United States Government Accountability Office

GAO

Report to the Secretary of Defense

February 2005

CONTRACT MANAGEMENT

The Air Force Should Improve How It Purchases AWACS Spare Parts

GAO-05-169

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The Air Force Should Improve How It Purchases AWACS Spare Parts

GAO Accountability • Integrity • Reliability

Highlights

Highlights of GAO-05-169, a report to the Secretary of Defense

Why GAO Did This Study

Over the past several years, the Air Force has negotiated and awarded more than $23 million in contracts to the Boeing Corporation for the purchase of certain spare parts for its Airborne Warning and Control System (AWACS) aircraft. Since they first became operational in March 1977, AWACS aircraft have provided U.S. and allied defense forces with the ability to detect, identify, and track airborne threats.

In March 2003, GAO received allegations that the Air Force was overpaying Boeing for AWACS spare parts. This report provides the findings of GAO's review into these allegations. Specifically, GAO identified spare parts price increases and determined whether the Air Force obtained and evaluated sufficient information to ensure the prices were fair and reasonable. GAO also determined the extent to which competition was used to purchase the spare parts.

What GAO Recommends

GAO recommends that the Secretary of Defense direct the Secretary of the Air Force to take action to ensure that contracting officers obtain and evaluate data needed to determine spare parts prices are fair and reasonable, develop a strategy to promote competition to the maximum extent possible in future spare parts purchases, and clarify the Air Force's access to AWACS technical data and drawings. DOD concurred with GAO's recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-05-169.

To view the full product, including the scope and methodology, click on the link above. For more information, contact David E. Cooper at (202) 512-4125 or cooperd@gao.gov.

What GAO Found

Since late 2001, the Air Force has spent about $1.4 million to purchase three ailerons (wing components that stabilize the aircraft during flight), $7.9 million for 24 cowlings (metal engine coverings), and about $5.9 million for 3 radomes (protective coverings for the radar antennae). The unit prices for the ailerons and cowlings increased by 442 percent and 354 percent, respectively, since they were last purchased in 1986. The unit price of the radomes, purchased under two contracts, nearly doubled from September 2001 to September 2003. Although some of the price increases can be attributed to inflation, other factors, such as re-establishing production processes and procuring limited quantities of the parts, contributed more significantly to the increases. In addition, the 2001 radome contract included about $8.1 million for Boeing to relocate equipment and establish a manufacturing capability at a new location.

The Federal Acquisition Regulation (FAR) requires contracting officers to evaluate certain information when purchasing supplies and services to ensure fair and reasonable prices. However, Air Force contracting officers did not evaluate pricing information that would have provided a sound basis for negotiating fair and reasonable prices for the spare parts. Moreover, the Air Force did not adequately consider Defense Contract Audit Agency (DCAA) and DCMA analyses of these purchases, which would have allowed the Air Force to better assess the contractor's proposals. For example, when purchasing ailerons, the Air Force did not obtain sales information for the aileron or similar items to justify Boeing's proposed price and did not consider DCMA analyses that showed a much lower price was warranted. Instead, the contracting officer relied on a Boeing analysis.

None of the spare parts contracts cited in the allegations were competitively awarded—despite a DCMA recommendation that the cowlings be competed to help establish fair and reasonable prices. The Air Force did not develop alternate sources for competing the purchase of the cowlings because it believed it lacked access to technical drawings and data that would allow it to compete the purchase. Yet the Air Force has a contract with Boeing that could allow the Air Force to order technical drawings and data specifically for the purpose of purchasing replenishment spare parts.

E-3 Sentry AWACS Aircraft

Source: Boeing Corporation.

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Abbreviations

AWACS	Airborne Warning and Control System
DCAA	Defense Contract Audit Agency
DCMA	Defense Contract Management Agency
FAR	Federal Acquisition Regulation
IFF	identification friend-or-foe

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GAO
Accountability * Integrity * Reliability

United States Government Accountability Office
Washington, DC 20548

February 15, 2005

The Honorable Donald H. Rumsfeld
Secretary of Defense

Dear Mr. Secretary:

For more than 25 years, the Air Force's Airborne Warning and Control System (AWACS) aircraft have provided U.S. and allied defense forces with the ability to detect, identify, and track enemy threats. The E-3 Sentry AWACS airplanes, with their large rotating radar domes, have provided critical surveillance information for carrying out military and peacekeeping operations. Over the past several years, the Air Force has negotiated and awarded more than $23 million in contracts to the Boeing Corporation for the purchase of certain spare parts to maintain the Air Force's AWACS fleet.

In March 2003, we received allegations that the Air Force was overpaying the Boeing Corporation for AWACS spare parts.[1] This report provides the findings of our review into these allegations. Specifically, we (1) identified the price increases associated with the ailerons, cowlings, and radomes; (2) determined whether the Air Force obtained and evaluated sufficient information to ensure that the spare parts prices were fair and reasonable;[2] and (3) determined the extent to which competition was used to purchase the parts.

To conduct our review, we examined contract files and met with Air Force and Boeing representatives. We also reviewed analyses and information provided to the Air Force by the Defense Contract Management Agency (DCMA), the Defense Contract Audit Agency (DCAA), and Boeing. We

[1] GAO received allegations regarding the Air Force's purchases of cowlings (metal engine coverings) and outboard ailerons (wing assembly components that stabilize the aircraft during flight). We also reviewed the Air Force's purchases of radomes (coverings that protect radar antennae) because, during our review, we became aware of a similar allegation concerning overpricing of a radome.

[2] The pricing policy in the Federal Acquisition Regulation (FAR) provides that the contracting officers must purchase supplies and services from responsible sources at fair and reasonable prices [FAR Subpart 15.4].

conducted our review from August 2003 to November 2004 in accordance with generally accepted government auditing standards. A more detailed discussion of our scope and methodology is in appendix I.

Results in Brief

Since late 2001, the Air Force has purchased three ailerons for about $1.4 million, 24 cowlings for about $7.9 million, and three radomes (under two contracts) for about $5.9 million. The unit prices for the ailerons and cowlings increased by 442 percent and 354 percent, respectively, since they were last purchased in 1986. The unit price of the radomes also increased significantly. The unit price of the radome nearly doubled from a purchase in September 2001 to a purchase in September 2003. Several factors, such as re-establishing production processes and procuring limited quantities of the parts, contributed to the price increases. Although a portion of the price increases could be attributed to inflation, this portion was small. The Air Force paid an additional $8.1 million in costs as part of the September 2001 radome contract to move equipment and establish manufacturing capabilities in a new location.

