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BY THE COMPTROLLER GENERAL

Report To The Chairman, Committee On Government Operations House Of Representatives

OF THE UNITED STATES

Air Force Progress In Implementing The Phase IV Base Level Computer Replacement Program

The Air Force has designed a program--called Phase IV--to replace computers at 118 air bases around the world by July 1985 Because of difficulties in converting the old software to run on the new computers and in demonstrating that the new computers can meet the bases' expected workload, the Air Force is 6 months behind schedule in implementing Phase IV at its first site. According to the Air Force, this delay will increase overall costs by about $6 million However, the Air Force expects to recover from the delay by March 1985 Although every effort should be made to stay on schedule and to avoid increased costs, GAO believes that overall quality should not be compromised The converted software and computers must be thoroughly tested before being implemented at other bases

According to the Air Force, a 1980 redirection of Phase IV has produced significant savings. The Air Force estimates that, as a result of Phase IV and refinements made incident to the Phase IV redirection, total acquisition and operation savings over the next 20 years will be $18 billion By following through with commitments made to the House Committee on Government Operations in 1980, the Air Force can realize additional savings

The Assistant Secretary of the Air Force (Financial Management) is acting on issues raised in this report

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GAO/IMTEC-84-7
JANUARY 18, 1984

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D C 20548

B-211087

The Honorable Jack Brooks
Chairman, Committee on
Government Operations
House of Representatives

Dear Mr. Chairman:

In response to your January 13, 1983, request (see app. II) and subsequent discussions with your office, we have completed a followup review of the Air Force's Phase IV Base Level Computer Replacement Program.

Phase IV--the largest computer acquisition ever attempted by the government--is designed to replace existing computers at 118 air bases around the world. The software operating on the current computers will be converted to operate on the new computers. The Air Force's purchase of the new computers installed at each base is contingent upon successful demonstration of the hardware and converted software. After the Air Force completes a detailed analysis of user information needs, scheduled for 1985, it will redesign the converted software. Over the next 20 years, Phase IV acquisition and operation costs will total about $5 billion.

Under Phase IV, the Air Force originally planned to buy 2 computers for most of its bases--or a total of 227 computers. At your committee's hearings in October 1979, we testified that this approach was unnecessarily expensive and restricted competition. Subsequently, the Air Force made specific commitments to your committee to redirect Phase IV and to (1) reduce the costs of computer equipment, personnel, and facilities; (2) significantly improve day-to-day operations; and (3) conduct a detailed analysis to examine the long-range improvements needed to modernize computer operations at air bases. The Air Force projects that total acquisition and operation savings will be $1.8 billion over the next 20 years.

In reporting on the status of the program in March 1983,[1] we stated that the Air Force had selected a contractor and had agreed to buy about 155 new computer systems, even though important software conversion from the old to the new computers and performance testing had not been completed.

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[1]Status of the "Phase IV" Base Level Computer Replacement Program (GAO/AFMD-83-58, Mar. 16, 1983).

During this followup, conducted from January to early September 1983, we reviewed the Air Force's progress in completing the software conversion and testing and the steps taken to reduce the costs and increase the effectiveness of the Phase IV program. Just prior to issuing this report, we updated the status of these efforts. We did not validate the cost data provided by the Air Force.

Our findings are summarized below and are discussed in detail, along with our objectives, scope, and methodology, in appendix I.

SOFTWARE CONVERSION AND TESTING PROBLEMS DELAY IMPLEMENTATION

The Air Force and the contractor have taken steps to minimize delays and to complete software conversion and testing efforts. They have made several changes in software conversion and testing schedules, combined various software conversion and testing efforts, and held frequent meetings to identify and resolve problems. However, they continue to experience difficulties in (1) converting software from old to new computers and (2) demonstrating that the computers operate properly and can handle the expected workloads at the bases.

In December 1980, when the initial software conversion efforts started on Phase IV, the Air Force planned to have a fully operational standard base supply system at its first site--Langley Air Force Base in Virginia--by August 1, 1983. Following this would be a phased implementation of the supply system onto the new computers at the remaining 117 air bases. However, the Air Force has missed target dates for completing converted software validation tests and now does not expect to implement a fully operational system at Langley until February 1984. According to the Air Force, this 6-month delay will increase Phase IV program costs by about $6 million and will prevent the Air Force from starting worldwide implementation of the supply system until May 1, 1984.

