

Response to the Sport Pilot NPRM

April 19, 2002

Docket Management System
U.S. Department of Transportation
Room Plaza 401
400 Seventh St., SW
Washington, DC 20590-0001

Re: Certification of Aircraft and Airmen for the Operation of Light-Sport Aircraft; Proposed Rule

Docket No. FAA-2001-11133; Notice no. 02-03

Dear Sir:

Thank you for the opportunity to respond to this notice of proposed rulemaking (NPRM). I commend the FAA for promulgating this initiative, which is the result of years of study and dedicated effort by both the FAA and the aviation community.

As this response is quite lengthy, I've summarized my comments in a brief outline at the conclusion of this document, for those who prefer to quickly review my observations (see the Appendix.) **If the reader desires an immediate overview of my suggestions to the NPRM, please see the Appendix.**

Since this document may be viewed by members of the general public, as well as the FAA, there are occasions in which I discuss issues or define terms which are obviously familiar to the FAA, but which may not be known by the public or aviators who are not versed on light aircraft or microlight issues. Please forgive me when I refer to items in laymen's terms that are common knowledge to FAA personnel.

ABBREVIATIONS

This is a list of abbreviations for those readers who are not familiar with aviation terminology:

AFI - Advanced Flight Instructor--an ultralight pilot examiner licensed by a national ultralight organization

AGL - Above Ground Level

Aircraft Category - A broad classification of aircraft. The light-sport aircraft categories listed in the NPRM are airplane, glider, rotorcraft, light-than-air, weight-shift-control, and powered parachute

Aircraft Class - A classification of aircraft within a category having similar operating characteristics. The light-sport aircraft classes listed in the NPRM are single-engine, gyroplane, airship, balloon, weight-shift-control land, and weight-shift-control sea

ARAC - Aviation Rulemaking Advisory Committee

ASC - Aero Sport Connection--one of three national ultralight organizations that self-regulate powered ultralight activity

ATC - Air Traffic Control

BFI - Basic Flight Instructor--an ultralight instructor licensed by a national ultralight organization

CFI - Certified Flight Instructor (certificated by the FAA)

DAR - Designated Airworthiness Representative--a person authorized by the FAA to perform inspections on aircraft, usually to issue a special airworthiness certificate to experimental aircraft

DPE - Designated Pilot Examiner--a person authorized by the FAA to conduct a practical test (flight check) for the issuance of a pilot's certificate

EAA - Experimental Aircraft Association--one of three national ultralight organizations that self-regulate powered ultralight activity, as well as many other aviation endeavors

FAA - Federal Aviation Administration

FAR 61 - The Federal Aviation Regulation that governs the procedures for the issuance of pilot certificates other than ultralights

FAR 91 - The Federal Aviation Regulation which governs the operation of general aviation aircraft other than ultralights

FAR 103 - The Federal Aviation Regulation which authorizes and regulates ultralight activity in the United States

FBO - Fixed Base Operator--a combination flight school, maintenance shop, and aviation supply center for general aviation aircraft

General Aviation - As used in this document, traditional light aircraft other than ultralights, especially small trainers, such as the Cessna 150, Piper 140, the Katana, etc.

LSA - Light-sport Aircraft, introduced in the Sport pilot NPRM, which have certain speed and operating restrictions, and weigh less than general aviation trainers

MSL - Above Mean Sea Level

National Ultralight Organizations - Privately operated organizations which regulate ultralight activity on behalf of the FAA, and which are issued an "Exemption" for its members to operate two-seat ultralight trainers for instructing student ultralight pilots

NPRM - Notice of Proposed Rulemaking--the Sport pilot notice of rulemaking

Practical Test - The combination oral exam and flight test that an

applicant takes with an Examiner in order to qualify for the issuance of a pilot certificate or rating

SFAR - Special Federal Aviation Regulation: issued periodically as an adjunct to the normal Federal Aviation Regulations. The majority of the Sport pilot initiative is a Special FAR (proposed SFAR number 89)

Ultralight - A single-seat aircraft, referred to as a "vehicle" by the FAA, which meets specified weight, speed, and fuel restrictions under FAR 103 to qualify as an ultralight

Ultralight Trainer - A two-seat aircraft (not an ultralight) which meets certain weight, speed, and fuel restrictions to qualify for an "Exemption" issued by the FAA for instructing ultralight student pilots, and which is flown under FAR 103 ultralight regulations and additional limitations issued pursuant to the Exemption

Ultralight Vehicle - The FAA's terminology, defined in FAR 103, for a flying machine that meets the weight, fuel, and speed restrictions of an "ultralight" aircraft

USUA - United States Ultralight Association--one of three national ultralight organizations which self-regulate powered ultralight activity

THE COMMENTATOR'S BACKGROUND

I believe that I am in a unique position to comment about many aspects of the NPRM because I am both an FAA CFI and an ultralight instructor and examiner. I own several experimental aircraft and specialize in instructing ultralight pilots who are transitioning to ultralight-type experimental aircraft.

I also represent the Quicksilver ultralight manufacturer, and own and instruct in an FAA-certified Primary Category Quicksilver GT-500.

I am also the founder of the so-called "glider-trike" program.

This is a program in which a student pilot may obtain all his training in a weight-shift "trike" and take a practical test in the trike in order to obtain a glider pilot's certificate, limited to weight-shift.

Details about the glider-trike program may be found at

<http://groups.yahoo.com/group/ExpTrikes>. An index of the most significant postings at the ExpTrikes web site may be found at

<http://groups.yahoo.com/group/ExpTrikes/message/1599>. An article entitled, "The Experimental Glider-Trike Program" is in the February 2001 issue of UltraFlight Magazine and at <http://www.ultraflight.com/>.

I am an EAA flight advisor for pilots of experimental aircraft. In 1996 I worked with the EAA on a preliminary version of Sport pilot.

I am a periodic columnist for several aviation magazines, most notably *UltraFlight Magazine* and *Aero-News Network*. A selection of my magazine articles are archived at: <http://www.ultraflight.com/> or <http://groups.yahoo.com/group/JonThornburgh> with an index of the messages at: <http://groups.yahoo.com/group/JonThornburgh/message/264>.

The Aero-News Network articles are archived in the "Ultralight Column" at: <http://www.aero-news.net>. Back issues of UltraFlight Magazine may be obtained from the publisher by calling 800-578-3144.

OVERVIEW

I strongly support the Sport pilot initiative in principal. In the section below (page 8) entitled "Excellent Provisions of the Sport Pilot NPRM," I enumerate the outstanding concepts promulgated by the NPRM.

However, I disagree with many of the particular provisions of the proposed regulation; specifically those provisions that, in my opinion, do not enhance safety, but which excessively burden the Sport pilot enthusiast and endanger the viability of the Sport pilot initiative.

I believe that some of the provisions proposed in the NPRM are indicative of the FAA's lack of familiarity with ultralights. I am aware, for example, that none of the FAA personnel involved with the drafting of the NPRM are ultralight instructors or own an ultralight. It's my understanding that very few FAA personnel have more than a couple of hours of flight time in ultralights.

The FAA drafters of the NPRM are to be commended for what has been accomplished in creating the NPRM in spite of their lack of personal knowledge of ultralighting. It was a challenge to draft the NPRM since the FAA was precluded to a large extent from freely obtaining input from ultralight personnel due to a prohibition on "ex parte" communications during the drafting process. The FAA itself acknowledges its lack of expertise by stating in the NPRM that it welcomes comments and seeks advice from the public, especially the ultralight community.

THE ULTRALIGHTING CULTURE

I believe that the FAA fails to realize that ultralighting is not just a way of flying light aircraft. Ultralighting is a way of life and a culture unlike any other in aviation. Although ultralighters are seeking an affordable means of flying, their preference for the ultralight world extends far beyond cost considerations.

Ultralighters seek freedom, and relief from regimentation.

Ultralighters are the descendants of the original hang glider pilots who risked their lives and limbs for the thrill of personal flight, often launching from hilltops posted with "No Trespassing" signs. Ultralighters are the type of people who taught themselves to fly in single seat flying machines with a "How to Fly" manual in their laps.

