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STATEMENT OF
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before the
Subcommittee on Legislation and National Security
of the
House Government Operations Committee

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We are pleased to be here today to discuss two issues of vital interest to the Department of Defense. The first issue involves the status of DOD efforts to ensure the retention during hostilities of essential civilians overseas who support military weapon systems and equipment. The second issue involves contractor depot level maintenance of military systems and equipment in the U.S.--the process of determining what depot maintenance activities will be performed by commercial contractors, and the high cost of acquiring these services given the large amount of non-competitive, sole source contracting which is currently used.

ENSURING RETENTION OF ESSENTIAL CIVILIANS OVERSEAS DURING HOSTILITIES

Today, we are issuing a report to the Secretary of Defense which recommends improvements in DOD's current policy proposals aimed at ensuring retention of essential DOD civilians and contractor personnel overseas during hostilities. I would like to summarize our findings and provide the report for the record.

Various studies have estimated that as many as 4,500 to 6,000 U.S. DOD civilians and contractor personnel work overseas in positions essential to the accomplishment of our wartime mission. Historically, civilians have been willing to go into war zones to work and have proven themselves reliable in that circumstance. However, DOD has been increasingly dependent on contractor personnel for support and there is concern that essential civilians already working overseas in peacetime may not be willing to remain if the likelihood of war increases or if a conflict starts. Without civilian support some important military systems and equipment would be seriously degraded or inoperative.

While DOD and industry officials are optimistic that essential civilians would voluntarily remain, there are no assurances. For example, in an informal poll conducted by the World Wide

Military Command and Control System contractor, only 5 of 38 employees said they would stay on in a crisis. In another example, none of the companies providing direct maintenance and repair of weapon systems components at three Air Force bases in Europe have contract clauses which would require them to continue to provide service during an emergency.

While the potential adverse impact of losing civilian support in wartime is acknowledged, DOD does not have good information on the extent of the problem. For civilians serving as technical representatives there is no requirement to document the criticality of the work they do. As a result, assessments of potential impact vary. For example, the U.S. Air Force in Europe says that technical representatives only train military personnel and therefore are not essential. But, many of these contractor personnel expedite or even perform many repairs. The F-15 aircraft maintenance crews we interviewed felt that sortie rates would decrease markedly without them.

We also found that the impact of losing civilians over an extended period has not been evaluated. European commands have never held a field training or readiness exercise, or operated for a sustained period without contractor and DOD civilian support.

In the few instances where the potential adverse impact of losing civilian support has been identified it can be seen how essential these people are. For example, although World Wide Military Command Control System breakdowns occur at random, maintenance problems could be expected to degrade ADP operations almost immediately if essential contractor civilians were not available. System operations would almost certainly cease after 1 week. DOD, while acknowledging that its ability to direct and control military activities without this system would be unquestionably degraded, believes that some activities could still be

accomplished using other existing systems such as telephone, secure mode telephone, and cable/telegraph networks.

DOD ACTIONS TO ADDRESS PROBLEM

While many essential civilian positions have been identified, much closer management attention to the problem is warranted. Results of efforts to date have been inconclusive and have at times identified questionable categories of essential positions. For example, historians, arts and crafts supervisors, and editors of the "Stars and Stripes" newspaper have been identified as essential.

Over the past several years, DOD has proposed and discussed a number of solutions to the problem of retaining civilians including

--amending the U.S. Code to give military commanders authority to require civilians to remain at their posts.

--requiring civilians in essential positions to join the military reserves, and

--requiring written agreements or contract provisions aimed at ensuring retention of essential people.

The primary objective of our study was to evaluate DOD's current efforts at addressing the problem. In response to our report, DOD said it plans to have its draft policy and guidance for retaining DOD civilians available for circulation and comment during the fourth quarter of this fiscal year, and its initial draft addressing essential contractor personnel available not later than the first quarter of fiscal year 1985.

