

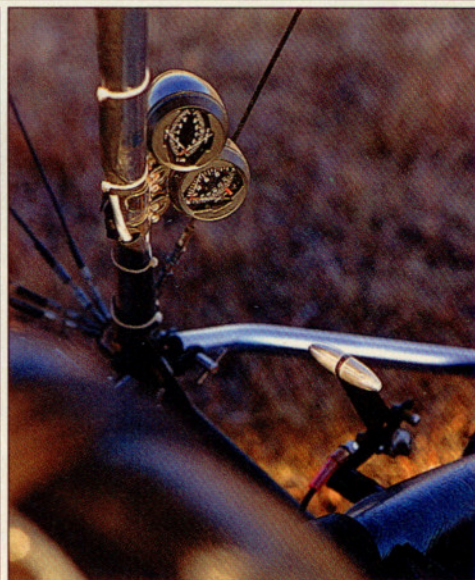
Ultralight Update

Return with us now to the time of basic flying machines—the (early) 1980s.

BY MARC E. COOK

For many, especially pilots of standard aircraft, ultralights are often tremendously misunderstood. To the untrained eye, they can represent some wild, untamed sort of aeronautical aberration. Unsafe and unparented, they represent outlaw flying; something, if you'll pardon the colloquialism, you wouldn't want your daughter riding around in. • Ultralight enthusiasts have endured this misinformation for more than a

PHOTOGRAPH BY MIKE FIZER



decade now. One such enthusiast, John Ballantyne, has heard it for that long and, given his general aviation background, has some perspective on the subject. He is not, it becomes obvious after a brief chat, on the lunatic fringe, as many outsiders consider ultralight fanatics to be. He has seen the sport evolve from a truly grass-roots beginning to an industry experiencing a boom with rocket-like trajectory, only to witness its sudden fall from favor. Today, Ballantyne is president of the U.S. Ultralight Association, perhaps the nation's most vocal proponent of ultralight flying.

His reasons for staying with the sport through thick and

thin are many and varied, but the quality that rises above the talk of safety statistics and regulatory encroachment (or lack thereof) is laced with emotion. Quite simply, he loves the sport and finds the kind of elemental flying experience ultralight aircraft provide unattainable anywhere else.

Ballantyne began flying with his parents in a variety of general aviation aircraft and was encouraged by them to learn to fly. On his sixteenth birthday, he soloed. But life and its many commitments butted into his free time, including flying. After a five-year hiatus from flying, Ballantyne picked it up with a hang gliding lesson with his broth-

ers. Soon, Ballantyne found himself flying hang gliders more and more, moving into instructing to earn money for, what else, more flying. He became a co-owner of a hang glider dealership in the Los Angeles area. By the late 1970s, he became interested in powered hang gliders and flew one of the early ultralights, an Easy Riser.

At the time, the Experimental Aircraft Association, looking to become involved in the ultralight movement, hired Ballantyne to be president of its ultralight department. Eighteen months later, Ballantyne came to the AOPA Air Safety Foundation and AOPA's then-new Ultralight Division to help design training and competency programs. Ballantyne's involvement continued after the Ultralight Division disbanded in the mid-1980s, to his founding the USUA. Through any discussion of the politics of the ultralight industry, and what can be done to promote the sport, one aspect always surfaces in Ballantyne's discourse: enthusiasm. "It's the simplicity [of ultralight flying] that I like," he says. "I find it emotionally appealing. . . it has enhanced my life overall."

You also see the kind of enthusiasm that infuses Ballantyne in places like Perris Valley Airport in southern California. It isn't the prettiest or coolest place in late summer, but the 30 or so ultralight enthusiasts in evidence don't seem to care. Perris is arguably the capital of ultralight activity around Los Angeles, with about

90 aircraft clustered at the south end of the single-runway airport. (Skydiving has a home on the airport, too, with Twin Otters regularly departing.)