Ultralighters are people who congregate in the desert and fly among dung buggies, motorcycles, recreational vehicles, sand surfers, and kite flyers. Every weekend there is a gathering of ultralighters at some club-sponsored airshow. They join in contests, which include precision landings, "bomb" drops, and navigation exercises. When was the last time one heard of a gaggle of Cessna 150 pilots entering a bomb-dropping contest? (The "bomb" is colored flower.)

Ultralighters are people who join clubs, swap stories, organize fly-ins and share their maintenance tools. At last check there were 40 ultralight chat groups on the Yahoo web site <http://dir.yahoo.com/Recreation/Aviation/Ultralights>.

The FAA fails to realize the tremendous shock that previously unfettered ultralight pilots are going to experience when they enter into the regimented world of general aviation. In spite of the FAA's attempt to streamline the Sport pilot process, there is no denying the fact that applicants will have to take knowledge exams, oral and flight tests, obtain weather briefings and Notams, learn dozens of FAR Part 91 regulations, study the Aeronautical Information Manual, compute weight and balance calculations, and much more.

Many, many ultralight pilots previously dedicated to flying will not make the transition to Sport pilot. How do I know this? Because my specialized niche in aviation is transitioning ultralight pilots to Recreational pilots in experimental ultralights. The Primary Category GT-500 in which I instruct is basically an FAA-certified ultralight. See the article entitled, "First-Ever Pilot Flight Check in Primary Category Quicksilver GT-500" archived in the April 4, 2000 issue of Aero-News Network at <http://www.aero-news.net>, or "Quicksilver Sets Aviation Milestone" in the August 2000 issue of UltraFlight Magazine.

Every single student I've instructed has been amazed at the effort it takes to become a licensed FAA pilot, which is more difficult than becoming even an ultralight *instructor*. Many of my students have simply given up and returned to ultralighting, in spite of their initial desire to expand their flying privileges as certificated pilots.

In my opinion, the FAA seriously underestimates how many ultralight pilots will simply quit flying if they are forced to become Sport pilots. On the other hand, the FAA greatly overestimates how many general aviation pilots will resume flying or switch to light-sport aircraft. My experience indicates that general aviation pilots are not of the mind-set or the culture to embrace "those two-cycle toys."

I truly hope that I am wrong about the lack of enthusiasm for Sport pilot. There is certainly the potential that Sport pilot will be the rejuvenation of general aviation, rather than the demise of ultralighting. However, on the chance, even the slim chance, that Sport pilot is not popular, I propose that the FAA maintain the two-seat ultralight exemption as a back-up in case Sport pilot is not any more successful an endeavor than the Recreational pilot certificate.

THE ULTRALIGHT "EXEMPTION"

The single most important point to extract from this Response to the

NPRM is the absolute necessity to preserve ultralighting. This includes maintaining the provisions of FAR 103 as well as the two-seat ultralight training Exemption.

This NPRM proposes that the two-seat ultralight training exemption be eliminated three years after the NPRM is adopted. This is a serious mistake.

Not only should the exemption be retained, it should be codified as a permanent Special FAR (SFAR), just as the Sport pilot endeavor is a Special FAR (SFAR no. 89). In addition, the SFAR should be expanded to provide for two-seat ultralight *pilots* as well as instructors.

AN "ULTRALIGHT SFAR" PROPOSAL

I propose that the FAA modify the Sport pilot NPRM to include the "Exemption" as a part of SFAR 89, or issue another SFAR concurrent with SFAR 89. For lack of a better term, I'll refer to the SFAR as the "Ultralight SFAR."

The provisions of the Ultralight SFAR should be:

1. Maintain the present system in which the national ultralight organizations administer ultralighting, including the licensing of BFI and AFI instructors.
2. Maintain the weight, fuel, maximum speed, and other provisions and restrictions of the present Exemptions issued to the ultralight organizations.
3. Provide for ultralight pilots to be licensed to fly a two-seat ultralight vehicle and to be able to carry a passenger. The two-seat licensed pilot would not have to be a BFI. He would be granted authority to fly the two-seater after passing a flight check with an AFI. The necessary piloting skill would be the same as that required to qualify as a BFI, except that the two-seat pilot would not have to demonstrate instructional skills.

Skeptics will respond that the FAA should not delegate the function of licensing a passenger-carrying pilot to a private organization. To which I respond, "Why not?" The FAA delegated exactly that privilege in 1983 with the granting of the first training Exemption, except the second person in the ultralight is called a "student" instead of a "passenger." In either case, the second person is a non-pilot and a member of the public who is often experiencing his first flight.

The flight time required to become a BFI varies from 40 to 100 hours, depending on the particular ultralight organization's training program. Even the lower 40-hour requirement is twice the flight time that the FAA is proposing for the Sport pilot. Forty hours of flight time is the same required by the FAA to become an airplane Private pilot (FAR 61.109.)

Thousands of students have been successfully trained entirely within the ultralight community, and outside of the FAA

environment. At my last count there were several hundred ultralight manufacturers and many hundreds of different ultralight vehicles. As seen in the next section, the ultralight industry is a very successful enterprise, thanks to the Exemption. Yes, there have been ultralight accidents, which will be discussed later. But during the same period that the ultralight accident data was accumulated, there were *thousands* of general aviation accidents.

So why not codify the ultralight training process in a Special FAR? The FAA's stated reason for the demise of the Exemption as a part of the Sport pilot initiative is that the "Exemption will no longer be needed," and "it is not appropriate to maintain the Exemption indefinitely." Verbally, the FAA told me that another reason for the demise of the Exemption was to "create an incentive for ultralight pilots to transition to Sport pilot."

In regards to the first assertion, the FAA is correct. It is not appropriate to maintain the Exemption permanently. Therefore, I propose that the Exemption be superseded by an "Ultralight SFAR."

Regarding the second assertion, my response is, "If the Sport pilot initiative is such a good deal, they why do ultralighters need an *incentive* to transition to Sport pilot?"

THE INCREDIBLE SUCCESS OF THE ULTRALIGHT INDUSTRY

Since I'm an FAA CFI, as well as an ultralight instructor, I'm comfortable in both worlds. In fact, I have trained more general aviation pilots than I have ultralight pilots. Just as I am ignorant of the culture and workings of the warbird community (P-51s, B-17s, etc.), I can say unequivocally that the typical general aviation pilot does not have a clue about ultralighting. General aviation pilots (and perhaps even the FAA) do not realize how pervasive the ultralight industry is, nor appreciate the contributions that the ultralight community has given to aviation.

Because ultralights are less expensive than general aviation aircraft, the aggregate dollar amount of ultralights sold per year is less than general aviation. But the *number of aircraft* sold far exceeds general aviation. Since the aviation economic doldrums of the 1980s all the general aviation manufacturers combined are lucky to sell a thousand aircraft trainers. At the same time, just *one* powered parachute manufacturer alone is selling 500 units.

The Seventh edition of the EAA's *Aero Crafter* lists 700 different homebuilt aircraft, many of them ultralights. (For a copy, call 800-843-3612.) The *SportPlane Resource Guide* lists 800 sport planes. (For a copy, call 800-356-7767.)

General aviation pilots should be just as concerned about the possible demise of ultralighting as ultralighters are. Thanks to the unfettered freedoms that ultralighters enjoy, the industry has been able to introduce advanced and innovative designs and products. A few examples include: Dacron wing coverings, tube and fabric fuselages, CDI ignition in place of magnetos, "lighting coils" in place of generators, high altitude compensating carburetors, simple pulse-actuated fuel pumps, electronic tachometers, composite propellers, intake and exhaust noise silencers, an electronic engine instrument

monitoring system, neoprene amphibious floats, and ballistic recovery parachutes.

Ultralight aircraft, especially trikes, are able to carry 150% their empty weight; the greatest empty weight to gross weight ratio of any flying machine. Ultralight aircraft can takeoff and land in one-tenth the distance of general aviation aircraft, and climb at a 20 degree angle. Ultralights are used secretly by the military's Special Forces. A Quicksilver GT-500 was used by the NOAA to explore the Arctic region near the North Pole, and the Aircam twin-engine ultralight-type airplane was used by National Geographic in Africa.

