

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

September 1990

ADP BUDGET

Potential Reductions to
the Department of the
Air Force's Budget
Request



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General Accounting Office
Washington, D.C. 20548

Information Management and
Technology Division

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September 26, 1990

The Honorable John P. Murtha
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives

Dear Mr. Chairman:

On September 5, 1989, you asked us to review the Department of Defense fiscal year 1991 budget request for automated data processing resources to assist the Subcommittee in its budget deliberations. On July 3, 1990, we briefed your office on our preliminary findings on eleven automation projects managed by the Air Force.

This report updates that briefing with information available when we completed our work in September 1990. This information includes background and budget data and, where appropriate, identifies funds requested for fiscal year 1991 that could be eliminated from the Air Force's budget requests. We have provided a separate report to you containing similar information on the Department of the Navy.¹ We will also be providing a separate report to you containing similar information on selected automation projects managed by the Office of the Secretary of Defense, Defense agencies, and the Department of the Army.

We identified potential reductions of \$191.5 million to the Air Force's overall fiscal year 1991 Automated Information Systems budget. These potential reductions to specific Air Force appropriations include \$65.6 million from other procurement; \$86.4 million from operation and maintenance; \$26.3 million from research, development, test, and evaluation; and \$13.2 million from military construction. These potential reductions are based on our assessment of budget justifications, schedule slippages, and program changes for selected information systems. Details of these potential reductions are included in appendix I.

As requested by your office, we did not obtain official agency comments on this report. However, we discussed its contents with Department of Air Force officials and have incorporated their views where appropriate. Our work was conducted between April and September 1990.

¹ADP Budget: Potential Reductions to the Department of the Navy's Budget Request (GAO/IMTEC-90-84BR, Sept. 17, 1990).

Details regarding the objective, scope, and methodology of our work are described in appendix II.

As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the date of this letter. At that time, we will send copies of this report to the Chairmen, House and Senate Committees on Appropriations; Chairmen, House and Senate Committees on Armed Services; Chairman, House Committee on Government Operations; Chairman, Senate Committee on Governmental Affairs; the Secretaries of Defense and the Air Force; and the Director, Office of Management and Budget. We also will make copies available to others upon request.

This report was prepared under the direction of Samuel W. Bowlin, Director, Defense and Security Information Systems, who can be reached at (202)275-4649. Other major contributors are listed in appendix III.

Sincerely yours,



Ralph V. Carlone
Assistant Comptroller General

Contents

Letter		1
<hr/>		
Appendix I		6
Potential Reductions to Air Force Automated Information Systems		6
	Air Force Command and Control Systems (AFC2S)	6
	Air Force Equipment Management System (AFEMS)	7
	Automated Technical Order System (ATOS)	9
	Core Automated Maintenance System (CAMS)	11
	Combat Ammunition System (CAS)	12
	Contracting Data Management System (CDMS)	13
	Depot Maintenance Management Information System (DMMIS)	16
	Military Airlift Command, Command & Control Information Processing System (MAC C2 IPS)	18
	Reliability and Maintainability Information System (REMIS)	20
	Strategic War Planning System (SWPS)	22
	Tinker Air Force Base Military Construction Program	24
<hr/>		
Appendix II		26
Objective, Scope, and Methodology		
<hr/>		
Appendix III		27
Major Contributors to This Report		
<hr/>		
Tables		
	Table I.1: Potential Reductions to Air Force Automated Information System Budget	6
	Table I.2: AFC2S Fiscal Year 1991 Budget Request	7
	Table I.3: AFEMS Fiscal Year 1991 Budget Request	8
	Table I.4: ATOS Fiscal Year 1991 Budget Request	9
	Table I.5: CAMS Fiscal Year 1991 Budget Request	11
	Table I.6: CAS Fiscal Year 1991 Budget Request	12
	Table I.7: CDMS Fiscal Year 1991 Budget Request and Prior Year Funding	14
	Table I.8: DMMIS Fiscal Year 1991 Budget Request	16
	Table I.9: MAC C2 IPS Fiscal Year 1991 Budget Request	19
	Table I.10: REMIS Fiscal Year 1991 Budget Request	20
	Table I.11: SWPS Fiscal Year 1991 Budget Request	23

Table I.12: Tinker Air Force Base New ADP Facility
Project Fiscal Year 1991 Budget Request

Abbreviations

ADP	automated data processing
AFC2S	Air Force Command and Control Systems
AFEMS	Air Force Equipment Management System
ATOS	Automated Technical Order System
CAMS	Core Automated Maintenance System
CAS	Combat Ammunition System
CDMS	Contracting Data Management System
CIM	Corporate Information Management
DLA	Defense Logistics Agency
DMMIS	Depot Maintenance Management Information System
GAO	General Accounting Office
IMTEC	Information Management and Technology Division
JUSTIS	Joint Uniform Services Technical Information System
MAC C2 IPS	Military Airlift Command, Command and Control Information Processing System
MAISRC	Major Automated Information System Review Committee
REMIS	Reliability and Maintainability Information System
SWPS	Strategic War Planning System

Potential Reductions to Air Force Automated Information Systems

We identified a potential budget reduction of \$191.5 million from the Air Force's Automated Information Systems budget. Table I.1 shows the potential reductions to the programs.