Program management officials believe that the Air Force can recover from these delays over an 11-month period by installing computers at up to 21 sites per month. The officials said, however, that they have not obtained commitments from the contractor or major commands to further accelerate the implementation schedule--which has already been increased from 10 to 16 installations per month due to previous delays.

In addition to completing the standard base supply system, the Air Force and the contractor must convert more than 300 other software systems from old to new computers. Program management officials said that these conversions are proceeding on, or ahead of, schedule. However, if problems persist with the supply system, or if the accelerated implementation schedule

cannot be attained, or if difficulties arise during the remaining software conversions, final Phase IV implementation, scheduled for completion by July 1985, could be delayed. The Air Force has estimated that if this occurs, Phase IV program costs will increase by about $10 million for each month of delay.

Along with the delay in completing the first operational supply system, the Air Force has been unable to complete the workload test for the new computers. Consequently, the Air Force does not know if the proposed system hardware will be technically and operationally adequate to meet the bases' expected workloads.

To prevent any further delays, we believe that the Air Force must continue to closely monitor this complex, multibillion-dollar program. Although every effort should be made to stay on schedule and to avoid increased program costs, overall program quality should not be compromised. The Air Force must insist on the software being completely converted and thoroughly tested at Langley before being implemented at other bases. This approach and a full postevaluation are necessary to ensure that system performance is acceptable for worldwide implementation. (See app. I, pp. 3 to 7.)

PROGRAM COSTS HAVE BEEN REDUCED, BUT MORE CAN BE DONE

In meeting specific commitments made to your committee in March 1980 regarding Phase IV, the Air Force has

- --reduced the number of computers to be acquired from 227 to 155,
- --identified 250 personnel positions that could be eliminated by Phase IV, and
- --adopted a lease/purchase approach for the computer hardware that will save the government about $690 million.

These efforts are commendable, but we believe that the Air Force can further reduce costs by

- --installing a multiprocessor system,[2] where cost effective, instead of two separate systems;
- --establishing additional regional centers, as well as linking more air bases to existing centers, to take full advantage of opportunities to share computer resources;

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[2]A multiprocessor system is a computer using two or more processing units that have access to a common main storage in which data can be entered, retained, and retrieved.

--conducting a detailed analysis of staffing requirements and ensuring that staffing is kept to a minimum; and

--implementing a formal system to track the leasing and purchasing of computer equipment.

The Assistant Secretary of the Air Force (Financial Management) agreed that close monitoring of program costs is needed. (See app. I, pp. 8 and 9.)

AIR FORCE EFFORTS TO IMPROVE DAY-TO-DAY OPERATIONS AND COMPLETE SYSTEM ANALYSIS

The Air Force has met its commitment to improve day-to-day operations of computers by (1) reducing the use of punched cards, (2) using visual display terminals rather than printing terminals, and (3) increasing the use of data base management and generalized retrieval systems. The Air Force expects even more improvements once its base level systems are redesigned to better meet user needs.

Regarding the Air Force's commitment to conduct a detailed analysis of the bases' systems, the Assistant Secretary of the Air Force (Financial Management) said that the analysis will not be completed until after Phase IV has been implemented worldwide. According to the Assistant Secretary, program officials have been prevented from starting the analysis sooner because of organizational difficulties and because guidelines for performing the analysis have been unclear. Consequently, this work is several years behind the schedule established by the Air Force in early 1980.

At our suggestion, the Assistant Secretary agreed to reaffirm top management's commitment to completing the analysis and to establish a formal charter with clear directives authorizing the resources needed for the analysis. (See app. I, p. 10.)

FOLLOWUP ACTIONS PLANNED

The Assistant Secretary of the Air Force (Financial Management) is acting on the issues raised in our report. Also, the Secretary of the Air Force has directed the Air Force Audit Agency and the Inspector General to follow the Phase IV program and to report the results of their reviews to the Assistant Secretary of the Air Force (Financial Management). Copies of their reports are to be sent to us and to your committee.

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We did not obtain official comments on this report from the agency or the contractor. However, we did discuss the report contents with program officials and have included their comments where appropriate.

Unless you release its contents earlier, we plan no further distribution of this report until 30 days after its issue date. Then, we will send copies to the Secretaries of Defense and the Air Force and to other interested parties upon request.

