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AIRCRAFT CANNIBALIZATION: AN EXPENSIVE APPETITE?

HEARING

BEFORE THE

SUBCOMMITTEE ON NATIONAL SECURITY, VETERANS AFFAIRS AND INTERNATIONAL RELATIONS

OF THE

COMMITTEE ON GOVERNMENT REFORM

HOUSE OF REPRESENTATIVES

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AIRCRAFT CANNIBALIZATION: AN EXPENSIVE APPETITE?

TUESDAY, MAY 22, 2001

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON NATIONAL SECURITY, VETERANS AFFAIRS AND INTERNATIONAL RELATIONS,
COMMITTEE ON GOVERNMENT REFORM,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:03 a.m., in room 2247, Rayburn House Office Building, Hon. Christopher Shays (chairman of the subcommittee) presiding.

Present: Representatives Shays, Putnam, McHugh, Gilman, Lewis, Schrock, Kucinich, and Tierney.

Staff present: Lawrence Halloran, staff director/counsel; Robert Newman and Thomas Costa, professional staff members; J. Vincent Chase, chief investigator; Jason Chung, clerk; David Rapallo, minority counsel; and Earley Green, minority assistant clerk.

Mr. SHAYS. I would like to call this hearing to order.

When the military mission must go forward, but a repair part is not available, maintenance personnel are forced to take the part from a nearby aircraft, crippling one so another can fly. The practice is called cannibalization, and it is eating into Army, Navy, Marine, and Air Force readiness.

The pernicious effect of longstanding inventory control weaknesses at the Department of Defense [DOD], cannibalization causes more problems than it solves. Maintenance crews must perform twice the work to complete a single repair, often using costly overtime under deadline pressure. Morale suffers; maintainers burn out. The cycle accelerates as less experienced personnel are more likely to resort to cannibalization as a diagnostic tool, substituting parts just to find a problem rather than fix it.

For forward-deployed units, some cannibalization is inevitable, even desirable, to maintain fully mission-capable aircraft, but the practice now reaches all the way back to Reserve components and training units. An inefficient, attenuated spare parts supply line cannot meet the growing unpredictable needs of an aging air fleet.

According to the General Accounting Office [GAO], management of the Pentagon's 64 billion spare parts inventory has posed a high risk of waste and abuse since 1990. In March, Comptroller General David Walker told this subcommittee, DOD "continues to spend more than necessary to procure and manage inventory," yet still experiences equipment readiness problems because of a lack of key spare parts. Aircraft mission-capable rates continue to decline.

So we asked GAO to assess the extent to which the services resorted to cannibalization over the past 5 years, why, and what was being done to minimize the costly practice. Unfortunately, efforts to address the problem have been hampered by a failure to define the problem. The Air Force measures cannibalizations per 100 flights or sorties while the Navy and Marine Corps log so-called "canns" per 100 flight hours, making comparisons and accurate totals all but impossible. Up to half of all Navy cannibalizations may go unreported. The Army defines three different types of cannibalization, but does not collect servicewide data on any.

Nevertheless, reports and anecdotes are legion as to the extent and impact of hollowing out perfectly good aircraft so that others can fly. Two years ago, when we visited Seattle's Whidbey Naval Air Station, pilots in that reconnaissance squadron said less than half their 12 aircraft were usually operational, and cannibalization was not the exception but the norm. Chances are the EP–3 aircraft sitting on the tarmac on Hainan Island needed parts scavenged from one or more planes to be ready to fly.

Air National Guard units struggle to keep more than half their A–10 Warthogs mission-capable at any given time. Routine cannibalization is required to maintain even that level of readiness.

Figuratively, robbing Peter to repair Paul, cannibalization at least doubles the risks and costs of straightforward maintenance. The plane being repaired gets a used part. The cannibalized plane then gets a new part it never should have needed. Overworked aircraft maintainers toil twice as hard, taking at least one plane out of service for every one they fix.

Unchecked aircraft cannibalization masks systemic inventory control weaknesses. It is an appetite the military services can no longer afford to indulge.

Testimony today from GAO and from the Navy, Army, and Air Force offer some hope more spare parts are getting to the right place at the right time to meet needs of a fully mission-capable force. We truly welcome their testimony and we look forward to their continued efforts to address this problem.

At this time I would like to recognize the ranking member of the committee, Dennis Kucinich.

Mr. KUCINICH. I thank the chairman, and I want to welcome our distinguished witnesses from the General Accounting Office and from the three services.

As Mr. Curtin indicated in his written testimony, cannibalization or raiding an aircraft's parts in order to fix another aircraft is a practice that wastes time and money, reduces morale and personnel retention, renders expensive equipment unusable, and risks mechanical side effects. Clearly, it is an issue that needs addressing.

To do so effectively, we must examine cannibalization in the context of larger, more fundamental questions. The first is obvious: Why are maintenance crews pulling items off aircraft rather than from stock supply shelves? Why is there a shortage of spare parts?

GAO's examination of the Department of Defense's inventory management practices sheds light on this question. In 1990, GAO issued a report describing Federal Government programs with the greatest potential for waste, fraud, and abuse. This was the first

of what GAO called its high-risk series. In the 1990 report, GAO said that management of DOD inventory was one of those high-risk programs.

Since then, GAO has issued updates of its high-risk report every 2 years, and DOD inventory management has been on the list every time. In January, GAO issued its update for the 107th Congress. Again, GAO said the Pentagon's inventory management process was "one of the most serious weaknesses in DOD's logistics operations."

GAO found that about half of DOD's $64 billion inventory exceeds war reserve or current operating requirements. GAO also concluded that, as of September 1999, the Department ordered $1.6 billion worth of inventory not based on current requirements. Not only is DOD ordering too much inventory, but it is ordering items it does not need.

What about aircraft cannibalization? The services say they do not have spare parts. This is clearly not due to a lack of funding since DOD is wasting billions on unnecessary items. What accounts for the so-called spare parts shortage then? In its January report, GAO came to this conclusion: "The aircraft spare part shortages were due in part to DOD's weaknesses in forecasting inventory requirements and the failure of DOD's logistics system to achieve expected inventory management improvements."

This is the same problem that has plagued the Pentagon since 1990. Indeed, U.S. Comptroller General David Walker said the same thing when he testified before us in March, but more bluntly, "DOD may have the item. They may not know where it is or they may not know how many they have. And what's the result of that? They may order it when they don't need it. They may not be able to access it when they need it for operational purposes."

One would think that, after more than a decade, improvement would be imminent. But at the same March hearing, Chairman Shays asked David Warren, a GAO Defense Specialist, about DOD initiatives in this area. Mr. Warren replied that the likelihood was "very great" that these reforms were destined to fail.

A more fundamental, and perhaps more important, question concerns DOD's overall aircraft acquisition strategy. In its written testimony, GAO raised the problem of aging aircraft and its relationship to cannibalization. As aircraft age, they tend to break more often. They take longer to inspect and maintain, and they're less available for operations. One can see how cannibalization and its attendant negative effects could increase as a result.

The Pentagon's current plan for acquiring replacement planes, however, will not reduce the average age of each aircraft. As GAO has pointed out elsewhere, the Pentagon is investing in extremely expensive programs that will yield very few aircraft. The F–22 program, for example, originally planned for the purchase of 880 planes at $40 billion. Because of the Pentagon's inability to accurately predict costs or meet testing hurdles, we now expect fewer than 339 planes, and these will cost over $64 billion. Rather than updating our fleet, the F–22 purchase will actually increase the average age of each aircraft.

But let me reiterate: The Pentagon is spending $24 billion more than it planned to buy 64 percent fewer planes. It is spending over

$60 billion for an older arsenal of fighters, one more prone to the management problems that prompt cannibalization.

So we also need to ask why the Pentagon is proceeding on this course. If these purchases are simply to result in a fleet that breaks down more and flies less, does it not make sense to buy more aircraft that, although less sophisticated, may be more reliable? Currently, defense spending is approaching the average levels of the cold war in the 1970's. Yet, the Pentagon is seeking billions of dollars more. Congress deserves reassurance that this money is going toward a force that is more effective, not less.

My point, then, is that our examination of the problem of cannibalization must necessarily take place in the context of the Pentagon's overall mode of operation and culture. Cannibalization and other such problems are the symptom of systemic issues, and these need to be addressed.

I thank the Chair.

Mr. SHAYS. I thank the gentleman and at this time recognize Ron Lewis, the gentleman from Kentucky. Mr. Gilman.

Mr. GILMAN. Thank you, Mr. Chairman, and thank you for conducting this very critical hearing. I want to commend our committee for examining the increasingly widespread problem of aircraft cannibalization in the Nation's military, and I hope we will also look at the cannibalization of equipment in other portions of our Armed Forces.

Over the last 10 years, our military forces have had to function in an environment of increased overseas deployments and reduced operational budgets. As operational tempo has increased, so has the frequency of malfunctions and the breakdowns in sensitive, high-maintenance military equipment, particularly aircraft, but not limited to aircraft.

Faced with the lack of extra spare parts, military forces in the field are often forced to cannibalize fully functioning aircraft in a particular unit to keep the rest of the aircraft in that unit operational. This has had the effect of reducing our overall strength in our airwings, subsequently affecting their ability to effectively carry out their missions.

Not only does cannibalization affect our airwings, as I indicated, but it has also had an impact upon the effectiveness of our anti-drug war with regard to equipment which the DOD furnishes to our drug-producing nations' police agencies. This problem has been pervasive throughout all of the service branches and has worsened in recent years. A tank commander in our Germany's forces recently commented to me that similar cannibalization in our tank equipment, where our tanks had to be cannibalized due to a lack of spare parts, affected their overall efficiency and capability.

I look forward, Mr. Chairman, to hearing the testimony of today's witnesses in the hopes that we can begin to find a workable solution to this ongoing cannibalization problem, which dilutes our military strength, dampens the morale of our forces, and places unnecessary risks on our Armed Forces personnel. Thank you, Mr. Chairman.

Mr. SHAYS. Thank you, Mr. Gilman. I appreciate your being here.

The vice chairman of the committee, Mr. Putnam.

Mr. PUTNAM. No, thank you, Mr. Chairman.

Mr. SHAYS. OK. I would like to recognize at this time John McHugh, who also sits on the Armed Services Committee.

Mr. MCHUGH. Thank you, Mr. Chairman. I don't have a prepared statement, but I want to echo the comments of my colleague from the great State of New York, Mr. Gilman, in emphasizing the importance of this hearing. I want to thank you, Mr. Chairman, for the leadership in convening this, I think, very, very important session.

The chairman was kind in mentioning I am a member of the Armed Services Committee. I have the honor of serving as chairman of that Personnel Subcommittee on that particular body. Obviously, anything, as the GAO report suggests, that affects the morale of our men and women in uniform is important to me, but this is a wider issue. This is an issue of, as Mr. Kucinich said, our duty to the taxpayers, but I think even more to the point, it is a vital issue of our national security and the safety of the men and women that we ask to serve our interests all across this planet with respect to the equipment that they either work on or utilize in the pursuit of that national interest.

So, Mr. Chairman, you are to be thanked for the effort to focus on this, to ensure that where there are systemic problems not arising out of a budgetary shortfall, that we take every step to resolve them for the betterment of all parts of the system, from the people of this country to the people who serve this country. So, again, Mr. Chairman, my appreciation, and I yield back.

Mr. SHAYS. Thank you very much. I appreciate all the Members who are here.

At this time we will call our first panel and recognize Neal Curtin, who is the Director, Defense Capabilities and Management, General Accounting Office, accompanied by William Meredith, Assistant Director, Defense Capabilities and Management, GAO.

Gentlemen, I would like to swear you in, and then we will just do some business. If you would just stand and raise your right hands—is there anyone else who might testify with you?

Mr. CURTIN. I don't think so.

Mr. SHAYS. OK.

[Witnesses sworn.]

Mr. SHAYS. For the record, both our witnesses have answered in the affirmative.

I think we have a statement from you, Mr. Curtin, but both will participate in answering questions.

If I could just deal with the requirement of asking unanimous consent that all members of the subcommittee be permitted to place an opening statement in the record and that the record remain open for 3 days for that purpose. Without objection, so ordered.

I ask further unanimous consent that all witnesses be permitted to include their written statement in the record, and without objection, so ordered.

Mr. Curtin, Neal Curtin, we welcome your testimony, and we will do 5 minutes and then we will roll it over 5, but we would like you to be done before the 10 minutes.

STATEMENT OF NEAL CURTIN, DIRECTOR, DEFENSE CAPABILITIES AND MANAGEMENT, GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY WILLIAM MEREDITH, ASSISTANT DIRECTOR, DEFENSE CAPABILITIES AND MANAGEMENT, GENERAL ACCOUNTING OFFICE

Mr. CURTIN. Thank you, Mr. Chairman and members of the subcommittee. It's a pleasure to be here today to talk about this issue, and I share your concern about the importance of this and hope that this hearing will help get at some of the bottom-line issues here.

As you said, my testimony today is based on work that was requested by the subcommittee to look at four aspects of cannibalization as it relates to military aircraft. Mr. Gilman is right that it's not just an aircraft problem, but the focus of our work on aircraft, I think, is kind of keying on the main issues right now.

We looked at four things: the extent that the military services are using cannibalization to repair aircraft, the impacts that cannibalization has and the reasons for it, and what the services are doing to address it. We should have a report on this later this summer, hopefully, with recommendations aimed at tackling some of the issues that we'll discuss today. But we're in a good position now to summarize our findings for the committee and this hearing today.

Cannibalization, as you said, is taking a part off of one aircraft to replace a broken part on another aircraft. The chart that's on page 7 of my prepared statement, and that we've blown up over here, I think illustrates it pretty well. It illustrates, too, one of the adverse impacts of cannibalization in that you've doubled at least the workload, and we'll talk about how it may be more than doubles the workload because of some of the things that happen during that cannibalization process. I'll talk at some length about this adverse impact. I think that's really the key to our findings.

But let me start out with a few pieces of data on what we found regarding the extent and causes of cannibalization. We looked at the Army, Air Force, and Navy, and the Navy data included Marine Corps data, for the last 5 years, fiscal year 1996 through 2000. And for just the Navy and Air Force aircraft, we found a total of 850,000 reported cannibalization actions during that 5-year period. That's about 170,000 cannibalizations per year. I mention that's just Navy and Air Force.

The reason the Army is not included in those numbers is that they do not collect and consolidate complete data on cannibalizations in a way that can be used at headquarters level. Not only does that make it impossible for analysts like us to get a handle on what's going on in the Army, it seems to me it makes it pretty difficult for Army managers to understand and address the issue as well.

But, even in the other services, even in the Navy and Marines and Air Force, we found indications that the data may be underreported. So that 850,000 may not be all the cannibalizations that are going on.

Two Navy studies in the past couple of years have highlighted the underreporting. In fact, one of the studies said that it may be

as much as half; that the reported cannibalizations may only be half of what's actually going on out there.

Why the level of cannibalization? What's causing this? The main thing that is leading to this is really the two ongoing phenomenon here. One is the push, and the important push, for readiness to meet training requirements, to meet operational requirements, to keep OPTEMPO at the levels that we've expected out of our service, on the one hand. Then, on the other hand is this supply system which is not being as responsive as it needs to be to provide the spare parts to maintain those high operational tempos.

If you didn't care how high your readiness was, when a part broke, you'd wait until somewhere along the way the supply system feeds it. On the other hand, if the supply system was working well, you could maintain high readiness without having to resort to cannibalization. But those two things together are what drives the bulk of the cannibalizations.

Now why aren't spare parts available? As some of the panel members have already pointed out, GAO's tried to tackle that inventory management problem in the military services for a long time, and spare parts, of course, is a big part of that. Since 1990, we've had it on our high-risk list, and as recently as earlier this spring, the Comptroller General testified before this committee on the continuing problems of inventory management. It's on the high-risk list again, and it's one of the key management challenges facing the Department. The ultimate answers are still not within our reach, as far as we can tell.

There are other reasons, too, for cannibalization besides the spare parts systems: Inexperienced or inadequately trained maintenance personnel, outdated maintenance manuals, lack of testing equipment in many cases, all contribute to the cannibalizations.

Let me return to the effects related to cannibalization because I think these are really the key. The good effect of them is that they do help maintain readiness levels. They do help to get planes in the air at the time the pilots are ready to do a training mission or an operational mission. But it comes at a very high cost, and it's kind of a hidden cost. The extra maintenance hours that were recorded by Air Force and Navy, again just Air Force and Navy, during that 5-year period associated strictly with cannibalizations total about 5.3 million hours. That's the equivalent of almost 500 additional maintenance personnel working full time during that 5-year period. That cost doesn't necessarily show up anywhere in the balance sheets. We don't pay overtime to the maintenance personnel.

So what you've got is an extra workload on top of a work force that's already somewhat shorthanded and already stressed at fairly operational tempo levels. There have been several studies that have documented the adverse morale impact that has, and, in fact, that it can contribute to retention problems among maintenance personnel.

You know, this extra work, sometimes late at night, on weekends, takes a toll on a work force, especially when they're returning from a deployment. The Navy has a regular 6-month deployment cycle, and even in the Air Force now, and the Army as well, because of the operations going on overseas, soldiers are frequently deployed. When they come home, at their home station they want

to spend some time with their families, and instead, in many cases they're working long hours at their home stations.

While we haven't been able to make a direct link from cannibalization to retention problems, because there's a myriad of things that affect why someone decides to stay or leave the services, clearly, cannibalizations are a factor that's contributing to the frustration that's out there among the work force.

There's some other adverse impacts of cannibalization, too. Anytime you take parts off an aircraft, you risk damaging not only those parts, but parts around it. Sometimes you have to remove other parts to get at the part you really need, and you run the risk of additional rework and damage to those as well and to the wiring that connects it all.

Moreover, when aircraft are cannibalized for long periods—and we have a couple of examples in my statement and on the posterboards over here—they can become virtually unusable without a major rebuild, and that's what happened to the F–18's pictured here. Some of them have been in cannibalization status for years, not just months but years. One of them had over 400 parts removed for cannibalization and eventually had to be actually shipped by truck to the depot to be rebuilt.

The services generally consider cannibalization what I'd call a necessary evil. They'd rather not have to do it, but until they get the spare parts they need and get the system feeding them what they need when they need it at the place they need it, they have an incentive to do what's necessary to maintain adequate levels of readiness.

Service policies all call for minimizing the use of cannibalization, but there are really no incentives or guidance to meet that goal. The real incentives are on the other side to push for that high maintenance level, that high readiness level.

Mr. Chairman, let me stop there. I think that summarizes the key points of my statement. We would be glad to take questions from the panel.

[The prepared statement of Mr. Curtin follows:]

United States General Accounting Office

GAO

Testimony
Before the Subcommittee on National Security, Veterans Affairs, and International Relations, Committee on Government Reform, House of Representatives

For Release on Delivery
Expected at 10:00 a.m.,
Tuesday,
May 22, 2001

MILITARY AIRCRAFT

Cannibalizations Adversely Affect Personnel and Maintenance

Statement of Neal P. Curtin, Director, Defense Capabilities and Management

GAO-01-693T

Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to share the preliminary results of our ongoing work regarding the military services' practice of cannibalization, which is the removal of a working component from one aircraft to install it on another. In January 2001, we reported on the major performance and accountability challenges facing the Department of Defense and identified inventory management as a high-risk area because the Department continues to maintain levels of inventory that are too high, and its management systems and procedures are ineffective.[1] This means that in some instances, excessive quantities of some parts may be procured and held in stock, while in other instances, quantities are insufficient. We warned that if this condition persists, the Department risks having key items, including spare aircraft parts, not available when needed, impairing aircraft and other equipment readiness. To compensate for logistics shortfalls, all the military services—Army, Air Force, Navy, and Marine Corps—have resorted to the inefficient maintenance practice of cannibalization.

Our testimony today is based on the work we performed in response to your request that we analyze cannibalizations by the services over the last 5 years. We determined the extent to which the services rely on cannibalizations, the effects of cannibalizations, the reasons for cannibalizations, and the actions that the Department of Defense and the services are taking to reduce cannibalizations.

Summary

All the military services use cannibalization extensively as a routine aircraft maintenance strategy. In fiscal years 1996 through 2000, the Navy[2] and the Air Force reported about 850,000 cannibalizations, requiring over 5 million maintenance hours. These numbers, however, do not include the Army's cannibalizations,[3] and the Navy reportedly understates its data by as much as 50 percent. As a result, neither the Department of Defense nor the services know the overall magnitude of the practice.

[1] See *Performance and Accountability Series: Major Management Challenges and Program Risks: Department of Defense* (GAO-01-244, Jan. 2001).

[2] Navy data includes the Marine Corps because it is consolidated at the headquarters level.

[3] While information is available for the Army at the installation level, the Army does not collect servicewide data; therefore, we could not include Army totals in our statistics.

Cannibalizations have several adverse impacts. They increase maintenance costs by increasing workloads, may affect morale and the retention of personnel, and sometimes result in the unavailability of expensive aircraft for long periods of time. Cannibalizations can also create unnecessary mechanical problems for maintenance personnel. As shown by a recent survey, over half of all aircraft maintenance personnel work more than 50 hours a week (some work 70 hours or more) compared with the average of 40 hours. A Navy study notes that the additional work generated by cannibalizations adversely affects morale and lowers reenlistment rates. However, because the services do not keep track of all the maintenance hours they spend on cannibalizations, they cannot assess all of the consequences.