Table I.1: Potential Reductions to Air Force Automated Information System Budget

Dollars in millions					
Fiscal Year 1991					
Air Force programs	Operation and maintenance	Other procurement	Research, development, test, and evaluation	Military construction	Total
AFC2S	\$10.6				\$10.6
AFEMS	12.2				12.2
ATOS	2.9				2.9
CAMS	11.2				11.2
CAS	4.9	\$10.8			15.7
CDMS	18.5				18.5
DMMIS		37.0			37.0
MAC IPS		14.3			14.3
REMIS	19.4				19.4
SWPS	6.7	3.5	\$26.3		36.5
Tinker				\$13.2	13.2
Total	\$86.4	\$65.6	\$26.3	\$13.2	\$191.5

Air Force Command and Control Systems (AFC2S)

Description of Program

The AFC2S program is a modernization of multiple command and control automated information systems. The purpose of this program is to provide commanders with current, accurate information on the status of forces and support resources needed to efficiently and effectively allocate and employ combat and support forces. The program is part of an overall Air Force command and control systems upgrade. The functional areas supported by these systems are logistics, personnel, maintenance, operations, fuels, munitions, and supply. Table I.2 shows funds requested for fiscal year 1991 for AFC2S.

**Appendix I
Potential Reductions to Air Force Automated
Information Systems**

Table I.2: AFC2S Fiscal Year 1991 Budget Request

Dollars in millions	
Source of funds	Fiscal Year 1991
Military personnel	\$2.9
Operation and maintenance	25.7
Other procurement	11.7
Total	\$40.3

Source: 43A-1 exhibit for AFC2S.¹

Results of Analysis

We identified a potential reduction of \$10.6 million from the Air Force's fiscal year 1991 request for operation and maintenance funds. The Air Force is requesting \$25.7 million for operation and maintenance for AFC2S, of which \$21.4 million is identified for systems analysis and programming requirements. However, the Air Force's justification for the \$21.4 million identifies only \$10.8 million as needed for fiscal year 1991. The program office could not provide any additional justification for the remaining \$10.6 million. Consequently, the Committee may wish to consider reducing the Air Force's operation and maintenance appropriation by \$10.6 million.

Air Force Equipment Management System (AFEMS)

Description of Program

The AFEMS modernization program is intended to give the Air Force a tool that equipment managers will use to budget, compute requirements, authorize and account for support equipment assets, and forecast future needs. AFEMS originated in 1986 and will replace 10 existing systems with a single on-line system. In January 1990, the Air Force awarded a firm-fixed-price contract valued at about \$70 million to develop AFEMS. As of June 1, 1990, the Air Force estimated AFEMS program costs at \$86 million and said full operational capability will be achieved by September 1993. Table I.3 shows funds requested for fiscal year 1991 for AFEMS.

¹The budget exhibit 43A-1 is required by Office of Management and Budget Circular A-11 and provides a report of an agency's estimates for information technology activities.

**Appendix I
Potential Reductions to Air Force Automated
Information Systems**

**Table I.3: AFEMS Fiscal Year 1991
Budget Request**

Dollars in millions	
Source of funds	Fiscal Year 1991
Operation and maintenance	\$12.2
Total	\$12.2

Source: 43B-1 exhibit on Miscellaneous Development for AFEMS.

Results of Analysis

The future and benefits of the AFEMS program are not certain. As discussed below, the Air Force does not plan to provide sufficient funds to meet AFEMS requirements and contract obligations in fiscal year 1991 and beyond. Further, the Air Force has not adequately proven that the benefits of this program support its continued development. Until these two shortcomings are corrected, the Committee may wish to withhold AFEMS funding requested for fiscal year 1991.

Future of AFEMS Is Not Certain

The Air Force's approved AFEMS funding for fiscal year 1991 through fiscal year 1994 is significantly less than the program manager's estimated program funding needs. The projected shortfall during this period is \$15.9 million. For fiscal year 1991, the deputy program manager has projected an \$8.1 million shortfall in operation and maintenance funds. According to program officials, this will have a dramatic impact on system development in that these funds are needed to exercise crucial development options covering activities from system design review through production validation review. The program manager said that these options must be exercised by December 1990 to avoid terminating the development contract. In fact, given the projected fiscal years 1991-1994 funding shortfalls, the future of completing AFEMS as currently planned is uncertain.

Therefore, before giving the Air Force its requested funds for AFEMS, the Committee may wish to direct the Air Force to provide a detailed funding plan for AFEMS for fiscal year 1991 and beyond. If that plan does not adequately justify Air Forces partial funding for AFEMS in fiscal year 1991, then the Committee may wish to withhold the AFEMS' fiscal year 1991 budget request of \$12.2 million.

