

*Formula is developed that enables you to determine whether  
it's more economical to operate your own aircraft,  
take scheduled airliners or go by automobile*

# When To Buy A Business Airplane

*by* NORMAN JACOBSHAGEN

**S**o you're wondering if you can afford to use an airplane in your business! A lot of other businessmen are wondering the same thing. And it's a shame. Because while they're sitting around wondering, business competitors are out enlarging their area of operation, making increased use of specialists and management members, building new business and gaining many other advantages through use of business aircraft.

The reason for this indecision seems to lie in the fact that so many businessmen feel aircraft are such an unknown quantity. They feel there is nothing solid on which to base a decision. While this was true only a few years ago, the situation has changed. Aircraft companies have done a lot of thinking and a lot of research on the problem. Now information, figures and charts are available to tell in short order if an airplane can justifiably fit into your operation.

The answers stemming from this information are not based on day-dreaming, vague generalities of prestige or wishful thinking. They are based on the same hard facts that would enter into a decision on buying a typewriter, accounting machinery or a hydraulic press.

For example, Cessna Aircraft Company has come up with a brilliantly conceived analysis of three different kinds of travel—automobile, airline and business aircraft—which evolves into a formula giving the "value per mile" of a business plane to all those

in your company who travel.

First, Cessna assumes you are interested in the time it takes to get from your downtown office to the downtown office at your destination—not just the time from airport to airport. When traveling by automobile, 50 m.p.h. seems to be a very conservative average speed. In some areas it is probably less.

Airline average speeds are complicated by the necessity of limousine or taxi travel to airport, checking in early, waiting for departure, gathering baggage at the end of the trip and transportation to the downtown area. Experience indicates it is fair to tack on an hour at each end of the trip. This is an addition of two hours to the actual airline flight time.

Because you can drive directly to your plane and there are no baggage handling problems, 30 minutes at each end of the trip have been added to private plane travel to arrive at an average speed.

Further complications are added when the town in which you live is considered. Cessna has solved this problem by putting all cities into six classifications. One of these six will come very close to describing the city in which you live. They are: 1. Hub city—has the best possible airline service to everywhere. Example: Chicago. 2. Industrial satellite—has local or feeder airline service with connections to a hub city. Example: Rockford, Ill. 3. Industrial satellite—has no airline connections to a hub city. Surface transportation is necessary to a hub city airport. Example:

Kankakee, Ill. 4. Main airline route city—has good airline connections in several directions but changes required en route to many destinations. Example: Wichita, Kan. 5. Satellite route cities—have local or feeder line service to route cities. Trips require one additional change before reaching many destinations. Example: Ponca City, Okla. 6. Industrial city with no airline connections. Requires surface transportation to nearest airline stop and such stops usually have minimum service. Example: Galesburg, Ill.

From each of these six base cities, Cessna has determined the best scheduled flight time to a list of 95 other cities selected from Rand-McNally's commercial atlas.

Average speeds were plotted on six charts, each representing a base city. An additional curve representing an average time to *all* cities was also plotted. From these charts, you can pick a city most nearly like the one in which you live and do business. By looking at the curve you can arrive at an average speed for traveling from your base of operations to the downtown area of any other city.

Let's suppose for example that you live in a city similar to Wichita, Kan., that most of your trips are to medium-sized cities and that the average trip length is 400 miles. Despite high airspeeds you find your average airline downtown-to-downtown speed is only 68 m.p.h.

A seventh chart is available which shows the average speed of all the

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## Business Plane

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Cessna airplane models for trips of any distance. From this chart you find you can make the same trip mentioned in the preceding paragraph at an average of 95 m.p.h. This is in the slowest model that Cessna produces. In the fastest model you would average about 132 m.p.h. And remember, this is from downtown to downtown.

These figures assume that your trip by private plane would be scheduled to leave at the same time as a scheduled airline flight. It does not show an important advantage of being able to go when and as you please. This "head start" factor becomes an element of consideration later in the Cessna formula.

Up to this point you have considered only a saving in time. Now we want to change this into money value.

In order to calculate your value per mile or the expenditure you can justifiably make for a business plane, it is necessary to answer seven questions.

(1) What is your base city?

(2) Where do you go? Select the most appropriate of the following classes of destinations:

- a. Major metropolitan areas (500,000 and up)
- b. Middle cities (100,000 to 500,000)
- c. Small cities (20,000 to 100,000)
- d. All cities

(3) What is the average stage length or leg of your business trips in miles?

(4) How many people per trip?

(5) What is the annual and hourly dollar value of each traveler's time? This should be the value of the man's time to the business, not simply his salary.

(6) Time advantage of "Head Start." Is it worth one hour, two hours, three hours per trip, to go "when you please"?

