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Report to Secretary, Department of Defense; by Richard W. Gutmann, Director, Logistics and Communications Div.

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Congressional Relevance: House Committee on Armed Services; Senate Committee on Armed Services.

Authority: OMB Circular A-76.

The Military Aircraft Storage and Disposition Center near Tucson, Arizona, stores, returns to service, recovers parts from, and disposes of surplus U.S. military aircraft. Aircraft recovered from the Center are used by the military services, foreign countries, and public agencies, and reclaimed parts are used in the services' supply systems. At present, the Center's role in providing parts is as important as its role in providing aircraft. About 4,500 aircraft from the services and the Coast Guard are at the Center. An average of 1,120 leave each year, of which 120 are returned to service, 100 are sold to other countries, 180 are donated to public agencies, and 720 are declared surplus and sold. The value of parts removed and returned to the services' active inventory has recently averaged \$102.8 million a year. Findings/Conclusions: In order to be a cost-effective source of aircraft and parts, the Center must be more effectively managed. The following problems were identified: the services have not been timely in disposing of excess aircraft; they have not developed firm criteria sufficiently so that the Center's assets could be used effectively; and little or no attention has been paid to logistical needs for components and parts when making disposition decisions. The services were not taking full advantage of parts available on aircraft at the Center and were keeping too many aircraft in reserve status. The Navy could realize savings of about \$14 million with a more aggressive recovery program. Recommendations: The Secretary of Defense and the military services should: reassess the role of the Center and provide a better definition of the need for the use of its assets; direct the services to develop firm criteria for determining aircraft dispositions, recognizing the benefits of early parts reclamation and logistical needs; direct the services to make their disposition decisions before aircraft are sent to the

Center; direct services to continue to reevaluate prior disposition decisions in light of current requirements; and reevaluate the Paris Reclamation methods used to assure that the most effective combination of methods is being used.  
(Author/HTW)

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REPORT BY THE U.S.

# General Accounting Office

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## Use Of The Military Aircraft Storage And Disposition Center Could Be Improved

Departments of Defense

Army

Air Force

Navy

The Military Aircraft Storage and Disposition Center is a source of aircraft and parts. By using the Center's resources when needed, the military services can avoid new procurements while maintaining aircraft readiness. But to fully obtain these benefits at the lowest cost, both the military services and the Center must effectively manage aircraft disposition.





UNITED STATES GENERAL ACCOUNTING OFFICE  
WASHINGTON, D.C. 20548

LEGISLATIVE AND COMMUNICATIONS  
DIVISION

B-157373

The Honorable  
The Secretary of Defense

Dear Mr. Secretary:

This report discusses the Military Aircraft Storage and Disposition Center at Davis-Monthan Air Force Base, Arizona, and suggests ways to improve operations.

This review was made because of our continuing interest in helping the services to increase efficiency while reducing costs of operations.

We have discussed the report with Department officials and have incorporated their comments. Many improvements have occurred since the time of our review, and these changes have also been incorporated.

This report contains recommendations to you on pages 17 and 30. As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

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 the House and Senate Committees on Appropriations and Armed Services; and the Secretaries of the Army, Navy, and Air Force.

Sincerely yours,

R. W. Gutmann  
Director

D I G E S T

The Military Aircraft Storage and Disposition Center near Tucson, Arizona, stores, returns to service, recovers parts from, and disposes of surplus U.S. military aircraft. The military, public agencies, the American public, and other Governments all look to the Center for aircraft that are no longer needed. (See p. 1.)

Over the years, the use of the Center to return aircraft to active military use has decreased to the point where its role in providing parts is as important today as its role in providing aircraft. About 4,500 aircraft belonging to the military services (and the Coast Guard) are at the Center. An average of 1,120 leave each year, of which 120 are returned to service; 100 are sold to other countries; 180 are donated to public agencies; and 720 are declared surplus and sold, primarily as scrap. Aircraft at the Center are also reclaimed, being a source of scarce parts, thereby alleviating critical shortages and reducing future procurements. The value of parts removed and returned to the services' active inventory has recently averaged \$102.8 million a year. (See p. 4.)

The Military Aircraft Storage and Disposition Center is intended to be a cost-effective source of aircraft and parts. Using the Center's resources as needed, the military services can avoid new procurements and maintain aircraft readiness. However, GAO tested the operation and concluded that to be actually cost effective--to obtain these benefits at the lowest cost--the Center must be more effectively managed. GAO identified these problems:

- The military services have not been timely in disposing of excess aircraft. (See p. 11.)
- They have not developed firm criteria sufficiently so that the Center's assets could be used effectively. (See p. 12.)
- Little or no attention has been paid to logistical needs for components and parts when making disposition decisions. (See p. 17.)
- The services were not taking full advantage of parts available on aircraft at the Center. In particular, the Navy could realize net savings of about \$14 million with a more aggressive recovery program. (See p. 21 and 29.)
- The services were keeping too many aircraft in reserve status. (See p. 23.)

#### RECOMMENDATIONS

To improve the use of the Center, the Secretary of Defense and the Military services should:

- Reassess the role of the Center and provide a better definition of the need for and use of its assets.
- Direct the services to develop firm criteria for determining aircraft dispositions, recognizing that early parts reclamation offers many benefits; that is, logistical needs as well as operational needs should be equally considered.
- Direct all services to make their disposition decisions before aircraft are sent to the Center.
- Direct all services to continue to re-evaluate prior disposition decisions in light of current requirements for whole aircraft and parts.

- Reevaluate the parts reclamation methods used to assure that the most effective mix of methods is being used.

#### AGENCY COMMENTS AND ACTIONS

Since GAO's audit work was completed, both the Air Force and Navy have made changes in their disposition programs to better use the available assets and capabilities of the Center. Both services are pursuing programs to better apply logistical needs information to their decision processes.

The Navy has made major strides in reducing its aircraft inventory at the Center. It has also increased funding for its Center activities and has introduced new parts and components recovery programs which will improve its use of the Center's assets.

Army, Navy, and Air Force officials concurred with GAO's conclusions and recommendations, and, where appropriate, revisions to this report were made based on their oral comments. GAO is encouraged by the actions being taken and the responsiveness to the recommendations.

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## CHAPTER 1

### INTRODUCTION

The Military Aircraft Storage and Disposition Center in Arizona has the single largest concentration of aircraft in the world. All aircraft sent there are in excess to current military needs, and most are old and need major repairs. Nevertheless, many aircraft are eventually recovered from the Center for use by the military services, foreign countries, and public agencies. In addition, usable parts are reclaimed off aircraft and reintroduced into the military services' supply systems to avoid the cost of new procurements.