**Benefits of AFEMS Are Not
Certain**

In our December 1989 report,² we stated that none of AFEMS \$3.4 billion expected benefits estimated by the Air Force were supported in its economic analysis. To determine if continued development is justified, we

²Air Force ADP: Systems Funded Without Adequate Cost/Benefit Analyses (GAO/IMTEC-90-6, Dec. 28, 1989).

recommended that the Air Force reevaluate the cost effectiveness of AFEMS by updating the cost/benefit analysis. In June 1990, the Air Force Audit Agency began validating the AFEMS cost/benefit analysis and, according to an agency official, a report is not expected to be issued until March 1991. Until the Air Force Audit Agency validates the benefits expected from the AFEMS program, there is no assurance the AFEMS benefits will justify the expense needed to develop the program. Therefore, the Committee may wish to consider withholding funding the \$12.2 million fiscal year 1991 request until the Air Force Audit Agency validates the benefits. Further, if the Air Force's cost/benefit analysis does not support continued development, the Committee may wish to direct the Air Force to cancel this program.

Automated Technical Order System (ATOS)

Description of Program

ATOS is an Air Force Logistics Command initiative which was designed to improve its ability to update technical orders, and to make this process more cost effective, accurate, and timely. ATOS was intended to help the Logistics Command move from a paper-based method of changing its technical orders to a computerized system. These technical orders include information, instructions, and safety procedures needed for the operation, maintenance, inspection, modification, and supply support of systems and equipment. Air Force units that use ATOS are located at each of the five Air Logistics Centers and the Aerospace Guidance and Metrology Center. ATOS was initiated in 1982 and achieved full operating capability in 1987. The Air Force is paying about \$5 million annually—\$2.2 million for equipment maintenance, \$2.3 million for personnel, \$0.44 million for contractor technical representatives, and \$0.06 million for supplies. Table I.4 shows requested funding for hardware maintenance and miscellaneous data processing costs in fiscal year 1991 for ATOS.

Table I.4: ATOS Fiscal Year 1991 Budget Request

Dollars in millions	
Source of funds	Fiscal Year 1991
Operation and maintenance	\$2.9
Total	\$2.9

Source: extracted from information provided by the program manager.

Results of Analysis

We identified potential reductions of \$2.9 million to the fiscal year 1991 budget request for ATOS. Our analysis shows that continuing to fund ATOS is not cost effective since contractors can perform the same tasks at far less cost.

In our August 1990 report,³ we stated that the ATOS system, as it currently operates, is not cost effective and the additional funds needed to load technical data into ATOS are not justified. We based our conclusion on the following three reasons. First, ATOS is being used to make less than 3 percent of technical order revisions (most are done by contractors). Second, using ATOS to revise technical orders costs the Air Force over six times more than using contractors—\$74.46 per page compared to \$11.42 per page. Third, even if the Command invests another \$100 million to enable it to do a larger share of the work load, using ATOS would still cost three times more than using contractors.

The Air Force, acknowledging that using ATOS currently costs more than using contractors, contends that ATOS should continue because its technical order data base will eventually be used in a future, larger technical order management system—the Joint Uniform Services Technical Information System (JUSTIS). However, because JUSTIS is in the early planning stage and data needs have not yet been defined, any effort expended now to build a data base could be wasted. Therefore, we recommended that the Command discontinue building the ATOS data base and use contractors to make all technical order changes.

Consequently, the Committee may wish to not appropriate any of the \$2.9 million operation and maintenance funds requested in the ADP budget for ATOS in fiscal year 1991. However, since we did not determine the amount needed to “wind down” the use of the system and to pay for the additional contractor support, the Committee may wish to consider appropriating some of these funds for this purpose.

³Air Force ADP: Millions Can Be Saved If Technical Order System Is Discontinued (GAO/IMTEC-90-72, Aug. 23, 1990).

Core Automated Maintenance System (CAMS)

Description of Program

CAMS is an Air Force standard base-level automated maintenance information management system. The system will support all aircraft, ground-launched cruise missiles, communication-electronics, and support equipment maintenance activities at 111 Air Force sites, 153 Air National Guard/Air Force Reserve sites, and selected North Atlantic Treaty Organization locations. CAMS replaces existing manual data collection and work order systems by providing on-line terminals connected to the standard Base-Level Computer system throughout the maintenance complexes. CAMS automates aircraft history, aircraft scheduling, and the aircrew debriefing process, and provides a common interface for entering base-level maintenance data into other standard logistics management systems. Table I.5 shows funds requested for fiscal year 1991 for CAMS.

Table I.5: CAMS Fiscal Year 1991 Budget Request

Dollars in millions	
Source of funds	Fiscal Year 1991
Operation and maintenance	\$18.9
Other procurement	4.9
Total	\$23.8

Source: 43A-1 exhibit for CAMS.

Results of Analysis

We identified a potential reduction of \$11.2 million from the Air Force's fiscal year 1991 request for operation and maintenance funds. The Air Force is requesting \$18.9 million in operation and maintenance funding for CAMS, of which \$17 million is identified for systems analysis and programming requirements. However, the Air Force's documentation supports only \$5.8 million as needed for system analysis and programming in fiscal year 1991. The program office could not provide any additional justification for the remaining \$11.2 million. Consequently, the Committee may wish to consider reducing the Air Force's operation and maintenance appropriation by \$11.2 million.