In the morning hours, before the oppressive heat and unpredictable winds take over, the ultralights reign supreme. Unlike the typical flying club, where erstwhile young pilots might argue the merits of dropping the gear before or after reaching the outer marker, the ultralighters are more down-home, more concerned with having a good time, seeing something in the Perris landscape they hadn't seen before. As you walk the rows of ultralights, many covered with the inevitable layer of dust and protected (mostly) by sailboat-blue canvas tarps, and talk to the pilots, one word continues to sound in your head: recreation.

General aviation has long been sold on the premise that private use of aircraft is an efficient, relatively economical business tool, whisking the traveling salesman to far more calls than his trusty Chevy. This much-touted utility, as in the ability to travel 250 miles to a meeting and be home in time for dinner, has to some degree cast a shadow on those who simply fly for the sheer pleasure of it.

Those looking for low-cost flying, the kind of aviating where the main intent is to have a good time, often find themselves looking at ultralights. Ultralights aren't traveling machines; they aren't intended to be—in fact, true ultralights cannot operate after dark or under IFR. With very light wing loading typical of the breed, you won't find many ultralights out when the wind is crosswise to the runway, 20

gusting to 30.

As with many endeavors in aviation, ultralights trace their heritage principally to one man, John Moody. Though not the first to attach a small engine to a hang glider, Moody arguably was the most successful in marketing an engine kit, beginning in 1976. Not long after, a complete airframe/engine combination kit was available from Moody, called the Easy Riser; it is considered to be the ground-breaking ultralight model. For the hard-core hang glider pilots, the ability to self-launch and remain aloft much longer was a revelation. Dependence on cliff-side launch sites diminished in direct proportion to the number of small, often less than 20-horsepower, engines bolted to modified hang gliders. The sport, if you'll pardon the pun, really began to take off.

Soon, hang glider-derived aircraft were joined by more conventional planforms, some with full large-aircraft-style controls, still built from aluminum tubing and covered in lightweight Dacron fabric. (This is a construction method that remains dominant today, largely for its ease of manufacture, light weight, and low cost.)

Ultralight flying as a sport, then, is fairly young, and its history bears some unusual and forward-thinking attempts at management by the Federal Aviation Administration and by the industry. In the early days, ultralights were flown off of open fields, not airports, and the FAA pretty much left it

Quicksilver is the overdog ultralight manufacturer in the United States and makes extensive use of the Austrian-built Rotax engine, which has been engineered for the ultralights and brings with it performance and reliability. Pictured below is the USUA staff: John Ballantyne, president (sitting); Jim Barrett; Michele Lewis; and Tom Gunnarson.



to the local authorities to regulate the flying. But as the sport began to boom, in the first two years of the 1980s, and the aircraft moved onto airports, the FAA decided it was time to take a stand. But rather than introduce ultralight regulations similar in concept and scope to those of general aviation, the agency, at the behest of pilot groups and the industry, took a stab at allowing self-regulation.

Advisory Circular 103 was published, which outlined the plan. The industry would look after itself—determine airworthiness regulations of the aircraft and set pilot training guidelines. In return, the FAA defined what it thought an



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ultralight was, by weight and performance. It said, to be an ultralight, the aircraft must be single-seat, have an empty weight of 254 pounds or less (excluding floats or safety devices like recovery parachutes), be capable of no more than 55 knots in level flight at full power, carry no more than 5 gallons of fuel, and stall at no more than 24 knots; high-lift devices, such as flaps or slats, may be used to reduce stall speed to this limit. Further, the agency said that the aircraft must have no U.S. or foreign airworthiness certificate and "must be used or intended to be used for recreational or sport purposes only." Pilots of ultralights would require no certificate and need no training by law, although the AC advised that formal training plans should be followed.

With so little regulation, it seems in retrospect that the sport was destined to skyrocket in popularity. Getting in was inexpensive (even today, most single-place ultralights cost less than \$10,000 new), and the costs associated with regular flying were less for many pilots than the price of a tiedown spot alone for a large airplane. Further, you immediately jumped what some believed was the largest hurdle in attaining a private pilot certificate—flight instruction—and learning complex airspace and radio communications was unnecessary.

