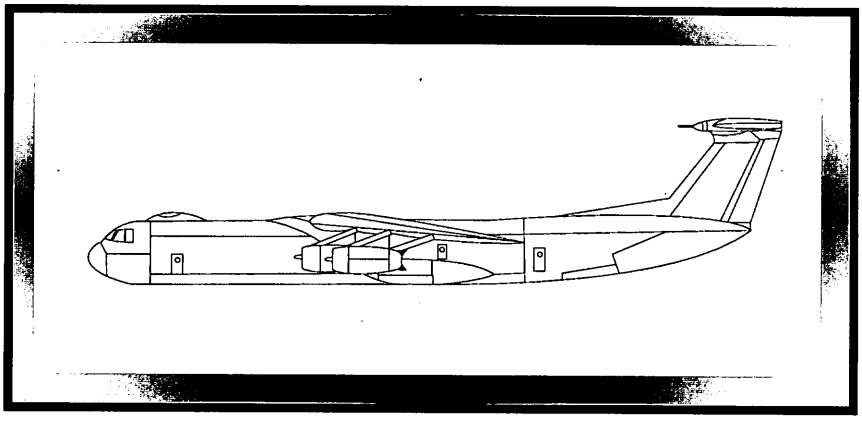
C141
CENTER WING BOX (CWB)

F/A 18
MODIFICATION CORROSION
AND PAINT PROGRAM (MCAPP)

Public
versus
Private
Competition



Preliminary
Case Studies

July 1994

#17

Coopers
&Lybrand

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PRELIMINARY CASE STUDIES OF PUBLIC VERSUS PRIVATE COMPETITION

FOR THE

C141 CENTER WING BOX (CWB) AND F/A-18 MODIFICATION, CORROSION AND PAINT PROGRAM (MCAPP)

THE STUDIES WERE PERFORMED BY COOPERS & LYBRAND PERSONNEL UNDER CONTRACT WITH THE DEPARTMENT OF DEFENSE. THE STUDY RESULTS REFLECT THE VIEWS OF THE REVIEW TEAMS. THE CASE STUDIES WILL BE INCORPORATED INTO A BROADER REPORT ON PUBLIC VERSUS PRIVATE COMPETITION.

JULY 1994

C141

CENTER WING BOX (CWB)

CASE STUDY

EXECUTIVE SUMMARY
C-141 CENTER WING BOX (CWB) COMPETITION
CASE STUDY

Coopers & Lybrand has reviewed the C141 Center Wing Box (CWB) competition and subsequent contract performance. Three private firms and the Warner Robins Air Logistics Center (WR-ALC) competed in a public versus private competition for the C141 CWB requirement. WR-ALC was selected and awarded contract FO9603-93-C-0043 on December 12, 1992, for a price of $62,189,319, including option years. The procuring activity was also WR-ALC with the Commander WR-ALC as source selection authority. In preparation for the competition, WR-ALC created separate "buyer" and "seller" teams, with appropriate restrictions placed on each. On the basis of numerous interviews and the examination of data, the reviewers are persuaded the integrity of the competition and source selection process was maintained despite the appearance of potential conflicts of interest.

The C141 CWB solicitation required the submission of firm fixed prices for the base year plus three option years. The private competitors submitted firm fixed price offers that, if any one of the firms had received the award, the government would be legally obligated to pay only the contract price for performance. The offer of WR-ALC, while represented as a firm fixed price, was analogous to a cost reimbursement offer. The government will be required to pay the full cost of performance, through one appropriation or another. Given this disparity which strongly influences business risk between public depots and private companies, we believe incentives were created for WR-ALC to underestimate costs. Our interviews with both "buyer" and "seller" personnel and review of the planning data for the competition, provide a perspective that the WR-ALC seller felt great pressure to win, proposing direct labor hours and rates that were not supported by past experience.

In the C141 CWB competition, as in other public vs private competitions, questions arose whether the desired "level playing field" was achieved. Our research supports the notion that a government procuring activity has no responsibility to eliminate or even mitigate existing advantages one competitor may have over another such as experience, location or organizational structure. As the C141 depot for over 20 years, the WR-ALC seller had inherent advantages over potential competitors for the CWB requirement that arose from its depot experience. The WR-ALC buyer had no ability to redress these inherent advantages. However, procurement regulations do require that government procuring activities take appropriate actions to preclude unfair advantages in competitive situations. In its multiple roles, as requiring activity, depot and procuring activity, we have concluded that WR-ALC had unfair competitive advantages in the C141 CWB competition for the following reasons:

a. As the assigned depot for the C141, aircraft were scheduled for induction into WR-ALC for other projects including Program Depot Maintenance (PDM) and a Paint project. These projects shared common tasks with the CWB including incoming inspections, aircraft buildup and functional check flights. The WR-ALC buyer, through a clause in the solicitation, allowed the seller to charge the costs for common tasks to the other projects. This violates the Federal Acquisition Regulation and Cost Accounting Standards by eliminating the normal allocation of costs based on causal/beneficial relationships. The benefit of this opportunity to share common costs amounts to between $7.1 and $13.0 million, depending upon the mix of aircraft inducted for CWB replacements. It surely is unfair in a competition to direct the only competitor who could essentially benefit from commonality to charge other projects, especially since the government and individual customers would benefit to the same extent from the commonality if these costs were allocated or charged based on a causal/beneficial relationship to each of the projects, including the CWB. Where a private firm is able to achieve similar economies of scale among contracts, the firms are required to allocate the costs among the contracts. The WR-ALC seller was also provided a price increase of $241,000, we believe inappropriately, when the mix of the first 5 aircraft changed from that which the WR-ALC seller anticipated in its offer, though no schedule mix was provided as a condition for the pricing in the solicitation.

b. While the competition was in process, WR-ALC performed a prototype and 3 trial CWB installations on tooling and equipment bought for the contract requirement and installed at WR-ALC. While the prototype CWB installation can be rationalized as a verification of tooling, data and replacement kits, the trial installations during the competition provided extensive training. This opportunity was not afforded other competitors and allowed specific processes and procedures to be developed, beyond the data provided to all competitors.

c. The Federal Acquistion Regulation and Cost Accounting Standards require private contractors to establish and maintain systems that enable the company, if awarded a contract, to comply with applicable regulations. DCAA audit reports prior to contract award addressed serious management deficiencies in estimating, accounting and internal controls at WR-ALC. In our opinion, if similar deficiencies were addressed at a private firm, the ability of the firm to manage and account for costs and fulfill its contract responsibilities would have been challenged. To the extent that system deficiencies impact proper charging of costs and similar criteria are not applied to public and private offerors, a clear competitive advantage is provided the public offeror, where all costs will be recovered.

d. In order to reduce direct labor costs, WR-ALC proposed a direct labor workforce in which approximately 54% of the employees are classified as

temporary or non-permanent employees. This substantially reduces labor costs, specifically fringe benefits. The practice raises significant issues regarding the maintenance of depot skills and capabilities. In the opinion of the reviewers, the acceptance of an offer from a private firm proposing to establish a workforce comprised of 54% temporary workers would be questioned in the source selection and might not be acceptable for critical aircraft repairs. In this case, the source selection documentation did not address the issue.

In the face of competition, WR-ALC developed a price offer that was not supported by data or experience. The initial offer was substantially lower (approximately 40%) than the $62.2 million best and final offer (BAFO), which became the contract price. The increase between the two WR-ALC offers occurred when omissions and errors in the initial proposal were uncovered in the audits and addressed in discussions. Significant increases or decreases in prices between initial offers and BAFO's normally lead to major source selection questions regarding the offeror's understanding of the requirement. In this case, it should have raised issues with regard to WR-ALC's ability to project and account for costs. The labor hours, direct and indirect rates proposed were significantly lower than experience supports and that which is being charged C141 customers for non competitive projects. The clear objective of the WR-ALC seller team was "to win".

With 28 of the scheduled 113 aircraft inducted for the CWB, a loss is being incurred, mischarging of costs is taking place and reports do not accurately reflect the program cost status. These points are exemplified by the following:

a. From the applicable DMIF revenue and cost accounts through April 1994, costs incurred are $11,882,949 and revenues are $9,601,722. The cost accounts do not include $224,000 represented as costs accumulated manually after contract award and prior to the first aircraft induction in April 1993. When added, this computes to a program loss of $2,505,227, through April 1994. The formal depot maintenance cost report for the same period, which only includes aircraft that have gone to final sales, reports a loss of $855,000 on costs of $2,499.000 and revenues of $1,644,000.

b. The C141 PDM and CWB programs have a total of 99,782 hours charged to a training account from April 1993 through May 1994. Of this total, 84,976 hours or 85.2% were charged by CWB personnel. Interviews and a review of data confirms that substantial portions of those charges involve employee "on the job" training, with direct labor hours worked on the C141 CWB charged to the training account. This practice understates direct labor and indirect costs (overhead and G&A) where costs are based on direct labor hours. It results in cost mischarging. Our estimate is that the practice has understated costs to date by approximately $3.0 million on the CWB.

c. Indirect costs are not being allocated properly, which understates the C141 CWB costs. A review of 21 support organizations found 15 charging the C141 PDM Resources Control Code (RCC) but not the CWB. Based on a preliminary review, at least 9 of the 15 support organizations should have substantial effort allocated to the CWB, which is directly benefitting from the support, including engineering, human resources/administration and the production/financial branch. This misallocation understates production overhead on the CWB.

d. The depreciation expense included in the BAFO was $704,355 annually. Our review questioned the methods of allocating depreciation expenses and other practices, including the application of very conservative useful life guidelines. In any case, depreciation expenses allocated to the CWB for the first 7 months of FY 94 were $132,756, substantially below that which was proposed and significantly less than appropriate.

The contract award to WR-ALC resulting from the C141 CWB competition contains fixed prices for the basic requirement. In contrast, the Defense Management Industrial Fund (DMIF), which supports the C141 CWB work, operates under the principle of full cost recovery. This conflict between pre-established prices and full cost recovery provided the impetus to review the billing process. Based on our review of a sample of completed and in-process aircraft, an arms length billing relationship between the WR-ALC depot and its customers could not be established. Where the buyer is paying with appropriated O&M funding, the funds were transferred to DMIF in the form of advance payments prior to performance. Where the industrial funds are also the source of the buyers' funds, periodic billings or transfers were made with no consistent pattern and without relation to physical progress. We were unable to rationalize unit contract prices plus the price of government furnished material with the billings. This is inconsistent with the structured, arms length process required of private commercial firms. The general pattern of performance, acceptance and payment was not established. It could not be determined what DMIF has or will receive for CWB work, including payments for those aircraft which are completed.

In estimating its costs, the WR-ALC offer was based on professional judgements, without reliance on existing standards or actual performance data. The WR-ALC accounting systems do not provide true product costing. In our opinion, the basic systems necessary to account for and manage costs in a reasonably comparable way with industry are not in place. Few internal controls exist. While the competition for the C141 CWB may have served well as a surrogate to achieve other management objectives, in our opinion it was unfair, costly and unnecessary. The offerors collectively incurred approximately $1 million in Bid and Proposal (B&P) expenses, most of which will be borne by the government. The administration of the contract outside of the normal depot process is estimated at $1.5 million. The competition itself is estimated to have cost $1.8 million. WR-ALC enjoyed substantial inherent and constructed advantages in the C141 CWB competition. As a public entity it is not held to the basic estimating and accounting criteria required of private defense contractors. Therefore, subjective and objective comparisons between the public and private offers received on the

C141 CWB were practically impossible, whether based on price or best value. Although the disparity in proposed prices between WR-ALC and the lowest private firm is very significant, where public and private offerors are operating under different rules, the results of the competition do not provide any relative measure of productivity or efficiency. Rather, the sizable differences reflect aggressive pricing of a public depot, without the regulatory requirements, economic risks or penalties that a private firm would have to consider.

We believe that as the C141 depot, WR-ALC was singularly in a position to achieve economies of scale by combining several C141 projects to reduce aircraft downtime and costs. Our review leads us to the conclusion that WR-ALC is the most economic source for the C141 CWB, given its overwhelming advantages as the aircraft depot. However, WR-ALC does not have the systems, experience, training or internal controls that allow it to estimate costs and manage cost performance to specific objectives similar to that required of a private firm. The competition did not result in WR-ALC significantly improving systems or processes to reduce or even measure the costs of performance. It is clear the true costs of performance will substantially exceed the contract price and in our opinion will only be determined by an incurred cost audit subsequent to performance. Nevertheless, it is also the reviewers opinion that overall C141 CWB costs would have been reduced if the project had been assigned or allocated to WR-ALC without incurring the costs of an unfair competition.