Sincerely yours,

Charles A. Bowsher

Comptroller General
of the United States

AIR FORCE PROGRESS IN IMPLEMENTING THE PHASE IV BASE LEVEL COMPUTER REPLACEMENT PROGRAM

BACKGROUND

In April 1976 the Air Force started the Phase IV program to replace existing base level computer systems at 118 air bases around the world. The program objectives are to provide (1) cost effective, responsive, and reliable computer support for a variety of base level supply, administrative, and other functions; (2) a safe transition of current applications software to new computers; and (3) flexibility to grow. Over the next 20 years, Phase IV acquisition and operation costs will total about $5 billion.

When it released its request for proposals in December 1978, the Air Force planned to buy two computer systems for most of its bases--or a total of 227 computers for 118 bases. At your request, we started a review of Phase IV in March 1979. Soon after, at your committee's October 10, 1979, hearings, we testified that the Air Force's plan to buy two computers for most bases was unnecessarily expensive and restricted competition. We restated our concerns in an October 1979[1] report and recommended that the Air Force cancel its plans to buy two computers for most bases and to revise its request for proposals to better reflect functional requirements.

In response to congressional hearings, our report, and a report by the House Committee on Government Operations,[2] the Air Force, in March 1980, pledged to

--reduce the number of computers to be acquired and the costs of computer equipment, personnel, and construction;

--significantly improve the day-to-day operation of base level systems; and

--conduct a detailed functional analysis of base level systems.

The Air Force modified its request for proposals to reflect this redirection of Phase IV and, in December 1980, awarded fixed-price contracts to Sperry Corporation and Burroughs Corporation. Under the Air Force's acquisition strategy, the two contractors were responsible for (1) converting software for 13 of the Air Force's largest and most complex computer systems and (2) demonstrating the converted software on their proposed

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[1]The Air Force Should Cancel Plans To Acquire Two Computer Systems At Most Bases (FGMSD-80-15, Oct. 26, 1979).

[2]The Department of the Air Force's Phase IV Program Should Be Redirected (H. Rept. 96-694, Dec. 10, 1979).

equipment. The purpose of this strategy was to enable the Air Force to fully evaluate the contractors' price proposals and technical capabilities before awarding the production contract to one of them. After the corporations completed the testing and demonstrations and submitted final price proposals for the contract, the Air Force was to choose a contractor on the basis of this comprehensive evaluation, with cost being the primary factor considered.

Even though the two corporations had not completed important conversion and testing efforts, the Air Force, on January 27, 1983, awarded an 8-year, $476.2 million contract to Sperry. This selection (or "production buy decision," as it is termed) committed the Air Force to buy about 155 computer systems from Sperry.

In March 1983[3] we reported that Air Force program management officials said they had proceeded with the production buy decision because (1) both companies had demonstrated adequate technical capabilities to meet program requirements and (2) Sperry's final price proposals were significantly lower than Burroughs'. The officials said that the Air Force could join with the selected contractor in solving problems and in completing the remaining conversion and testing. They added that the selected contractor would have to complete all software conversion and testing and correct all deficiencies before the Air Force implemented the new systems worldwide. When it made its production buy decision in January, the Air Force planned to have an operational standard base supply system at Langley Air Force Base in Virginia by August 1, 1983.

OBJECTIVES, SCOPE, AND METHODOLOGY

In responding to your January 13, 1983, request, we sought to review (1) the Air Force's efforts (a) to complete software conversion and testing and (b) to ensure that Phase IV computers performed acceptably before being implemented worldwide, and (2) the Air Force's progress toward fulfilling prior commitments made to your committee.

To learn what actions the Air Force plans to take to ensure the program's success, we discussed review issues in detail with the Assistant Secretary of the Air Force (Financial Management), the senior program official and source selection authority for the Phase IV acquisition. We visited Air Force headquarters in Washington, D.C., and key offices involved in managing the Phase IV program--Automated Systems Project Office, Data Systems Design Center, Systems Evaluation Center, and Operational Test and Evaluation Center, all located at Gunter Air Force Station, Alabama. From January to early September 1983, we interviewed personnel at these offices and reviewed pertinent documents provided by the Air Force. We also interviewed personnel at key

[3]Status of the "Phase IV" Base Level Computer Replacement Program (GAO/AFMD-83-58, Mar. 16, 1983).

major commands and air bases and representatives of Sperry Corporation. We updated the status of the Air Force actions just prior to issuing this report.