Most importantly, ultralights are as safe as any other form of aviation, and are fun to fly.

Ultralight technology is working its way into general aviation aircraft, such as electronic engine monitoring, the prototype FADAC-controlled Rotax engine, and even composite structures. Ballistic parachutes are now available on general aviation airplanes such as the Cirrus and the Cessna 150.

In view of the technology that the ultralight industry has contributed to aviation, why in the world should the FAA jeopardize the industry by rescinding the ultralight exemption?

My recommendation: transform the present ultralight two-seat training Exemption into a Special FAR which incorporates exactly the same provisions of the present Exemption, plus provides for an "ultralight pilot's license" which is issued by a national ultralight organization that allows an ultralight pilot to carry a passenger without having to be an ultralight instructor.

EXCELLENT PROVISIONS OF THE SPORT PILOT NPRM

The most commendable aspect of the Sport pilot NPRM is the FAA's willingness to experiment with a whole new way of addressing pilot training and certification. This is an incredible example of "thinking outside the box" for a conservative bureaucratic organization. Just this feature of the NPRM alone deserves unmitigated praise.

The excellent and innovative features of the Sport pilot initiative are:

1. The concept of basic training leading to a basic license with restrictions and basic privileges. These privileges can then be expanded (and the restrictions removed) after advanced training and with logbook endorsements by a flight instructor. The FAA refers to this as the "building block approach" on page 5398 (second column) of the NPRM.
2. Simplified aircraft "certification" standards under industry consensus and the ability of manufacturers to be able to deliver ready-to-fly aircraft.
3. The ability to certificate an ultralight into the experimental category without the owner being required to comply with the "51%" amateur-built rule.

4. The ability to use an experimental aircraft for commercial instruction (although this lasts only 3 years.)
5. The concept of the Sport pilot instructor not being required to fulfill the same requirements as present day CFIs. That is, the Sport instructor is not required to have an instrument rating, a commercial certificate, or "complex" aircraft time.
6. The concept of a maintenance school for non-A&P mechanics to qualify to perform maintenance on light-sport aircraft.
7. The new categories for powered parachutes and weight-shift (trike) aircraft (although this is only available for private pilot privileges.)
8. The self-certified medical (driver's license.)

As mentioned before, the eight features enumerated above are excellent and innovative aspects of the Sport Pilot NPRM. However, it should be noted that every one of these features could be implemented separate from the Sport pilot initiative.

Even if Sport pilot were to be discarded, FAR 21.191 could be modified to allow aircraft to receive an experimental airworthiness certificate without the applicant building the "majority" of the homebuilt kit.

The new weight-shift and powered parachute categories could be added to FAR 61.5, as "powered-lift" was in 1997.

The self-certified medical could be extended to Recreational pilot, as was proposed (but not adopted) in 1996.

In the 1970s a commercial pilot was not required to have an instrument rating or "complex" aircraft experience. Nor were flight instructors. FAR 61 could be modified back to the way it was 30 years ago.

Recreational pilot (which is already similar to Sport pilot) could be modified to provide for expanded privileges with additional training and logbook endorsements. In fact, *all* the FAA pilot ratings could have varying degrees of restrictions and privileges commensurate with training. This concept has already been adopted with the endorsements for complex aircraft, high performance aircraft, gliders, and tailwheel airplanes under FAR 61.31.

FAR 21 could be modified to provide for the "industry consensus standard" for the manufacture of light-sport aircraft.

These examples show that changes to the federal aviation regulations could be accomplished independent of the adoption of the Sport pilot NPRM.

My recommendation: **Suspend the Sport pilot initiative until the numerous questions discussed in this Response are addressed. In the meantime, implement the eight excellent features of the Sport pilot NPRM which are delineated above.**

A THOROUGH ANALYSIS OF THE PROVISIONS OF THE SPORT PILOT NPRM

The goals of the previous discussion was to establish two things:

1. Save the exemption: due to the culture and temperament of the ultralight community, there is a distinct possibility that many fewer pilots than expected will be willing to transition to Sport pilot. Therefore, it is imperative that the ultralight training Exemption be codified as a SFAR and made a permanent regulation.
2. Incorporate the eight excellent aspects of the NPRM, regardless of the fate of the Sport pilot initiative itself.

The goal of the remainder of this document is to discuss the merits of each provision of the NPRM. **A quick summary of the proceeding and the following discussion can be found in the Appendix.**

I would like remind the reader that whatever negative points made in the following discussion is not directed at the FAA itself, but only at various specific proposals promulgated by the FAA in the NPRM. Most of the provisions that are critiqued are a result of the FAA's lack of familiarity with ultralight aircraft and how ultralights are flown.

For lack of a better methodology, I will analyze the NPRM in the order that the items are presented by the FAA in the official Federal Register, Vol. 67, No. 24, published February 5, 2002. Since the Register contains more than just the Sport pilot NPRM, the page numbers in which the NPRM is published extend from 5368 to 5415, rather than beginning with page 1.

Let's look at each provision in the NPRM, pro and con, page-by-page, and item-by-item. (I will occasionally discuss items that are not in chronological order in order to group similar provisions together.)

Page 5368 (first column): The FAA "Hotline" Telephone Number

The FAA very graciously publishes a telephone number for interested parties to call with questions about Sport pilot (call 202-267-5008 for airman certification issues, or call 202-267-5008 for aircraft certification issues.) Amazingly, the paragraph says that the FAA will respond in three days. I quote, "...please leave a message, and we will answer your questions within 3 days." I would like to commend the FAA for its offer of such a timely response.

However, I have personally left many messages on the designated phone number, and I did not receive a response in three days. In fact, I did not receive any response at all. I hope that this lack of response is not indicative of the attention that will be paid to the undoubtedly hundreds of questions that will arise concerning the implementation of the many ambiguous Sport pilot provisions after it is adopted.

Page 5369 (first column): Why Call It "Light"-Sport Aircraft?

Under the heading *Certification of Light-Sport Aircraft* the FAA defines the proposed aircraft. My comments:

Although this first comment is fairly trivial, it happens to be a personal irritation to me. That is, why does the FAA choose to refer to the subject aircraft as a "*light*-sport aircraft (LSA)?" What's wrong with just "sport" aircraft? Calling something a "light-sport aircraft" is just about the same as calling something a "light ultralight." It's redundant.

By referring to the Sport plane as a "light-sport aircraft," is the FAA inferring that someday there will be a "medium-sport aircraft" or a "heavy-sport aircraft?" I just don't get the reason for the terminology. Consequently, I propose that the FAA change the name from "light-sport aircraft" to "sport aircraft."

My recommendation: Change the *light-sport aircraft* to *sport aircraft*.

age 5369 (first column): Twin-engines and Retractable Gear Forbidden on Light-Sport Aircraft

The FAA defines a "light-sport aircraft," among other parameters, as a "single engine" and "fixed landing gear" aircraft.

Does the FAA know that there are small flying machines that qualify as an "ultralight" that have two small engines, such as the Lazer? The SlipStream Sky Blaster has an engine in front and another in the rear, such as the Cessna 337. This fore and aft engine mounting system precludes adverse yaw in the event of an engine failure. (See <http://www.slipstreamind.com/skyBlaster.htm>).

My question: if an twin engine airplane can meet the 1,232 pound max weight requirement to qualify as a light-sport aircraft, then why not allow a sport pilot to fly the twin with additional training and a logbook endorsement? *Ultralight* pilots are already successfully flying twin-engine vehicles, and they *don't even have an FAA pilot's certificate*.

The same goes for retractable landing gear. The Buccaneer and Aventura have a simple lever for repositioning the gear. This is not a complicated system, which the FAA maintains is the rationale for limiting the light-sport airplane to fixed gear.

