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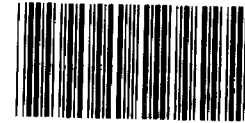
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NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

B-216957

FEBRUARY 28, 1985

The Honorable Verne Orr
The Secretary of the Air Force



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Dear Mr. Secretary:

Subject: Overseas Workload Program--Need To Assess
Costs and Contributions (GAO/NSIAD-85-54)

We have reviewed the Air Force Logistics Command's (AFLC's) management of its Overseas Workload Program. Under this program, depot level repair of aircraft and their major component items is performed overseas, where the need originates. Expected benefits are enhanced aircraft readiness and sustainability--the ability to carry out combat missions over an extended period of time--and reduced transportation costs. In fiscal year 1984, the program encompassed 53 contracts valued at \$167.3 million. Plans call for increases in future years. These contracts provide for depot repair of 286 types of reparable items; several weapon systems, such as the F-15 and F-16; and 3 engine types.

Our objective was to review the management of the Overseas Workload Program and evaluate its contribution to enhanced readiness and sustainability. Specifically, we wanted to determine if items selected for overseas repair were improving aircraft availability, if shorter repair turnaround times were resulting in greater availability of parts, and if repair costs were reasonable.

AFLC has not yet established a management system to evaluate program results and costs. Consequently, AFLC cannot ascertain whether, or the degree to which, the program is providing increased readiness and sustainability and whether it is cost effective. We were unable to evaluate the program's impact in terms of aircraft availability, parts availability, and cost reasonableness because needed data to do so was not readily available at AFLC. The following paragraphs point out the need for such data and highlight the results of our work. The enclosure contains a detailed discussion of our findings.

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Although AFLC developed comprehensive screening procedures, item selection practices do not ensure that items selected to be repaired overseas are those most likely to improve readiness and sustainability. In practice, item selection appears to be based on judgements that do not consider all key readiness and sustainability factors. A major factor in reparable item selection was how often an item was not repaired at a particular location. The selection process did not appear to emphasize other key selection criteria such as mission capable rates or item availability, even though this type of data is collected and reported in AFLC's automated data systems. We found no evidence that such data were used in identifying and analyzing candidate items.

Program officials have identified and selected items for the program but have not measured the effect of these items on readiness and sustainability. One of the primary objectives of the program is to produce measurable increases in readiness and sustainability as reflected in

- reduced repair turnaround time,
- increased asset (aircraft and their major component items) availability, and
- fewer incidents that impair an aircraft from carrying out its mission.

Only 1 of the 286 reparable items included in the program has ever been evaluated. This evaluation was limited to measuring the increase in asset availability.

AFLC has not fully evaluated the program's cost effectiveness. According to AFLC guidance, total costs should be considered when comparing U.S. and overseas repair costs. An item can be included in the Overseas Workload Program if the total cost of overseas repair is not higher than existing repair costs in the United States. Total costs are supposed to include transportation costs. AFLC computes the average unit repair cost in the United States and uses that as the basis for negotiating overseas contractor repair costs. However, after the contracts are negotiated, the costs incurred are not tracked for purposes of program management.

We were able to acquire cost data for 7 of the 25 items that one air logistics center had on contract for repair overseas. The overseas contractor repair costs for five of the seven items we reviewed were higher than U.S. repair costs. This cost relationship could change if the costs of transporting items between the user and source of repair are considered. For the items we reviewed, estimates of possible transportation costs between users and U.S. sources of repair were provided. Transportation costs to the overseas contractor were not available; therefore, the net effect of transportation costs were

unknown. In addition to repair and transportation costs, other measurable and nonmeasurable factors affect total costs. Such factors as impact on U.S. work force and increased contract administration requirements also need to be considered in the decision to transfer repair workload to overseas contractors.

AFLC systems provide the type of data that can be used to evaluate program results. AFLC has extensive data collection capabilities in its many automated systems. These systems collect information and generate numerous reports on requirements for assets and factors affecting those requirements. Additional systems collect and report information on mission capable rates and item criticality. This data could be used to form a basis for program evaluation.