INTRODUCTION

In November 1991, Warner Robins Air Logistics Center (WR-ALC) recommended to the Air Force Logistics Command (AFLC) that it be authorized to conduct a public vs private competition for replacement of the C141 Center Wing Box (CWB). The decision to replace a significant number of C141 CWB's had been made in the late 1980's. This decision resulted in the award of contracts F09603-87-G-0741-0049 and F09603-89-C-2585 to Lockheed Aeronautical Systems in September 1989 to design a new Center Wing Box and tooling for the replacement, a data package, long lead forgings for main frames and 121 center wing box kits. The contracts were valued at approximately $149.5 million. The contracts also required Lockheed to perform a prototype installation to validate the design, tools, data and kits and also to provide technical support to WR-ALC in performing a prototype installation. The CWB kits, comprised of approximately 12,000 components, were delivered late 1991 through December 1993.

WR-ALC had been the assigned depot for the C141 aircraft for over 20 years. When authorization was received in late 1991 to compete the CWB installation, a substantial number of C141 aircraft were flowing through the depot annually for program depot maintenance (PDM), a paint project, a speedline project and other maintenance. The depot, based on its actions prior to the competition decision, anticipated that the CWB work would be assigned to WR-ALC. Three aircraft had been inducted to perform prototype and trial CWB installations in August 1991 (aircraft 66-0139), September 1991 (aircraft 64-0631) and November 1991 (aircraft 65-0269). Two mating/demating fixtures and other tooling were installed at WR-ALC. WR-ALC was prepared to perform the requirement when the decision was made to compete.

There are two basic funds used at WR-ALC; the Depot Maintenance Industrial Fund (DMIF) and the Weapon System Fund (O&M). DMIF is a revolving fund. Customers receive maintenance services from the depot. The customer pays the bill, replenishing the DMIF's cash. O&M is an appropriated fund which finances those functions considered outside the depot, although O&M funded personnel also work within the product directorates. O&M costs are supposed to be allocated to depot projects on the basis of a causal/beneficial relationship. We determined that proper allocations are not taking place.

The C141 CWB case study involved an assessment of the policies, procedures and practices used by WR-ALC as both "buyer" and "seller" measured subjectively against what would be expected of a government buyer competing a requirement in industry and a commercial seller in responding to the requirement. We reviewed records and data provided by the WR-ALC "buyer" and "seller". We evaluated the regulatory requirements, accounting principles and practices involved with numerous issues. Since the source selection data is marked "Source Selection Sensitive," several reviewers signed non-disclosure statements. This report attempts to discuss the issues without revealing specific source selection sensitive or proprietary

information. Access to Defense Contract Audit Agency (DCAA) reports was provided. The Air Force Audit Agency (AFAA) would not provide access to its draft audit on the C141 CWB.

PLANNING FOR THE COMPETITION

In preparation for the competition, WR-ALC separated itself into a "buyer" team that would represent the procuring activity and source selection authority and a "seller" team, which would respond to the solicitation, organize itself for the competition and if awarded the contract, perform as the winning contractor. The Commander, WR-ALC, was the Source Selection Authority (SSA) and essentially the leader of the buyer team. The head of the seller team was The Deputy, C141 Program. Based on a review of data and numerous interviews, the administrative separation of the buyer and seller appeared to be successful. It does not appear that information was exchanged between team members even though the separation forced people, who were accustomed to working together, to not share information. Subsequent to the C141 CWB competition, an Air Force Material Command (AFMC) policy was issued which would have precluded the Commander, WR-ALC from serving as the Source Selection Authority. The revised policy would eliminate the appearance of a conflict of interest in future competitions, which exists when a depot acts as a buyer and seller, with the Source Selection Authority as part of the buyer team.

As the "buyer" team organized the solicitation and source selection, the "seller" team continued with what it had been doing prior to the decision to compete. The seller team proceeded to complete the CWB prototype and two trial installations. A fourth aircraft was inducted in January 1992, (aircraft 65-0276), for another trial installation. The prototype and three trial installations were completed between December 1991 and October 1992, after the decision to compete and during the conduct of the source selection. The data for the prototype and trial installations are shown in Figure 1.

Figure 1

AIRCRAFT NUMBER	DIRECT LABOR HOURS	DIRECT LABOR COST	MATERIAL COST	PROD. OVERHEAD	G&A	TOTAL COST
64-0631 (FEB 92)	33,289	$629,993	$915,057	$700,358	$264,860	$2,510,268
66-0139 (FEB 92)	15,995	$293,511	$808,251	$450,271	$72,180	$1,624,213
65-0269 (MAY-AUG 92)	22,789	$416,567	$770,225	$594,172	$61,567	$1,842,531
65-0276 (SEP-NOV 92)	16,475	$306,153	$867,413	$484,562	$39,548	$1,697,676
TOTALS	88,548	$1,646,224	$3,360,946	$2,229,363	$438,155	$7,674,688
AVERAGE	22,137	$411,556	$840,237	$557,341	$109,539	$1,918,672

Source: Warner Robins ALC Document, C141 Center Wing Box Prototypes

In addition to performing on the trial installations, the WR-ALC seller also looked for ways to scrub its estimates based on professional judgements. While this is a desirable reaction to competition, the buyer must ensure "cost realism" where the depot will in fact recover its full costs.

A solicitation was issued on March 26, 1992, for the installation of 106 CWB's. Material, in the form of the kits being produced by Lockheed, was to be government furnished material (GFM) to the successful offeror. Three kits had been procured encompassing the CWB, the 958 frame and wing station 77, which would be required for each CWB installation.

The seller team at WR-ALC was comprised of knowledgeable production and financial personnel who, based on discussions and interviews, felt great pressure to win the competition for the depot. Despite extensive personal experience with the C141 program and the CWB prototype/trial installation experience, they started with a "clean sheet of paper". The standards established for the C141 were not used, since they were believed to be overstated. The data on the prototype and trial installations also was not used because it reflected training and other inefficiencies. Essentially, labor was estimated based on professional judgement. Since the C141 had approximately eight different Resource Control Centers (RCC's), it was desirable to establish a single, separate RCC for the CWB. This was accepted by DCAA. The seller estimated overhead and general and administrative (G&A) expenses for the new RCC, again based on professional judgement. While the review of past experience, the development of new improved processes and a questioning of methodologies are also desirable reactions to competition, such actions on the part of the seller place an additive burden on the buyer to ensure the results are reasonable or realistic, since the public depot will recover all costs.

In contrast, the private offerors had far less opportunity for creativity. They were submitting firm fixed prices for the basic requirement. Two private firms developed their offers using the data package and limited historical experience on related aircraft projects. The companies approved indirect rates were used. The third private competitor, Lockheed Aeronautical Systems, used prototype hours excluding non-recurring hours, balanced with a separate bottoms-up estimate using new production techniques. It also established a separate production base for the project.

THE SOURCE SELECTION

The solicitation for 106 CWB installations closed on May 11, 1992. Offers were received from three private firms: Lockheed, CTAS and AERO in addition to WR-ALC. The "buyer" evaluated offers and conducted discussions with the offerors during June and July 1992, issuing clarification and deficiency requests. In August 1992, the solicitation was amended to increase the projected quantity from 106 to 113. Revised proposals were received in September 1992, followed by additional discussions with the offerers. At this time, DCAA also reviewed the WR-ALC offer and provided the WR-ALC buyer with its report and comments. On October 31, 1992, a request for best and final offers (BAFO) was issued. WR-ALC's response to the BAFO was to substantially increase its price, reacting to the deficiencies and weaknesses addressed in its initial offer. DCAA again reviewed the WR-ALC offer and provided a qualified certification on December 16, 1992. Contract FO9603-93-C-0043 was awarded to WR-ALC on December 17, 1992.

In developing its offer for the CWB, the WR-ALC seller had other C141 work scheduled into the depot, specifically for the program depot maintenance (PDM) and paint projects. Based on a detailed schedule, 57 aircraft scheduled into the depot for other projects, would also have the CWB replaced. Certain work requirements were common between the projects including: aircraft defueling, incoming inspection, aircraft stripping, aircraft buildup, aircraft fueling and flight testing.

The hours and costs for the common tasks were not included in the CWB offer but rather would be borne by the other projects, which were allocated to the depot non-competitively. Clause M901 in the solicitation allowed the seller to charge the costs to the other projects. This direction was inappropriate under competitive circumstances, violating The Federal Acquisition Regulation (FAR) and Cost Accounting Standards (CAS) which require that costs be allocated based on a causal/beneficial relationship. Since WR-ALC was the only competitor with the opportunity to achieve economies of scale with other projects, it was surely not fair to direct that CWB costs be charged to other non-competitive work, thus understating the costs of the CWB and providing the WR-ALC seller a substantial competitive advantage. The value of this competitive advantage is between $7.1 and $13.0 million, depending upon the mix of aircraft.

The aircraft schedule reflected in Figure 2 was only available to WR-ALC:

Figure 2

C141 Aircraft Schedule				
	Fiscal Year			
	1993	**1994**	**1995**	**1996**
PDM project	5	11	12	9
Paint project	0	10	10	0
CWB only project	0	15	14	27
TOTAL	5	36	36	36
Source: C141 Program Directorate, Planning Data				

Subsequent to award, the FY 1993 aircraft changed from 5 PDM to 3 PDM and 2 CWB only. Modification P0002 was issued, creating different line item prices for each category, i.e. PDM and increasing the FY 1993 price to WR-ALC by $241,000 based on the change in the mix. This schedule was not part of the solicitation and the responsibility was on the offeror's to assume pricing risks associated with their proposals. The modification, though not terribly important from a pricing standpoint, is indicative of the difficulty in objectively separating the buyer and seller components of the WR-ALC or any depot team. It was not appropriate for the buyer to assume the risk of the seller's offer. In this case, since the government will bear the full costs, the issue is only important from the perspective of achieving fairness. However, if a private firm had won and requested that pricing be changed, the action would normally not have been taken. We were advised that the buyer's intent is to make price adjustments for changes in aircraft mix throughout the contract.

In estimating direct labor hours, which was the major factor differentiating its pricing from competitors, WR-ALC established new standards for the CWB based on professional judgement. Existing standards for the C141 were not used. Data from the prototype and trial installations were also dismissed. The hours reflected professional estimates. None of the C141 CWB standards were engineered. In a public vs private competition with the depot's offer analogous to a cost type offer, this process should not be acceptable. The government will assume the full cost of performance. Every incentive is created to estimate optimistically.

Under similar circumstances where the government will be responsible for all costs, a private firm is restrained from "buying-in" by being compelled to use historical or quantitative data, where possible. Figure 3 provides the direct labor hours estimated by the WR-ALC seller in its BAFO. The differences between the prototype trial installation (Figure 1) and the BAFO are clearly sizable.

Figure 3

CENTER WING REPLACEMENT STAND ALONE (DROP-IN AIRCRAFT)				
TASK	FY 1993	FY 1994	FY 1995	FY 1996
INCOMING	134	134	134	134
PRESSURIZATION	21	21	21	21
STRIP	410	409	408	407
DEMATE	930	916	852	827
CWB R&I	5,823	5,976	5,665	5,526
MATE	2,675	2,633	2,504	2,455
BUILDUP	1,802	1,794	1,787	1,781
FUEL	16	16	16	16
FCF	334	334	334	334
TOTAL	12,145	12,233	11,721	11,501
CENTER WING REPLACED IN CONJUNCTION WITH PDM				
TASKS	FY 1993	FY 1994	FY 1995	FY 1996
INCOMING	0	0	0	0
PRESSURIZATION	21	21	21	21
STRIP	0	0	0	0
DEMATE	930	916	852	827
CWB R&I	5823	5976	5665	5526
MATE	2675	2633	2504	2455
BUILDUP	0	0	0	0
FUEL	0	0	0	0
FCF	0	0	0	0
TOTAL	9,449	9,546	9,042	8,829
CENTER WING REPLACED IN CONJUNCTION WITH PAINT				
TASKS	FY 1993	FY 1994	FY 1995	FY 1996
INCOMING	0	0	0	0
PRESSURIZATION	21	21	21	21
STRIP	344	343	342	341
DEMATE	930	916	852	827
CWB R&I	5823	5976	5665	5526
MATE	2675	2633	2504	2455
BUILDUP	1633	1625	1618	1612
FUEL	0	0	0	0
FCF	0	0	0	0
TOTAL	11,426	11,514	11,002	10,782
Source: WR-ALC Seller Handout				

Labor rates were estimated based on a plan to employ a substantial number of "temporary" workers. The use of the term "temporary" may be a misnomer, in that many of these workers are employed for 3 years or more. The approach reduces labor costs in that the fringe benefits, which amount to approximately 20.54% of an employees pay, are partially eliminated. Temporary workers on the C141 CWB comprise 54% of the workforce. Although this practice allows the depot to reduce labor costs and react to other hiring restrictions, it raises other serious issues with regard to the maintenance of skills and capabilities.

Production overhead was projected based on a separate Resource Control Center for the CWB with the base being direct labor hours. Production overhead rates for each of the contract years are provided in Figure 4, with a contrast provided for the non-competitive C141 PDM:

Figure 4

CWB Production Overhead Projections (per Direct Labor Hour)				
	FY 1993	**FY 1994**	**FY 1995**	**FY 1996**
C141 CWB	$24.82	$25.32	$26.15	$26.63
C141 PDM	$21.44	$34.32	$37.59	------
Source: WR-AL Production Directorate				

Our review raises significant questions in allocating production overhead cost. Where O&M funded people who support the C141 CWB contract are not being allocated to the program, the production overhead is being understated. We could not discern differences that would justify the disparite projections, other than the nature of the program, in that: CWB was competitive, PDM was non-competitive and the allocation tables, which are intended to apportion indirect labor, are not current.