In late 1982, AC 103 became, largely intact, Federal Aviation Regulations Part 103, describing the scope of ultralights and the requirements of the airplanes and pilots. Es-



entially, FAR Part 103 mirrored the AC, and despite early signs that self-regulation was a better idea than it was a rule, the FAA decided to give the industry a chance to police itself. In fact, the industry had begun to grow so rapidly by 1982 that it was difficult, if not impossible, for the various ultralight manufacturers—some large but many quite small, mom-and-pop outfits—to agree on airworthiness standards and training programs. Such rapid development of various models, which went from just a handful in the late 1970s to literally dozens by 1982, was regulated by engine availability.

Engines from go-carts, typified by the McCulloch 101 of

12 hp, were the powerplants of choice in the late 1970s and early 1980s. These engines had to be extensively modified and, being two-stroke designs, required high rpm to make their rated power. At this time, the reduction gearbox or belt drive had yet to become popular, and some of the propellers were being driven at speeds that reduced their efficiency dramatically.

The powerplant scene would soon change with the coming of Cayuna, a U.S. manufacturer of snowmobile engines. Where the McCulloch engines earned little factory support, Cayuna actively solicited sales to ultralights and, by the early 1980s, was far and away the dominant supplier. Key to Cayuna's success was the development of the belt reduction drive, which allowed the propellers to work in an efficient speed range and provided a much-needed performance boost. Today, the Austrian-built Rotax engines are the favorite powerplants, made so by the company's aggressive marketing and high-gear development for the ultralight market.

Safety has been a controversial issue regarding ultralights since the beginning. As the movement expanded, there was considerable public concern that these uncertified pilots flying aircraft without airworthiness certificates would be falling out of the sky like so much aluminum and Dacron confetti. Unfortunately, to some degree, the public's concern was well-placed. We won't dwell on the ultralight safety record, but suffice it to say that it was far worse than for general aviation aircraft and marked by a tremendous

Almost overnight, the bottom fell out of the ultralight industry. Ballantyne cites the day the segment ran as the absolute low point of the sport. According to Lyle Byrum, president of Quicksilver Enterprises, sales went from strong (with a product backlog of several weeks) to virtually a standstill in an eye blink. Both AOPA and the Experimental Aircraft Association—as well as the then-active Powered Ultralight Manufacturers Association (PUMA)—cried foul.

Currently, the safety record of ultralights is commendable and improving, according to Ballantyne. Such items as

(Clockwise from left) Pterodactyl in flight; the Quicksilver GT 500; the Nieuport; Light Miniature Aircraft's LM-3U



mandatory factory-backed training programs with the purchase of new ultralights and recovery parachutes have contributed to the improvements. Activity is on the rise, too, although there are no airtight studies of hours flown and the typical flight length. According to a reader survey by USUA, the average ultralight pilot flies between five and 15 times a month; the hour figure is difficult to determine, but Ballantyne says that the average flight is probably much less than an hour. (In the survey, though, about 16 percent said that they fly every day the weather permits.) Also, the study revealed that about 22 percent of the ultralight pilots flew from their own land, another 22 percent flew from ultralight parks, and 36 percent from regular airports.

Today, it's easy to see the progression from the first ultralights to something as sophisticated as Quicksilver's GT 500, a two-place ultralight technically certificated in the Experimental category. It is full of "big-airplane" features, including flaps, dual controls, tandem seating, and sprightly performance; a 75-mph cruise is claimed for the 60-hp GT.

Frankly, the selection of models today borders on bewildering. Choices start with the "traditional" ultralight, a Dacron-covered, aluminum-framed minimalist aircraft with no bodywork and just enough room in the birdcage for one human. Advanced Aviation's Cobra B is a good example of this type; it sells for just under \$7,000 with a two-stroke Rotax twin-cylinder engine and requires 35 hours to assemble, according to the factory. Quicksilver, in addition to the GT 500, continues to produce ultralights in the traditional form in the MX Sprint for \$6,700.

