that the workforce's overall productivity would improve about 13.4 percent over its actual productivity level for the first 6 months of fiscal year 2000. However, our work showed that (1) for some workloads, the ongoing transfer of work from two closing air logistics centers to three remaining centers will continue to have a negative effect on productivity during fiscal year 2001 and (2) the activity group's workforce-related initiatives are long-term efforts that are unlikely to result in significant productivity improvements before the end of fiscal year 2001. As a result, the activity group is unlikely to achieve its fiscal year 2001 productivity improvement goal and the problems identified above are likely to persist.

Productivity Has Consistently Been Less Than Budgeted

To measure the overall productivity of their workforce, Air Force depot maintenance managers rely on a performance indicator called the Output-per-Paid-Man-Day. This statistic measures the relationship between production, measured in Direct Product Standard Hours (DPSH),[13] and total labor time available (for both direct labor and overhead personnel). For example, a budgeted Output-per-Paid-Man-Day value of 4.0 means that depot maintenance managers expect the workforce to complete 4.0 DPSHs of work for every 8 hours of payroll time.

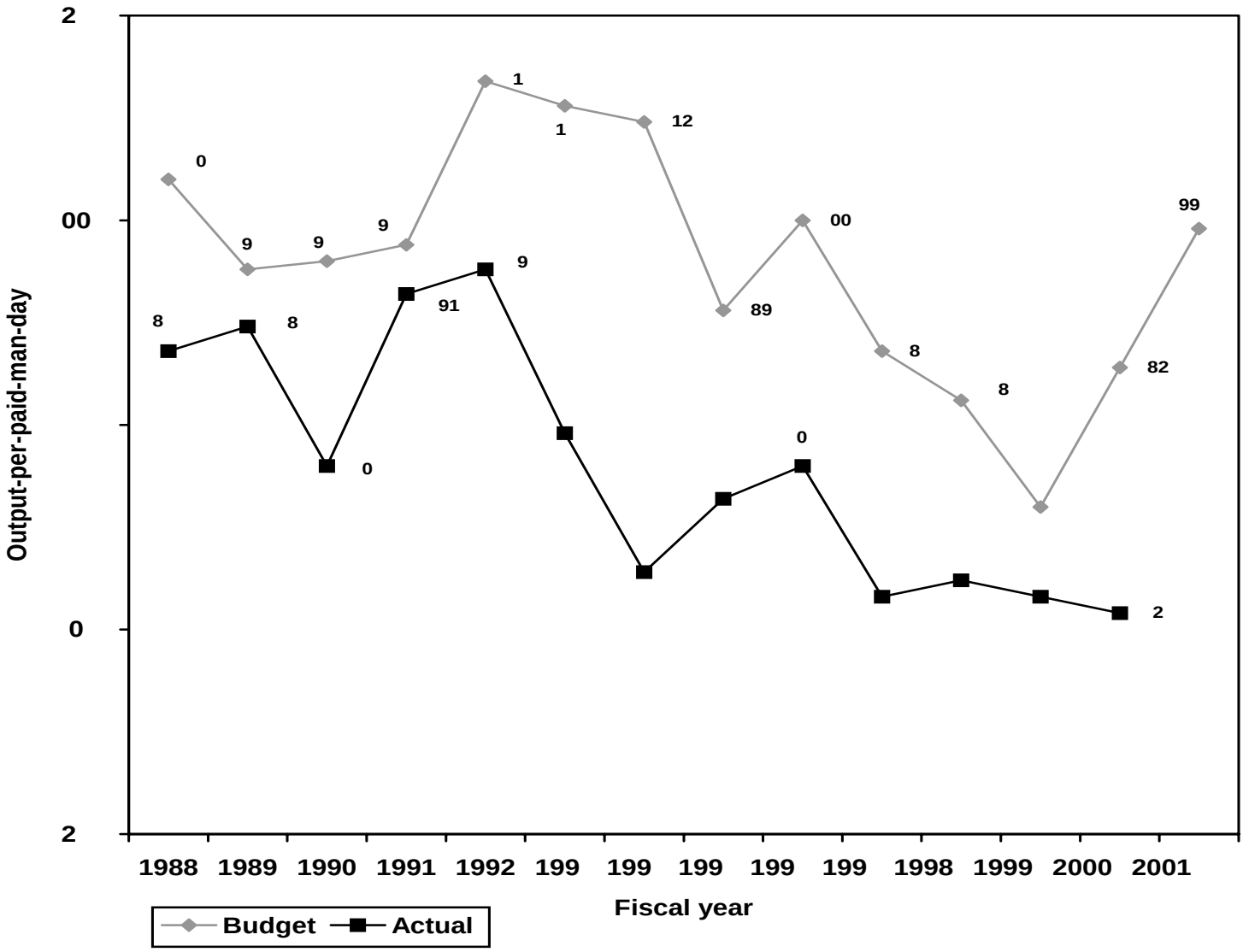
Because the Output-per-Paid-Man-Day performance indicator takes into consideration both direct labor and overhead time, it is affected by changes in not only direct labor efficiency[14] but also by the number and efficiency of overhead personnel. For example, if the activity group hires 10 overhead personnel to help ensure better management of material, these additional personnel would initially cause the Output-per-Paid-Man-Day to decline. However, if these additional personnel could help ensure that needed

[13]A DPSH is the amount of acceptable quality work that can be accomplished in 1 hour by a qualified worker, following prescribed methods, working at a normal pace, and experiencing normal fatigue and delays.