In evaluating DOD's past experience and current efforts we concluded that some changes were needed if DOD's efforts were to be effective. Therefore, we recommended to DOD that

1. In revising its guidance on identifying what constitutes an essential civilian it needed to be more specific to better identify the essentiality of positions and avoid questionable designations.

2. It recognize that within the universe of essential positions there is a subset of very critical employees that should be identified for special attention.

3. It tailor proposed solutions based on the essentiality of the individual positions, rather than continue to rely on one across-the-board solution, focusing first on the subset whose loss would have the most severe impact.

In responding to our report and recommendations, DOD said that we provided a fair presentation of its concern about the continuity of certain essential services currently performed by civilians in the event of crises. DOD also said that it is confident that its current policy initiatives coupled with implementing our recommendations will provide commanders an acceptable level of assurance that emergency essential services provided by civilians will continue during periods of crises.

We were pleased by DOD's cooperative and positive response to our study.

IMPROVEMENTS NEEDED IN MANAGEMENT OF DOD CONTRACT MAINTENANCE ACTIVITIES

The second issue I would like to address today concerns the use of commercial contractors to perform depot level maintenance and repair of military systems and equipment.

The Department of Defense spent about $4.8 billion in 1982 for commercial maintenance, repair and modification of military weapon systems and equipment. The amount of this maintenance which is contracted out has been increasing over the past few years, partially due to Executive branch policy decisions to increase commercial contracting and partially due to personnel ceilings and other DOD resource limitations which preclude doing more work inhouse.

Because of recent concerns over the high cost of procuring spare parts for military systems and equipment, DOD has initiated numerous actions to increase competitive procurement of spares and to more effectively manage the spares acquisition process. As a result of our review of contractor maintenance, we believe that it is equally important for DOD to develop a similar strategy for more effective management of DOD commercial maintenance activities for military systems and equipment.

There are two major points pertaining to contractor maintenance of DOD weapon systems and equipment which I would like to address today. The first point involves the question of how the Department of Defense makes decisions regarding what weapon systems and equipment should be maintained commercially. The second point relates to whether or not DOD is obtaining these required repair and overhaul services cost effectively.

DOD CRITERIA FOR DETERMINING THE SOURCE OF REPAIR FOR MILITARY SYSTEMS SHOULD BE CLARIFIED

DOD criteria for determining when repair or modification work is performed commercially is governed by two series of policies. One series applies to all DOD commercial and industrial activities

and the other applies specifically to DOD maintenance activities. The relationship between the two series has historically not been clear.

The first series of policies implements the Office of Management and Budget (OMB) Circular A-76 and is summarized by various DOD directives. OMB Circular A-76 affirms the government's general policy of relying on the private enterprise system to provide commercial products and services stating that the government shall not start or carry on any activity to provide a commerical product or service if the product or service can be procured more economically from a commercial source. OMB Circular A-76 provides three conditions under which government, that is, inhouse performance of a commercial activity is authorized:

1. No satisfactory commercial source is available. Either no commercial source is capable of providing the needed product or service, or such a source would cause unacceptable delay or disruption of an essential program.

2. National defense. The Secretary of Defense must establish criteria for determining when government performance of a commercial activity is required for national defense reasons. Previous versions of OMB Circular A-76 allowed exemption of military intermediate and depot level maintenance activities for reasons of national defense, but this special exclusion was dropped from the latest i.e. the August 1983 version. Although the establishment of DOD criteria for determining when government performance is needed for national defense reasons was scheduled for January 1984, it has not yet been issued.

3. Lower cost. Government performance of a commercial activity is also authorized if a cost comparison

demonstrates that the government is operating or can operate at an estimated lower cost than a qualified commercial source.

The second series of policies regarding the use of contractor and DOD resources for repair and maintenance of equipment is provided for in DOD Directive 4151.1 and various implementing instructions issued by the military services. This directive provides that depot maintenance shall be planned and accomplished by contractual sources and inhouse, but it is not specific about how to determine the contractor/inhouse mix. It specifies that contractor maintenance should be cost effective, but does not specify how cost effectiveness should be determined. There is no standard format established for analyzing the relative cost of contractor versus inhouse maintenance when decisions are made regarding where a system shall be repaired or overhauled. In some instances, we found no evidence that a cost evaluation was ever performed before a decision was made to contract out maintenance on military systems and equipment. In other instances we found that while DOD determined that it could perform maintenance at a lower cost than a commercial source, contractors were being used.

