



An Aviator's Field Guide to
**Owning an
Airplane**

Practical insights for successful
aircraft ownership

Jason Blair

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Practical insights for successful aircraft ownership*
by Jason Blair

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Introduction

So you just bought an aircraft, or perhaps you have owned one for a while. In either case, this doesn't mean you know everything there is to know about owning an aircraft, maintaining it, and what you can do with it! Although I don't know everything either, I do have a great deal of experience and knowledge gained from years of aircraft ownership and helping advise clients and friends through their purchases and ownership of aircraft. I hope that by sharing what I've learned, it may help you discover a few new tricks or avoid pitfalls that I—and my customers—have experienced over the years. We all can learn from our mistakes and those of others!

Aircraft ownership certainly comes with benefits. It allows an operator to travel and to see the world in a way that goes beyond the experiences of others who are limited by being bound by gravity to the Earth's surface. Even people who travel via commercial aviation or who rent aircraft periodically find themselves more limited than those of us who own aircraft and can use them at will.

Aircraft owners may think about travel in a different way than the majority of the population. Owners are not encumbered by the thoughts of long travel requirements to get to faraway locations. Considerations of how early to arrive at the airport ahead of time to accommodate for check-in or security checkpoint inspections are things of the past. And because of the large number of airports that can be used, aircraft ownership vastly increases the locations to which an owner may travel in relatively quick periods of time. Aircraft become machines of time travel reduction, business tools, or just ways to enjoy looking down at the earth on a sunny Saturday.

The joys of aircraft ownership stem from their utility and the fact that they let us do something our natural bodies were never

intended to do. We can defy the restrictions of gravity and expedite travel times by going more directly and quickly than is possible with other modes of transportation.

However, with these joys come responsibilities, expenses, and challenges that owners must address to keep making these benefits possible. Ownership requires the consideration of maintenance requirements, fixed and relative costs, management of documentary requirements, and planning for future needs of the aircraft. These considerations and the challenges they present go well beyond what most pilots are taught during their initial, or even advanced, flight training activities. The reason is that most pilots are taught to be pilots, not owners. There is a difference.

A good owner knows how to properly manage an aircraft to keep it safe and in service. An aircraft that is not able to be flown is of no good to its owner. It just becomes an expense without providing any of the benefits that should come with ownership.

Whether you are a first-time owner or someone who has owned a few aircraft previously, there most likely is information that can help you be a better owner but that no one has ever shared with you. An aircraft is a big investment. I want you to get the most out of your aircraft, protect and maintain it to the best of your ability, and enjoy the utility it provides.

The content in this book is not intended to make you a better pilot. It is intended to make you a better owner.

Now that I have provided this short introduction, let's move on to discuss the many topics that can make your aircraft ownership experience the best possible.

Chapter 1

The Real Cost of Ownership

The initial purchase cost is not the only cost associated with owning an aircraft. While most owners understand this before they purchase an aircraft, not all owners really calculate the full costs associated with ownership. Some of these costs are easy to overlook and exclude in personal or business budget considerations, but it is worth it for owners to take the time to fully evaluate what the financial footprint of aircraft ownership really will be.

Hopefully you did some of this evaluation before you chose to purchase an aircraft, and perhaps you are an old hat at this. But if not, some of the considerations in this chapter will help you better understand the real costs of owning an aircraft.

Let's start by breaking down the costs of aircraft ownership into three major categories. These are:

- Fixed costs
- Variable costs
- Unexpected costs

The fixed costs include costs that will not change based on how much you use the aircraft. They are expenses that occur whether you fly 300 hours in a year or don't fly the aircraft even one hour. These include costs such as hangar rent or utilities, annual registration fees, insurance on the aircraft, and to some degree, the annual inspection.

Variable costs include the fuel used on a per-hour basis, the number of oil changes that will be completed, perhaps some level of reserve for various future expenses such as engine or propeller

overhauls, and any other periodic costs that are encountered based on actual usage hours of the aircraft.

Unexpected costs are the hardest to account for in an aircraft operating budget. For our purposes here, we will assume that the aircraft keeps running properly with a normal course of maintenance, but it is worth considering some amount of additional operating reserves since components do break on aircraft over time.

With that in mind, let's actually go through the effort of considering what a typical general aviation aircraft may cost an owner per year and per hour of operation.

First, in order to really figure out how much an aircraft costs to operate, we also have to realistically consider how many hours it will be flown per year. While many owners fly their aircraft much less, let's assume for demonstration purposes that the owner will fly the aircraft 150 hours per year. With that baseline established, we can compare yearly hours of usage with all the expected costs in order to establish an hourly equivalent cost of operation.