[14]Direct labor efficiency is the ratio of the number of DPSHs of work accomplished to the number of direct labor hours worked. For example, if a mechanic works 10 hours to accomplish a job that should take 9 hours, then the direct labor efficiency is 90 percent.

component parts are available when direct labor personnel need them, the delay time could be reduced, the direct labor efficiency could improve, and the net effect of hiring the planners could be an increase in Output-per-Paid-Man-Day. As shown in figure 2, the activity group workforce's productivity has been less than its budgeted productivity for every year since fiscal year 1988.

Figure 2: Comparison of the Depot Maintenance Activity Group's Budgeted and Actual Output-per-Paid-Man-Day for Fiscal Years 1988 Through 2000 and Budgeted for Fiscal Year 2001



Note: Fiscal year 2000 actual data is as of March 31, 2000.

Source: Air Force.

Air Force depot maintenance officials believe that three factors have been primarily responsible for this pattern of overly optimistic productivity assumptions. First, they believe that the depot maintenance workforce has frequently been unable to react quickly and efficiently to unanticipated

changes in the amount and type of work requested by its customers.[15] Second, unanticipated delays in and problems with the transfer of work from the two closing centers caused productivity to be less than expected. Third, the centers have frequently not achieved the "stretch" productivity improvement goals that have been incorporated into their budget estimates.

Because the activity group's budget estimates are based on assumptions that are made long before the start of the fiscal year, some variance between budgeted and actual results is inevitable. However, when assumptions are consistently overly optimistic, it is likely that there are systemic problems with either the methodology used to develop the assumptions or with the effectiveness of operations. We identified two problems with the methodology the activity group uses to develop its productivity assumptions. First, in establishing productivity improvement goals, the activity group does not first develop a plan that specifies how, when, and by whom the improvements will be made. Second, the activity group establishes its productivity improvement goals without adequately considering historical data. Thus, little assurance exists that the goals can feasibly be attained.

The activity group's fiscal year 2001 productivity improvement goal—to increase the workforce's Output-per-Paid-Man-Day from 3.52 during the first 6 months of fiscal year 2000 to 3.99 in fiscal year 2001—illustrates both of these problems. Depot maintenance officials believe that the workforce's productivity will improve as (1) the two closing air logistics centers phase out their operations, (2) workloads are consolidated at the three remaining centers (thereby allowing these centers to achieve economies of scale), and (3) workers at the remaining centers become more adept at the new work that has been transferred to them. However, the activity group does not have a plan that specifies how, when, and by whom this substantial improvement will be achieved.

Further, our work indicates that an Output-per-Paid-Man-Day of 3.99 presents a difficult challenge. First, as shown in figure 2, the workforce's actual Output-per-Paid-Man-Day was never higher than 3.94 during fiscal years 1988 through 1999, and has not been higher than 3.70 since fiscal year

[15]This problem is discussed in our report entitled *Air Force Depot Maintenance: Improved Pricing and Financial Management Practices Needed* (GAO/AFMD-93-5, November 17, 1992).

1996. Second, the largest 1-year improvement in productivity during this period was the 5.7 percent increase that occurred from fiscal year 1990 through fiscal year 1991. Third, depot maintenance officials believe that, for some workloads, it will not be until fiscal year 2002,[16] and possibly longer, that productivity will no longer be adversely affected by the depot closures and workload transfers.

Productivity Problems Have Adversely Affected Financial Operations and Customer Support

Our analysis of the activity group's budgeted and actual operating results for fiscal years 1994 through 1999 showed that lower-than-budgeted productivity prevented the workforce from accomplishing as much work as expected. This, in turn, adversely affected the activity group's financial operating results because it (1) caused labor costs for the work that the workforce accomplished to be about $838 million higher than budget estimates and (2) prevented the activity group from recovering about $230 million of fixed overhead costs.[17]

The workforce's failure to accomplish as much work as expected is also a primary reason the activity group has had and is likely to continue having a large backlog of funded work. DOD policy requires depot maintenance activities to have some funded work on hand at the end of the fiscal year in order to ensure a smooth transition from one fiscal year to the next. However, any amount more than 3 months is considered by DOD to be excess and an indication that scarce resources are not being used cost-effectively and customers are not receiving timely support.

At the end of fiscal year 1999, the activity group's maintenance depots had a reported $972.9 million, or 3.27 month, backlog of funded work. Further, budget documents indicate that the backlog is likely to remain above DOD's 3-month criteria through the end of fiscal year 2001, even if budgeted productivity goals are achieved. In several areas, such as

[16]The Sacramento and San Antonio Air Logistics centers are scheduled to close by July 2001. However, some of these centers' depot maintenance work will be performed by contractors until (1) the remaining centers develop a repair capability for that type of work and/or (2) existing contracts expire.

[17]The activity group exceeded its production goals during fiscal years 1998 and 1999, despite lower-than-budgeted productivity, because (1) the actual number of regular and overtime hours were both higher than budget estimates and (2) the activity group hired private contractors to do some of the work.

software engineering, the backlog is expected to remain above 6 months of work.

Causes of the Workforce's Productivity Decline

Our discussions with activity group managers indicate that most of the decline in worker productivity that has occurred since fiscal year 1992 can be attributed to two factors. The first and most significant factor is that the workforce experienced almost continuous turbulence during the 1990s—initially because of downsizing and more recently because of depot closures and related workload transfers. The second factor is that the activity group has implemented a repair-on-demand concept, but has made little progress in developing the flexible workforce needed to operate efficiently under this initiative. Both factors are discussed in further detail below.