We performed our review in accordance with generally accepted government audit standards. We did not obtain official agency or contractor comments on this report. We also did not validate the cost data provided by the Air Force.

AIR FORCE ACTIONS TO COMPLETE SOFTWARE CONVERSION AND TESTING

Since making the production buy decision, the Air Force has joined with the contractor in working toward resolving the management and technical problems encountered in the Phase IV program. However, the Air Force and the contractor have continued to experience difficulties in converting some of the large, complex software systems and in completing the tests to demonstrate that the systems operate properly and can meet base level workloads. The Air Force has missed target dates for completing these tests and is now about 6 months behind schedule in implementing a fully operational standard base supply system at the first site--Langley Air Force Base. Delays in completing the software conversion and testing at Langley will also delay completion of the workload test and the start of program implementation at other bases worldwide. The Air Force estimates that these delays will increase program costs by about $6 million.

Remaining implementation efforts are far from complete, since the Air Force and the contractor still have to convert 300 other software systems. To make certain that all conversions are successful, the Air Force must closely monitor the Phase IV program.

Software conversion and testing difficulties continue

When the contractor started the software conversion efforts in December 1980, the Air Force planned to have a fully operational supply system at Langley by August 1, 1983. Validation tests, which verify that the Langley system and the software update have been correctly converted, were originally scheduled for completion in August 1982 and subsequently rescheduled for completion prior to the production buy decision in January 1983. An evaluation of the converted systems by the primary user organization was also expected to be completed by that time. Validation testing of the updated system was to be completed by April 15, 1983. The Air Force missed these important target dates and decided to consolidate and combine these validation and evaluation efforts with the implementation and conversion testing at Langley.

When we completed our field work in early September 1983, the contractor had completed validation testing on 153 of the 440 supply system programs. At that time, the Air Force was

expecting immediate delivery of the remaining 287 programs and had plans to complete the system implementation and conversion at Langley by November 30, 1983. Just prior to issuing this report, we checked on the status of these efforts and learned that the Langley system has experienced additional delays and is not expected to be completed until February 1984. According to Air Force program management officials, this additional delay occurred because a key on-line software program for processing and interfacing supply transactions could not meet performance requirements and had to be replaced with a faster and more efficient program capable of handling the supply systems' high-volume workload.

The workload test was also incomplete when we finished the field work. Because of the additional supply system delays, this important test is not expected to be completed until February 20, 1984--18 months after the originally scheduled target date of September 1, 1982. The contractor's new computer has been unable to process the overall workload as fast as the existing computer, and 36 deficiencies remain unresolved. The Air Force concedes that the major risk associated with the workload test is that proposed hardware configurations may not satisfactorily fulfill the performance requirements. If any of the remaining configurations to be tested lead to unsatisfactory performance that cannot be corrected, additional hardware may be required. Except for potential computer memory size increases, the contractor is committed to completing the workload test on the proposed hardware configurations. However, until the test is completed, the Air Force cannot positively determine that the contractor's proposed hardware configurations will be technically and operationally adequate for meeting base level workloads.

The Assistant Secretary of the Air Force (Financial Management) said the Air Force will continue testing the software until the systems meet all requirements and are fully capable of supporting base level workloads. He said that all remaining tests, including the workload test, will be completed before the Air Force accepts the system, and that the contractor will be required to correct software and system performance deficiencies without increasing the size of hardware configurations agreed upon in the Phase IV contract.

In May 1983, the Air Force Operational Test and Evaluation Center completed its test report on the Qualification Operational Test and Evaluation. This independent test consisted of an Air Force hands-on test of the contractor's computer system and was designed to evaluate system performance and reliability as well as other factors, such as computer operator staffing requirements.

The test report stated that (1) system performance was deficient and was not capable of meeting base level data processing requirements as well as they are currently being met, (2) processing was slow and products generated by the system were

incomplete, and (3) the proposed hardware configuration may not be adequate.

The report attributed the system's poor performance to the design of certain software systems and to numerous software errors and deficiencies. Air Force program management officials said that many of these errors and deficiencies were caused because the validated software for some of the systems, particularly the supply system, was not available. They said that both software and system performance deficiencies would be corrected before final implementation and conversion at Langley. The officials also said that the deficiencies would be resolved without increasing the size of hardware configurations.