Combat Ammunition System (CAS)

Description of Program

The CAS program was initiated in 1983 to automate support for Air Force munitions activities worldwide. By automating these activities, the Air Force expects to improve munitions management by providing commanders accurate, timely information on the status of munitions at bases, alternate storage locations, and transportation resources. It will also maintain base ammunition objectives and ammunition expenditure data. Initial operational capability was established in May 1988, and final operational capability is scheduled for November 1995. Table I.6 shows funds requested for fiscal year 1991 for CAS.

Table I.6: CAS Fiscal Year 1991 Budget Request

Dollars in millions	
Source of funds	Fiscal Year 1991
Operation and maintenance	\$15.2
Other procurement	10.8
Total	\$26.0

Source: 43A-1 exhibit for CAS.

Results of Analysis

We identified a potential reduction of \$15.7 million to the CAS fiscal year 1991 budget request—\$4.9 million in operation and maintenance funds and \$10.8 million in other procurement funds. Our review of the CAS program determined that the management of this program has not complied with Department of Defense life cycle management policies. The program has not been reviewed by the Office of the Secretary of Defense or Air Force headquarters staff nor has the program office prepared a cost/benefit analysis as required.

Neither the Office of the Secretary of Defense's Major Automated Information System Review Committee (MAISRC)⁴ nor the Air Force's Automated Information System Review Council has reviewed or approved this program at established milestones, as required by Defense regulation. In June 1990, the Air Force estimated that the CAS program costs will be about \$278 million. Program cost includes all costs for a system

⁴This committee was created within the Office of the Secretary of Defense to provide structured oversight and ensure prudent fiscal management in acquiring major information system.

from initiation through implementation. Defense policy requires oversight reviews if program costs for a system exceed \$25 million in 1 year or \$100 million total.

A complete and independently verified economic analysis has not been prepared for the program. The previous CAS program manager said that the Navy did an economic analysis in 1981 for a similar system, Logistics Applications of Automated Marking and Reading Symbols, which showed that for that system, benefits were greater than the costs. Based on the results of the Navy's analysis, the Air Force deemed CAS to be cost effective. However, the CAS program element monitor⁵ said that CAS functional requirements are far greater than those of the Navy's system.

In summary, we determined that the CAS program has not been formally reviewed as required by Defense regulation or justified by a valid cost/benefit analysis. The Air Force also needs to update its program cost estimates. Therefore, the Committee may wish to direct the MAISRC to hold a formal milestone review and validate the program's cost and benefits. The Committee may also wish to withhold the \$10.8 million in other procurement funds which is being requested for hardware and \$4.9 million in operation and maintenance funding which is being requested for site preparation and new development in fiscal year 1991 until the MAISRC reviews and validates program costs and benefits.

Contracting Data Management System (CDMS)

Description of Program

CDMS is an automated information system being developed by the Air Force Logistics Command to support centralized wholesale contracting for spare parts, repairs, and maintenance services. It will automate the acquisition process from receipt of requirements through contract closeout. The program began in 1982 to: (1) improve the accuracy of contracting data, (2) automate contractual documents, (3) improve source and target price development, and (4) allow data exchange with other Department of Defense contract administration activities. In September 1986, the Command awarded a cost-plus-fixed-fee contract

⁵A program element monitor is a liaison between the project office and the managers at Air Force Headquarters.

valued at \$33.3 million for system development and implementation. At that time, the Command estimated the system would cost about \$49 million to develop and would achieve full operational capability by June 1990.

In early fiscal year 1988, the CDMS program was restructured to address software development problems. As a result, CDMS program costs increased \$24.8 million from \$49 million to \$73.8 million while the schedule slipped almost 4 years. As of June 30, 1990, the Command estimated the CDMS program would achieve full operational capability by March 1994 rather than June 1990. The latest life cycle cost estimate is \$205.7 million and, as of April 30, 1990, about \$46.4 million had been obligated for system development.

In July 1988, the Air Force briefed the MAISRC on the restructured program. Following this briefing, the MAISRC directed the Air Force to conduct a technical and cost revalidation for the program. In October 1988, the technical approach was revalidated by the Air Force Automated Information Systems Acquisition Review Council. However, because the Air Force had not prepared the required cost assessment, the MAISRC directed the Air Force to: (1) present the CDMS program for a Milestone I (i.e., concept approval decision) revalidation review by March 1990; (2) complete the cost assessment before the review; and (3) restrict program spending to the minimum prudent level until the assessment and MAISRC revalidation review are completed. As of July 12, 1990, this revalidation had not been conducted and has not been scheduled. Table I.7 shows prior year funding plus funds requested for fiscal year 1991 for CDMS.

Table I.7: CDMS Fiscal Year 1991 Budget Request and Prior Year Funding

Dollars in millions		
Source of funds	Fiscal Year	
	1991	1990
Operation and maintenance	\$13.5	\$13.3
Total	\$13.5	\$13.3

Source: 43A-1 exhibit for CDMS.