CONCLUSIONS

The Air Force, based on assumed enhancements in readiness and sustainability, has expanded its overseas depot level repair workload. In our opinion, AFLC should manage the Overseas Workload Program in a manner that would optimize item selection, measure the program's impact on readiness and sustainability, and determine cost effectiveness.

Although the current program represents only about 1.5 percent of AFLC's total depot workload, it affects many of the Air Force's major weapon systems, and in fiscal year 1984, involved contracts valued at about \$167 million. Furthermore, the Air Force plans additional increases in future years. We believe, therefore, that now is an opportune time to develop and implement a system for managing and monitoring program activities. Such information is needed to guide future decisions on program reduction or expansion. AFLC should utilize the data collection capability within existing reporting systems to provide economical sources of data to measure program results and cost effectiveness.

Accordingly, in our draft report, we proposed that the Air Force establish within the Overseas Workload Program

- item selection procedures that ensure consideration of all selection criteria, but which emphasize an item's effect on aircraft mission capability, and
- a monitoring system that provides (1) repair information to determine whether the work being done in theater results in increased readiness and sustainability and (2) data necessary to determine the cost effectiveness of overseas depot repair.

The Air Force, as discussed below, has taken action to implement our proposals. Consequently, we are not making recommendations at this time.

AGENCY COMMENTS

Department of Defense officials reviewed a draft of this report and provided their official oral comments. They concurred in the findings and conclusions and discussed actions to implement our proposals. We have revised the report, where appropriate, to recognize their comments.

In concurring on our draft proposals, these officials provided us recently revised program guidance with item selection criteria that now highlight aircraft mission capability. Further, they said that AFLC was implementing a system to standardize methods of selecting and evaluating items for overseas repair. Additionally, the revised program guidance now requires periodic workload reviews to monitor readiness and sustainability benefits and cost effectiveness. We believe that the guidance and related actions, if fully implemented, should improve the item selection process and provide AFLC management a means to measure program results and costs.

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We are sending copies of this report to the Director, Office of Management and Budget; the Chairmen, House Committee on Government Operations, Senate Committee on Governmental Affairs, and House and Senate Committees on Appropriations and on Armed Services; and the Secretary of Defense.

Sincerely yours,



Frank C. Conahan
Director

Enclosure

OVERSEAS WORKLOAD PROGRAM--NEED TO
ASSESS COSTS AND CONTRIBUTIONS

INTRODUCTION

Within the Air Force, major repair and overhaul of weapon systems and their component items are referred to as depot level repair. For many years, the Air Force has had some overseas depot repair capability. For example, the F-4 aircraft has undergone depot repair for many years at a contractor facility in Spain. The Air Force believes this has saved millions of dollars by eliminating the need for ferrying aircraft back to the United States or sending depot repair field teams on temporary assignments overseas.

In recent years, the Air Force has become more concerned about its readiness and sustainability; that is, its ability to carry out its combat missions over an extended period of time. As weapon systems became more sophisticated, repair costs and time in the repair cycle increased. These increases led the Air Force to focus more attention on doing repair work as near as possible to where the need for repair originates. Consequently, the Air Force Logistics Command (AFLC) proposed a formalized concept of repairing items overseas. This concept, called the European Workload Program (EWP), was proposed because of its high potential for increased readiness.

The Air Force accepted the concept of overseas depot repair and authorized a study by AFLC to determine if EWP was feasible. Study results showed that European countries had the industrial capability to perform many repair functions. The Air Force approved the program on a test basis in March 1980 with two restrictions--the total workload shifted to overseas contractors could not exceed 200 staff-years of production annually and the total workload shifted could not exceed 600 staff-years. The first contracts were awarded in December 1980 in the amount of \$5.4 million--\$4.8 million for the repair of engines and \$0.6 million for the repair of the F100 engine unified fuel control.

In July 1982, EWP was extended to worldwide application as a result of the Pacific Air Force Commander's request for increased levels of in-theater depot repair. At that time, all ongoing depot repair activities overseas were incorporated into the Overseas Workload Program (OWLP). The test status was dropped and the staff year restrictions were relaxed.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our objective was to review the management of OWLP and evaluate its contribution to enhanced readiness and sustainability. Specifically, we wanted to know if the items selected

for overseas repair were resulting in improved aircraft availability, if shorter repair turnaround times were resulting in greater availability of parts, and if repair costs were reasonable. However, because needed data was not available, we were unable to evaluate the program's impact. Instead we concentrated on the need for a management system to evaluate program results.