Although some price increases could be expected, contracting officers did not take appropriate steps to ensure that the prices paid for the ailerons, cowlings, and radomes were fair and reasonable. Specifically, the Federal Acquisition Regulation (FAR) requires contracting officers to obtain and evaluate information when purchasing supplies and services to ensure that prices are fair and reasonable. We found that Air Force contracting officers did not obtain and evaluate appropriate pricing information that would have provided a sound basis for negotiating fair and reasonable prices for the spare parts. Moreover, the Air Force did not adequately consider DCAA and DCMA analyses of these purchases, which would have allowed the Air Force to better assess the contractor's proposals. For example, when purchasing ailerons, the Air Force contracting officer did not obtain sales information for the aileron or similar items to justify Boeing's proposed price; this type of information would normally be obtained because the ailerons were considered a commercial item. In addition, the contracting officer did not act on DCMA analyses that showed a much lower price was warranted. Instead, the contracting officer relied on a Boeing judgmental analysis to support Boeing's proposed price. In another case, the contracting officer for the purchase of the two radomes did not consider the price of a recently acquired radome, nor did the contracting officer obtain and evaluate information from Boeing that supported the company's proposed price or obtain analysis from DCMA.

None of the spare parts covered by the allegations were purchased competitively. According to Air Force documents, Boeing was the sole source for the spare parts. However, DCMA's analysis recommended that the cowlings be competed because Boeing's proposed price was not fair and reasonable and a subcontractor had provided the part under the original production contracts. Despite the recommendation, the Air Force did not attempt to develop alternate sources for competing the purchase of the cowlings because it believed it lacked the required information to do so. From the outset, Air Force documents stated that the Air Force did not have access to drawings and technical data that would allow it to compete the purchase. The Air Force and Boeing have entered into a contract, which could allow the Air Force to order drawings for the purpose of purchasing replenishment spare parts. Boeing has not always delivered such data based on uncertainties concerning the Air Force's rights to the data.

We are making recommendations to ensure appropriate information and analyses are obtained and evaluated to help ensure that fair and reasonable prices are negotiated in non-competitive procurements and to promote competition to the maximum extent practicable in future purchases of spare parts. DOD and The Boeing Company commented on a draft of this report. In its comments, DOD agreed with GAO's recommendations and identified actions it plans to take to implement the recommendations. In its comments, The Boeing Company provided information that augments the information in the report and provides its perspective on the AWACS purchases.

Background

The AWACS aircraft first became operational in March 1977, and as of November 2004, the U.S. AWACS fleet was comprised of 33 aircraft. The aircraft provides surveillance, command, control, and communications of airborne aircraft to commanders of air defense forces. The onboard radar, combined with a friend-or-foe identification subsystem, can detect, identify, and track in all weather conditions enemy and friendly aircraft at lower altitudes and present broad and detailed battlefield information.

The AWACS airplane is a modified Boeing 707 commercial airframe with a rotating radar dome (see fig. 1). The ailerons and cowlings are similar to

commercial 707 parts but were modified for special requirements.[3] The AWACS radome is the covering that provides housing for the airplane's radar and friend-or-foe (IFF) identification system. Half of the radome covers the radar and half covers the IFF system and each has a different make-up in its composition. The Air Force purchased only the IFF section of the radome in the two separate purchases.

In the past, the Air Force has generally repaired, rather than purchased, the ailerons, cowlings, and radomes but recently had to purchase new parts to meet operational requirements. Prior to the recent spare parts purchases, the ailerons and cowlings had not been purchased since the mid-1980s, and the last radome unit had not been purchased since 1998.

Figure 1: E-3 Sentry AWACS Aircraft

Source: Boeing Corporation.

All of the spare parts were purchased as noncompetitive negotiated procurements. The Federal Acquisition Regulation (FAR) provides guidance for the analysis of negotiated procurements with the ultimate

[3] The cowlings were modified to accommodate AWACS' engines, which have a special gearbox that drives two electrical generators instead of one—the standard configuration for the 707. The AWACS' ailerons have differences in the paint as well as hardness requirements for certain fasteners.

goal of establishing fair and reasonable prices for both the government and contractor. For a noncompetitive purchase,[4] the contract price is negotiated between the contractor and government and price reasonableness is established based primarily on cost data submitted by the contractor. The ailerons were also purchased as a commercial item. For a commercial item,[5] price reasonableness is established based on an analysis of prices and sales data for the same or similar commercial items.

For the AWACS spare parts purchases we reviewed, DCMA provided technical assistance to the Air Force by analyzing labor hours, material and overhead costs, and contract prices.[6] DCAA provided auditing and cost accounting services. DCMA and DCAA analyses were submitted to the Air Force prior to contract negotiations for the respective purchases.

Recent AWACS Parts Prices Are Significantly Higher Than Prior Purchase Prices

Since late 2001, the Air Force has negotiated and awarded contracts to Boeing for the purchase of outboard ailerons, cowlings, and radomes totaling over $23 million. Specifically, the Air Force purchased three ailerons for about $1.4 million, 12 right-hand cowlings and 12 left-hand cowlings for about $7.9 million, and three radomes for about $5.9 million. The Air Force paid an additional $8.1 million in costs as part of the initial radome contract to move equipment and establish manufacturing capabilities in a new location (see table 1).

[4] FAR Subpart 15.4 provides policies and procedures for negotiating noncompetitive procurements. Under a negotiated procurement, the contractor submits a proposal to the government with its proposed costs and profit as well as cost or pricing data that support its proposed price. The government and contractor negotiate costs and profit (to determine the overall price) based on the contractor's full disclosure of data supporting the proposed price.

[5] FAR Part 12 relates to the procurement of commercial items and refers to FAR Subpart 15.4, which provides contracting officers with guidance for performing a price analysis to compare the contractor's price with its commercial prices for the same or similar items, also referred to as a commercial item equivalent. If the contracting officer cannot determine whether an offered price is fair and reasonable, then the contracting officer must require the contractor to submit other information to support further analysis.

