



## Selecting A Business Aircraft

*The author, an experienced corporate pilot, offers some suggestions to keep in mind when a company buys its first aircraft for company transportation, or elects to upgrade its current model.*

—  
by

Jack L. King

### Defining Business Aircraft Mission

There are a multitude of options to consider when planning the acquisition of a business aircraft. The proposed speed, number of passengers and length of flights are key factors in making a basic selection, and often these factors must be compromised when budget limitations are applied. The size of the business aircraft budget — whether it involves thousands, hundreds of thousands or millions of dollars — will determine if sufficient funds are available to select the most suitable and efficient aircraft for the proposed mission.

### Evaluate for Safety

Although budget constraints may seriously limit the size, speed and aircraft to be selected for comprehensive evaluation, safety should be the primary consideration. The first consideration would involve the determination of whether the business aircraft will be owner flown, or operated by a professional pilot or crew. Reflecting cost factors, the most important investment any company can make in a business flight operation is a well-qualified professional pilot or crew. (If you are involved as flight crew on the selected aircraft with which you have only limited experience, make sure the transition includes sufficient ground school and simulator training.)

For statistical purposes, business aircraft are classified under business or corporate aviation, depending upon the status of pilot or crew. Business aviation, defined as aircraft flown for business purposes by non-professional pilots, has established a very good safety record, but not nearly as outstanding as corporate aviation aircraft flown by professional pilots. For example, the most recent accident rate statistics for 1987 indicate the rate of accidents per 100,000 miles flown by

corporate operators was only 0.37, compared to 3.25 for business aviation operators and 8.25 for general aviation.

Insurance requirements have been a catalyst in producing the excellent safety records of corporate and business aviation, since much higher standards have been established for pilots operating the more complex, higher performance and substantially more expensive aircraft. Most corporate aircraft insurance policies stipulate minimum flight experience for crews and usually follow up on pilot proficiency training as well as monitoring the maintenance inspection programs utilized.

Some insurance companies have adopted much tighter flight operational requirements than FAA in order to protect their financial interests. Thus, when updating to more advanced equipment, a check of insurance requirements for pilot experience and ratings should be made to determine the amount of additional training or experience needed.

### Mission Varies With Individual Companies

The specific requirements for a business aircraft vary with individual companies. For example, a company involved in transporting large groups may place special emphasis on a large well-appointed aircraft cabin, while another company may anticipate flying only a few top executives and would prefer emphasis on speed rather than cabin size. Knowing the proposed range, whether 300 hundred miles, coast-to-coast or international will also help narrow the selection.

Many companies have requirements to operate into smaller general aviation airports and knowing the specific runway requirements of various makes and models will be very help-

ful. Often secondary airports are much closer to actual business connections and can provide another time- saving bonus to executive passengers.

Specific equipment such as thrust reversers and antiskid brakes are also options which should be seriously considered for short field operations, especially if you expect to operate under adverse conditions. Statistics indicate the greatest percentage of accidents still occur during approach (19 percent) and landing (37 percent). Last year's statistics included 10 turboprop landing accidents that involved failure to extend the gear, caused by a malfunction of the crew rather than the aircraft, and sometimes referred to as having both landing gear and head "up and locked."

## **Selecting Aircraft Best Suited to Requirements**

During the rapid growth of business flying following WWII, the choice of aircraft was limited and many companies had to compromise their flight requirements for range, passenger capacity and speed. Often the aircraft selected did not match the requirements. Even today many corporations do not operate the business aircraft best suited for their needs. You can often witness this mismatch at almost any major business aircraft terminal. For example, it is not unusual to observe a single passenger deplaning from an intercontinental-capable Grumman Gulfstream II after a relatively short flight, while nearby 10 portly passengers may be off-loading from a Beech King Air after flying halfway across the United States.