It has traditionally been argued that the OMB Circular A-76 cost effectiveness criteria is too detailed for evaluating individual system by system decisions regarding the optimal source of depot maintenance--contractor or inhouse. Further there is no consistent interpretation of what constitutes a "commercial activity" as specified in OMB Circular A-76--i.e., an entire depot operation; a shop within a depot; one system, component, or piece of equipment; or some combination of the above. We believe it is important for DOD to clarify these ambiguous areas and ensure that the services evaluate the cost of inhouse versus contractor repair before making decisions regarding the types and quantity of systems which will be repaired or modified commercially.

Of equal importance to cost in considering whether military equipment should be maintained by commercial contract or in a government depot is the question of how much inhouse capability must be retained to insure flexibility and rapid surge capability during war. While recent DOD maintenance policy lays the foundations for evaluating these conditions, there is no standard model for deciding how much of what kind of equipment should be maintained using inhouse DOD resources. Furthermore, implementation of this policy by the services is inconsistent. Again, without further clarification of the requirement for maintaining inhouse facilities for mobilization purposes, the ability of the services to make efficient and effective decisions regarding the desired mix of commercial contractor and inhouse maintenance capability is limited.

KEY FACTORS IN EFFECTIVE MANAGEMENT OF REPAIR SERVICES

Once a decision is made to use commercial repair, it is important that DOD effectively manage commercial maintenance and repair programs to ensure that the required services are obtained in a cost effective manner. We have identified two actions which are particularly important to ensuring the cost effectiveness of DOD maintenance programs. The first is increasing the amount of competition in the procurement of maintenance services; and the second is either reducing the use of contract types that are difficult to administer--such as basic ordering agreements and time and material contracts--or devoting the resources required to properly administer these contracts.

MANY DOD COMMERCIAL MAINTENANCE CONTRACTS ARE NONCOMPETITIVE

Government policy requires competition to the maximum extent practicable in the purchase of goods and services, but many of the

maintenance and repair services which the military acquires from commercial contractors are procured noncompetitively. These noncompetitive procurements are frequently to the prime contractor who assembled and integrated the various subsystems to form the complete weapon system or to the original manufacturer of subsystems or major components.

In fiscal year 1982 more than $3.16 billion or 65 percent of DOD's $4.8 billion expenditure for commercial contractor repair services were noncompetitive. In considering these statistics, it is important to note that in many cases procurements were classified as competitive even though only one contractor responded to a government request for proposal.

The previously cited statistics relate to maintenance of all categories of equipment used by the military services--from plumbing and heating equipment to aircraft. We identified nine categories of equipment which are specifically related to military hardware, and are generally components of a major system such as a military aircraft. We isolated these categories to determine if competition for maintenance services varies, depending upon the type of equipment being supported. In 1982, contracts by the military for commercial maintenance support of weapon systems and equipment included in these nine categories accounted for approximately 55 percent of all DOD maintenance and modification contract dollars. The $2.7 billion expended in 1982 for commercial repair contracts for equipment in these nine categories were 85.6 percent noncompetitive compared to a 65 percent noncompetitive rate for all commercial repair services in DOD.

The following chart provides specific information regarding the competitiveness of DOD contracts for maintenance of equipments in the nine weapons related supply categories previously discussed.