Continuous Personnel Turbulence Has Adversely Affected Worker Productivity

In 1990, in an effort to better plan for future workload changes, Air Force depot maintenance officials compared their existing repair capability with their projected workload for fiscal years 1991 through 1995. They determined that factors, such as a declining force structure, would cause their workload to decline faster than the workforce could be reduced through normal attrition. As a result, during fiscal year 1991, Air Force depot maintenance activities released their temporary and on-call employees, facilitated early retirements, and released 1,211 permanent employees through a reduction-in-force.

These actions adversely affected worker productivity in two ways. First, the release of all temporary and on-call workers reduced the workforce's ability to quickly and efficiently react to unanticipated changes in the levels and types of workload, which, in turn, drove down worker productivity.[18] Second, depot maintenance officials stated that the reduction-in-force created a large retraining requirement which, in turn, decreased the productivity of many workers. This reduced productivity occurred because federal personnel regulations allowed employees in positions that were eliminated to "bump" employees with less tenure even if the "bumped" employees are better trained for the position.

[18]This problem is discussed in our report entitled *Air Force Depot Maintenance: Improved Pricing and Financial Management Practices Needed* (GAO/AFMD-93-5, November 17, 1992).

Further, although these actions were supposed to align the size of the activity group's workforce with its projected workload through fiscal year 1995, the workload declined even more than expected. As a result, depot maintenance activities continued to experience personnel turbulence over the next several years as they reduced the size of their workforce from 31,213 permanent employees at the end of fiscal year 1991 to 26,939 at the end of fiscal year 1995. Finally, as noted previously, the 1995 decision to close two of the five air logistics centers exacerbated the activity group's personnel turbulence problem.

Implementation of Agile Logistics Increased the Need for a Flexible Depot Maintenance Workforce

Under an umbrella concept initially called Lean Logistics and later renamed Agile Logistics, the Air Force explored ways to adopt logistical concepts that have proven to be effective in the private sector. As part of this effort, Air Force depot maintenance officials began testing a repair-on-demand concept—a significant change for the Air Force. Previously, repair levels were negotiated quarterly based on projections of what items would fail or require scheduled repair. Now, decisions on how many and which items to repair are made daily based on the most current data available on customer needs and depots repair capabilities.

The full implementation of the repair-on-demand concept, which began in June 1997, has greatly increased the need for a flexible workforce that can quickly and efficiently respond to unanticipated changes in the size and mix of the workload. However, as of March 2000, temporary workers accounted for less than 2 percent of the workforce. Further, although some preliminary actions have been taken to develop multiskilled positions, several additional actions are needed before actual training can begin.[19]

Workforce Initiatives Are Commendable, But Timely Resolution of Problems Is Unlikely

Air Force Materiel Command officials have developed a comprehensive plan to improve the skill level and productivity of the depot maintenance workforce. Specifically, they have undertaken initiatives to (1) validate and, if appropriate, improve their workers' skill levels, (2) enhance the workforce's ability to respond efficiently and effectively to workload fluctuations, and (3) develop the reliable labor standards needed to effectively monitor and evaluate worker performance. As discussed below,

[19]This problem is discussed in our report *Air Force Depot Maintenance: Management Changes Would Improve Implementation of Reform Initiatives* (GAO/NSIAD-99-63, June 25, 1999).

these initiatives are long-term efforts whose short-term impact on productivity is more likely to be negative than positive.

First, the Air Force Materiel Command headquarters is implementing a "Back-to-Basics" initiative to ensure, among other things, that depot maintenance technicians are properly trained and are performing their work in accordance with established policies and procedures. Air Force officials believe this initiative, which is being implemented because of concerns raised during a 1999 headquarters review of depot maintenance operations, will improve the effectiveness of their workforce. However, the three remaining air logistics centers estimate that they will need 355 additional overhead people to fully implement the initiative. Further, the initiative will significantly increase training requirements for direct labor employees. As a result, the initiative's impact on productivity, at least in the short-term, will be negative.

Second, the depot maintenance activity group has a strategic objective to develop a qualified and flexible workforce that is "right-sized" to execute the depot maintenance mission through fiscal year 2005. To accomplish this objective, activity group managers plan to (1) develop projections of the activity group's workload through fiscal year 2005, (2) use these projections as the basis for determining how many jobs and what skills will be needed, (3) implement an "enhanced technical training program" to cross-train workers so that workers will have multiple skills and, in turn, be more versatile, and (4) determine what mix of permanent, temporary, term, and contract field team employees will optimize their ability to cover planned and unplanned peaks in workload. However, the Air Force does not expect to complete this plan until September 2000 and thus far little progress, if any, has been made in hiring temporary workers or developing a multiskilled workforce.[20]

Third, the depot maintenance activity group plans to develop engineered labor standards (estimates for the amount of time required to perform repair tasks) that more accurately reflect expected repair times. This initiative, which will provide a more reliable basis for monitoring and evaluating worker performance, is expected by the Air Force to save customers about $185.7 million from fiscal year 2000 through fiscal year

[20]Our report entitled *Air Force Depot Maintenance: Management Changes Would Improve Implementation of Reform Initiatives* (GAO/NSIAD-99-63, June 25,1999), discussed the Air Force's development of a multiskilled workforce.

2007 since (1) customer prices are based on labor standards rather than actual costs and (2) depot maintenance officials' preliminary analyses indicate that the estimated amount of time required to perform a task (labor standard) is more likely to decrease than increase when it is based on updated engineered estimates.

The Air Force Has Difficulty Accurately Estimating Budgeted Savings

In December 1999 we reported[21] that the depot maintenance activity group incurred financial losses, in part, because its prices have repeatedly been based on anticipated savings that were not realized. This situation could become a more significant problem in the future since the activity group now expects to budget for savings that, on an average annual basis, are over four times the average annual amount of the savings it budgeted for in the past. For fiscal years 2000 through 2007, the activity group has major initiatives underway that the Air Force expects will result in savings equal to an average annual amount of about $347 million a year, or about $2.8 billion over the 8-year period.