In most cases the chief executive has the final word in selecting the company aircraft as well as in determining the precise time when it becomes obsolete. This often occurs shortly after a key competitor purchases a later model or higher performance business aircraft! This determination also carries with it the decision whether to replace the obsolete aircraft or keep it as the start of a fleet operation when the new higher performance machine is purchased. Many large flight departments operating a fleet of varying sized airplanes can dispatch a suitable aircraft to match the transportation requirements for each specific trip.

## **Prestige Factor Impacts Buying Decisions**

There is a keen competitive factor which could be compared to "keeping up with the neighbors." For example, if the ABC Gadget Company owns a Learjet, the competitive XYZ Gadget Company may be influenced to purchase a larger Falcon or GII. Since the company aircraft reflects the company's image being projected by management and public relations, the prestige factor is very important.

There is a story related by an aviation consultant who spent several days with a large corporation interested in purchasing its first business aircraft. After making comparative presentations using graphics, slides and volumes of data, the manage-

ment team decided to take several flight demonstrations and the chief executive invited his wife to go along for the ride. At a later meeting the chief executive admitted he was rather confused and asked his wife which airplane she thought the corporation should purchase. "The one with the blue curtains," was her reply and the one finally contracted for by the company.

Any business aircraft reflects an image of the company operating it and it is certainly good public relations to provide all passengers with first class air transportation at least equal to their major competitors. To some the choice of the interior design — including the blue curtains — is an important part of this image.

This competitive corporate image has been a major factor in upgrading equipment from piston twins to turboprops and ultimately to the bizjet. Later updates normally involve larger sized or later models. Often a company will stick with one line of aircraft, such as Beech, Falcon, Cessna or Grumman, but most upgrade to a specific need which broadens the selection to include some excellent models built worldwide and even new and used airline transports. Several studies conducted by U.S. National Business Aircraft Association (NBAA) indicate that companies from the top one thousand companies list who own aircraft, perform much better than those who don't.

## **Option: New or Used**

Since many companies follow the pattern of upgrading equipment, there are many excellent machines available on the used business aircraft market. I know of a broker who sold the same Learjet five times as each previous owner upgraded to a higher performance or larger bizjet. Occasionally a corporation will bypass the upgrading pattern and start its flight operation with a multimillion dollar aircraft, as did Dow Jones several years ago when it started with a Gulfstream II.

In recent years there have been great advances made in technology, not only in aircraft airframes and engines but also in associated systems and avionics equipment. New navigation systems, flight directors, weather radar and instrumentation displays have made previous systems obsolete. Thus, if a company purchased a used aircraft with obsolete equipment, even at a real bargain price, it might find it necessary to spend a substantial additional amount just to upgrade the equipment. In addition, if the engines are due to have a hot section or major overhaul, this will also result in additional major expense.

In determining the obsolescence of the aircraft and equipment, it might be advisable to remember the old adage of "Do not be the first upon which the new is tried and neither be the last to cast the old aside."

Obviously, running airframe and engines beyond recommended times for inspection or overhaul can be detrimental to safety. When evaluating any used equipment, make sure the

logs, airworthiness directives and all paper work are up to date.

Corporations operating a fleet of business aircraft often have adopted computerized progressive maintenance programs that require frequent inspections and replacement of various components on a flight time basis rather than waiting for a failure to occur before a replacement is made. Safety is enhanced when maintenance is performed on a progressive system, so when evaluating a specific used aircraft for purchase it is advisable to determine the type of maintenance program that has been utilized. You can readily confirm this status if you inspect the file covering all components on the aircraft.

## **Service and Training Support Must Be Considered**

When considering a new or used business aircraft it is advisable to determine where you will be able to obtain specialized approved service as well as parts. There are several makes and models of complex high performance turbine powered business aircraft on the market that are no longer in production and, in a few instances, the manufacturers have been acquired by another corporation or conglomerate. Usually at least one fixed base operator specializes in supporting these "orphans" — Sabreliners, Jet Stars, Jet Commanders, etc. — however, the location may not be convenient for the flight operation. Some operators hire their own mechanics and do most of their routine maintenance in-house.