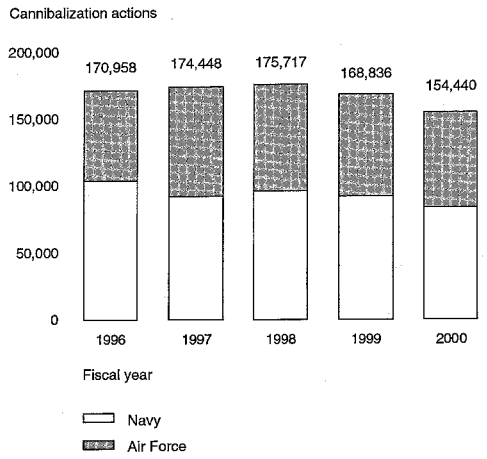
The services have many reasons for cannibalizing aircraft and strong incentives for continuing to do so. With the exception of the Navy, the services do not consistently track the specific reasons for cannibalizations; as a result, much of the information on causes is anecdotal. In the broadest sense, cannibalizations are done because of pressures to meet readiness and operational needs and the shortcomings of the supply system. When parts are not available and an aircraft needs to fly a mission, cannibalization becomes the answer. In addition, a Navy study found that cannibalizations are sometimes done because mechanics are not trained well enough to diagnose problems or because testing equipment is either not available or not working.

Although the services have undertaken some initiatives to reduce cannibalizations, none of them have developed a specific strategy to reduce the maintenance hours associated with cannibalizations. Because they view cannibalization as a symptom of spare parts shortages, they have not closely analyzed other possible causes or made concerted efforts to measure the full extent of the practice. A number of working groups have been asked to address cannibalization, but they have had very limited success in determining how to reduce it. Neither the Department of Defense nor the services can accurately determine (1) which cannibalizations are necessary and what alternatives, if any, are available to reduce the number of those that are not; (2) what specific improvements or changes need to be implemented to effectively limit the adverse effects of cannibalizations; and (3) to what extent reducing the workload associated with cannibalizations would increase morale and retention rates. Furthermore, they cannot make sound economic decisions concerning the relative costs of alternatives, such as changes to stockage levels or storage locations.

Cannibalizations Are Extensive, but Full Magnitude Is Unknown

In fiscal years 1996-2000, Air Force and Navy units reported a total of about 850,000 cannibalizations and annual figures ranging between 154,000 and 176,000 (see fig. 1). The actual numbers, however, may be considerably higher because of underreporting by the Navy and the Air Force and the lack of servicewide data for the Army.

Figure 1: Total Navy and Air Force Cannibalizations Reported in Fiscal Years 1996-2000



Source: Navy and Air Force.

In 1998, a Navy group studying aviation readiness noted that as many as half of all cannibalizations may go unreported, and the Navy's Inspector General has reported that cannibalizations are consistently unreported.[4] In addition, a 1998 review conducted by the Air Force Audit Agency on the Air Force's maintenance analysis program noted that maintenance technicians did not always report cannibalizations.[5]

According to Army officials, only a small portion of Army cannibalizations are reported—for serial-numbered parts. The Army does not track cannibalizations servicewide and does not require subordinate commands to do so. Several Army headquarters officials we talked to agreed that cannibalizations should be tracked so as to provide an overall picture of the degree to which units are performing cannibalizations.

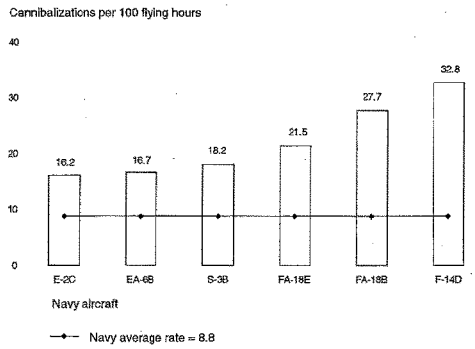
We found that selected aircraft—which the services depend on the most to accomplish their mission—had relatively high reported cannibalization rates. In addition, some of these aircraft experienced a significant increase in the number of cannibalizations from fiscal year 1996 to 2000.

The Navy measures cannibalization rates as the number of cannibalizations per 100 flying hours. In the 5-year period under study (fiscal years 1996-2000), the Navy's average cannibalization rate ranged from a high of 9.6 in fiscal year 1997 to a low of 8.8 in fiscal year 2000. However, in fiscal year 2000, 4 of the 63 aircraft types reporting cannibalizations had more than twice the service's average rate of 8.8, while 2 aircraft types had rates that were almost twice the average. (See fig. 2.)

[4] See Final Report of Naval Aviation Spares and Readiness, Naval Inspector General (Apr. 28, 2000).

[5] See Report of Audit on Maintenance Analysis Program, Air Force Audit Agency (July 31, 1998).

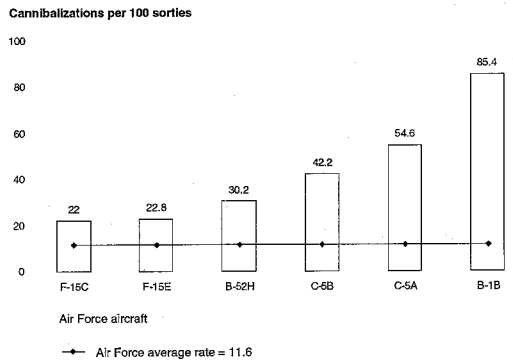
Figure 2: Reported Cannibalization Rates of Six Navy Aircraft, Fiscal Year 2000



Source: Navy.

Of the 31 Air Force aircraft types reporting cannibalizations in fiscal year 2000, 4 accounted for over half the service's total. They included three fighter aircraft (F-16C, F-15C, and F-15E) and the B-1B bomber. From fiscal year 1996 to 2000, the Air Force reported a 100-percent or more increase in the number of cannibalizations of several aircraft, including the A-10A, OA-10A, F-15B, E-3C, and F-117A. Unlike the Navy, the Air Force measures cannibalization rates in terms of cannibalizations per 100 sorties (flights). The Air Force's average cannibalization rate during the 5-year period ranged from a low of 10.6 in fiscal year 1996 to a high of 12.7 in fiscal year 1997. However, in fiscal year 2000, the rates of the B-52H, C-5B, C-5A, and B-1B were all well over twice the average rate of 11.6. Cannibalization rates for these aircraft ranged between 30 and 85 per 100 sorties. The rates of the F-15C and F-15E were almost twice the average at 22 and 23, respectively. (See fig. 3.)

Figure 3: Reported Cannibalization Rates of Six Air Force Aircraft, Fiscal Year 2000



Source: Air Force.

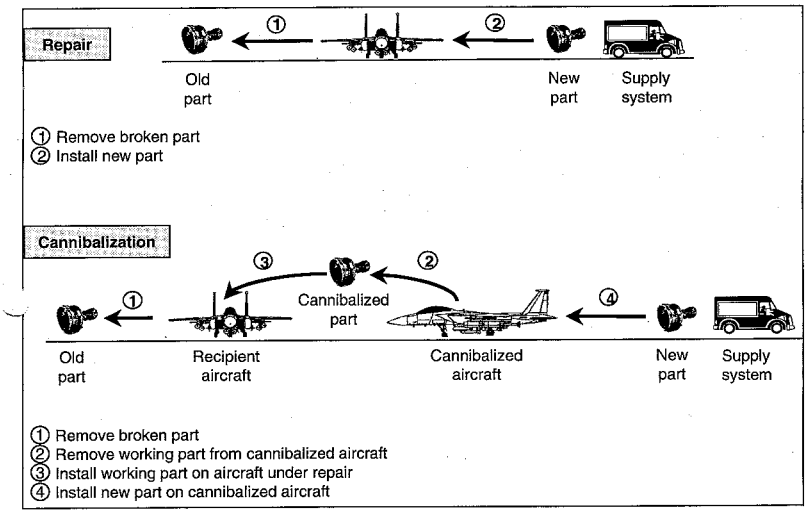
Cannibalizations Have Many Negative Effects

Cannibalizations are done to meet operational and readiness needs, but they come at a high cost. Cannibalizations have increased the workload of maintenance personnel by millions of hours since fiscal year 1996—costly time that could have been spent more productively. Evidence shows that increasing the workload of maintenance personnel has a negative effect on morale. Cannibalizations also take expensive aircraft out of service, sometimes for long periods of time, and can create unnecessary mechanical problems. Nevertheless, it is difficult to gauge the precise effects of cannibalizations because the services do not know how many they are performing, what the specific reasons are for performing them, or how much time and money they are spending on them.

Effects on Workload

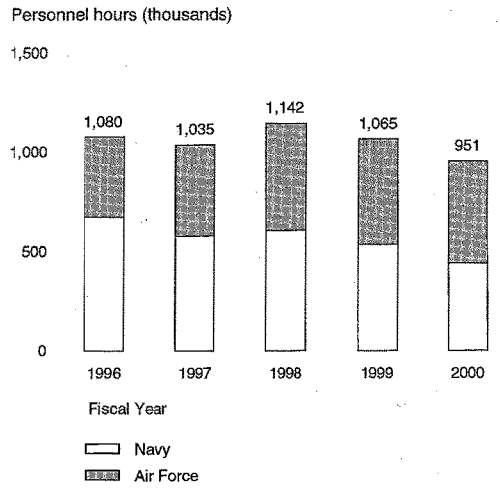
Cannibalizations require at least twice the maintenance time of normal repairs because they involve removing and installing components from two aircraft instead of one (see fig. 4).

Figure 4: Repairs Require Two Steps, Cannibalizations Four



Through the 5-year period, the Navy and the Air Force reported spending about 5.3 million additional maintenance hours on cannibalizations—the equivalent of more than 500 aviation maintenance personnel working full-time for 5 years. The annual reported cannibalization hours ranged from a low of 951,000 to more than 1.1 million (see fig. 5). The Navy accounted for 2.8 million of the total hours, while the Air Force reported 2.4 million hours. A relatively small group of aircraft accounted for most of these maintenance hours. For example, in fiscal year 2000, six Navy aircraft (FA-18C, P-3C, S-3B, FA-18A, E-2C, and EA-6B) were responsible for about 45 percent of the Navy's 441,000 cannibalization hours, while five aircraft (F-15C, F-15E, F-16C, B-1B, and KC-135R) accounted for 65 percent of the Air Force's 510,000 hours.

Figure 5: Total Cannibalization Personnel Hours, Fiscal Years 1996-2000



Source: Navy and Air Force.

Effects on Morale

Evidence suggests that cannibalizations have a negative effect on morale because they are sometimes seen as routinely making unrealistic demands on maintenance personnel. Cannibalizations may have to be performed at any time, day or night, and very quickly in order to meet operational commitments. In such cases, personnel must continue working until the job is done, regardless of how much time it takes.

To the extent that cannibalizations contribute to extensive overtime, morale and retention may be adversely affected, and additional costs may be incurred in recruiting and training new personnel. In April 2000, the Naval Inspector General reported that cannibalization is counterproductive and has a "huge" impact on morale. Our analysis of a

1999 survey of active duty personnel showed that a significant portion of aviation maintenance personnel worked more than 50 hours a week, and that some worked 70 hours a week. In August 1999, we reported that the majority of factors cited by military personnel as sources of dissatisfaction and reasons for leaving the military were work-related circumstances such as the lack of parts and materials to successfully complete daily job requirements.[6]

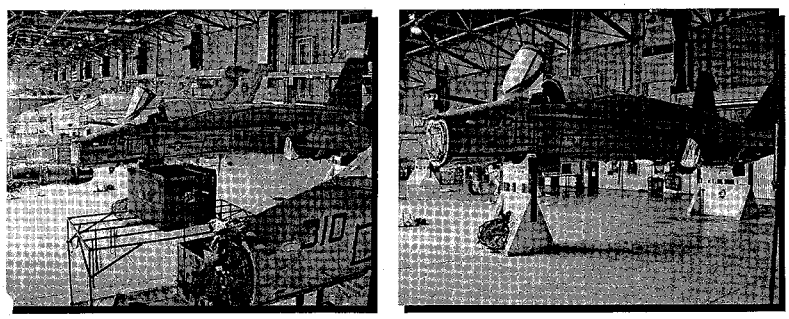
One example of how cannibalizations may become the source of waste or frustration is the case in which a major component needed by an EA-6B aircraft to perform its mission was removed from or reinstalled on four different aircraft, for a total of 16 times in 6 days. In another case, an Air Force C-5 was missing 136 parts, 47 of which had been used to make another cannibalized aircraft operational.

Expensive Assets Unusable

Aircraft that are missing parts due to cannibalizations may remain grounded for long periods of time. These aircraft are not available for operations, denying the military the use of valuable assets. Air Force and Navy guidance states that, to the maximum extent possible, cannibalized aircraft should not remain grounded for more than 30 consecutive days. Yet we observed numerous cases in which aircraft were grounded for much longer periods. One wing we visited provided us a daily aircraft status report showing that 6 out of 28 aircraft downed for parts had not flown for 37 days or more. One of these aircraft had not flown for more than 300 days and, according to the Maintenance and Material Control Officer, was missing 111 parts. As a result, the Navy had been unable to use this multimillion-dollar asset for almost a year. He estimated it would take more than 1,000 maintenance hours to return the aircraft to flying status. In another example, four cannibalized FA-18 aircraft were missing so many parts that they were referred to as "wind chimes" (see fig. 6). According to Navy officials, the number of days these aircraft had not flown ranged between 903 and 1,756 when they were transported to a Navy depot in July 2000. As of May 2001, one of the aircraft, which had been missing over 400 parts, had been funded for assembly, while the remaining three were in storage waiting funding approval. The depot estimated reassembly costs for the funded aircraft at about $568,000, if the squadron that owns the aircraft supplies all needed parts.

[6] See *Military Personnel: Perspectives of Surveyed Service Members in Retention Critical Specialties* (GAO/NSIAD-99-197BR, August 16, 1999).

Figure 6: Cannibalized Navy FA-18 Aircraft



Source: Navy.

A Navy squadron within 30 days of a major exercise reported that 6 of its 13 assigned aircraft had not flown for 30 or more days—2 of them because the squadron's wing directed that parts be given to other squadrons. A Navy training squadron we visited had 20 of its 29 aircraft down for parts or maintenance—6 of them were cannibalized aircraft. In 2000, the same squadron reported an average of 113 cannibalizations a month.

Potential for Mechanical Side Effects

In order to remove a component, mechanics often have to remove other parts or components as well. This increases the risk of collateral damage to the aircraft and components involved. Substantial anecdotal evidence indicates that cannibalizations do indeed cause these types of problems because they involve two aircraft rather than one and are often performed under very rushed conditions. Furthermore, cannibalizations do not replace a broken part with a new part, but with a used one. According to a December 2000 study,[7] cannibalizations do not restore a component to its full projected life expectancy but rather increase the chance that the same component will break down again prematurely.

[7] *Analysis of Aircraft Maintenance Cannibalization With Respect to Aging Aircraft Within the EA-6B Community*, Thesis, Naval Postgraduate School, Monterey, California, Daniel C. Worra (Dec. 2000).

Services Cannibalize for Many Reasons

The services have many reasons for cannibalizing aircraft and strong incentives for continuing to do so. They are operating with aging aircraft, a high operational tempo, and continued spare parts shortages. As aircraft age, they tend to break more often, take longer to inspect and maintain, and are less available for training and operations.[8] The combination of these factors, along with intense readiness requirements, creates an environment that encourages cannibalization. But it is impossible to know why a particular aircraft or system is cannibalized because, with the exception of the Navy, the services do not record the reasons for cannibalizations. This lack of information makes it difficult to develop strategies to reduce cannibalizations.

Supply System Problems

Service officials believe that the shortage of parts is the major reason for cannibalizations and claim that they must cannibalize if parts are not available in the right place at the right time. Given the current logistics shortfalls, officials also believe that cannibalizations must continue in the foreseeable future. In a recent report to the Congress, the Department of Defense identified aviation readiness as one of its major problems and expressed concern about parts shortages and maintenance issues.[9]

The Comptroller General recently testified that for years, the Department of Defense has had equipment readiness problems because of a lack of key spare parts. He also said that the insufficiency of spare parts has been recognized as a major contributor to aircraft performing at lower mission capable rates than expected.[10] Our ongoing work shows that the failure of service logistics systems to deliver parts in a timely manner is caused by a number of different reasons, including parts production problems, lower reliability of parts than predicted, inadequate initial procurement of spares, and unanticipated demand for an item. The services will sometimes cannibalize aircraft for "convenience"—when it is faster to cannibalize than wait for a part to be delivered from across the base or town. A Navy study group estimated that these actions may account for as many as half of all Navy cannibalizations.

[8] See *Tactical Aircraft: Modernization Plans Will Not Reduce Average Age of Aircraft* (GAO-01-163, Feb. 2001).

[9] See *Department of Defense Quarterly Readiness Report to the Congress*, January—February 2001.

[10] See *Major Management Challenges and Program Risks: Departments of Defense, State, and Veterans Affairs* (GAO-01-492T, Mar. 7, 2001).

Readiness and Operational Demands

Readiness and operational demands put heavy pressure on the supply system to provide parts immediately and wherever they may be needed. Local commanders are willing to do whatever is necessary to keep readiness ratings high, even if this requires cannibalizing aircraft constantly and having personnel routinely work overtime.

The services believe that cannibalizations allow them to better perform their operational missions. Information is not available to determine to what extent cannibalizations contribute positively to readiness. But two Army studies concluded that readiness would be significantly degraded if cannibalizations were not performed. A 2000 study cited cannibalization among the reasons for maintaining readiness rates at acceptable levels and concluded that readiness would suffer if units were not allowed to cannibalize. A 1987 study of similar helicopter units found that readiness rates dropped more than 25 percent when units were forced to stop cannibalizations as part of a controlled experiment, and readiness rates rose back to previous levels when cannibalizations resumed. The Army has not repeated the experiment elsewhere.

Other Reasons

According to feedback provided through a Navy internet tracking system, the reasons for cannibalizations also include parts-related issues such as vendor production problems, depots without the necessary parts to fix a repairable component, and delays from vendors. For its part, the Navy Inspector General has cited three other reasons for cannibalizations related to maintenance deficiencies: (1) lack of experience and insufficient training on the part of maintenance personnel, (2) outdated maintenance manuals and (3) lack of testing equipment.[11] In other words, cannibalizations are sometimes done to diagnose a problem or to identify which component is not working properly. By removing a suspect part and replacing it with one that is known to be working, a mechanic can identify where a problem lies.

Services Have Not Developed Specific Strategies to Reduce Cannibalizations

The services have not developed servicewide strategies to reduce cannibalizations. Services consider cannibalization a symptom of logistics shortfalls and are trying to improve logistics support, especially through the application of best inventory management practices. Although the services have not established or identified specific strategies for reducing cannibalizations, each has taken some initiative to deal with the issue. But

[11] See *Final Report of Naval Aviation Spares and Readiness*, Naval Inspector General, (Apr. 28, 2000).

	until they develop an overall reduction plan, the services will not be in a position to significantly reduce cannibalizations or to alleviate their negative effects.
Air Force	The Air Force is undertaking an initiative to minimize cannibalizations at bases in Langley, Virginia, and Elmendorf, Alaska. The bases have instituted a "consolidated" cannibalization program, referred to as the Cannibalization Dock Program. The program centralizes cannibalization management, whereby each of the squadrons in the wing provides a "donor" aircraft and a cadre of maintenance personnel on a rotating basis. The program is designed to ensure that as few aircraft as possible are cannibalized and that the cannibalized parts are better controlled. While these efforts are localized, they have reduced the number of cannibalized aircraft and the amount of time that aircraft remain cannibalized, minimized the number of personnel performing cannibalizations, and improved quality control over the process. Although Air Force policies allow cannibalizations to meet urgent operational requirements, the policies also state that such actions should be minimized because they tend to adversely affect morale and aggravate the very same supply problems that they are meant to overcome.
Navy	According to Navy policy, cannibalization is a manifestation of a logistics or maintenance support system failure and its reduction or elimination should be of prime concern to management. In March 1998, the Navy established an Aviation Maintenance-Supply Readiness Study Group to recommend specific actions to reduce overall Navy aviation maintenance and supply costs and increase readiness. Noting the fleet's increasing concern over cannibalization, the Study Group included the practice among the primary issues. As a result of the Group's findings and recommendations, the Navy initiated actions to better identify the specific causes of cannibalizations and increase the visibility of items that are being cannibalized extensively. Beginning in June 2001, the Navy will also implement the requirement that more specific reasons be reported for each cannibalization. Although a requirement that reasons be reported is currently in place, the new requirement increases the number of reasons that can be considered, so that causes can be better captured. In addition, a website has been established to better highlight the items frequently cannibalized and to provide an avenue for maintainers, program managers, and inventory control personnel to comment on problems and track progress in resolving issues. Logistic program managers within the Naval Air Systems Command also maintain lists of top cannibalization items in the weapon systems for which they are responsible. In addition, a new

reporting system is being implemented which, according to Navy officials, should improve reporting accuracy.

Army

The Army has taken the least formal approach to addressing cannibalization. Its actions so far have been limited to the two studies mentioned above, which concluded that cannibalizations are a good tool for commanders to use and that command involvement is adequate for preventing abuse. Although Army policy limits cannibalizations to whenever a needed item is not available through the supply system, it allows commanders at installation levels and below to use their discretion as to whether and how much to cannibalize.

Mr. Chairman and Members of the Subcommittee, this concludes our statement. We appreciate the opportunity to have it placed in the record. Our report on this work will be out this summer with a series of recommendations for the services to address this issue.

Contacts and Acknowledgments

For future contacts regarding this statement, please contact Neal Curtin at (757) 552-8111 or William Meredith at (202) 512-4275. Individuals making key contributions to this statement included Harry Taylor, Hugh Brady, Douglas Mills, Janine Cantin, and Stefano Petrucci.