In our March 1983 report, we pointed out that because the Operational Test and Evaluation Center had not completed its test, the Air Force could not verify the actual staffing required for the contractor's computer configurations. While the completed test report concluded that staffing requirements were satisfactory, it stated that further measurement was needed to establish actual staffing requirements, since the report conclusions were based on a test environment. The Assistant Secretary said that the Air Force would continually monitor the program to ensure that staffing levels were kept to a minimum.

Delays have increased program costs

Sperry agreed to complete the tests that were not performed within the initial contract period at no additional cost to the government. Because the Air Force has joined with the contractor in completing the tests, the Air Force has expended over 2,000 additional staff days and $410,000 in travel and per diem costs in the first 4 months after the production buy decision. Program costs will continue to increase with each additional month the testing efforts are continued.

Not implementing an operational supply system at Langley by August 1, as planned, has delayed the start of the program at major commands and other bases worldwide and has also increased program costs. An Air Force contingency plan, issued in September 1983, indicated that the Air Force could recover from the delay in 7 months by installing the computers at up to 16 sites per month. The contractor had agreed to 16 installations per month and Air Force commands had reported they could provide sufficient resources to meet the accelerated schedule and the additional workload. Previously, however, the Air Force had said it could not support any more than 10 installations a month due to limited resources.

The recent supply system delay reported to us in late November 1983 means the Air Force will not be able to start worldwide implementation of Phase IV until May 1, 1984. According to program management officials, the Air Force can still recover from the delay in 11 months by installing computers at up to 21 sites per month. The officials said, however, that they have

not obtained commitments from the contractor or the major commands to further accelerate the implementation schedule.

According to the Air Force, the 6-month delay--from August 1983 to February 1984--in completing the Langley system will increase program costs by approximately $6 million. The Air Force also said that program costs could increase even more if an accelerated implementation schedule cannot be met.

Remaining implementation efforts are far from complete

In addition to completing the software conversion of the 13 major systems started before the production buy decision, the Air Force and the contractor have to convert more than 300 other software systems, which are also processed on the existing computers. During this secondary conversion effort, the contractor is required to convert eight standard Air Force systems containing about 358,000 lines of code (or program instruction). The Air Force Data Systems Design Center must convert 21 standard systems containing about 550,000 lines of code, and several major commands have to convert a total of 285 command-unique systems with about 2.7 million lines of code.

The Air Force plans to complete this large software conversion effort, integrate all the systems on a single hardware configuration, test overall performance, and install a fully operational system at Langley by July 1984. The Air Force's current plan calls for installing the last of the Phase IV computers worldwide by July 1985.

Although converting the initial 13 systems has been more difficult than expected, the Air Force does not anticipate as much difficulty in converting these other systems because most are smaller and--in contrast to those programs already converted--are already written in a higher level programming language.

Air Force program management officials told us that these efforts are proceeding on or ahead of schedule and, thus far, have not been affected by the supply system delays at Langley. However, if problems persist with the supply system, if an accelerated implementation schedule cannot be attained, or if difficulties arise during the remaining software conversions, the 1985 Phase IV implementation schedule could be delayed. The Air Force has estimated that a 1-month delay in final Phase IV implementation would increase program costs by $10 million; a 3-month slip in the overall schedule would cost $33 million.

Air Force efforts to correct problems

Both Air Force and contractor program management officials have expressed general satisfaction with the program's current status. Pointing out that the initial software conversion

effort involved the 13 largest and most complex Air Force standard systems containing about 1.6 million lines of code, officials believe that the program has proceeded about as well as could be expected. They said implementation has been difficult due to (1) problems in converting from machine language to a high order programming language, (2) inadequate documentation of existing systems, and (3) a cumbersome and time consuming test process.

The Air Force and the contractor have taken several steps to minimize program delays and to complete the software conversion and testing efforts. For example, both have agreed to several changes in software conversion and testing schedules to speed the process. The contractor was to deliver two separate updates to the initial software systems, but these were combined to accelerate delivery of the final package. Similarly, the original package and update for each of the follow-on systems were combined. In addition, the Air Force provided technical representatives at test sites to aid the contractor in identifying and solving problems. More frequent meetings were scheduled between the Air Force and contractor program managers to facilitate the exchange of information. These meetings were held to (1) identify potential problems, (2) solve the problems, and (3) identify alternative methods to satisfy contract requirements more efficiently.