[6] During the negotiations, the Air Force was represented by negotiation teams, which generally included a contracting officer, negotiator, and price analyst.

Table 1: Summary of Contract Prices for Ailerons, Cowlings, and Radomes

Spare part	Contract award[a]	Quantity	Unit price	Other costs	Total contract price
Ailerons	April 2003	3	$464,133	0	$1,392,399
Cowlings[b]	Sept 2003	24	329,203	0	7,900,881
Radomes[c]	Sept. 2001	1	1,200,000	$8,100,546	9,300,546
	Sept. 2003	2	2,342,500	0	4,685,000

Source: GAO analysis of Air Force data.

[a]The ailerons, cowlings, and September 2003 radome contracts were firm-fixed-price contracts. The September 2001 radome contract was a cost-plus-fixed-fee contract, which is a cost reimbursable contract that provides for the payment to the contractor of a negotiated fee fixed at the inception of the contract.

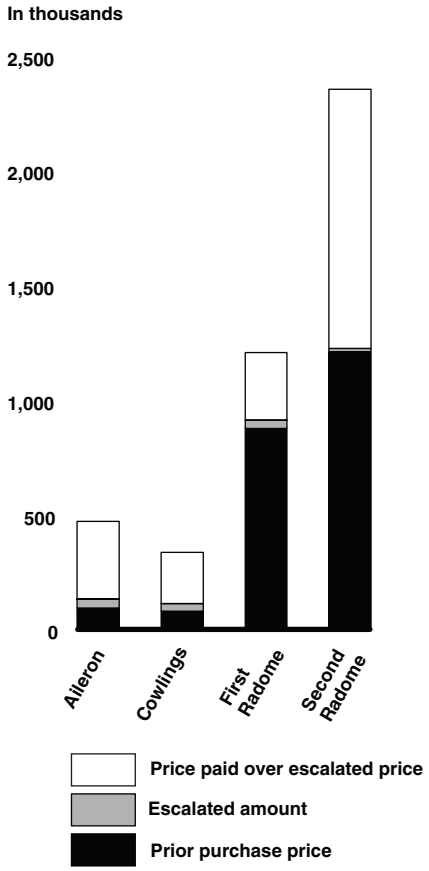
[b]The unit price represents the average unit price for the left hand and right hand cowlings. The 12 right hand cowlings were purchased at a unit price of $321,743 and 12 left hand cowlings were purchased at $336,664.

[c]The unit price for the September 2001 radome represents the contracting officer's estimated price for the radome.

The most recent per unit cost of each part represents a substantial increase from prior purchases. The overall unit cost of the ailerons and cowlings increased by 442 percent and 354 percent, respectively, since they were last purchased in 1986. The unit price for the one radome purchased under the September 2001 contract increased by 38 percent since it was last purchased in 1998, and the unit price nearly doubled two years later under the September 2003 contract. Overall, only a small portion of the price increases could be attributed to inflation.[7] Figure 2 shows the unit price increases, including adjustments for inflation, for ailerons, cowlings, and radomes.

[7] A portion of the price increases can be attributed to inflation—the effects of which would be greatest for the ailerons and cowlings, last purchased in 1986. Based on published escalation factors for the aircraft equipment industry, the 1986 prices for the ailerons and cowlings could have increased by about 46 percent by 2003, yet the unit cost of the ailerons and cowlings increased by 442 percent and 354 percent, respectively. Based on escalation factors, the 1998 price for the radomes could have increased by about 4 percent; yet, the unit cost for the radome under the September 2001 contract increased by 38 percent. The escalation from 2001 to 2003, when the next radome contract was awarded, was only 1 percent, but the unit price nearly doubled.

Figure 2: Unit Price Increases for Ailerons, Cowlings, and Radomes



Source: GAO analysis of AIr Force data.

The Air Force and Boeing cited a number of additional factors that may have contributed to higher prices. For all the parts, the Air Force purchased limited quantities, which generally results in higher unit prices. For the ailerons, which had not been purchased since 1986, Boeing officials told us that some of the price increase was attributable to production inefficiencies that would result from working with older technical drawings, developing prototype manufacturing methods, and using different materials in the manufacturing process. The unit price of the cowlings included costs for the purchase of new tools required to manufacture the cowlings in-house—which Boeing decided to do rather than have vendors manufacture the cowlings, as had been done in the

past. The new tools included items such as large production jigs, used to shape and fabricate sheet metal.[8] Regarding radomes, the Air Force paid Boeing to relocate tooling and equipment from Seattle, Washington, to Tulsa, Oklahoma, and develop manufacturing capabilities at the Tulsa facility to produce and repair radomes. Boeing had initially decided to discontinue radome production and repair at its Seattle location due to low demand for these parts but, after further consideration of the Air Force's requirements, decided to relocate the capability in Tulsa. The first radome contract the Air Force awarded Boeing included over $8.1 million to relocate the tooling and equipment and set up the manufacturing process. The remaining $1.2 million was the estimated production cost of the one radome.[9]

Air Force Did Not Obtain and Evaluate Information Needed to Negotiate Fair and Reasonable Prices

In negotiating contracts for the outboard ailerons, cowlings, and radomes, the Air Force did not obtain and evaluate information needed to knowledgeably assess Boeing's proposals and ensure that the spare parts prices were fair and reasonable. In general, the Air Force did not obtain sufficient pricing information for a part designated a commercial item, adequately consider DCAA and DCMA analyses of aspects of contractor proposals, or seek other pricing information that would allow it to not only determine the fairness and reasonableness of the prices but improve its position for negotiating the price.

Pricing Information Not Sought for Commercial Item to Ailerons

Boeing asserted that the aileron assembly was a commercial item. Under such circumstances, fair and reasonable prices should be established through a price analysis, which compares the contractor's proposed price with commercial sales prices for the same or similar items. However, when purchasing the ailerons, the Air Force did not seek commercial sales information to justify the proposed price. Instead, the Air Force relied on a

[8] After the contract was awarded, the purchase of new tooling was not necessary because Boeing located tooling used in the initial production of the cowlings. See the discussion of this issue on page 10.