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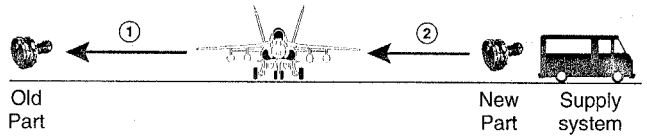
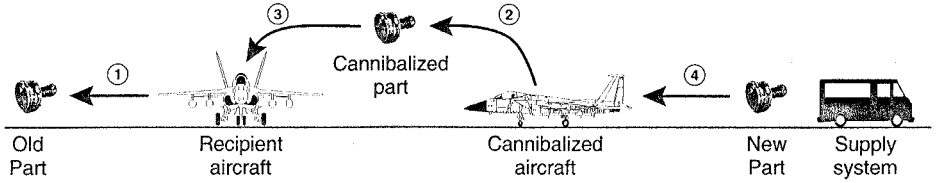
Repairs Require Two Steps, Cannibalizations Four

Repair



1 Remove broken part
2 Install new part

Cannibalization



1 Remove broken part
2 Remove working part from cannibalized aircraft
3 Install working part on aircraft under repair
4 Install new part on canniblaized aircraft

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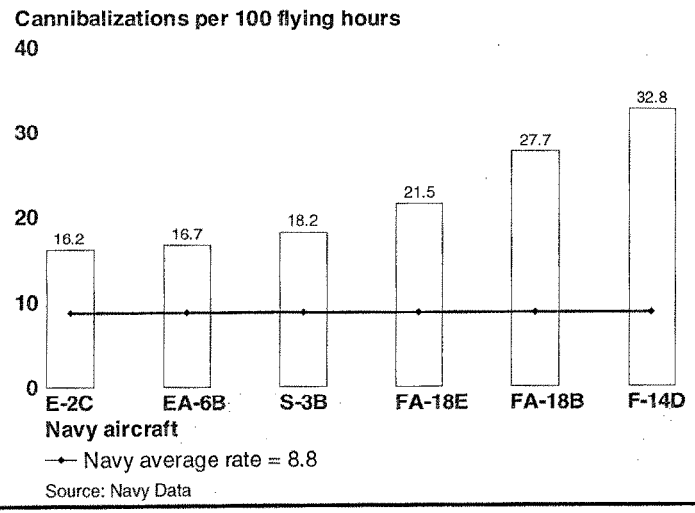
Reported Cannibalization Rates of Six Navy Aircraft, Fiscal Year 2000



Source: Navy Data

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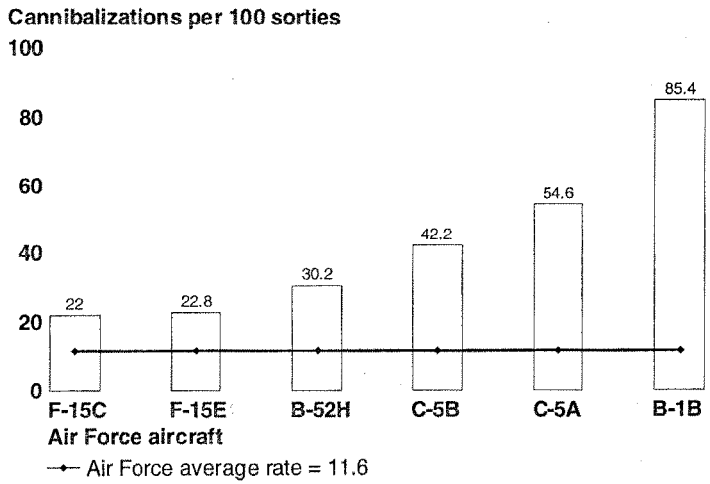
Reported Cannibalization Rates of Six Air Force Aircraft, Fiscal Year 2000



Source: Air Force Data

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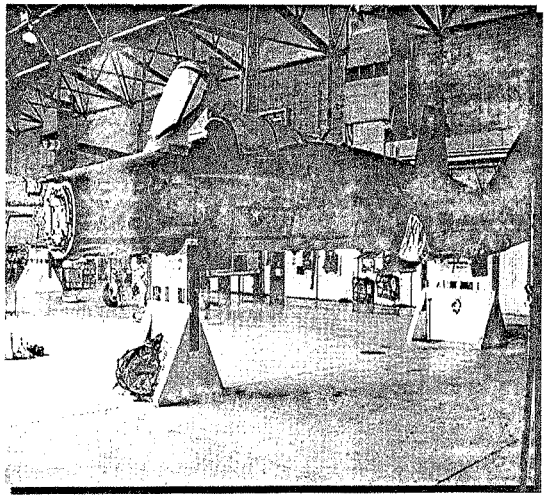
Cannibalized Aircraft



Source: Navy

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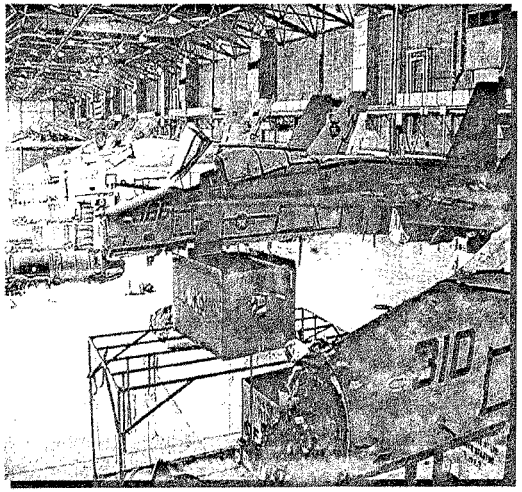
Cannibalized Aircraft



Source: Navy

Mr. SHAYS. Thank you. It's my intent to start with Mr. Gilman and then we'll go to Mr. Kucinich and then we'll go to the other Republicans.

Mr. GILMAN. Thank you, Mr. Chairman. And, Mr. Curtin, we thank you for your testimony.

Why is the full magnitude of cannibalization not known? The GAO report points out that we don't have any full information with regard to the extensiveness of cannibalization. It would seem to me that would be a very critical issue that we ought to be able to resolve quite quickly.

Mr. CURTIN. I agree. First of all, you have the Army who captures some of this data at the local level, but we're not convinced that the local units capture it all either, but they don't surface it in any way that's aggregated or could be used for management purposes.

And then in the other services, what we have seen, even though the Navy and the Air Force have a system for capturing data, we've seen many cases, anecdotal for the most part, but also based on prior studies, that the data just doesn't get entered into these systems sometimes.

Mr. GILMAN. Well, why are there different measures for cannibalization? It would seem to me that, if this is a critical issue, there ought to be a standard by the Department of Defense for all of the agencies and for all of the departments, and to have similar methods of reporting, similar criteria.

Mr. CURTIN. Yes, it makes a lot of sense. There are some reasons why the Navy and Air Force do it differently, and you may want to explore that with the next panel. It would be a lot better from an OSD, from a Secretary of Defense management level, to have a common way of looking at these across all the services; there's no question about it.

Mr. GILMAN. Well, who in the Defense Department is in charge of all of this?

Mr. CURTIN. Well, I'm not sure there is much of an OSD-level focus on it. There are readiness aspects to this. There are logistics aspects to it, and it gets fragmented, frankly. The services have been left for the most part to deal with cannibalization as they see fit. Most of the services have chosen to delegate authority and guidance and everything on cannibalization down to lower levels, leave it up to the local commanders to decide how much cannibalization to do, with just that general policy guidance that says try to minimize it. And the result is what we've seen.

Mr. GILMAN. Mr. Curtin, are you telling us that there's no one in the Department of Defense who has the responsibility of making certain that equipment is not being cannibalized?

Mr. CURTIN. Unless you're aware of anyone?

Mr. MEREDITH. No, I'm not aware of any central control.

Mr. GILMAN. No central control?

Mr. MEREDITH. No central control that I'm aware of.

Mr. GILMAN. That's a major failing, and, Mr. Chairman, I hope we look into that aspect.

I recently visited an auto parts central agency for the whole Northeast, and I was amazed how they can get parts out to their dealers, and there are hundreds of thousands of dealers nation-

wide, parts within a 24-hour period. It would seem to me, with the money we spend in defense, we ought to be able to get parts out across the world quite quickly to prevent cannibalization, and I would hope you could come up with some recommendations for us. We appreciate the report and we appreciate your review, but maybe you can also provide some good, sound recommendations to the Department of Defense to correct this.

We have been upgrading Vietnam era Huey helicopters to new Huey II upgraded status in our drug war in Columbia. Yet, the poor condition of the Hueys has made these upgrades very costly. The equipment is costly in itself, and they have been slow and inefficient. In addition, their supplying 1952 Korean era 50-caliber ammunition to protect the Blackhawks, new Blackhawks, where we spend millions of dollars on that equipment in Columbia, hasn't worked either.

So something is wrong with the kind of supplies we're sending out. Something is wrong with the kind of spare parts for equipment. As I mentioned earlier, and you have re-emphasized, it does not apply to any one segment of our military forces, but it is across the board. I think if we had a full total of the cannibalizations and the cost to our Armed Forces, I think it would be something that would make this even more critical, and should be brought to the attention of our Chief Executive.

Thank you, Mr. Chairman.

Mr. SHAYS. I thank the gentleman. Mr. Kucinich.

Mr. KUCINICH. Thank you very much, Mr. Chairman.

I, first, want to for a moment reflect on things that were said by two colleagues here. What Mr. McHugh had to say concerning the effect on the men and women who serve is something that needs to be kept uppermost in mind. It seems to me that, at least on the ground level, this would drive mechanics crazy. Did you spend much time talking to mechanics?

Mr. CURTIN. Yes, we got up to several squadrons, and you're right, when you get down to that level, you hear the griping coming out, and I have to be careful sometimes of griping——

Mr. KUCINICH. I understand. These are my constituents.

Mr. CURTIN [continuing]. But a lot of it's real.

Mr. KUCINICH. But I also have to say that mechanics are the ones who would know exactly what is going on because they have to deal with the reality of it, and in a way it is counterintuitive to the working mechanic: On the one hand, you're told to keep a plane in repair and then, on the other hand, you're told to start picking it clean, so that you can provide for others. At the same time, the real issue is, you know, what about the parts, which goes back to what Mr. Gilman said.

We are urged in so many different ways to try to run government like a business, at least to try to have business principles of management and inventory. I think Mr. Gilman put it well, but I have to say that if we're talking auto parts or Auto Zone, or any of those companies that stock parts, you get them like that. It seems to me, with the defense budget being what it is, we might want to transit to a more sensible inventory management approach.

Mr. CURTIN. A lot of the problem seems to be in the high-cost parts that don't break very often. Those are the tough ones. How

much are you willing to invest in keeping this part in your stocks when it may or may not break very often? As planes get older, and those parts that never used to break before now they're starting to break because the fleet is a lot older than we expected it to have to be, those become the real sticky problems.

Mr. KUCINICH. Well, is it fair to say that a large portion of the cannibalizations occur in tactical-type aircraft?

Mr. CURTIN. Yes. Yes, of course, you have 1,200-and-some F–16's in the Air Force. So you have so many planes that you do get a high number of cannibalizations associated with that. The rate of cannibalizations per flight for the F–16's is not one of the highest one. The F–15's are above average in rate and in total.

Mr. KUCINICH. You're familiar with the report that GAO issued in February, "Tactical Aircraft Modernization Plans Will Not Reduce Average Age of Aircraft"?

Mr. CURTIN. Yes.

Mr. KUCINICH. And it basically described the Pentagon's future acquisition plans and it found that, "the Navy and Air Force will not be able to procure enough new tactical aircraft to reduce the average age of tactical aircraft." Rather than reduce the average age, Pentagon plans will increase it, isn't that right?

Mr. CURTIN. Because you're buying fewer of the more expensive new ones and you still have a lot of the old ones in your inventory. So, yes, the average age will—all the old ones are just getting older.

Mr. KUCINICH. And we have three different aircraft development programs going on right now, is that right?

Mr. CURTIN. As of today. We'll see what the Secretary of Defense comes up with in his strategy studies.

Mr. KUCINICH. In the next minute that I have, in the case of the F–22, for example, even if everything works out as planned, we will not be able to reduce the average age of aircraft, correct?

Mr. CURTIN. I believe that's what the report said, yes.

Mr. KUCINICH. Well, page 11 of your report, "As aircraft age, they tend to break more often, take longer to inspect and maintain, and they're less available for training and operations." So if nothing else changes in the types and number of aircraft the Pentagon plans to acquire, is it logical to assume that the problem of cannibalization could become even more aggravated?

Mr. CURTIN. Yes, if everything else stays as it is now, no question.

Mr. KUCINICH. So, in your opinion, could cannibalization be more likely for future planes, such as the F–22, which are extremely complicated technologically and which are extremely expensive compared with other planes?

Mr. CURTIN. Well, I think that's the key. We've got to avoid that. We've got to find—we've got to fix this system. We can't go another 10 years or 20 years with the inventory system shortchanging everybody.

Mr. KUCINICH. But if we don't fix it, that is what we're headed for, right?

Mr. CURTIN. That's where we're headed, exactly.

Mr. KUCINICH. So you think it is important that we look at these future aircraft programs when reviewing the cannibalization problem?

Mr. CURTIN. No question.

Mr. KUCINICH. Do I have another minute here?

The February GAO report recommended that DOD in its 2001 quadrennial defense review "consider alternatives to the current tactical aircraft modernization plans." One alternative, I suppose, would be cutting the F–22 program or at least scaling it down? Is that a possibility?

Mr. CURTIN. It appears to be on the table, but I don't know how much of a possibility——

Mr. KUCINICH. OK. I thank the gentleman.

Mr. SHAYS. Mr. McHugh.

Mr. MCHUGH. Thank you, Mr. Chairman.

Gentlemen, I understand you have not completed your report as yet, and that makes the discussion of final conclusions somewhat difficult, somewhat problematic. So let me start with a general question. When you do issue your final report, to what extent do you envision yourselves being able to, aside from assessing how each service handles the reporting, your very accurate determination of the effects of it, are you going to be able to determine between those reasons that are fiscally driven and those that are systemic or management-driven?

Because that seems to me to be a very key difference here in terms of what do we need to do both as a subcommittee and as a Congress to help resolve this. Money, it's either easy or hard, you know. We understand the cause of that. Systemic issues are quite something else.

Mr. CURTIN. Yes. It's going to be very difficult for us to quantify what happens if you put "X" dollars into the system in one end, what the improvement in cannibalization will you get at the other end. I think our focus is going to be on the management side. Regardless of how much money the Congress chooses to give the Department of Defense, it should be spent on the right things and in the right way, and that's where the improvements in the management system for supply, for inventory on spare parts, but also in tackling this cannibalization problem more directly.

Most of the efforts underway in the services now, to the extent there are efforts, are aimed at the inventory system, aimed at fixing the long-term fixes to the inventory system. There's nobody focusing too much on what to do about cannibalization in the meantime. Until that supply system starts providing you better responsiveness on the parts you need, what do you do about the cannibalization? That's where we'd like to see some more attention paid, and it needs to be probably at the—certainly at the service level, maybe at the OSD level, to really get a handle across the military on what's going on here. So a strategy for tackling, you know, other things we can do in the meantime to fix this cannibalization, because of the impact it has on the personnel.

Mr. MCHUGH. So the suggestion that I hear you making is that this is not just a supply management problem in that there are apparently reasons for cannibalization at the base level, at the facility level, that may have nothing to do with the availability of the part?

Mr. CURTIN. Yes, there really are, and the extent of that we don't know because the data just isn't there. The reasons for cannibalization aren't always recorded. The Navy does a little better job on reasons. The Army, of course, doesn't have anything. The Air Force has some data.

Mr. MCHUGH. I don't mean to interrupt you, but I'm on the yellow light here.

Can you give me just a couple of ideas, a couple of thoughts as to what those reasons for cannibalization at the management level may be other than inventory?

Mr. CURTIN. Something we would call cannibalization for convenience happens quite a bit. A pilot is ready to taxi out for a training flight and something breaks on the plane. If it can be fairly quickly fixed, they'll try to replace that part right there on the flight line. Even if that part is in the system, it may be right on the base, it may be a mile away at the other side of the base in the hangar, but the plane is out on the flight line, they'll pull it off a nearby plane and fix it, get that pilot out. So he gets his training slot. It's kind of a quick turnaround. We call it a cannibalization for convenience.

Mr. MCHUGH. I don't know as a pilot would agree that's convenience. You lose your training slot and you've lost a lot——

Mr. CURTIN. Yes.

Mr. MCHUGH [continuing]. But I understand. I understand your point.

Mr. CURTIN. We want to hit those training requirements.

Mr. MCHUGH. Yes, I understand.

Mr. CURTIN. Other things that happen: Diagnostics, sometimes the maintenance people have never seen this kind of problem or they're new; they haven't been familiar with that kind of problem. They're not sure if that part's broken or not. They'll take a part off a working plane—they know that part was working—and try that, plug that in, see if that fixes the problem. So instead of being able to figure out the problem, they do some cannibalization to diagnose it.

A big problem with test equipment out there and a fair amount of cannibalizations seem to be happening because the test equipment is not giving you the results you need, and you need to find some way of fixing the problem. So you pull a part you know is working. Those kinds of things are going on.

Mr. MCHUGH. Refresh my memory; when will the final report be done?

Mr. CURTIN. This summer, probably by July, is our target.

Mr. MCHUGH. I'm looking forward to seeing it. Thank you. Thank you, Mr. Chairman.

Mr. SHAYS. I was going to recognize Mr. Putnam, but, Mr. Gilman, did you want to——

Mr. GILMAN. Just one more question, if you would.

Mr. SHAYS. Sure.

Mr. GILMAN. I note in your testimony you talk about the C–5's, and I happen to have a large squadron of C–5's up at Stuart Airport in Newburgh. They provide all the logistics of our manpower overseas, and yet you rate them as one of the highest needs for maintenance. I note here in your testimony that—well, your chart

shows that they have 49 percent of cannibalization rate in the year 2000, and it was 51 percent in the year 1999. You say for the C–5's alone there are 31,400 manhours used to perform cannibalization and 126 aircraft. When you add up the cost of all of that on this kind of equipment, where we've spent hundreds of millions of dollars for each unit, billions of dollars, as a matter of fact, each unit, it just doesn't make economic sense to allow this to continue. I hope you can make some very critical recommendations for DOD in your subsequent report.

Thank you, Mr. Chairman.

Mr. SHAYS. I thank the gentleman. I might point out to the gentleman that we are seeking to have a meeting with the Secretary because we think this is a gigantic problem. We think that security clearances, the backlog that we have there is just truly outrageous, and we need to wake up some people in DOD to get them to tell us what they need us to do to make a difference.

Mr. GILMAN. Thank you, Mr. Chairman. I would like to work with you on that approach.

Mr. SHAYS. Thank you.

Mr. Putnam.

Mr. PUTNAM. Thank you, Mr. Chairman. Thank you, Mr. Curtin, for your work on this. I would like to followup on some of Mr. McHugh's questions about the difference between an episodic or a systemic problem with inventory management.

One of your potential causes for this cannibalization rate was a lack of training, and that is something that we spend an awful lot of time in the Congress talking about. To what degree have you determined that lack of adequate training for maintenance personnel contributes to this?

Mr. CURTIN. Yes, I don't think we can quantify that, but what we do know, that there is a shortage of personnel in aviation maintenance, especially at the senior levels. They're the levels that actually train the younger mechanics as they come on. Without that good senior leadership, you don't get the on-the-job training that you need at the lower levels. With the turnover they have been experiencing and the loss of staff, they're in kind of a constant flux of bringing in new people. I mean, the basically training, I think, that's done of mechanics is fine, but where you really learn is on the job, and that part is suffering a little bit.

Mr. PUTNAM. Are you able to determine the parts that are most frequently cannibalized? You make the distinction between the small bits and then you take it up a notch if you can't—you know, these aren't Ford Explorers. There's only 1,200 F–16's spread around the whole planet. Having a back storeroom full of carburetors for a Ford Explorer is very different than having one full of F–16 replacement parts. So at what point do we strike the balance between sound, just-in-time inventory and having the parts? And how many of these parts are routine or, for an F–16, cheap replacement parts? And how many are substantial, very expensive, very technical types of pieces of equipment?

Mr. CURTIN. See, part of the problem in getting a good handle on this is that there is no one answer. There is no single solution to it. There are a lot of small, cheap parts that we ought to have handy; we should never have to cannibalization some of the nickel-

and-dime things. But, on the other hand, with this aging fleet, some parts that just have never broken—the way you get spare parts in the system is through a demand history. Parts break; you order them; the supply system produces them. Part of the problem is that things are breaking now because of the age of the aircraft that just haven't broken before or haven't broken in the numbers that they're breaking now.

And the other side of this aging problem is that many of the manufacturers who originally provided the parts for these planes have gone out of business or have left the defense industry, have gone into other things, and it's hard to find anybody willing to make some of these parts anymore. So it's very complex. To say how much are these tough ones where you don't have a producer out there who can supply them, it's almost case by case, and that's what's made it hard—frankly, that's what's made it hard for DOD to solve this problem, is because it is not easy when——

Mr. PUTNAM. I mean, did you evaluate, and if you did, is there a difference between Guard and Reserve units and active-duty units in terms of their cannibalization rates?

Mr. CURTIN. Well, we've focused just on the active, and I can't imagine that the Reserves are in any better situation, and sometimes you see the Reserves getting resourced at lower levels, depending on what their role is. So they may have even a worse problem, but this focused on the active.

Mr. PUTNAM. And one final question, because I've got the yellow light, too: The B–1B requires the most cannibalization per hundred sorties. Is that because there was such a short production run? I contrast that with the B–52, which has a much lower rate even though it is considerably older. Is that because there are so many B–52's around in the bone yards to provide spare parts?

Mr. CURTIN. Well, it's probably a good question for the Air Force after me, but I would make one comment. I think the bulk of the problems with the B–1B are in the electronic counter measures systems, and I can remember GAO reports back on the original B–1A program when it was first killed that the electronic counter measuring system was the problem system in development and all the way through. And the same thing happened with the B–1B. The electronic counter measures system never quite worked the way it was supposed to and was always a problem, and that seems to be where most of the cannibalizations are now. It's just been a problem system, a problem component.