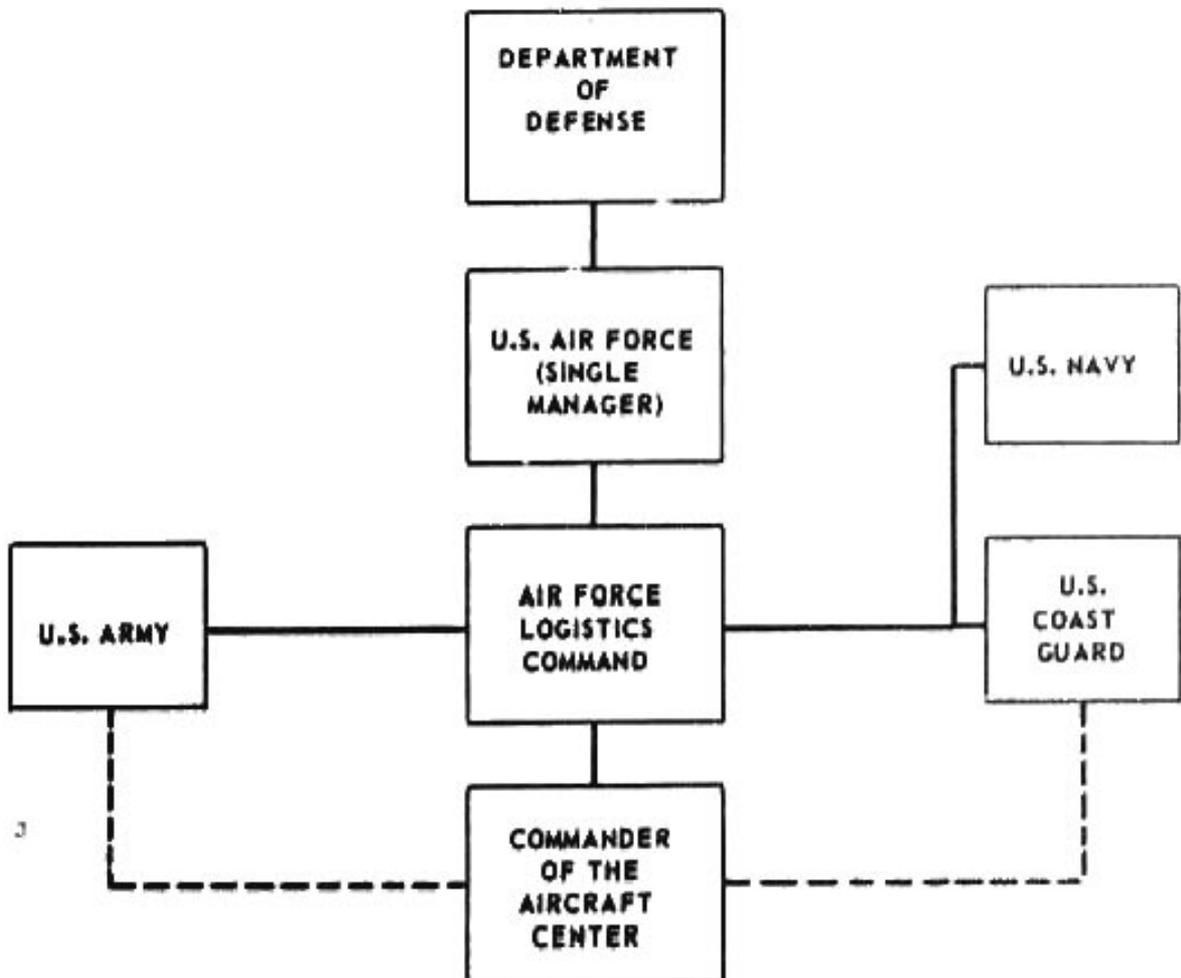
In the past, both the Air Force and the Navy had major aircraft storage facilities in Arizona. Then, in 1964, the Military Aircraft Storage and Disposition Center was established at Davis-Monthan Air Force Base near Tucson to simplify and consolidate the aircraft disposition process and to reduce costs. The Navy storage facility near Phoenix was closed. The Department of Defense (DOD) envisioned the Center as a ready source of aircraft which could be promptly returned to the military services when needed.

The Air Force, through the Air Force Logistics Command, acts as the single manager for the Center. The Center's operations are governed by an interservice support agreement that is updated annually at a multiservice conference. (See chart on p. 2.) The agreement requires that each service provide the Center with workload projections and lists of parts to be reclaimed. The agreement also covers the work to be done for each service, such as storage and withdrawal of aircraft, and billing procedures.

The Aircraft Center is a large outdoor storage facility covering 3,000 acres of desert and having a few large buildings to house administrative personnel and process aircraft and parts. The Center's fiscal year 1977 budget was \$15 million, of which 90 percent was spent on salaries for its 840 civil service employees.

Because of the desert's weather and soil conditions, it provides an ideal and inexpensive storage location for large numbers of aircraft. To preserve the aircraft, engines and fuel systems are flushed with oil and a preservation mixture, and portions of the outer bodies are covered with a protective coating to reduce the temperature within the aircraft.

## ORGANIZATION CHART



Once preserved, the aircraft are simply parked in rows on the desert floor where they receive periodic maintenance as necessary. Aircraft can be stored this way for 4 years before they must have their engines tested and reprerived.

### THE CENTER'S WORK

The Aircraft Center's workload can generally be assigned to the following:

- Aircraft storage, which includes preserving, sealing, and positioning the aircraft.

- Maintenance in storage, which consists of periodic inspections to maintain a proper level of preservation.
- Aircraft withdrawal, which prepares aircraft in storage for a one-time flight or surface shipment.
- Aircraft parts reclamation, which is the disassembly of aircraft to recover parts and components for further use.
- Miscellaneous work, which includes such things as special inspections, parts handling, and aircraft relocation.

Measured in terms of direct labor hours, the workload distribution for fiscal year 1977 is shown below.

<u>Workload categories</u>	Industrial workload for <u>FY 1977</u> (percent)
Aircraft storage	12
Maintenance	9
Aircraft withdrawal	10
Parts reclamation	49
Miscellaneous work	<u>20</u>
	<u>100</u>

#### Aircraft inventory at the Center

About 4,500 aircraft from the three services and the U.S. Coast Guard are located at the Center. An average of 55 percent of the aircraft are reserved for possible return to the services or for sale to foreign countries through the Security Assistance Program, 25 percent are in reclamation status awaiting possible donation or recovery of parts, and 20 percent are owned by the Defense Logistics Agency awaiting public sale. Aircraft status figures 1/ as of June 1977 are shown on the next page.

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1/These figures reflect aircraft status at the time of our review. Since then, the services have taken actions to reduce the number of aircraft held.

