

Ultralight Sourcebook





Ultralight vehicles are fun flying aircraft intended to carry a person into the sky to enjoy flight in a very **safe** and **affordable** manner. Many dream of soaring over open countryside like a bird. Ultralight flying is as close to fulfilling that dream as any other form of aviation.

Ultralight vehicles are simple uncomplicated flying aircraft. This attribute makes them relatively inexpensive, similar to the cost of owning a personal watercraft, snowmobile, or small power boat. Some ultralights can be stored at your home in a garage and transported on a trailer to a suitable flying field.

Flying ultralights is a fun recreational sport!

What Is an Ultralight?

In the United States, an ultralight is considered a vehicle defined by Federal Aviation Regulation Part 103, and limited to the following:

- > Single seat
- > 254 pounds max empty weight if powered with engine
- > 155 pounds max empty weight if unpowered (hang glider type)
- > 5 U.S. gallons max fuel capacity
- > 55 knots (63 mph) max full power flight speed
- > 24 knots (27 mph) max power off stall speed

The FAA's definition of an ultralight creates tremendous freedom compared to other aircraft requirements. For example, ultralight vehicles are not required to be registered with an N number or airworthiness certificated.

Additionally, the pilot of an ultralight vehicle is not required to hold pilot or medical certificates.

Ultralight vehicles can be bought fully built and ready to fly, built from a prefabricated kit of materials, or built from scratch using a set of plans. Great freedom for innovation is available because there is no burden of FAA certification.

Caution: Any aircraft that does not comply with each element of the Part 103 definition provided above is not considered an ultralight; it would be considered an aircraft. As an aircraft, it must have an N number and airworthiness certificate and be flown by a person who has an FAA pilot certificate. As an example, if you want to buy and fly a plane that has a fuel tank with more than 5 gallons, or empty weight more



than 254 pounds, or has a stall speed that exceeds 24 knots or a top speed greater than 55 knots, then this plane cannot be operated under the ultralight Part 103 rules. If it is not N-numbered and airworthiness certificated, it is considered an illegal aircraft and you could be fined by the FAA for flying it.



If you want to fly a plane that exceeds any one of the Part 103 ultralight limitations, then you should become familiar and comply with the sport pilot and light-sport aircraft rules. These rules would be your path to legally fly.



In other countries, ultralights are sometimes referred to as microlights and are regulated differently. In many cases, other countries require pilot and aircraft certification. This sourcebook explains the rules for ultralight flying in the United States.

Safety



Ultralight vehicles are some of the safest recreational aircraft for a number of reasons. Their slow speed, light weight, and recreational use all contribute to the safety of flying ultralights. Slow speed and light weight means short takeoff and landing (STOL), which makes most open fields a suitable landing or takeoff spot in the event of an emergency. Many ultralights have good power-off gliding qualities. In the unlikely event of an engine problem the ultralight can glide to an open field and safely land with its STOL capabilities.

Flight safety requires flight training with a knowledgeable flight instructor. Even though the FAA does not require a pilot certificate to fly an ultralight, you should obtain flight training from a qualified flight instructor.

Types and Flight Characteristics

The FAA does not limit the configuration or type that can be flown as an ultralight. Airplanes, weight-shift trikes, powered parachutes, helicopters, gyroplanes, gliders, hot air balloons, etc. can all be flown as ultralights under the rules of Part 103. Engines used to power an ultralight must be reliable and lightweight and provide adequate power. Most ultralights are powered with two-cycle engines designed for aircraft use. However, there are some that use four-cycle engines adapted from auto or industrial engines.

Flight characteristics of an ultralight can be very conventional and much like any registered larger aircraft. However, some designs are very different and would have different control systems compared to a traditional aircraft. This is truly what makes ultralight aircraft unique in the diversity of safe, fun, and affordable flying vehicles.





The Rules of Ultralight Flying

Ultralight pilots are limited by Part 103 so they don't create a hazard to other people or property. The simple operating rules of Part 103 limit pilots in the following ways:

- > Flight only during the daytime (with a strobe light you can fly during twilight, 30 minutes before sunrise and 30 minutes after sunset)
- > Flight in uncontrolled airspace (with FAA permission you can fly in controlled airspace)
- > Compliance with FAA issued Notices to Airmen (NOTAMs)
- > No operation that creates a hazard to other people or property
- > No flight over cities, towns, or large groups of people
- > Yielding the right-of-way to all other aircraft
- > Flight only during visual meteorological conditions (VFR)

Most ultralights operate from smaller public or private airports where there is no congestion of a city. As the FAA requires, flying ultralights is best enjoyed when flying over open countryside. The FAA allows ultralight vehicles to operate at any public airport that can safely accommodate the ultralight operations.