(7) Volume of travel needs? Miles per year per airplane?

Be sure you use your own figures in answering these questions—figures that you believe you can back up as being entirely realistic.

You are now prepared to find how much you can justifiably spend for a business aircraft, a figure we defined above as the value per mile (VPM) of the aircraft to you. It is clear that you can justify the present cost per mile of your transportation by airline or automobile plus the dollar value per mile of any time saved using your own business plane.

The following two formulas will show what this figure is in your particular circumstances. An amount representing the cost of owning and operating the business aircraft must then be subtracted from your value per mile before you know whether you will obtain a real saving.

### Airline or Business Aircraft?

$$VPM = \frac{HTV}{S} - \frac{HTV}{S'} + F + \frac{HTV \cdot HS}{D}$$

When:  $HTV$  = Total hourly value of

traveler's time

$S$  = Airline downtown-to-downtown speed in m.p.h.

$S'$  = Cessna's downtown-to-downtown speed in m.p.h.

$F$  = Total airline fare per mile for all travelers

$HS$  = Hours of "head start" (time advantage computed by company)

$D$  = Distance in miles

A similar formula may be used to compare the business airplane and the automobile, when  $C$  stands for cost of auto travel per mile.  $S$  in this case stands for the downtown-to-downtown speed in m.p.h. of the automobile:

$$VPM = \frac{HTV}{S} - \frac{HTV}{S'} + C$$

Incidentally, one other chart will enter your computation, a graph showing the operating costs of various Cessna models. [Available from Cessna.—Ed.] This cost figure includes depreciation, assuming sale after four years of ownership with a 40 to 45% residual value as well as cost of complete insurance, hangar, complete maintenance, gas and oil, and pilot cost if any is indicated. Figures are adjusted for the number of hours the aircraft is flown during the year.

Let's work out a sample case using the "172" and hypothetical figures for which you may substitute your own data:

### Cessna Versus Airlines

(1) Base City: **Pittsburg, Kan.** (Work it out with your city)

Comparable to:

Chicago	Rockford	Kankakee
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oklahoma City	Ponca City	Galesburg
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Destination:

Major Cities (500,000 and over)	Middle Cities (100,000 to 500,000)
<input type="checkbox"/>	<input checked="" type="checkbox"/>
Small Cities (20,000 to 100,000)	All Cities
<input type="checkbox"/>	<input type="checkbox"/>

(2) What is the average leg in miles of your business trips? 400

(3) Figure the total effective hourly dollar value of the travelers' time on an average trip. This figure will be the hourly value to the company of each man, multiplied by the percent of trips he takes in the airplane.

For instance:

1 man @ \$15,000 per year ÷ 2,000 (working hours in year) = \$7.50  
 \$7.50 times 100% (he's on board on all trips) = Effective hourly value \$7.50  
 1 man @ \$10,000 per year ÷ 2,000 = \$5.00  
 \$5.00 times 50% (he makes half of the trips) = Effective hourly value 2.50

- (4) Add these effective hourly values. \$10.00
- (5) Find the average number of persons per airplane trip (total load factor). 1.5
- (6) Set a value in hours on getting the "head start" in a private plane. 1.5
- (7) Figure the total number of miles your men would travel in a year in one airplane. 40,000
- (8) Airline fare @ .08 cents per mile times total load factor (This is the total airline fare per mile) .12
- (9) Airline speed (downtown to downtown) 57 m.p.h. (from Cessna charts)
- (10) Cessna speed (downtown to downtown) 96 m.p.h. (from Cessna charts)

Now with the data you have tabulated above you are ready to solve the formula:

**Solution of Formula**

$$VPM = \frac{HTV}{S} - \frac{HTV}{S'} + F + \frac{HTV \cdot HS}{D}$$

Airline downtown to downtown speed .....	57	\$10.00*		
Cost per mile of traveler's time in airline .....			.175	
Airline fare (total per mile—all travelers) .....	add		.12	
Total true cost per mile of airline travel .....				
			.295	
Cessna speed .....	96	\$10.00*		
Cost per mile for traveler's time in Cessna .....			.104	
Subtract this from airline cost per mile for basic VPM of the Cessna v. airline .....				
			.191	

\*Total hourly time value

This means that you could justifiably spend at least \$.191 per hour for business aircraft. The figure may now be corrected for the "head start" factor the private aircraft provides.