Mr. PUTNAM. Thank you. Thank you, Mr. Chairman.

Mr. SHAYS. Thank you.

Mr. Curtin, I would like you to just explain to me why it is so difficult for us to get a handle on inventory in general and this whole issue of cannibalization. What becomes the disincentives to resolving this issue?

Mr. CURTIN. There's a couple of things going on. One, you've got the individual services who have developed their systems years ago, back—the system is not too different than it was for World War II and thereafter. So you don't really have as much of an OSD level, as much of a DOD inventory system as you do individual services, and that gets wrapped up in title 10 and all the responsibilities of the services.

Mr. SHAYS. That is one issue. What is another one?

Mr. CURTIN. I think it's, to some extent, the size of the Department of Defense. There's no other corporation in the world that's got the number of activities, the number of pieces of equipment, the management challenges that the Department of Defense has. Some of it has to do with the way we purchased equipment, the way we acquire weapons systems, and what you see, even with one aircraft, the F–18 aircraft, there must be 20 different lots of F–18's that have been built over the years, and each one has some common parts, but brings in new parts. So you've got a multiplier effect of the number of things that can go wrong even within one squadron. Certainly within a wing you have old planes, new planes, all within one wing. So it's all those kinds of things——

Mr. SHAYS. Is another factor that we just don't have that many of any particular—I mean, I look at the analogy of an automobile and how we can get it out, but there is an incentive to have a certain number of parts on hand because you know you are going to send out hundreds each day. But I am just wondering, does this make it more of a challenge, if you only have 200 planes or 300 planes?

Mr. CURTIN. It is a challenge because different parts break at different times on different planes. It is not that predictable, unfortunately.

Mr. SHAYS. Well, that is another issue. It is not predictable, but I am asking something else. See, you have given me another issue; it is not predictable. But the other issue is, does having so few of the particular aircraft make it more difficult rather than——

Mr. CURTIN. Yes.

Mr. SHAYS. OK.

Mr. CURTIN. No question, yes.

Mr. MCHUGH. Mr. Chairman.

Mr. SHAYS. Yes?

Mr. MCHUGH. Would you yield for 1 second?

Mr. SHAYS. Sure. Definitely.

Mr. MCHUGH. I think you have raised a very important point. I wanted to ask the gentleman, to what extent do you see the current way in which military commanders at the base level are judged—and by that, I mean, it would seem to me that from the Pentagon perspective in evaluating commanders, the readiness issue—and some of us may recall it became an issue during the Presidential campaign about two divisions in the U.S. Army that slipped to a C–4 rating, readiness rating, became big news. Where that rating question of readiness is valued at a much higher level than whatever your rate of cannibalization is, and if it comes to the commander's decision, or certainly those under him who understand the commander's interest in your readiness, you are not going to let that training slot go by because it might ultimately be the final straw that affects your readiness rating down to 2 or 3, isn't it so? The question, isn't it also an issue of how the Pentagon rates commanders either consciously or unconsciously vis-a-vis readiness?

Mr. CURTIN. Yes, that's exactly the discussion I had. A couple of weeks ago, I was down at Oceana at the Naval Air Station there. The wing commander there was very clear. He knew what his pri-

ority was, and he had to meet mission-capable rates and he had to get his pilots in the air. Cannibalization, he knew it was happening. He saw it happening. He knew what effect it was having on his maintenance force, but he said, "Hey, my future and my ratings depend on meeting those readiness rates." Very clear.

Mr. MCHUGH. Thank you. Thank you, Mr. Chairman.

Mr. SHAYS. I thank the gentleman.

Which basically gets me into the whole disincentive—it seems to me, though you have given me a number of reasons why you would see cannibalization, why it is difficult to get parts sometimes, the predictability, the number of aircraft, and so on, but it seems to me at least recording and documenting the cannibalization would be very important. There seems to be disincentives to doing that.

So let me ask you, what would be the—you talked about why it is difficult for inventory, but what are the disincentives for keeping the data?

Mr. CURTIN. I'm not sure there's any penalty associated with reporting cannibalizations. I think it's just the time it takes. We're talking about a work force that's already stressed and probably underresourced, and now they've had to spend a lot of time on cannibalization. It's extra time to stop and record, take care of the paperwork, which is really computer work, but still it takes some time, and a lot of times is not seen as a priority for them.

Mr. SHAYS. OK. Just one last question. Let me just ask this question: I can't picture how this system works. You make a plane for a number of years. You have a life expectancy which turns out the plane has twice as much life as we write into it. You stop making the plane. Do they still keep making parts?

Mr. CURTIN. Some. Others are so unique to that plane that the company may go out of business. If there aren't a lot of—you know, you'll use up whatever you have in stock, hoping that will last you long enough, and when the time comes you're running out, you've got to find somebody else willing to manufacture that part, and usually at a very high cost.

Mr. SHAYS. Automobile manufacturers, there was this wonderful article in Time magazine where they showed what the car would cost if you bought it in parts, and it was like $100,000 for a $25,000 car. Do we establish a contract—or maybe you don't know this; if you don't, tell me—but do we establish a contract up front that guarantees a certain amount of parts?

Mr. CURTIN. It's not in my specialty area. We do what we call initial spares. When you build a new system, you buy enough spare parts to get that up and running, and then you build your history of demands for different parts that break. That's what triggers your supply system.

Mr. SHAYS. We will ask some of these questions of the next panel.

Mr. CURTIN. I think that would be good.

Mr. SHAYS. Mr. Schrock, would you like to ask any questions?

Mr. SCHROCK. No, Mr. Chairman.

Mr. SHAYS. Mr. McHugh, we are happy to go back to you or Mr. Gilman or Mr.—excuse me, the gentleman, the ranking member, do you have any questions?

Mr. KUCINICH. No, Mr. Chairman.

Mr. SHAYS. I think what we will do, then, is go to our next panel. Thank you very much.

Our next panel is Lieutenant General Michael Zettler, Deputy Chief of Staff for Installation and Logistics, U.S. Air Force; Lieutenant General Charles Mahan, Jr., Deputy Chief of Staff for Logistics, U.S. Army, and Rear Admiral Kenneth Heimgartner, Director, Fleet Readiness, U.S. Navy.

Gentlemen, if you have anyone else—please remain standing—if you have anyone else that may respond to a question, I would like to swear them in as well, so we don't have to do it twice.

[Witnesses sworn.]

Mr. SHAYS. Thank you. Gentlemen, we swear in all our witnesses, as you know, even Members of Congress. The only one I chickened out on was Senator Byrd. [Laughter.]

But he is the only one.

All right, why don't we take you in the order that we called you. Gentlemen, we are going to do 5 minutes, roll it over, but we would like you to finish before the 10. Thank you.

STATEMENTS OF LIEUTENANT GENERAL MICHAEL E. ZETTLER, DEPUTY CHIEF OF STAFF FOR INSTALLATION AND LOGISTICS, U.S. AIR FORCE; LIEUTENANT GENERAL CHARLES S. MAHAN, JR., DEPUTY CHIEF OF STAFF FOR LOGISTICS, U.S. ARMY; AND REAR ADMIRAL KENNETH F. HEIMGARTNER, DIRECTOR, FLEET READINESS, U.S. NAVY

General ZETTLER. Thank you, Mr. Chairman, members of the committee. Thank you for the opportunity to appear before you and discuss cannibalization in the U.S. Air Force. It is an important issue to us.

On behalf of our Acting Secretary, Dr. Delaney, our Chief, General Ryan, and most importantly, the fine men and women of our Nation's great Air Force, we would thank this committee and all the Members of Congress for their recent support to support our readiness initiatives.

Cannibalization is a cross-cutting issue. It impacts many aspects of our mission accomplishment, and therefore, whatever we do with spare parts impacts our people. General Ryan has stated our position very clearly. We cannibalize only as a last resort.

Unfortunately, as the GAO has pointed out, all too often we've had to go to the last resort. This statement is rooted in the delicate tradeoff: the need to meet mission goals while managing the workload for our dedicated men and women.

Our analysis shows improvements. The analysis indicates that cannibalizations have significantly declined since the high-water mark in 1997 of 82,000 cannibalizations. Last year cannibalizations decreased to 70,000. That's a 15 percent improvement. That's a great start. But there's more work to be done. Your support was a major factor in this 12,000 "cann" reduction over that 3-year period.

The Air Force is absolutely committed to continue this favorable trend even further. To do so, we're prepared to discuss the many challenges that have been discussed by the GAO today and as we see them: full funding for spare parts; compensating for the diminishing industrial base; adapting modern, business-like policies for

repair, procurement, stockage, storing, and issuing of spare parts, but not necessarily in a centralized fashion; ensuring viable organic and contractor sources of repair, and recapitalizing our aging aircraft and the subsystems that are so important to enhancing the reliability.

To overcome these challenges, we in the Air Force have implemented the broad strategy to improve overall system supportability and reduce "canns." These include fully funding the known spares requirements in fiscal year 2001. We've created an office that will manage diminishing manufacturing sources and material shortages. We're establishing and adequately funding our weapons systems depot maintenance programs for all repairs of aging aircraft and engines. We instituted policy changes to retain inventory when reasonably prudent to do so, which does, in fact, reverse policies which deleted now-needed inventory of the mid-nineties. And we've created organizations such as the Regional Supply Squadrons whose purpose it is to optimize inventory distribution. Finally, we've improved deployed spare support with enhanced direct support objectives for our fighters and overall readiness spares packages for all of our aircraft.

With your support, we've seen cannibalizations decline 15 percent since 1997. Importantly, our total backorders that we as an Air Force experience have fallen 50 percent since 1998, and we've had a 10-year decline in the mission-capability reversed, an upturn for the first time since 1991. Our latest cannibalization rates indicate the positive trend is continuing with the most recent fiscal year 2001 "cann" rates at 11.1 "canns" per 100 sorties, the lowest rate since 1996.

There's more to be done for our men and women and to improve our readiness. With your support, we will continue to aggressively pursue our strategy to drive cannibalizations to the lowest possible level while optimizing our overall readiness.

At this time, I am ready to take your questions. Thank you, Mr. Chairman.

[The prepared statement of General Zettler follows:]

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE COMMITTEE ON GOVERNMENT REFORM SUBCOMMITTEE ON NATIONAL SECURITY, VETERANS AFFAIRS AND INTERNATIONAL RELATIONS

STATEMENT OF: **LIEUTENANT GENERAL MICHAEL E. ZETTLER**
DEPUTY CHIEF OF STAFF FOR INSTALLATIONS AND LOGISTICS
HEADQUARTERS UNITED STATES AIR FORCE

22 MAY 2001

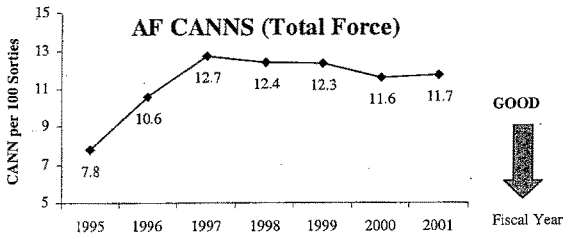
NOT FOR PUBLICATION UNTIL RELEASED BY THE COMMITTEE ON GOVERNMENT REFORM SUBCOMMITTEE ON NATIONAL SECURITY, VETERANS AFFAIRS AND INTERNATIONAL RELATIONS

Mr. Chairman and members of the committee, thank you for the opportunity to speak to you about Air Force cannibalizations and some of the challenges we face in maintaining readiness with our aging aircraft fleets. We appreciate your interest in this important area.

Cannibalization is the maintenance practice of removing a serviceable part from one aircraft or engine to replace an unserviceable part on another. It is a readiness cross-cutting action affecting all aspects of our mission—enhancing short-term aircraft mission capability; and often supporting shortfalls in deployed provisioning; yet impacting our troops' Quality-of-Life and in some cases actually reducing the reliability of the moved part. Cannibalization actions are sometimes necessary...but employed only as a last resort for a specific mission goal. I know that we mutually agree the Air Force's cannibalization rate over the last five years is higher than desired.

Background

Overall aggregate aircraft cannibalization rates decreased from a high of 12.7 cannibalizations per 100 sorties in FY97 to the current FY01 rate of 11.7 cannibalizations per 100 sorties. This was a 15% reduction in total cannibalizations from 82,600 cannibalizations in FY97 to 70,500 in FY00.



Although cannibalization trendlines improved since FY97, the Air Force wants to reduce cannibalizations to the lowest level possible despite the challenges of an aging aircraft fleet with an average age of an unprecedented 22.2 years. I welcome this opportunity to discuss this trend

and its impact on our mission and our outstanding people while outlining some corrective actions we have already implemented.

Cannibalization to Improve Readiness

The Air Force does use cannibalization to improve short-term readiness as an immediate relief measure, but not a permanent solution. Our fundamental policy is to cannibalize only when it is absolutely mission-critical. The Air Force Chief of Staff, Gen Michael Ryan, stated in recent congressional testimony to the House Armed Services Committee (27 Sep 00), "we cannibalize only as a last resort." The Air Force frequently relies on cannibalization to:

- Replenish Readiness Spares Packages (RSP) for deployments when supporting operations at dual locations—homestation and deployed.
- Compensate for original reliability design shortfalls and resultant spares shortages due to resource constraints. The C-5 aircraft, B-1 aircraft and F100-PW-100 fighter engines possess subsystems with historically poor mean-time-between-failure intervals. For instance, the F100-PW-100 fighter engine used on some F-15s has very poor reliability on its Unified Fuel Control system with a 430 hours mean-time-between-failure. I'd be remiss it I didn't point out that for each of these aircraft the Air Force has on-going modification programs which improved the capability, reliability and system availability.
- Meet unexpected "technical surprises." After years of service, a fleetwide subsystem failure often requires a large increase in unforecasted supply support. For example, the C-5 program office reports a high C-5 cannibalization rate for the lower rudder manifold, which increased five-fold in the last 10 years…the result of aging factors.
- Improve line replaceable units (LRU) repair flowtimes by transferring sub-components from unserviceable LRUs to repair another unserviceable LRU. Despite improved funding, consumable support is a major factor causing sub-component cannibalization during depot repair. Without bit-pieces such as seals, rings, fasteners, circuit-card assemblies, etc., technicians must cannibalize next higher assemblies that include the required consumables.

- Overcome a diminishing manufacturing base, e.g., the vanishing vendor syndrome. Many aircraft vendors, especially ones supporting small fleets, departed the DoD industrial base after downsizing created smaller market opportunities. For example, the C-5 program office reports 15-20 percent of their purchase requests get a "no bid." This exodus of suppliers further limits parts availability. While we normally are able to attain the needed parts with time, this additional time leads to shortages and sometimes results in cannibalizations. To address situations such as this, the Air Force created the Diminishing Manufacturing Sources and Material Shortages Program Office to centrally manage diminishing parts—managing 3,502 subsystem assemblies in FY99.

Tracking Cannibalization Actions

The Air Force tracks all aircraft and engine cannibalization actions in the Reliability and Maintainability Information System (REMIS) which uses data that the field technicians record into their Core Automated Maintenance System (CAMS) terminals located in their workcenters. Further, HQ USAF developed the Multi-Echelon Resource and Logistics Information Network (MERLIN) linking REMIS data to a web-based windows application system available for users worldwide. These systems, while not perfect, permit reasonably good insight into Air Force maintenance cannibalization activities.

The Air Force measures cannibalizations using the metric—canns per 100 aircraft sorties. The metric [per 100 sorties] vice the metric [per 100 flying hours] is used because the Air Force operational mission database is characterized by high fighter sortie rates with short sortie flying times. Although USAF airlifters and bombers fly missions with longer flying hours, for consistency purposes, we measure all cannibalizations per 100 sorties.

The Air Force tracks cannibalization actions within the Hangar Queen Program. The Hangar Queen Program is a positive management action to control the number and types of cannibalizations while also limiting the number of days any aircraft is down. Air Force units usually designate one aircraft as the "cann jet" to be used as the source of cannibalized parts. For management purposes, Air Force regulations limit the number of days an aircraft can be used as a "cann jet". "Cann jets" that exceed the major command limit, usually 30-45 days, are monitored in the Hangar Queen Program to ensure prompt return to flying status.

Aircraft Requiring High Cannibalization Rates

The Air Force aircraft with the highest cannibalization rates are listed below.

	1995	1996	1997	1998	1999	2000
B-1	xxx	52	86.3	84.7	84.3	84.4
C-5	53.6	41.3	44.6	54.9	51.9	49.4
B-52	17.8	14.7	30.5	29.2	31.1	29.6
F-15E	13.6	24.6	30.9	23.2	25.2	22.5
F-15	11.3	16	19.9	18	19.4	17.8

The B-1 experiences high cannibalization rates primarily due to reliability design problems in its complex electronic countermeasures system—accounting for almost 15 percent for this system alone in FY00. The overall mean-time-between-failure (MTBF) for the electronic countermeasures system (ALQ-161) averages less than 25 hours with a Band-8 transmitter which possesses an obsolete wave-tube design. The Band-8 unit alone accounted for 20,000 non-mission capable hours per month fleetwide in FY00. Likewise, the C-5 avionics and turbofan engines were state-of-the-art in 1960…40 years later, the reliability has decreased significantly. These two C-5 subsystems specifically—avionics and engines—accounted for 31.7 percent of all C-5 cannibalizations in FY00.

Cost of Cannibalization

The direct cost of cannibalization is increased manhours required to remove and re-install the cannibalized part. The increased manhours attributed to cannibalization for each repair is 2-fold—removing the cannibalized part and then re-installing the replacement part for the cannibalized part. The cannibalization process itself can cause additional component failures resulting from the removal of the cannibalized part. F-15s at Tyndall AFB encountered a 33-percent failure rate when cannibalizing critically short stabilator actuators for their aircraft (the stabilator actuator availability is currently limited due to the transfer of the depot repair line from Sacramento Air Logistics Center to Ogden Air Logistics Center).

In FY00, the total USAF maintenance manhours expended on cannibalizations were over 561,000 maintenance manhours—approximately 2 percent of all maintenance manhours dedicated to all aircraft maintenance last year. For the C-5 alone, 31,414 manhours were used to perform cannibalizations on 126 aircraft. Although cannibalizations are undesirable, the alternative—loss in mission effectiveness—is often equally undesirable.

Cannibalization Effects

Cannibalization is also a Quality-of-Life issue. There is a significant increase in workload as cannibalizations increase maintenance manhours for specific repair actions. For example, F-15 repair data indicates that in FY00 each F-15 cannibalization repair averaged 7.1 manhours. In FY00, F-15 cannibalizations cost totaled 158,153 manhours across all F-15 units. We know this is unacceptable and are taking steps to reduce it.

During the decade of the 90s, there were several factors which impacted our airmen's Quality-of-Life. One of these negative Quality-of-Life effects may have been the need to cannibalize. Combined with other negative Quality-of-Life issues in the 1990s, the cannibalizations of spares may have contributed to the decreasing retention rate of our technicians. To illustrate, a FY00 Air Force survey of separating airmen cited that only 46 percent of the career airman felt they had the mission resources (equipment, supplies, parts, and personnel) to accomplish their mission. Low retention has contributed to the assigned aircraft maintenance 5-level journeyman manning rates decreasing from 104% in FY91 to 74% in FY00 for 5-level journeyman. Consequently, the less experienced workforce has less skill to troubleshoot and repair parts prior to replacing a component. This situation also further stresses the supply system—resulting in increased cannibalization actions and a still higher workload.

Efforts to Reduce Cannibalizations

The Air Force has implemented a multi-faceted strategy consisting of increased funding, policy, and organizational initiatives to reduce the cannibalization rate to lower levels.

Air Force efforts, with strong congressional support, increased funding for reparable and consumable parts. In FY98, Congress provided $300M in supplemental support for unforecasted Depot Level Reparables. In FY99, the Air Force received an additional $904M in supplemental funding—to include $382M to directly improve spares stockage, $387M to support Kosovo operations, and $135M for increased engine requirements at the Oklahoma City Air Logistics Center alone. In FY00, depot reparable spare parts were funded at 95 percent; FY01 was fully funded for the validated requirement.

Additionally, by working across all Services with the Department of Defense, the Defense Logistics Agency (DLA) was given $500M over 4 years to improve aviation support to the Air Force and Navy. The Air Force portion of this allocation was $262M. The Air Force has gone to great efforts to partner with DLA in developing an Aircraft and Engine Investment Strategy. This will ensure the investment in high dollar low-density consumable spares provides the best support to Air Force weapon systems.

Furthermore, the Air Force completed several policy and procedural initiatives to improve spares repair support to the warfighter. These include:

- Modifications to the Execution and Prioritization Repair Support System (EXPRESS) to provide daily prioritization, as opposed to quarterly forecasting, of depot level parts repair. EXPRESS prioritizes depot repairs based on critical mission needs—now on a daily basis.
- Readiness Base Leveling was implemented to provide a centralized method to allocate spare parts authorizations to the appropriate base to match aircraft mission targets. This allowed managers to better allocate depot spares based on worldwide resources.
- Increased Direct Support Objective (DSO) authorization levels in our Readiness Spares Packages (RSP) to a surge of 83 % (75% sustain) for deployed fighter units. Supply models forecast increased RSP authorizations in FY02 will ensure 12-15% more deployed fighters are mission ready.
- Contingency High Priority Mission Support Kits (CHPMSK) were developed to reallocate worldwide stock levels to a steady-state Air Expeditionary Force (AEF) deployment location. These kits place parts at the critical points of need and reduce the spares deployment footprint for rotating units.