Results of Analysis

We identified potential reductions to CDMS in the Air Force's fiscal year 1991 budget request for operation and maintenance of \$13.5 million and another \$5 million from the overall Air Force operation and maintenance request for information technology. Our analysis shows that the Air Force plans to spend \$13.5 million of operation and maintenance

funds to continue developing CDMS when the program's future is uncertain and MAISRC has not approved the system concept. Further, we identified another \$5 million of fiscal year 1990 appropriated funds for CDMS that were reprogrammed for another purpose.

We identified \$13.5 million, requested for fiscal year 1991, that could be reduced because Defense plans call for consolidating all contract administration services in the Defense Logistics Agency (DLA). In October 1989, the Deputy Secretary of Defense established a corporate information management (CIM) initiative to eliminate duplication of efforts in the development and maintenance of information systems designed to meet a single functional requirement. Under this initiative, CDMS is one of four systems being considered for standardizing wholesale contracting of spare parts, repairs, and maintenance services. The other systems are:

- Integrated Procurement System, Department of the Army
- Procurement Early Development, Department of the Navy
- DLA Pre-Award Contracting System, Defense Logistics Agency

However, a CIM functional working group's May 15, 1990, draft report, entitled Automated Procurement Systems in the Defense Logistics Agency and the Military Services, stated that the Air Force's CDMS system is not a viable candidate for standardization. The group based its conclusion on its criteria that planned, but non-operational systems, are not appropriate for standardization or sharing. As stated above, CDMS is not expected to achieve full operational capability until March 1994. Consequently, funding of this program could be premature until the draft report of the CIM functional group is finalized.

Our review also determined that the Air Force will not obligate about \$5 million of its appropriated fiscal year 1990 funds for CDMS. The program office had planned to obligate \$5.1 million of its appropriated \$13.3 million on a specific contract option relating to CDMS. However, program officials have now decided that it is too late in the fiscal year to exercise the contract option; they have declared \$5 million as excess and have subsequently reprogrammed these funds for use outside the CDMS program.

Since the MAISRC has not yet reviewed and approved the program's new scope, cost, and benefits, and because of the preliminary decision of the CIM functional working group, the Committee may wish to withhold \$13.5 million of the Air Force's operation and maintenance funding

request until the CIM functional group finalizes its study and the MAISRC reviews CDMS. Further, since the Air Force has reprogrammed fiscal year 1990 funds of about \$5 million to another program, the Committee may also want to reduce the overall ADP operation and maintenance request for fiscal year 1991 by \$5 million.

Depot Maintenance Management Information System (DMMIS)

Description of Program

DMMIS is an automated system being developed by the Air Force Logistics Command to improve the overall efficiency and effectiveness of its depot maintenance operations. DMMIS is expected to provide repair depots with on-line capability to forecast work loads; schedule repair activities; track and control inventories; program manpower, materials and other resources; and track and manage production costs. The Command plans to purchase hardware and adapt commercial off-the-shelf software, called Manufacturing Resources Planning, for each of 19 product divisions at its six centers. DMMIS will replace 29 existing maintenance systems and will require about 2.5 million lines of source code.

In 1984, the Air Force estimated DMMIS's program cost at \$85 million and expected the system to be at full operating capability in February 1989. However, since its inception, the DMMIS program has encountered major development problems and significant cost and schedule growth. The Air Force now estimates program cost at \$242.4 million with full operating capability expected by September 1993. The latest life cycle cost estimate is about \$575 million. As of June 30, 1990, about \$68.5 million had been obligated for system development. Table I.8 shows funds requested for fiscal year 1991 for DMMIS.

**Table I.8: DMMIS Fiscal Year 1991
 Budget Request**

Dollars in millions	
Source of Funds	Fiscal Year 1991
Operation and Maintenance	\$8.6
Other Procurement	37.0
Total	\$45.6

Source: 43A-1 exhibit for DMMIS.

Results of Analysis

We identified a potential reduction of \$37 million from the Air Force's fiscal year 1991 request in other procurement funds for DMMIS. Our analysis shows that the Air Force plans to continue spending funds on system development when it has not successfully completed its required milestone review. The Air Force also plans to spend about \$6.5 million of the \$37 million on developing DMMIS at several locations before testing its prototype system. In May 1990, we recommended⁶ that the Air Force complete its testing of the prototype prior to any new development.

In June 1989, the Defense Department's MAISRC expressed concerns about the risks affecting DMMIS development. Although the MAISRC revalidated the DMMIS Milestone I (Concept Development) decision, it deferred Milestone II (Definition and Design) approval pending completion of a risk management plan. In June 1989, the Air Force restructured the DMMIS program and is currently negotiating changes with its primary contractor that will significantly alter the DMMIS scope and implementation approach. In November 1989, the Command completed its risk management plan. As of July 1990, the MAISRC, however, has yet to schedule a Milestone II review and has not accepted Air Force's risk management plan.

