

November 1999

**CONTRACT  
MANAGEMENT**

**A Comparison of DOD  
and Commercial  
Airline Purchasing  
Practices**



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November 29, 1999

The Honorable James Inhofe  
Chairman  
The Honorable Charles Robb  
Ranking Minority Member  
Subcommittee on Readiness and Management Support  
Committee on Armed Services  
United States Senate

The Department of Defense (DOD) is increasing the use of commercially available products and services. While the current level of commercial purchasing is relatively small—about 5 percent of the \$2.6 billion spent on aircraft spare parts in fiscal year 1998<sup>1</sup>—the Department expects such purchases to increase in the future and believes determining fair and reasonable prices for commercial sole-source items will be particularly challenging.

Because of concerns over the pricing of spare parts for DOD aircraft, you requested that we compare the purchasing and pricing practices of selected commercial passenger and freight airline companies with those of DOD. We placed particular emphasis on how airlines and Defense ensure that they are obtaining reasonable prices when buying commercial items from sole-source suppliers.

Our analysis of airline practices is based on discussions with officials from 10 airlines. Our analysis of DOD's buying practices is based on a case study review of 65 sole-source purchases at 7 Department buying centers.<sup>2</sup> The assessment of DOD's buying practices differs from the assessment of airline practices in that the Defense assessment covers both procurement

<sup>1</sup> From the Department's DD 350 procurement database, which covers contract actions over \$25,000. Aircraft parts were defined as covering the following federal supply classes: 1560 (aircraft structural components); 16xx (aircraft components and accessories); 2620 (aircraft pneumatic tires and tubes); and 2915, 2925, 2935, 2945, 2950, and 2995 (aircraft engine accessories).

<sup>2</sup> See *Contract Management: DOD Pricing of Commercial Items Needs Continued Emphasis* (GAO/NSIAD-99-90, June 24, 1999).

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policies and their implementation. The airline assessment covers only procurement policies.

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## Results in Brief

Airlines use a variety of practices to obtain spare parts at reasonable prices. These practices include analyzing prices, procuring competitively, utilizing catalog prices (commonly discounted), negotiating long-term agreements, purchasing new surplus or reconditioned parts, and sometimes asking for justifications of price increases. When faced with a sole-source supplier demanding a price that they believe is unreasonable, some airlines will consider re-engineering the part and establishing a second source.

Department of Defense policies call for using similar practices when buying commercial spare parts. Contracting officers often rely on competition to ensure reasonable prices: about 42 percent of fiscal year 1998 spending on commercial spare parts for aircraft was awarded through full and open competition. The Department frequently receives discounts on catalog prices from suppliers, including sole-source suppliers. It has also begun to negotiate longer-term agreements that set prices. In sole-source situations, contracting personnel perform some price analyses, but our recent review of these analyses indicated they could be very limited in scope. Less commonly, the Department will purchase surplus parts or consider re-engineering a part.

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## Background

In the absence of competition, DOD has traditionally been able to rely on cost data to ensure that the prices it pays for spare parts are fair and reasonable. When DOD purchases noncommercial items, contractors may be required to provide certified cost or pricing data.<sup>3</sup> In fiscal year 1998, DOD obtained certified cost and pricing data for two-thirds of contract dollars awarded (for noncommercial aircraft parts) without full and open competition.<sup>4</sup> By statute, suppliers of commercial items are not required to submit certified cost or pricing data.

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<sup>3</sup> 10 U.S.C. 2306a defines cost or pricing data as all facts that prudent buyers and sellers would reasonably expect to significantly affect price negotiations.

<sup>4</sup> From the DD 350 database, based on dollar value of contracts awarded.

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Commercial airlines buy spare parts to support aircraft maintenance and use a variety of methods to service and maintain aircraft. Nearly all the airlines we contacted said they perform 90 to 100 percent of routine aircraft maintenance in-house. Most airlines we surveyed buy the bulk of their spare parts (80-90 percent) to support these operations directly from suppliers rather than through third parties. Some larger airlines also do heavy maintenance, overhauls, and major modifications in-house, buying spare parts for these tasks. Several smaller airlines contract these services out using contracts that sometimes include spare parts. In addition, airlines' contracts for service on repairable parts often include new parts.