TABLE 1

DOLLAR-VALUE (IN THOUSANDS) AND PERCENT OF COMPETITIVE CONTRACTS AWARDED IN EACH EQUIPMENT CATEGORY IN FISCAL YEAR 1982

	ARMY			NAVY			AIR FORCE			TOTAL		
	All Contracts	Competitive Only	% Competitive	All Contracts	Competitive Only	% Competitive	All Contracts	Competitive Only	% Competitive	All Contracts	Competitive Only	% Competitive
Weapons	$ 1,893	$ 164	8.7	$ 28,944	$ 129	.4	$ 12,938	$ 72	.6	$ 43,775	$ 365	.8
Fire Control Equip.	3,668	13	.4	39,158	0	0	4,578	348	7.6	47,404	361	.8
Ammo & Explosives	1,319	63	4.8	190	0	0	824	0	0	2,333	63	2.7
Guided Missiles	27,837	0	0	237,313	13,449	5.7	19,309	574	3.0	284,459	14,023	4.9
Aircraft	92,239	56,986	61.8	650,805	47,369	7.3	300,656	134,940	44.9	1,043,700	239,295	22.9
Aircraft Components	49,708	5,622	11.3	34,523	3,142	9.1	113,329	23,214	20.5	197,560	31,978	16.2
Engines & Turbines	192,697	531	.3	72,421	787	1.1	171,548	50,496	29.4	436,666	51,814	11.9
Communication Equip.	26,580	8,536	32.1	227,210	4,538	2.0	159,102	16,134	10.1	412,892	29,208	7.1
Electrical Equip.	20,737	1,054	5.1	44,257	4,749	10.7	129,193	11,710	9.1	194,187	17,513	9.0
TOTAL	$416,678	$72,969	17.5	$1,334,821	$74,163	5.6	$911,477	$237,488	26.1	$2,662,976	$384,620	14.4

As illustrated above, a by-service breakout of the equipment classifications we selected for detailed analysis shows 82.5 percent of the Army, 94.4 percent of the Navy, and 73.9 percent of the Air Force contract dollars were awarded noncompetitively. The extent of competitiveness varied widely by equipment type. For example, less than one percent of DOD's $91 million expenditure for maintenance and modification of weapons and fire control equipment and less than 5 percent of DOD's $284.5 million expenditure for maintenance and modification of guided missiles were awarded competitively.

We reviewed the contract files at several DOD installations to determine the degree of competitiveness in the award of commercial depot maintenance activities at these locations. At the time of our review (April 1983) commercial repair contracts totaling $234.6 million were in effect at the Army Troop Support and Aviation Materiel Readiness Command (TSARCOM), St. Louis, Missouri. Contracts totaling $211.6 million--90 percent of the total value of TSARCOM's total open commercial maintenance contracts--were noncompetitive. Only two maintenance contracts--with an estimated value of $1.6 million--were formally advertised. Another 43 contractual agreements had limited competition for small business set-asides and to meet other criteria.

At the Navy Air Systems Command and the Aviation Supply Office we developed data regarding the competitiveness of contracts for commercial repair of Navy aircraft components. The Navy aircraft component rework program for 1983 was $343 million. About $63 million of this amount was for interim contractor support for new Navy aircraft systems such as the F-18. These repair contracts were awarded noncompetitively by the Naval Air Systems Command. The remaining $280 million in commercial contract agreements for repair of Navy aircraft components were awarded by the Navy Aviation Supply Office. The contracting by ASO was accomplished through 261 basic ordering agreements. Technically, none of these agreements was awarded competitively, although a small number involved some limited degree of competition, usually between a prime contractor and a major subcontractor.

In 1982, the Air Force awarded more competitive contracts for repair and overhaul of aircraft systems than either the Army or Navy. However, the value of Air Force non-competitive contracts exceeded $790 million--70 percent of the value of all Air Force commercial repair contracts.

During our review we developed data at seven Air Force procurement centers within the Air Force Logistics Command (AFLC). The data disclosed significant variances among these contracting activities. For example, at AFLC Headquarters, over $22 million in repair contracts were awarded in 1982, and all were non-competitive. At the Sacramento Air Logistics Center less than 1 percent of the $78 million commercial repair contracts were awarded competitively. In the same year, the Oklahoma City Air Logistics Center, awarded repair contracts valued at about $198 million, 36 percent of which were competitive awards.