The Moyes *Silent Racer* trike has an enclosed canopy, a propeller that feathers and can be folded, and retractable gear. This beautiful and innovative trike is on the cutting edge of trike technology. (See <http://www.zipworld.com.au/~moyes/sr.htm>.) Trike designs such as this are possible in the ultralight arena because of the freedom to experiment with ultralight designs. The same freedom should be afforded to Sport pilot designs.

Question: after Sport pilot is effective and ultralight trainers are outlawed, what pilot's certificate will be required to fly the Silent Racer?

The FAA has wisely made an allowance for Sport pilots to fly

retractable gear amphibious seaplanes. The FAA, with clever bureaucratic semantics, refers to retractable gear on amphibious seaplanes as “repositionable” gear (page 5376, column 3.)

Question: if a seaplane sport pilot is smart enough to learn how to retract and extend retractable gear on an amphibian, than why is a land airplane sport pilot also not able to do so? Flying a retractable gear 1,232 pound airplane should be an option available with additional training and a logbook endorsement.

Page 5376 (column 2): Inflight Adjustable Propellers Forbidden on LSA

The FAA maintains that the light-sport airplane must not have an in-flight adjustable propeller. The rationale is that in-flight adjustable propellers are too complicated.

This statement is indicative of the FAA’s superficial knowledge of ultralight aircraft, as was pointed out on page four of this Response. The Ivoprop in-flight propeller has been available for years, and is present on hundreds of ultralights. The propeller system only costs about \$700, and is simple and effective. The pilot merely toggles an electric switch to increase or decrease RPM. The propeller hub is not filled with hydraulic fluid, engine oil, governors, springs, or counterweights, such as general aviation airplanes are. The Ivoprop propeller is uncomplicated and reliable.

In fact, for a \$300 addition to the in-flight adjustable propeller, Ivo now has available a *constant speed* propeller governor. This innovative electric governor would only be available in the unregulated ultralight environment--another reason for maintaining the Exemption (as a SFAR) in order to encourage new ideas and inventions without the restrictions of an “industry consensus standard.”

For more information about Ivoprop see www.ivoprop.com.

My recommendation: Allow Sport pilots to fly an airplane that has retractable gear, or has a controllable pitch propeller, or is a twin- engine airplane with additional training and a logbook endorsement.

Page 5407 (column 1): LSA Limited to 10,000 feet MSL

One of the restrictions imposed on Sport pilot is that the pilot “may not operate a light-sport aircraft at an altitude of more than 10,000 feet MSL or 2,000 feet AGL, whichever is higher.”

This restriction is another example of the FAA’s less than complete understanding of ultralights and how they are flown. The number one fact drilled into every ultralight student is “never fly over an area where you can’t make a safe emergency landing in case of an engine failure.” The corollary to that axiom is “fly *high enough* to glide to a suitable engine-out landing spot.” (For a detailed discussion of this principle, see my article entitled “The Differences Between Ultralights and General Aviation Airplanes,” at <http://www.ultraflight.com/> or

<http://groups.yahoo.com/group/JonThornburgh/message/245>

Ultralights are generally pretty easy to land. Only about 30% of an ultralight training syllabus needs to be devoted to normal takeoffs and landings. The other 70% is dedicated to *precision spot landings*. These simulated emergency landings are practiced from all angles, altitudes, and directions, including straight-ahead landings, 90 degree turns to a landing, 180 degrees turns to a landing, etc. Ultralight pilots are taught to fly a zigzag course, if necessary, in order to fly over suitable landing areas, rather than fly a straight line to their destination.

If a person were flying over 8,000 foot terrain, he would be precluded from flying more than 2,000 feet above the ground. This is much too low to be flying in mountainous or semi-mountainous terrain (such as the area between Sacramento and Reno, or in Idaho, or the area west of Denver.) At 2,000 feet AGL the typical Quicksilver ultralight with a five to one glide ratio could only glide to a landing spot within two miles. Due to the historic unreliability of two-cycle engines and the poor glide ratio of ultralights, it is extremely unwise to fly close to the ground, especially in mountainous or tree-covered terrain.

In addition to airplanes and other aircraft, the Sport pilot initiative also includes gliders. Perhaps the FAA doesn't realize that gliders specifically seek out mountain lift, and are capable of soaring to altitudes that are twice the heights of the mountains below. On page 5405 of the NPRM the prerequisites to become a glider Sport pilot are delineated. Those requirements are almost the same as those to become a Private glider pilot under 61,109(f).

A Private glider pilot has NO altitude restriction. In fact, there exist provisions for glider pilots to carry a portable transponder and receive permission from ATC to soar above Class A airspace (18,000 feet MSL) on days of exceptional lift. Glider students are not required to don oxygen masks during their training or participate in a high-altitude chamber experience. However, students do study the various oxygen systems, and learn the "P.R.I.C.E." mnemonic for preflighting.

Question: if Private pilot applicants can study oxygen systems, why can't the Sport pilot applicants?

The "aeronautical knowledge" requirements to become an *airplane* Private pilot are listed in FAR 61.105, 61.107, and 61.109. Nowhere in those sections is high altitude training even mentioned. Yet airplane pilots have no altitude restrictions whatsoever!

Why, then, does the FAA propose a 10,000 foot restriction on Sport pilots, even *glider* sport pilots, who *do* study oxygen systems?

Even ultralight pilots do not have an altitude restriction under FAR 103. Why should a Sport pilot, who is trained by an FAA-rated flight instructor, and tested by an FAA pilot examiner, suffer a restriction that is not imposed on a non-FAA trained *ultralight* pilot? (This is another freedom, by the way, that ultralight pilots take for granted, which will be lost under Sport pilot.)

Presumably the altitude restriction is to prevent hypoxia. However, according to FAR 91.211, a pilot is not even required to use oxygen until he flies above 12,500 feet MSL. Even then, he can fly up to 14,000 feet for *30 minutes* before he is required to use oxygen. So again, why is the Sport pilot limited to 10,000 feet, if the FAA apparently believes that it's safe to fly up to 30 minutes at 14,000 feet without oxygen?

(Note: this 10,000 foot restriction is also applicable to the Recreational pilot (FAR 61.101.) Several years ago, when I contacted the FAA attorney who drafted the Recreational pilot provisions, he could "not remember" why the 10,000 foot restriction was inserted into the Recreational pilot limitations.)

My recommendation: Remove the 10,000 foot altitude restriction from Sport Pilot (and Recreational pilot, too.) In the alternative, keep 10,000 feet as a "basic" limitation, to be removed with additional training and a logbook endorsement.

Page 5406 (column 2): LSA Make and Model Limitations

The FAA proposes in the Sport pilot NPRM that a Sport pilot must have training and a logbook endorsement for each make and model light-sport aircraft that he flies.

The FAA states that ARAC advisory board made a "make and model" recommendation (page 5375, column 3.) However, the FAA fails to mention that this was a hotly contested issue on the ARAC committee, and that the "make and model" decision was far from unanimous.

In any case, this provision means that a pilot who is checked out to fly a Quicksilver Sprint could not fly a Quicksilver Sport, which is almost identical. A restriction such as this is absolutely ridiculous.

The differences between ultralights in the same category are far less than the differences between general aviation aircraft. A general aviation pilot who takes an FAA flight check in a Cessna 150 (with two seats) is legally entitled to fly a Cessna 172 (with four seats), even though the differences between the two airplanes are vastly greater than the differences between two Quicksilvers.

At the present time, ultralight pilots fly dozens of different types of aircraft without a logbook endorsement, and have no difficulty at all switching between airplanes.

My recommendation: Completely eliminate the Sport pilot special training and logbook endorsement for each light-sport aircraft make and model. Substitute training and logbook endorsement for authorization to fly a different category or class aircraft.

Page 5390 (column 3): PIC Time Required by LSA Instructors

In addition to receiving training and obtaining a logbook endorsement in each make and model light-sport aircraft, the Sport *instructor* is also required to have "5 hours of **pilot-in-command**

time in the specific make and model of light-sport aircraft."

This provision is even *worse* than the make and model endorsement required by Sport *pilots* (as noted above.) Not only does the Sport instructor have to be checked out (by another instructor) in each make and model, he must then accumulate 5 hours before he can instruct in the aircraft.