The G&A pool encompasses all the production directorates and is allocated based on direct labor hours. To the extent that direct labor hours are understated, overhead and G&A are understated also. Our review indicates the G&A pool does not include all expenses as defined in Cost Accounting Standards (CAS) 410. A strong argument can be made that WR-ALC should use a cost input base versus direct labor hours in allocating G&A expenses. The G&A base and rates used in the WR-ALC offer are provided in Figure 5:

Figure 5

CWB G&A Base and Rates				
	FY 1993	**FY 1994**	**FY 1995**	**FY 1996**
Hours	6,943,000	6,795,000	6,664,000	6,564,00
Rates	2.74 per hr.	2.89 per hr.	2.80 per hr.	2.70 per hr.
Source : WR-ALC Seller Data				

With regard to each of these major element of costs, the WR-ALC seller took a "new look" at what it was doing and priced aggressively. The review of data led us to conclude that changes to substantive processes or procedures generally did not precipitate lower CWB estimates. Rather, the reductions reflected professional judgements and administrative changes, some of which are believed to be motivating or causing the mischarging of costs

during performance. It is significant indeed when the production overhead rate, for example, can differ by $10.00 an hour between the PDM and CWB projects, with the higher rate reflecting historical data and the lower rate reflecting judgement in the face of competition. Our review indicates the actual rate is likely to be somewhere between the competitive and sole source rates. Whatever it turns out to be, the government will pay. While the sales price, which is a composite of direct labor, material and indirect costs and represents what customers pay per hour was being substantially reduced for the CWB in the face of competition, sales prices for the C141 PDM were increasing from $63.93 in FY 1992 to $81.22 in FY 1994, an increase of 27%. It certainly can be argued that lower prices on the competitive CWB and higher prices on the non-competitive PDM provides WR-ALC the opportunity in performance to achieve break-even, albeit with the PDM subsidizing the CWB program. The significant price increases on PDM reinforce the notion that competition on the CWB drove lower prices, not lower depot costs resulting from improved processes.

COMPLIANCE WITH LAW/REGULATION

A review of the source selection documentation and interviews with personnel associated with both the buyer and seller teams, leads to the observation that as a public entity, the standards applied objectively and subjectively to WR-ALC were different than would normally be applied to a private offeror under similar circumstances. These differences are exemplified by the following judgements and administrative actions, some of which are now causing costs to be mischarged:

1. WR-ALC did not have an approved estimating system. It was allowed to estimate the C141 CWB based on professional judgement, disregarding historical data. If WR-ALC could be held to a firm fixed price, the issue would be irrelevant. However, with WR-ALC as a public depot the government will assume its full costs. It should not be allowed to "buy in" any more than should a private firm. The substantial price increase between the initial offer and BAFO provided a strong indication that the WR-ALC estimating process was deficient.

2. Actions taken by WR-ALC to reduce costs, including the use of a high percentage of temporary workers, would normally cause a source selection authority to inquire and question the practice. The record does not indicate the issue was ever addressed in the source selection. Normally, this would be a significant risk if associated with a private firm under similar circumstances.

3. At the time of the competition a review of the WR-ALC proposal and the methods used to develop the data supports the observation that WR-ALC was not in compliance with the following FAR and CAS requirements:

   a. Timekeeping - The system by which supervisors record the hours for employees is generally not acceptable. As a result of audit criticisms, the system was changed whereby employees initial their time sheets every week. However, the system is not documented adequately and employees are not trained in its use. The employees continue to perceive this as an "attendance" system, reflecting how many hours they worked. There is little understanding that time must be charged to tasks on which they are working and that by their initialing the time sheets, they are validating the record. For example, in a floor check an employee did not recognize that 12 hours in the preceeding two weeks were charged to training. In the past, planners completed employee time sheets. Currently, first line supervisors prepare the time sheets with employees reviewing and initialing entries. Proper labor charging is basic to the accurate recording of costs. While changes at WR-ALC have made the timekeeping system

more acceptable, implementing procedures and employee understanding remains inadequate, approximately 14 months after contract award.

b. Internal Controls - The processes and procedures describing how transactions or exceptions are to be processed are poorly documented. Various transactions were found to be handled differently by several people at different times. There appeared no routine internal process to validate that appropriate actions were being taken. The absence of internal controls with a private contractor would be considered to increase performance risks. Production managers do not have visibility of what manual entries are made to systems which provide performance data.

c. CAS Deficiencies The WR-ALC accounting system was established to meet the government's needs as a public depot. Though it is believed to essentially comply with the DOD Accounting Manual, which in some respects imitates the CAS, we find WR-ALC in non-compliance with the following CAS standards:

(1) CAS 403 - Requires allocation of home office expenses to segments of a business. We did not find any cost from AFMC or other headquarters allocated to the C141-CWB in the proposal or in performance.

(2) CAS 402 - Requires consistency in allocating costs incurred for the same purpose. Direct labor costs are being reclassified as production overhead where direct labor hours are incurred but no earned hours are reported.

(3) CAS 407 - Requires standard costs and related variances to be accounted for at the level of the production unit. Since standard labor costs are not entered into the books of account, variances are not accumulated in the accounting records nor are they allocated to the resource control centers.

(4) CAS 410 - Requires a cost input base to be used to allocate G&A expenses to final cost objectives. WR-ALC is using a direct labor base.

(5) CAS 418 - Requires proper allocation of direct and indirect costs. The production overhead pool does not include all allocable expenses for the C141 CWB. Direct labor costs are being charged to training, an overhead account.

(6) CAS 420 - Requires B&P expenses to be accumulated and allocated to final cost objectives on the same allocation basis used for G&A. This did not occur.

The total impact of a CAS non-compliance or the continuing non-compliance cannot be quantified. Private contractors must have systems and processes that achieve compliance, with non-compliances subject to questions regarding a contractor's "responsibility" prior to award and equitable adjustments to price when non-compliances are discovered after award. This emphasizes the point that private offerors have been required to comply with regulatory requirements. Public entities have not had the same requirements imposed. These differences should not be dismissed as unimportant in public versus private competition. Though changes have been made at WR-ALC, which would support the observation that the depot is currently

closer to CAS compliance than it was at the time of the solicitation, non-compliances continue to exist that would be unacceptable for a private firm.

COST COMPARABILITY

Adjustments to the WR-ALC offer were made in accordance with the cost comparability handbook. In the pre-award environment, the record indicates that significant efforts were made to identify and address appropriate adjustments. While it can be argued that these adjustments cause public depots to be evaluated as though they were private companies, based on our review we conclude that the comparability concept fails in that the public depot does not meet basic regulatory requirements involving estimating, timekeeping, accounting, and allocation of costs. Comparability adjustments cannot be made for these basic deficiencies. It was also apparent that in the C141 CWB competition, the comparability adjustments had no impact on the award decision. The adjustments were also not being implemented in all cases after award with appropriate charges to indirect cost accounts.

CONTRACT PERFORMANCE

As of May 31, 1994, 28 aircraft have been inducted for CWB replacement. The estimated program requirement is for 113 CWB aircraft. Of the 28 aircraft inducted, 3 have gone to final sales, 7 are completed and have been returned to the customers with the accounts open for trailing costs, 2 have the CWB completed but are in storage awaiting wing panels and the remaining 16 are in process. From the G072A report, costs incurred through April 1994 are $11,882,949 and revenues are $9,601,722. An additional $224,000 has been recorded manually, which is a WR-ALC seller estimate of costs incurred between contract award and the first aircraft induction. This data was provided by CWB program personnel in Attachment 1. This computes to a loss of $2,505,227 based on the GO72A reports, with no consideration to any cost mischarging which is taking place. This data is inconsistent with that being reported formally to AFMC, in accordance with current directives, which includes only those aircraft that have gone to final sales. The formal DMC cost report (Figure 6) for the period through April 1994 reports revenues as $1,644,000 and costs as $2,499,000 for a loss of $855,000. This fails to capture current information. Given the absence of documented procedures and internal controls, in reviewing performance data from month to month, it must be realized that the data does not reflect actual costs but allocated costs. In the opinion of the reviewers, WR-ALC is a sole source depot who's experience and systems are focused on schedule and quality. Production personnel are trying to manage costs without the necessary training or tools. The culture, discipline or procedures are not in place to properly manage the system costs. Many of the routine financial reports are adjusted manually. The production users generally did not know who made the adjustments and why. The program people impressed the reviewers as very capable, dedicated and conscientious - but with few tools to pro-actively manage and little understanding of how the pieces of a very complex accounting system come together. The result is that costs are not being properly charged. The more significant mischarging is as follows:

a. Training - Figure (7) represents training hours by month and cumulative from April 1993, the month the first CWB aircraft was inducted under the contract. A total of 90,805 regular time training hours and 8,978 overtime training hours were charged to the C141 program. Of these totals, 76,714 regular time hours (84%) and 8,265 overtime hours (92%) were charged by the C141 CWB.

Figure 6

DMC Cost Report

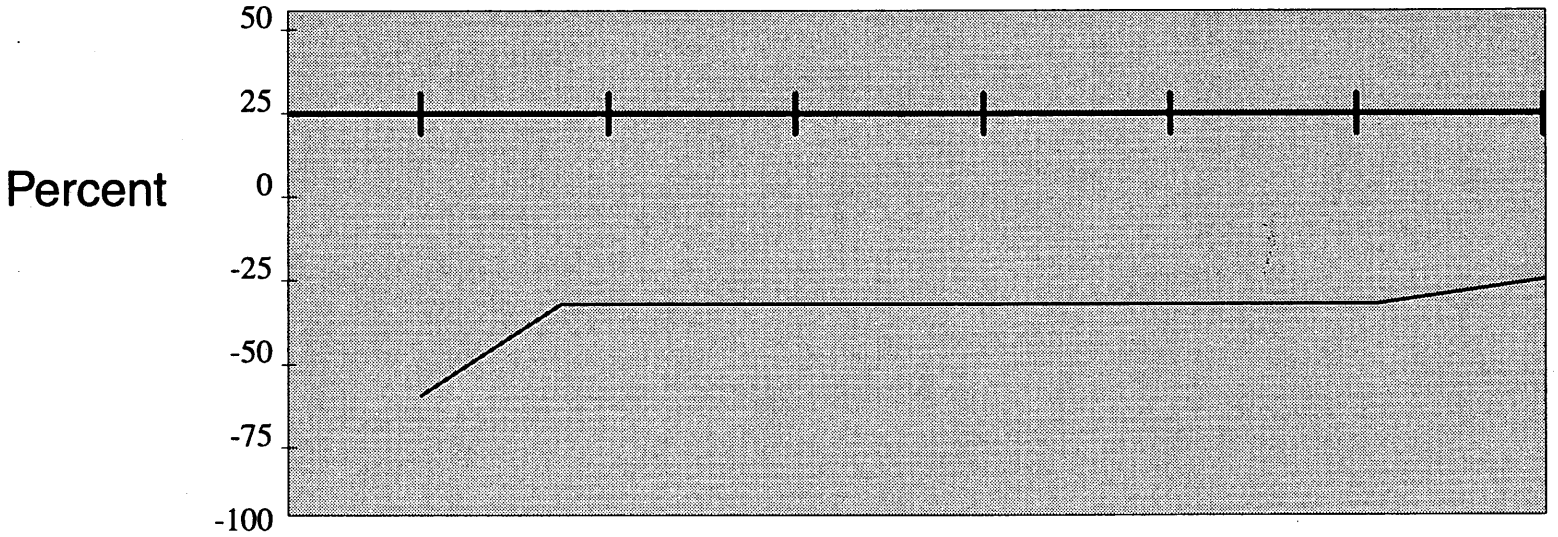
ALC: WR-ALC

Report as of Date: 31 May 94

Product Directorate: C-141 Management Directorate WAD Number F09603-93-C-0043

Workload Title: C-141Center Wing Box Replacement Period of Performance FY93/FY94

Unit Shop Flow Days: 15B/160



	A93	O	N	D	J94	F	M	A
NWV	0	615	1215	1664	2184	2631	4387	5904
CUM Sales	0	617	1217	1217	1217	1217	1217	1644
CUM Cost	224	1170	1913	1913	1913	1913	1913	2499
Profit/Loss	-224	-553	-696	-696	-696	-696	-696	-856
Cost VAR%		-89	-57	-57	-57	-57	-57	-52