Several major manufacturers have factory approved service centers located in various geographical areas. In many cases a specialized pilot training center, such as FlightSafety International, is located adjacent or nearby the service center. This arrangement works very well, since the required recurrent pilot proficiency training can be scheduled and combined with maintenance service on the aircraft. Even when the crew is not due for simulator or ground school scheduling, there are other training aids, such as video tapes, which can make the waiting time beneficial while specialized maintenance is being performed. Several major airlines also offer specialized business aircraft maintenance and crew training.

Flying any business aircraft without passengers is obviously a non-productive business operating cost, but it is often required when dropping off or picking up business executives. The necessity for frequent long-range round trip deadheading flights for routine maintenance should be considered when selecting any company business aircraft. If a chief executive wants a specific aircraft this would not be a determining factor and you might justify the deadheading expense as additional crew training!

## **Concept of the Business Aircraft Well Established**

The rapid growth of business flying did not occur until shortly after WWII when both military surplus aircraft and surplus pilots could be purchased cheaply. Since then the cost of

acquiring a top-of-the-line model business aircraft has skyrocketed from under \$200,000 (all prices in U.S. dollars) to 16 million dollars. For example, a deluxe converted military surplus DC-3, with all the latest equipment, could be purchased for about \$175,000 during the post-war era. Nowadays, the deluxe wide-bodied bizjets, such as the Gulfstream II, III and IV, Falcon 50 and 900 and Challenger 601 carry price tags of 12 to 16 million dollars!

The success and rapid growth of business flying can be attributed to efficient utilization of the company owned aircraft. This concept is a genuine timesaving tool of management. Executives have learned from experience that the scheduled airlines cannot compete with the timesaving benefit of their company business aircraft, and are willing to accept the higher costs in return for increased productivity. Perhaps the most valid way of justifying the higher per mile cost of operating a business aircraft can be by simply comparing the hourly value of an executive's time saved when compared to traveling by scheduled airlines or other modes.

The business aircraft presently in use can be classified by the three generations of engines used for power: piston engine, turboprop and turbojet. Several of the late model piston powered light twins are pressurized and have turbocharged engines, allowing efficient high-altitude cruise similar to the turbine powered machines. Piston twins, turboprops and jets are further grouped by size: small, medium and heavy or wide-bodied. You may overhear ramp personnel refer to the larger group as "big iron" and smaller jets as "executive mailing tubes."

## **Power of Advertising Can Be Misleading**

If you depend upon aviation trade magazines to help keep abreast of the latest developments in business aviation, I can assure you that you will likely not see a negative report, especially when the publication is carrying an advertisement paid for by the manufacturer. I served as a part-time managing editor of a major U.S. aviation trade magazine for over a decade and observed several publishers promising favorable "puff" editorial coverage of a business aircraft or product in return for an advertising contract. In journalism, this procedure is referred to as "prostitution of editorial content" and most publishers avoid this type of involvement.

Since all aviation trade publications carrying advertising depend upon this revenue to stay in business, it is obviously in the publisher's best interest to avoid any editorial material that might reflect negatively upon the advertiser's product. With this in mind, don't always expect to obtain a genuine objective report when reading some trade publications; there is a definite tendency to accentuate the positive and eliminate the negative in editorial coverage relating to any advertiser's products.

## **Sales Data Can Be Stretched**

In checking the specifications of various business aircraft it is not unusual to encounter easily overlooked discrepancies in

the manufacturer's sales literature. For example, the sales brochure may proclaim that a specific model can carry a dozen passengers and fly for 2,000 miles. This is a correct but misleading statement, since there is no mention that the aircraft could do both at the same time. After making a rough computation you may discover that it would take two separate flights to fulfill this claim, since the aircraft would be over-grossed with long-range fuel and more than a couple of passengers. Be alert for possible loading configurations that would require trading off either passengers for fuel or vice versa.