[9] The contract included only one line item that covered costs for (1) producing the radome and (2) relocating equipment and establishing a manufacturing capability. Therefore, the contract did not include a separate estimate of the production cost of the radome. The$1.2 million estimate was included in documentation provided by the Air Force contracting officer who negotiated the contract.

judgmental analysis prepared by Boeing, which was not based on the commercial sales of the same or similar aileron.[10]

In reviewing the contractor's submissions of data to the government, both DCMA and DCAA found Boeing's proposal inadequate for the Air Force to negotiate a fair and reasonable price. DCMA performed a series of analyses on the purchase of the aileron assembly, each of which indicated that Boeing's proposed unit price was too high. Boeing proposed in November 2002 to sell three aileron assemblies for $514,472 each. Subsequently, DCMA performed three separate price analyses, which indicated that Boeing's price should be in the $200,000 to $233,000 range. However, the Air Force negotiation team did not discuss these analyses with Boeing during negotiations or include them as part of the Air Force's price negotiation documentation.[11] In January 2003, DCAA reported that the proposed price was "unsupported" and that Boeing did not comply with the Boeing Estimating System Manual, which requires support for commercial item prices. Further, the report said that Boeing must submit cost information and supporting documentation. The Air Force never addressed DCAA's concerns. Instead, the Air Force relied on the analysis prepared by Boeing and paid $464,133 per unit.

The price analyst involved with the negotiation said that, in retrospect, the Air Force should have sought commercial sales information from Boeing, citing this purchase as his first experience with a commercial item. We asked Boeing to provide historical sales information of the same or commercial equivalent item to use as a general benchmark on price reasonableness of the ailerons purchased by the Air Force. According to Boeing representatives, the requested data were not available because the military version of the ailerons had not been produced for over 20 years.

[10] Normally the Air Force would conduct its own price analysis. However, in January 2003, Boeing prepared an analysis for the Air Force. Boeing's price analysis showed "significantly higher" prices than those included in Boeing's final proposal. In our view, Boeing's analysis was not reasonably supported. For example, the price of the item purchased in 1986 ($85,602) was (1) escalated using escalation factors to arrive at a 2003 value ($196,200), (2) adjusted for a quantity of three aileron assemblies, and (3) adjusted again for production inefficiencies. For these inefficiencies, Boeing used a factor of 3.5 to account for having to work with older drawings, planning prototype manufacturing methods, dealing with material differences, and adjusting for other non-production conditions. Boeing was not able to provide a sound basis for the 3.5 adjustment factor.

[11] FAR 15.405 concerning price negotiation provides that when significant auditor or other specialist recommendations are not adopted, the contracting officer should provide rationale that supports the negotiation result in the price negotiation documentation.

Boeing representatives agreed that the Boeing analysis was subjective, but they said the analysis represented the best estimate based on their assumptions and limitations.

Air Force Did Not Act on DCMA's Recommendation to Investigate the Use of Existing Tools for Cowlings

When negotiating the purchase price for the cowlings, the Air Force again did not use information provided by DCMA or address DCMA's recommendation that it determine the availability and potential use of existing tools to manufacture the cowlings. Included in the $7.9 million contract for cowlings, Boeing proposed and the Air Force awarded about $1.1 million for the purchase of new tools, such as large production jigs, associated with the manufacture of the cowlings. However, DCMA had recommended in its initial evaluation of Boeing's proposal that the Air Force give qualified offerors an opportunity to inspect the condition of cowling tools used in prior manufacturing for their applicability and use in fabricating the cowlings. DCMA pointed out that the tools were located at Davis–Monthan Air Force Base in Arizona, where government-owned tooling is often stored when no longer needed for production. However, the Air Force did not accurately determine the existence and condition of the tools.[12]

Subsequent to the contract award, Boeing—not the Air Force—determined that extensive government-owned tooling was available at Davis-Monthan and got approval, in May 2004, to use the tools in manufacturing the cowlings. As a result, the cowlings contract included unnecessary tool purchase costs when it was awarded. Air Force and Boeing officials anticipated a contract modification would be submitted to reduce the price as a result of using the existing tools.

Cost Information from Recent Radome Purchase Not Considered

A significant portion of the September 2001 cost-plus-fixed fee contract that the Air Force awarded to Boeing to purchase one radome unit involved relocating tools and equipment and establishing a manufacturing process at Tulsa. Specifically, over $8.1 million of the contract, which was valued at about $9.3 million, was spent to move equipment and establish a manufacturing process at the Tulsa facility; the price of producing the

[12] Air Force price negotiation documents said that the Air Force had reviewed the availability of government-owned equipment. The documents said that the tools had deteriorated and were no longer serviceable, and the cost of refurbishment was considered comparable to current proposed estimates for new tools. However, the information in the negotiation documents was inaccurate.

one radome unit was about $1.2 million. About 19 months later, in April 2003, at the Air Force's request, Boeing provided a proposal to produce two additional radomes at the Tulsa facility, and in September 2003, the Air Force awarded a contract to Boeing to produce the two radomes at over $2.3 million per unit—almost twice the 2001 unit price.

Based on our analysis, the Air Force did not obtain adequate data to negotiate a fair and reasonable price for the second radome contract. First, the Air Force requested a DCMA analysis of Boeing's proposal, but, in late June 2003, DCMA told the Air Force price analyst that, for an unexplained reason, DCMA did not receive the request for assistance; the price analyst then determined that he would waive the technical evaluation, which would forego the benefit of DCMA's technical expertise. Second, and most importantly, the Air Force did not consider Boeing's costs under the September 2001 contract, which would have provided important information to help the Air Force determine if it was obtaining a fair and reasonable price for the radomes.

No Competition Used for AWACS Spare Parts Purchases

In addition to encouraging innovation, competition among contractors can enable agencies to compare offers and thereby establish fair and reasonable prices and maximize the use of available funds. The Air Force determined that Boeing was the sole source for the parts and did not seek competition. However, a DCMA analysis had determined that Boeing's proposed price for the engine cowlings was not fair and reasonable and, because a subcontractor provided the part in support of the original production contracts, recommended that the cowlings be competed among contractors.

