

The True Cost of Ultralight Instruction



Often I receive telephone inquiries from prospective students who believe they would like to fly ultralights because they are more "affordable" than general aviation airplanes. Unfortunately, the caller is shocked to learn that the cost of ultralight instruction is \$80 per hour for the airplane and instructor.

The typical response is, "How can it cost so much? I thought that ultralight flying was cheap?"

This leads into a lengthy discussion of the relative costs of ultralight flying, versus general aviation flying and other activities. Before getting into the cost specifics, there are a couple of axioms that I'd like to state at the beginning.

First axiom: there is no form of aviation that is "cheap." If you want a less expensive sport, you'll have to take up jogging, surfing, tennis, or maybe bowling.

Relatively speaking, anything in aviation is going to be more expensive than most other endeavors.

Within the field of aviation, there are degrees of expense, depending on the type of flying you're involved in. Flying a helicopter or a personal jet are at the high end of the dollar scale. Flying an ultralight is at the lower end, but it is still not "cheap."

Probably the most affordable way to get into the air is hang gliding. But even hang gliding is not cheap. Hang glider wings today are very sophisticated. And expensive. It's not uncommon for wings to cost \$3000 or more. Plus, there is the cost of driving to the launch site, and the cost of training.

There is also the expense of joining the US Hang Gliding Association, if you want to fly at sanctioned locations. And don't forget the cost of your divorce when your spouse leaves in disgust at your inexplicable newfound craving for danger.

Second axiom: The cost of flight *instruction* is always more expensive than the cost of flying, after you are a trained pilot. The \$80 per hour quoted in the first paragraph is for flight instruction, not solo flight. As we'll see near the end of this article, the distinction between personal flying and flight instruction is significant.

Third axiom: under the right circumstances, ultralight flying can be less expensive than general aviation. Many ultralight advertisements and magazine articles emphasize that ultralight flying is affordable. Is this the truth or not? The answer is "yes," it is true, but *only under specific circumstances*.

Those circumstances are these: you are a pilot, not a student; you purchase your own flying machine (instead of renting); the ultralight you own is a *single-seat*; you do the maintenance and upkeep yourself; you don't buy insurance; and you keep the ultralight on your own property.

If you adhere to the conditions just delineated, then ultralight flying is pretty "cheap." Otherwise, it's not.

How much is "cheap" under these conditions?



You can probably buy a pretty good single-seat ultralight for about \$10,000 brand new. You can buy a used one for less.



The cost-per-hour for fuel and oil is between \$6 to \$10, depending on the size and horsepower of the engine, and whether you operate it at a low or high power setting. The cost for routine maintenance and replacement parts for wear and tear is about \$5 per hour. Routine maintenance includes such things as new spark plugs, oil for the gear reduction drive, and new tires and brakes.

Deferred maintenance costs include engine overhaul, replacement of the wing covering, due to ultraviolet deterioration, and repairs due to hard landings or other abuse, such as hitting a wing against the hangar.



Rotax™ is the most popular ultralight engine. The recommended overhaul time for the Rotax engine is 300 hours. Depending on the size and horsepower of the engine, the cost of the 300-hour overhaul is approximately \$1500 to \$2000. Hirth, 2si (formerly Cuyuna), and other engine manufacturers, have similar overhaul times. The overhaul time is referred to in pilot-talk as the "TBO" (Time Between Overhaul). If the 300-hour overhaul were to cost \$1500, that amounts to \$5 per hour which must be put aside in reserve for the engine TBO.

Let's add up the costs so far: \$6 for fuel and oil, plus \$5 for routine maintenance, plus \$5 reserve for the engine TBO equals \$16 per flight hour.



This \$16 does not take into account the lost income that could have been generated if you had invested the purchase price of the ultralight in something like a Certificate of Deposit (CD), instead of buying the flying machine. If you had put the \$10,000 into a CD paying 5 percent or so, it would have yielded \$500 per year.

A moderately active ultralight pilot typically flies about 100 hours per year. At 100 hours per year, that "lost" \$500 comes to \$5 per hour of flight time.

Add another \$5 to the \$16 and the cost of flying a typical \$10,000 ultralight for 100 hours per year comes to \$21 per hour, or \$2100 for the year.