	<u>Air Force</u>	<u>Navy</u>	<u>Army</u>	<u>Coast Guard</u>	<u>Total</u>
In storage	664	1,390	587	8	2,649
In reclamation status	499	491	142	14	1,146
Owned by Defense Logistics Agency	<u>461</u>	<u>106</u>	<u>148</u>	-	<u>715</u>
Total	<u>1,624</u>	<u>1,987</u>	<u>877</u>	<u>22</u>	<u>4,510</u>

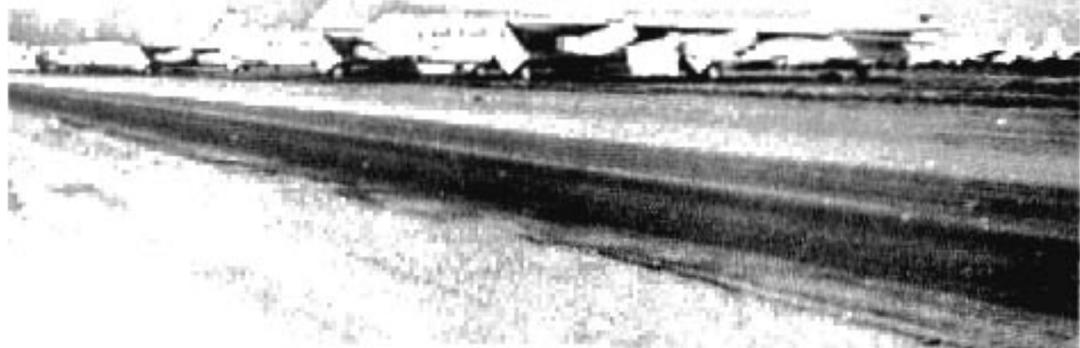
The original acquisition cost of the aircraft on hand is about \$6 billion. However, their current value is substantially less, due to age and parts removal. For example, sales of tactical and commercial aircraft to other countries under the Security Assistance Program return from 5 to 20 percent of the average \$1.2 million acquisition cost per aircraft. In contrast, public sale of commercial-type aircraft in flyable condition through the Defense Logistics Agency usually returns about 1 percent of the acquisition cost. Tactical aircraft are sold publicly through the Defense Logistics Agency as scrap with a return value less than one-half of 1 percent. Tactical aircraft must be cut up into scrap before public sale can occur.

#### AIRCRAFT DISPOSITION

According to Air Force officials, approximately 1,100 aircraft leave the Center each year for one of four ultimate dispositions, as shown below for fiscal years 1976 and 1977.

<u>Aircraft dispositions</u>	<u>Average number a year</u>
Service reuse	120
Security Assistance	100
Donation	180
Public sale	<u>720</u>
Total	<u>1,120</u>

Once a service review board decides that aircraft are not needed in reserve for the services or the Security Assistance Program, the aircraft are placed in reclamation status, and a screening process begins. The aircraft are first offered to the other services for 30 days. After this screening, the distinction is made between tactical- and commercial-type aircraft.



**AIRCRAFT IN STORAGE AT THE CENTER**



**ARMY AIRCRAFT IN STORAGE AT THE CENTER**

Tactical aircraft are designed to attack military targets, and DOD policy prohibits their sale or donation to the public in flyable condition. Some tactical aircraft are used for displays, but most are sold for scrap. The disposition and screening process, in order of priority, are shown below for both tactical- and commercial-type aircraft.

#### Disposition/Screening Priorities

##### Tactical aircraft

1. Owning service
2. Other service
3. Security Assistance Program
4. Service parts reclamation
5. Public sale by the Defense Logistics Agency (no reflight permitted)

##### Commercial-type aircraft

1. Owning service
2. Other Services
3. Security Assistance Program
4. Federal agencies
5. State and local agencies
6. Service parts reclamation
7. Parts reclamation by other Government agencies
8. Public sale by the Defense Logistics Agency (possible reflight permitted)

Once in reclamation status, a few aircraft of each type are designated as reclamation insurance types. These aircraft are held in reclamation status until the owning service is sure that parts or structural components will never be needed to support active aircraft.

#### FUNDING

The Aircraft Center is a quasi-industrial funded operation. The Air Force, as manager, receives funding from the services on a quarterly basis for work done. The services are billed for direct personnel and maintenance costs applicable to priority removals, special projects, and certain portions of routine reclamations directly attributable to the specific service and for a proportionate share of indirect and overhead costs.

Revenue from sales of aircraft through the Security Assistance Program is returned to the owning service if the aircraft needs to be replaced. Otherwise, the services recover costs of sale which include maintenance, storage, preservation, and withdrawal costs from the time the aircraft were made available for Security Assistance Program sales. Generally, aircraft sold from the Center will not be replaced by the owning service.

Sale of aircraft to the public, as scrap or whole aircraft, is done by the Defense Logistics Agency. Revenue from such sales is used by the Agency to first cover its costs of operations. Excess funds are turned over to the Air Force to defray costs of routine reclamation programs for all the services. The Air Force received \$3.5 million in fiscal year 1975, \$2.3 million in fiscal year 1976, and an estimated \$1 million in fiscal year 1977. Future years' sales by the Defense Logistics Agency will probably not generate any additional funds because of increased costs of operations.

As shown below for fiscal year 1977, most of the Center's funds, as well as workload, have been provided by the Air Force.

	<u>Direct-labor hours</u>	<u>Percent</u>	<u>Funds provided</u>	<u>Percent</u>
Air Force	395,053	65.2	\$11,020,619	73.4
Navy	155,947	25.8	2,828,387	18.8
Army	25,577	4.2	328,615	2.2
Coast Guard	506	.1	135,544	.9
Foreign military sales	25,871	4.3	654,180	4.3
Other	<u>2,503</u>	<u>.4</u>	<u>54,755</u>	<u>.4</u>
	<u>605,458</u>	<u>100.0</u>	<u>\$15,022,100</u>	<u>100.0</u>

#### SCOPE OF REVIEW

We reviewed documents and interviewed agency officials at:

- Air Force, Navy, and Army Headquarters, the Pentagon, Washington, D.C.
- Defense Logistics Agency Headquarters, Cameron Station, Virginia.
- The Navy Aviation Supply Office, Philadelphia, Pennsylvania.
- The Air Force Logistics Command, Dayton, Ohio.
- The Warner Robins Air Logistics Center, Robins Air Force Base, Georgia.

- The Naval Air Rework Facility, San Diego, California.
- The Military Aircraft Storage and Disposition Center,  
Davis-Monthan Air Force Base, Arizona.

## CHAPTER 2

### AIRCRAFT STORAGE AND DISPOSITION: AN OVERVIEW

The Military Aircraft Storage and Disposition Center is conceptually a cost-effective source of aircraft and parts. By using the Center's resources when needed, the military services can avoid new procurements while maintaining aircraft readiness. In addition, public agencies can obtain Government equipment at a lower cost than that available commercially, so the equipment can be used over its full life. But to fully obtain these benefits at the lowest cost, both the military services and the Aircraft Center must effectively manage aircraft disposition. Effective management should include:

- Firm service criteria for determining when aircraft should be sent to the Center.
- Early service decisions, based on realistic projected requirements, on what status aircraft should be placed in when they arrive at the Center.
- Effective workload planning by the Center to insure good productivity. Accurate work projections by the services are essential to such planning.
- Easy access to the Center's resources for all potential customers and full use of these resources.

### THE CENTER'S ROLE IN CHANGING TIMES

When first established, the envisioned role of the Center was as a ready source of aircraft which could be returned to service as needed in a relatively short time, such as for mobilization. As such, the Center's resources were included in the military services' mobilization plans.