From the outset of the cowlings purchase, Air Force documents said that the Air Force did not have access to information needed to compete the part. However, the Air Force has a contract with Boeing that could allow the Air Force to order drawings and technical data for the AWACS and other programs for the purpose of competitively purchasing replenishment spare parts.[13] Nevertheless, Boeing has not always delivered AWACS data based on uncertainties over the Air Force's rights to the data. Based on discussions with Air Force representatives, Boeing has been reluctant to

[13] Contract No. F34601-02-D-0082, Rights Guard for Other Aircraft Parts and Auxiliary Equipment Manufacturing, dated July 1, 2002.

provide data and drawings in the past, making it difficult for the Air Force to obtain them. Moreover, Boeing maintains that it owns the rights to the technical data and drawings and the Air Force could not use the drawings to compete the buy without Boeing's approval.

It is unclear if the AWACS program office had placed a priority on fostering competition for the cowlings and other spare parts. Representatives of the AWACS spare parts program office at Tinker Air Force Base cited a number of concerns in purchasing the spare parts from vendors other than Boeing. First, they said that the need for these spare parts had become urgent and noted that other vendors would have to pass certain testing requirements, which could be a lengthy process, and that, even with this testing, performance risks and delivery delays were more likely to occur. An overriding concern was that the Air Force establish a good relationship with reliable parts providers, such as Boeing. Program office officials told us that the Air Force would likely be better served in the long run by staying with a reliable supplier rather than competing the parts.

In contrast, senior contracting officials at Tinker—who have oversight responsibilities for the contracting activities that support the AWACS program—have a different point of view. These officials were concerned about the large price increases on AWACS spare parts and the lack of competition. They stated that the Air Force is a "captured customer" of Boeing because the company is the only source for many of the parts needed to support aircraft manufactured by Boeing, such as the AWACS. According to these senior contracting officials, during the last several years Boeing has become more aggressive in seeking higher profits regardless of the risk involved with the purchase. For example, they told us that, even when the risk to the company is very low, the company is seeking at least a 3- to 5-percent higher fee than in the past. As a result, contracting officers have had to elevate some negotiations to higher management levels within the Air Force. They also said that, without the ability to compete spare parts purchases, the Air Force is in a vulnerable position in pricing such contracts. Earlier in 2004, Boeing and the senior Air Force contracting officials involved with the aircraft programs managed at Tinker began a joint initiative to work on various contracting issues. Concerning data rights, these contracting officials told us that in future weapon systems buys, the Air Force must ensure that it obtains data rights so that it can protect the capability to later compete procurements of spare parts.

Conclusions

The Air Force needs to be more vigilant in its purchases of spare parts. The AWACS parts purchases we reviewed illustrate the difficulty of buying parts for aircraft that are no longer being produced as well as buying them under non-competitive conditions. A key problem was that the Air Force did not take appropriate steps to ensure that the prices paid were fair and reasonable. It did not obtain and evaluate information that either should have been available or was available to improve its negotiating position. It did not attempt to develop other sources to purchase the spare parts and promote competition. And, it did not have a clear understanding of its rights to technical data and drawings, which are necessary to carry out competitive procurements. As the AWACS aircraft—like other Air Force weapon systems—continue to age, additional spare parts will likely be needed to keep them operational. Given the significant price increases for the ailerons, cowlings, and radomes, the Air Force needs to look for opportunities to strengthen its negotiating position and minimize price increases. Clearly, competition is one way to do this. Unless the Air Force obtains and evaluates pricing or cost information and/or maximizes the use of competition, it will be at risk of paying more than fair and reasonable prices for future purchases of spare parts.

Recommendations for Executive Action

To improve purchasing of AWACS spare parts, we recommend that the Secretary of Defense direct the Secretary of the Air Force to

- ensure that contracting officers obtain and evaluate available information, including analyses provided by DCAA and DCMA, and other data needed to negotiate fair and reasonable prices;
- develop a strategy that promotes competition, where practicable, in the purchase of AWACS spare parts; and
- clarify the Air Force's access to AWACS drawings and technical data including the Air Force's and Boeing's rights to the data.

Agency and Company Comments and Our Evaluation

We received written comments on a draft of this report from DOD and The Boeing Company.

In its comments, DOD concurred with GAO's recommendations and identified actions it plans to take to implement the recommendations. DOD's comments are included in appendix II. DOD also provided technical comments, which we incorporated into the report as appropriate.

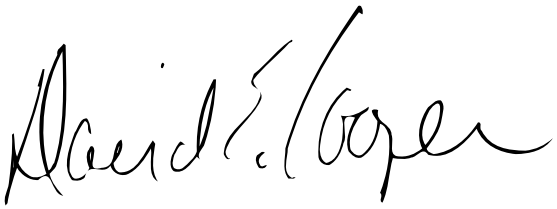
In its comments The Boeing Company provided information that augments the information in the report and provides the company's perspective on

the AWACS purchases. With respect to the prices the Air Force paid for the spare parts, Boeing provided more detailed information to explain the costs associated with each part. However, the information Boeing provided did not change our conclusion that the Air Force did not obtain and evaluate sufficient information to establish fair and reasonable prices. The company also noted that it has worked with Air Force representatives to address issues associated with higher profits and, as of January 2005, was working with the Air Force to address issues associated with access to AWACS technical drawings and data. The Boeing Company's comments are included in appendix III.

We are sending copies of this report to the Secretaries of the Air Force, the Army, and the Navy; appropriate congressional committees; and other interested parties. We will also provide copies to others on request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff has questions concerning this report, please contact me at (202) 512-4841 or by e-mail at cooperd@gao.gov, or James Fuquay at (937) 258-7963. Key contributors to this report were Ken Graffam, Karen Sloan, Paul Williams, and Marie Ahearn.

Sincerely yours,



David E. Cooper
Director
Acquisition and Sourcing Management

Appendix I: Scope and Methodology

To identify price increases associated with the ailerons, cowlings, and radomes, we reviewed Air Force contracting files and we held discussions with members of the Air Force involved in each purchase, which included contracting officers, negotiators, and price analysts. These officials were located at Tinker Air Force Base, Oklahoma, the location of the Airborne Warning and Control System (AWACS) spare parts program office—the E3 Systems Support Management Office. To account for the impact of inflation, we used published escalation factors for aircraft parts and auxiliary equipment to escalate prices previously paid for the parts to a price that would have been expected to be paid if the prices considered the effects of inflation.