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Figure 7

TRAINING - HOURS						
	C141 (LJP)			C141 CWB (LJPE)		
	TOTALS	REG.	OT	TOTALS	REG.	OT
April 93	1310	1155	155	210	210	—
May	1592	1474	118	1104	1049	55
June	2367	2272	95	1502	1493	9
July	2997	2936	61	2503	2497	6
August	3783	3729	54	3030	3016	14
September	4796	4749	47	4224	4197	27
Subtotals FY 1993	16845	16315	530	12573	12462	111
October 1993	7403	6846	557	6697	6200	497
November	12395	11666	729	11807	11164	643
December	15751	14154	1597	15074	13554	1520
January	16480	13355	3125	15817	12731	3086
Febuary	10961	9455	1506	9652	8174	1478
March	8338	7844	494	6489	5999	490
April	4971	4670	301	4059	3758	301
May	6639	6500	139	2811	2672	139
Subtotals FY 1994	82938	74490	8448	72406	64252	8154
TOTALS	99783	90805	8978	84979	76714	8265
Source: WR-ALC Production Directorate, Cost Data						

Our review of records, confirmed by interviews, support the observation that substantial amounts of this training reflects hours worked on CWB production and charged as "on the job" training. Supervisors made these determinations without employees always recognizing that time was being charged to training vice CWB production. Although it was noted earlier that 54% of the CWB employees are considered temporary employees, a one-time check on June 10, 1994 determined that temporary employees also comprised 56% of PDM Branch "A" employees, 55% of PDM Branch "C" employees and 37% of PDM Branch "D" employees. Therefore, the imbalance in training charged by CWB employees cannot be rationalized by the comparative inexperience of the staffing. Rather, we believe that direct labor has been mischarged to training to understate direct labor hours. Overhead and G&A are also understated on the CWB, which are based on direct labor hours. If it were assumed that the C141 CWB should not have more hours charged to training than other C141 projects, 8,299 hours would be mischarged in FY

1993 and 61,871 hours mischarged in FY 1994 to date. Using the applicable direct labor, overhead and G&A rates for each year, the approximate mischarging (excluding training dollars) would be:

FY 1993 8,299 x $17.28 (DL) + 8,299 x 24.82 (OH) + 8,299 x $2.74 (G&A) =	$372,127
FY 1994 61,871 x $18.04 (DL) + 61,871 x 25.32 (OH) + 61,871 x $2.89(G&A)=	$2,861,534
	$3,233,661

Clearly, an action charging direct labor to training would be cost mischarging under a contract with a private firm, subjecting the company to potentially severe financial penalties.

b. Indirect costs are not being allocated properly. 21 support organizations were reviewed in the C141 management directorate. 15 were charging the C141 PDM-RCC but not the CWB-RCC. Our review indicates that 9 of these 15 organizations are providing direct benefit to the CWB including codes LJCR Human Resources/Administration, Code LJLE engineering branch and LJCF production/financial branch. The misallocation of indirect costs understates production overhead expenses on the C141 CWB (Figure 8).

c. The depreciation expense included in the BAFO was $704,355 annually. Depreciation expenses allocated to the C141 CWB for the first 7 months of FY 1994 were $132,756, far less than proposed and considered appropriate. The entire process of determining and allocating depreciation expense appears to be flawed, greatly understating that which should be allocated to the contract. A private firm is required to follow GAAP and IRS guidelines.

With the limited management tools available, the CWB program personnel have addressed their responsibilities conscientiously. Five contract data requirements list (CDRL) reports were reviewed, with all reports being compliant with the requirement and made on time. The over and above requirements being negotiated on a case by case basis appear reasonable, with negotiated hours in line with other production processes. Program personnel are aggressively addressing issues, although authority appears to be diffused with numerous people outside the program making decisions that impact costs and schedule.

ACCOUNTING SYSTEMS

The Depot maintenance operations involved a network of 32 separate data systems as depicted by (Figure 9). While the network and system relationships are documented, the systems are very complex. The interfaces, exception processing requirements, procedures and potential program management use of the systems products do not appear to be well understood.

The system provides limited support to those responsible for managing program cost, schedule and performance. Based on interviews, program and production personnel have little knowledge of what files their inputs update or how exceptions are processed. Manual inputs are made without the users understanding how or why. Production directorate managers lack

Figure 8

C-141 Management Directorate

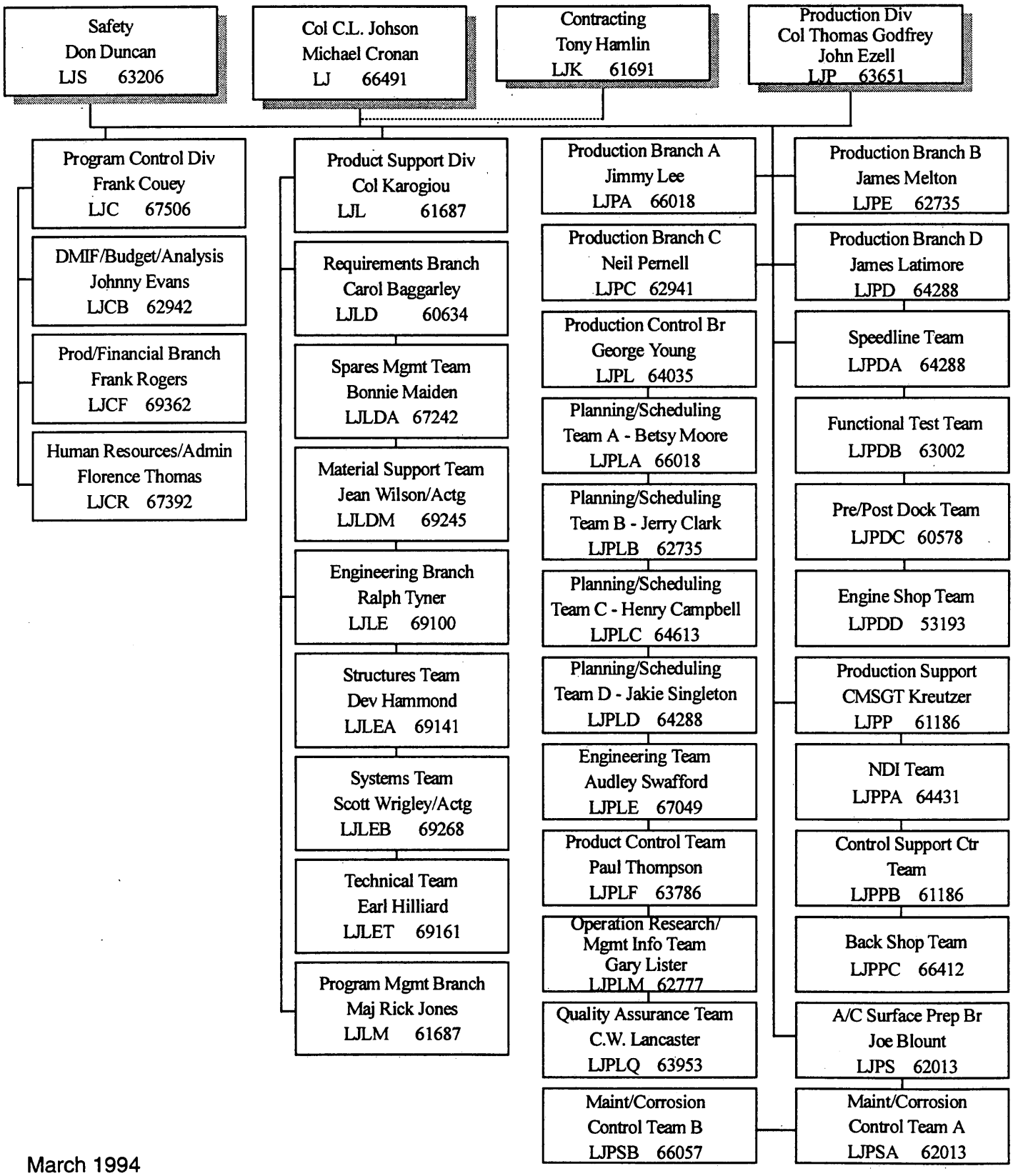

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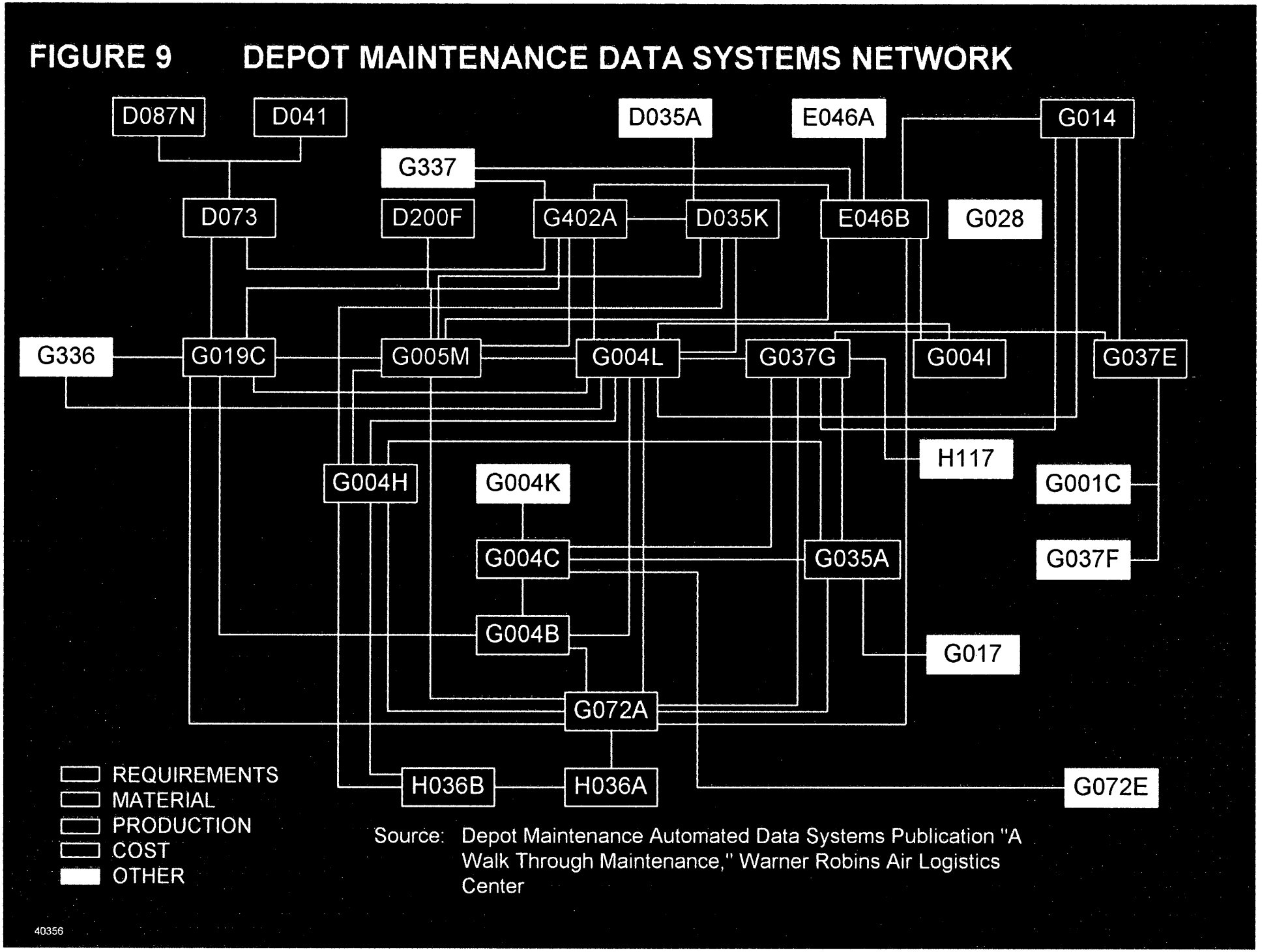
FIGURE 9 DEPOT MAINTENANCE DATA SYSTEMS NETWORK



Source: Depot Maintenance Automated Data Systems Publication "A Walk Through Maintenance," Warner Robins Air Logistics Center

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visibility on how costs in general and specifically those on G035A are accumulated or allocated to the Resource Control Center. The systems do not accumulate actual direct labor hours or costs. The system does not have documented, effective controls. We do not believe the operations managers or supervisors have accurate cost data and thus are very limited in their abilities to identify and address performance problems.

BILLINGS

DOD policy requires industrial funds to establish sales prices that permit recovery of all expected costs. It also requires these sales prices to be established prior to the start of each fiscal year. Because sales prices are often based on assumptions that are made 3 years before the year in question, the relationship of these sales prices to the C141 CWB contract prices is considered important in evaluating the accountability of public depot performance. This relationship should be documented in the billing process.

We took a sample of 4 aircraft to track CWB program funding and billings. The results of our reviews are that no correlation could be established between contract prices and periodic revenue recognition, program funding and final billings. Clearly, an arms length buyer/seller or depot/customer relationship does not exist in the funding and billing processes. Each sample case was handled differently. Aircraft 670002, which has gone to final sales, had intra - DMIF billings periodically with a final debit adjustment to bring the billing in line with the contract price. The Government Furnished Material (GFM) with a FY 1994 DMIF price of $1,142,518, was billed at $49.00. This was recognized as a problem and meetings were held just prior to the review to address the problem. Aircraft #638076 had (1) billing dated April 30, 1994, for $548,498. Material had been billed at $1,142,518. For aircraft 660147 revenues are reported on G035A at $342,187. There were no billings to date on this aircraft. The fourth aircraft 660158 had costs reported on G035A through April 1994 as $13,404. The billing was $96,912, as of April 30, 1994. Explanations of these cases were not provided.