Audit work was conducted at AFLC, Wright Patterson Air Force Base (AFB), Ohio; Sacramento Air Logistics Center (ALC), McClellan AFB, California; Ogden ALC, Hill AFB, Utah; and AFLC Support Center Europe, Royal AFB, Kemble, England. We met with cognizant program officials at AFLC and the ALCs and with item managers at the Ogden ALC. We examined OWLP status reports, planning documents, and other related data to determine the operation of the program. Through our discussions and examinations of data system description documents, we verified the purpose and types of data included in various AFLC automated systems. We did not assess the accuracy or adequacy of the systems or the data generated. Our audit was conducted in accordance with generally accepted government auditing standards and was performed during the period March through August 1984.

OBJECTIVE AND STATUS OF OWLP

AFLC Overseas Workload Program has been motivated by two key factors. They are (1) a desire on the part of the Air Force to increase the readiness and sustainability of the operating forces overseas and (2) an attempt by the United States through various negotiations with our allies to use overseas repair contracts.

The amount of depot level repair performed in overseas theaters is influenced by both military and political considerations. Subsequent to Vietnam, when the military necessity for overseas repair declined, interest in this concept slackened. In recent years, the Air Force has decided to increase its overseas workload, in part because of international considerations, but mainly because of a desire to reduce costs and enhance readiness and sustainability. The Department of Defense depot repair policy has left to the services the implementation of specific applications. Defense officials stated that because overseas repair has increased, the Department has drafted a policy to ensure general consistency among the services.

As the following table shows, OWLP has increased from an initial \$5.4 million in fiscal year 1981 to \$167.3 million in fiscal year 1984. Part of this increase is due to the consolidation of new and existing overseas depot repair workload into the program. Beginning with 2 European contracts in fiscal year 1981, the program now involves 53 contracts in the European and Pacific operational theaters. The number of foreign countries in which contracts exist has increased from 2 to 12.

<u>Fiscal</u> <u>year</u>	<u>Amount</u> (millions)	<u>Number of</u> <u>Contracts Countries</u>	
1981	\$ 5.4	2	2
1982	33.8	10	5
1983	85.8	27	10
1984	167.3	53	12

The \$167.3 million equates to an annual workload of over 2 million production staff-hours. This represents about 1.5 percent of the Air Force's total depot workload. Plans call for additional increases in future years. Overseas depot repair involves many of the major aircraft weapon systems, such as the F-4, F-15, F-16, F-111, C-130, and H-53. It also includes 3 major engine types--the J79, TF30, and F100--and 286 types of reparable items, such as circuit cards, airspeed indicators, and generators.

In addition to contractor repair, AFLC directly manages overseas facilities at Kemble, England, and Kadena, Japan. The Kemble facility performs corrosion control on A-10 aircraft and some depot repair on special vehicles. The Kadena facility primarily performs depot level repair on such reparable items as circuit cards.

AFLC NEEDS TO IMPROVE PROGRAM MANAGEMENT AND MONITORING

AFLC does not have a management system to evaluate the program. Such evaluation is needed to determine whether the objective of improving readiness and sustainability is being met and if the program is cost effective.

At the time of our audit, AFLC had limited data with which to evaluate program effectiveness. For example, officials did not (1) have documentation on the analysis performed to select items for in-theater repair, (2) know whether the program was increasing readiness and sustainability, or (3) have data to demonstrate that in-theater repair was cost effective. This type of data and subsequent analysis is needed to produce more informed item selection, measure program results, and guide future decisions on program reduction or expansion. Program officials informed us that because repair work is performed in the overseas theater where the need exists, they have assumed that readiness is being improved and cost savings are being achieved.

Item selection practices do not ensure inclusion of appropriate items

Although AFLC developed comprehensive screening procedures, item selection practices do not ensure that items selected for the program have a direct impact on readiness and sustainability.