Prior to restructuring, the Air Force intended to complete installation and testing of DMMIS for one product division—the Industrial Products and Landing Gear Division—at the Ogden site (currently scheduled for February 1991) before beginning work at additional sites. But, as a result of the restructuring, the Air Force began work at two other product divisions at the Ogden site and planned to begin system development and installation at two other locations in July 1990. Therefore, the Command will be developing DMMIS for five product divisions at three locations at the same time, before the system has been tested and proven to work anywhere.

As we reported in May 1990, this new approach adds risk to an already risky program. We recommended that the Secretary of Defense direct the Secretary of the Air Force to complete the prototype system at the Ogden Industrial Products and Landing Gear Division before committing resources to develop DMMIS at other product divisions. However, in its proposed fiscal year 1991 budget, the Air Force plans to spend at least \$6.5 million for system development at other product divisions.

⁶Air Force ADP: Depot Maintenance System Development Risks Are High (GAO/IMTEC-90-46, May 25, 1990).

The Committee may wish to withhold \$37 million requested for other procurement until the Air Force successfully completes its MAISRC review.

Military Airlift Command, Command & Control Information Processing System (MAC C2 IPS)

Description of Program

The Information Processing System is intended to automate airlift information to show data such as aircraft and cargo locations, scheduling of aircraft flights, and maintenance status. The Air Force estimates program costs at \$237 million and life cycle costs at \$917 million. However, these estimates are being revised.

The system will be installed at 158 locations worldwide. Each location is expected to have communications processors, up to 40 workstations, and a local area network. In addition to communicating with other IPS locations, the system is expected to connect to other systems through a variety of Defense communication networks such as satellite communications, dedicated circuits, and the Defense Data Network.

Although program officials plan to use commercial off-the-shelf software packages wherever possible, the majority of the program's mission applications are being developed using the ADA programming language. A fixed-price-plus-incentive-fee contract for up to \$37 million was awarded in December 1988 for this software development.

The IPS will be implemented in three increments. The first increment is currently being developed and tested and is expected to be ready for implementation in fiscal year 1991. Increment 2 is expected to start development during fiscal year 1992 and be completed in March 1993. Increment 3 is scheduled to start in fiscal year 1993 and be completed in November 1994. However, software development on increment 1 has slipped 9 months. According to the program office, this slippage was due to the contractor miscalculating the effort required to develop software

in the ADA programming language. Table I.9 shows funds requested for fiscal year 1991 for MAC C2 IPS.

**Table I.9: MAC C2 IPS Fiscal Year 1991
Budget Request**

Dollars in millions	
Source of Funds	Fiscal Year 1991
Military personnel	\$4.0
Research, development, test, and evaluation	11.6
Operation and maintenance	3.3
Other procurement	14.3
Total	\$33.2

Source: 43A-1 exhibit for MAC C2 IPS.

Results of Analysis

We identified potential reductions of \$14.3 million in other procurement funds requested by the Air Force for the MAC C2 IPS program in its fiscal year 1991 budget request. Our analysis shows that the Air Force plans to procure \$14.3 million of hardware without having justified its procurement with a cost/benefit analysis and without successfully completing its prototype testing.

Additionally, the program office has decided to conduct developmental test and evaluation, initial operational test and evaluation, and certification of initial operational capability within 4 months from August 1990 to December 1990. We believe this is a high-risk schedule since these milestones are too compressed to adequately test increment 1 and make an informed decision on its initial operating capability. Furthermore, as reported in the program's latest quarterly report to Defense management, critical design issues remain unresolved. These issues were identified as problems with workstation performance and user system interface. The report also noted that testing will be delayed until these problems are resolved, but the Air Force expects to resolve these problems by the time its oversight review is scheduled in December 1990.

The Committee may want to withhold \$14.3 million in other procurement funds requested for this program until the Air Force (1) develops updated estimates of program and life cycle cost, (2) completes and independently validates an economic analysis, and (3) certifies to the MAISRC that initial operational capability for all increment 1 requirements have been met.

Reliability and Maintainability Information System (REMIS)

Description of Program

REMIS is an automated system that is intended to provide the Air Force with the capability to receive, process, store, and retrieve performance information on Air Force weapon systems and equipment. REMIS is expected to replace 26 existing systems with a single on-line system. The program began in 1984 and the development contract was awarded in September 1986 to incrementally develop four computer software sub-systems. At that time, the Air Force estimated the system would cost about \$86.1 million to develop and would achieve full operational capability by January 1990.

In November 1987, the Air Force stopped work on three of the four sub-systems because of a \$13.3 million shortfall in fiscal year 1988 operation and maintenance funds. The REMIS program was subsequently restructured, which dramatically affected its costs and schedule. In December 1989, the Air Force increased its estimate of acquisition costs \$50.3 million from \$86.1 to \$136.4 million and extended the schedule over 4 years. It now expects to achieve full operational capability in April 1994 rather than January 1990.