Range is an important factor in flight planning any trip and should be calculated under various loading and wind conditions. The sales literature of some manufacturers gives the maximum range of their models as the absolute VFR distance when fuel exhaustion would occur under ideal conditions. Most manufacturers of turbine-powered business aircraft have adopted NBAA's realistic formula of computing to allow for fuel to fly to an IFR alternate in determining the maximum cruising ranges.

In contrast to aviation trade publications, I discovered one publication, *Aviation Consumer*, Riverside, Conn., U.S., does provide an excellent source for evaluating general aviation aircraft. This publication does not accept any commercial advertising and depends upon revenues from paid subscriptions. This allows them to evaluate objectively the safety record of any general aviation aircraft and related equipment. Their consumer reports tabulate the accident rates, structural failure incidents and record of engine failures and other malfunctions experienced with most single and light twin models. This provides an excellent source of information when selecting a general aviation aircraft.

Unfortunately, these reports do not cover the larger turbine-powered equipment used by corporate aviation. For the safety records on the more complex high-performance equipment, one needs the services of an experienced consultant.

## **Pilot Input Needed In Selecting Aircraft**

During the past four decades I have witnessed and have been a part of the rapid growth of business aviation. I believe there is still a serious need for standardization among the many com-

panies operating aircraft for business. In many cases employment security is lacking and there are wide variations in pilot compensation. It is not unusual for a chief executive to pay someone more for managing his money than for someone responsible for his safety.

By requiring higher minimum pilot standards and recurrent training, insurance companies have been a major factor in enhancing the excellent safety record established by business flying. Since, by choice, the average corporate pilot will probably never be represented by a labor organization, there is little chance his compensation will ever reach that of a senior airline captain. The average corporate pilot has a much broader area of responsibility, with less regimentation, than his airline counterpart. A business flight operation might be compared to operating a small airline connected by telephone.

In contrast, the average airline pilot would not be involved in making recommendations to management in the selection of a company aircraft. Most corporate pilots are respected by management and with all options considered, most of the pilots agree that they are experiencing a rewarding career. From past experience I recommend that you keep constantly abreast of all technology advancements in corporate aviation so you will be able to make an intelligent recommendation to management when they decide to update the company aircraft. ♦

## ***About The Author***

*Jack L. King was co-founder of "Professional Pilot" magazine and served as part-time managing editor for 11 years. He has written articles for many aviation publications and is author of two books, "Corporate Flying" and "Wings of Man, The Legend of Captain Dick Merrill," which was voted the top non-fiction aviation book of 1982 by the Aviation/Space Writers Association.*

*King has accumulated more than 20,000 hours since 1939, served as a corporate chief pilot for over three decades and although semi-retired, actively flies a Cessna Citation on a part-time basis. He holds ATP, CFI and A&P certificates, and was a designated U.S. Federal Aviation Administration (FAA) Flight Examiner for several years.*

## **ACCIDENT PREVENTION**

**Copyright © 1989 FLIGHT SAFETY FOUNDATION, INC.**

Articles in this bulletin may be reprinted in whole or in part, but credit must be given to Flight Safety Foundation and *Accident Prevention*. Please send two copies of reprinted material to the editor. • The suggestions and opinions expressed in this bulletin belong to the author(s) and are not necessarily endorsed by Flight Safety Foundation. Bulletin content is not intended to take the place of information in company policy handbooks and equipment manuals, or to supercede government regulations. • Unsolicited manuscripts must be accompanied by stamped and addressed return envelopes if authors want material returned. Reasonable care will be taken in handling manuscripts, but the Flight Safety Foundation assumes no responsibility for material submitted. • Subscriptions : \$50 U.S. (U.S. • Canada • Mexico), \$55 U.S. Air Mail (all other countries), twelve issues yearly. Staff: Alisa Joaquin, editorial assistant; Jacqueline Edwards, word processor. • Request address changes by mail and include old and new addresses. • Roger Rozelle, Editor, Flight Safety Foundation, 2200 Wilson Boulevard, Suite 500, Arlington, VA 22201-3306 U.S. • Telephone: 703-522-8300 • Telex: 901176 FSF INC AGTN • Fax: 703-525-6047