Over the years, the complexity of aircraft systems has increased to the point where they now require a great deal of specialized skills and equipment to keep them operational. Trained aircrews, maintenance personnel, associated ground support equipment, and supply support are all essential to a viable aircraft system. But as aircraft are phased out of active service, so are all these essential elements. Thus, when aircraft are sent to the Center, they often lose their usefulness as an operational system.

The Secretary of Defense in 1977, recognizing that because of these factors the Center would not be able to fulfill the services' future mobilization needs, stated that in programing for full mobilization the services should not plan on using the Center's assets.

This then leaves the question of what role the Center should have in the future. We believe that, if a specific need for the aircraft has not been identified by the services, they or their parts should be fully used in peacetime to obtain the most benefits from already funded Government assets. The Aircraft Center's role of providing parts is now as important as its role of providing aircraft.

#### MATCHING NEEDS WITH RESOURCES

In deciding when aircraft should be sent to the Storage and Disposition Center, the military services must first determine their current and future aircraft needs. Aircraft are usually declared excess and sent to the Center for the following reasons.

- The service no longer has an active force need for the aircraft.
- The aircraft is too old to be safely operated.
- The aircraft is being replaced by new equipment.
- The aircraft has become too expensive to operate and additional modification is not cost effective.

In addition, a small number of aircraft are sent to the Center for temporary storage. Some of the reasons for doing this are awaiting conversion, modification, or overhaul.

#### Criteria for making disposition decisions

The services use similar criteria for making their disposition decisions, including budgetary allowances, assigned missions, production schedules, aircraft conditions, and force goals. A key variable is flying-hour plans, which are directly related to such resources as flight crews, maintenance personnel, replacement parts, and various other support personnel. These and other factors are examined by review committees established by the services to make recommendations on the disposition of aircraft in the active

fleet for up to 5 years in the future. The committees usually meet once or twice a year to determine aircraft disposition and to reevaluate past decisions in light of any recent changes.

Overall, this part of the disposition process appears to be adequate for meeting the services' needs. Problems appear to arise when decisions must be made about the excess aircraft. Should they be sold to meet Security Assistance Program needs? Should they be put in reserve status at the Center, and if so, for how many years? Or should they be put directly into reclamation status for use of their parts on active aircraft? Such decisions should be made as soon as the aircraft are declared excess and should be based on reasonable projections of the potential for whole aircraft sales and the services' repair parts requirements. In practice, however, the military services do not always make such projections before deciding on aircraft disposition. Instead, the services' headquarters, with assistance from the affected activities, use the following informal criteria.

- The owning service's needs for operational aircraft have priority over other needs, such as the Security Assistance Program.
- Requirements for whole aircraft have priority over requirements for parts when the removal of parts would make aircraft reuse infeasible.
- Sufficient reserves should be kept to meet the largest projected contingency need for operational aircraft.

#### Potential benefits from early parts reclamation

Because requirements for whole aircraft have priority over parts requirements, the services often put their excess aircraft in reserve storage at the Center. Aircraft held in reserve can serve several useful purposes: they can be reused when needed due to attrition or slippage of new aircraft procurement, or they can be stored for future missions or modifications. They can also be sold under the Security Assistance Program.

While held in reserve, however, aircraft cannot be used as a routine source of components and parts for supporting aircraft of the same or similar type; but can be used on a priority basis. The services generally keep aircraft in

reserve storage about 4 years before returning them to service or placing them in reclamation status.

Because of revised force goals, the modification and upgrading of individual aircraft, and the introduction of new aircraft, the active fleets are constantly changing. All three military services are currently introducing new aircraft into their active inventories, such as the Air Force's F-15s, A-10s, and F-16s; the Navy's F-14s and F-18s; and the Army's new attack and utility helicopters. As these aircraft become more prevalent in the active forces, older aircraft will be taken out of service. Thus, the number of active aircraft that could benefit from parts on the Center's aircraft will continue to be reduced as time goes on. The Center's older aircraft are also less likely to be recalled as whole aircraft when the active fleet consists of more advanced models. The longer aircraft remain in storage, the less valuable they become, both as whole aircraft and as a source of parts.

It may be more economical to place excess aircraft directly into parts reclamation status, when a large number of similar aircraft are still in active service. Doing so could save procurement costs by reintroducing still-usable parts and components. A 1975 Air Force audit, for example, estimated that \$35 million could be saved from early parts reclamation. The Air Force began a program in October 1976 which removed selected parts and components from newly arrived aircraft. In its initial assessment of this program, the Air Force estimated a potential of \$100 million in additional recoveries. An Air Force official stated that, as of mid-1978, the program had resulted in recoveries valued at about \$116 million.

We are not advocating that all excess aircraft be placed immediately in reclamation status. We believe, however, that future requirements for excess aircraft and their parts should be more thoroughly examined before disposition decisions are made, and that the costs and benefits of disposition decisions which lead to aircraft being held in reserve for 4 years should be reassessed.

#### USING THE AIRCRAFT CENTER

The services' use of the Military Aircraft Storage and Disposition Center varied greatly. The Air Force looks to the Center first for needed parts and extensively reclaims parts to reduce procurement costs. The Navy, on the other



**HELICOPTERS BEING PREPARED FOR STORAGE**



**AIR FORCE AIRCRAFT IN STORAGE**

hand, uses the Center as a source of last resort for critically needed parts.

The Army uses the Center for limited reclamation and to dispose of excess helicopters and small fixed-wing aircraft. It contends that storing helicopters at the Center for future use is not economically sound and that it has few excess aircraft. As a result, the Army's workload at the Center is quite small.

The Center's total workload has been declining. From fiscal year 1976 to 1977, the workload (as shown by direct-labor hours) decreased by 26.4 percent. In October 1977, the Center was reorganized and its work force was reduced as a partial result of this reduction. The work force has been steadily declining since 1974, as shown below.

<u>Assigned work force</u>	<u>Dec. 1974</u>	<u>Dec. 1975</u>	<u>Dec. 1976</u>	<u>Dec. 1977</u>
Civilian	917	885	840	773
Military	<u>109</u>	<u>107</u>	<u>83</u>	<u>86</u>
Total	<u>1,026</u>	<u>992</u>	<u>923</u>	<u>859</u>

Although the work force has been reduced to better suit the workload, Center officials stated that labor productivity has been poor due to unanticipated workload fluctuations. The workloads for aircraft storage, withdrawals, and reclamations have been unstable, because of frequent decision changes, particularly for foreign military sales withdrawals. The services, for their part, have stated that such changes are driven by DOD-wide budgetary changes and executive branch decisions concerning foreign military sales, and not service decisions per se. As shown in the following chart, the actual workloads for fiscal year 1977 varied from the programmed workload by 17 percent.

Although the reasons for the fluctuations put forward by the services certainly appear valid, it is apparent from the chart that when comparing the services' programs and their variances the driving force for stabilizing the workload is reclamation. This comparison would appear to support our case for earlier and decisive disposition decisions by the owning services.