With a private firm, if progress payments are authorized as they normally would be, monthly billings are submitted to the administrative contracting officer (ACO) who approves the invoice for payment. Where an overrun is being projected, as is the case on the C141 CWB, the ACO would normally apply a loss ratio to bring progress payments into line with physical progress. The billing process on the C141 CWB is not documented and each of the 4 aircraft sampled were processed differently, without adequate explanation. If the funds transferred to DMIF reflect the budget vice the contract price, clearly the price established by competition would be irrelevant. We could not determine exactly how the funding and billing process was being handled given the lack of documentation and the inability to have the specific examples explained. Where the process does not implement a documented arms length business relationship as intended by the competition, it deviates substantially from that required of private firms.

THE COSTS OF COMPETITION

The competition for the C141 CWB was conducted over approximately 9 months. Each of the 4 offerors maintained dedicated teams to develop proposals and respond to contracting officer inquiries. These costs are charged to Bid and Proposal (B&P) and were estimated by the offerors at approximately $1 million. The WR-ALC buyer provided data estimating the competition cost at $1.8 million. With the award of the CWB, a contract administration office was established. Its job is to negotiate the hours for over and above tasks, verify material deficiencies and perform other contract administration duties. The costs of this office and continued buyer support are estimated at $1.5 million over the life of the contract. Using the most conservative of these estimates $4.3 million was incurred to conduct the C141 CWB public vs private competition and to administer performance. This does not include estimates for any audits performed by DCAA or the Air Force Audit Agency, which may have otherwise not been performed.

CONCLUSIONS

The C141 CWB competition was not fair in that one competitor WR-ALC had overwhelming advantages, as follows:

- The ability to combine CWB efforts with other C141 projects, while charging common costs to the other projects.
- The opportunity to perform a prototype and three trial installations.
- The ability to ignore risk associated with proposing labor standards and costs that placed no reliance on existing standards or historical data.
- The ability to perform analogous to a cost type contract. While it is recognized that Air Force policy is to hold depots accountable for performing to the contract price, the systems do not track actual cost. The system documentation and internal controls are inadequate to validate cost allocations. The managers do not have the tools to manage costs.
- The ability to use existing accounting and reporting systems, which do not comply with statutory and regulatory requirements required of private firms.
- The ability to disregard business risks.

The potential benefits of competition in determining the most efficient producer in the marketplace at points in time are clear. In the C141 CWB competition, private companies proposed firm fixed prices with systems established to comply with statutory and regulatory requirements. In contrast, WR-ALC's winning offer has in substance been converted to a cost

type contract and its systems do not and cannot comply with the same statutory and regulatory requirements. The offers were not comparable. While the cost comparability handbook required the WR-ALC buyer to address some marketplace costs that a depot would not propose, it cannot address the basic problems associated with business risk, accounting and estimating systems and the proper charging of costs. Comparability adjustments also cannot address the fact that WR-ALC, as a public depot, has not previously been required to comply with Generally Accepted Accounting Principles (GAAP), Cost Accounting Standards (CAS), the Federal Acquisition Regulation (FAR), or compete in the marketplace.

Based on the data we reviewed and interviews, we believe adequate information was available up-front before the competition decision to conclude that WR-ALC, as the C141 Depot, could combine the CWB with other projects to provide substantial benefits to squadron customers both in saving aircraft downtime and costs. Similar potential did not exist in industry. The competition was an expensive surrogate to achieve real or imagined benefits that perhaps could have been addressed by training, improved systems, modern project management tools and increased management orientation to the cost of performance. Any claims that substantial savings have been achieved as a result of the competition are questionable.

	Attachment 1		
C-141 CENTER WING REVENUES AND COSTS BY MONTH			
AS OF	**TOTAL COST**	**REVENUE**	**PROFIT (LOSS)**
05-31-93	$238,329	$168,038	($70,291)
Y-T-D	238,329	168,038	(70,291)
06-30-93	291,186	156,609	(133,577)
Y-T-D	529,515	324,647	(203,868)
07-31-93	425,847	298,584	(128,263)
Y-T-D	955,362	623,231	(332,131)
08-31-93	602,332	423,832	(178,500)
Y-T-D	1,557,694	1,047,063	(510,631)
09-30-93	959,735	504,823	(454,912)
Y-T-D	2,517,429	1,551,886	(965,546)
10-31-93	898,068	604,100	(293,965)
Y-T-D	3,415,498	2,155,986	(1,259,511)
11-30-93	989,731	959,190	(30,541)
Y-T-D	4,405,229	3,115,176	(1,290,053)
12-31-93	1,083,015	863,406	(226,729)
Y-T-D	5,488,244	3,978,582	(1,516,782)
01-31-94	1,443,253	1,283,720	(152,413)
Y-T-D	6,931,497	5,262,302	(1,669,195)
02-28-94	1,363,434	1,445,291	81,857
Y-T-D	8,294,931	6,707,593	(1,587,338)
3-31-94	1,773,232	1,764,718	(8,514)
Y-T-D	10,068,163	8,472,311	(1,595,852)
04-30-94	1,814,786	1,129,411	(685,375)
Y-T-D	11,882,949	9,601,722	(2,281,227)
MEMO FOR THE RECORD: These above numbers do not include the $224,000 cost accumulated prior to the input of the first aircraft on 29 April 1993. Those totals with all costs included would be:			
Y-T-D	12,106,949	9,601,722	(2,505,227)

AS OF	CONTROL #	SERIAL NUMBER	TOTAL COST	REVENUE	PROFIT LOSS
04-30-94	00085H333	650254	855,837	549,889	(305,948)
	00709B333	650254	30,522	28,719	(1,803)
	000715B333	650254	59,489	38,403	(21,086)
CWB	1ST AIRCRAFT TOTAL		945,848	617,011	(328.837)
	00085H341	650260	684,476	527,391	(157,085)
	00714B341	650260	2,148	20,629	18,481
	00715B341	650260	56,645	51,681	(4,964)
CWB	2ND AIRCRAFT TOTAL		743,269	599,701	(143,568)
	00085H347	670002	586,607	427,500	(159,107)
	00715B347	670002	28,201	22,147	(6,054)
PDM/CWB	3RD AIRCRAFT TOTAL		614,806	449,647	(165,161)
	00085H001	660195	664,970	441,880	(223,090)
	00709B001	660195	27,824	27,021	(803)
	00715B001	660195	75,520	62,944	(12,576)
PDM/CWB	4TH AIRCRAFT TOTAL		768,314	531,845	(236,369)
	00085H002	670014	664,591	427,427	(237,164)
	00715B002	670014	22,582	19,863	(2,719)
PDM/CWB	5TH AIRCRAFT TOTAL		687,173	487,290	(239,883)
	00085H003	660157	529,875	461,649	(68,226)
	00709B003	660157	29,157	27,870	(1,287)
	00715B003	660157	17,384	10,448	(6,936)
PDM/CWB	6TH AIRCRAFT TOTAL		576,416	499,967	(76,449)
	00085H004	640614	700,832	536,866	(163,966)
	00709B004	640614	67,402	56,633	(10,769)

	00714B004	640614	11,893	9,180	(2,713)
	00715B004	640614	31,426	31,389	(37)
CWB/PAINT	7TH AIRCRAFT TOTAL		811,553	634,068	(177,485)
	00085H005	638076	743,762	548,498	(195,264)
	00709B005	638076	16,672	28,485	11,813
	00714B005	638076	5,664	10,269	4,605
	00715B005	638076	40,834	32,135	(8,699)
CWB	8TH AIRCRAFT TOTAL		806,932	619,387	(187,545)
	00085H006	650231	615,945	445,873	(170,072)
	00715B006	650231	5,957	6,818	861
PDM/CWB	9TH AIRCRAFT TOTAL		621.902	452,691	(169,211)
	00085H007	650267	599,069	562,784	(36,285)
	00714B007	650267	6,804	9,085	2,281
	00715B007	650267	16,706	12,661	(4,045)
CWB/PAINT	10TH AIRCRAFT TOTAL		622,579	584,530	(38,049)
	00085H008	640651	496,158	456,515	(39,643)
	00709B008	640651	26,655	26,606	(49)
	00715B008	640651	13,977	15,315	1,338
PDM/CWB	11TH AIRCRAFT TOTAL		536,790	498,436	(38,354)
	00085H009	660136	585,078	539,095	(45,983)
	00711B009	660136	19,850	21,471	1,621
	00714B009	660136	8,199	9,103	904
	00715B009	660136	17,436	15,544	(1,892)
CWB	12TH AIRCRAFT TOTAL		630,563	585,213	(45,350)
	00085H010	670010	577,626	540,459	(37,167)
	00709B010	670010	28,803	26,615	(2,188)

	00715B010	670010	26,791	23,091	(3,700)
CWB	13TH AIRCRAFT TOTAL		633,228	590,165	(43,055)
	00085H011	667957	471,659	467,985	(3,674)
	00711B011	667957	21,856	20,972	(884)
	00713B011	667957	5,473	13,250	7,777
	00714BO11	667957	8,650	8,772	122
	00715B011	667957	11,144	12,639	1,495
CWB	14TH AIRCRAFT TOTAL		518,782	523,618	4,836
	00085H012	659413	440,242	419,229	(21,013)
	00709B012	659413	29,153	27,581	(1,572)
	00714B012	659413	8,675	9,058	383
	00715B012	659413	21,244	8,828	(12,416)
CWB	15TH AIRCRAFT TOTAL		499,314	464,696	(34,618)
	00085H013	640615	422,819	338,920	(83,899)
	00709B013	640615	35,718	26,647	(9,071)
	00715B013	640615	16,406	13,252	(3,154)
PDM/CWB	16TH AIRCRAFT TOTAL		474,943	378,819	(96,124)
	00085H014	660147	337,230	325,919	(11,311)
	00714B014	660147	8,890	9,670	780
	00715B014	660147	5,696	6,596	902
CWB	17TH AIRCRAFT TOTAL		351,816	342,187	(9,629)
	00085H015	650266	226,899	178,386	(48,513)
	00709B015	650266	60,411	44,406	(16,005)
	00714B015	650266	5,309	6,703	1,394
	00715B015	650266	1,750	1,347	(403)

CWB	18TH AIRCRAFT TOTAL		294,369	230,842	(63,527)
	00085H016	670004	281,241	228,433	(52,808)
	00709B016	670004	17,402	13,809	(3,593)
PDM/CWB	19TH AIRCRAFT TOTAL		298,643	242,242	(56,401)
	00085H017	650218	162,741	122,031	(40,710)
	00709B017	650218	6,055	4,788	(1,267)
	00714B017	650218	8,467	8,894	427
	00715B017	650218	0	49	49
CWB	20TH AIRCRAFT TOTAL		177,263	135,762	(41,501)
	00085H018	660185	166,911	94,688	(72,223)
	00715B018	660185	133	177	44
PDM/CWB	21ST AIRCRAFT TOTOAL		167,044	94,865	(72,179)
	00085H019	660134	1,198	1,665	467
CWB	22ND AIRCRAFT TOTAL		1,198	1,665	467
	00085H020	650271	71,218	55,440	(15,778)
	00714B020	650271	10,239	10,020	(219)
CWB	23RD AIRCRAFT TOTAL		81,457	65,460	(15,997)
	00085H021	660148	4,613	2,946	(1,667)
	00714B021	660148	648	541	(107)
CWB	24TH AIRCRAFT TOTAL		5,261	3,487	(1,774)
	00085H022	660158	762	509	(253)
	00714B022	660158	12,722	7,619	(5,103)
CWB	25TH AIRCRAFT TOTAL		13,484	8,128	(5,356)

YTD TOTALS	11,882,949	9,601,722	(2,281,227)
MONTHLY TOTALS	1,814,786	1,129,411	(685,375)

F/A-18 MODIFICATION,

CORROSION AND PAINT

PROGRAM (MCAPP)

CASE STUDY

EXECUTIVE SUMMARY

F/A-18 MODIFICATION CORROSION AND PAINT PROGRAM (MCAPP) COMPETITION CASE STUDY

Two private firms, the Navy Aviation Depot, North Island (NADEP NI) and Ogden Air Logistics Center (OALC) competed in a public versus private competition for the F/A-18 modification, corrosion and paint program (MCAPP). A formal source selection process was used involving a Source Selection Evaluation Board (SSEB) and a Source Selection Advisory Council (SSAC). The tactical aircraft Program Executive Officer (PEO-T), Naval Air Systems Command, Washington, DC, was the source selection authority (SSA). OALC was awarded the contract at an estimated value of $60.8 million.