This raises several questions:

1. It's doubtful that the instructor even needs a checkout in each make and model, as noted in the preceding discussion related to the Sport pilot, let alone require 5 hours of pilot-in-command time.
2. Once the instructor receives his logbook endorsement, it is presumed that he is fully competent in the make and model. Why, then, does he need additional hours before he can instruct?

Despite the fact that general aviation aircraft are more complicated than light-sport aircraft, general aviation instructors certainly do not need, and are not required, to have five hours of pilot-in-command time (PIC) in each single-engine land aircraft that he is authorized to fly. In fact, as noted above, he does not even need a logbook endorsement to transition from one single-land aircraft to another. (Note: under FAR 61.195(f) a CFI *is* required to have 5 hours PIC time in make and model when he wishes to instruct in a multi-engine airplane or helicopter. However, these classes of aircraft are excluded from Sport pilot.)

The two situations depicted below will illustrate the anomalies of the 5-hour PIC time required before an instructor can teach:

Situation 1: A Sport instructor (instructor "A") is proficient in the Quicksilver Sport. He is able to checkout in a Quicksilver *Sprint* in 30 minutes because the two aircraft are so similar, and he receives a logbook endorsement from another instructor (instructor "B") saying instructor "A" is proficient in the Sprint.

Now instructor "A" may fly solo in the Sprint, and carry a passenger because he has a logbook endorsement. But if he wants to *instruct* in the Sprint, he must drill around the sky for 4.5 hours more, to get 5 hours total pilot-in-command time.

Situation 2: Instructor Skygod is proficient in a Sport. Mr. Jones has a pilot's certificate, he owns a Quicksilver Sprint, and has 300 hours flying it. (Obviously, Mr. Jones is very proficient in the Sprint.) Mr. Jones wants to become a Sport pilot **instructor**, so he asks Skygod to teach him to become an instructor. However, Skygod may NOT instruct Mr. Jones in the Sprint, because Skygod does not have 5 hours of **pilot-in-command** time in the Quicksilver Sprint.

In reply, Mr. Jones offers to check out Skygod in the Sprint, since Mr. Jones has 300 hours in it. "No can do," says Skygod, because Mr. Jones cannot endorse Skygod's logbook for the Sprint make and model, because Mr. Jones is *not an instructor!*

The FAA solution: Skygod must find another instructor (Mr. Bounce)

to checkout out Skygod in a Quicksilver Sprint and endorse Skygod's logbook. Then, Skygod must return to Mr. Jones and fly Mr. Jones' Sprint until Skygod has accumulated 5 hours of pilot-in-command in the Sprint. After that, Skygod can start teaching Mr. Jones how to become an instructor.

The particular irony of the fact is that, instructor Bounce probably has many less hours in the Sprint than Mr. Jones (who had 300 hours,) yet Bounce could check Skygod out in the Sprint, but Mr. Jones could not.

My recommendation: **Eliminate the requirement that a Sport instructor must have 5 hours of pilot-in-command time in each make and model of light-sport aircraft in which he intends to instruct.**

Page 5372 (column 1): LSA Maintenance Course Requirements

The FAA proposes a 16-hour maintenance course for a "Repairman-Inspection" authorization and an 80-hour course for "Repairman-Maintenance" authorization.

I feel that it is appropriate that a person receive training before maintaining a light-sport aircraft, which will be a "quasi-certificated" aircraft. As I mentioned on page nine of this Response, I commend the FAA for embracing the novel concept of non-A&P mechanics being able to perform limited maintenance on light-sport aircraft.

However, ultralight pilots and instructors should realize that they will be forced to attend a training school *in order to perform the very same maintenance that they are already doing today on ultralights*.

The FAA gives no guideline whatsoever on the availability or cost of the 16-hour/80-hour schools.

For example: Who will set up the maintenance course? Who will qualify as instructors? How often will the classes be held? How much will the classes cost? Will there be recurrent training requirements for "Sport" mechanics?

What will be the classroom requirements to qualify as a certified school: what visual aids? What computer testing equipment? What engine mock-ups? Will the students have to take a written exam to graduate? Will they have to take an oral and practical test?

The reader will recall that the single greatest concern that I have about the Sport pilot initiative is that ultralight pilots will be shocked at the effort *and expense* that will be involved in the transition from ultralight flying to sport aircraft flying. This maintenance-training requirement is a perfect example of the unknown cost.

At present, the Rotax engine manufacturer provides a 3-day (24 hour) school for their 2-cycle engines, and a similar school for their 4-cycle engine. Each school costs \$400 for 3 days. This calculates a cost of \$16.66 per hour. By extension, the 80-hour course would cost \$1,333 for tuition alone. Added to the tuition is the cost of transportation to the school, lodging, food, and time away from

work.

This is a major expense to qualify to do the very same maintenance that ultralight enthusiasts already do today.

Speaking of maintenance, the NPRM requires that sport aircraft be maintained in accordance with AC 41.13, (page 5378, column 1) which is the mechanic's "Bible" for maintaining general aviation airplanes. AC 43.13 is much more rigid than required for ultralight maintenance, and lacks the flexibility pertinent to ultralight-type aircraft. For example, ultralight composite propellers may be repaired with epoxy, whereas composite propellers don't even exist on general aviation aircraft. Likewise, AC 43.13 doesn't discuss such items as the repair of rip-stop Dacron wing covers, or CDI "magnetos."

Many other maintenance questions also arise, as will be seen in the discussion of the "industry consensus standard" aircraft (page 17 of this Response.) Hopefully, people who ask the FAA for clarification on these matters in the years ahead will receive a more timely response than I have received after leaving messages on the FAA "question hotline," as discussed on page 11 of this Response.

My recommendation: that the FAA clarify the requirements for an institution to qualify as a maintenance training center and the requirements for students to graduate from the training center, and allow the public to comment on the proposed requirements before the NPRM is implemented.

Page 5372 (middle column) and page 5377 (middle column): LSA "Industry Consensus Standard"

The Sport pilot NPRM proposes a change to FAR 21.175 that would add "light-sport aircraft" (LSA) to the list of experimental airworthiness certificates. After three years, two-seat ultralight trainers and overweight single-seat ultralights would be disallowed, and replaced by factory-built, "ready-to-fly" light-sport aircraft.

These light-sport aircraft would not have a "type-certificate" such as the Primary Category Quicksilver under FAR 21.24 or the Cessna 150 under FAR 23. Instead, the FAA proposes that light-sport aircraft be built to an industry "consensus standard" and would be delivered to buyers with a "certificate of compliance."

As noted on page nine of this Response, I commended the FAA for initiating the novel idea of making flying machines available to the public that do not have to comply with a full-scale certification process. However, there are many issues raised by this novel approach that relate to the increased cost of buying and operating ultralight-type light-sport aircraft.

One question is whether or not an LSA design will be "frozen" after the consensus standard is decided upon for a particular make and model. For example, will a pilot be able to switch from wheels to skis or floats on a particular light-sport aircraft if the manufacturer has not specifically included the privilege to do so in the aircraft's Operations Specifications? Will he be able to add a windshield to an open-air cockpit? Will he be able to change wings on a trike?

Will a Form 337 be required to make any changes to the aircraft?

Will the consensus standard require that aircraft have all the instruments dictated for VFR flight in FAR 91.205 ("Instrument and Equipment Requirements")? If so, such an array of instruments will far exceed the instruments that today's ultralights typically fly with.

Will light-sport aircraft pilots be required to comply with FAR 91.213 ("Minimum Equipment List")? Will LSA pilots be violated for flying with an inoperative or malfunctioning component, such as a CHT indicator or fuel pressure gauge, which are optional and not required ultralight equipment at the present time?

Will a transponder be required by the manufacturer? Will an ELT be required? Presently ultralights do not need either.

Will a light-sport aircraft pilot be able to order replacement components from aircraft catalog companies, such as CPS, Lockwood, or LEAF? Or will he be required to obtain all parts and accessories from the manufacturer, where the parts will ostensibly be "quality controlled?"