The Air Force developed a project management system to track contractor progress, including analyses of schedules, performance, and costs. When contractor performance became delinquent during the transition period, the Air Force issued delinquency notices and suspended progress payments. In response, the contractor increased its staff, installed more equipment, and leased facilities closer to the Langley test site. The contractor also reorganized its internal management and reporting structures to focus more attention on the Phase IV program.

Air Force should continue to closely monitor Phase IV program

To prevent any further delays, we believe that the Air Force must continue to closely monitor this complex, multi-billion-dollar program. Although every effort should be made to stay on schedule and to avoid increased program costs, overall program quality should not be compromised. The Air Force must insist on the software being completely converted and thoroughly tested at Langley before being implemented at other bases. This approach, and a full postevaluation, are necessary to ensure that system performance is acceptable for worldwide implementation. The Assistant Secretary of the Air Force (Financial Management) said that he intends to take all actions needed to ensure that costs are held to a minimum, that schedules are met, and that program quality remains high.

APPENDIX I

REDIRECTION OF PHASE IV REDUCED COST, BUT ADDITIONAL STEPS ARE NEEDED

The redirection of Phase IV has produced significant savings. In March 1980, the Secretary of the Air Force reported that approximately $800 million in costs could be avoided as a result of the program redirection. As a result of this redirection and other Air Force actions, the Air Force now estimates that total acquisition and operation savings for Phase IV will be $1.8 billion over the next 20 years.

To meet its specific commitments to your committee, the Air Force has reduced the number of Phase IV computer systems to be acquired from 227 to 155 by installing a single computer system at most air bases and by establishing 14 regional centers. We believe that further reductions can be made by (1) installing multiprocessor systems, where cost effective, at locations currently scheduled to receive two separate computer systems and (2) taking full advantage of regionalization to increase sharing of computer resources.

The Air Force plans to install two separate computer systems at six aerial port bases to handle expected workload surges and at 11 of the 14 regional centers which will be required to support one or more remote bases. On the basis of our analysis of contractor equipment specifications and Air Force studies on equipment and personnel requirements, we estimate that using a single multiprocessor system instead of two separate systems at these locations would save up to $16.9 million over 8 years. The Air Force also may be able to use single systems at some of its 24 overseas bases that are scheduled to receive two separate systems.

A multiprocessor system can be sized to provide essentially the same capability as two separate systems and can provide extra capacity for workload surges as well. With a single multiprocessor system, the Air Force could eliminate up to five computer operator positions and the requirement for a second front-end communications processor at each location. The Phase IV program manager agreed that the Air Force might be able to use multiprocessor systems at some of these locations, but he said that all technical aspects must first be evaluated by hardware and software engineers.

Considering the advanced technology of the new computer systems, we believe that the Air Force could have realized greater savings by establishing more regional centers. The Air Force was able to reduce facilities construction costs by establishing the 14 regional centers and consolidating data processing facilities at most locations. However, by establishing criteria, such as a maximum 100-mile distance and 2-hour driving time between air bases considered for regionalization, the Air Force has missed additional savings opportunities.

Some sites were rejected and not fully evaluated because they exceeded those limits. Other sites were rejected because major commands would not agree to having their bases with operational flying units supported by a remote base's computer system. In analyzing the Air Force's regionalization studies, and by including estimates of personnel savings, we identified five locations that would have been cost-effective regional centers and three additional air bases that could have been aligned with the 14 regional centers. The Air Force rejected these alternatives because the estimated savings were uncertain before contract award, and adding bases would have increased the risks of delaying the program. However, Air Force officials said that they plan to further examine regionalization issues and alternatives, including the feasibility and cost effectiveness of establishing additional regional centers, as well as linking more bases to existing centers.

The Air Force plans to eliminate at least 250 personnel positions with the Phase IV program; however, these reductions are not expected to take place until after program implementation is completed in 1985. Following the 1980 redirection of the Phase IV program, the Air Force identified the positions to be eliminated and established a baseline to account for the personnel reductions. Only base level computer operations positions were considered in establishing the baseline, and all the reductions identified were in the supply area. We found that the Air Force plans to use the positions eliminated by Phase IV to meet personnel requirements outside the base level computer operations area. The Air Force may not realize any actual reductions because staffing is expected to increase with workload changes and new programs and missions.