Most ultralight wings and powered-parachute canopies are made of Dacron. Unfortunately, ultraviolet rays from sunlight causes Dacron to deteriorate. The recommended sunlight exposure is 2000 hours before replacement. This means that if you were to keep your ultralight outdoors, and unprotected from the sun, the fabric would deteriorate in eight months. That's why it's so important to keep the ultralight in a hangar, or cover the wings. (Wing covers cost about \$500.)

The covering on the wing is referred to as a "sail," since it's made out of the same fabric as the sails on a boat. The cost of new wing sails varies greatly, depending on the type of flying machine (a trike vs an airplane, for example), the size of the wing, and whether it has multiple colors or not. However, a ballpark figure for new sails is \$1500 to \$2000. The cost can be even higher, if the airplane *fuselage*, in addition to the *wing*, is covered with Dacron, such as the Buccaneer seaplane.

Fortunately, the life of the fabric can be extended by coating it with a protective paint, such as PPG. This will just about double the lifetime of the fabric. However, the coating itself can be expensive, especially if it's pro-fessionally sprayed on the fabric at a paint shop.



Let's say, for the sake of argument, that you leave your airplane outdoors and without protection (no wing cover or UV-resistant paint). This would mean that you would have to replace the fabric about once a year. At a replacement cost of \$1500, the amount of money that you would have to put into reserve for the new sail would come to \$15 per hour, if you fly 100 hours a year.

Add another \$15 to the previously calculated \$21 per hour, and the total now comes to \$36 per hour, including the direct costs and a maintenance reserve. As I said in the beginning of this article, no form of flying is "cheap."

Of course, if you cover your ultralight or keep it in a hangar, the sails will last much longer. If the only time the fabric is exposed to sunlight is during the time that you actually fly, that means the sails would accrue 100 hours of exposure per year. In that case, the fabric could theoretically last for 20 years, not taking into account deterioration due to pollution in the air or rough handling. The 100 hours of exposure per year would add up to about \$1 for each hour of flight time. The \$36 figure stated in the previous paragraph now drops to \$22, a significant difference.

However, you must factor the cost of the hangar back into the equation. Let's say that you live on a farm, and have your own airstrip for takeoffs and landings. You could buy a so-called "portable" hangar from a company such as Cover-it™ for about \$3000. Keeping your airplane in your own hangar would definitely reduce the wear and tear on your ultralight. Assuming a loss of a potential 5 percent interest on the \$3000 if you had invested the hangar money, that comes to \$150 per year, or \$1.5 per flight hour. Add the \$1.5 to the \$22 in the previous paragraph, and the cost now becomes \$23.50 per hour.

Unfortunately, most people don't live on a farm. Therefore, you will have to *rent* a hangar at an airstrip. That can be real expensive. In some areas in California, hangars go for \$300 per month. A more typical figure throughout the country is \$30 to \$50 per month.

Let's say you can find a hangar to rent for the rock-bottom price of \$20 per month. That comes to \$240 per year, or \$2.40 per hour for 100 hours of flight time per year. Adding the \$2.40 to the previous sub-total of \$22 equals \$24.40 per hour. If the hangar were \$30 per month, the total comes to \$25.60 per hour. If the hangar were the California-priced \$300 per month, the total is a whopping \$58 per hour!

Instead of hangaring the ultralight, if you buy a protective cover for the wings, the cover itself only lasts about two years. That costs about \$250 a year, or \$2.50 per flight hour, which is the same cost as a \$20-per-month hangar.

Covers are not nearly as effective in protecting the airplane, since there seems to always be *some* part of the wing sail which remains exposed to the sun. (Don't forget that you need to cover the tail and elevators, too.) In addition, the wind rubs the cover against the Dacron and causes abrasions. The cover is also a real nuisance to put on and off, sometimes taking up to an hour if it is windy and you are working without someone to help you.

All of these calculations have been based on a theoretical 100 hours of flight time per year. The hourly rate would change dramatically if you flew 200 hours, or only 50 hours. That's why it's difficult to accurately tell someone how much it will cost per hour to fly an ultralight. If you fly several hundred hours per year, the hourly cost could drop to a minimum of approximately \$20 per hour.