Then there are the look-alikes, ultralights mimicking the outline and general profile of such stalwarts as the J-3 Cub and Aeronca. Light Miniature Aircraft's LM-3U is a spitting image of the Champ and sells for \$6,840. Mosler Motors offers, among a brace of Piper look-alikes, a model called the N3-C Citabrieite, which is, naturally, a downsized replication of the Citabria; for \$10,002, you get an ultralight with one of Mosler's own engines and an airframe needing only about 350 hours' construction time to come to life. The list



number of low-time and/or first-flight accidents.

The television news media picked up on the burgeoning ultralight industry, and in late 1983, ABC's 20/20 news show aired a segment on ultralights. Through an unfortunate set of circumstances, the cameras were rolling when a reporter, taking lessons in a Pterodactyl ultralight, began pilot-induced pitch oscillations culminating in airframe failure. He had not fastened his shoulder harness and was thrown from the aircraft to his death. The 20/20 segment, in addition to showing this footage, was generally critical of the lack of supervision in the field; the dangers of the sport were offered gruesome substantiation by the accident.



John Moody's engine kit, circa 1976, turned a hang glider into a self-launching thrill ride called the Easy Riser and spawned the ultralight as we know it (above). The Mosler Motors N3-C Citabrette is shown below.

goes on, including Leading Edge Air Foils' Nieuport 11 "replica" powered by a Rotax engine; technically, this airplane is too heavy to be considered an ultralight by law and is certificated as an Experimental.

So what of the future of ultralights? According to Ballantyne and several of the ultralight manufacturers, recent history suggests steady growth will continue. After the fall, the industry had a lot of catching up to do, but it seems as though the explosive growth witnessed in the 1980s will probably not happen again.

An important factor in the ultralight future is what the FAA intends to do with Part 103. The USUA has petitioned the agency to alter the aircraft standards to include larger, heavier machines in the Ultralight category. The association seeks to have Part 103 revised to include single-seat ultralights weighing as much as 360 pounds empty, with 10 gallons of fuel on board, a maximum speed of 72 knots, and a stalling speed of 32 knots.

Another revision of Part 103 suggested by USUA is to allow two-seat aircraft to be considered ultralights. Specifications for these two-placers would be a 496-pound maximum empty weight, 10-gallon fuel capacity, 75-knot maximum level speed, and 35-knot stall speed. Currently, there are several two-place, so-called ultralights available, but they are registered as Experimentals and must be flown by certificated pilots. Under waiver, though, a few instructors (not CFIs, but pilots who have the knowledge and experience, according to USUA, and have received instructors' "certification" through the associa-

tion) have been allowed to teach in two-place aircraft registered as ultralights. Ballantyne, as well as most in the industry, believe that allowing two-place aircraft to be considered ultralights will turn around the training procedures and bring new members to the sport. USUA also is pushing for more stringent airworthiness rules (short of certification) and pilot registration.

Manufacturers see steady but not rapid growth. The attitude is one of "Okay, we got through most of the growing pains; now it's time for this industry to mature." Industry experts are certain that, as general aviation continues to grow in cost and commitment, more pilots (and would-be pilots) will come over the fence to ultralights. What's more, the industry largely believes that more rigorous training requirements alongside a relaxation of aircraft parameters will offer more freedom in design as well as a more legitimate image in the eyes of the public.

So it is from explosive beginnings that the industry has grown into an endeavor that moves with care and conscience. For all involved, the emphasis seems to be on proving that self-regulation can work, despite early problems and lack of compliance. The survivors in the ultralight industry are committed to keeping the sport alive, and if that means having to prove the legitimacy of ultralights to the public and other aircraft industries, so be it. And although it's unlikely that the level of activity seen in the 1980s will return anytime soon, the industry appears ready to keep the concept of inexpensive, fun flying open to all who care to indulge. □