We will also assume that the owner completes an oil change every 50 hours (Figure 1).

Yearly Expected Operation and Oil Changes		Description
Yearly expected operation	150 hours	The expected yearly hours that will be flown.
Oil change increment	50 hours	The expected hours between oil changes.
Number of oil changes per year	3	

Figure 1. Expected yearly hours of operation and number of oil changes.

We will then assume we know the fixed costs associated with the aircraft, such as the yearly insurance costs, the monthly hangar cost, and a base annual inspection cost typical for this aircraft.

By doing this, we can come up with a calculation of what these costs will add up to on a yearly basis, and then divide this total by how many hours the owner has used the aircraft.

This calculation provides an hourly fixed cost of operation for the aircraft based on expected usage throughout one year of operation. This can be seen in Figure 2.

Fixed Costs			Description
	Monthly	Yearly	
Storage cost	\$200	\$2,400	Monthly expected hangar, tie-down, or storage rent or cost.
Hangar utilities	\$40	\$480	Monthly expected hangar, tie-down, or storage utilities expenses.
Insurance		\$1,200	Yearly insurance cost.
Annual inspection		\$3,000	Expected cost of an annual inspection for the aircraft.
Total fixed costs per year		\$7,080	The total of fixed costs per year for the aircraft.
Per-hour fixed cost		\$47.20	The resulting per-hour fixed cost contribution to operation that would be required based on the number of hours flown per year (150).

Figure 2. Calculation of fixed cost of operation per hour.

This is significant as we consider the fact that over the expected 150 hours of operation, fixed costs equate to less than \$50 per hour of operation but total \$7,080 throughout the year. Since these costs are fixed, this means that even if the owner did not actually fly the aircraft the expected 150 hours, or in fact didn't fly it at all during the year, the same \$7,080 cost would still be incurred!

Let's move on to consider variable costs that will be incurred as the owner uses the aircraft. Variable costs are those that change in direct relation to operation of the aircraft; the variable cost per hour of operation is constant, but as the aircraft is flown more hours, total variable costs will increase.

Returning to the oil change increments from Figure 1, the expected 150 hours of flight per year, and assuming a reasonable cost of \$150 per oil change, we find that this will add an additional \$3.00 per hour for operational costs. These calculations are shown in Figure 3.

Oil Change Cost Calculation		Description
Oil change cost	\$150	The expected cost of an oil/filter change, including labor and parts.
Number of oil changes per year	3	This is based on the hours of use expected and the desired oil change interval (Figure 1).
Expected oil change expenses per year	\$450	The total yearly cost of oil changes.
Hourly cost of oil changes	\$3.00	The expected hourly cost of oil changes (based on 150 hours of operation per year).

Figure 3. Calculation of hourly cost of oil changes.

Other variable costs include reserve costs, which I encourage all owners to consider—and even actually put funds aside for—as they operate their aircraft. This will allow an owner to plan for major maintenance items such as engine overhauls, propeller overhauls, or avionics maintenance or upgrades. The vast majority of owners don't actually put this money aside in a bank account, although it's a good idea to do so, but they should at least consider reserve costs as part of the real operating cost of the aircraft.

If we start by considering an engine reserve, we would look at the current time on the engine, when the manufacturer recommends that the engine be overhauled, and how much such an overhaul typically costs.

The example in Figure 4 shows a conservative estimate of an aircraft that has 800 hours already on an engine, a 2,000-hour manufacturer's recommended overhaul period, and an expected \$25,000 overhaul cost (including removing the engine and reinstalling it after the overhaul). These calculations reveal that this aircraft should be budgeting \$20.83 per flight hour toward an engine overhaul.

In *An Aviator's Field Guide to Owning an Airplane*, author Jason Blair shares the knowledge and tips he's gained from his many years owning aircraft and assisting numerous customers buy, sell, manage, and maintain their own airplanes. This book incorporates Blair's many years of industry experience as an aircraft owner, active pilot, instructor, and FAA Designated Pilot Examiner to cover the practical details of ownership and offer tips to maximize your use and enjoyment of your aircraft.

You'll discover how to determine the full cost of aircraft ownership, select insurance, consider tax implications, pick an airport to call home, assess and choose aircraft storage, safely move your airplane, manage maintenance work, find and organize important documents, manage and determine the significance of inoperative equipment, evaluate potential modifications for improved performance, upgrade avionics, overhaul or swap an engine, budget for future maintenance, and more. Blair's goal is to help you protect and properly maintain your aircraft so you can get the best use and enjoyment out of aircraft ownership.

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