The current debate over whether public versus private competition can be conducted on a "level playing field" obscures the distinction between unavoidable differences and unfair advantage. Our research indicates that public versus private depot differences in experience, resources, and workload cannot be eliminated and the procuring activity has no responsibility to reduce the advantages one competitor may have over the other. Procurement regulations, as well as the principle of maximizing potential benefits from competition, requires eliminating unfair advantages. We believe OALC had unfair advantage over its private competitors in the areas of cost estimating, inequitable application of accounting standards, inaccurate job costing, adequacy of internal controls and audit scrutiny. Although our review focused on OALC as the winner of the F/A-18 MCAPP competition, a review of data leads us to conclude similar unfair advantages would exist if NADEP NI, the other public offeror, had won.

PROPOSAL COSTS

In a public versus private competition such as the F/A-18 MCAPP, offers from private companies are firm fixed price with the understanding the offeror will receive only the contract price for performance. Though a contract to a public depot would include a firm fixed price, the award is analogous to a cost type contract. All costs incurred will be borne by the government, in one appropriation or another. From the buyer's perspective the price is fixed; from the standpoint of the seller, in this case OALC, costs in excess of the contract price will be paid by other customers of OALC or through other appropriations. This would be true if either of the public depots were awarded the contract. This disparity in risk of economic loss, together with the strong pressure to win in order to maintain depot workload, creates a great incentive for public depots to underestimate and misallocate costs.

The tendency to underestimate costs was evident in the public depot proposals. DCAA

reported that OALC understated its original proposed costs by 36%. Similarly, DCAA cited NADEP NI for underestimating its costs by 37%. Though its best and final offer is more closely aligned to DCAA's recommendations and fully complies with the Cost Comparability Handbook, OALC's final offer still represents a significant understatement of costs since the BAFO did not include estimates of higher than normal start up costs for the maintenance of an aircraft on which OALC had no experience. Several significant support functions were also omitted from the estimates. While the Cost Comparability Handbook can ensure that categories of costs are addressed, it cannot impose "cost realism" on public depots, where the weight of incentives encourages them to obtain the work, not to price it properly.

ACCOUNTING STANDARDS

GAO and DCAA audit reports prior to contract award addressed serious deficiencies in accounting and internal controls at OALC. Subsequent audit follow-up, with pressure to correct the problems, was not made. If a private firm were cited for similar deficiencies with no evidence of improvement, it is questionable whether the contract would have ever been awarded or if awarded, whether all costs could be recovered. This unequal requirement to implement audit recommendations, to the extent they impact the ability of an organization to estimate and track contract costs, provides a clear competitive advantage to OALC, as a public depot.

In addition, although the Cost Accounting Standards (CAS) are incorporated into the DoD Accounting Manual with which the depots must comply, there are significant variations in the way certain standards are applied, resulting in lower costs charged to contracts by public depots. For example, CAS 404 and 409, dealing with depreciation, and CAS 406, covering accounting periods, are treated differently in the DoD Accounting Manual. Also, CAS Disclosure Statements describing contractor accounting practices that must be consistently followed are not required of depots. We conclude that the significant differences in application of standards and requirements for disclosure practices, results in an unfair advantage to depots in public versus private competition.

CONTRACT COSTING

Our research at OALC revealed considerable inaccurate contract costing and reporting practices. Examples include:

a) Direct Labor. F/A-18 direct labor costs are not being accurately recorded. In our examination of an indirect Resource Control Code (RCC), we found significant numbers of direct employees working on the F/A-18 with their time charged to an indirect account, resulting in hours and costs being allocated to other programs, understating F/A-18 costs.

b) Production Overhead. We found instances of significant misallocations of production overhead. For example, we examined four high cost indirect RCC's that do not assign costs to the F/A-18 project and found that three of them

perform work for the F/A-18. Such examples of common costs not charged to the F/A-18 represent misallocations which distort project costs. Since private firms must assign such costs to the contract, such distortions represent an unfair advantage to OALC in both mischarging current work as well as pricing future F/A-18 work.

c) General and Administrative. OALC's use of a direct labor hour base to distribute its G&A expenses is at variance with the Cost Accounting Standards Board's stated preference and DCAA's common position with industry requiring use of a total cost input base. In addition, we found several examples of erroneous allocations (i.e., depreciation and plant services) that resulted in less than accurate G&A costing on the F/A-18 contract.

INTERNAL CONTROLS

We have observed many instances of internal control deficiencies at OALC that ultimately impact the true cost of contract performance, such as:

a) Poor controls over labor cost recording. We found numerous examples of employees not certifying the accuracy of their time charges and a lack of supervisor's verification of labor utilization reports.

b) Poor control over the Production Overhead Administrative Table. The table represents the mapping of what indirect expense RCC's are charged to what programs. The decision making process is managed informally at very low levels in the organization. Very little attention is given to proper charging as reflected by the lack of management approval or monitoring of program support changes to the administrative table.

c) Negligible Project Cost Control. Our interviews and the review of data confirm that schedules and quality have and continue to be paramount concerns at OALC, while cost control has been a low priority. Interviews with senior officials, F/A-18 production managers and examination of project control data, indicate this "cultural bias" is still prevalent. We found little evidence of the focused cost management normally practiced by industry.

AUDIT SCRUTINY

The depots are not subjected to the audit oversight that industry experiences. Normal industry oversight from internal audit, outside financial audit and government audit is virtually absent from depots. DCAA, by direction of the DoD Comptroller, is limited to reviewing forward pricing activities. Interviews with the Air Force Audit Agency indicates there are no plans to audit F/A-18 program incurred costs. We believe the absence of close audit scrutiny provides little incentive for tight control over depot accounting and project management practices

and consequently, allows opportunities to distort proposals and project costing.

Identification of weaknesses by independent auditors can provide the motivation to improve. The absence of audit scrutiny at OALC provides little incentive to improve internal controls. Consequently, the depots have an unfair advantage over industry in as much as their internal control practices are not held to as high a standard as those of private firms. The pressure to improve internal controls together with the fear of inviting greater audit scrutiny provide industry strong incentives to improve estimating, costing, program management and budgeting. These incentives are largely missing from OALC, providing the depot a major unfair advantage over industry competitors. Inaccurate costing will allow depots to continue to underestimate competitive proposals. The undercharging of competitive awards results in higher costs assigned to non-competitive programs. This often results in depots forecasting higher costs for the non-competitive programs and higher budget requirements. The depots are then able to recover losses on the competitive awards, which they underpriced. Such opportunities are rarely experienced in industry. We conclude that this process provides depots an unfair advantage in their pricing and costing activities.

Conclusion

We believe because of their maintenance experience, the ability to spread common costs over numerous programs, and close support relationships with customers, depots enjoy considerable legitimate advantages over private industry when competing for maintenance contracts. However, on the F/A/-18 contract, OALC did not enjoy the above advantages. The OALC also does not have the systems, experience, training, internal controls, and audit capability to effectively estimate, track and manage specific contract costs, that would be required of a private firm. Until these deficiencies are corrected, a depot such as OALC has considerable unfair advantages over industry where these deficiencies would normally not be accepted. Until a systematic review and comprehensive corrective action plan is developed and implemented, the OALC will continue to improperly allocate costs.

The OALC offer on the F/A-18 was optimistic. Our review indicated that costs are being overrun at this early stage of contract performance. It is our opinion that the F/A-18 costs will significantly exceed the contract price. The difficulty in quantifying the overrun is the lack of predictability in the accumulation of costs and the absence of internal controls, which could identify problems of mischarging or misallocation to management. In our opinion, the true costs of the contract will only be determined by an incurred cost audit after a substantial part of the contract is completed. Under these circumstances, competition with private firms, which are properly held to much more demanding standards, is clearly unfair.

In addition, based on our review, public versus public competition is also unfair and can provide misleading results. Where two or more public offerors have different estimating and accounting systems, varying abilities to comply with regulatory standards, few internal controls, little influence over future workload and cultures that focus on schedule and quality, competition between these entities is unlikely to discern the most efficient or productive. Therefore, we

believe that assignment of workload to depots should be based on criteria other than or in addition to public versus public competition.

If future public versus public or public versus private competition is held, substantial efforts must be made to require public depots to estimate and account for costs to the same standards to which industry is required in order to achieve fairness and a degree of confidence that performance to the contract price can be managed and monitored.

INTRODUCTION

In July 1992, the Ogden Air Logistics Center (OALC) submitted a firm fixed price proposal to the Naval Air Systems Command (NAVAIR) in response to request for proposal RFP N00019-92-R-0001. The proposal for $55.3 million was for the Modification, Corrosion and Paint Program (MCAPP) for the Navy's "Hornet" F/A-18 aircraft including $1.4 million in cost comparability adjustments. The DCAA reviewed this proposal and found it to be understated by $19.9 million including $2.6 million in understated cost comparability adjustments.

On June 7, 1993, the OALC presented its BAFO proposal in the amount of $63.7 million (including $3.1 million in cost comparability adjustments) to NAVAIR. DCAA also reviewed this proposal and concluded it was acceptable for evaluation. They recommended a price increase of $3.6 million of which $.7 million was for increased cost comparability adjustments. DCAA's lower recommended price on the BAFO versus the original proposal is based primarily on their lower recommended production overhead rate (6.7% versus 8.7%) and G&A rate (7.3% versus 10.6%) at the later point in time. The lower indirect rates reflected in the OALC BAFO was based upon (i) higher direct cost estimates and (ii) lower estimated overhead costs. DCAA concurred with these changed estimates.

F/A-18 MCAPP PROPOSAL

Study of the BAFO proposal and the related audit report indicates the major issues that contributed to the original $20 Million understatement of estimated costs had been addressed in OALC's final proposal. For example, DCAA increased manufacturing support hours and resultant costs by $2.8 Million. In its proposal OALC used an overly optimistic 6.25 to 1 ratio of direct to indirect employees. OALC, at the aircraft directorate level (LA), was currently experiencing a 4.39 to 1 ratio. DCAA adjusted the current ratio to reflect (i) planned movement of employees from indirect to direct during FY 1993, and (ii) direct charging of engineering support on this contract (this is normally an indirect cost). These adjustments resulted in an audit recommended ratio of 5.25 to 1.

In computing its manufacturing support hours, OALC, in error, removed field team (offsite work) hours from the direct labor base to which its 6.25 to 1 ratio is applied. Field team effort was included in direct labor used to compute the direct/indirect ratio, and even though direct effort may be offsite for a time, the OALC indirect effort remains at a fixed level. If OALC had properly included field team hours, even at a 6.25 to 1 ratio, it would have included an additional 73,165 hours in its proposal.

The OALC's yield factors and estimates of fringe benefits were also considered inaccurate, resulting in an excessively high computation of non-direct time applied to direct

labor. OALC proposed to reduce sick leave usage by approximately 50 percent through the implementation of a new sick leave awareness policy. Given the economic climate and past history of sick leave usage, DCAA did not believe the results would be as dramatic as proposed. Additionally, OALC proposed a 96 percent efficiency factor. The efficiency factors experienced by OALC's aircraft directorate over the last 3 years had never exceeded 90 percent. The FY 1992, efficiency factor was approximately 88 percent. Based on past performance, it was not expected that performance would exceed 90 percent.

Adjustments to the production overhead and G&A base were also recommended. OALC calculated these bases on standard hours when the correct base should have been actual hours. This adjustment significantly increased the overhead and G&A allocated to F/A-18 work. Likewise the production overhead and G&A pool composition were found to be missing a number of accounts that DCAA believed were applicable to the F/A-18 maintenance effort. Finally, certain accounts (i.e. Utilities) had been moved from G&A to production overhead with a net effect of decreasing overall F/A-18 costs. DCAA increased the fringe benefit pool to account for certain elements of costs OALC neglected to include in its forecast. The health benefits forecast was also escalated to recognize expected cost increases.

Our review of the current cost comparability handbook, dated August 10, 1993, indicates that no provision is being made for post-retirement health benefits for both The Federal Employee Retirement Systems (FERS) and Civil Service Retirement System (CSRS) employees of OALC. Lack of recognition of the unfunded liability of such post-retirement health benefits is incompatible with the provisions of FASB-106 which requires private contractors to calculate, amortize, and accrue such significant costs (similar to pension expenses).

Overall, OALC was very optimistic in its F/A-18 proposal and omitted or understated significant costs. The DCAA audit partially addressed these issues. What DCAA could not address was the optimistic performance projections where historical costs did not exist. The fact that all costs in a public depot will be borne by the government contributes to the depot's optimism.

COST ACCOUNTING SYSTEM

a. We studied, in some depth, the accounting for costs under the F/A-18 Contract. There are over 30 sub-systems which contribute data to OALC's cost accounting system (the Depot Maintenance Data Systems Network). The sub-systems can be grouped into 5 broad functions: Requirements, Material, Production, Costs and Other. Overlayed on the cost accounting system are three basic funds: the Depot Maintenance Industrial Fund (DMIF), Operation and Maintenance (O&M) Appropriation fund, and the Cost of Operation Division Fund.