Other policy changes were more comprehensive, addressing parts shortfalls at both home and deployed locations. The Air Force rolled back policies implemented in the 1990s to reduce our stock inventory levels. HQ USAF implemented a new policy permitting base supply to authorize stockage of any consumable part that prohibited an aircraft from being mission capable after only

one demand occurrence (in past it required two incidents within six months). In addition, the Air Force eliminated the policy of disposing of consumables not used in 18 months. Now, if a consumable part is stocked, it can be retained whether it is used within an 18-month period or not.

Organizationally, the implementation of the first AEF in October 1999 provided needed stability and planning to the high-deployment schedules. The AEF provides the major commands the long-lead preparation for scheduled deployments by shifting supply priority to units preparing to deploy—reducing cannibalizations required to fill RSPs.

Importantly, the creation of major command Regional Supply Squadrons (RSS) to track supply assets has proven to be a positive organizational addition for spares management. The RSS provides regional spares management by serving as the central decision-maker on distribution of assets within that major command or theater. With the increased visibility, RSS supply managers, now in near real-time, prioritize the distribution of critical parts.

All of these are necessary corrective actions. Finally, the Air Force has begun a spares campaign to identify all of the impediments to having adequate spare parts. We will complete the analysis by the fall of 2001 and take the corrective actions accordingly.

With all these efforts, some progress has been made. However, the long-term readiness solution is to re-capitalize the Air Force aircraft inventory to address the unprecedented 22.2-year average age. In addition, recapitalization will address poor subsystem reliability—subsystems designed in the 1960s without consideration to reliability of the then *state-of-the-art* designs. Until then, we

will continue to adequately resource the flying hour program, fund RSPs and institute innovative management changes such as RSS, the EXPRESS enhancements and DSO implementations, etc.

Summary

Although Air Force initiatives successfully lowered the aggregate cannibalization rates since FY97, cannibalizations continue to impact our mission and our people. The Air Force is absolutely committed to further reducing cannibalization rates below existing levels despite the challenges presented by all our aging aircraft.

Consequently, seven challenges must be addressed to successfully rollback high cannibalization rates accrued in the 1990s:

- Fully fund the spare parts needs
- Adequately provision Readiness Spares Packages
- Improve sub-component and piece-part support for LRUs in depot repair
- Overcome the diminishing manufacturing base supplying DoD
- Replace highly unreliable subsystems possessing systemic design shortfalls
- Re-capitalize aging airframes/engines which are the source of aging "technical surprises"
- Adapt modern business-like policies and procedures for the repair, procure, stock, store and issue of spare parts

To overcome these hurdles in part, the Air Force has implemented an aggressive 4-fold strategy.

- Dramatically demonstrated the need for recapitalization
- Funding: $904M in supplementals in FY99 and full spares funding for FY99-01
- Policy: Changes in RSP provisioning and other deployed spares packages
- Organizational: Implementation of the AEF and RSS to support prioritization of parts

I look forward to your continued support of our readiness objectives.

Mr. SHAYS. Thank you, General.

General Mahan.

General MAHAN. Thank you, Mr. Chairman and honorable members of the committee. It's my pleasure to be here today to report to you on the Army's view of cannibalization. I have submitted my full testimony, and in the interest of time, I will keep my comments short and to the point.

The Army views cannibalization as a tool that unit commanders must use judiciously, we assume, and direct, in their efforts to meet mission and operational readiness requirements. Minimum use of this tool is prudent in that it provides commanders an ability to attain readiness and mission requirements when parts are not immediately available.

Army maintenance policy supports the use of this tool under certain specified conditions, since there are additional costs, as already enumerated, in manpower and in spares to our units that use this tool. Although Army reporting systems do not completely capture all cannibalization activity, there is evidence that cannibalization rates have increased over the past 2 years, as Army aviation supply availability has decreased.

Commanders' increased reliance on this tool to meet operational requirements and readiness goals is evidenced, we believe, by a review of recent active Army readiness rates. Over the past 12 months, two of our modernized fleets probably would not have made goal without the use of cannibalization since they met readiness goals by 3 percent or less. Regardless, overreliance on cannibalization has the undesirable side effects which you've already alluded to and which commanders at every level attempt to minimize. The negative side effects include those manpower requirements, longer mechanics hours, lower morale, increased cost certainly.

As there is an inverse relationship between repair parts availability and cannibalization rates, the problem the Army is focusing on is supply parts availability. Cannibalization is only a symptom of the real problem, in our view. Due to a decade of underfunding and an OSD focus on reducing inventories to save money, as General Zettler talked about, in the early 1990's, the Army's repair part stocks are neither sufficiently wide nor deep at both retail and wholesale levels to meet commander requirements.

Consequently, the Army has failed to meet the Army's supply availability goal of 85 percent in 4 of the last 5 years, and that's for both ground and air fleets, and in 8 of the past 12 months. Aviation supply availability performance is even worse, failing to meet goals in any of the last 16 years or in any of the last 12 months.

Exacerbating that problem is an increasing demand for repair parts due to the aging fleets and decreased reparable spares reliability due to our past policy of inspect and repair only as necessary, as opposed to full refurbishment to depot-level standards. While that policy will be changed under the National Maintenance Program to one that is a rebuild to depot standards, it does, in fact, contribute to today's cannibalization rates.

In addition, a key tenet of our ongoing transformation is recapitalization of the fleets of our aircraft. This program addresses our

aging fleet and our increasing operations and support cost problems for key weapons systems that require rebuild or selected upgrade.

In closing, our view is that cannibalization is a symptom of the real problem of parts availability, and to minimize the use of that cannibalization we must improve spare parts availability and reliability, which will require a substantial investment of our funds.

I thank you for the opportunity to appear before you today. I look forward to working with you all and responding to your questions at the appropriate time.

[The prepared statement of General Mahan follows:]

RECORD VERSION

STATEMENT BY

LIEUTENANT GENERAL CHARLES S. MAHAN, JR.

DEPUTY CHIEF OF STAFF FOR LOGISTICS

BEFORE THE

SUBCOMMITTEE

ON

NATIONAL SECURITY, VETERANS AFFAIRS, AND INTERNATIONAL RELATIONS

FIRST SESSION, 107th CONGRESS

COMMITTEE ON GOVERNMENT REFORM

22 MAY 2001

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THE HOUSE COMMITTEE
ON GOVERNMENT REFORM

Thank you, Mr. Chairman and Honorable members of the Committee for the opportunity to appear before you to testify on the use of cannibalization of Army aircraft to meet operational mission requirements. I will present an overview of the reasons the Army uses cannibalization, the extent to which our fleets rely on cannibalization, its negative impacts, the actions the Army is taking to gain greater visibility on cannibalization, and our actions to reduce cannibalization. The bottom line is the Army views cannibalization as a tool for unit commanders' judicious use in order to meet mission requirements and readiness goals. Overuse of cannibalization has negative side effects which Army leadership, at all levels, continually work to minimize. The Army views overuse of cannibalization as a symptom of the real issue, that of spare parts availability. To minimize the use of cannibalization, we must improve parts availability that will require a substantial investment of funds.

OVERVIEW

Army Commanders use cannibalization as a supplement to the supply system for repair parts in order to meet operational mission requirements. Minimal use of cannibalization is prudent in that it provides commanders a tool to attain readiness when parts are not immediately available. Army maintenance policy supports the use of this tool under specified conditions since there are additional costs in spares and manpower to our units when they use this tool. Although Army reporting systems do not completely capture all cannibalization activity, there is evidence that cannibalization rates are higher than desired, and that commanders are using this tool more than desired in order to meet readiness and mission requirements. Over-reliance on

cannibalization is undesirable as it amplifies the negative side-effects of this useful tool including increased manpower requirements, longer mechanic work hours, lower morale, and increased cost. As there is an inverse relationship between repair parts availability and cannibalization rates, the problem to focus on is repair parts availability. Cannibalization is only a symptom of the problem. Due to a decade of under-funding and an OSD focus on reducing inventories to save money, the Army's repair parts stocks are neither sufficiently wide nor deep at both retail and wholesale levels to meet commander requirements. Consequently, the Army has failed to meet the supply availability goal of 85 percent in 4 of the last 5 years (by average of 2%), and in 8 of the last 12 months (by average of 2%). Aviation supply availability performance is worse, failing to meet goals in any of the last 16 years (by average of 6%), or in any of the last 12 months (by average of 10%). Exacerbating the problem is an increasing demand for repair parts based on our aging fleets and decreased reparable spares reliability due to our policy of Inspect and Repair Only as Necessary (IRON). While that policy will be changed under the National Maintenance Program, to one of rebuild to depot standards, it does contribute to today's cannibalization rates. Without a substantial increase in funding for repair parts, a reduction in mission requirements, or a reduction in Army readiness goals, cannibalization rates will likely not decrease.

DEFINITIONS

For clarification, the Army's definition of cannibalization is different than that of the other military services. The Army uses three distinct terms to identify the movement of components from one end item to another involving ground and aviation

equipment. The three terms are "controlled exchange," "controlled substitution" and "cannibalization". Army Regulation 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations defines the three categories as:

- "Controlled Exchange" is the removal of serviceable components from unserviceable economically reparable end items for immediate reuse in restoring a like item or weapon system to a Fully Mission Capable condition.
- "Controlled Substitution" is the movement of serviceable components from Category A and B maintenance training aircraft to any flyable aircraft.
- "Cannibalization" is the authorized removal of components from materiel designated for disposal.

All three categories involve the movement of repair parts from one item of equipment to another in order to make the second item of equipment mission capable. Likewise, all three of the definitions supplement supply operations by providing assets not immediately available through the Army supply system. In order to be consistent with the other Services, I will use the single term "cannibalization" to refer to all three categories of repair parts movement throughout the remainder of my testimony.

REASONS FOR ARMY USE OF CANNIBALIZATION

Commanders conduct cannibalization when a part is required to bring an aircraft to fully mission capable status but is not immediately available and the aircraft must be brought to fully mission capable status in order to meet operational mission requirements. Provided that the conditions specified in

Army policy are met, the decision authority to conduct cannibalization is routinely controlled by the Aviation Brigade Commander through standard operating procedures or SOPs. Normally, the Aviation Brigade Commander delegates authority to conduct a certain number of cannibalizations per aircraft to the Battalion Commander. Cannibalizations beyond the established threshold require the Brigade Commander's authorization.

Commanders first attempt to fill the repair parts requirement through the retail system either through their unit Prescribed Load List (PLL), their support unit's Authorized Stockage List (ASL), or laterally through like units on their installation. If the repair part requirement can be filled through the retail system then a cannibalization action is not necessary. If the part is not available through the retail system, the requisition is passed to the wholesale. In this case, a cannibalization action may or may not occur as each cannibalization decision is unique and requires the commander to weigh both the benefits and the negative side effects of completing the action. A commander may conduct cannibalization, even if the part is available in the wholesale system, if the estimated time for his unit to receive the part does not meet mission requirements. On the other hand, he may decide not to conduct a cannibalization action regardless of the estimated delivery time for the part in order to avoid cannibalization's negative side effects.

Although Army policy prescribes the conditions that must be met for cannibalization to occur, by design it provides commanders maximum flexibility to make cannibalization decisions. A healthy ethos exists within the Army aviation leadership which makes cannibalization a last choice for filling a repair parts requirement. Judicious use of this tool by commanders as well as use of management tools like standard

operating procedures, phase flow diagrams and Monthly Readiness Reviews work together to maximize the benefit of cannibalization while minimizing its negative side effects. Higher than normal cannibalization rates normally do not reflect a problem with commanders, but rather a problem with supply availability and a possible shortage of OMA OPTEMPO/flying hours funding.

Army Aviation Safety of Flight (SOF) actions significantly contribute to cannibalization actions. SOF actions pertain to any defect or hazardous condition, actual or potential, that can cause personal injury, death or damage to aircraft, components or repair parts. In many cases, an aircraft part's finite life is shortened or the part/component is found to be defective and requires immediate replacement. This can cause a severe shortage of this part/component Army-wide and results in the need for cannibalization. In Fiscal Year 1997, there were five SOF actions compared to 37 in Fiscal Year 2000; an extremely high increase that resulted in $76M cost to the Army Working Capital Fund.

EXTENT THAT THE ARMY RELIES ON CANNIBALIZATION

The full extent to which cannibalization is used in the Army is at present unknown. Our current Standard Army Management Information Systems (STAMIS) used in maintenance and supply operations at the tactical level do not capture cannibalization data for ground systems at all, and have only a limited capability to capture data on aircraft. The Army currently captures aviation system cannibalization data only on serial numbered finite life components that make up less than 4 percent of all aviation repair parts. Army initiatives to improve visibility of cannibalization will be addressed later.

Although the full extent to which cannibalization is used in the Army aviation is presently unknown, there is anecdotal evidence that there may be a need for increased concern and oversight. That evidence is found in readiness rates; repair parts availability rates, especially for aviation repair parts; and, comments by field commanders on readiness reports.

AVIATION READINESS RATES

The Army STAMIS do not capture the data necessary to compute the percentage of non-mission capable time saved due to cannibalization. However, analysis of active Army aviation readiness rates over the past 12 months indicates that two of our modernized fleets probably would not have made goals without the use of cannibalization. The UH60 fleet failed to meet its readiness goal of 80 percent mission capable in 7 of the last 12 months (by a margin of 4% or less). The UH60 fleet made readiness goals the remaining 5 months but only by a margin of 2 percent or less. Although the CH47 fleet met its readiness goal of 75 percent mission capable in 8 of the last 12 months, it met goal only by a margin of 3 percent or less. The CH47 fleet failed to meet readiness goals the remaining 4 months (by a margin of 2% or less). It is probable that these two fleets would not have made readiness goals at any time over the past 12 months without the tool of cannibalization.

HISTORY OF ARMY REPAIR PARTS AVAILABILITY

In the mid-1990s, the Army systematically reduced wholesale strategic inventories supporting all major weapons systems. This decision was made primarily in response to OSD's mandate to reduce inventories. Both the 1990 Defense Management Report

Decision (DMRD) 901, Reducing Supply System Costs, and the 1991 DMRD 987, Inventory Reduction Plan, set specific inventory reduction goals for 1991-1997. Ongoing efforts to reduce force structure and improve business practices through implementation of the Stock Funding of Deport Level Reparables (SFDLR) program also resulted in lower stockage levels. Army Working Capital Fund inventories held at the strategic level are down 50 percent from $18B in 1989 to $9.3B today. Likewise, ASL stocks located with fighting units are down 55 percent from $2B to $.9B.

At the same time, OPTEMPO has increased dramatically. The Army is executing more frequent deployments for longer periods of time. There has been a 15 percent increase in executed flying hours since FY 97. This increased OPTEMPO causes more wear and tear on our weapons systems and increases repair parts consumption.

Recapitalization programs necessary to maintain the average age of our aircraft fleets below their half-life of 10 years were postponed during the last decade. The result is that three of our four modernized aircraft fleets (AH64, UH60 and CH47) now exceed their half lives by 3 years. Aging fleets have a significant negative impact on readiness. This fact is clearly demonstrated by the 8 percent average difference in monthly readiness rates between our UH60A fleet (75.3 percent readiness rate with an average age of 17.3 years) versus our UH60L fleet (83.2 percent readiness rate with an average age of 7.2 years).

Increasing rates of Safety of Flight (SOF) actions have resulted in unexpected increases in demand, driving stocks of for specific parts to zero balance. There has been a 740% increase in SOF actions between FY 97 and FY00. Additionally, the Army has issued twice as many SOF messages in FY00 as we did in FY99 (37 verses 18). Safety of Flight actions drain

resources. The FY 00 cost to the AWCF was $76M. Including OMA bills, the FY00 cost was over $117M.

As a result, supply availability for Army managed aviation repair parts over the last decade has averaged approximately 6 percent below goal with a steady downward trend. Aviation supply availability has dropped to 8 percent below goal the last 3 years, and further to 10 percent below goal the last 12 months. For several years, aviation weapon systems' readiness rates and supply availability rates were maintained through redistribution of excess inventories and local repair of repair parts. However, in recent years, the combination of increased OPTEMPO, aging weapons systems, a reduction in parts reliability and reduced repair parts stocks have degraded aviation weapon systems' readiness and supply availability to a critical point. While the Army generally continues to meet readiness goals through work-arounds such as cannibalization, it costs us in dollars and manpower.

The Army is also concerned about the current and future unfinanced requirements (UFRs) for spares in our OPTEMPO and war reserve accounts. As units switch from peacetime to wartime consumption, they will need additional assets to carry with them to cover usage until the Air Line of Communications can be established for resupply. We have also identified spares shortages at our national level needed to: (1) support Non-Mission Capable Supply (NMCS) requisitions (emergency requisitions for non-functioning equipment), (2) fill increased demands from units experiencing higher OPTEMPOs, (3) enable recapitalization of our overaged fleets, and (4) maintain the recapitalized weapons systems once they are in the field. It is time to restock the shelves and recapitalize the equipment.

UNIT COMMANDER'S PERSPECTIVE ON PARTS AVAILABILITY

Cannibalization is the commander's only supply tool to compensate for inadequate repair parts availability at the retail and wholesale levels. All other factors being equal, the lower the supply availability, the more frequently a commander must conduct cannibalization in order to meet operational mission requirements and Army readiness goals. The fact is that the Army is not obtaining our goal of 85 percent repair parts availability for aviation systems at the wholesale level, and has not met that goal in the past 16 years (by average of 6 percent). Our best annual supply availability performance for aviation spares occurred in 1992 following Desert Storm (84 percent). Since then, there has been a consistent downward trend with the last 12-month average rate dropping to 74.8 percent (10.2 percent below goal), the second lowest point in the last 16 years. Supply availability for some specific aviation systems are even less than this 75 percent average. The hardest hit systems over the past 12 months have been AH64 at 65.9 percent (19.1 percent below goal), and UH60 at 71.3 percent (13.7 percent below goal) supply availability.

Tactical commanders, having operated under increased OPTEMPO, see similar problems at the retail level. That is, a continued reduction in the width and depth of retail repair parts stocks. In the field, unit commanders conduct annual reviews of Authorized Stockage List (ASL) stocks maintained by the support unit, and quarterly reviews of Prescribed Load List (PLL) stocks maintained by their own unit. During these reviews computer generated recommendations for additions, deletions, increases and decreases in repair parts stocks are evaluated for action. Due to constrained budgets, some commanders have decided only to accept the recommendations for deletions and

decreases in repair parts stocks. Recommendations for additions and increases in repair parts stocks are noted as unfinanced requirements which are frequently not filled. The result is a continual decrease in the width and depth of retail repair part stocks. These are the very stocks that have the most impact on cannibalization decisions.

Due to a decade of under-funding and emphasis on reducing inventories, the width and depth of the Army's repair parts stockage are inadequate. Spares shortages force commanders to cannibalize more frequently. Obtaining the Army goal of 85 percent repair parts availability at wholesale level, by weapons system, and improving stocks at retail level will require a substantial investment, estimated at over $1 Billion for all weapons systems with over 1/2 Billion for aviation systems alone (given the current Future Years Defense Plan (FYDP)).

COMMANDERS' COMMENTS IN UNIT STATUS REPORTS

While commanders have not routinely emphasized the excessive use of cannibalization, in December 2000, the Commander of the 101st Air Assault Division expressed concerns in his Unit Status Report (USR) over the lack of supply availability for the division's UH60 fleet. He stated that "the current shortage of UH60 repair parts at the wholesale level has reached the critical point where we can no longer use controlled substitution to sustain readiness."

NEGATIVE IMPACTS OF CANNIBALIZATION

The Army has no means to accurately measure the negative impacts of over-reliance on cannibalization. The components of

cannibalization are an increase in manpower requirements, lower soldier morale, risk damage to repair parts during exchange operation and increase cost. Filling a repair part requirement through cannibalization instead of the supply system doubles the manpower requirement for the replacement. Units are not resourced with personnel to meet this increased manpower requirement; therefore soldiers must work harder and longer to complete the action. This increased personnel OPTEMPO for soldiers with maintenance Military Operational Skills (MOS) degrades soldier morale. Many units have compensated for the increased maintenance burden by hiring contractor maintenance teams to augment their maintenance units. Additionally, in a small percentage of cannibalizations, repair parts are damaged during the removal and reinstallation. Both the hiring of contract maintenance teams and damage of repair parts cost the unit money; money which is no longer available for purchasing repair parts for retail stocks. While unit commanders continually weigh the benefits against the negative impacts of cannibalization, current supply availability rates force them to cannibalize more frequently.

ARMY ACTIONS TO GAIN GREATER VISIBILITY ON CANNIBALIZATION

Current STAMIS used in maintenance and supply operations at the tactical level do not have the capability to capture any cannibalization data for ground systems, and have only a limited capability to capture data on aviation systems. In the near-term, a computer code, with an availability date of August 2001, is currently being written at the Army's Logistics Support Activity to enable the extraction of more cannibalization data from existing aviation readiness reports (DA Form 1352). In the long-term, the capability to track cannibalization is being

developed within the Global Combat Support System-Army (GCSS-A), the Army's future logistics automation system with a projected availability date of 2QFY03.

In order to address the problem of cannibalization we must have clear visibility. Masking supply shortages through extensive use of cannibalization is a continuing problem the Army is working to resolve. An upcoming change to AR 750-1 will unmask Non-Mission Capable Supply (NMCS) time and help identify the parts shortage. Previously, Army aviation units were able to cannibalize aircraft that were in Partially Mission Capable (PMC), Non-Mission Capable Maintenance (NMCM) or Non-Mission Capable Supply status (NMCS). Provisions of this change only allow cannibalization from NMCS aircraft (both the donor and gaining aircraft), just as ground systems have operated. This will largely eliminate phase aircraft (normally carried as NMCM) from becoming donors, a common practice in many units, and put the emphasis back on the supply system to provide spare parts.