OWLP selection procedures prescribe three layers of screening--general, readiness, and final. During general screening, AFLC is to determine that items considered for selection (1) are unclassified, (2) are Air Force managed, (3) have technical data available, and (4) are not to be modified/changed, unless the advantages of repairing and modifying can be justified. Additionally, AFLC must ensure that an established U.S. source of repair is maintained.

During readiness screening, AFLC is to determine (1) if the item's availability would adversely affect a system's ability to perform its wartime and/or peacetime mission, (2) whether reduced order and shipping time results in more assets being available for use at the user activity, and (3) whether the item generates 40 not reparable this station¹ incidents per year. In 1984 AFLC modified the selection criteria. The primary changes were a reduction of not reparable incidents to 20 per year and a provision that selected items must have an effect upon mission capable rates.

The contract proposal is evaluated during final screening. AFLC is to determine that selected items (1) are cost competitive with U.S. repair costs and (2) have a foreign contractor depot repair cycle turnaround time less than the U.S. depot repair cycle time.

AFLC developed these procedures to ensure that items included in the program had an impact on readiness and sustainability; however, we were unable to substantiate that enhanced readiness and sustainability were major factors in item selection. According to an AFLC program official's assessment of the process, there has not been a concerted effort to use computerized data to support the selection or analysis of candidate items for overseas repair. The assessment further notes that the identification of candidate items has been based on judgment or intuition.

¹Not reparable this station generations are unserviceable reparable items that are not repaired at the base organizational level but are returned to the U.S. source of depot repair. AFLC determined that a minimum of 40 incidents per year would justify an item's inclusion in the program.

The key criterion in the selection of reparable items was the not reparable incident rate of 40 annual generations. Items that did not meet this criterion were not considered viable candidates for the program and were not subjected to further screening. However, these rates do not necessarily relate to aircraft mission capability nor do they necessarily relate to critical item availability. Not reparable this station rates relate only to the ability to make repairs at a particular level or location. In order to get more candidate items and, according to program officials, improve the chances of selecting items with greater readiness potential, the criterion was reduced from 40 to 20 per year. Although AFLC's automated data systems collect and report data on aircraft mission capability and identify items that are major causes of not mission capable conditions, we found no evidence that this data was used to identify candidate items or analyze their potential impact on readiness and sustainability.

Defense officials concurred in our finding and informed us the AFLC Overseas Workload Program Plan was approved on November 1, 1984. This Plan, which provides the policies and procedures for the program, revises selection criteria to give more prominence to theater mission capable incidents and to eliminate the not reparable incident rates as a criterion. Additionally, they said AFLC is implementing a formalized item selection system called the Alternate Repair Source Analysis System. It is designed, among other things, to standardize methods of selecting and evaluating items for overseas repair.

Impact on readiness and sustainability needs to be measured

AFLC program officials have identified and selected candidate items for the program but have not measured the affect of the items in the program on readiness and sustainability. One of the primary objectives of the program was to produce measurable increases in readiness and sustainability. These increases were to be reflected in increased asset availability, fewer incidents of aircraft being not mission capable, and reduced depot turnaround times. However, only 1 (the F100 engine unified fuel control) of the 286 reparable items has been evaluated, and this was only to determine the readiness enhancement brought about by increased asset availability.

Information that would show how well the program had met its objectives was not available at AFLC and the ALCs. For example, program officials did not know if more serviceable assets were available, whether repair turnaround times had been reduced, or whether not mission capable rates had been reduced because of items on contract. The Ogden ALC attempted to determine if items they nominated for OWLP were producing favorable results by contacting the European liaison group initially

assigned responsibility for gathering data on program results. Because the liaison group never functioned in that capacity, the requested data was unavailable.

Defense officials concurred in the need to evaluate the program's impact on readiness and sustainability. They said that AFLC initiatives are underway to provide more timely data on assets to the managers and that as item and system managers receive this new data, they will be able to improve their evaluation methods.

Cost effectiveness should
be more fully evaluated

As part of OWLP's justification, the cost to repair items overseas was to be competitive with U.S. repair costs. Higher overall costs for overseas repair would be permitted, but only as an exception. OWLP implementation plan stated that work costing more to repair overseas would be considered on a case-by-case basis and transferred overseas only if it had a significant impact on readiness. The Air Force does an initial cost estimate by determining the average unit repair cost in the United States and uses that as a basis for negotiating contractor costs overseas. However, after the contracts are negotiated, the costs incurred are not tracked for purposes of program management.