Many ultralights are equipped with BRS ballistic recovery parachutes. Will these parachutes be allowed on light-sport aircraft? Will the parachutes have to be certified, or in some other way conform to an industry consensus standard? If an LSA were certified without a parachute, can the owner add a parachute? If the aircraft is certified *with* a parachute, will it be a violation to remove the chute, or allow it to exceed the expiration date?

How much more will a light-sport aircraft cost than an identical ultralight? There is no doubt that a manufacturer will have to charge more for an LSA than an ultralight. The LSA manufacturer will have to conform to the consensus standard, maintain a system of quality assurance, adopt a means of promulgating service bulletins, create a Pilot's Handbook, test fly the aircraft and publish specifications, and accept greatly increased liability exposure. In addition, since the LSA are to be delivered "ready-to-fly," the manufacturer must pay someone to *assemble* the aircraft.

Furthermore, since the aircraft is ready-to-fly, it must be flown or somehow trucked across country to be delivered to the buyer, whereas today most ultralights are delivered *unassembled* in a 20-foot crate.

All of these additional features are costly. The Primary Category FAA-certified Quicksilver GT-500 is \$6,000 more expensive than the identical ultralight version of the GT-500.

Although there is no doubt that the FAA must establish a means of certification and quality control for LSA, there is also no doubt that a light-sport aircraft will be far more expensive to buy and maintain than an ultralight. There are many price-sensitive ultralight pilots who will simply *drop out of flying* rather than pay the additional cost. This illustrates the absolute necessity of maintaining the option of flying a two-seat ultralight under a Special FAR, as argued on page six of this Response.

Recommendation: I propose that the FAA extend the deadline for responding to the NPRM (currently the deadline is May 6, 2002.) I also propose that ultralight manufacturers, the FAA, and other affected parties get together and create and publish the industry consensus standard before the public is obligated to respond to the NPRM without a full awareness of the ramifications of the light-sport aircraft certification process and costs.

Page 5373 (first column): The Sport pilot Initiative Will Make Changes to Recreational Pilot

s a part of the Sport pilot initiative, the FAA proposes to make a change to the Recreational pilot's privileges and limitations. At present, a Recreational pilot is precluded from operating "in airspace in which communication with air traffic control is required" (FAR 61.101(d)(7.)) Since a Sport pilot, who is required to have *less* training than a Recreational pilot, *will* be able to operate in controlled airspace with a logbook endorsement, the FAA appropriately proposes to allow a Recreational pilot to do likewise with a logbook endorsement.

I concur with the proposed change to Recreational pilot. In addition, I have further comments on the Recreational pilot issue.

The Recreational pilot's certificate (affectionately called "Rec pilot") was created by the FAA in 1989 as a "lower cost alternative to the private pilot certificate." (Page 5373, first column.)

The FAA further states: "We believed this new certificate would be attractive for persons interested in flying basic, experimental, or homebuilt aircraft." The FAA then discusses the primary category aircraft certification regulations (under which the Quicksilver GT-500 is certified), followed by the statement, "Despite the efforts discussed above to address sport and recreational general aviation needs, those rules, for various reasons, *have not achieved the regulatory goals we set out to achieve.* ...Neither the Recreational pilot certificate nor the primary category airworthiness certificate regulations have accommodated the sport and recreational flying community." (*Italics mine*)

I am going to dwell on the Recreational pilot initiative for a moment, because **the fate of Rec pilot portends the future success of Sport pilot.**

I am one of the few FAA certified flight instructors who wholeheartedly embraces Rec pilot. I have trained Rec pilots in certificated and experimental aircraft, and even in a helicopter. I have done this training in the heart of Los Angeles, where, amazingly enough, an uncontrolled airport exists only 10 miles from LAX. I am the founder and director of the Quicksilver "Flight Academy" which is designed to train pilots in experimental Quicksilver ultralights. See the archived January 28 issue of <http://www.aero-news.net/> for the article entitled "Quicksilver Steps Up to Training." Or see: <http://groups.yahoo.com/group/JonThornburgh/message/265>

Recreational pilot (FAR 61.96) is perfect for ultralight -type aircraft.

The only cross-country requirement is a dual 25-mile flight. There is no requirement for any of the following training: night or instrument, electronic navigation, radio communication with Air Traffic Control. Basically, the student's main job is to learn to physically manipulate the flying machine, which is very similar to what an ultralight pilot learns. The Rec pilot certificate is a perfect starting point for eventual progression to Private pilot.

The downside of this abbreviated training is a set of limitations, found at FAR 61.101. Most of the Rec limitations are the same as the limits proposed for Sport pilot--no night flying, no retractable gear, no flying above 10,000 feet MSL, no towing, and no flight out of Class D airspace. There is also a limit on the distance the Rec pilot can fly from his departure airport.

In the NPRM the FAA complains that the Rec pilot was not a success. Only 638 pilots have been issued a Rec license (page 5373, second column.)

Since I am intimately involved with the Rec program, I can say categorically that the reason for the "failure" of the Rec program lies entirely with the FAA. I can also say that the reasons for the Rec failure are the exact same reasons that there is an overwhelming probability that Sport pilot will also be a failure.

The Rec program could have, and *would have*, been a success if the FAA had implemented the changes that I advocated over 10 years ago. I suggested that the FAA promulgate a series of logbook endorsements that would expand the Rec pilot's privileges commensurate with additional training. For example, if a Rec pilot were taught to communicate with ATC, it should be so noted in his logbook, and he should be allowed to fly out of a tower-controlled airport.

I was told by the very FAA attorney who drafted the Rec pilot regulations that such a logbook endorsement concept would never be possible. I pointed out to him that the concept already exists, under FAR 61.31 ("Additional Training and Authorization Requirements.") Today, the FAA is proposing the exact same concept, calling it the "building block approach."

In addition, I pointed out to the FAA attorney that there was no reason to limit flight to 10,000 MSL (or 2,000 AGL, whichever is higher) for the same reasons that Sport pilot should not be limited to 10,000 feet, as noted in my arguments on page 13 of this Response. In fact, almost *all* of the Rec pilot limitations could gradually have been eliminated with progressively more training and logbook endorsements. Eventually, the Rec pilot would have received enough training and obtained enough experience to qualify for the Private pilot practical test.

The Rec pilot's certificate is relatively easy to obtain, affordable, and fun to achieve. It's the limitations that doomed it to failure--limitations which the FAA would not allow to be eliminated with logbook endorsements, but only by taking another written exam, oral exam, and flight test for Private pilot.

The FAA has failed to recognize this, and has illogically imposed

the same limitations on the Sport pilot--such as the 10,000-foot limit, fixed propellers, fixed gear, and the prohibition against demonstrating an LSA to a prospective buyer. An ultralight pilot has none of these restrictions!

The Sport pilot is also not allowed to fly at night, whereas even ultralight pilots can fly up to 30 minutes after sundown (if equipped with a strobe light.) The Sport pilot must get an instructor checkout for each make and model, which an ultralight pilot does not have to do. The Sport pilot cannot tow anything, whereas Wallaby Ranch and Quest Air are extremely successful aviation enterprises, using powered ultralights to tow unpowered hang gliders aloft. (See "Wallaby Ranch-A Hang Gliding Paradise" at <http://www.ultraflight.com/jonThornburghFrame.htm>)

How can the FAA expect that Sport pilot will be enthusiastically embraced by the ultralight community if the Sport pilot has less privileges (in many situations) that an ultralight pilot? In the NPRM, the FAA admits, in effect, that it *made a mistake* in the drafting of the Rec pilot regulations. Who's to say that the FAA is not making *another mistake* in many of the provisions of Sport pilot--mistakes which will doom it to failure?

For that reason, it is imperative that the ultralight training Exemption remain in place, and be codified as a Special FAR (as noted on page 5 of this Response,) as a back-up in case Sport pilot is just as unpopular as Rec pilot, which I predict will happen.