A majority of the airlines we contacted also participate in component lease/service arrangements such as "power-by-the-hour," "cost-per-landing," and "cost-per-cycle." Under these agreements, major components such as engines, wheels and brakes, and other components are leased from a provider that charges by the hours of use or by the number of landings or cycles. These agreements may include parts as well as service, but the specific arrangements vary among the airlines. For example, some airlines contract for a total parts and service package, while others allow the service provider to supply only the less costly consumable parts. The latter airlines purchase the more expensive spare parts themselves. Still other airlines contract for a maintenance service package that may or may not include parts but do some of the maintenance themselves.

Balancing the need to maintain minimum inventory with the need to avoid aircraft grounded by the unavailability of spare parts is the key challenge for spare parts management. Airlines reported using just-in-time inventory procedures to eliminate excessive inventories and reduce costs. Under just-in-time inventory management, parts are held by the supplier and delivered just prior to scheduled maintenance. At the same time, to minimize the possibility of an emergency aircraft-on-the-ground situation due to unavailability of parts, some airlines stock a limited number of critical items in case the supplier cannot rapidly deliver them.

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## **Purchasing Practices of Commercial Airlines**

In interviews with 10 airlines,<sup>5</sup> we were told that airlines employ a variety of practices to obtain spare parts at reasonable prices. These practices include

- price and part analyses,
- competitive procurements,
- relying on catalog prices (commonly discounted to airlines),
- long-term agreements with suppliers, and
- obtaining new surplus or reconditioned parts.

Airline officials said that when they are faced with purchasing parts from a sole-source supplier at a price they determine to be excessive, in addition to trying to negotiate long-term agreements or searching for surplus parts, they may

- request cost and pricing data or justifications and/or
- re-engineer the part and develop a second source.

In some instances, these strategies are not feasible or not effective in obtaining reasonable prices from sole-source suppliers. Although they attempt to use the leverage of future business to encourage concessions, airlines are sometimes forced to pay the price demanded by the sole-source supplier.

All airlines we talked with said they buy some of their parts from sole-source suppliers. Their estimates of how frequently they buy from such suppliers varied from 5 to 75 percent. Those airlines flying older aircraft tend to rely less on sole-source suppliers.

Several factors influence the purchasing practices employed by airlines. Airlines that fly newer aircraft tend to be limited to purchases from the original part manufacturer. They often rely on catalog prices or negotiate long-term agreements with suppliers. Airlines flying older aircraft have additional options. They may use manufacturers other than the original equipment manufacturer or purchase surplus parts from other airlines or brokers. When parts are available from multiple sources, competitive

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<sup>5</sup> Airborne Express, Alaska Airlines, American Airlines, Aloha Airlines, Delta Air Lines, Federal Express, Hawaiian Airlines, Polar Air Cargo, United Airlines, and United Parcel Service.

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procurement is feasible. Airline policies also affect the choice of procurement practices. Some airlines are reluctant to buy surplus or reconditioned parts and prefer original equipment manufacturers to ensure quality; they use other sources only as an exception.

Airlines also said they will pay a premium price for a part if they have an extremely urgent requirement. When an aircraft-on-the-ground situation occurs, airlines will pay premiums of 15 to 25 percent to get the part within hours. This premium does not include the cost of delivery, which can be substantial. However, an aircraft that remains grounded can lead to the loss of significant revenues. Airline inventory management practices aim to minimize or avoid aircraft-on-the-ground situations while simultaneously minimizing the resources tied up in inventory.

Several airline officials commented that while the greatest price leverage is available when they purchase aircraft or major components (i.e., engines), it is rarely used. These officials said that it was in their best financial interest to get the lowest possible price for the initial purchase and that negotiating a reduction in future spare parts prices usually means increasing the cost of the initial buy. However, some airline officials commented that they encourage aircraft manufacturers to provide direct access to suppliers or to dual-source important components and parts.