Can I Carry a Passenger?

No. Part 103 restricts an ultralight to a single-seat vehicle. The FAA does allow you to carry a passenger if you have a sport pilot certificate and are flying in a registered (N-numbered) light-sport aircraft. With 20 hours of flight time and the passing of a knowledge and flight test you can obtain a sport pilot certificate. Sport pilots are allowed to fly an aircraft that complies with the light-sport aircraft (LSA) definition.

How Much Does It Cost?

The cost to build, buy, or fly an ultralight vehicle is less than any other type of recreational aircraft. Their portability can help to reduce the fixed cost of storage.

Learning to Fly an Ultralight

The most important recommendation EAA can make is to find a qualified flight instructor and obtain dual flight instruction in a two-place light-sport aircraft. Aircraft with similar low mass and high drag handling characteristics are ideal. EAA's ultralight website has a listing of flight instructors willing to teach someone to fly an ultralight.

Since the ultralight rules became effective in 1982, learning to fly an ultralight has been accomplished in far less time than it takes to learn in a larger, heavier, and faster aircraft. Typically, ultralights have very stable handling characteristics that make them excellent for new pilots to fly. Light weight and slow flight speeds allow for STOL flight.

EAA recommends that existing pilots transitioning to ultralights from heavier aircraft also would benefit from transition training. There are some different flight characteristics between larger, heavier aircraft and those of lightweight, slow-flying ultralight vehicles existing pilots should become familiar with.

Upon completion of your flight training take advantage of the free EAA ultralight pilot registration program. Although not required by the FAA, when you voluntarily register with EAA you are complying with the self-regulation intent of Part 103.

Fun and Adventure Await You

So if you have ever dreamed about flying, what are you waiting for? Ultralight flying is an excellent option to **fly for fun!** It is safe, affordable and a great way to fulfill your dream of flight. Now's your time to make your dream come true—start your ultimate ultralight adventure.

If you are not already an EAA member, join us and let EAA help you with these programs and resources.



EAA Programs and Resources

The Experimental Aircraft Association (EAA) is a membership association with many programs and services to help members, including:

Flight Training Resources – EAA offers several resources for learning to fly an ultralight including free, downloadable guides and a listing of flight instructors willing to teach someone to fly an ultralight, both available at EAA.org/Ultralights.

Registration Safety Programs – EAA's ultralight registration programs for student, pilot, and vehicle registration support the self-regulation intent of FAR Part 103. EAA members can register free of charge and help ensure the continued freedoms under Part 103.

EAA Ultralight & Light-Sport Aircraft Council – The council consists of EAA members who volunteer their time to share their knowledge and passion for ultralight members' dreams of building and flying ultralights.

EAA AirVenture Ultralight/Lightplane/Rotorcraft Area – Each year EAA hosts the World's Greatest Aviation Celebration, EAA AirVenture Oshkosh. A very special part of the convention grounds, called the Fun Fly Zone, is dedicated to ultralight, light-plane, and rotorcraft enthusiasts and includes a grass runway.

Membership Services – EAA staff members who are pilots and enthusiasts are ready to help answer your questions and help you find the information you need.

Government Representation – EAA's government advocacy team brought together industry and the FAA to create the ultralight regulation Part 103 back in 1982. This continues today; EAA remains dedicated to supporting the ultralight enthusiast and working with the federal government to protect our freedoms under Part 103.

Sport Aviation Magazine – EAA's monthly member magazine. Contained within its pages is *Experimenter*, dedicated to sharing knowledge and building experiences, including reports on the ultralight and lightplane community.

EAA Ultralight Chapters – EAA members form chapters and meet in your local area on a regular basis.

EAA Forums – An online place to share information and ask questions. A section is dedicated to ultralight enthusiasts.

EAA Hints for Homebuilders – Weekly online how-to video tips on all areas of aircraft construction.

EAA Webinars – Online presentations with technical experts, industry leaders, and others provide additional knowledge and information.

To become an EAA member, visit EAA.org/Join or call 800-564-6322



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This guide is intended as a general overview of ultralight aircraft, not a comprehensive guide. For more information, visit EAA.org/Ultralights.

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