DOD SHOULD INCREASE COMPETITION IN AWARDING MAINTENANCE CONTRACTS FOR DOD SYSTEMS AND EQUIPMENT

During our review we analyzed previous studies which compared the cost of commercial and inhouse maintenance of military systems and equipment. While all of these studies revealed that precise quantifiable cost comparisons are difficult, each study concluded that non-competitive sole-source procurement of maintenance services from the original equipment manufacturer is generally more expensive than inhouse repair. These studies also generally concluded that when maintenance and repair service contracts can be effectively competed, they are accomplished for less than the cost of repair in a government facility.

While GAO has not previously analyzed in detail noncompetitive procurement of maintenance and repair services in the DOD, since 1960 we have conducted several reviews of noncompetitive procurements of spare parts. With regard to the lack of competition in the procurement of aeronautical spare parts, we reported the following in 1961:

> ...Contracting officers generally procure spare parts noncompetitively on open contract with the prime contractor. The primary reason for the military services doing this is the simplicity and

expediency of this method. Furthermore, unsatisfactory conditions in the military services' receipt, control and use of contractor-furnished data also appear to be a major impediment to increasing competition. These conditions constitute one of the most intricate and difficult problems confronting management in the logistics area. Until they are corrected, progress by the military services in increasing competitive procurement of spare parts will be seriously impeded.

In 1963 we reported that progress had been made by the Air Force in increasing competition in the procurement of spare parts, and in improving conditions with respect to control and use of engineering data. However, progress was accomplished largely without using engineering data to describe the items required to potential suppliers. Further progress, we reported, was dependent upon the Air Force's ability to make greater use of engineering data in soliciting proposals. In this same report, we noted certain weaknesses in contracting practices and in contract administration, which appeared likely to restrict the extent to which engineering data being received could be used in the future for competitive procurement.

The concerns expressed in these earlier reports are, for the most part, identical to those contained in more recent GAO, Air Force Audit and DOD Inspector General reports. While some may argue that this is a somewhat simplistic explanation, the basic message is undisputed and remains the same--that the nonavailability of sufficient technical data (both in terms of its quality and quantity) impedes competitive spares procurements.

We found that insufficient data is also a serious problem in the maintenance area. It not only inhibits competing maintenance,

repair, and overhaul contracts, but may also preclude transferring the required maintenance activity to a government-owned facility, even if the work can be done more cost effectively inhouse.

Lack of Required Resource Capability Prolongs Noncompetitive Procurement of Maintenance Services

To acquire inhouse maintenance capability requires a commitment of resources during the systems acquisition phase. Procurement funds are needed to obtain technical data and develop depot maintenance work requirements, depot plant equipment, automatic test equipment and other resource requirements needed to achieve inhouse repair capability. What frequently has occurred in the past, however, is that system hardware costs go up and a decision is made to postpone the acquisition of support resources to cover cost increases in other areas of the program. The S-3A aircraft, is a good case study which illustrates the adverse impacts which can result from this strategy.

The S-3A Viking is an out-of-production Navy aircraft which until 1983 had the highest percentage of contractor maintenance and one of the lowest mission capable rates in the fleet. In 1982 over 88 percent of the component rework of the S-3A was accomplished commercially--and almost exclusively through noncompetitive contracts.

The S-3A was developed in the late 1960's. It was designed as a carrier-based aircraft to protect U.S. surface ships from submarine threats. The first aircraft was introduced into the fleet on February 8, 1974 and the first operational deployment was in July 1975. A total of 187 S-3As were produced before production ended in mid-1978.

The S-3A was developed in the aftermath of the difficulties associated with the C-5 cost overruns. At this time the defense department was keenly aware of the need to hold down system acquisition costs. Decisions were made to postpone the acquisition of technical data, depot plant equipment, depot work requirements and maintenance training for government employees in order to cut initial procurement costs. Program resources intended for the development and procurement of logistics support capability were diverted to fund other program requirements considered at the time to be a higher priority.