ARMY ACTIONS TO REDUCE CANNIBALIZATION

The Army's plan to reduce cannibalization focuses on improved repair parts availability and reliability. In the short-term, the Aviation and Missile Command (AMCOM) has implemented a War Room to intensively manage and quickly resolve repair parts availability problems of our top readiness drivers. In the long-term, the Army is pursuing several significant initiatives.

First we are investing heavily in the Recapitalization program which will bring selected aging weapons system fleets back to half-life (via zero-hour/zero-mile refurbishment), with resultant reductions in O&S costs and increases in readiness. Repair parts/spares recapitalization is a key component of this

initiative. Each of our aviation fleets that will be recapitalized will have as a minimum the top cost and readiness driver components rebuilt to like-new condition using national maintenance standards.

Second, the Army is working to improve the reliability of its repair parts through the establishment of national maintenance standards for reparable parts which will be used to stock our shelves and/or install on our aircraft. This will reverse a trend of decreasing reliability of the parts that drive our readiness. Obtaining the Army goal of 85 percent repair parts availability at wholesale level and improving stocks at retail level require a substantial investment--over $1 Billion for all Army systems, with over $1/2 Billion of that amount for aviation systems.

Third, the Army is implementing a Readiness Based Sparing method for computing ASL which will increase unit level fill rates and decrease emergency requisitions for non-mission capable weapon systems. Restrictions on the flying hour program dollars, and the initiation of the Single Stock Fund will also assist in improving repair parts availability at the retail level.

Fourth, the Army is working to improve the width and depth of parts stocked at both the retail and wholesale levels through the purchase of repair parts. This action will remedy current out-of-stock levels and reduce the rate of future backorders, but will require a substantial investment.

SUMMARY

In summary, the Army views cannibalization as a vital tool that unit commanders use judiciously in their efforts to meet

mission and operational readiness requirements. Overuse of cannibalization has negative side effects which Army leadership, at all levels, must continually work to minimize. The Army views overuse of cannibalization as a symptom of the real problem of parts availability. To minimize the use of cannibalization, we must improve parts availability and reliability, which will require a substantial investment of funds.

Mr. SHAYS. Thank you, General Mahan.

General Heimgartner.

Admiral HEIMGARTNER. I like being a "general."

Mr. SHAYS. Admiral, I'm sorry. [Laughter.]

Admiral HEIMGARTNER. When I call you a general and you're an admiral, it is kind of like when people call me a Senator when I'm a Congressman. I kind of prefer Congressman. [Laughter.]

Well, Mr. Chairman, Congressman Kucinich, members of the committee, I appreciate the opportunity to appear before you and discuss cannibalization and how it relates to naval aviation readiness and answer questions. I have submitted a written statement for the committee and ask that it be entered into the record, and I have a brief, 3-minute or so, oral summary of my written statement.

First of all, I'm Rear Admiral Ken Heimgartner, the Director of the Fleet Readiness Division on the Chief for the Naval Operations' staff, a new position established in October 2000 by the Chief of Naval Operations to help focus the Navy leadership's attention on current readiness. I work closely with the fleet to identify current readiness issues, validate those requirements to meet those readiness concerns, and advocate those requirements within the planning, programming, and budgeting system up here in D.C.

As far as background, I'm a naval flight officer. I have over 22 years of operational flying experience, over 4,500 hours of flight time in fighters and 3,000 of those in the F–14 Tomcat. I served a 2-year exchange tour with the Air Force on flying status. I've been a squadron maintenance officer, a squadron commanding officer, and an airwing commander on an aircraft carrier and had to make the hard decisions on cannibalization.

Cannibalization and its impact on fleet readiness is an area of huge interest to not only my division and me, but at the highest levels of the Navy and the Marine Corps. The Department of the Navy position is that, in support of our training and operational mission requirements, cannibalization, while not a preferred maintenance practice, can be a viable maintenance tool in certain circumstances. It is, therefore, authorized by Navy Department instructions. As long as the Navy and the Marine Corps operate complex, high-performance aircraft in difficult environments in support of our Nation's defense, pragmatic, constrained, and managed cannibalization will occur to ensure that we have enough mission-ready aircraft to meet operational and training missions.

Having said that, we in the Navy and the Marine Corps recognize that cannibalization generally highlights shortfalls in our logistics systems and other areas. The sailors and marines that repair our planes don't want to tear down another plane to fix that plane that they are assigned to repair. Our maintenance technicians strongly agree that only extraordinary circumstances should drive cannibalization. Therefore, we track cannibalization and are taking actions to fix specific cannibalization problems as well as attacking negative trends in overall cannibalization rates.

Our focus on this problem, along with Congress' help, has stopped the recent increasing trend in cannibalization across naval aviation. While the trend for the total force is declining, we still have "cann" problems, cannibalization problems, within certain

types of aircraft, exacerbated by the increasing age of our naval aircraft inventory, which now averages over 18 years for our carrier fixed-wing aircraft and 21 years for our helicopters. For comparison purposes, the average age of our surface combatants in the Navy, the ships, is only 15 years.

The challenges associated with an increasing demand for parts as aircraft age, unanticipated parts failures on older aircraft, limited space for repair parts afloat, and long delays in delivery time for some parts, all contribute to the need for cannibalization. Because of these specific challenges and the dissatisfaction that lack of needed parts, equipment, and materials has on our sailors and marines, we are continuing our efforts to reduce the need for cannibalization of aircraft and have programs in place to do so.

With your help, our deployed forces are ready today. There has been no degradation in our deployed force readiness over the last 20 years, but at a readiness price for our nondeployed forces. And the same as the Air Force, this last year was the first year that we have been able to reduce a downward trend in readiness for our nondeployed forces.

The key to reducing the impact of our aging aircraft inventory and cannibalization is to establish a proper balance between acquisition of new equipment, which helps reduce maintenance requirements, and properly funding the spare parts for the aircraft that are currently in the inventory.

Thank you for the opportunity to discuss this issue with you and answer questions.

[The prepared statement of Admiral Heimgartner follows:]

NOT FOR PUBLICATION UNTIL
RELEASED BY THE HOUSE
COMMITTEE ON GOVERNMENT
REFORM

STATEMENT OF

REAR ADMIRAL KENNETH F. HEIMGARTNER, U.S. NAVY

DIRECTOR, FLEET READINESS DIVISION

OFFICE OF THE CHIEF OF NAVAL OPERATIONS

BEFORE THE

HOUSE COMMITTEE ON GOVERNMENT REFORM

SUBCOMMITTEE ON NATIONAL SECURITY, VETERANS AFFAIRS

AND INTERNATIONAL RELATIONS

ON

CANNIBALIZATIONS OF MILITARY AIRCRAFT FOR PARTS

MAY 22, 2001

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COMMITTEE ON GOVERNMENT
REFORM

Introduction

Chairman Shays and Congressman Kucinich, members of the committee, thank you for the opportunity to appear before you and discuss cannibalization and how it relates to Naval Aviation readiness. I am the Director of the Fleet Readiness Division on the Chief of Naval Operations' staff; a new position established in October of 2000 by the Chief of Naval Operations (CNO) to help focus attention on current readiness. I work closely with the Fleet to identify current readiness issues, validate requirements to meet those readiness concerns and advocate those requirements within the Planning, Programming, and Budgeting System (PPBS). Cannibalization and its impact on Fleet readiness is an area of interest to the CNO and Commandant of the Marine Corps. This is my first opportunity to represent the Navy Department before your committee, and I am looking forward to addressing cannibalization and how this maintenance practice affects Navy and Marine Corps aviation.

Department of the Navy Position on Cannibalization

Let me begin by stating that in support of our training and operational mission requirements, cannibalization is not a preferred maintenance practice, but can be a viable maintenance tool in certain circumstances and it is therefore authorized by Navy Department instructions. The Department of the Navy continues to support a policy of constrained, managed, and disciplined cannibalization of components from naval aircraft when necessary. Under ideal operational and training conditions and with unlimited resources of parts and personnel, cannibalization would not be necessary. However, real world limitations exist that constrain the availability and timely arrival of spare replacement parts to not only our air stations, but to our naval forces forward deployed to most regions of the globe. Affordability

priorities force hard fiscal decisions that may limit the range and depth of the inventory of certain spare parts available on our Carriers and at our Air Stations to meet our full, unconstrained needs. We're constantly challenged to balance our needs to recapitalize and modernize the Force while maintaining the readiness of the existing Force. This tradeoff results in acceptance of some levels of cannibalization that could otherwise only be overcome through substantial investments in spare parts.

Bottom line, the goal of logistics and maintenance operations in the Navy and Marine Corps is to produce mission ready aircraft by using approved maintenance practices, including the judicious and controlled use of cannibalization.

Causes of Historical Cannibalization in Naval Aircraft

The age of our naval aircraft inventory is increasing and with that aging effect, we're seeing a concomitant decrease in the reliability and maintainability of aircraft components. The challenges associated with this increasing demand for parts as aircraft age, unanticipated parts failures on older aircraft, limited space for repair parts afloat, and long delays in delivery time for some parts all contribute to the need for cannibalization actions. The Operational Tempo (OPTEMPO) of our forward deployed naval forces and the need to meet operational and training schedules with the requisite numbers of mission ready aircraft can also drive cannibalization.

The aircraft within the Navy and Marine Corps that have experienced the highest levels of cannibalization have historically been some of the more complex, high performance aircraft, and the failure rate of the components on these aircraft, can be quite high. Operating from our aircraft carriers and large-deck amphibious ships in regions of U.S. interest, or preparing for those operations in flights from our naval stations, these aircraft are critical to defending our

national interests. These flights are an essential element of the ability of our naval forces to sustain the freedom of the seas, provide timely response in crisis and assure access for Joint warfighters.

Obviously, those operations do not come without a cost; equipment failures that occur during routine events can result in temporarily exceeding the local availability of spare parts stock levels and impacting the ability of our maintenance technicians to repair these aircraft in time to meet the operational and training flight schedule. If these replacement spare parts are not available in the local supply system and depending on where that aircraft is located, the aircraft needing that part can remain inoperable for days, or in some cases months, unless a similar part is removed or "cannibalized" from another aircraft. The higher the failure rate of the aircraft's components, the more responsive the local repair capability must be to maintain the Chief of Naval Operations' goal for Mission Capable (MC) and Full Mission Capable (FMC) aircraft. Thus, the lack of a readily available spare part or the inability of the local maintenance facility to repair that spare part typically drives a decision to either await the part or initiate a cannibalization action.

The Navy tracks and records cannibalization actions that are specifically associated with the failure rates of individual types of aircraft, the availability of spare parts at a particular site, and the maintenance capability designed to support the aircraft at that location. This historical data on each type of aircraft has permitted us to establish statistical parameters for cannibalization rates, and for the most part, to determine when a cannibalization rate has exceeded the upper limit of expectation for cannibalizations or has an increasing trend that may need concerted attention.

Extent to which the Navy and Marine Corps Aviation Units Rely on Cannibalization

To meet Fleet readiness requirements, the Navy and Marine Corps will continue to utilize the approved and managed use of cannibalization to maximize the availability of aircraft to meet operational and training requirements. As figure 1 below illustrates, the historical cannibalization rate for the Total Force (all Navy Department aircraft) was as high as 13 cannibalizations per 100 flight hours back in 1980. Over the 1980's and into the early 1990's, with the infusion of new aircraft and in-service support resources for existing aircraft, the Navy and Marine Corps lowered the cannibalization rate for aircraft from 13 to about 8 cannibalizations per 100 flight hours. However, in the late 1990's we began to see the cannibalization rate increase as spare part inventories were reduced or exhausted, and the average age of the aircraft that we were supporting continued to climb. Recent efforts by the Navy and Marine Corps to increase local parts support, assisted by increased funding from Congress, have lead to a slight decrease in the cannibalization rate for the Total Force in FY99 and FY00.

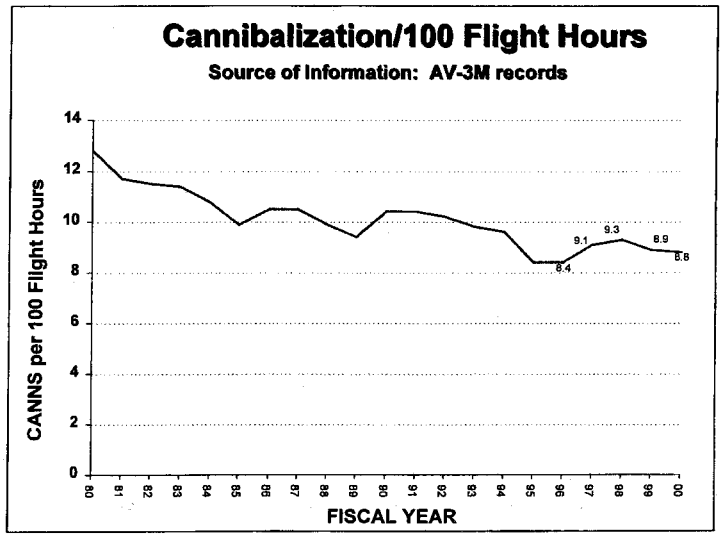

Figure 1.

While the level of cannibalization for the Total Force may be improving, certain type/model/series of aircraft have experienced cannibalization rates above the Total Force rate. Figure 2, for example, illustrates the monthly cannibalization rate for all models of F-14's from FY97 though FY00. The error bars on this chart indicate the mean and one standard deviation from that mean. As you can see, the monthly cannibalization rate is fairly consistent for this aircraft at around 20 cannibalizations per 100 flight hours.

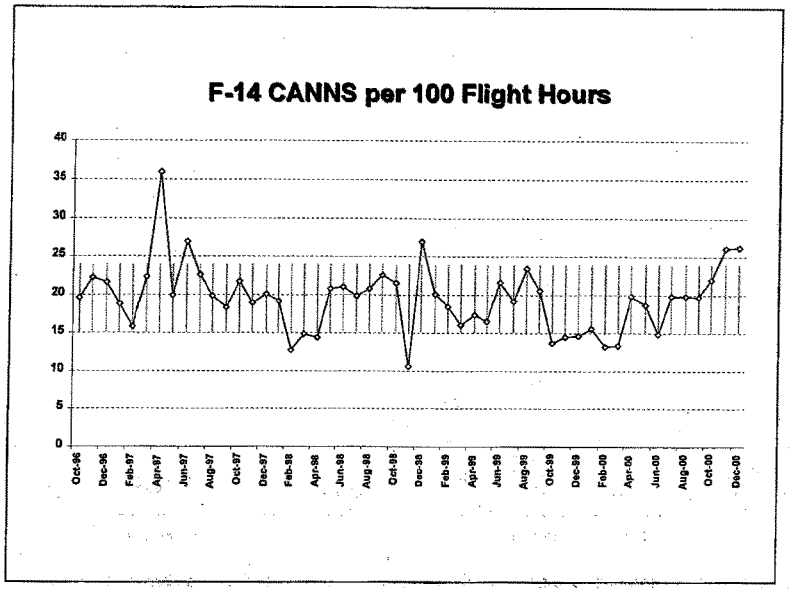

Figure 2.

The F-14 has experienced a higher cannibalization rate due to several factors. The low numbers of each of the three models of F-14, the high failure rate of aircraft components for a number of reasons, and the complexity of its avionics and engines contribute to significant maintenance and repair challenges. We're dedicated to ensuring that the availability of parts and maintenance capability are robust enough to keep our Sailors and Marines from excessive cannibalization actions to maintain enough mission ready aircraft to meet operational and training requirements. However, our analysis has shown that in some cases the amount of additional parts and maintenance capability required to overcome this high cannibalization rate would be exceedingly difficult to afford under current resource constraints and impractical due to the age of the aircraft

components. In other cases, such as the EA-6B aircraft, the Navy and Marine Corps have made additional, targeted investments in maintenance, personnel, and parts to improve the availability of this aircraft for operations and training while reducing the cannibalization rate.

Cost of Cannibalizations Compared to Other Alternatives

Neither the Navy nor the Marine Corps has conducted a specific study to determine the cost of cannibalizations compared with other alternatives. We do have recent studies indicating that in some cases the lack of proper parts and equipment are contributing to higher rates of cannibalization and concomitant dissatisfaction among our maintenance personnel and pilots within Naval aviation. We are committed to improving this situation, however. Both the Chief of Naval Operations and Commandant of the Marine Corps have as one of their top priorities the goal of improving the quality of service of our Naval personnel. Quality of service is a combination of quality of life and quality of work. Quality of life is a concept familiar to Congress, but quality of work is relatively new. It means providing Sailors and Marines with the tools, spare parts, facilities, and equipment they need to be able to do the job they are assigned to do and within a reasonable amount of time.

As part of our effort to focus greater attention on the cannibalization rates and determine the significance of what these rates really mean, we have engaged the Center for Naval Analysis to quantify the amount of increased material readiness achieved through cannibalization. With this information, we will be better able to determine the additional levels of spare parts and maintenance capability required to better manage cannibalization and meet current readiness goals.

Impact of this Practice on Personnel OPTEMPO and Readiness

Each cannibalization action essentially doubles the man-hours to accomplish a given maintenance job when compared directly with the time required to accomplish the same job without cannibalization, assuming the spare parts are readily available. The resulting additional hours are added to some Sailor or Marine's working hours and if not managed properly can lead to an excessively long workday. While cannibalization actions may improve the material readiness as measured in the numbers of available aircraft to meet training and operations tasking, it may come at an unacceptable human cost. As mentioned above, understanding the true implications of cannibalization should allow us to make better investment and maintenance decisions. Reducing this "human" cost and providing proper levels of tools and spares to accomplish assigned tasks is one of our top priorities.

Actions that the Navy and Marine Corps Are Taking to Reduce Cannibalizations

The Navy and Marine Corps have initiated a number of actions to reduce cannibalizations. These include: increased funding for spare parts planeside and in the wholesale level, increased Operations and Maintenance funding for the Flying Hour Program, and specific, targeted efforts to improve the reliability of our aircraft and reduce failures. Additionally, we have programs to identify and track components receiving the most cannibalization actions and to implement improvements to those components when cannibalization rates deviate from an acceptable norm.

We greatly appreciate the efforts of Congress to help us meet our readiness goals. Properly resourcing the Flying Hour Program is instrumental in improving the funding for aircraft spares and decreasing cannibalization. Your support for the Office of Secretary of

Defense initiatives to improve backup spares support for aviation has been essential to our efforts to meet operational and training requirements. As we gather more data on the cost of alternatives to cannibalizing we are dedicated to developing initiatives to reduce cannibalization. Your continued support in Congress will be key.

Conclusion

The naval services are America's expeditionary force -- deploying forward to secure U.S. interests. Our forces represent immediately employable combat power -- capability to respond because they are there with enough combat power to shape the international security environment. They operate from forward deployed ships, aircraft carriers, and air bases to provide presence and timely crisis response when the nation calls. Naval aviation is a critical aspect of that combat power.

As long as we continue to fly complex, high performance aircraft in challenging environments to meet our Nation's defense, we will have some level of cannibalization. Our Sailors and Marines have always given our nation what ever it takes to maximize the readiness of our forces. Their efforts have been "Herculean" at times but that effort comes at great personal sacrifice. We in the Navy and Marine Corps leadership are committed to finding ways to attain and maintain the required level of readiness without overly burdening our Sailors and Marines. We look forward to working with Congress to meet our nation's readiness goals.

Thank you for the opportunity to present testimony on this important issue.

Mr. SHAYS. Thank you, Rear Admiral.

We will go to Mr. Gilman.

Mr. GILMAN. Thank you, Mr. Chairman. I want to welcome our experts here on logistics.

Let me ask the entire panel, do you three Chiefs of Staff for Logistics and Director of the Fleet of all three major components of our military ever get together to discuss your mutual problems of cannibalization?

General MAHAN. Sir, I can tell you that we get together quite frequently. The Joint Logistics Commanders Conference, we meet often with the Joint Logistics Chief, Lieutenant General McDuffy. We talk about issues, all types. Cannibalization has not been one of the premiere subjects, but it certainly is embedded in our readiness discussions as we talk to that.

Mr. GILMAN. Well, General Mahan, you say you never get into the cannibalization or touch it lightly?

General MAHAN. Sir, it has not been a specific subject that we have dealt with as a unique subject. It is embedded in our discussion topics about readiness, about ways to enhance that readiness, etc. We talk more about the other issues, such as test equipment, diagnostics, the long lead times for administration and procurement lead times. We talk about funding levels. We talk about management systems.

Mr. GILMAN. But do you feel, all three of you, do you feel that cannibalization warrants more attention than it has been given by the services?

General ZETTLER. I think when we meet——

Mr. GILMAN. Could you put the mic a little closer to you, General?

Mr. SHAYS. Gentlemen, I'm sorry, we seem to be having a little bit of trouble with our mics. They used to project better.

General ZETTLER. I think when we meet, we try to go to the root cause of cannibalizations. We recognize that there's a cannibalization issue out there, but we go to some of the things that you discussed: inventory management policies and practices, stockage levels, minimum readiness levels that we're willing to accept, and how you drive from those minimum readiness levels to a stockage objective.

Mr. GILMAN. Well, who meets with you from DOD?

General ZETTLER. That's a very fair question, and in the past Dr. Kallock, who was the Deputy Under Secretary of Defense for Logistics, was the leader of this tribe as we worked our way through this process and these issues.

Mr. GILMAN. You're talking about past. Is he no longer there?

General ZETTLER. No, sir, he's no longer there.

Mr. GILMAN. Has that post been replaced?

General ZETTLER. Pardon me, sir?

Mr. GILMAN. Is there anyone who has been replaced for that responsibility?

General ZETTLER. There are plans in the Department to replace him.

Mr. GILMAN. But at the moment there is no one there?

General ZETTLER. That's correct, sir.

Mr. GILMAN. And how long has that been vacant?