We know that the direct cost of fuel and oil is \$6 to \$10 per hour. Add \$5 for routine maintenance, and the minimum hourly *direct* cost is \$11 to \$16.

The rest of the *fixed* costs include the engine overhaul, possible aircraft damage repair, sail replacement, hangar or airport tie-down fees, lost interest income on your purchase price, and the cost of insurance (if you buy insurance).

Other *variable* fees include the initial cost of your training, the extra premium that you must pay to keep your life insurance in effect while flying; driving to and from the airport (which might be a considerable distance away); the cost of flight equipment such as helmets, protective clothing, handheld GPS receivers, portable gas cans, etc; magazine subscriptions; membership in an ultralight organization or club; and so on. And of course, don't forget the cost of your divorce.

The bottom line is that the cost of flying your own single-seat ultralight can vary from a low of approximately \$20 up to as much as \$60 per hour, depending on a confluence of all the factors mentioned earlier. I'd say a reasonable average figure would be \$25 per hour, which is pretty inexpensive by general aviation standards.

Actually, \$25 per hour is pretty reasonable compared to many other sports. Compare it to the cost of ski lift tickets, scuba diving excursions, water skiing, and even hourly golf lessons.

What about the cost of ultralight *instruction*? Remember in the first paragraph when I quoted a figure of \$80 for instruction? Why is it so much?

The reason is because the cost of running a professional flight school is much higher than it is for the pilot who simply flies his own ultralight.

First of all, the flight instructor has all the same expenses as the private owner: fuel, oil, maintenance, sail replacement, tie-down fees, hangar costs, and so on. Add to that the cost of advertising, business and liability insurance, office rental, the business license, record keeping, accounting and tax preparation, and telephone bills. Plus, the instructor has to make at least some profit, or he can't pay alimony to his ex-wife.

In addition, the cost of a two-seat ultralight trainer is much more expensive than a single-seat ultralight. The purchase price of a trainer is \$20,000 to \$30,000. Plus, the cost of maintenance is much higher, due to the large number of bounced landings that students make. Most trainers do not have a strong landing gear suspension system, so such things as bent axles are common. At \$200 per replacement, the bill adds up.

The FAA requires all flight instructors to be a member of, and licensed by, a nationally recognized ultralight organization. The membership fee varies with the different organizations, but it comes to at least \$150 per year. The instructor must also attend recurrent training, which can add up to several hundred more dollars, counting travel and hotel bills.

If the instructor maintains the aircraft himself, he will likely attend an engine maintenance course. A three-day course offered by Rotax costs \$400. Again there is the transportation and hotel expense. If the instructor doesn't do his own maintenance, then he must pay a mechanic to do it. That's a big expense.

The instructor must have much more flight experience than a non-instructor. That extra flight time costs a lot of money. Plus, the instructor must pay for the training required to become an instructor, and pay for an examiner who administers a flight test. It can easily cost several thousand dollars to become an ultralight instructor.

Basically, the ultralight school has all the same expenses as a general aviation flight school. The only expense which is slightly lower is a somewhat less expensive airplane and marginally lower fuel cost.

When a student pays for his flight training he is not only paying for the rental of the flying machine, he is also paying for the instructor's time and skill. Many ultralight instructors actually charge *more* for their instruction than FAA-certified instructors (CFIs) do. Why? Because many CFIs are willing to teach practically for free in order to build up flight time to go to the airlines where they can make the big bucks.

Ultralight instructors, however, have no hope of getting an airline pilot's job, because ultralight instruction cannot be logged as FAA-certified flight time. Therefore, the ultralight instructor must actually make a living from his teaching profession. In my opinion, ultralight instructors are much more likely to be teaching for the joy of flying than a CFI is.

Hopefully, a prospective ultralight enthusiast now has a better idea of the actual cost of owning an ultralight and the cost of obtaining instruction. Maybe someday, we'll be able to strap on angel wings or anti-gravity belts, and be able to fly practically for free. But until then, we'll need to pay the price to experience the exhilaration and freedom of flight.

To me, the price is well worth it.

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