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## Price and Part Analyses

Airlines uniformly reported that they analyze price histories of parts they have bought to assess the reasonableness of a price. Airlines track price histories and review them when procuring a particular part. They also compare the offered price against the price of similar parts. Airlines also said they search various electronic databases to research offered prices.

Airline officials emphasized that they examine non-price factors such as delivery time and technical support in assessing the value of a part. The assessment of reasonableness is thus based on overall value, including price, quality, quantity, availability, location, delivery time, technical support, warranty, and (if it is a used part) documentation and certification of the part's history.

Airlines may also involve their engineering staff in analyzing how much a part should cost to manufacture. Purchasing staff are generally aware of trends in material and other costs that affect manufacturing costs. These analyses may be used to challenge the offered price and negotiate a lower one.

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## Competitive Procurement

Some airlines emphasized that they rely on competition to ensure reasonable prices. These airlines establish thresholds governing when competition is required. For example, several airlines said they solicit three offers for all procurements over \$10,000.

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## Catalog Prices

Virtually all airlines pay catalog prices for some parts, and they usually receive discounts on the catalog price. Some airline officials stated that they pay catalog prices for a majority of their spare part purchases. These airlines tend to fly newer aircraft and rely on original equipment manufacturers. In contrast, some airlines report buying less than 20 percent of their parts on the basis of catalog prices. These airlines have other agreements with suppliers or use alternative manufacturers and new surplus or reconditioned parts. Some parts are only available from a single source and are catalog-priced.

Several airline officials emphasized that they carefully scrutinize what is included in the catalog price, which may include shorter delivery times or more support services than they require. Others said they accept the catalog price and negotiate for additional services. Some said they analyze the reasonableness of a catalog price and sometimes challenge it if they conclude it is out of line.

Airlines, as final users (rather than distributors), commonly receive a discount off the catalog price. Discounts can vary from 5 to 40 percent, with deeper discounts resulting from high usage, dollar value of business, or long-term agreements. Some airlines said they could find lower prices on low-usage items from distributors, who have a larger business base and can buy in larger quantities. Airline officials said they pay full catalog prices on some sole-source items.

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## Long-term Agreements

Many airlines stated they negotiate long-term agreements with their more frequent suppliers. These agreements vary in length. Some cover a 1- to 2-year period, while others cover 3 to 5 years.

Agreements that are shorter in length (1 to 2 years) usually lock in prices and delivery schedules. The longer 3- to 5-year agreements tend to involve an exclusive buying commitment. These longer-term agreements tend to cover prices, delivery schedules, and support and may also have provisions for the supplier to hold inventory for the airline. Agreements can aid

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airlines in obtaining lower prices based on the quantities procured or can induce a sole-source supplier to lower prices to obtain more business.

Airlines differ in their reliance on long-term supplier agreements. One airline said it tries to put many of its regular suppliers under agreements and sees the agreements as an effective arrangement for obtaining reasonable prices from sole-source suppliers. Others have few such agreements.

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**Surplus and Reconditioned Parts**

Some airlines said they use new surplus and/or reconditioned spare parts to control costs. These airlines use such parts as alternatives to high-cost sole-source items. Airline officials said that surplus and reconditioned parts are more readily available for older aircraft.

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**Cost and Pricing Data**

Few airlines request cost or pricing data, saying that suppliers are generally unwilling to supply such data. Those that have requested data reported that suppliers are usually not cooperative in providing it. According to an airline association official, airlines may be successful in obtaining some data if there is a reliability or quality issue prompting the request.

Some airlines stated they do request cost or pricing justifications and are successful in obtaining them. Suppliers may sometimes provide information on changes in material or labor costs that can trigger price increases.

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**Re-engineering Parts**

In selected circumstances, airlines will reverse-engineer a part (i.e., develop engineering or design specifications) and establish a second source for it or manufacture the part themselves. Airline officials said it is expensive to create a new manufacturing source and that long lead times are required. The price of the part has to be excessively high and future purchases substantial enough to justify the expense. They said that most of the time, other strategies are successful in obtaining more reasonable prices. Even when negotiations are unsuccessful, airline officials said that the airlines may be better off accepting the offered price.