Variance Between Actual and Programed  
Workload During Fiscal Year 1977 in Direct Manhours

	<u>Program (note a)</u>	<u>Actual</u>	<u>Variance</u>	<u>Percent</u>
<b>Air Force:</b>				
Storage	41,133	29,667	11,466	28
Withdrawal	21,959	32,533	-10,574	48
Reclamation	222,552	219,384	3,168	1
<b>Navy:</b>				
Storage	58,961	44,105	14,856	25
Withdrawal	20,272	20,036	236	1
Reclamation	80,828	64,903	15,925	20
<b>Army:</b>				
Storage	12	3,103	-3,091	25
Withdrawal	16,074	3,121	12,953	81
Reclamation	<u>10,377</u>	<u>16,495</u>	<u>-6,118</u>	<u>59</u>
Total	<u>472,168</u>	<u>433,347</u>	<u>78,387</u>	<u>17</u>

a/As of the beginning of the fiscal year.

Changes in the workload mix, which cause workers to be transferred between functions, can adversely affect productivity. Such transfers reduce the advantages of specialization and disrupt work as personnel and equipment are transferred, even though much of the work force is cross-trained.

According to Center officials, the services' workload forecasts for the coming month are the only ones accurate enough for allocating the work force between activities. Although the services provide the Center with a 5-year forecast that is updated yearly, it is not accurate enough for work force scheduling. Both Air Force and Navy officials agreed that this was a continuing problem, for the services as well as the Center. Since the time of our review, however, both services have taken steps to improve their workload forecasting procedures. For example, the Air Force semi-annual review now includes quarterly projected storage availability data, by aircraft, for the next 2 fiscal years. The Navy has reevaluated its planning process and now includes a full 5-year projection with quarterly updating in its process. The Navy believes that the first 1- to 2-years projections are quite accurate. Further outyear data is not quite as good, being dependent on various factors which make it subject to varying degrees of change.

The Center's productivity problems, along with Office of Management and Budget Circular A-76, <sup>1/</sup> have prompted the Air Force to consider turning operations over to a private contractor. In June 1977, the Air Force initiated a study of the Center's costs and planned to solicit proposals from industry. The proposals are to be reviewed and compared with Air Force costs to do the work in-house. The Air Force estimated that, if the study favors a private contractor, a contract would be awarded as early as February 1979, and 48 military and 749 civil service positions would be eliminated.

We believe that, should the proposed changeover occur, the recommendations we have set down in this report would still be valid. In fact, under a contractor-operated system, the changes we have suggested would be more important than ever. A contractor, for example, would not permit the services to make the kind of last minute program changes that have occurred in the past without charge.

#### CONCLUSIONS

The military services have not done all that is possible to help make the Aircraft Center a successful and economical storage and distribution point. Although the services' criteria for sending aircraft to the Center appear to be adequate, they have not fully developed firm criteria for using the Center's resources. Because of this, these resources have not been used to their full extent.

Past decisions on what to do with the aircraft once they are excessed have been made with little regard for current and future logistics needs. What is needed is an aggressive, timely program of matching supply support requirements with the Center's available and anticipated assets. Once such a program is operating and the costs and benefits of disposition alternatives have been thoroughly assessed, the services should be in a better position to make accurate workload projections. Such projections are essential to efficient work force planning at the Center and to improved productivity--regardless of whether the Center is Government- or contractor-operated.

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<sup>1/</sup>Circular A-76 affirms the Government's general policy of relying on the private enterprise system to supply its needs, except when the national interest compels the Government to provide its own products and services.

The services need to more closely match logistical needs with available assets at the Center. By pursuing a more aggressive program in this area, the services can provide the Center with a better defined workplan, as well as reduce their own needs for costly procurement of parts which could be retrieved from the Center's assets.

#### AGENCY COMMENTS

Both Air Force and Navy officials stated that major changes have been introduced into their aircraft disposition planning processes to better use the Center's capabilities. For example, the Air Force has improved its method of providing information on future dispositions of aircraft. The Navy has also changed its projection methods to include quarterly updates of dispositions. Both changes should improve the Center's ability to program its workload on a more consistent basis.

Both Services are also getting more information from their logistical support systems as to specific parts and components needs. The Navy in particular has instituted programs to improve the matching of this information to their disposition decision process. For example, improved save parts lists provided by the air logistics staff will aid in determining what types of aircraft should be reclaimed on arrival at the Center.

#### RECOMMENDATIONS

We recommend that the Secretary of Defense:

- Reassess the role for the Aircraft Center in terms of his 1977 decision that programing for full mobilization should assume that the Center's assets will not be used.
- Having reassessed the role, direct the services to develop firm criteria for determining aircraft dispositions, recognizing that early parts reclamation offers many benefits and that logistical needs as well as operational needs should be equally considered.
- Direct the services to make every effort to provide the Center with as accurate and timely a forecast of aircraft disposition decisions as possible, to aid in better workload planning.

## CHAPTER 3

### SAVINGS AVAILABLE FROM RESERVING FEWER

#### AIRCRAFT AND RECLAIMING MORE PARTS

As stated in the previous chapter, the effective use of excess aircraft depends on early aircraft disposition planning based on expected needs. If more aircraft are placed in reserve storage than can be expected to be reused, unnecessary storage and preservation costs are incurred. And the longer aircraft are held in reserve, the lower their parts reclamation value and surplus sales values.

The Navy has held many aircraft in reserve for lengthy periods, and has reclaimed significantly fewer parts from its aircraft than the Air Force, primarily because of, according to the Navy, a lack of available funding and a reluctance to use the Center's parts.

#### NEED FOR BETTER NAVY PLANNING

The military services follow similar procedures in identifying aircraft to be sent to the Military Aircraft Storage and Disposition Center. In planning the aircraft's disposition at the Center, however, the services differ. While the Air Force and Army plan their reserve requirements and dispositions along with their active fleet requirements, the Navy plans its reserve requirements and dispositions separately--after the aircraft are in reserve storage.

As part of their disposition decisionmaking, the services must determine what level of preservation the aircraft are to receive when they arrive at the Center. Full preservation allows aircraft to be stored for 4 years with only occasional maintenance. Lesser degrees of preservation, which are less costly, can be used when aircraft are to be stored for shorter periods or have a low potential for reuse. Both the Air Force and the Army use lower levels of preservation on aircraft that they have decided will not be returned to service. But because the Navy does not make disposition decisions until after the aircraft have been sent to the Center, its aircraft have routinely been fully preserved.

For example, the Air Force programed 553 aircraft of various types to be withdrawn from active service during the last half of fiscal year 1977, and fiscal years 1978 and 1979. Of these aircraft, 245 were to go directly into reclamation. Conversely, for the same period, the Navy

programed 1,071 aircraft to be withdrawn from active service, all of which were to be fully preserved and placed in reserve storage. Since the time of our review, the Navy has made significant changes to its disposition program. Some aircraft are now being sent directly to reclamation, rather than having all placed in reserve.

The cost difference between fully preserving and partially preserving an aircraft placed in reclamation status is shown below.