The Air Force has adopted a lease/purchase approach for the computer hardware, which will lead to substantial savings. Using this approach, the Air Force will lease the hardware for about 9 to 16 months, and then purchase the equipment with credit for all lease payments made. To save the most money, the Air Force must carefully monitor the lease/purchase credits so that it can identify the best time to buy the numerous equipment items, which have varying lease and purchase prices. Compared to original life-cycle program estimates, the Air Force will save about $690 million by purchasing instead of leasing the equipment.

The Assistant Secretary of the Air Force (Financial Management) said that close monitoring of the program cost is needed and that further savings can be achieved. At our suggestion, he agreed to:

--evaluate the use of multiprocessor systems at locations scheduled to receive two separate systems,

--reexamine the regionalization alternatives and issues and take full advantage of opportunities to share computer resources,

--conduct a detailed analysis of staffing requirements and ensure base level computer operations staffing is kept to a minimum, and

--implement a formal system to track the lease and purchase of computer equipment.

PROGRESS TOWARD MODERNIZING BASE LEVEL SYSTEMS AND COMPLETING THE FUNCTIONAL ANALYSIS

In 1980, the Air Force assured your committee that Phase IV would significantly improve day-to-day operations of computer systems. The Air Force also promised to conduct a detailed functional analysis of these systems, examining the long-range improvements needed to modernize base level operations.

The Air Force has made or expects to make immediate improvements in day-to-day operations by reducing the use of punched cards, using visual display terminals rather than printing terminals, and increasing the use of data base management and generalized retrieval systems. Air Force officials said that additional operational improvements could be achieved when base level systems are redesigned or enhanced to better support user requirements. The Air Force has already identified numerous modernization initiatives and has projected many automation requirements involving enhancements and redesign of existing or planned base level systems over the next several years.

The Air Force has begun a detailed analysis of base level systems to examine the information needs of functional areas and senior base managers in all existing and planned manual and automated systems. Using contractor-developed techniques and methodology, the Air Force has initiated efforts to document 2 of 16 functional areas needing analysis--supply and accounting/finance. Other important aspects of these functional areas that will be analyzed include (1) identifying information needs of base level managers, (2) examining problems and inefficiencies, and (3) determining interfacing requirements for related systems. The Air Force had planned to begin this functional analysis in February 1980 but, because of organizational difficulties and a tentative, unclear charter to authorize the work, did not begin until April 1983.

The Assistant Secretary of the Air Force (Financial Management) acknowledged that the Air Force has experienced organizational difficulties and that guidance for performing the functional analysis has been unclear. At our suggestion, he agreed to reaffirm top management's commitment and to establish a formal charter with clear directives for this effort. He agreed that completing the detailed functional analysis is essential to making informed decisions on the future of data processing in the Air Force. After completing the analysis, the Air Force expects to implement many additional improvements made possible by the new Phase IV equipment.

APPENDIX II

NINETY-SEVENTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON GOVERNMENT OPERATIONS

2157 Rayburn House Office Building

Washington, D.C. 20515

January 13, 1983

The Honorable Charles A. Bowsher
Comptroller General
General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear General:

The Committee on Government Operations recently received an excellent briefing by your staff on the Air Force's Base Level Automation Program (Phase IV). Apparently, the project is experiencing serious management and technical difficulties which may jeopardize the successful completion of this $5 billion procurement. Specifically, as of December 1982, neither contractor had completed all validation tests which were scheduled for completion in early August and the performance by both contractors has been judged by the Air Force to be unsatisfactory. Further, the critical workload and operational testing have not been completed, even though the Air Force plans to award the contract in February.

Given the size and importance of this project, a follow-up review should be made by your office to determine what corrective actions must be taken to remedy these serious deficiencies. Your review should take into consideration the prior commitments made to this Committee by the Air Force to reduce the cost and increase the effectiveness of this procurement. Since the Air Force plans to award this contract in the near future, I request an interim report on this review within 60 days and a final report within six months.

With every good wish, I am

Sincerely,

JACK BROOKS
Chairman

(913707)

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