We were informed that GRUMMAN Data Systems is working on the design and implementation of a new accounting/ information system for all ALCs with Ogden as the Depot Maintenance Management Information system (DMMIS) pilot

site.

b. OALC's cost accounting system is a job order cost system. On the F/A-18 MCAPP a separate job order number is set up for each aircraft tail number.

Costs are accumulated in the Depot Maintenance Automated Data System and summarized on a monthly and year-to-date basis in the Depot Maintenance Production Cost System (G072A) and the Budget General Ledger (BGL). The BGL is a partial implementation of the new DMMIS.

Our inquiry also disclosed that cumulative costs through March 31, 1994 on the F/A-18 Program per the BGL and the G072A systems did not reconcile. At the time of our observation, responsible cost accounting personnel were unaware of the difference since they had not attempted a reconciliation of the two reports. In addition, neither of these reports are summarizing all costs incurred in support of the F/A-18. During our review we attempted but were not successful in locating a periodic management report which contained, by cost element, total F/A-18 MCAPP cost accumulated to date. We were informed that no such report is generated. As a result, we conclude that OALC program management does not have sufficient cost visibility in the form of recurring program cost reports to adequately monitor total program costs.

c. In our review of accounting system adequacy, we studied **Prior Audit Disclosures**. GAO, in its report of February 26, 1991, did not give an opinion on the OALC accounting system as a whole. However, they disclosed internal control deficiencies in material cost areas and also concluded "the method of applying direct labor costs and production overhead is not in accordance with DoD regulations and will not provide the type of cost data needed to price work accurately and monitor weapon system costs."

In its pre-award accounting systems survey audit report of October 13, 1992, DCAA concluded the current accounting system is inadequate in some respects as a basis for pricing future depot maintenance competition. Similar to GAO's conclusions, they also stated the allocation of labor costs from the resource control center (RCC) level may be inequitable resulting in misallocation of direct labor between job order numbers. The auditors were of the opinion that OALC's procedures for accumulating and allocating production overhead and G&A expenses require improvement because (i) not all costs benefiting final cost objectives are included in the cost pools, and (ii) the method of allocating indirect expenses could result in costs not being allocated on a causal beneficial relationship. The DCAA report also addressed internal control deficiencies in recording employee timecharges.

It should be noted that by direction of the DoD Comptroller, the DCAA

involvement with public activity depot maintenance competition is limited to preaward reviews. Post award audits, if needed, are to be performed by the military services internal audit organization.

In discussions with the resident chief of the Air Force Audit Agency (AFAA), we were told that their office had not done any work to evaluate the management of the F/A-18 maintenance program. More importantly, audits of those systems producing contract costs have not been undertaken. When the AFAA reviews or uses OALC financial statements, a disclaimer is made as to the adequacy of internal controls or the reliability of data generated by the systems. The one exception to this was a recently performed audit of the Maintenance Material Cost system (G004H). The report concluded internal controls were not adequate.

d. During our review of **Labor Timekeeping Internal Controls**, we visited a number of RCCs and discussed time recording procedures with foreman, supervisors, and data entry clerks. We also examined task/work requests, production count cards, memorandum records of where employees spent their time, exceptioned labor records and system generated G037G daily "actual labor utilization reports". These inquiries disclosed a number of labor timekeeping internal control deficiencies summarized as follows:

- Not all employees are initialing/certifying that their daily labor charges are accurately recorded. Some employees are never informed where their time is being charged.

- Some supervisors are not reviewing prior day G037G labor utilization reports to assure that the time for all employees assigned to them on the prior day was accounted for appropriately. From reviewing the 37G prior day report for one RCC, we noted two hours overtime entered for one employee working in the RCC. However, the 37G report indicated that the employee was on long term loan to another RCC. Therefore, his labor plus overtime was erroneously charged to a RCC that he was not working in. This had been going on for more than two weeks. Supervisors in both affected RCCs were unaware of it because they had not reviewed the daily 37G reports.

- All labor exceptioning is not being done on a daily basis as required. In one RCC, F/A-18 labor exception entries were being held up "until production count earned (standard) hours are in the system". This is not acceptable as entries of actual labor hours should not be influenced by the standards.

Our follow-up review in June reflected that OALC F/A-18 program management is also concerned with the reliability of its labor exceptioning procedure. In this

regard, we noted that all direct employees, whose time is defaulted into CLINs 1-5 production (direct RCC MABPCC) on the F/A-18 contract, were reclassified at the beginning of May 1994 to indirect employees (duty code 23) and assigned to indirect RCC MABSXX "Production Integration". In discussing our concern about the reclassification with OALC operations management, we were informed, "... the reclassification was made because labor costs on CLIN 1-5 were too high as all appropriate exceptioning from the direct (default) RCC was not being accomplished". The intent of the reclassification is that no direct labor can be charged to the F/A-18 unless it is exceptioned to it. This is a serious internal control weakness.

In pursuing this issue with OALC, we informed program management personnel that the reclassified employees were commingled with 17 other normal indirect employees. We were informed there is no cause for concern as all time for the formerly direct employees would be exceptioned out of the indirect RCC to the direct programs they work on. We were assured that all duty hour time for these former direct employees would be zero hours in the indirect RCC at month end. However, our check of the May G037G month end RCC labor report proved that this was not the case. The time of approximately 10 of the formerly direct employees was left in the production overhead indirect RCC. Since the cost for this indirect RCC is being allocated to all production programs, the F-16 and C-130 programs are now bearing cost previously identified as direct cost to the F/A-18. We conclude the ability to reassign direct employees to an indirect RCC so easily represents a serious internal control weakness providing the opportunity for significant mischarging.

e. Another concern is the efficacy of **Labor Standard Hours**. As previously stated, the ratio of total standard hours for completed tasks under a job order to total monthly RCC actual hours is used to assign actual labor hours and cost to job orders. We were informed that visibility as to the reliability of standard hours is available from the Program Depot Maintenance Scheduling System (PDMSS). The PDMSS is separate and apart from the ALC integrated cost accounting system. We were also informed the PDMSS reports would provide actual labor hours directly identified to each job order number. Therefore, we conducted inquiries and reviewed actual labor hour information input to PDMSS. Actual labor hours are entered on form 173 (production count cards) by employees as they complete each task. Standard labor hours are preprinted on each 173 card and are also entered in the PDMSS from the 37E Workload Planning System. An entry clerk, using the 173 production count cards, enters date completed and actual hours in PDMSS. We noted the following internal control problems in actual hour information entered in PDMSS:

- There were no actual hour entries on many cards. Inquiry of the data

entry clerk as to what he does in these circumstances indicated uncertainty as to what to enter. Therefore, he enters the standard hours as actual.

- It is apparent from examination of the form 173 cards that some employees enter hours rounded to the nearest hour, whereas standard hours are maintained to the nearest tenth of an hour.

- Card after card disclosed hours entered exactly at standard. Since the cards display the standard hours, it is apparent that employees are influenced by the standards.

- Our inquiries also disclosed there are no written instructions to employees as to how to account for or record actual hours on the production count cards.

In view of these observations, we question the reliability of actual labor hour information in the PDMSS system. We believe the reliability of PDMSS information would be enhanced if standard labor hour information was removed from the 173 cards and if employees were given written instructions on how to complete these cards.

f. We reviewed **indirect expenses** at OALC to determine if accounting and estimating practices are consistent and if there are beneficial and causal relationships between the expenses and the final cost objectives to which they are allocated. Our comments on production overhead and general and administrative expense follow:

- **Production Overhead**: Ogden Air Logistics Center (OALC) has an accounting practice which if the CAS standards in DoD 7220.9 were enforced would lead to a CAS-418 noncompliance citation. At issue is the OALC practice of tailoring production overhead pool costs to the specific benefits received by each production direct Resource Control Center (RCC). These tailored allocation methods change frequently and arbitrarily. At a private contractor, each such adjustment of the costing methodology could be considered an accounting change requiring a disclosure statement revision and the preparation of a cost impact estimate.

  We conducted inquiries to determine what procedural review and other managerial/internal controls are in effect to assure that the "Administration Table", the system used to assign and allocate indirect RCC costs to programs, is maintained appropriately on a continuous and current basis. This inquiry indicated (i) the function is assigned to representatives from

each directorate as well as to an administrative employee who chairs meetings and acts as a coordinator, resulting in no central financial managerial control or involvement (ii) there are no written descriptions of functions, activities, skills, programs supported, etc., available for the individual indirect RCCs and (iii) there is no evidence of periodic monitoring or reviews to assure that the production overhead administration table is appropriately maintained on a current and continuous basis.

With this background, we reviewed about one-third of the forty aircraft directorate production overhead RCCs to determine whether a causal/beneficial relationship exists between the indirect expenses in the RCCs and the final cost objectives (including the F/A-18 program) to which they are allocated. We identified three high cost production overhead RCCs which are providing support to the F/A-18 program but whose costs are not being allocated to the F/A-18. These indirect cost RCCs are MABETZ (Aircraft Structures Planning), MABPSX (Services Team), and MABRSX (Sheet Metal). The costs of two of these indirect RCCs (MABETZ and MABRSX) also were not included in OALCs initial or BAFO pricing proposals for the F/A-18. Thus, proposed costs as well as costs recorded on the F/A-18 MCAPP program are understated.

- **General and Administrative Expense**: The primary components of OALC's general and administration (G&A) expense, and their related cumulative dollar amounts for FY 1994 through May 1994 are as follows:

Financial Management and Training Division	$25.6 m
Plant Services	9.3
DMIF/Hill AF Base Support	5.9
Total G&A	$40.8 m

OALC uses a direct labor hour base to distribute G&A expenses. Total Cost Input is the preferred method for such allocations. If compliance with the standards in DoD 7220.9 were enforced, OALC would be considered in potential non-compliance until it demonstrated that the labor hour surrogate base is compliant with the DoD 7220.9, CAS 410 standard.

The plant services and base support G&A expense components of G&A were reviewed and are commented on below:

- **Plant Services Expense**: In the case of plant services expense, OALC recognizes that total direct labor hours is not an equitable measure for assigning this element of G&A expense to benefiting directorates. Plant services are assigned to directorates using fixed percentages of activity. A comparison of the fixed allocation percentages with actual service percentages and approximate direct actual labor hour percentages is as follows:

Directorates	Fixed Activity Allocation Percentage	FY 1993 Actual Service Percentage	Approximate Direct Labor Base Percentage
Aircraft	28%	21%	43%
Missiles	43	31	15
Commodities	13	28	21
Technology & Industry (T and I) Support	16	20	21
	100%	100%	100%

A concern we have with the fixed percentage intermediate cost pool allocation process is that the fixed percentages are not converted to actual percentages at year-end and have not been revised for several years. The Plant Management (plant services) Division maintains a data base of actual service activity (labor hours) provided to each directorate. This actual service percentage information should be used to periodically update the fixed allocation percentages. However, as shown by the above comparative percentages, OALC's failure to use actual plant service percentages results in significant distortion in G&A expense allocated to the directorates and programs. For example, the Aircraft Directorate received 28 percent of the plant services costs in FY 1993 whereas it should have received only 21 percent.

- **DMIF/Base Support Expense**: We reviewed the procedures used to record and distribute Hill Air Force Base support operations to DMIF activities. These base operations include such activities as data processing, environmental management, procurement, safety support, payroll, accounting, etc. The costs of these operations determined to be applicable to DMIF activities are assigned to G&A and allocated to contract effort based on direct labor hours. Base support costs are subject

to the DoD 7220.9 standard dealing with CAS 403.

We reviewed selected base support operations to determine how cost allocable to DMIF activities were determined. We found that for the most part DMIF allocable costs were developed through what OALC personnel refer to as a negotiation process. This involves a process whereby OALC and base support operations personnel conduct negotiations to arrive at amounts that represent DMIF's "fair share" of the costs of the services being provided.

For the most part, the amounts determined cannot be verified or audited. The costs are not identified and recorded to individual directorates. The amounts considered to be DMIF's fair share are essentially based on the OALC representative and the base support manager's estimate as to the services and goods provided for DMIF. There are, however, some base support operations that are determined and allocated to DMIF using a measurable allocation base. The best example of this is fire protection which is allocated using square footage which results in DMIF being allocated its fair share of costs based on occupied square footage. The latter, however, is the exception rather than the rule. As part of our review we related the practices in place at OALC for accounting for these costs with those that would be in place in private industry to account for similar costs. The findings and observations resulting from our review are discussed below.

Equipment and building depreciation applicable to base support operations are not included in costs allocated to DMIF. We determined that a below the line "cost comparability" adjustment was made for depreciation on the depot's proposal for assets not under DMIF control; however, OALC was unable to provide details on the specific assets included in computing this depreciation adjustment prior to our departure. Therefore, we were unable to ascertain if all the assets included within base support were considered in this comparability adjustment. Private industry would include such depreciation in overhead and would allocate it to contracts.