We attempted to compare overseas contractor repair costs with U.S. repair costs for Ogden ALC managed items in the program. Ogden officials provided cost data on 7 of the 25 items. The production manager could not provide cost data on the other 18 items because the contracts were new and no cost data were available.

Overseas contractor repair costs were higher for five of the seven items for which the production manager provided cost data. As the following table shows, repair cost variance ranged from \$13 to \$69 more for those five items.

<u>Item name</u>	<u>Repair costs</u>		
	<u>U.S.</u>	<u>Overseas contractor</u>	<u>Difference</u>
Altitude encoder	\$381	\$394	\$ 13
Airspeed indicator	443	481	38
Fuel indicator	347	243	(104)
Generator	381	394	13
Canopy cylinder	239	86	(153)
Transmitter	335	404	69
Pressure compensator	691	729	38

Although repair costs were higher for five of the seven items, the production manager contended that the higher repair costs were offset by savings in transportation costs. However, Ogden officials had not made a detailed examination of costs. For the items we reviewed, round trip transportation costs from Ramstein Air Force Base, Germany, to Ogden ALC, the source of repair, were estimated by ALC officials using a formula based on mileage and weight.

Savings in transportation costs are questionable from two aspects. First, transportation costs to the United States were not offset by costs of transporting items between the user and the overseas contractor. Ogden officials were not able to provide estimates of these costs. Second, the estimated savings may not represent costs avoided. The Military Airlift Command will probably continue to incur the same costs unless its regularly scheduled flights between Europe and the United States are reduced.

According to AFLC guidance, total costs, which includes repair costs and transportation costs, should be considered when comparing U.S. and overseas repair costs. In addition to repair and transportation costs, there are other measurable and non-measurable factors which affect total costs. For example, transferring workload may have an adverse impact on U.S. contractors' work force. Additionally, the burden of administering contracts for dual sources of repair brought about by the program requirement to maintain the U.S. source of repair may increase contract administration costs. We believe these and other significant cost factors need to be considered in the decision to transfer repair workload to overseas contractors.

Defense officials objected to statements in our draft report that the cost effectiveness of the program was unknown. They agreed that cost effectiveness has not been fully evaluated but not that it is unknown. They pointed out that one aspect of the program needing expansion is a means of review to insure that current overhaul procedures are cost effective. We have considered their comments and clarified the report to address their concerns.

AFLC systems provide
program evaluation data

AFLC has extensive data collection capabilities in its many automated systems. These could be, and should be, tapped by the program monitors at the ALCs to economically acquire quantitative data with which to measure program performance.

According to AFLC, one key to improved readiness is reducing the time required for a user to order and receive an item

from the source of supply, that is, order and shipping time. This reduction in time should reduce the number of assets in transit between source of supply and the user and increase the number of assets available on the user's shelf. To evaluate program impact, AFLC guidance proposes that management use the Recoverable Consumption Item Requirements System (D041) to compute an original and an adjusted order and shipping time requirement for each item. A reduced requirement would indicate the quantity of assets that could be added to user stocks, and according to AFLC, represents improved readiness. The D041 system could also be used to determine reduction in repair cycle time which, according to AFLC, could also increase base stocks and, therefore, improved readiness.

Other systems collect extensive repair data and generate numerous reports on items. The Management of Items Subject to Repair system provides management data on items repaired by AFLC. Other systems provide similar data on items repaired by contractors. Additionally, AFLC collects and reports information about the mission capable condition of weapon systems and identifies items that are major contributors to the systems' not mission capable condition.

Defense officials concurred on the need for a system for managing and monitoring program activities and that AFLC's extensive data collection capabilities could be tapped to economically acquire quantitative data with which to measure program performance. Additionally, they informed us that the revised Overseas Workload Program Plan now calls for periodic workload reviews using an evaluation of the original selection criteria to insure the desired benefits have been achieved. The Plan requires removal of workload if its contribution to readiness and sustainability and cost effectiveness become questionable.