Because of the magnitude and impact of savings on the depot maintenance activity group's financial operations, it is vital that the Air Force be able to determine the amount of savings actually achieved each year. Knowing the actual savings achieved is necessary in order to more accurately adjust the activity group's subsequent year budgets, and thus customer prices, to help minimize any losses incurred due to not achieving the budgeted savings. However, for several reasons—such as the lack of data systems for tracking actual savings and disagreements on the methodology used to determine overhead savings achieved—it will be difficult for the Air Force to determine to what extent the activity group is achieving its expected savings.

Budgeted Savings Have Not Materialized in the Past

For fiscal years 1996 through 1999, our work showed that the Air Force has been overly optimistic in budgeting for savings. Specifically, the Air Force's revised budgets for the depot maintenance activity group have always reduced the amount of anticipated savings that were included in the activity group's original budgets when the group's customer prices were determined. As shown in table 2, savings originally budgeted for during that

[21] *Air Force Depot Maintenance: Analysis of Its Financial Operations* (GAO/AIMD/NSIAD-00-38, December 10, 1999).

time totaled $309 million. Based on updated information used to develop subsequent year budgets, this amount was eventually reduced by 61 percent to $119.1 million.

Table 2: Original and Revised Budget Estimates for the Air Force Depot Maintenance Activity Group's Savings for Fiscal Years 1996 Through 1999

Dollars in millions

	Fiscal year 1996	Fiscal year 1997	Fiscal year 1998	Fiscal year 1999	Total fiscal years 1996-1999
Savings in the original budget	$151.3	$54.5	$35.0	$68.2	$309.0
Savings in the revised budget	65.3	4.2	10.0	39.6	119.1
Difference	86.0	50.3	25.0	28.6	189.9

Source: Air Force Working Capital Fund Budget Submissions to Congress.

Although the savings were expected to be achieved primarily through productivity improvements by the Air Force's air logistics centers, cognizant officials at the centers we visited (the three that are to remain open) told us that they had little input to the budgeted savings. Air Force Materiel Command headquarters officials acknowledged that there was little involvement by the air logistics centers in developing the savings that were budgeted for during fiscal years 1996 through 1999. They further stated that the savings estimates originally budgeted for had to be revised (reduced) in subsequent year budgets because anticipated productivity improvements did not materialize.

Major Initiatives Expected to Achieve Significant Savings from Fiscal Years 2000 through 2007

The activity group has undertaken several major initiatives that it projects will result in budgeted savings totaling about $2.8 billion from fiscal year 2000 through fiscal year 2007. The overall objective of these efforts is to reduce the average price that customers pay the activity group for repair services by 8 percent by the end of fiscal year 2007. Table 3 describes these initiatives and the amount of anticipated savings resulting from each. Table 4 identifies the amount of anticipated savings from these initiatives to be realized by year.

Table 3: Depot Maintenance Activity Group's Total Anticipated Savings by Major Initiative for Fiscal Years 2000 Through 2007

Dollars in millions

Initiative	Anticipated savings for fiscal years 2000 through 2007
Competition of workload – implementing results of public/private competitions involving workloads at two closing air logistics centers[a]	$2,071.5
Consolidation of noncompeted workload – reduce costs through increased use of equipment and facilities and redistribution of overhead expenses over a larger workload base	216.8
Industrial engineering – reduce labor costs through process engineering and methods improvements	185.7
Material management– improve parts ordering process to preclude purchasing material in excess of requirements	100.0
Depreciation – turn-in equipment from closing air logistics centers so that depreciation costs will not be incurred	100.0
Contract management – improve management of the contract program, such as reducing material provided to contractors	71.9
Other[b]	32.3
Total	**$2,778.2**

[a]Savings based on the (1) difference between what it would have cost the depot maintenance activity group to perform the competed work at the closing air logistics centers had they remained open and the estimated cost of the workload as bid on and awarded to the centers that are not closing and (2) overhead savings expected to be generated by lower overhead rates from the increased workload awarded to the centers that are to remain open (i.e., relatively fixed overhead costs spread over a larger workload base).

[b]Other includes several small initiatives, such as the Air Force Materiel Command headquarters prioritizing the most important studies and analyses that have the greatest payback to the command as opposed to initiating a myriad of review teams attempting to solve every problem identified.

Source: Air Force Materiel Command Depot Maintenance Activity Group Fiscal Year 2000 through 2007 Strategic Plan, dated October 1999.

Table 4: Depot Maintenance Activity Group's Anticipated Savings for Fiscal Years 2000 Through 2007

Dollars in millions

Fiscal year	Amount of budgeted savings
2000	$ 172.8
2001	309.3
2002	383.2
2003	376.9
2004	395.8
2005	386.5
2006	376.6
2007	377.1
Total	**$2,778.2**

Source: Air Force Materiel Command Depot Maintenance Activity Group Fiscal Year 2000 through 2007 Strategic Plan, dated October 1999.

It is important that the activity group achieve these savings. Savings estimates impact prices the activity group charges customers each year once the savings projections are budgeted, and they affect the amount of funding customers receive in their operating budgets to purchase services from the activity group. If the budgeted savings are not achieved, the activity group could incur financial losses.