To determine whether the Air Force contracting officers obtained and evaluated sufficient information to ensure that Boeing's prices were fair and reasonable, we held discussions with the Defense Contract Management Agency (DCMA) representatives and obtained copies of reports and analyses prepared by DCMA and Defense Contract Audit Agency (DCAA). We reviewed Air Force contracting files and held discussions with Air Force officials that negotiated the respective purchases, which included contracting officers, negotiators, and price analysts. We also held discussions with representatives of Boeing and visited Boeing production facilities in Tulsa, Oklahoma. The Boeing officials represented several Boeing divisions involved in the purchases including Boeing's military division (Boeing Aircraft and Missiles, Large Aircraft Spares and Repairs), which had responsibility for negotiating all of the spare parts purchases. Boeing Aerospace Operations, Midwest City, Oklahoma, had contract management responsibility for the purchases.

To determine the extent that competition was used to purchase the parts, we reviewed Air Force contracting files and held discussions with members of the Air Force involved in each purchase, which included contracting officers, negotiators, and price analysts. We also held discussions with representatives of the AWACS spare parts program office and senior contracting officials responsible for overseeing contracting activities at Tinker Air Force Base, Oklahoma.

We conducted our review from August 2003 to November 2004 in accordance with generally accepted government auditing standards.

Appendix II: Comments from the Department of Defense

OFFICE OF THE UNDER SECRETARY OF DEFENSE
3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

ACQUISITION
TECHNOLOGY
AND LOGISTICS

JAN 2 5 2005

Mr. David E. Cooper
Director, Acquisition and Sourcing Management
U.S. Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Cooper:

Enclosed is the Department of Defense (DoD) response to the GAO draft report, "CONTRACT MANAGEMENT: The Air Force Can Improve How It Purchases AWACS Spare Parts," dated December 21, 2004 (GAO Code 120325/GAO-05-169).

My point of contact for this report is Mr. Michael Canales, (703) 695-8571 or via e-mail, michael.canales@osd.mil. We appreciate the opportunity to review and comment on your findings.

Sincerely,

for Deidre A. Lee
Director, Defense Procurement
and Acquisition Policy

Enclosures:
As stated

Draft Report Dated December 21, 2004

GAO CODE 120325/GAO-05-169
"CONTRACT MANAGEMENT: The Air Force Can Improve How It Purchases AWACS Spare Parts"

DEPARTMENT OF DEFENSE COMMENTS TO THE RECOMMENDATIONS

RECOMMENDATION 1: The GAO recommended that the Secretary of Defense direct the Air Force to ensure that contracting officers obtain and evaluate available information, including analyses provided by DCAA and DCMA, and other data needed to negotiate prices. (p. 13/GAO Draft Report)

DOD RESPONSE: Concur. Pursuant to FAR 15.406, it is incumbent upon the Contracting Officer and all members of the Air Force Negotiating Team to obtain, evaluate, and analyze available information as appropriate. This includes but is not limited to reports prepared by DCAA and DCMA. OUSD(AT&L)DPAP will issue a memorandum to the Air Force highlighting this requirement.

RECOMMENDATION 2: The GAO recommended that the Secretary of Defense direct the Air Force to develop a strategy that promotes competition, where practicable, in the purchase of AWACS spare parts. (p. 13/GAO Draft Report)

DOD RESPONSE: Concur. Pursuant to FAR Part 6, competition is the preferred method of acquisition and should be used whenever possible. Exceptions to competition should be well documented and well supported. Consistent with current regulations, OUSD(AT&L)DPAP will ask the Air Force to develop a strategy that promotes competition, where practicable, in the purchase of AWACS spare parts.

RECOMMENDATION 3: The GAO recommended that the Secretary of Defense direct the Air Force to clarify the Air Force's access to AWACS drawings and technical data including the Air Force's and Boeing's rights to the data. (p.13/GAO Draft Report)

DOD RESPONSE: Concur. There is an ongoing disagreement between the Air Force and Boeing as to who has the actual data rights to many of the spare parts for the AWACS program. OUSD(AT&L)DPAP will request the Air Force clarify their access to AWACS drawings and technical data, including the Air Force's and Boeing's rights to data.

Enclosure 1

Appendix III: Comments from The Boeing Company

The Boeing Company
P.O. Box 516; MC: S111-1350
St. Louis, MO 63166-0516
(314) 777-0354; FAX: 314-777-0439

27 January 2005

Mr. David E. Cooper
Director
Acquisition and Sourcing Management
United States Government Accountability Office
Washington, DC 20548

Dear Mr. Cooper,

BOEING

On behalf of The Boeing Company I wish to acknowledge receipt of your draft GAO audit entitled "The Air Force Can Improve How it Purchases AWACS Spare Parts" forwarded by your letter dated 21 December 2004. I wish to assure you at the outset that Boeing takes such audits quite seriously and that it has received the attention of Boeing senior management. In your letter forwarding the draft audit you solicited Boeing's written or oral comments for inclusion in the final audit report. This letter provides such comments, and it is our intention to correct, clarify, or provide Boeing's perspective regarding certain aspects of the audit report.

Since the receipt of your request, we have gathered pertinent information to address several key points raised in the audit, conducted various meetings, and developed our assessment relative to the draft's findings, conclusions and recommendations. Subsequent to receipt of the draft audit Boeing representatives discussed and clarified with you and other government representatives our findings. Boeing greatly appreciates that opportunity and believes it to be mutually beneficial.

The following are Boeing's comments regarding our assessment of the information included in the draft audit you forwarded.

1) The audit states that the Air Force Contracting Officer did not obtain sales information for the Aileron or similar items to justify Boeing's proposed price. Our records indicate that the Contracting Officer did in fact solicit such information, but since the Aileron is not normally procured as a "Spare", but rather is a "Repairable item" Boeing advised the Contracting Officer (CO) that such history and pricing was not available. The solicitation also was issued as a FAR Part 15 action. However, Boeing submitted its proposal as a commercial item under the provisions of FAR Part 12 - since its application was to a military derivative of a Boeing 707 commercial airframe and the item was only available from our BCA Operating Group on a commercial FFP basis. Accordingly, Boeing performed and provided a price analysis to support the price reasonableness of this commercial item which the draft audit referred to as a "judgmental analysis". This price reasonableness analysis included comparison of this item to commercially available similar items and considered other factors associated with out of production aircraft assemblies.