Lacking the capability to accomplish required maintenance activities inhouse, extensive contractor maintenance was initiated. Technical data, depot plant equipment and the other resources required to achieve inhouse capability should be funded as a part of the system's acquisition package. Once the S-3A was out of production, there were no program resources with which to fund the establishment of inhouse maintenance capability. According to Navy officials, high S-3A maintenance costs, poor contractor performance, and low availability of aircraft in the fleet led the Navy to initiate action to transition some S-3A component rework from contractor to inhouse support. The procurement of required resources is being funded by the S-3 Weapon System Improvement Program and other sources. Naval Aviation Logistics Center personnel estimate that net savings as a result of transitioning 14 S-3A major sub-systems from contractor to inhouse support will exceed $48 million over a 5-year period. Although the inhouse capability for repairing many S-3A components has been established, the transition has been slow and most maintenance activity continues to be done commercially.

One of the largest single contracts for repair/overhaul of military equipment was implemented in 1980 by the Navy through the award of a 5-year $90 million repair contract. This contract is a support agreement for 1,400 ASN-92 Carrier Aircraft Inertial

Navigation Systems (CAINS). Introduced in 1969, and supported by the equipment manufacturer since its introduction to the fleet, CAINS consists of two or more major assemblies which are installed in the F-14A jet fighter, the S-3A antisubmarine aircraft, and six other Navy aircraft.

The current Navy support agreement for the CAINS is a 5-year reliability improvement warranty known as the Crown contract.This agreement provides for repair/overhaul of the system's five major units, including about 55 reparable components. Total commercial repair costs for FY 85 are estimated at $24.9 million. These costs are based on FY 82 cost data provided by the Aviation Supply Office and the Defense Contract Administration Service.

A cost analysis recently completed by the Naval Aviation Logistics Center (NALC) determined that by transitioning the ASN-92 to inhouse support, net savings of $51 million can be achieved over a 5-year period.

The Navy is currently considering a contractor proposal for a similar support agreement for the ASN-130, the inertial navigation system used on the F-18, AV-8B, and EA-6B aircraft. A detailed cost analysis recently completed by the Naval Aviation Logistics Center projected that 5-year savings of $38 million can be achieved by transitioning this system to inhouse support. NALC personnel estimated that life-cycle savings exceeding $100 million are achievable over the life of the system.

For another Navy system, the Advanced Signal Processor (ASP), the failure to establish inhouse repair capability and the continuation of noncompetitive procurement of repair services has been very costly for the government. The ASP is a versatile, electronic automatic data processing unit which is used on multiple Navy air, sea and ground systems. It has been manufactured and repaired on contract since about 1973.

A recent cost analysis by the Naval Aviation Logistics Center concluded that support costs for this system can be reduced by over $90 million over a 5-year period by transitioning the ASP to inhouse repair in a Navy depot. Inhouse repair capability, however, is held up by the failure to buy technical data, depot plant equipment and computer software known as test program sets which could be used on existing automatic test equipment.

The ASP is a typical high technology system for which it is generally considered desirable to use commercial maintenance when the system is first fielded. During our review we found that with the ASP, as with many other systems, this "temporary commercial support" by the original equipment manufacturer tends to be continuously extended year after year, because inhouse capability is not established, and required technical data is not available to allow initiating a competitive repair program. If the technical data and other inhouse resources are not procured as a part of the systems acquisition package, it becomes difficult in the out years to identify funding sources to acquire these assets. Later it is also difficult to negotiate reasonable prices to acquire the inhouse resource capability from equipment manufacturers because of their reluctance to get out of the repair business.

Navy examples are cited because there is a history of heavy reliance by the Naval Air Systems Command on noncompetitive commercial repair and cases are readily identifiable. However, our review disclosed situations similar to those cited above existed in all services. Furthermore, current funding decisions may result in the continuation of this problem in the future. For example, the funding availability problem for purchase of technical data, and test or plant equipment is present in both the Army and Air Force. During congressional hearings on the 1984 DOD depot maintenance budget request, the Army reported that nearly $100 million worth of depot maintenance plant equipment requirements were cut or deferred from the 1984 budget submission leaving

depot plant equipment for several programs including the AH-64, CH-47D, and AH-1S helicopters unfunded. The Air Force also had unfunded requirements for depot capability establishment for systems such as Pave Tack, F-15 TEWS and the Cruise Missile.