For several reasons, the Air Force expects its savings budget estimates for fiscal years 2000 through 2007 to be more accurate than the savings estimates originally budgeted for in the past. First, the air logistics centers—which are ultimately responsible for achieving the savings—have been more involved in developing the estimates. Specifically, the centers participated in developing the baseline costs, workload bid proposal costs, and projected overhead savings that could be achieved under the competition initiative. They were also involved in developing the estimated savings to be achieved under the nonworkload-related initiatives, such as the industrial engineering, material management, and contract management initiatives. Second, the Air Force provided each center with an opportunity to comment on the initiatives from the perspective of whether the savings were achievable, the timing was realistic, and if there was any impact from implementing the initiatives. In written responses to the Air Force Materiel Command, center officials generally agreed with the savings initiatives.

Systems and Processes Are Not in Place to Determine Actual Savings

To more accurately set customer prices, the Air Force needs to be able to determine, with some degree of reasonableness, whether its budgeted savings for the depot maintenance activity group are actually being achieved. This will enable the Air Force to better adjust or revise the amount of planned savings in the activity group's subsequent years' budgets that, in turn, will facilitate more accurate prices. Nevertheless, for several reasons, the Air Force can not determine actual savings achieved. First, it lacks a system for tracking the extent to which savings targets were met. Second, it has not updated the baseline for calculating savings under the competition initiative. Third, the calculation for determining the amount of overhead savings has been questioned by auditors.

System Needed to Track Actual Savings Achieved

Air Force Materiel Command headquarters officials stated that it was their goal to track actual savings resulting from their initiatives, but that they can not accomplish this task primarily because the command's systems do not have the capability to capture savings data.[22] In lieu of a tracking system, depot maintenance officials at the air logistics centers we visited (the three that are to remain open) as well as at Air Force Materiel Command headquarters told us that they will determine whether savings are being achieved primarily by monitoring budget execution. That is, they will compare actual financial performance against budget targets. Since projected savings are included in the activity group's budget and taken out up front as part of the budgeting process, the officials believe that successful execution of the budget targets will indicate that they have achieved the projected savings.

We agree that monitoring budget execution can serve as a savings indicator. However, because many factors impact the financial performance of the depot maintenance activity group, it will be difficult to examine the specific types of costs that were expected to decline in order to produce savings. For example, the activity group's material cost savings initiative is predicated on ensuring that only parts/material required for repair are ordered to preclude the purchase of material that is in excess of requirements. The group could be successful in ordering only required material—thus accomplishing the goal of this particular savings initiative—but have to pay more than budgeted for the material because of unanticipated price increases charged by the supply management activity

[22]Our report, entitled *Air Force Depot Maintenance: Management Changes Would Improve Implementation of Reform Initiatives* (GAO/NSIAD-99-63, June 25, 1999), discussed the Air Force's lack of a system for tracking savings.

group. Without analyzing the various factors that can impact financial performance, it will be difficult, if not impossible, for the Air Force to determine how much of the activity group's successful or unsuccessful budget execution can be attributed to the savings initiatives.

Air Force Materiel Command officials told us that they are expecting the implementation of the Depot Maintenance Accounting and Production System to help them in tracking/determining actual savings achieved. This new system is expected to (1) provide actual cost visibility at the task level to facilitate financial analysis and cost management and (2) more accurately tie costs to the specific activity generating the costs. The Air Force plans to fully implement the system at the remaining air logistics centers by June 2001.

Baseline for Calculating Savings Under the Competition Initiative Has Not Been Updated

Another obstacle to capturing and determining actual savings is in the area of the competition initiative, which the Air Force expects to produce about $2.1 billion (about 75 percent) of the activity group's anticipated $2.8 billion in savings from fiscal years 2000 through 2007. This initiative resulted from the competition among public and private entities for certain workloads that were performed at two of the Air Force's five air logistics centers that are being closed. These workloads were awarded to the three centers that are to remain open.

Of the $2.1 billion in savings associated with this initiative, $1.5 billion is based on the difference between the baseline costs (the baseline costs were derived by determining what it would have cost the Air Force to perform the work at the two closing logistics centers had they remained open) and the estimated cost of the workload as bid on and awarded to the three remaining centers.[23] Any changes in the competed workload from the workload used in the baseline will make it extremely difficult to determine actual savings achieved. Specifically, if the amount and/or type of work does not materialize as planned, then the workload's associated costs will differ from those used in the baseline and bid proposals for the competed work, and as such, render the original baseline virtually useless for measuring savings achieved.

[23]The remaining $0.6 billion in savings associated with the competition initiative is based on overhead savings expected to be generated by lower overhead rates resulting from the increased workload awarded to the remaining centers (i.e., relatively fixed overhead costs spread over a larger workload base).

Air Force depot maintenance officials told us that because of all the workload changes that have occurred thus far, they have no real baseline for measuring savings that are expected to result from the competition initiative. The officials acknowledged that the baseline costs should be revised based on workload changes and the projected savings updated accordingly. However, they stated that the baseline can not be accurately revised because they do not have the resources to track all the workload changes that would enable them to do so.

Calculation of Overhead Savings Achieved Under the Competition Initiative Questioned

Disagreement exists internally within the Air Force regarding the methodology used by the activity group to measure/calculate overhead savings achieved under the competition initiative involving maintenance of the C-5 aircraft being performed at the Warner Robins Air Logistics Center. The Air Force Audit Agency, in its review[24] of the overhead savings that the air logistics center achieved during fiscal year 1998, disagreed with the $30.3 million in savings the center reported achieving and believed that the center only achieved $8.4 million in overhead savings.

According to the Air Force Audit Agency, the disagreement involves the methodology that the Warner Robins Air Logistics Center is using to calculate overhead savings. When calculating overhead savings attributable to the C-5 workload, the center includes both production overhead and general and administrative expenses that are common across all workloads. The audit agency maintains that the C-5 workload is unique (that is, it can not be attributable to other work performed at the center) and therefore, production overhead expenses should be excluded from the savings calculation. Air Force depot maintenance officials, on the other hand, believe that it is appropriate to include such expenses because some production overhead, such as aircraft painting operations, is common across all of the center's workloads.