Because acquisition costs now exceed \$100 million, REMIS is subject to review and oversight by the MAISRC. As of July 11, 1990, REMIS had not been scheduled for a MAISRC review. Table I.10 shows funds requested for fiscal year 1991 for REMIS.

**Table I.10: REMIS Fiscal Year 1991
 Budget Request**

Dollars in millions	
Source of funds	Fiscal Year 1991
Operation and maintenance	\$19.4
Total	\$19.4

Source: 43A-1 exhibit for REMIS.

Results of Analysis

We identified potential reductions of \$19.4 million in operation and maintenance funds requested for REMIS. Our analysis shows that this request is not adequately supported by a cost/benefit analysis. Also, the

Air Force Audit Agency could not determine whether expected benefits exceed costs.

In our December 1989 report,⁷ we reported that none of the \$5 billion in expected benefits estimated by the Air Force were supported in its cost/benefit analysis. Further, the Air Force Audit Agency told us that its independent review showed some operational improvements would probably result from REMIS, but none of the \$5 billion in projected benefits could be supported. In fact, the Air Force Audit Agency found that some of these benefits had already been claimed to justify another logistics system development project.

The audit agency identified about \$106 million in other benefits for REMIS; namely, fewer systems analysts, the elimination of additional data systems, and reduced communications costs, none of which were included in the original cost/benefit analysis. However, according to an audit agency official, the benefits claimed for REMIS will be significantly reduced if the system is not in full operation in 1990. As stated above, REMIS is not expected to achieve full operational capability for at least another 4 years. Further, while the audit agency identified about \$106 million in benefits, the expected cost of REMIS is now about \$136 million. The Air Force is currently updating its REMIS cost/benefit analysis; the estimated completion date is unknown.

Therefore, the Committee may wish to withhold the funding of the fiscal year 1991 request for \$19.4 million in operation and maintenance funds for REMIS until the Air Force completes an independent, validated cost/benefit analysis which supports the REMIS program. Further, the Committee may wish to direct the MAISRC to review and validate this program prior to the release of any funds for its continued development.

⁷Air Force ADP: Systems Funded Without Adequate Cost/Benefit Analyses (GAO/IMTEC-90-6, Dec. 28, 1989).

Strategic War Planning System (SWPS)

Description of Program

SWPS is an automated system used by the Strategic Air Command to plan, disseminate, and implement strategic war plans. It has four objectives: (1) maintaining strategic war plans; (2) integrating new weapon systems into the war planning process; (3) increasing the responsiveness of the war planning process by adapting it to real-time operations; and (4) establishing a survivable capability using fixed and mobile units.

According to Air Force documentation, SWPS is considered operational and has achieved about 85 percent of its first objective. The remaining three objectives are planned enhancements or modernization of the operational system. The Air Force has requested funding for only objectives one and two.

In January 1990, the Air Force's Automated Information System Review Council asked the SWPS program office to: (1) clearly identify the cost of maintaining the SWPS program separate from the cost of the ongoing enhancements and developments currently underway, (2) quantify the cost/benefits of planned upgrades and new development projects, and (3) provide a current funding profile which is consistent with Exhibit 43A-1 and the quarterly reports provided to the Department of Defense Deputy Comptroller for Information Resources Management. In its response the program office identified some but not all development costs and did not quantify the cost/benefits of the program. Additionally, we found that the program office has not been consistent in identifying the amount of research, development, test and evaluation funds being justified for SWPS for fiscal year 1991. Table I.11 shows funds requested for fiscal year 1991 for SWPS.

**Appendix I
Potential Reductions to Air Force Automated
Information Systems**

**Table I.11: SWPS Fiscal Year 1991
Budget Request**

Dollars in millions	
Source of funds	Fiscal Year 1991
Military personnel	\$13.3
Research, development, test, and evaluation	26.3
Operation and maintenance	45.0
Other procurement	23.7
Total	\$108.3

Source: 43A-1 exhibit; Air Force funding data sheet dated May 18, 1990; and quarterly report dated June 30, 1990, to the Deputy Comptroller for Information Resources Management, Department of Defense.

Results of Analysis

We identified potential reductions of \$36.6 million to the fiscal year 1991 Air Force budget request for SWPS. Our analysis shows that \$6.7 million of operation and maintenance funds, \$3.5 million of other procurement funds, and \$26.3 million of research, development, test, and evaluation funds are being requested without the required quantifying of benefits that will justify the cost of continued modernization. It also does not follow current Defense life cycle management policies.

SWPS is currently identified as an operational system by the Air Force under life cycle management policies; however, we estimate that about \$36.6 million of its over \$100 million fiscal year 1991 request is for enhancements and modernization. Current Defense life cycle management policies require that any automated information system expending more than \$25 million for development in 1 year be subject to MAISRC review. However, according to MAISRC staff, they do not plan to review this program.

In January 1990, Air Force management asked the SWPS program office for a clear distinction between day-to-day maintenance and upgrades/enhancements and modernization and directed it to establish a baseline for the system. They also asked for justification supporting these continued modernization efforts, i.e., benefits versus the cost. As of August 1990, the program office had not provided this distinction or submitted its justification.