2) The audit also states (on page 9) that DCAA reported that the Aileron Assembly proposed price was unsupported and that Boeing did not comply with the Boeing Estimating System Manual (BESM) procedures. While it is accurate that Boeing did not provide adequate price analysis support for the Aileron pricing with our initial proposal, we did however provide supplemental data providing such support within approximately 45 days of proposal submittal and in time to support fact finding and negotiation of the proposal. This is supported by the audit finding that the CO utilized this data as the basis of justifying his price analysis and negotiation position. In this case the procurement of a non-traditional item as a "Spare" posed unique challenges for our team and made submittal concurrent with the proposal difficult. Additionally, at the time of this proposal submittal in December 2002, the BESM did not require a Price Reasonableness Determination (PRD) be provided with the initial proposal submittal. This requirement was added in January 2004. Boeing believes it met its obligation to submit supporting data to assist the government CO in determining price reasonableness.

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During subsequent discussions with GAO the government clarified that its critique in this area was primarily focused on the government Contracting Officer's actions, and felt the CO should have obtained additional price comparative data from other sources in addition to the analysis provided by Boeing.

3) On page 12 and later in GAO's audit "Recommendations for Executive Action" the audit report makes several statements regarding AWACS drawings and technical data (ie: Intellectual Property). First, it states that the government has a right to order such data and that Boeing in the past has been reluctant or unwilling to provide the government such data. Secondly, that the government should utilize this data to actively foster competition for all future procurement of AWACS spare parts. Since the early 1970's Boeing has maintained the Rights Guard Contract (F34601-02-D-0082 and its predecessors) with the Air Force as a means of coordinating the provisioning of technical data and drawings for support of Military Derivatives of Boeing 707 and other specified aircraft. Under this contract for "Other Aircraft Parts and Auxiliary Equipment Manufacturing", the Air Force may request such data be provided. However, the contract clearly states, under Section H, entitled Limited Rights Technical Data subparagraph (a) (2), *"If contractor, in its sole discretion, determines in response to a request from the Government that it cannot or will not consent to the Government's use of limited rights technical data, it shall so notify the Government in writing. Contractor shall have no obligation under Clause B-1(a) of this contract to deliver copies to the Government of any such limited rights technical data for which consent of use is not granted."* Hence the GAO draft report's assertion that all AWACS related data is accessible to procurement agencies via the Rights Guard contract is not supported by the contract. This contractual discretionary prerogative recognizes that the design and development of the aircraft and corresponding data was done at private expense (and is therefore Proprietary) and that the Air Force in most cases did not historically procure these data rights, thereby avoiding such acquisition costs. It further recognizes that Boeing will assess such requests on a case by case basis to determine the potential adverse impact for future domestic and international business. It should also be recognized that the current Rights Guard contract has been extended through 31 March 2005, but is anticipated to terminate at that time. For several months Boeing representatives have been working jointly with OC/ALC and DLA Senior Acquisition representatives to develop a new approach involving developing Licensing Agreements with the Air Force and with our Supplier network. This proactive effort seeks to enhance the government's ability to control and protect technical data while developing more sources to participate in U.S. Government competitive procurements, as recommended by the audit. The end result of these initiatives may be lower overall program costs, and it is Boeing's intention to increase the participation by small and small disadvantaged businesses.

4) It is Boeing's position that the pricing table at the top of page 6 of the audit does not accurately reflect the Unit Pricing of the items listed, although the total contract prices are accurate. In addition, we feel that the price history analysis in the audit is misleading, as it does not consider significant points contributing to the price variances addressed. However we provide the following insight and clarification relative to the unit prices shown.

   a. Ailerons - The total Firm Fixed Price negotiated of $1,392,399 included Non-Recurring costs of $207,106.02 which is included in the average Unit Price shown of $464,133, resulting in an overstated Recurring Unit Price vs. the correct Recurring Unit Price of $395,097.66 for comparison purposes. Further, the audit states the Ailerons and Cowlings had not been purchased since 1986. Boeing notes that since the late 1980's, the A/C and components went from an active production line to an out of production situation. This necessitated changing production locations (moving from Puget Sound, Washington to our commercial production facility in Salt Lake City, Utah), incurring start-up and loss of learning inefficiencies, different applicable overhead bid plans, and perhaps changing production methods. To reduce the overall cost of our products by managing our overhead costs Boeing has shut down production lines and other manufacturing activities/facilities in the Puget Sound, Washington area that did not have sufficient demand/ordering history. The comparative Recurring Unit Price range of between $200 - $233K assessed by

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DCMA cited on page 9 of the audit was subsequently partially provided to Boeing representatives during the conduct of the audit. Based on the data that was shared, Boeing was able to confirm with our Boeing Commercial Aircraft (BCA) Group that that pricing was associated with the cost of a refurbished used Aileron vs. a new production spare, and is therefore not valid for a direct comparison. In subsequent discussions between the parties, GAO representatives indicated that DCMA also had other pricing data that they utilized to develop their pricing range assessment. Boeing does not have adequate insight into this other data, and therefore can not comment on its reasonableness. However, we can state that the aforementioned range is significantly lower than the price that Boeing can provide these items under these circumstances. Due to our inter-component commercial BCA production source, these items are only available to our IDS military operating group on a commercial FFP basis (without supporting detailed cost element breakdowns), and therefore must be procured from Boeing utilizing FAR Part 12 commercial item price analysis procedures. Further, while the audit reflects the government's estimated "should cost" value range, Boeing is not aware of this item actually being procured by the government from an alternate source at this price range resulting in delivery of acceptable air-worthy parts under comparable circumstances.