Similarly, the Defense Contract Audit Agency[25] took exception to the overhead savings reported by the logistics center on the C-5 workload in fiscal year 1999. The center reported that it had overhead savings totaling

[24]This review was performed as part of a Management Advisory Service review requested by the Secretary of the Air Force.

[25]The Defense Contract Audit Agency evaluated the accuracy of the center's reported overhead savings at the request of the Defense Contract Management Command to assist it in evaluating the accuracy of the center's reported costs incurred in fiscal year 1999 for the C-5 workload.

$6.3 million. However, the audit agency calculated that the center had lost $3 million in fiscal year 1999. When calculating the overhead savings achieved in fiscal year 1999, the center excluded certain overhead expenses because it believed that they were beyond the center's control. The audit agency recognized that certain adjustments to expenses are necessary, but could not agree with the center on the merit of excluding the expenses in question.

Conclusions

The Air Force depot maintenance activity group has not developed accurate material cost, productivity, and savings estimates for developing its budgets and prices it charges customers. Because the activity group's annual budget estimates are based on assumptions that must be made long before the start of the fiscal year, some variance between budgeted and actual results is inevitable. However, when assumptions are consistently overly optimistic, there are systemic problems with the efficiency of the activity group's operations and/or the methodology used to develop the assumptions. As a result, the depot maintenance activity group (1) incurs financial losses and/or (2) does not accomplish as much work as expected, which adversely affects the timeliness of the support that it provides to its customers.

The Air Force has recognized that it needs to improve the depot maintenance activity group's budgets and is or has taken a number of actions to correct the problems. However, to maximize the efficiency and effectiveness of depot maintenance financial operations, the group must do a better job of determining its material costs, managing material usage, and developing more realistic productivity assumptions and savings estimates used for budgeting purposes. Until the depot maintenance activity group takes such actions, it will continue to underestimate material costs and make overly optimistic productivity and savings assumptions.

Recommendations

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

- Develop a methodology that will allow the supply management activity group to reliably estimate the impact of price changes on the funding requirements of individual customers, such as the depot maintenance activity group, during the budget process.

- Develop a systematic process to identify and analyze variances between depot maintenance activities' expected and actual material usage.
- Develop material management metrics that will allow Air Force depot maintenance officials to monitor and determine the causes of material cost variances which will, in turn, help reduce material cost. At a minimum, the metrics should provide information on unplanned material issues, issues in excess of maximum quantities, the accuracy of the Bill of Materials, and variances from budget estimates.
- Have an organization external to the air logistics centers, such as the Air Force Materiel Command Inspector General, Air Force Audit Agency, or the Directorate of Logistics, Air Force Materiel Command, periodically inspect the centers' compliance with Air Force material management policy.
- Use more realistic productivity assumptions by considering historical productivity data in developing future depot maintenance budgets and developing a detailed plan that specifies how, when, and by whom the productivity improvements will be achieved.
- Develop a mechanism that will enable the depot maintenance activity group to periodically revise the competed workload baseline cost estimates by taking into account any changes in the planned workload.
- Use the revised baseline cost estimates and actual operating results as a basis for updating projected savings and adjusting the activity group's future budgets.
- Reach agreement with the Air Force Audit Agency and Defense Contract Audit Agency on the methodology and factors to be used in calculating overhead savings attributable to the C-5 aircraft maintenance workload being performed at the Warner Robins Air Logistics Center.

Agency Comments

In its comments on a draft of this report, the Air Force concurred with our recommendations and identified actions it was taking to correct the identified deficiencies. For example, the Air Force plans to require an analysis of material usage as a matter of policy and develop material management metrics that will allow Air Force depot maintenance officials to monitor and determine causes of material cost variances. DOD comments are reprinted in appendix I.

We are sending copies of this report to Senator John Warner, Chairman, and Senator Carl Levin, Ranking Minority Member, Senate Committee on Armed Services; Senator Ted Stevens, Chairman, and Senator Daniel K. Inouye, Ranking Minority Member, Subcommittee on Defense, Senate

Committee on Appropriations; Representative Solomon P. Ortiz, Ranking Minority Member, Subcommittee on Military Readiness, House Committee on Armed Services; and Representative Jerry Lewis, Chairman, and Representative John P. Murtha, Ranking Minority Member, Subcommittee on Defense, House Committee on Appropriations. We are also sending copies of this report to the Honorable William S. Cohen, Secretary of Defense, and the Honorable F. Whitten Peters, Secretary of the Air Force. Copies will also be made available to others upon request. If you have any questions about this report, please call Greg Pugnetti, Assistant Director, at (202) 512-6240. Other key contributors to this report are listed in appendix II.

Sincerely yours,

Jack L. Brock, Jr.
Director, Governmentwide and Defense Information Systems
Accounting and Information Management Division

David R. Warren
Director, Defense Management Issues
National Security and International Affairs Division

Comments From the Department of Defense

DEPARTMENT OF THE AIR FORCE
WASHINGTON, DC

19 JUL 2000

Directorate of Supply
Deputy Chief of Staff, Installations and Logistics
Headquarters United States Air Force

Mr. Jeffrey C. Steinhoff
Assistant Comptroller General
Accounting and Information Management Division
United States General Accounting Office
Washington, DC 20548

Dear Mr. Steinhoff,

Attached is the DoD response to GAO Draft Report, "AIR FORCE DEPOT MAINTENANCE: Difficulties in Budgeting and Operational Inefficiencies Caused Financial Losses," June 7, 2000 (GAO Codes 511675 and 709456 / OSD Case 2031).