General ZETTLER. Since the change of administration.

General MAHAN. Sir, I might add, we have an Acting DUSDL, Deputy Under Secretary of Defense for Logistics, Mr. Allen Beckett. We have met with him. He continues to bring to us the issues that are important from a readiness perspective, but, sir, he is an acting.

Mr. GILMAN. Then it would be that post that would have the central control of logistics, is that correct? That staff level person?

General MAHAN. Sir, there is. I would submit to you that it is not merely the logistics chief that has that responsibility, nor that can impact on readiness and spares. I would suggest that the acquisition process, which is, in fact, separate, just as the science and technology is also separate, has much to do with the issues of spares, reliability of spares, and the levels of spares that are acquired as part of the initial systems process. So it is a partnership among all of those staff leads within the Secretary of Defense, just as it is in our——

Mr. GILMAN. I have to interrupt you because my time is running. Have you, the three of you, made any recommendation on how to avoid this growing problem of cannibalization to the Department of Defense?

Admiral HEIMGARTNER. From the Navy's perspective, not directly.

Mr. GILMAN. Pardon?

Admiral HEIMGARTNER. Not directly.

Mr. GILMAN. Not directly? What would you think about the services—how would you response to a proposal of partially or wholly privatizing the supply system for spare parts and other equipment management? What would your response be to that? Since we're not doing such a good job in the services, maybe the private sector could do a better job.

General ZETTLER. I think there is room for a study of that approach. We have various systems, such as the KC–10 or the F1–17, where we allow industry to do our supply chain management for the platform unique parts. We get good support. It is with a cost.

We know that in cases where we have gone to industry to allow them to do that, we have also had supply chain difficulties. So I think when you move down that path, you have to be very careful. It's something that the Air Force would not immediately throw up a stop sign to, but it's one that we would say we need to go cautiously.

Mr. GILMAN. But worthwhile studying, is that what you're saying?

General ZETTLER. Absolutely worthwhile studying.

Mr. GILMAN. Do the others feel the same?

Admiral HEIMGARTNER. If I may comment——

Mr. GILMAN. Admiral.

Admiral HEIMGARTNER. Yes, anything that may highlight why, the systemic reasons, if that's the case, that cannibalization is where it's at and where it needs to go. But I may add that cannibalization itself may just be a small symptom of larger problems. And from my own experiences, the sailors and the troops have no adverse reaction to cannibalizing if that action leads to a sortie

that gets off the ground, training that's completed, an operational sortie flown while deployed overseas, and mission accomplishment. They take great pride in preparing those airplanes and getting those airplanes off the flight deck.

Mr. GILMAN. I can understand that, and they do a good job of that, but what about the cost factor to all of this of a piece of equipment close to several millions of dollars lying there idle because you cannibalized it?

Admiral HEIMGARTNER. Well, let me finish. The other elements that cannibalization may mask, and were alluded to by others as well as the GAO, and that may be an inadequate training issue. It may be the inadequate number of personnel. It may be improper engineering and logistics support for components on aging airplanes on which we have no data as to when they may break and the magnitude in which that fix may exacerbate the length of time in which components may be down.

Let me just say that we don't normally stock entire landing gear assemblies because those landing gear assembles are supposed to last thousands of hours, but if they break prematurely, it can take as long as 2 years until the time that we've been able to get those parts back in the inventory. And that has been the recent case in the year 2000 with engines on AV8-B's, engines on H–46's, landing gear on the F–14, and landing gear on the F–18.

Mr. GILMAN. Admiral, how much does an F–14 cost the service? What's the cost of that 14?

Admiral HEIMGARTNER. Do you mean to buy a new one?

Mr. GILMAN. Yes.

Admiral HEIMGARTNER. Difficult to determine since the average airplane——

Mr. GILMAN. Well, approximately.

Admiral HEIMGARTNER [continuing]. Is over 20 years old. Replacement cost, probably $50–$60 million, but that's a guess.

Mr. GILMAN. Millions of dollars sitting there idle, it seems to me.

My time is running. Mr. Chairman, one question more——

Mr. SHAYS. Your time ran out a long time ago, but we're trying to accommodate you. [Laughter.]

Mr. GILMAN. The GAO noted the inability to determine the full extent of cannibalization because the services aren't really reporting the full extent of cannibalization. Can we do something about more accurate reporting, so that the Congress will have an opportunity to take a good look at the assessment of the cost and how it affects our——

Mr. SHAYS. Let me do this: That is a question I am going to come back to. That is a whole new line of questions that we really do need to get into, and I really thank the gentleman for asking these very important questions.

Mr. GILMAN. Thank you, Mr. Chairman.

Mr. SHAYS. I'm going to give Mr. Kucinich 10 minutes, and then we'll go to you, Mr. Schrock.

Mr. KUCINICH. I thank the chairman, and hopefully, it won't take that long to go through these questions.

I want to begin by thanking each of the representatives of the service. I want to thank you for your service to our country. You should know that those of us who serve in Congress understand

that you are performing an essential service to our Nation in taking responsibility in the respective services, and also, just as I don't like to be held accountable for the institution of Congress relative to certain things that happen around here, I would expect that any of the individuals who serve proudly also have some concerns about the institution that you are now serving. You do the best you can, and I believe that.

But, nevertheless, I want that to serve as a backdrop for the questions that I have, and I ask that you not take them personally, but take them as the responsibility that I have to ask the questions. I hope that you will understand the spirit in which the questions are conveyed.

General Zettler, I am sure you are aware of GAO's finding that the Department of Defense maintains almost $30 billion worth of current inventory that exceeds both war reserve levels and current operating requirements. Are you familiar with that?

General ZETTLER. Yes, sir, I am.

Mr. KUCINICH. What do you think of that?

General ZETTLER. Well, I feel that I have to look at the Air Force, where we work that issue for the Air Force. Our inventory in the Air Force over the last 10 years has been drawn down from, rough number, 35 billion to a number today of 25 billion. I think that those stock levels that are out there are in the ballpark of appropriate.

Do we have some things out there that may not be used for 8 or 10 years? Probably. Do we have a lot of parts that we don't have right now? Absolutely.

When I look at what the Materiel Command says keeps them from repairing parts to the needs in the field, the largest constraint that they repeatedly report to us is a shortage of carcasses, which says we don't have an inventory of spare parts to fix, to put back out in the field. So I think our inventory figures are probably in the ballpark.

I will tell you that we've also made some policy changes, as I made in my oral statement, recently to retain inventory for a longer period of time. We've done that because we've had some solid studies done by the men and women that are out in the field that say, the current policy says, since we haven't had a demand for this, we should get rid of it. But we know that in 2 years we're going to go through the same life cycle on this airplane again, and that part is going to be in demand. So my bottom line on the inventory question is that we need to have a balance here. We can bring that inventory down dramatically, only to find out in a few years we'll need it again.

We're also buying a great deal of spare parts, and those, I believe, are valid requirements that we have gone to great lengths to identify properly what's required and try to replenish the stocks that were drawn down in the nineties for demands that we said weren't going to happen.

Mr. KUCINICH. Thank you, General. General Mahan, would you like to respond to that same question?

General MAHAN. Sir, I would. I share the same perspective as my comrade from the Air Force.

Mr. KUCINICH. Do you have the same numbers?

General MAHAN. Sir, I have better numbers than that in terms of reduction from the OSD-mandated perspective. We had a memorandum directing reductions in inventory. At that point that we started, we were at a little over about 18 billion in the Army. We have gone down below 8 billion. We are now back to 9.3 billion because we recognized that readiness rates could not be sustained with those levels of spare parts inventories.

Our current procurement for aviation spares, the purchase, if you will, from field organizations, average about $1.6 billion per year. So, in terms of inventory turns, we wouldn't meet the inventory turn average for industry at large, but we have, as already alluded to, some inventory that will not change as rapidly.

If you went back and looked at our recapitalization efforts, much as General Zettler has already alluded to, we find that carcass rebuild, which we depend on 25 to 30 percent of the time for spares, is inadequate because of piece parts that are subordinated to that spare. So we have to go through and really look at the high readiness drivers and the high dollar cost drivers, so that we can get the best return on investment for what we will purchase in spares requirements.

Mr. KUCINICH. You're familiar with the same report that I cited?

General MAHAN. Sir, I am.

Mr. KUCINICH. What do you say about one of the aspects of that report that said that $1.6 billion worth of inventory was purchased without any valid requirements? This is GAO saying it. Is that a problem?

General MAHAN. Sir, I could tell you that, from the Army's perspective, we contributed to that. Until we have—and we are in the process even as we speak of going to a single visibility of all Army inventory. It's called total asset visibility. Before, our wholesale system believed and acted as if, when they issued a part, that part was considered consumed because our standard management information systems would not allow you to count as part of our requirements determination process all of the assets that were in the hands of field units when purchases were made from the original equipment manufacturers or when decisions were made to rebuild spares. Today we have made changes that will give us from the factory to the foxhole, if you will, the inventory in motion, both from a maintenance perspective, from an inventory perspective, and it will always be available for that acquisition objective determination.

So, yes, sir, I would suggest that we did that. In my first tour in the Pentagon as a general officer, I was Director of Supply and Maintenance, and, in fact, we purchased into long supply, rebuilt into long supply, and failed to induct the appropriate readiness-driving carcasses into short supply into the production lines because we had poor visibility of those assets. We have changed that.

Mr. KUCINICH. So, General, when GAO said that the Army didn't know if it shipped inventory, inventory had been lost or stolen, because of weak inventory control procedures and financial management practices, you are saying these are things that you not only are aware of, but you are working to address?

General MAHAN. Sir, we have been vigorously attacking that through several issues. As I said, the total asset visibility program,

the single stock fund program that will get us to visibility of all those assets, be that at, if you will, the flight line equivalent for the Army in the motor pool, in the authorized stockage list of units down to that retail level, through the installation level, if you will, retention accounts, and at the wholesale level. We are through milestone two. Basically, we have captured the installation stocks and the retention stocks at the core, mainly the repair parts companies, and we are now moving into milestone three, which is down at the retail stock level of the authorized stockage list inside the units themselves.

Mr. KUCINICH. A quick question—thank you, General.

General MAHAN. Yes, sir.

Mr. KUCINICH. I want to go to Admiral Heimgartner. GAO reported in its high-risk series that the Navy was unable to account for more than $3 billion worth of inventory. Do you have any response to that, Admiral? And what are you doing about it?

Admiral HEIMGARTNER. Well, similar approaches as the other two services. I mean, as we all know, the resources have been difficult to maintain in service aircraft as well as recapitalized, and we can't afford to have mispositioned, ill-positioned stock. So we're attacking that aggressively.

But, if I may, I would just like to mention for comparison's sake that we have about roughly 16,000 parts on a carrier. When an aircraft needs a part, we're able to fill that about 75 to 85 percent of the time immediately, and then it takes about 4 days on average for the other parts to come to the carrier. And if we're looking at shore-based operations, it takes 8 to 12 days.

So what we have is a little bit of a mismatch, as much as 25 percent, perhaps 15 percent. So can we do better? Absolutely, yes.

Mr. KUCINICH. Yes, one of the things I want to say before I go back to the Chair here is that there is a certain level of confidence that comes in the midst of all this when you have representatives of the service taking responsibility, first of all, because you have been very certain about that, but also stating that you are really making an effort, you have been making an ongoing effort to try to deal with this. I think that should give the public a certain degree of confidence that an effort is being made. I would say that, based on the presentations that I have seen here, I think the people should know that you are really working very hard to try to straighten this out. It is not something that you created, but you are trying to resolve it. So I want to thank you for your testimony. Thank you.

Mr. SHAYS. I thank the gentleman. Mr. Schrock.

Mr. SCHROCK. Thank you, Mr. Chairman. I think what my friend from Ohio said last is probably the most important thing. I am not sure—we've missed the point here, as far as I am concerned.

General Zettler, first of all, said that they try to cannibalize as a last resort, and he also said full funding—keyword "full funding"—for these parts is necessary if he is going to keep his planes running.

General Mahan said underfunding is the main problem. Underfunding is the main problem. More spare parts because of aging fleets, that is a key. The older these things get in the Navy, the Air Force, the Marine Corps, or the Army, they've got to be fixed.

Admiral Heimgartner said aging inventory means more spare parts. And, folks, we just have done a lousy job of that, and I place the blame right here behind this desk. If these men are going to do what they are supposed to do, and if the fleets are supposed to do what they are supposed to do, we've got to fund them. We haven't killed the military over the last 8 years, but we have kept the water level up to here so they are strangling. Unless we do something about that, this isn't going to change.

These three men are doing exactly what they are supposed to do. I heard my friend Mr. Gilman say, if the services aren't doing a good job of this, maybe we ought to let the civilians do it. I nearly came out of my seat at that one. They are doing a magnificent job. It is the civilians that aren't making sure they have the parts that they need.

We can never predict when a ship is going to break, when a tank is going to break, and when an airplane is going to break, Mr. Chairman. A ship is only so big, and you're not kidding, there are lots of parts. I was in the Navy 24 years. I have talked to the people at Oceana a lot because that is in the district I represent. And they cannot predict when these things are going to happen. If you have to produce these things after the problem exists, then there is no way we are going to keep our fleet running, and they are not going to be able to carry out the missions they have been tasked to do.

You have to understand, too, the military has been cut by 40 percent in the last decade with requirements going up 400 percent. That is not their fault; that is our fault. In the last 8 years, the last President had our forces in more areas of the world than all Presidents and Franklin Delano Roosevelt combined, and that was out of the budget. There was not a contingency fund to do that or a supplemental fund. These men had to try to operate with all those things going on and they simply can't do it.

We shouldn't be having this discussion. We shouldn't have to look at airplanes like we see up there. Because if we were funding exactly as we should and we were providing the parts, that wouldn't have to happen.

I sat next to a former 35-year-old major in the Air Force a year ago coming back from San Francisco. I said, "You're 35 and you're a former major. What's that all about?" He said, "I was flying planes day-in/day-out, week-in/week-out, month-in/month-out, and every night when I parked them, I wasn't sure any maintenance was going to take place on those, and I wasn't even sure if I came back in the morning that all the parts I left there the night before were going to be there. And my wife said to me 1 day, she said, 'You know, we've got three small kids. One day you're going to go up and you're not going to come back. What would I do?'" He was a smart guy. He got out. He's got a big, fancy, high-paying job in Silicon Valley, but the fact is we needed that guy, and we needed the hundreds and hundreds of others that have gotten out because of the same thing.

I hear this from commanders and squadron commanders all the time in Virginia Beach and Norfolk, the area I am privileged to represent, and the enlisted people as well. The morale of the troops sucks. It stinks. Because they don't have the parts to do what they

have been trained to do. Unless we at this level put the money in the budget to make that happen, and unless we do something about a supplemental real fast, the CNO has told me he's going to start parking planes June 1st. The Chief of Staff of the Air Force said he is going to start parking them August 1st. It is not these gentlemen's fault; it is our fault. We have got to make sure the funding is there.

If we truly want to have the best military we have ever had—and everybody keeps saying we do, but I am starting to question that—we've got to make sure we provide them with the funding that is necessary. I didn't mean to get on my soapbox like this, but I was in the military 24 years. I know what it takes to run an operation, and we are not doing it. We are not letting them do it. Until we do, nothing is going to change.

Thank you.

Mr. SHAYS. I thank the gentleman.

Let me just say to all three of our witnesses that, while I agree with a lot of what my colleague has said, having been here 14 years, I have been here when the military has come before the Appropriations Committee and said, "We have all the money necessary to do everything we need to do." I served 14 years in the Statehouse, and quite often people would come and say, "We have everything we need." Then, later on, we find we didn't. So I will fault Members of the Congress when the statements are clear and the testimony is honest, but when people take the party line to be good soldiers for their command, they totally distort our knowledge and understanding.

And let me just say to you that I am trying to get a handle on a few things, and it is very important that we proceed with this hearing and understand exactly where the problems are and where the remedies are. I can understand the age of the aircraft means that we are going to use parts more often. I can understand that, if we are no longer in production, we have a problem. I can understand that this number of units that we may have, the number of aircraft, may make it much more difficult to supply inventory. I can understand that we use this aircraft continually. They don't sit in the garage for a weekend usually. So that is a problem. And I can understand the whole funding issue.

What other issues cause the shortage?

General ZETTLER. Let me address that at least in part. Our stock management is pretty sophisticated business. We try to optimize aircraft availability. When we do that, we set some limits that we're willing to accept in not having the spare part where we would like it to be when the mechanic says, "I need it."

We do that from the modeling approach that says some of these parts are terribly expensive, and so you try to optimize by having a few lesser ones than the very most expensive one. When we do that, the reason we do that is you try to drive to 100 percent availability of every aircraft; you start to run vertical on the cost curve against the probability line that says I want 95 percent or 98 percent or 99, and you're literally going to infinity to assure you have the distribution of spare parts. So we put some cost constraints into our equations.

When we do that, that means there's going to be times where a mechanic says, "I need this part," and he doesn't have it. It's a simple variability of demand. He may have used one yesterday, too, and he may not use another one for 2 weeks or 3 weeks while the system replenishes it.

Having said that, we have obviously undershot that mark, and we're going back and look at those equations. I will also tell you that in our overall Department policy with the Defense Logistics Agency, what the Defense Logistics Agency is tasked to do is give us the parts that we need 85 percent of the time when we order them. That's their stockage policy. So that builds in some criteria here or some shortages in here. And, again, that's a matter of looking at where you're going to go on that probability-versus-cost curve.

In order to overcome that one on the Defense Logistics Agency, for example, the Department of Defense 18 months ago authorized an additional $500 million of inventory augmentation, of which 60 percent comes to the Air Force as they buy it over 4 years to help us with our spare parts problems.

So when a mechanic tells any of us out there, "I don't have the parts," you really do have to bore down into the details of what is the part that you don't have or the one that's really giving you the problem and why. In many of our cases in our weapons systems right now, very currently, this year and last year, we closed two depots; we moved 40 percent of the repair capability between the depot at Kelly and the depot at McClellan in Sacramento, CA, and we put that into other depots or into the private sector. That's a huge workload change; 40 percent of our workload moved. And that has had perturbations.

So you really need to start to peel the onion back before we talk about centralization, before we talk about making major policy changes: What is it we're really trying to fix here? I think that all of us are doing that, and I think you will recognize that we are doing that when we're done here today.

In my service, for example, I have taken my Director of Supply and sat him aside with 120 to 150-day tasking to go through the complete supply chain management policies and procedures that we have and we operate under in the Department of Defense and in the Air Force, and to come back to the corporate body of the Air Force and tell us what are the high payoff ones that we need to go change, and we're prepared to do that. I've been to the Chief with the outline of how we're going to do that. I've made my case. The Chief supports it, and I think that General Mansfield will come back in the July/August timeframe with, "These are the things that we absolutely have to do," from stockage policy, from financial operations, from distribution policies, from how we do readiness spares kits, and bring that all together. I think he will bring in 30 to 50 initiatives, and I'm hopeful that we will get 75 to 85 percent of those accomplished in the next year.

Mr. SHAYS. OK. General Mahan, we have an aging aircraft. We are no longer in production in some. We have small numbers of units, aircraft. We have a lack of predictability. We have a turnaround problem. We have full funding, and General Zettler has

talked about cost constraints and that proper balance. What would you add to this list?

General MAHAN. Sir, I would tell you that policy, as it relates to stockage availability—as mentioned already, DLA used to have a 90 percent stockage availability requirement in the early nineties. They were mandated, I believe by Congress, to go to an 85 percent stockage availability criteria, as a result of the excesses that were, in fact, noted after the buildup of the Desert Shield/Desert Storm.

I think at the end of that, because of the numbers of dollars that we had that were in——

Mr. SHAYS. Let me just explain something, to add a little reality to my colleague's comments. We were ordering, because we had such poor inventory control—I mean, this is not the first hearing we've had. We are not babes in the woods here. We have had countless hearings talking about billions of dollars of parts being ordered because all the military didn't know they already had the parts. So we have to get at this.

And the reason we started to see Congress respond differently was we wanted to know why the hell we were ordering parts we already had, and we were ordering them not just 1 year; we were ordering them a year and a year and a year. So we hadn't used the parts for years and we kept ordering them because we have such poor control.

We wondered why it is that our masks—and this isn't aircraft, but our masks—some of them were not made properly. Forty percent of them were not performing to the requirements, and we mixed them in with the inventory, and when we wanted to get them out of the inventory, they couldn't tell us which masks were what.

So, I mean, there are a real lot of problems here. I suspect that they just didn't relate to the Marines on the ground and the Army on the ground, but it related to the same endemic kinds of problems.

So you are talking about coming down to 85 percent, and that was a factor, you think. What else do you think?

General MAHAN. Sir, if I could expand on that——

Mr. SHAYS. Sure.

General MAHAN. Mr. Chairman, I think we're violently in agreement in terms of our inability to articulate very clearly the real requirements. Our systems have grown up in stovepipe systems. Financial does not talk to supply. Wholesale did not talk to retail. We are attacking those systems. Maintenance did not talk to supply appropriately at the wholesale level. So I had swivel-chair technology taking place at the corporate leadership of the Army, where our Army Materiel Command had to, in fact, take one diskette, do a swivel-chair for every national stock number that it was trying to manage of the 6,400 reparable items, much less the hundreds of thousands of consumable items that have been transferred to DLA. Sir, that is an unacceptable way of doing business, and we have to get at that.

That is one of the efforts that we are making today, to try to get visibility over all those systems, so that we make the right corporate decision. Where we can, we need to run our Army and our Armed Forces as a business. As we have already alluded to, it still

has to be passed through the prism every day of readiness and mission capability, but where we can—and that's where I go back to single stock fund and the National Maintenance Program, reliability of the spares, refurbishment of the platforms that will allow us to do that.