The base support activities fall under the management control of several outside government entities. Thus OALC has only partial control over how the costs of these operations should be identified to DMIF. There is a degree of decentralization within private industry but not to the extent present in the government. This is best illustrated by the current situation with The Defense Finance and Accounting Service (DFAS) which is the government entity responsible for providing accounting services for OALC. In examining the base support cost of this operation we found that no costs had been allocated to DMIF activities since FY 1992. Thus

DFAS accounting support to DMIF, which we estimate to total over $ 1 million annually, is not collected and charged to DMIF contract activities. These costs were included in OALC's proposal resulting in a CAS 401 violation if this occurred in private industry.

The negotiation process in use at OALC to determine base support costs applicable to DMIF activities is not a process one would find in operation within private industry. The equivalent costs within industry would either be departmental costs within the entity or, if a service center performing centralized services for more than one entity, the operating costs would be allocated to customers on a beneficial or causal relationship. Thus similar costs within industry would not be subjectively determined, but instead, would be based on costs incurred within a department or costs allocated on some type of a verifiable measurable base prescribed by a CASB standard. Some costs allocated to DMIF are predicated on such a base. The vast majority, however, are determined on the basis of the negotiation process.

CAS 403, as amended by DoD, is applicable to accounting for base support costs. If the CAS standards in DoD 7220.9 were enforced, OALC would be in noncompliance with this standard. We believe several of the base support operations are centralized service functions subject to the CAS 403 provisions contained in DoD 7220.9. Centralized service functions represent those organizations performing services for several segments, which but for the existence of the organization, would be performed by or acquired by some or all the segments individually. Data processing, procurement, personnel, and possibly others, within base support fit this definition and should be allocated to DMIF as prescribed by the standard. The standard requires that these types of expenses be allocated on the basis of the beneficial or causal relationship between the supporting and receiving activities. OALC, therefore, is non-compliant with this standard and the DoD cost accounting manual. This noncompliance, however, must be viewed in light of the fact that full compliance is difficult since OALC must secure an agreement from the supplying base support entity to allocate such costs on some measurable base that is representative of the activity being allocated. For example, we were advised that the data processing operation falls under the Defense Information Systems Agency (DISA) which is in the process of developing an accounting system that provides fee for service billings. The system, however, has not yet been fully implemented and costs are still being allocated to DMIF based on a negotiated estimate of support. OALC, in contrast to private industry, cannot unilaterally assure its compliance with CAS 403.

Based on our observations, we have concluded that not all production overhead costs attributable to the F/A-18 were included in the BAFO or are being costed to the contract. We have also concluded that G&A expenses are not costed to the contract in compliance with DoD 7220.9 or CAS 403. As a result, OALC is not being required to perform to standards imposed on industry.

g. DOD 7220.9 permits more flexibility in the use of appropriate accounting periods than does **Cost Accounting Standard 406**. For example, in the preamble to CAS 406, the concept of monthly allocations of overhead and G&A is considered and rejected as not being appropriate for contract cost accounting. However, in the DOD 7720.9 version of CAS 406 (according to OALC's interpretation), monthly accounting periods are permitted.

Our concerns with this procedure are illustrated in the following display of cumulative F/A-18 recorded cost, by cost element, through April 30, 1994 as compared with cost through the prior month.

	Cumulative Through 3/31/94	Cumulative Through 4/30/94
Direct Labor Hours	20,964	23,970
Direct Labor Cost	$ 489,254	$ 558,661
Production Overhead	518,069	1,117,694
G&A	169,144	230,524
Total F/A-18 Cost (excluding CLIN14)	$1,176,467	$1,906,879

The closing of overhead using monthly accounting periods resulted in distorted relationships between direct labor and indirect expenses and inaccurate assignment of indirect expenses to the program. The cumulative labor and overhead cost relationships shown above are abnormal (labor cost increased by only 14 percent over the prior month while overhead more than doubled) due to a labor cost reclassification entry. Further comments on our review of this reclassification entry are provided in paragraph I (Adjusting Journal Entries).

h. In OALC's proposal, **depreciation expense** for DMIF depreciable assets, was included in estimated production overhead and general and administrative expense. Depreciation on assets, not controlled by DMIF, was included in OALC's proposal as a Cost Comparability Handbook adjustment. Depreciation expense for DMIF assets is included in program cost in the production overhead and G&A expenses allocated to the F/A-18 program based on direct production labor hours. We compared OALC's depreciation practices for DMIF assets with those within industry. Our comments and observations regarding these comparisons are summarized below:

We found, at the direction of Air Force Material Command (AFMC) in late 1991, OALC effected a significant change in assigning useful lives to fixed assets installed after 1 October 1991. As a consequence, all asset useful lives were reduced to three categories, 20, 10, and 5 years. Previous useful life guidelines varied by federal stock code and ranged from a low of 4 years to a high of 30 years. These pre 1 October 1991 assets are still being depreciated based on those useful lives.

DCAA noted that no gain or loss on the dispositions of assets is recognized in accordance with generally accepted accounting principles (GAAP). OALC, being a government entity, is not subject to GAAP, but the DCAA comment is a valid observation regarding the differences between depots and industry. Gains and losses, in essence, have the affect of correcting prior depreciation. As a consequence, any over or under statements of depreciation are not adjusted at depots as is done within industry. DCAA also noted in one of its audit reports that they had observed problems relative to OALC's reclassifying assets, excessing certain assets and not assigning proper values to some acquired assets.

OALC uses only straight line depreciation. Industry components often use accelerated depreciation methods which result in a faster write-off of depreciation. CAS 409 permits use of either straight line or accelerated depreciation methods.

OALC is not subject to CAS 404. If it were, its depreciation practices would be in noncompliance with that standard. CAS 404 requires that assets exceeding $1,500 must be capitalized and depreciated. The AFMC and Depot policy is to capitalize only those assets over $25,000 for assets acquired since 1 January 1994. Prior to this the capitalization policy was $15,000. The use of a higher capitalization value, permits OALC to expense and write off more assets in one year than a comparable private industry competitor would be permitted under CAS 404.

If OALC was subject to CAS 409, the practice of having a 10 year useful life for all equipment (except EDP and general purpose vehicles) would be in

noncompliance with the standard. CAS 409 requires that the asset life used for depreciation must reasonably approximate the actual period of usefulness. We do not believe that the different types of equipment in use in OALC would all have a useful life of just 10 years. This is supported by the fact that assets acquired prior to 1 October 1991 were assigned lives anywhere from 4 to 30 years. These assets lives, in our opinion, are probably more representative of the useful lives than the 10 years currently being assigned. The use of such a short useful life permits OALC to write off depreciation on equipment at a higher rate than would be permitted by industry.

The Depot, also at the direction of AFMC, computes a residual value of $1 for all equipment items. Private industry, to comply with CAS 409, must determine residual values for each asset and the residual values must be deducted from the capitalized value of the asset in computing depreciation. This practice enables OALC to write off more depreciation than its private industry competitor who must comply with CAS 409 and compute realistic residual values.

i. We examined in detail the **adjusting journal entry** involving the reclassification of about 6,600 hours of direct labor to indirect effort. The preponderance of these hours was reclassified to indirect training while a small portion was charged to other production downtime effort. The adjustment was necessary because OALC personnel did not anticipate or properly plan for the substantial production labor downtime subsequently experienced on the initial F/A-18 aircraft. We estimate that the adjustment reduced F/A-18 program costs by about $185,000. Even though adjusted labor dollars remained identified to the F/A-18, reclassified from direct to indirect, the reduction in direct labor hours, which is the base used to allocate indirect expenses, resulted in the F/A-18 receiving less production overhead and G&A.

We reviewed documentation in support of the adjustment, interviewed personnel responsible for identifying the misclassified labor, and queried top division and directorate personnel regarding their involvement in the adjustment process. We also compared indirect training time charged to the F/A-18 with that experienced on other aircraft programs. Our examination disclosed the entry was properly documented and that personnel responsible for identifying adjusted hours were planner/schedulers, production supervisors, and engineers knowledgeable of the program and problems experienced in servicing the aircraft. We also found that top management within the division and directorate were aware of and involved with the adjustment from start to finish and had reviewed and approved the entry.

We also discovered that training time identified to the F/A-18 was substantially

higher than that currently being experienced on the more mature F-16 and C-130 programs. For example, F/A-18 training costs for the first four months of 1994 were 28% of direct labor costs contrasted with 6% for the F-16. These high training costs are not considered unusual since the F/A-18 was the first Navy aircraft serviced by the OALC and, the first McDonnell Douglas aircraft it had performed maintenance on since the F-4. Thus, OALC production personnel had to learn a different aircraft and acquaint themselves with Navy procedures and technical data, resulting in higher training rates during the initial start up of the program. These costs were not included in the F/A-18 BAFO. One may question whether OALC appropriately estimated foreseeable start-up costs in proposed production overhead expense for the new program. In our opinion, a private contractor would most likely have made such provisions in its proposal.

PROGRAM MANAGEMENT

We discussed Program Management with the Commander of the Aircraft Division, the F/A-18 Program manager and their senior staff. Management attention and emphasis are directed to monitoring performance. Detailed analysis of variances between standard and actual hours are prepared by F/A -18 phase (Incoming, Production Line, Flight Test and Paint), by aircraft, by operation number.

Contract quality and schedule oversight have been transferred to The Defense Contract Management Command (DCMC) which was hired by the Navy to perform Administrative Contracting Officer (ACO) functions. We were informed by OALC there are currently about 10 DCMC people on site. Based on the split of F/A -18 workload between the Navy Depot at North Island, San Diego and OALC, about 36 aircraft are expected to be serviced by the OALC this year.

We examined a number of daily and weekly ad-hoc reports used to manage and monitor the F/A -18 Program -- they all related to schedule. The reports detailed each aircraft's status, and its forecasted completion date as it moved through the maintenance process. We were informed cost performance/ monitoring was accomplished indirectly by review of labor hour charges to assure their accuracy.

AFMC has levied a new requirement on the ALCs to prepare a monthly total program cost/schedule performance report with estimates at completion. Variances will be calculated on cumulative costs, schedules, and Estimates at Completion (EAC). Variance analysis is required if costs exceed budgets by $\geq$ 10%, Schedule slips by $\geq$ 10%, and EAC overruns by $\geq$ 5%. Reports are submitted to key customer and ALC personnel. If EAC variance is $\geq$ 15%, reports are elevated to the Center Commander and Headquarters, AFMC. If EAC variance reaches 15% or greater, recompetition will be considered. In our opinion, such measures will be unsuccessful in focusing attention on cost performance on the part of ALC program

management. We believe that basic changes involving training, program management tools and internal controls are essential to improve the management of program costs.

The required reports have not yet been prepared by Ogden ALC program management since they are not required until three months of actual deliveries have occurred. The first aircraft delivery under the F/A-18 program was made on May 19, 1994. While WPAFB has levied the requirement for including Estimates at Completion (EACs) on these Depot Maintenance performance tracking reports, no detailed instruction/training on how to prepare these EACs has as yet been provided. We were informed that the Program Management Office has requested such training and instruction. We believe attempting to forecast a total program EAC for other than CLINs 1 through 5 (the basic fixed price Modification, Corrosion, and Paint Program) appears unachievable. CLINs other than 1-5 are for "over and above" work where sufficient forecast information on total program costs is unavailable.

Prudent program management should probably be securing CLIN 1 through 5 costs to date and then forecasting an EAC in the traditional manner utilized by private contractors when preparing Cost Performance Reports. EACs should be prepared on the remainder of the CLINs, by aircraft, as sufficient information becomes available to estimate the costs at completion of the related effort.

CONCLUSIONS

On the basis of our review, we conclude that estimated and recorded costs on the F/A-18 MCAPP program at OALC are not reliable. In addition, there are also significant differences in regulatory requirements imposed on depots versus private industry. The major problems and differences include the following:

- Unreliable labor cost recording practices and internal control weaknesses.
- Questionable reliability of labor standard hours.
- All allocable production overhead on the F/A-18 was not estimated or being recorded.
- Significant start-up (non-recurring) costs on the F/A-18 were not addressed in the BAFO proposal.
- Inaccurate plant service cost allocations.
- Incomplete base support cost allocations.
- Health care costs of retirees not estimated or recorded (FASB 106).

- Difference in DoD 7720.9M versus the Cost Accounting Standards affect different cost allocations.

- Inadequate managerial cost monitoring and reporting.

- DCAA audit role limited to depot proposal evaluations only.

- Very limited Air Force Audit Agency involvement in depot accounting system oversight.

We conclude these basic issues resulted in an unfair competition between OALC and private industry. In addition, based on our review it is worthy to note that the competing public depots have different estimating and accounting systems, varying abilities to comply with regulatory standards, few internal controls disciplining their individual processes, little control of their future workloads and corporate cultures that focus on schedule and quality, not costs. Given the disparities, it is difficult to conclude that a competition in which fixed prices are projected several years into the future, will be able to discern the most efficient or productive depot. Until the basic processes and systems at the depots are improved, we do not believe public versus public competition provides reliable cost data to decision makers. Therefore, we believe that assignment of workload to depots should be based on criteria other than or in addition to price competition. If either public versus private or public versus public competition are to be conducted as a means of deciding the source for depot maintenance, pre-award estimating and post-award accounting for costs must be improved at the public depots along with the ability to manage compliance.