As stated therein, the report is a balanced and accurate assessment of Air Force depot maintenance financial operations since 1994. The Department concurs in all recommendations and will emphasize prompt and effective corrective action. Our point of contact for any questions on this audit is Mr. Steans of HQ USAF/ILSY, (703) 695-7441, email Robert.Steans@af.pentagon.mil. Please advise if we can be of any further assistance.

Edward C. Koenig III

EDWARD C. KOENIG, III, SES
Chief, Acft/Msl Spt Div
Directorate of Supply
DCS/Installation and Logistics

Attachment:
DoD Response

cc:
DFAS HQ/DI
USD(C) Revolving Funds
USD(AT&L)

**DEPARTMENT OF DEFENSE COMMENTS
ON THE JUNE 7, 2000 GAO DRAFT REPORT:
"AIR FORCE DEPOT MAINTENANCE: DIFFICULTIES IN BUDGETING AND OPERATIONAL INEFFICIENCIES CAUSED FINANCIAL LOSSES"
(GAO CODES 511675 AND 709456 / OSD CASE 2031)**

GENERAL COMMENTS

The Department appreciates the opportunity to comment on the subject draft audit report. Overall, we believe the GAO presents a balanced and accurate assessment of Air Force Depot Maintenance Activity Group (DMAG) financial operations since 1994.

As noted by the GAO, the 1990s have been a period of significant challenge for Air Force depot maintenance managers. During this time the DMAG supported Desert Storm and Kosovo, retired several major weapon systems, implemented two-level maintenance for a number of engines and avionics systems, implemented a repair-on-demand concept, and transitioned to a new decentralized organizational structure. In addition, DMAG underwent significant downsizing, reducing personnel by more than one-third and closing three Centers. The personnel drawdown drove: a) a series of early outs, causing a loss of experienced personnel; b) reductions-in-force, in which each individual terminated resulted in job changes for up to seven others; and c) curtailment of new hires, causing a demographic imbalance. Furthermore, the lengthy Base Realignment and Closure (BRAC) closure process resulted in added facility and overhead costs, job uncertainty for DMAG personnel that reduced eventual personnel transfers, and a need to rely on expensive "bridge contracts" and contractor augmentees during the workload transition process. These limitations on productive industrial operations will soon run their course as the transition is completed. Following the transition, Air Force requirements for depot maintenance services - and the share of those services provided by organic depots - are expected to remain comparatively stable. The result should be an improved level of workforce stability. Although the DMAG will continue to exist in an ever-changing environment, the resulting depot operations will enjoy a higher level of capacity utilization, workload and workforce stability and, as a result, begin improving productivity.

Some disruption may result from the Air Force moving selected workloads from contract to organic to comply with 10 United States Code 2466 (the "50/50" provision), but accommodating these workloads will be significantly less challenging than the depot closures. Workloads identified for transfer will be selected to utilize existing capacity and provide a "good fit" with existing comparable workloads.

Although depot maintenance will continue to operate in an ever-changing environment, the Air Force expects improved performance in the future. Several of the major drivers of the turbulence have begun to ease. The BRAC transition of workloads to the remaining depots is on target and near completion and we are aggressively implementing hiring and training programs to ensure needed skills are available. As noted below, corrective actions are underway to resolve the audit recommendations. A number of process improvement actions

are also underway that will improve the DMAG workload environment during the coming years. Revised material management policies, re-established quality assurance functions, the Work Force Shaping initiative, additional industrial engineers and contract production management specialists, and a new financial system (the Depot Maintenance Accounting and Production System) will result in more effective and efficient depot maintenance operations.

Overall, the Department expects that these process improvements and a far more stable environment will remove significant impediments to accurate budgeting and more productive operations. The changes will serve as a solid foundation for effective Air Force action on the recommendations in the GAO's draft report.

RECOMMENDATIONS

Recommendation 1: The GAO recommended that the Secretary of the Air Force direct the commander, Air Force Materiel Command to develop a methodology that will allow the supply management activity group to reliably estimate the impact to price changes on the funding requirements of individual customers, such as the depot maintenance activity group, during the budget process.

DoD Response: Concur. In fiscal year 1998, the Air Force made two major changes in cost allocation procedures to better match costs with the prices that customers are charged. First, estimated overhead costs were identified by air logistics center and those costs were allocated only to the items managed at that center. Second, the estimated replacement cost for inventory no longer economically repairable, (Material Cost Recovery or MCR) was applied to the actual item, rather than as an overall surcharge applied to all items. The Air Force then revised its supply management pricing policy to correct difficulties encountered with the item-based MCR. Material purchase requirements for items beyond economic repair are now aggregated at a higher level (group) and divided by the expected number of sales to arrive at a rate that can be applied to the entire group. Thus, the impact of swings in spare parts buy requirements is minimized for each group.

The Supply Management Activity Group (SMAG) estimates the aggregate impact of prices upon customers (the composite rate change). The Air Force Audit Agency (AFAA) performs price change analyses annually for the SMAG to ensure that prices that are set are consistent with the rates set in the President's Budget and availability of customer funds. Because not all customers use the same items, a different estimate must be computed for each customer to arrive at that customer's expected price change. Customer price changes for FY 2001 will be consistent with the composite Supply customer rate change established in the FY 2001 President's budget. For FY 2002, SMAG is developing specific customer price changes.

Recommendation 2: The GAO recommended that the Secretary of the Air Force direct the Commander, Air Force Materiel Command to develop a systematic process to

identify and analyze variances between the depot maintenance activities' expected and actual material usage.