In regards to proposed changes to Rec pilot, the reader may be interested in reading the article entitled "Today, Tomorrow Only to Change the FAA" at the October 10, 2000 issue of <http://www.aero-news.net/> or see <http://groups.yahoo.com/group/JonThornburgh/message/268>.

In accordance with Presidential Executive Order 12866, the FAA is periodically required to review its regulations, and accept public comments. As seen in the articles mentioned above, I submitted my comments to the FAA, which included changes to Rec pilot. As of today, almost two years later, there has not been a word of response from the FAA. I ask you, is this the type of (non)-assistance that the LSA community is going to get from the FAA in response to the *hundreds* of questions and issues that are raised by the Sport pilot initiative?

My recommendation: Revise the Recreational pilot regulations to make it a viable certificate. Allow logbook endorsements for expanded Recreational pilot privileges commensurate with additional training.

Speaking of Recreational pilot, we might quickly jump ahead to "Section 91" of the NPRM on page 5407 (third column.) Under this section, the FAA offers an abbreviated means of "exercising the privileges of a Sport pilot certificate" if a pilot already has a Private pilot certificate. The FAA wonders why Rec pilot was not successful, and then throws another insult at the rating by stating that one must have a *Private* certificate to benefit from an expedited means of exercising Sport pilot privileges.

I would like to know why the FAA selects *Private* pilot and not *Recreational* pilot for this honor. The Rec pilot certificate is considered a higher rating than Sport pilot. The Rec pilot requires 30 hours of training versus 20 hours for Sport pilot. The Rec pilot can fly a four-seat airplane with *no weight limit* (the Sport pilot is limited to 1,232 gross weight.)

The FAA gives absolutely no rationale for the designation of Private pilot in Section 91, instead of Recreational pilot. Unfortunately, this is all too typical of the many provisions within the NPRM that are randomly and illogically proposed by the drafters of the Sport pilot initiative.

My recommendation: Change NPRM Section 91 to allow a Recreational pilot to enjoy the expedited means of exercising Sport pilot privileges, instead of mandating that a pilot must hold a Private pilot certificate or higher.

Page 5374 (first column) and page 5396 (third column): Ultralight Accidents

The FAA's analysis of ultralight accidents is completely meaningless. Even in the NPRM the FAA statistics are inconsistent. On page 5374 the FAA states "Accident data from the NTSB and part 103 exemption holders show that **36** accidents occurred between 1995-2001 involving aircraft that would have met the proposed definition of light-sport aircraft. Those accidents resulted in 51 fatalities" (emphasis mine.)

On page 5396 the FAA states "A review of the information from all these data sources revealed that there were **41** fatal accidents between 1995 and 2001 that involved fat ultralight vehicles and light aircraft" (emphasis mine.)

Unless I'm missing something, it appears that the FAA gives two different figures for the number of fatal accidents.

On page 5397 the FAA continues, "A review of the 1995-2001 data showed that there were 51 fatalities in accidents involving aircraft that would be defined by this rule as light-sport aircraft. During that 6-year period there were roughly 8 or 9 fatalities a year. At that rate, there would be 83 fatalities during the next ten years. In this analysis, the FAA *estimates* that a total of 82 fatalities could potentially be avoided by adopting the proposed rule" (emphasis mine.)

On page 5374 (first column) the FAA says, "We *believe* that many of these accidents could have been avoided with this proposed rule" (emphasis mine.) A few paragraphs later on page 5374 the NPRM says that the following items "contribute to the prevention of accidents": training to a standard, receiving FAA safety notices, obtaining NOTAMS, obtaining weather briefings, and required recurrent training.

Let's look at these proclamations, one by one.

First of all, the FAA has NO IDEA what caused the ultralight

accidents, because neither the FAA nor the NTSB investigates ultralight accidents. So how can the FAA estimate that 82 out of 83 accidents could be prevented if airmen were Sport pilots instead of ultralight pilots?

Secondly, the FAA fails to note that non-participants (people on the ground) have not been injured by ultralights. In other words, the pilots who were injured were taking a calculated risk, just like scuba divers and parachute jumpers. Non-participants were spared because ultralights are relegated to rural areas, and the accidents occurred in isolated locations. However, Sport pilots will be allowed to fly over congested areas, making it inevitable that someone *on the ground* will eventually be killed by an ultralight. This will be a public relations nightmare, as well as skew the potential accident statistics.

Furthermore, it's probable that pilots and passengers are more likely to be seriously injured when they crash into a building in a congested area than into a rural farmer's field. Therefore, it's just as possible that the adoption of Sport pilot will *increase* the number of fatalities in the next 10 years as reduce fatalities.

I am not advocating that Sport pilot be abandoned due to the unpredictability of accidents. I'm just saying that it is not a valid reason to adopt Sport pilot on the assumption that accidents will decrease.

The accident statistics, in fact, argues for the retention of ultralighting and the ultralight Exemption. Although tragic, 8 ultralight accidents a year seems relatively minor, considering the thousands of hours that ultralights are flown. Consider these statistics: according to the 2001 Time Almanac there are over 3,000 deaths *each year* from the "ingestion of objects." In 1996 (the latest year for the published statistics) there were 482 deaths from electric current, 611 deaths from poisonous vapors, 947 accidental deaths from firearms, and 675 deaths from "water transports." After seeing these figures, 8 ultralight fatalities a year don't look so bad.

Looking at the United States general aviation accidents we see the following for the years 1995 through 2001:

Year	All Accidents	Fatal Accidents	Total Fatalities
1995	2,056	413	735
1996	1,908	361	636
1997	1,845	350	631

1998	1,904	364	624
1999	1,906	340	619
2000	1,838	343	594
2001	1,721	321	553
Total:	13,178	2492	4392

Source: <http://www.nts.gov/aviation/Table10.htm>

Even a cursory review of these accident statistics would indicate that the last thing that an ultralight pilot would want to do is to enter into the realm of general aviation! There were 2492 fatal general aviation accidents and 4392 fatalities from 1995 to 2001 in comparison to 36 or 41 (take your pick) fatal ultralight accidents and only 51 ultralight fatalities.

These general aviation accidents occurred, by the way, in spite of general aviation's "training to a standard, receiving FAA safety notices, obtaining NOTAMS, obtaining weather briefings, and required recurrent training."

Even more significant, if one checks the NTSB web site, is that 49 *non-participants* were killed in general aviation accidents from 1995 to 2001, whereas there were zero non-participants killed in ultralight accidents.

Notice the words used by the FAA in the statements quoted on page 21 of this document: "...the FAA *estimates* that..." and "We *believe* that..." These statements are followed up on page 5397 (first column) with the words, "The assessment of potential safety benefits is subject to the following uncertainties: accuracy as to the actual number of light-sport aircraft accidents...etc." Basically, the FAA admits that it has no concrete evidence whatsoever whether the accident statistics will go up or down with the implementation of Sport pilot.

Based on this non-evidence, the FAA has the audacity to proclaim that, based on a reduction of 82 fatal accidents, the monetary savings to society would be \$221.4 million during the next 10 years.

First, they have no idea how many fatalities will be avoided or not avoided. Second, the \$221.4 million figure is based on assumption that "the value of a fatality avoided is \$2.7 million." There is no showing whatsoever that this is a valid assumption for the ultralight world.

This \$2.7 million is the standard figure attributed by the NTSB to passengers killed in an airline accident. It is the figure used by the government to weigh the value of implementing safety improvements versus the burden of the cost of the improvements. For example, it was determined that the cost of requiring TCAS mid-air collision warnings on passenger airlines was worth the value of lives saved from a statistical midair avoided. However, cargo carriers were not required to install TCAS because they don't carry passengers.

Page 5397 (second column): The Benefit-Cost Comparison

The \$221.4 million figure used by the FAA to justify the implementation of Sport pilot to the Office of Budget and Management is significant, because it is weighed against the estimated \$40.4 million that it will cost to implement Sport pilot over the next 10 years. It would take a multitude of pages to point out the errors and completely unfounded assumptions made by the FAA in coming up with the \$40.4 million figure. However, even a cursory analysis will reveal some interesting facts.