Aircraft type	Initial cost of preservation		Difference
	Full	Partial	
F-4 fighter	\$6,496	\$5,516	\$ 980
F-8 fighter	4,536	3,472	1,064
A-4 attack	3,668	3,080	588
P-2 patrol	7,224	6,132	1,092
S-2 patrol	3,864	3,612	252
C-118 cargo	7,420	6,300	1,120
H-1 helicopter	2,408	2,044	364

If the 1,071 Navy aircraft had been assigned to the Center in the same proportions as the Air Force's, about 44 percent, or 471 aircraft, would have been sent directly to reclamation. Assuming an even mix of aircraft, as shown in the chart, the average cost for full preservation (used on aircraft going directly to reclamation) would have been \$5,088. The average cost for partial preservation (used on aircraft going directly to reclamation) would have been \$4,308. The savings per aircraft would have been \$780; and the savings for all 471 aircraft would have been \$367,380.

It should be noted that the Navy has since taken several steps to change this situation, which include sending selected aircraft directly to reclamation.

The Navy uses an aircraft disposition committee, which meets once or twice a year, to determine the status and plan the disposition of aircraft held in reserve. Although the committee has broad Navy representation, its guidelines are not clearly defined enough to direct its decisions. As a result, most of its decisions on the number of aircraft to be held in reserve are not supported by reasonably certain projections or requirements.



**NAVY AND AIRFORCE AIRCRAFT IN STORAGE**



**COAST GUARD AND NAVY AIRCRAFT IN STORAGE**

### EXCESSIVE NAVY RESERVES

Shown below is the number of reserved aircraft held by each of the services as of August 1977, and the ratio of their reserve to total operational aircraft.

	<u>Navy</u>	<u>Air Force</u>	<u>Army</u> <u>(note a)</u>
Aircraft reserves for:			
Potential future service use	821	744	544
Security Assistance Program	494	51	7
Other (note b)	<u>26</u>	<u>2</u>	<u>6</u>
Total	<u>1,341</u>	<u>797</u>	<u>557</u>
Operational aircraft (as of early 1977)	5,295	8,991	8,337
Ratio of reserves to operational	.25 to 1	.09 to 1	.07 to 1

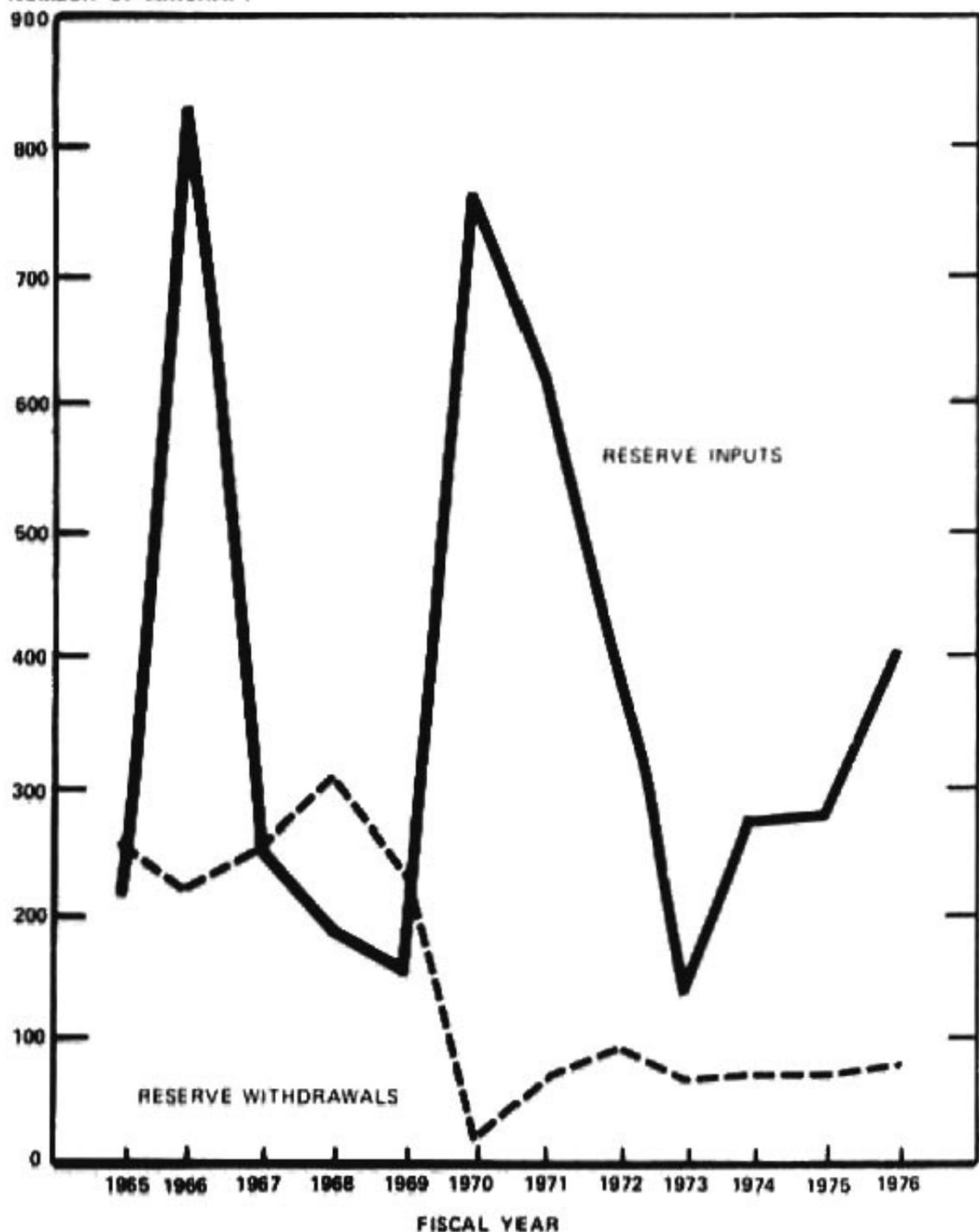
a/Excludes aircraft stored at other locations.

b/Aircraft held for potential use by other Federal, State, and local agencies.