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## DOD Practices

DOD employs many of the same practices used by commercial airlines in procuring spare parts. Like commercial airlines, DOD has limited leverage in negotiating with sole-source suppliers.

The Federal Acquisition Regulation (FAR) requires contracting officers to perform sufficient price analyses to determine whether offered prices are fair and reasonable, while at the same time granting them wide latitude in the types of analysis techniques and extent of analysis they carry out. The FAR defines price analysis as the process of examining and evaluating a proposed price without evaluating its separate cost elements or profit. Price analysis techniques include (1) comparing proposed prices in response to a competitive solicitation; (2) comparing a currently offered price to previously paid prices if both the validity of the comparison and the reasonableness of the previous prices can be established; (3) using parametric methods such as dollars per pound or other measurement units; (4) comparing offers to competitive published price lists, published market prices, and discount or rebate arrangements; (5) comparing proposed prices with independent government cost estimates; and (6) comparing proposed prices with prices obtained through market research for the same or similar items. The FAR allows contracting officers to ask contractors to provide (when needed) sales prices for the same or similar items, an explanation of their discount policy, or cost data (but not certified cost and pricing data). Thus, the range of actions called for in the FAR covers many of the practices employed by airlines, including analyses of price histories, market research, independent cost analyses, and competitive procurement.

Because of concerns about excessive price increases, each of the military services and the Defense Logistics Agency issued additional guidance between June and August 19 on the pricing of commercial items. The guidance cautions contracting officers on the need to fully understand the basis of commercial catalog prices and not assume that prices are fair and reasonable just because they are in a published commercial catalog. The guidance also stresses the importance of negotiating prices when buying commercial items.

In practice, contracting officers tend to rely to a significant degree on competition to ensure price reasonableness. About 42 percent of fiscal year 1998 contract dollars spent on commercial spare parts for aircraft were awarded through full and open competition. In contrast, only 9 percent of contract dollars spent on noncommercial aircraft parts were awarded through full and open competition.

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While the FAR and other guidance allow the use of a variety of other practices to ensure price reasonableness, contracting officers tend to rely on a more limited range of practices. In our June 1999 report, we discussed the extent of price analysis performed by DOD contracting personnel when procuring commercial sole-source items. We reported that in 33 of the 65 purchases we reviewed, price analysis consisted of comparing the offered price with an offeror's catalog or price list and/or with the prices the government previously paid for the same or similar items. Contracting officers accepted the offered price in 30 of the 33 purchases and negotiated lower prices in only 3 cases. In the other 32 purchases, contracting personnel used one or more additional price analysis tools such as commercial sales information. Contracting officers accepted the offered price in 19 of the 32 purchases and negotiated lower prices in 13 cases.

We also found that the price analyses performed by contracting personnel were often too limited to ensure that prices were fair and reasonable. For example, some contracting personnel believed that when the offered price was the same as the catalog or list price, it could be considered fair and reasonable. In several cases, contracting personnel did not use pertinent historical pricing information (in the contract files) that could have been used to raise questions about the reasonableness of offered prices. In one instance, the offered price increased 548 percent from the price paid 9 years earlier, while in another case, the offered price increased 475 percent. We also identified cases in which contracting officers paid prices that included unneeded services such as rapid delivery. Moreover, contracting officers generally did not include a clause in the solicitation requiring offerors to provide, upon request, information other than certified cost and pricing data, such as sales data or the basis of the offered price, in support of their offered prices. Defense Logistics Agency guidance recommends this clause in all solicitations and contracts for sole-source commercial items.

Of the 65 cases we reviewed, a catalog or list price was available for 48 items. In 10 cases, DOD received no discount, while in the remaining 38 cases, DOD received discounts ranging from 5 percent to 73 percent off the catalog price. The discounts were based primarily on the quantities purchased.

DOD activities are also beginning to make use of long-term agreements to take advantage of the Department's leverage as a large customer. For example, the Defense Logistics Agency uses long-term agreements known as corporate contracts for a number of different engine and aircraft spare

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parts. These contracts aggregate the requirements of one or more supply centers with a single supplier of multiple items. The contracts cover not only pricing but also distribution and delivery services. They may address specific spare parts or include a manufacturer's entire commercial price list. By using these contracts, the Defense Logistics Agency expects to lower its costs, obtain better delivery times, and reduce its customer support infrastructure.