Use of Basic Ordering Agreements and Time and Material Contracts

During our review of contractor maintenance activities we found that the military services, because they often lack the means to compete repair contracts, use contract types that require extensive contract administration in order to assure fair and reasonable prices.

We found that basic ordering agreements are frequently used for procuring maintenance services. At the Navy Aviation Supply Office (ASO), basic ordering agreements were used to acquire maintenance services estimated to exceed $280 million in 1983. These agreements cover a 1- or 2-year period of time and provide that the Navy will buy an unknown quantity of unspecified repair/overhaul services. The basic ordering agreements include an estimated repair cost and estimated quantities of each item to be repaired. Specific prices for repair and maintenance activities are negotiated at a later time. We found that frequently prices were not negotiated before contractor maintenance was performed; in some instances unpriced repair orders were outstanding for over a year. We were told that if the contracting officer waited until a final price was negotiated before issuing repair orders on the basic ordering agreements, component repair backlogs would adversely impact the readiness of Naval aircraft.

According to Aviation Supply Office (ASO) personnel, basic ordering agreements are used because there is insufficient information about what maintenance services are required--both in terms of the types of repair and the number of units. We were informed

that there is little room to negotiate the price of repairs, since the contractor is providing services which the Navy has limited ability to define through detailed descriptions of the required scope of work, and for which there are generally no known alternatives for acquiring the desired maintenance. Procurement officers at ASO told us that defining a reasonable cost is difficult without having technical data and some inhouse experience which would indicate work requirements. Under these circumstances there is little incentive for the contractor to minimize maintenance work hours. ASO personnel further stated that while they may question the reasonableness of contractor estimates, there is little leverage to negotiate reduced prices.

At the Navy Aviation Supply Office the cost of repair services acquired using basic ordering agreements appeared high. For example, we identified several instances in which a prime manufacturer of Navy aircraft established repair capability and competed for equipments previously repaired through noncompetitive basic ordering agreements with the original equipment manufacturers of these items. Reductions of 45 to 50 percent in the cost of repair of these items were achieved. Contracting officers attributed this reduction to the competition between the prime and the original manfacturers. Further, independent Navy cost analyses for numerous other systems indicated that component repair for many systems repaired commercially through sole source contractual agreements could be accomplished much more cost-effectively in Navy depots.

We found that the Air Force and Army had also used basic ordering agreements extensively to contract for maintenance and repair services of military equipment. Because of concerns over the potential for pricing irregularities with basic ordering agreements, the Assistant Secretary of the Army issued a statement on August 4, 1983, severely limiting the use of basic ordering agreements.

Based upon our observations of the government's use of basic ordering agreements with unpriced follow-on orders, to acquire maintenance services, we believe this contracting method should be reduced unless more effective methods can be established for evaluating the reasonableness of resultant maintenance and repair costs.

Another contracting method used extensively by the military in contracting for repair and maintenance activities is the time and materials contract. This agreement is used when proposed scope of work is not known, and is frequently used for an "inspect and repair as necessary" maintenance requirement when the extent of damage and the procedures required for repair are undefined.

We reviewed several time and material contracts, including a contractor depot repair program for the F-15 called Pacer Webb. Although this time and materials contract was originally projected to be in effect over a 14-month period ending in December 1975, it was extended numerous times and was in effect through 1982. The extensions were caused by delays in obtaining inhouse depot repair capability for the F-15 systems repaired under this agreement. Repair services obtained by the Air Force under this agreement have cost about $100.3 million through 1982. Although we attempted to evaluate the reasonableness of the cost of repair of various equipments under this contract, contractor unit repair cost data was not available. Air Force officials stated that under the time and material repair agreements, unit repair cost data was not maintained.

In another case which we reviewed, we found that because comparable work was ongoing in an Army depot, we were able to compare the cost for contractor maintenance using a time and materials contract and inhouse repair of the same weapon system.