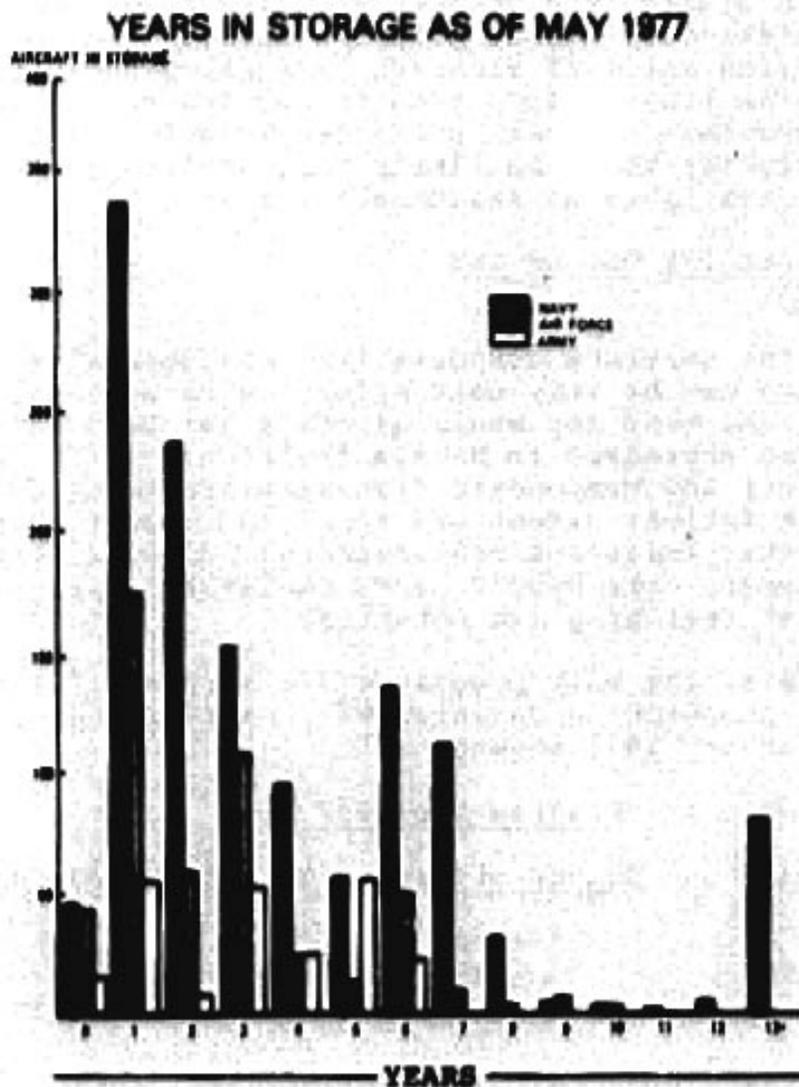
As can be seen, the Navy holds a much greater percentage of operational aircraft in reserve than either the Army or the Air Force. Additionally, the quantities reserved are large when compared with the total number of aircraft returned to service since 1965, particularly considering that the quantities being put in storage and returned to service have been on a general decline since the Aircraft Center opened in 1965. The following chart shows the number of aircraft which the Navy put in reserve and withdrew from reserve for fiscal years 1965-76.

# NAVY RESERVE INPUTS AND WITHDRAWALS AT THE CENTER

NUMBER OF AIRCRAFT



The Navy also retains many aircraft in reserve beyond the time that the average stored aircraft is returned to service and beyond the 4-year preservation limit. As of May 1977, the Navy had 367 and the Air Force had 72 <sup>1/</sup> aircraft in reserve beyond 5 years as shown.



<sup>1/</sup>Excludes B-52 heavy bombers so that similar aircraft can be compared.

Holding aircraft in reserve for excessive lengths of time adversely affects their (1) parts reclamation value, (2) donation value, and (3) surplus sales value as whole aircraft. The parts reclamation value is greatest when the aircraft first arrive at the Center, particularly when some aircraft of the same type are still in active use. The longer an aircraft is stored, the greater the likelihood that some parts will deteriorate beyond possible reuse. The donation and surplus sales value of aircraft is reduced because aircraft stored for long periods tend to require more extensive repairs to make them or their parts serviceable. Also, the older the aircraft, the less likely that necessary spare parts will be available at reasonable prices.

NEED TO MAKE GREATER USE OF THE CENTER'S PARTS

None of the services disputes that an aggressive parts salvage program can be very cost effective to meet valid requirements if the need for whole aircraft has been satisfied. Navy policy, as expressed in NAVAIR Instruction 4500.7A, is to reclaim parts and components from aircraft taken out of storage to the fullest extent practical to support operating aircraft or other logistics requirements. However, for the past several years, the Navy's parts reclamation program has fallen short of realizing its potential.

For example, the Navy programed 321 aircraft for reclamation projects starting in January 1977. A review of these projects in January 1978 showed:

	<u>Program for 1977</u>	
<u>Status</u>	<u>Number of aircraft</u>	<u>Added during year</u>
Completed	50	-
Work in process	30	7
Not started	217	232
Canceled	23	-
Return to storage	<u>1</u>	<u>-</u>
<b>Total</b>	<b><u>321</u></b>	<b><u>239</u></b>

This brings the total number of aircraft assigned to reclamation projects, but not being worked on, to 449 as of January 1978.

Navy officials stated that lack of funding was the reason that parts from these aircraft were not being recovered. Since the time of our review, the funding for work at the Center has been increased. For the remainder of fiscal year 1978, \$660,000 has been provided. Funding for fiscal year 1979 is expected to amount to over \$5 million. All unaccomplished reclamation projects are expected to be completed by fiscal year 1981. Amounts requested and actually funded for fiscal years 1977 to 1979 are shown below. Funding for 1979 has not been finalized as yet, but Navy officials expect it to be.

	Fiscal years		
	<u>1977</u>	<u>1978</u>	<u>1979</u>
	(in millions)		
Requested	\$4.0	\$5.71	\$5.71
Funded	2.62	2.59	5.71

#### Parts reclamation methods

A key consideration in reclaiming parts is whether they can be obtained early enough to be useful on active aircraft. Accordingly, the timing for scheduled parts reclamation is critical to minimizing procurements while maintaining adequate reserves and reducing the number of more costly unscheduled parts removals. There are four methods of parts recovery used at the Center, three scheduled and one unscheduled.

The following are the scheduled parts reclamation methods.

- Group 1 removals are scheduled to systematically recover selected high-cost parts from the Center's newly received aircraft that are not expected to be returned to service in the near future. Such removals make large quantities of parts available for use early in the storage period; however, care must be taken to avoid removing so many parts that reflight of the aircraft becomes economically infeasible.
- Special project parts removals are used to recover large quantities of a few parts that are needed to meet requirements in the near future. These removals, when used instead of priority requisitions, can help the Center minimize workload disruptions.

--Routine reclamation is used to systematically recover remaining parts from aircraft in reclamation status before their final disposal. For each aircraft model, the services provided the Center with a "save list," based on several years' requirements, for large quantities of sometimes several hundred parts. However, the Center usually recovers only a fraction of the quantities needed from the aircraft's remaining parts.

Routine reclamation projects are initiated primarily when five or more aircraft of the same type are available for parts reclamation. By reclaiming several aircraft at a time, a production-line type of operation can be used and direct-labor costs are reduced about 22 percent. Requisition processing, shipping, and inspection costs are also reduced.

According to Air Force and Navy officials at the Center, routine reclamation costs are about 22 percent less than priority requisition costs and are somewhat less than for Group 1 removals. On the other hand, by the time aircraft are put through routine reclamation, the requirements for their parts may be minimal because of the increased likelihood that fewer aircraft that can use the parts will still be in operation.