Head start factor =

$$\frac{\text{Total hourly time value} \times \text{Hours of head start}}{\text{Trip distance (miles)}}$$

Miles per trip .....	400	\$10.00*		
Hourly head start factor per mile .....			.025	
Hours of head start factor .....	×	1.5		
Total head start factor per mile .....			.0375 or	\$.038
Basic VPM (figured above) .....	add		.191	
Total VPM (versus airlines) .....			.229	
Cost per airline mile (Cessna 172) .....			.108	
(From cost curves)				
Difference per mile (saving) .....			.121	
Usage (miles per year) .....	×	40,000		
Annual dollar savings (vs. airlines) .....			\$4,840.00	
(This does not include the benefits of airplane usage)				

\*Total hourly time value

The \$4,840 final figure is not just the amount of money this sample company can afford to invest in an airplane each

year. It is the amount saved over and above all the advantages that were enjoyed. In exactly the same way you can compare a private plane against the automobile.

You must understand that the above figures do not take into account such expense figures and extra hotel bills, meals, entertainment, and other items that go with other forms of travel. If you can save on these items, your value per mile goes up. Of course, if these expenses increase, the VPM goes down.

The same information we've just arrived at can be worked out for each of the different models that Cessna produces. In some cases it might show that their most expensive, twin-engine airplane can be justified from an accounting standpoint. In other cases it may show that the lowest priced model is the only one that can be justified. And in some cases it is shown that companies would not be justified in owning an airplane of their own.

Beech Aircraft Corporation takes a tax approach — applicable to any airplane. Assume a 52% tax rate. Through any one of three different methods—declining balance method, sum of digits method, straight line method — your company can depreciate a \$25,000 airplane over a five year period to a residual value of \$5,060 or approximately 20% of the purchase price. Under these conditions the cost of the plane, after tax savings, can be computed as follows:

Original purchase price .....	\$25,300
Less tax savings over a five year period .....	10,525
Cost after five years .....	14,775
Less book value of plane .....	5,060
Ultimate cost of the airplane .....	9,715
or just under \$2,000 per year.	

However, this is not Beech's only method of helping you to pick an airplane for your business. They have a travel analysis folder which is very simple to fill out. With it you can quickly determine Beech traveling time as compared to your present travel time. They also have folders with very complete cost figures on all their models including depreciation, insurance, operating costs, maintenance, etc. By assigning a dollar value to the traveling time of you and your staff it is simple arithmetic to determine whether you can save money, break even or spend additional money to own and operate your own airplane.

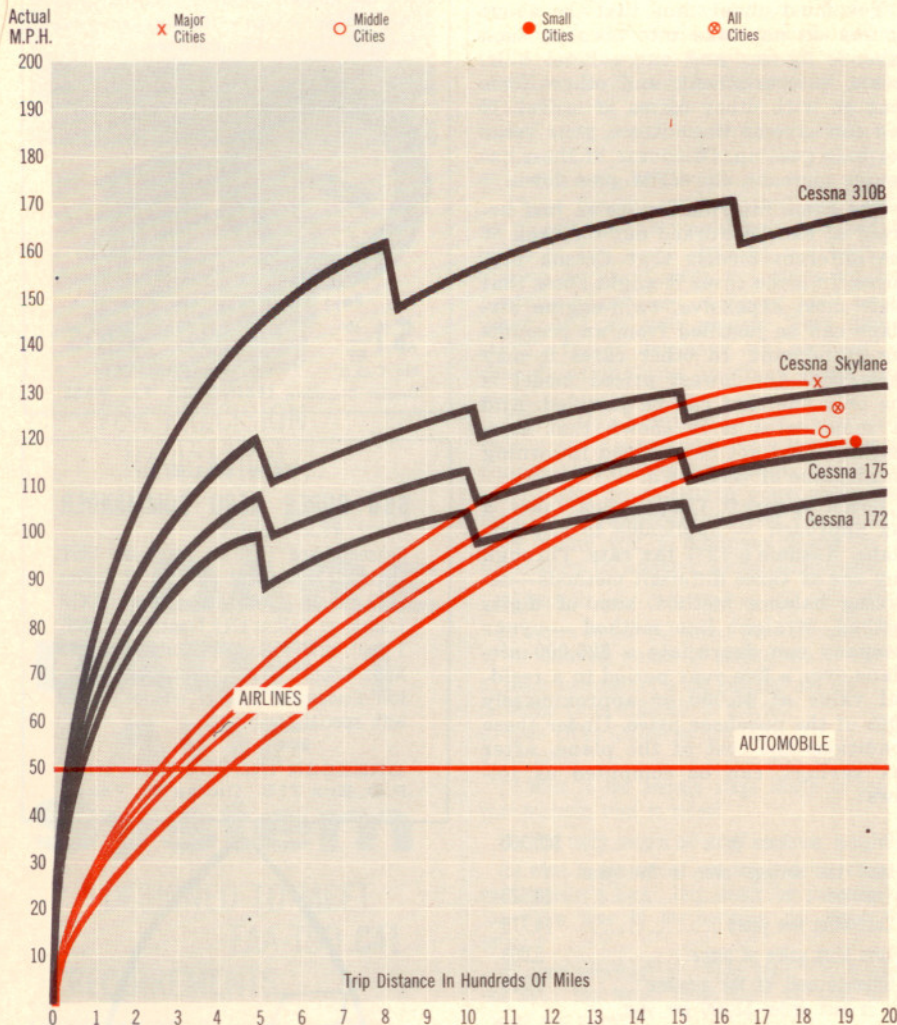
Believe me, there's no hanky-panky about these figures. The beauty of each presentation is that they're based on *your* figures . . . and you can be as conservative as you please.