In this case, the Army's redistribution of AH-1S Cobra helicopters from the U.S. Army Europe required that a transfer inspection, and resulting maintenance actions, be completed before the helicopters were delivered to new units. The Army first decided that the transfer inspection work on 184 helicopters would be done at Corpus Christi Army Depot rather than by the losing field units, which is the normal procedure. In September 1982 when it was determined that the depot could not meet the desired delivery schedule, the Army awarded a sole source time and materials contract for maintenance work on 56 of the returning helicopters. We analyzed cost and performance data for this program at both the inhouse depot and contractor maintenance facility.

At the time of our review, data was available on only the first 8 helicopters completed by the contractor, due to slippages in the contractor delivery schedule. For comparison purposes we obtained cost data on 91 helicopters inspected and repaired by the Corpus Christi Army Depot. In the comparison it was necessary to exclude parts and material costs since this cost data by helicopter was not readily available at the contractor's facility.

Our analysis showed that the Cobra maintenance work at the contractor's facility was costing about 135% more than comparable work at the Army depot. Although the contractor's labor rates were slightly higher than the government's, the cost difference was primarily due to the contractor charging significantly more labor hours per helicopter than the Army depot. The contract work at that time was averaging 5,555 labor hours per helicopter while the Army depot averaged 2,818 labor hours on the transfer inspection work and resulting maintenance actions.

We observed that while the contractor's statement of work varied slightly from the work requirement provided the depot, both facilities were accomplishing essentially the same tasks. We also observed that the contractor was doing some work which appeared to

be outside the intended scope of work. Additionally, contractor shortages in repair parts required for the maintenance resulted in extensive cannibalization of other aircraft scheduled for later delivery. Contractor officials told us that cost figures on the first 8 aircraft were inflated because contractor personnel were not familiar with the transfer inspection process and performance was expected to improve with experience.

We met with Army officials at the Troop Support and Aviation Materiel Readiness Command and informed them of our analysis and findings. Subsequent to this meeting the contractor informed the Army of a possible contract cost increase. The combination of our findings and the possible increase in contractor prices resulted in the formation by the Army of a Blue Ribbon Panel to analyze the contractor's performance delinquencies and expected cost increases. The panel found:

1. The contractor had greatly underestimated the parts requirements which were needed to perform the required maintenance and subsequently was unable to obtain parts in a timely manner. Parts were obtained by cannibalizing other aircraft, an extremely labor intensive activity.

2. The contractor's maintenance program was not being intensively managed.

3. The statement of work was not being interpreted by the contractor as was intended by the Cobra Project Office. The contractor was doing more work than had been intended under the transfer of inspection tasking.

The Cobra Project Office undertook intensive, dedicated management to resolve the problems identified. The unit manhours

required to accomplish the contractor maintenance were significantly reduced and the per unit cost, while greater than the cost of the depot repair, was also reduced.

One of the primary shortcomings of time and material contracts is illustrated by this example--there is no incentive to minimize the time required to accomplish the maintenance. As was also the case with the Cobra helicopter example, misinterpretations over the scope of work can also lead to more extensive repair than was intended by the contracting officer. Based upon our limited analysis of time and material contracts, we believe their use should be minimized. If there are no alternatives to a time and material contract, then a greater degree of contract management should be undertaken by the government.

In summary, we believe that DOD must develop a more effective strategy for managing commercial maintenance activities for military systems and equipment. DOD criteria for determining when commercial maintenance is to be used should be reexamined to ensure that cost, readiness and sustainability factors are all adequately evaluated. Additionally, when effective criteria is established to allow objective decisions between inhouse and contractor repair, each of the military services should strenuously implement this policy to ensure that the proper balance between inhouse and contractor maintenance is maintained. Finally, DOD should strive to find the means to compete a greater percentage of its commercial maintenance contracts. When noncompetitive contracting methods must be used, increased oversight efforts should be instituted to improve the government's ability to negotiate reasonable prices in a timely manner.

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