So systems, spares reliability, and how we can look at our policies, not the least of which is inventory management, as we've spoken to, but also maintenance management. If I continue to repair only as necessary—and I'll give you probably one that to me is far more meaningful, but it clearly, I think, underscores the importance of having appropriate policies.

Today we have an inspect-and-repair-only as-necessary policy that for the M–1 tank engine, when we originally bought, it was supposed to be 1,500 hours mean time between failures, delivered between 1,350 and 1,400. Because of inspect-and-repair-only as-necessary, if I open an engine at the unit level and that engine has a problem with one or the other of its forward or rear mods—and there are four in that—they can replace a forward mod and put the engine back together, and they just bought into the life expectancy of the worst of the remaining three modules of that engine. By doing that, that means that the mechanics are going to be probably repairing it three times more frequently than they should, had they gone back to refurbishment; i.e., the depot-level DEMAR standards that will go back and recapitalize and refurbish to zero miles an hour.

So our policies, be that inventory management, be that maintenance management, certainly be that the financial management as in single stock fund, all coalesce, hopefully, into a better capability to do exactly what you would expect of us, and that is to manage appropriately and efficiently all those different policies and procedures.

So, sir, we are in agreement in terms of where we must go. It's now pushing the dollars into the systems to be allowed to do that. My management information systems are, in fact, from wholesale logistics modernization program, which is for the first time trying to get at a capability instead of buying hardware and software in stovepipe fashion that has first, among equals, the ability to coalesce all of the disparate data elements from supply, maintenance, finance, etc. So that we can begin to see all of those things that we could not see before.

That's what led us to this inventory mismanagement. Clearly, guilty as charged, because we did not have visibility. Once we issued, it was considered consumed. And GAO, I believe, would go back and could confirm for you that those things that were bought into long supply or repaired into long supply were at least partially, if not wholly, due to our inability to use those systems automatedly. So that an automatic feed to a requirements determination process included the elements that were down at the retail level in the hands of the flight lines and the motor pools, as well as all the way up.

Mr. SHAYS. K-Mart can tell you what they sold in any store almost instantly. The military at this time cannot tell you what they have, where they have it, when it goes out. They can't tell you, in a sense, what the consumer is buying. And I am just saying to you

that we all recognize that and we are trying to deal with it, but it is why we are here.

General MAHAN. Yes, sir.

Mr. SHAYS. Because if you can do it as well as the private sector, then we want you to continue to do it. If the private sector can cut your costs, so your military personnel who have been trained to do so many things can do their jobs and not have to handle inventory, although you have people trained to handle inventory, that may be a plus. So these are all things that I know you are considering and we are aware that you are as well.

General ZETTLER. Mr. Chairman.

Mr. SHAYS. Yes?

General ZETTLER. In our Air Force today, implemented in fiscal year 2001, being refined in fiscal year—or implemented in 2000, being refined this year, when our reparable parts sell at a base, in short order, not instantaneously, the item manager for that part and his supply chain manager, his bosses, know what parts have sold, and that allows them to make more management-level decisions of what parts need to be repaired and driven into the repair.

So we have a program out there. By acronym, we call it KEYSTONE. It's certainly not perfect, but a vast improvement over what we had in 1999 to tell us what parts are being consumed and how to, then, replenish those, rebuild the budgets for the future years.

General MAHAN. And, sir, likewise, I think through all the services, we are going to more and more of a real-time DRID–54, which is an OSD directive that forces us to go to real-time, if you will, even wireless kind of activities, so that we can relate supply activity to real mission requirements. That's one of the underpinning responsibilities of the services as we go to more of this business process-related——

Mr. SHAYS. Let me just say, my colleague is welcome to join in anytime, but when you only have two Members, we have the opportunity to turn off the light. It also gives you a chance to give a more extended answer, if you want to.

Mr. SCHROCK. I would like very much to——

Mr. SHAYS. Sure.

Mr. SCHROCK. I agree with two things you said completely. One was that for a long time we were overbuying and things were stacking up on one another, and that is not good. But I think you will be pleased to know that the Navy at the SPA Wars Command in Chesapeake has developed a system, a K-Mart-type system, a Wal-Mart-type system.

Mr. SHAYS. Right.

Mr. SCHROCK. And, oddly enough, it was developed by an ED–7 Chief Petty Officer and a First Class Petty Officer. And I had a briefing on that a couple of months ago, and it's actually magnificent and is going to stop some of these problems.

And another thing you said, you're absolutely right, the Joint Chiefs do come up here and say they want this much money when they knew they needed this much. I went back and talked to two of them, and their response was, "Well, that's just the way business was done the last 8 years. We knew we were going to ask for this much, but we had to beg for the rest." We shouldn't have to do

that. Those men ought to be able to come up here and say frankly what they need for the whole period and then be done with it. And I think that mindset is going to change.

Mr. SHAYS. Right, and they are going to say what they need, and we are not going to agree with everything, but at least the record is honest. Then we can have accountability where it belongs. I think if you tell the American people the truth, they ask you to do the right thing. And I think if you ask their Representatives, their Congressmen and women, what you believe to be the truth, they attempt to do the best they can to accommodate.

But, we are also dealing with—I mean, I am interested in National Service in general. I had a Member say he is not going to vote for it because three out of their seven accounts weren't auditable. And then in my work on the Budget Committee, working with DOD, none of DOD's accounts are auditable—none. None. Over 7.6 trillion transactions were not auditable. That lends itself to extraordinary abuses. So we just have to make sure that we are demanding the same accountability ultimately.

Admiral, I didn't give you a chance to just respond. I do want to get to the second part, which I do fault the military for, and I am going to give you a chance—in other words, we can say it is other people that should have done this or that and we could do a better job. I am at a loss to know why we aren't keeping better documentation and why the documentation can't be uniformly understood. And if it can, then I want to know how it can be.

But we have traveled the bases and we ask these questions of the rank-and-file, and they tell us how much down time exists for the inventory. Thank goodness, they are telling us because I want to do something about it. But it seems to be higher than what the statistics tell us.

But, Admiral, just going back on the issue of the age of the aircraft, no longer in production, small number of units, lack of predictability, turnaround time is a problem, full funding issues, whether we are fully funding the cost, what's the proper balance between inventory on hand, and so on—I mean, those are issues that obviously you have to think about. Is there anything else I should add to that list?

Admiral HEIMGARTNER. Let me, if I could, just take a couple of minutes to address that in broad terms, and then maybe more specifically.

I agree, since the early nineties, requirements was not something that the system focused on. I've been—this is my fourth tour in the Pentagon, and I've been in requirements and readiness in most of the tours with some budget experience. But the CNO, when he came in last year, his first priority for his first year was current readiness. The reason that he put together this division that I head, which is Fleet Readiness, was to get to the real requirement and challenge all assumptions, measure the product of the plan, a number of items that are good business-sense issues and which we, frankly, hadn't focused on in a number of years.

We used to have a robust requirements generation process in the Pentagon, but we went out of that when we were top-line-driven. So now we're back into that, and we're back into it big time. I say that to kind of add a strategic underpinning to understanding can-

nibalization and other things that we do. We can't look at them in a stovepipe environment. We have to look holistically.

One thing that we're doing in the Navy is we're trying to understand why we can't execute the flying hour program and match the hours that we had programmed to the cost per flight hour. In other words, we fly up the money, but we don't fly the hours. So why is it that the costs are going up? And it's more than just cannibalization. And you've mentioned almost every item that has to be taken into account when you look at our ability or inability to meet the mission.

So my particular division, just to give you some idea of what has been invested by the Navy and the Marine Corps in trying to get to the heart of the requirements, we're the ones responsible to assess, develop the metrics, the models, and the methodologies for the flying hour program, manning for aviation, training for aviation, support equipment for aviation, publications for aviation, the programmed logistics in order to do the analysis to decide if these parts are reaching an age in which we ought to overhaul them instead of just repair them. I also have depot maintenance for aircraft, airframes, and engines, the spares, and a look at the facilities as well as the shipping and handling of those particular parts. Then I have about the same thing on the ship and the submarine side, too.

So we're expending a considerable amount of effort in order to try and find out the real requirement, that linkage to readiness, so that we can better articulate what it is that we need so that we can get our arms around what it really costs.

Mr. SHAYS. And that is a work-in-process that will have some conclusion when, do you think?

Admiral HEIMGARTNER. We've already been able to assess the flying hour program for 2001 and determine what the real shortfalls were in the flying hour program and those accounts that support the flying hour program, and those have been articulated with Members of Congress as well as the ongoing supplemental negotiations within our own Department.

Then, in a formal way, because of the nature of this beast here and the periodic nature of how we do budgets, we've already put all those pieces into play for the PR–03 or PALM–03, but we have good knowledge of where the key areas are from having gone through this in 2001 as well as 2002.

Yes, we have to be patient. We can't fix something that's been broken for a number of years, but we have to approach it. We're dedicated and obligated to doing that.

Mr. SHAYS. Let me ask you this: It strikes me that you, as commanders, want information and you want it to be as accurate as possible. I think GAO's analysis, particularly on how the data is organized and how we describe it, and the fact that they think it is quite inaccurate, I think has got to be of concern to all of you. It would strike me that you help your cause by truly having that data be as accurate as possible.

Admiral HEIMGARTNER. Let me address that, if I may?

Mr. SHAYS. Sure.

Admiral HEIMGARTNER. Because of the Navy IG team that visited our naval installations about 2 years ago, and other studies and in-

spections that we've had, in order to get the data that's so critical to not only making decisions at the headquarters level, but understanding at the execution level, down in the squadrons, how that money is being spent and then what it's being spent on—the acronym is called NOWCOMUS Optimized. We have a legacy NOWCOMUS which, as the GAO mentioned, gathers as much information as it can, to use cannibalizations as an example, and has some degree of relevance. It's debatable whether it's 50 percent, 75 percent, but it's less than the full requirement as to exactly how often we cannibalize and the reasons that we cannibalize.

This new system that we're going to, which is in about a third of our squadrons, and will be in all of the commands associated with aviation and shipboard support by fiscal year 2004, it's impossible now to make a transaction with a part unless it's entered into the system. There's a whole number of reasons as to why parts are removed or the repair actions, including a lot of degree of fidelity and granularity on cannibalization.

So we are in the process of fixing it. We understand that, unless you have full visibility into how the funds are being executed, you can't make the right decisions up here in the headquarters, and this NOWCOMUS Optimized will do that for the Navy.

Mr. SHAYS. Now will the terminology be the same for all three branches?

Admiral HEIMGARTNER. I can't answer that, sir.

General ZETTLER. We're not going to implement the Navy system there. I recognize how much you travel and have the opportunity to talk to our great people. I think that the GAO may have overstated a bit the lack of data in the Air Force. We don't step up to that. We will obviously go work when the report is published.

It's not a perfect system. We certainly miss some maintenance transactions, but, by and large, the cannibalization actions that we do require entries into the system to track the aircraft status. So there's a self-checking audit process that goes on in the automation system.

The mechanics are pretty reliable in making their data entries. Once they've got the data in the system, we've got it captured.

Mr. SHAYS. Let me ask you: Is there any disincentive, though, to not highlight this issue? In other words, it strikes me that you might be judged based on—well, I mean, the B–22, when it was not in operation, you know, whether you said it was in operation before the vacation period or after, different factors came into play that seemed to us like real games.

General ZETTLER. Our field commanders are judged, obviously on their overall readiness status, but our field commanders also are given wide latitude in how they achieve their mission ratings. I have not learned, nor I think we would be surprised as an Air Force to learn, that a commander at the field level was suppressing cannibalization data. We recognize it's a problem. We want accurate accounting, and the mechanics are willing to make that entry into the data base.

The shortcoming of the system probably is, after 11 hours or 12 hours of working, when he has to go back into the shop and enter that piece of data into the core automated maintenance system, taking the time to do it. But, as a general rule, I said there's

checks and balances that show up that this airplane is not mission-capable because it's got these parts off of it. How did that part get out of it? Well, we "canned" it. And it gets entered.

In our data system world, we've been using the core automated maintenance system for about 20 years. It's a dated system. It's still green screens, but we have a refurbishment ongoing, and shortly after the first of the year it will be a Windows-based system and then spiral development to make it much more user-friendly and totally capture the data that the mechanics are doing.

But, as I said, once the mechanic puts that data into the system, it's captured at the base-level data base. That transfers to an Air Force data base, and then we have several management information systems that can tap into that data warehouse and allow us to pull it down.

The order of magnitude may be off by a couple of percents in "canns." I don't know. Maybe we're not at 12.7 in 1997. Maybe we're 13. But that's the order of magnitude I'm really confident with that we're dealing with.

The trendline is absolutely accurate because it's been the same system out there over this period of time. So, from 12.7 in 1997 to 11.1 for this fiscal year, that's a significant improvement that's going in the right direction, and we intend to keep it going in that direction.

Mr. SHAYS. Mr. Kucinich, any questions?

Mr. KUCINICH. Gentlemen, when you have to requisition spare parts, are any of the spare parts from your respective branches of the service requisitioned from overseas? I mean, are they made overseas, the stuff that you requisition? Do you know?

Admiral HEIMGARTNER. I don't know.

General MAHAN. Sir, I could tell you that primarily, unless we have an original equipment manufacturer, meaning a U.S. company, that has subcontracted out overseas, we don't see that. Ours is primarily, because of many reasons, policy as well as statute, are pretty much defined in terms of U.S. production facilities. I believe that is where we're headed.

Mr. KUCINICH. Yes, I am familiar with the Defense Production Act. One of the reasons I asked the question, Mr. Chairman—and thank you, General—one of the reasons I asked the question is this: This whole hearing today is essentially about inventory management. As the United States continues to see the collapse of its basic industry which provides the parts, if not the actual equipment, that then complicates accessing the goods that you need to do the job that you do. Is that correct?

General MAHAN. Absolutely. Yes, sir.

Mr. KUCINICH. And that is why we have the Defense Production Act to begin with. And at some point, Mr. Chairman, that might be something that might be worthy of your consideration. So I appreciate that, and thank you, gentlemen.

General MAHAN. Mr. Chairman, if I could expand on that just a bit?

Mr. SHAYS. Sure.

General MAHAN. The production base—and that's really what we're talking about, not only the organic inside our depots, but the defense industry at large—we have gone and have seen, and we

have had, as an example, between 1999, we had 18 safety-of-flights, which as a safety-of-flight message that says that, if I have a catastrophic failure of this part, and we have had one, obviously, that caused that safety-of-flight, that then we have life and limb of the aircrews at risk.

When we went back into that on many of those, and in the A8–64, our Apache aircraft, one of our most sophisticated platforms, we find that they have subcontracted parts out to a subcontractor who, in fact, defaulted, and actually the subcontractor had in some cases contracted out to another contractor. So the original equipment manufacturer had gotten to the point where we were depending on a partnering effort with them when, in fact, they were doing it for business reasons, to the extent that we could not fly airframes.

We had the most serious one that grounded the entire Apache aircraft fleet as a result of that, and we, then, had to go back in and, were it not for double shifts at Corpus Christi Army Depot, to be able to get those things remanufactured, we would have been only this past April 2001, basically a year, because of the extremely long lead times between administrative lead time and production lead time of these kinds of aircraft spares. It can be up to 2 years from the time that you sense you have a problem until you can do something about it.

That's why, as the aircraft ages, we have some of these design flaws that crop up only after significant aging, and one was the Sprague clutch and flange problems inside some of our aircraft componentry that then caused us—we had not used any in the previous 6 to 8 years, again, that obsolete inventory that we talk about. But when it was needed, those parts did not meet the specifications originally manufactured to, and we had to go back in and refurbish, again, because of the subcontracting process.

So it's a very delicate balance between organic and certainly OEM, but it has extended beyond OEM to then subcontractors to that OEM. That's a balancing act in terms of the readiness piece. So, sir, I think it very clearly underlies your premise that says industrial preparedness is certainly an issue.

Mr. KUCINICH. Thank you, sir. Thank you, Mr. Chairman.

Mr. SHAYS. It strikes me we are always going to have a cannibalization problem. It is almost like we fly our parts in one plane and that is how we deliver the parts to the base. I mean, you are going to have that, and you are certainly going to have it with older aircraft. It is a marvel that our mechanics in some cases are able to have an airworthy aircraft.

So it is going to be there, and the issue is, to what extent? And the other issue is, in my judgment, how on top of this you all are, how on top of it we are. It seems to me that we have to keep working to get the data more accurate. So we will be working with you in this process.

If there is anything you had prepared to answer that you felt we should have asked, even if it was a tough question that we didn't have the sense to ask you, I would love you to answer the question you were prepared for. [Laughter.]

And if you would like to make any closing statement—see, I like to make an assumption you stayed up all night preparing for this and there's something that we should have asked you. [Laughter.]

General ZETTLER. I would like to finish with a remark.

Mr. SHAYS. Sure.

General ZETTLER. Congressman Kucinich brought in the F–22. Mr. Gilman brought in privatization of suppliers. I would say that new airplanes demonstrably give us improved reliability and improved availability.

Mr. SHAYS. Right.

General ZETTLER. The C–17 is doing marvelous for us. The "cann" rate on the C–17 is down less than 4, and many of those are parts that the government supply system would provide. We have a contracting arrangement with the Boeing company providing overall spares management on the C–17. They're doing a great job. Our mission availability rate is up in the high 80 percent.

The F–117, we have the same type contractor support arrangement on. We have an availability rate, again, in the high 80 percent.

The KC–10, we again have a contractor arrangement providing parts for us. Again, a high mission capability rate and a very low "cann" rate.

As we move into new weapons systems, such as the F–22 or the Joint Strike Fighter, we're optimizing those for reliability and maintainability and availability. When we do that, we are looking at partnering with the industry that's going to provide those to help us with supply chain management, to ensure us that we have improved availability.

The converse is true on our aging platforms, such as the C–5 and the B–1 that you see over here. The B–1, the GAO properly characterized the main problem with cannibalization on that as being the defensive avionic system. In the defensive avionic systems we have some parts in there that are only repaired by one vendor in the United States, and he has a limited capacity. And why should we incentivize him to increase that capacity when we know that we're going to try to replace that defensive avionic system? So we go along that line of, where do you spend that dollar? To modernize that system or to pay for more repairs to that system? So those are the tradeoffs that we have to bring.

But, since those platforms were brought up, I wanted to bring out how our new systems are doing and what the effects of recapitalization of our Air Force can be.

Thank you for allowing us to be here today.

Mr. SHAYS. Thank you. It would strike me that maybe, when we take a second look at this, we try to divide up the different weapons systems based on age to see what the difference is in terms of cannibalization.

General, did you want to make any comment?

General MAHAN. Sir, in summary, I would like to thank the committee for having us here today to help us articulate to you, and I think to our Nation, some of the issues at hand. Everyone is working as hard as they can. We are partnering with industry, and they have been a valuable partner in ensuring that we have tried to maintain readiness of our fleets.

We, just as the Air Force has done, are trying to eliminate some of the old fleets that we could not incentivize the original equipment manufacturers to continue to produce, even if we wanted to.

They are unwilling to because of the low numbers of the airframes, and the UH–1 and the AH–1 are great examples of that.

But, regardless, we know that, as we try to remanufacture, we still have a long way to go. Three of our aircraft fleets in the Army are already past their half-life metric. Because of that, we have seen our operations and support costs increase 10 percent per year across the Army for the past 3 years.

Refurbishment and recapitalization is one of our key initiatives to try to get back some of that life, and as we do so, to either incorporate new technology and new reliability, but certainly to get back to a standard that we can expect to fly and be able to do what we need to do from a mission-readiness and a mission-effectiveness standpoint.

So, sir, we are happy that you asked us to come, and we look forward to working with you in the future.

Mr. SHAYS. Well, we are happy you came.

Rear Admiral.

Admiral HEIMGARTNER. Thank you, sir. Let me just make a couple of comments along the same lines as the generals have brought out.

We just completed a very in-depth study on why the cost of doing business, primarily repairing depot-level repairs and the consumption rates—in other words, how often do you put parts in an airplane and how long do they last? We, too, are showing figures of roughly 6 to 8 percent per year, and most of our aircraft that are on the decks of our carriers, which are in the more extreme environments, are up at the 8 percent level. So we have a cost of doing business that's going up 8 percent.

We're doing exhaustive studies of trying to determine how we can flatten that curve. I mean, 8 percent compound interest over the life of our airplanes, which now is 17 years, is a huge, huge operational support bill. We want to flatten that curve. You can flatten that curve by investing money into reliability fixes, which we do as best we can, or you can buy new airplanes.

As Congressman Kucinich mentioned earlier, about this flattening the aging curve, the Navy needs to buy about 170 aircraft per year in order to keep the average age of our airplanes at 15 years or less. For the last several years, the best we have been able to do is buy 120. So if you can't invest the money for reliability fixes and if you can't make the force younger, then we're potentially faced with a real challenge that may be extremely difficult to meet.

I can assure you that the readiness of our deployed units is as high as it's ever been, but it comes on the back of those next to deploy. Those next to deploy are the ones that are greater than 90 days from being in the forefront of going overseas. That's the folks that are the most frustrated, where morale suffers. These are people that are priority 3 on parts. These are the ones that, if there's a major component for an airplane, that component for an airplane goes to a deployed or a soon-to-deploy squadron.

As I said, our sailors and marines take great pride in being able to maintain these airplanes. They will do anything, and they have. You've seen the statistics on how long they work and how dedicated they are. But we owe them a better workday, a better quality

of services, and we're doing the best we can to try and quantify that with all the challenges that we faced for a number of years.

Thank you very much, sir.

Mr. SHAYS. Thank you, and I think the committee agrees with all three of your closing statements. We appreciate your good work and look forward to working with you. Thank you.

This hearing is adjourned.

[Whereupon, at 12:25 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]