The unscheduled method involves priority requisitions which are used to recover parts when there are urgent requirements which cannot be satisfied from other sources. These requisitions are generally for small numbers of low-volume parts that are unique to a particular aircraft model. These parts are invaluable to keep active aircraft fully operational, to minimize work stoppages at repair facilities, and to avoid the high cost of urgent procurement of out-of-production parts. Even so, priority removals are costly, and at times routine reclamation projects have been initiated to add parts to the supply systems in order to reduce the need for priority removals.

The owning service can use priority requisitions to recover parts from any of its aircraft in any status at the Center. However, in looking for requested parts, the Center normally looks first to those aircraft in reclamation status before going into aircraft in reserve status, undergoing screening, or belonging to the Defense Logistics Agency.

The following table shows the amount of time purchased by each service of the various categories described during February to May 1978.

<u>Type recovery</u>	<u>Direct manhours by service</u>		
	<u>Air Force</u>	<u>Navy</u>	<u>Army</u>
Group 1	21,498	-	-
Priority	22,499	6,321	553
Routine	<u>8,865</u>	<u>8,073</u>	<u>-</u>
Total	<u>52,862</u>	<u>14,394</u>	<u>553</u>

Note: There were no special projects done during this period.

This led to total parts recovery of:

<u>Service</u>	<u>Parts value</u>
Air Force	\$22,125,233
Navy	9,984,712
Army	<u>166,732</u>
Total	<u>\$32,276,677</u>

#### Comparison of Air Force and Navy practices

In both the Navy and the Air Force, spare parts requirements are calculated automatically by computer. Air Force parts managers at the various repair facilities, have direct access to local technical support which helps them to thoroughly validate the requirements and make any necessary corrections. Navy officials stated that, due to inaccurate information concerning specific aircraft configurations, Navy parts managers often request parts that are not on the aircraft.

The Air Force uses all the parts reclamation methods discussed on pages 25 and 26. When Air Force parts managers cannot conveniently schedule routine reclamation, they are authorized to use the other types of reclamation to obtain parts needed immediately or in the near future. Navy parts managers, in contrast, are only authorized to use high-priority requisitions to obtain parts from the Aircraft Center. Such requisitions do not allow the Aircraft Center to schedule its work, and therefore are more costly.

The Navy has not used the variety of parts reclamation methods that the Air Force uses because the Navy looks to the Aircraft Center only as a last resort for parts. Navy officials indicated that the Navy uses the Center's parts only if the parts are not available elsewhere in the supply system (including the repair process) and if they cannot be procured

within the needed time. The Navy also does not consider using the Center to fill requests for foreign military sales, although the Air Force regularly does so. The Navy's position is that (1) foreign countries are not interested in used parts and (2) the parts requested generally are not worth recovering.

#### Navy improvement plans

The Navy has told us that it plans to upgrade its parts reclamation programs. The following changes have been made or are in process. Shipping and handling costs are being reduced by inspecting recovered parts at the Center, when possible, rather than sending them to repair facilities for inspection. More funds are being allocated, as noted on page 25, for routine reclamation to help reduce procurement costs. Steps are being taken to start a Group 1 removal program (see p. 25) so that high-cost parts can be removed from aircraft when they first arrive at the Center. Since the time of our review, the Navy has begun a Group 1 program, using 10 S3A aircraft for its pilot program. Based on the success of this test, a larger program to include A7 and possibly some F4 aircraft will begin in October 1978.

If the increased funding for routine parts reclamation materializes, the Navy could recover many more parts and could substantially reduce costs. For example, during fiscal years 1976 and 1977, <sup>1/</sup> the Navy had about 17 percent more aircraft in reclamation status than the Air Force; however, the Air Force put six times as many aircraft through routine parts reclamation. Navy officials stated that funding limitations were the primary reason that their parts recoveries were less than the Air Force's and that the processing of routinely reclaimed parts has a low priority for funds.

Although increased parts recoveries would increase recovery costs, the savings from avoiding or delaying new procurements would outweigh these costs. Based on Navy and Center accounting records, we estimate that the Navy could achieve a net savings of about 60 percent from most increases in parts recoveries, as follows:

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<sup>1/</sup>Projected based on the 12-month period from July 1976 to June 1977.

Estimated Savings From Navy Salvage  
of Spare Parts

<u>Type of spare parts</u>	<u>Spare parts value</u>	<u>Cost for recovery</u>	<u>Net savings</u>
	—————(millions)—————		
Engines	\$10.0	\$3.3	\$ 6.7
Reparables	9.0	3.3	5.7
Consumables	<u>4.5</u>	<u>3.0</u>	<u>1.5</u>
Total	<u>\$23.5</u>	<u>\$9.6</u>	<u>\$13.9</u>
Percent	100	41	59

CONCLUSIONS

The Navy could take better advantage of the Aircraft Center's potential if the Navy planned its aircraft dispositions in advance. Storage and preservation costs could be reduced, and unneeded aircraft could be used more effectively. By planning aircraft disposition on the basis of estimated needs, the Navy can substantially reduce the number of aircraft held in reserve and for potential foreign military sales. The Navy can also derive the benefits of putting some aircraft directly into reclamation status when they arrive at the Center.

Advance planning, however, does not necessarily produce a cost-effective program for meeting valid requirements; an aggressive parts reclamation program is also essential. The Navy's plans to improve its reclamation program by making the Aircraft Center's parts more accessible are a step in the right direction. If carried out, these plans should allow the Navy to greatly increase its parts recoveries and thereby reduce costs.

The services also need to reevaluate their reclamation methods. From the methods available, described on pages 25 and 26, the services should ascertain what is a proper mix of recovery methods to meet their particular needs. This would not only help the services in their disposition planning, it would also help the Center in its workload planning.

AGENCY COMMENTS

Since our review, the Navy has significantly reduced its inventory of aircraft held at the Center as indicated on the following page:

	<u>August 1977</u>	<u>May 1978</u>	<u>Difference</u>
Aircraft reserved for:			
Potential future use	821	456	365
Security Assistance			
Program	494	338	156
Other	<u>26</u>	<u>26</u>	<u>-</u>
Total	<u>1,341</u>	<u>820</u>	<u>521</u>

Navy officials stated this came about because of reordered criteria, start of a program sending aircraft directly to reclamation on arrival, better input on foreign military sales requirement, and reassessment of reserve needs.

The biggest single change occurred in the second half of fiscal year 1978, when an improved funding program was instituted. Severe funding shortfalls in the first half of the fiscal year caused restrictions on aircraft inputs and withdrawals, curtailment of routine reclamation, maintenance on stored aircraft, preservations and representations, priority removals, and other important functions.

Both Air Force and Navy officials noted that the Center's operations costs for withdrawal of aircraft have increased substantially over the past year. These increases have led both services to reevaluate their reserve needs and planned aircraft assignments to temporary storage.

#### RECOMMENDATIONS

- We recommend that the Secretary of Defense direct that:
- All services make their disposition decisions before the aircraft are sent to the Center.
  - All services continue to reevaluate prior disposition decisions in light of current requirements for whole aircraft and parts.
  - All services reevaluate the parts reclamation methods used to assure that the most effective mix of reclamation methods is being used.

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