DoD Response: Concur. The AF Materiel Command (AFMC) has a process in place that reviews actual and budgeted material costs (direct, production, and General & Administrative) in monthly DMAG performance reviews. Air Logistics Centers (ALCs) report and explain variances. The review centers primarily on costs, but focuses on usage when large variances are found. AFMC will add to the review by requiring an analysis of usage as a matter of policy. AFMC Instruction 21-130, Equipment Maintenance Material Control, is being rewritten and will include requirements for centers to monitor material usage and conduct investigations into positive variances from budget targets. In addition, the AF DMAG Data Mart has a future requirement to collect bill of material data. HQ AFMC will use this information to track usage and conduct analyses of usage. The headquarters will track center compliance by having the AFMC Inspector General (IG) audit the centers during their yearly Maintenance Standardization Evaluation Program (MSEP) inspections.

Recommendation 3: The GAO recommended that the Secretary of the Air Force direct the Commander, Air Force Materiel Command to develop material management metrics that will allow Air Force depot maintenance officials to monitor and determine the causes of material cost variances and, in turn, to help reduce material cost. At a minimum, the metrics should provide information on unplanned material issues, issues in excess of maximum quantities, the accuracy of the Bill of Materials, and variances from budget estimates.

DoD Response: Concur. Additional metrics will be required in the rewrite of AFMC Instruction 21-130, Equipment Maintenance Material Control, for unplanned issues, over standard material issues, and Bill of Material accuracy. These metrics will be provided to the ALCs to compute and track for their own internal management control. Headquarters AFMC will have access to the metric data by requesting the information from the ALCs when needed. In the future, AFMC will have access to this data through the AF DMAG Data Mart. The headquarters will track compliance by having the AFMC IG audit the centers during their yearly MSEP inspections.

Recommendation 4: The GAO recommended that the Secretary of the Air Force direct the Commander, Air Force Materiel Command to have an organization external to the air logistics center, such as the Air Force Materiel Command Inspector General, Air Force Audit Agency, or the Director of Logistics, Air Force Materiel Command, perform periodic inspections of the centers' compliance with Air Force material management policy.

DoD Response: Concur. The Air Force agrees that the inspections must come from an outside official organization chartered and manned to perform such missions. The IG will be conducting yearly MSEP inspections beginning in January 2001. HQ AFMC will ensure that ALC compliance with critical material policy such as bill of material procedures is made a mandatory inspection item during the MSEP inspections.

Compliance with material policy will no longer be just an annual self-inspection requirement.

Recommendation 5: The GAO recommended that the Secretary of the Air Force direct the Commander, Air Force Materiel Command to use more realistic productivity assumptions by considering historical productivity data in developing future depot maintenance budgets and developing a detailed plan that specifies how, when, and by whom the productivity improvements will achieved.

DoD Response: Concur. HQ AFMC is taking appropriate action to consider historical productivity data in developing future depot maintenance budgets and to develop implementation plans for achieving these goals.

In order to improve the DMAG budgetary process, HQ AFMC will place more emphasis on productivity factors used during the workload review that provides workload projections for the current year, budget years and three outyears. These projections are revised annually prior to input to the budget. Included in the workload review is a review of productivity assumptions verses historical execution. At the last Air Force Materiel Command workload review, conducted 6-8 June 2000, HQ AFMC addressed the importance of realistic, achievable productivity projections for budget development, and tasked each ALC to provide an execution plan detailing how productivity objectives will be met.

Recommendation 6: The GAO recommended that the Secretary of the Air Force direct the Commander, Air Force Materiel Command to develop a mechanism that will enable the depot maintenance activity group to periodically revise the competed workload baseline cost estimates by taking into account any changes in the planned workload.

DoD Response: Concur. However, it should be recognized that the Air Force is required to track actual costs against both the baseline cost estimate and updated workload estimates for the entire award period. Updated workload estimates will occur due to higher headquarters direction, revised policy, or as a result of changes in customer requirements. Baseline, updated, and actual data are maintained for the entire award period.

Recommendation 7: The GAO recommended that the Secretary of the Air Force direct the Commander, Air Force Material Command to use the revised baseline cost estimates and actual operating results as a basis for updating projected savings and adjusting the activity group's future budgets.

DoD Response: Concur. Baseline estimates, updated estimates, as well as actual revenue, cost and net operating results (NOR) are tracked. This combined data is used to determine projected and actual savings and to adjust future budgets. The intent is not to make a profit but to break even over time; a positive NOR during one reporting period is balanced against losses from another period. Data is presented quarterly to the AFMC Commander and Air Force Assistant Secretary for Acquisition.

Recommendation 8: The GAO recommended that the Secretary of the Air Force direct the Commander, Air Force Materiel Command to reach agreement with the Air Force Audit Agency and Defense Contract Audit Agency on the methodology and factors to be used in calculating the overhead savings attributable to the C-5 aircraft maintenance workload being performed at the Warner Robins Air Logistics Center.

DoD Response: Concur. AFMC is in agreement with AFAA and the Defense Contract Audit Agency (DCAA). Savings calculated based on the 1996 baseline are different than savings calculated before adjustments. Adjustments to the 1996 baseline are therefore the only variable in question. AFAA contends the methodology does not give full value to all costs. DCAA has agreed with the Warner Robins ALC on some adjustments, but not all. The Air Force Acquisition Source Selection Authority developed and established the methodology and factors used. The methodology and factors are to be reviewed by the Warner Robins ALC, Air Force Acquisition, and HQ AFMC. The purpose of the review will be to establish agreed criteria for adjustments.

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