The program office has also been inconsistent in reporting the amount of research, development, test, and evaluation funds being justified for SWPS for fiscal year 1991. For example, since December 1989, in quarterly reports presented to the Department of Defense Deputy Comptroller for Information Resources Management, the Air Force has

consistently identified \$26.3 million for SWPS. However, the 43A-1 exhibit on SWPS, dated February 1990, that supports the President's 1991 budget request, shows no research, development, test, and evaluation funds being requested for SWPS. Nevertheless, in our exit conference the program element monitor for SWPS acknowledged that funds are being requested for SWPS in fiscal year 1991, but maintains it is only \$14.9 million.

We were unable to validate the amount of research, development, test, and evaluation funds that the Air Force is requesting for SWPS in fiscal year 1991. However, we believe the quarterly reports reflect the more accurate request for research, development, test, and evaluation funds because (1) these reports are updated more frequently than the 43A-1 exhibit and (2) these reports are certified by the program manager and reviewed by Air staff and MAISRC staff.

Therefore, the Committee may wish to withhold \$6.7 million of operation and maintenance funds, \$3.5 million of other procurement funds, and \$26.3 million of research, development, test, and evaluation funds until the Air Force: (1) establishes a baseline for SWPS that clearly separates the cost of maintaining the program's current capabilities from planned upgrades and new developments, and (2) measures the benefits to be derived versus the cost to develop each new enhancement or new requirement. The Committee may also wish to withhold the approval of this funding until the MAISRC reviews this program in accordance with established Defense policy.

Tinker Air Force Base Military Construction Program

Description of Program

In fiscal year 1991, the Air Force plans to purchase 10 acres of land and construct a new automated data processing facility which is planned for completion in early fall 1993. This facility will accommodate current and future computer equipment, personnel, and support functions. Currently, the automation support is housed in two separate locations on Tinker Air Force Base. Table I.12 shows funds requested for fiscal year 1991 for construction of a new ADP facility at Tinker Air Force Base.

**Appendix I
Potential Reductions to Air Force Automated
Information Systems**

**Table I.12: Tinker Air Force Base New
ADP Facility Project Fiscal Year 1991
Budget Request**

Source of funds	Fiscal Year 1991
Military construction	\$13.2
Total	\$13.2

Source: fiscal year 1991 military construction data sheet for Tinker Air Force Base.

Results of Analysis

The Air Force is requesting \$13.2 million for this program in fiscal year 1991. However, the Department of Defense, as part of a Defense Management Review Decision, is currently studying consolidation of maintenance depots and ADP operation centers. Consequently, we believe any construction at this time for an ADP operation center, particularly at a maintenance depot, would be questionable until these consolidation studies are complete. Therefore, the Committee may wish to reduce the military construction requested amount by \$13.2 million.

Objective, Scope, and Methodology

At the request of the Chairman, Subcommittee on Defense, House Committee on Appropriations, our objective was to review the Department of the Air Force's fiscal year 1991 budget request for selected general-purpose automated information systems and to provide information on these systems to the Subcommittee to assist it in determining whether the systems should be funded in the amounts requested.

We performed our work in the Washington, D.C. area; Gunter Air Force Base, Alabama; Hanscom Air Force Base, Massachusetts; Offutt Air Force Base, Nebraska; Scott Air Force Base, Illinois; and Wright-Patterson Air Force Base, Ohio; between April 1990 and September 1990.

To obtain budget request information, we examined the Procurement Programs (P-1) Department of Defense Budget for Fiscal Year 1991, as well as the Department of the Air Force's procurement backup book, which contains information on equipment, contracts, and schedules (including Department of Defense forms P-22 and P-40). We also examined the Department of the Air Force's information technology systems budget (which contains exhibits 43A-E) and documents used to prepare both the information technology systems budget and the automated data processing portions of the Air Force's procurement and operation and maintenance budgets.

We met with officials from the Air Force's Directorate of Command, Control, and Mission Support Systems; Directorate of Programs and Air Force Budget Matters; Logistics Command; Military Airlift Command; Strategic Air Command; Electronic Systems Division; Computer Acquisition Center; and Standard System Center to obtain additional information on the 11 automated data processing projects covered in this report.

We discussed issues covered in this report with officials from the Air Force and have incorporated their comments where appropriate. As requested, we did not obtain official agency comments on this report. We conducted our work in accordance with generally accepted government auditing standards.

Major Contributors to This Report

Information Management and Technology Division, Washington, D.C.

Joseph T. McDermott, Assistant Director
Joseph A. DeBrosse, Evaluator-in-Charge

Atlanta Regional Office

Christopher Brannon, Staff Evaluator
Jodi A. McDade, Staff Evaluator

Boston Regional Office

Lloyd J. Miller, Staff Evaluator
Martin F. Lobo, Staff Evaluator

Cincinnati Regional Office

Steven M. Hunter, Senior Evaluator
Frederick J. Naas, Staff Evaluator
Robert G. Preston, Staff Evaluator
Melanie Hubbs, Staff Evaluator



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