Most aircraft companies also have leasing and financing plans that make it easy on you as a purchaser of an airplane. If you've been reluctant to tie up working capital, there's no need to hesitate. For leasing plans are available that do not require a large investment. And, of course, in the case of many

## Comparative Airline and Business Aircraft Speeds

From Base City—Ponca City, Okla.

To



This chart shows comparative downtown-to-downtown speeds of private and airline transportation from a typical satellite city having local airline connections to larger route cities. Best scheduled flight time is charted, plus a standard time allowance for getting to and from the airport. It will be seen that for all trips of less than 900 miles from this base city all business aircraft plotted are faster than the airlines. Cessna has similar charts for base cities having both better and poorer airline connections.

companies, there is a tax advantage because lease payments on business airplanes are fully deductible as a business expense. It is estimated that your tax savings will normally return more than half of your investment. Financing plans can also help you conserve capital funds by spreading acquisition costs over periods as long as 48 months. These financing plans are generally designed for use with the depreciation method most favorable to your company and are based on down payments as low as 20%.

The foregoing indicates pretty conclusively that a little careful study and analysis can soon show whether you can afford a business airplane in your business. But it is not wise to fall into the trap of believing these are the *only* considerations. There are such things as collateral advantages. These are illusive items and only you can put a value on them. But no matter how vague they

may seem, you are doing yourself an injustice if you fail to give them proper consideration and put some kind of value on them.

How much is it worth to you or your employees to be home relaxing with families instead of spending cheerless and discomforting nights in hotels and motels? How much oftener will your department heads make those important trips to give personal supervision that they now put off because they "just hate to make that trip"? How much can you expand your business by being able to reach out into new areas? How much further can you stay ahead of competition by being there "fustest with the mostest"? How much would it be worth to you to extend the area of influence of your important men rather than hiring additional personnel as your business grows?

These, and many other collateral advantages that you can probably think

of, can be just as important to business profits as the more specific figures that most aircraft companies can give you. A good example is a small, family-run company. The two sons were in the Air Corps during World War II. When they returned to join the business they wanted an airplane. Almost any way the father, head of the business, looked at the request, an airplane could not be economically justified. However, fathers build businesses for their sons. As he admitted, "Anything the boys want, I'll give 'em." Within two years he suddenly realized that the airplane had been paid for several times over because they had branched out into an area difficult to reach by public transportation.

Another such example is a small printing firm. An interest in aviation caused the young president of the company to start flying. He became so enamoured with it that by dint of good salesmanship and without the benefit of any real specific advantages he sold his board on approving purchase of a plane. After 18 months, increased business that came as a result of "getting there faster and giving better service" had more than paid for the airplane.

A home builder who took up flying purely as a sport discovered that he was able to keep projects going in two cities nearly 200 miles apart. This would have been impossible without adding a \$15,000 or \$20,000 a year man to his staff.

To recap: Make a careful analysis of your present travel in terms of hours spent. Find out how many hours you can save by owning and operating your own airplane. Apply an hourly value to the men who are traveling. This is the key figure. Then get the cost of owning and operating the various types and models of airplanes. All these figures can be furnished by any aircraft salesman worthy of the name. It may be that a two-place \$7,000 airplane is the answer to your particular operation. It's even possible that you may be surprised to find that you can afford to own and operate several light airplanes or even one of the larger multi-engine aircraft.

This much is certain. You are doing yourself no favor by sitting and wondering if an aircraft can play a part in your business. Competition these days is tough. You need to take advantage of every business tool that is available. It just may be that an airplane can be your answer to more sales, more efficient operation, less investment in expensive personnel — in other words, a more profitable business. You owe it to yourself to call in a reputable aircraft salesman and find out. END

### THE AUTHOR

Norman Jacobshagen, author of "When To Buy A Business Plane," first soloed in an OX-5 American Eagle in 1938. Presently, he is sales promotion and advertising manager of Kansas Gas and Electric Company, located in Wichita. In his spare time, he does weekend instructing and freelance writing.