The Defense Logistics Agency makes limited use of surplus parts. It buys such parts infrequently and usually for older aircraft.

DOD policy allows the re-engineering of parts when significant savings can be demonstrated. Officials stated that this is an expensive undertaking and is rarely used. However, DOD can determine how much a part should cost. For example, one Navy unit<sup>6</sup> provides "should-cost" and other price analyses for Navy and Defense Logistics Agency contract officers on request. This unit can also re-engineer simple parts.

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## Agency Comments

We requested comments from the Department of Defense on September 30, 1999. On October 26, 1999, we were told by DOD's Office of Inspector General that DOD concurs with the report and would not be providing further comments. We also shared the draft report with airline officials who had participated in our review. These officials commented that the report accurately captures the set of tools that airlines use to acquire spare parts.

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## Scope and Methodology

To identify the spare parts purchasing and pricing practices of commercial airlines, we contacted 10 commercial air carriers, including the largest passenger and cargo air carriers. We visited three airlines to observe and discuss their spare parts buying operations and contacted the others by telephone. We obtained much of the data through interviews with commercial airline spare parts buyers, purchasing supervisors, managers, and directors. The fleet size of the airlines we contacted ranged from 13 to over 600 aircraft, and sales volumes ranged from approximately \$250 million to \$25 billion.

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<sup>6</sup>Price Fighters Department, Fitting Out and Supply Support Assistance Center, Navy Supply Systems Command.

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In addition, we discussed commercial practices with officials of four aircraft industry trade associations: the Air Transport Association of America, the Airline Suppliers Association, the Aerospace Industries Association, and the National Defense Transportation Association. The first 2 represent 95 percent of U.S. passenger and cargo air traffic and over 200 airline suppliers, respectively.

We also reviewed a comparative analysis of commercial buying practices prepared by Arthur Andersen's Government Services Division to cross-check the information we obtained. The report, titled *World Class Commercial Buying Practices Review for Defense Contract Management Command*, was published September 17, 1998.

We compared the information obtained from commercial airline companies and organizations with the results of a review we recently completed involving case studies of 65 contract actions undertaken at 7 DOD buying centers:

- Air Force Air Logistics Center, San Antonio, Texas;
- Air Force Air Logistics Center, Oklahoma City, Oklahoma;
- U.S. Special Operations Command, Fort Eustis, Virginia;
- Defense Supply Center, Columbus, Ohio;
- Defense Industrial Supply Center, Philadelphia, Pennsylvania;
- Defense Supply Center, Richmond, Virginia; and
- Naval Inventory Control Point, Philadelphia, Pennsylvania.

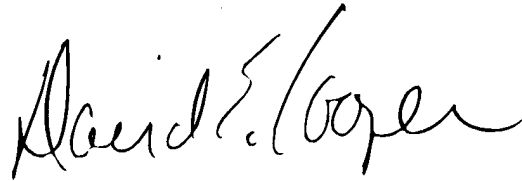
The first six were selected because they were major purchasers of commercial sole-source parts for aircraft. The seventh was selected because it was located at the same address as the Defense Industrial Supply Center in Philadelphia.

We judgmentally selected for review 65 sole-source commercial purchases of over \$100,000 where the price was negotiated during fiscal years 1997-98. For each purchase, we reviewed information in the contract file, including the price analysis and negotiation memorandums, and discussed this information with contracting personnel.

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We are sending copies of this report to the Honorable William Cohen, Secretary of Defense; the Honorable Jacob Lew, Director, Office of Management and Budget; and Lieutenant General Henry T. Glisson, Director, Defense Logistics Agency. Copies will also be made available to others on request.

If you have any questions regarding this report, please contact me at (202) 512-4841. Key contact and contributors to this report are listed in appendix I.

A handwritten signature in cursive script that reads "David E. Cooper".

**David E. Cooper**  
Associate Director  
Defense Acquisition Issues

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# GAO Contact and Staff Acknowledgments

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## GAO Contact

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