b. Cowlings - The total contract price of $7,900,881 is accurate, but it includes $2,642,540.90 of Non-Recurring effort associated with Tooling and other start-up costs as detailed in our proposal of record. The proposed Recurring Unit Price of the Cowlings is $219,086.58 (average right & left hand) vs. the $329,203 unit value reflected in the audit table. Boeing consolidation/cost reduction actions precluded this from being produced at our Puget Sound, Washington facilities. However, in order to continue support of our product and our Air Force customer, Boeing agreed to produce the part at our Tulsa, Oklahoma facility. Our proposal assumed that Boeing would be required to provide new tooling as none was identified at that time as available for use by the Air Force. Subsequent to award of this Fixed Price contract, Boeing identified that a significant amount of the required tooling was available in storage in an as is condition at Davis Monthan AFB. Boeing coordinated with the OC/ALC CO to obtain contractual authorization to refurbish and use that tooling, which the CO granted. The parties subsequently executed a contract modification 009701 on 06 May 2004 where Boeing agreed to voluntarily negotiate an equitable price reduction adjustment recognising the delta between the tooling price included at award vs. an estimate of actual tooling refurbishment and maintenance related costs with profit when such costs can be reasonably assessed. Upon completion of this effort Boeing will propose an equitable adjustment in accordance with that contract modification. It should also be noted that this requirement was proposed and negotiated on a sole source basis in accordance with FAR Par 15 procedures and Boeing provided fully auditable detailed supporting estimates at the cost element level in support of the proposed price. Therefore, the primary basis of government evaluation should be cost analysis not price analysis.

c. Radomes - Boeing concurs with the total prices of the 2001 and 2003 procurements reflected in the audit page 6 table. Relative to the 2001 procurement, Boeing's proposal did not break out the Non-Recurring ($7,057,351) and a unit Recurring value of $2,243,195 (subsequently estimated by Boeing – see below), vs. the $1,200,000 value reflected in the audit table. This variance in the 2001 Recurring unit price was subsequently discussed with GAO representatives after Boeing receipt of the draft audit. In those clarifying discussions Boeing stated that it was unaware of and could not validate what the audit findings reflected as the Radome Recurring unit value the audit indicates was documented in the CO records, as it was not discretely priced/identified in our proposal, during negotiations, or within the awarded 2001 contract. The Boeing negotiator recalls that it was agreed, during negotiations, not to breakout the Non-Recurring vs. Recurring value, but to establish a cumulative Estimated Cost since this was a CPFF contract for a single unit. Boeing does not agree that the audit breakout attributed to the Air Force CO accurately represents the unit Recurring items value. Subsequent to receiving the draft audit and noting this

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apparent disparity in the first Radome Recurring unit price, Boeing tasked our estimators to develop the Recurring first unit price only utilizing the cost and pricing information included in our 2001 proposal of record and supporting data from our contract files. Our assessment supports a Recurring unit value of $2,243,195. We have the source documents to support how these values were developed in our contracting files and can provide them upon request. The 2003 Radome total negotiated Firm Fixed Price of $4,685,000 is accurate and includes $236,543.86 Non-Recurring at price level, and a Recurring unit value for 2 items of $2,224,228.07. The second and third Radome Recurring unit values were in fact priced less than the single 2001 Recurring unit price (as Boeing has estimated it) and were based on actual labor manhours from the first unit, and included a higher profit rate, since it was a FFP vs. CPFF award. Boeing believes that the utilization of such actuals from the first unit to develop the pricing for units 2 and 3 on the 2003 contract further supports the Boeing estimate of the Recurring value of the 2001 Radome order. This item too has been out of production since the late 1980's and was moved from Puget Sound to Tulsa to be produced at these limited quantities. On page 11 paragraph 2, the audit states that "the Air Force did not receive cost or pricing data from Boeing to support Being's proposed price." Our review confirms that Boeing did provide a fully supported proposal with cost element price breakdowns included and this requirement was processed in accordance with FAR Part 15 procedures. Again, cost analysis not price analysis should be the primary evaluation method. Further, the cost information from the first Radome CPFF was fully available to the Contracting Officer and referenced in our labor estimates used to develop our unit 2 and 3 proposal.

d. Regarding the audit comments on page 12 of the draft report citing Boeing becoming more aggressive in seeking higher profits, Boeing believes the comments made by some senior contracting officials at Tinker were unrelated to these AWACS spares orders. However, Boeing has in the past raised issues regarding appropriate profit recognition in other non-spares contracting activities. These requests by Boeing for additional profit consideration stem from what we believed to be inequitable and inappropriate government contracting positions. Specifically, allowing no earnings on significant material cost content in various Contractor Logistic Support (CLS) contracts without other consideration, and placing engineering services efforts containing significant material content under Time and Material (T&M) contracts. Government contracting practices do not allow for profit on material procured under T&M contracts, which when used for efforts requiring significant material procurement, results in unreasonable total contract earnings. Boeing believes it was justified in raising the issues of utilization of appropriate contract types and fair profit consideration of all elements of cost. It should also be understood that Boeing and OC/ALC senior representatives met in 2003 and early 2004 and addressed these issues which were resolved by reviewing the material contents of requirements before placing orders under the T&M contract and incorporating new "performance based" earnings incentive provisions into new CLS contracts. GAO indicated the time frame of the government's remarks was March 2004. Boeing believes that significant changes/improvements regarding this issue have been jointly achieved since that time.

In summary, it is Boeing's assessment that the current draft audit report appears to contain some information that this Boeing response augments, clarifies and puts in an appropriate context. We believe that GAO's and the other government representatives' intent is to fairly and openly present a correct and accurate analysis, and include this Boeing response in its final report to ensure a balanced assessment. Such actions are greatly appreciated. During joint discussions after receipt of the draft audit, it was clarified that while GAO believes that although it may be in the government's interest to pursue competition in acquiring these type of items, and that doing so might result in a lower price to the government, GAO is not indicating that Boeing unfairly or inappropriately priced these items to the government. Rather, they are suggesting that had the government chosen to compete the acquisition of these items, they may have procured them at a lesser price from another source. In our

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response Boeing has addressed the complexities of out of production spares fabrication as well as the limitations associated with Intellectual Property data rights. Boeing is committed to continue our present joint efforts with government representatives to develop a mutually acceptable future approach to facilitate government acquisition of these types of items in a cost effective manner.

I am available, along with other Boeing representatives, for further discussion at your convenience at 314-777-0354, by Email at john.t.biciocchi@boeing.com, and by FAX at 314-777-0439.

Sincerely Yours,

The Boeing Company

John T. Biciocchi

John T. Biciocchi
Head of Contracts & Pricing
Aerospace Support
Integrated Defence Systems

5

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