Just like the "36" versus "41" number of fatal ultralight accidents cited at different places by the FAA, the NPRM is just as inconsistent in estimating how many people will become Sport pilots in the next 10 years. On the top of the second column of page 5397 the FAA estimates that "9,000 pilots will seek a Sport pilot certificate." In the first column on page 5300 the FAA says "Of the 10,000 existing operators of fat ultralight vehicles that would be affected by the proposal..." (Possibly the FAA is implying that out of the 10,000 present ultralight pilots 1,000 will drop out of flying.)

On page 5399 the FAA *estimates* (my emphasis) that 1,000 existing ultralight operators will become Sport instructors. Where did this figure come from? The FAA has not done one single survey of existing ultralight instructors to see how many would become FAA Sport instructors. As we will see later, it will be a tremendous burden in time and expense to just become a Sport pilot, let alone an *instructor*. It is often alleged that many ultralight instructors don't really want to teach anyway. They just become "instructors" so that they can legally carry a second person (called a "student".) These "pseudo-BFIs," as they are called, are certainly not going to become Sport instructors, with the burden of liability, expense, responsibility, and recurrent training involved.

From an analysis of the national ultralight organization's instructor lists, it appears that less than 10% of present ultralight instructors are FAA pilots, and less than 2% are FAA certified flight instructors. The rest are non-FAA pilots who have a long, long way to go to become FAA-rated Sport instructors. In my opinion, the FAA estimate that 1,000 present ultralight operators will become Sport instructors is pulled completely out of thin air.

For a look of other numbers extracted from thin air, see the table on page 5395 of the NPRM, ironically appearing under the section in the proposal labeled "Paperwork Reduction Act." The preamble to the table states "The FAA *estimates* [my emphasis again] the number of respondents impacted by this proposal and the annual frequency of information requirements to be as established in the table below."

One must look carefully "in the table below" to see that the FAA estimates that in the first year after Sport pilot is implemented there will be 192 instructors. Assuming, for the sake of argument that this is correct, the FAA maintains that there will be a total of 384 instructors after two years and 576 instructors after three years.

As seen above (page 5 of this Response,) the FAA intends that the ultralight training exemption will be rescinded in three years, and that all ultralight training will cease. On page 5399 of the NPRM the FAA states that "10,000 existing operators of fat ultralight vehicles will be affected by the proposal between 2002 and 2003."

Here is my question: will 192 Sport instructors the first year, 384 the second, and 576 in the third year be able to transition 10,000 ultralight pilots to Sport pilots in three years? Even if there were 576 pilots during *all three years* that would equate to less than 12 instructors per each state in the USA.

Furthermore, in another fanciful statement, the NPRM states on page 5399 (bottom of the first column) that "The proposal would potentially affect an ***estimated 19,065*** [my emphasis] light-sport aircraft operators seeking either a Sport pilot certificate or a flight instructor certificate over the next 10 years." The FAA throws out so many numbers all over the place that it's difficult to keep it all straight. However, one must remember that this is the same organization that has underestimated by millions and millions of dollars such items as updating the national Air Traffic Control system, the construction of runways at commercial airports, and the implementation of the now abandoned MLS approach system.

How about some more whimsical numbers? The table on page 5395 estimates that there will be 300 DPEs created per year. "Designated Pilot Examiners" are the persons who give the flight exam ("practical test," in FAA-talk) to pilot applicants. Unfortunately, there is not one single word in the NPRM about how one would become an examiner or what his qualifications would be. So how in the world can the FAA predict that there will be 300 new examiners per year? Remember on page 11 of this Response when I said that I called the FAA "hot-line" number numerous times, and never got a response? Well, the question I was asking on the hot line was about the DPE qualifications. I still have no answer.

Absent a response from the FAA, I would direct one's attention to FAA Order 8710.3C, the *Pilot Examiner's Handbook*, which may be seen at <http://isddc.dot.gov/OLPFiles/FAA/005358.tif>. In Chapter 2, Section 5, is listed the eligibility and experience requirements to become a DPE, which are considerable (2,000 hours pilot-in-command experience for an airplane DPE.)

To become a general aviation examiner, a pilot must be a CFI and meet the required flight experience. The instructor must take an applicant's written exam. If he passes, he is then *invited* by the FAA to attend the Examiner's Standardization Training Course in Oklahoma City. This course lasts four days, and the applicant must pay for the course (\$250,) as well as pay his own transportation, food, and lodging. In 2002 the course will be given only given four times: in March, May, July and December. For more information see:

<http://av-info.faa.gov/data/staticdocs/AFS640/dpe2002.pdf>

If the applicant passes the Training Course he becomes an apprentice examiner, who is monitored by an FAA supervisor when the apprentice examiner gives his first practical tests. A DPE is subject to further monitoring if he passes more than 90% of his pilot applicants. He is also inspected once a year, and he must attend recurrent training seminars at his own expense (\$100.)

There are approximately 1200 examiners in the United States. A quick look at the number of examiners per state shows California with the most at 108. Arizona has 45, New York 29, and Texas 97.

In view of the extensive experience and dedication required to become an examiner, how can the FAA estimate that 300 new Sport pilot examiners will enter the system per year? I can predict with absolute confidence that there will be no FAA employees who are examiners. I can't get an FAA Safety Inspector to even *fly* with me in my Quicksilver GT-500, let alone check out as an examiner. The examiners that work with me are not FAA examiners, but civilian DPEs. I had to train them myself, and even they were leery of tube and fabric, Rotax-powered ultralight-type airplanes.

For fanciful amusement, study the boxes on page 5395 which estimate the annual cost for "information requirements" for DPEs, DARs, flight instructors and mechanics. The cost to a DPE for "information requirements" is listed as \$43 per year. Sport pilots and instructors will supposedly only pay \$12 per year.

Before we leave the subject of fanciful figures, I cannot resist quoting, verbatim, the following sentences on page 5397 which could only have been written by a person who was moonlighting as an executive at Enron.

"In addition to safety benefits, there would be a benefit gained from "consumer surplus," which is derived from the recreational value gained from operating light-sport aircraft. If the derived (net) recreational value is \$25 per recreational day and a Sport pilot conducted 20 days of recreational flying annually, a Sport pilot would obtain \$500 in net annual recreational benefits. The FAA estimates that 9,000 pilots will seek a Sport pilot certificate, providing an additional estimated benefit of recreational value gained of \$4.5 million annually."

Here is my response to this statement. On page 5399 the FAA states that there are already 10,000 existing "operators" (that is, "existing *ultralight* operators.") I can guarantee that ultralight pilots fly more than 20 days a year. I can also state that the value an ultralight pilot places on his flight experience is far more than \$25 per day.

Let's say that an ultralight pilot flies 40 days a year, which is less than one day per weekend. If his "consumer surplus" were only \$25 per day (which is a low figure), then 10,000 operators flying 40 days a year at \$25 per day equals \$10,000,000 benefit to society that *ultralight* pilots are contributing today as *ultralight* pilots who are not Sport pilots. Based this analysis there is more "consumer surplus" value in today's ultralight community than there will be in the future

Sport community.

On page 5397 the NPRM states that the FAA solicits comments regarding Sport pilot costs. Here are the steps that an ultralight pilot will have to take to become a Sport pilot, and my estimated costs, based on eight years of actually training ultralight pilots and 30 years of training general aviation pilots:

1. Place the used ultralight into the light-sport aircraft experimental category. Cost: \$500 to the DAR to examine the aircraft, plus an undetermined amount to upgrade the ultralight with the required instruments to be eligible for the experimental category.
2. Buy at least \$100 worth of books in order to study for the FAA written exam. The cost could easily go higher if one buys study tapes (such as the King course) or takes a weekend "refresher" course.
3. Fly a minimum of three hours with an instructor in preparation for the practical test. Cost: \$120 for the instructor, plus more if the applicant uses the instructor's aircraft instead of his own.
4. Add at least 10 hours of ground time (and very likely much more) at \$25 per hour, which equals \$250 minimum.
5. Take the written test. Cost: \$70.
6. Take the practical test. Cost: \$400 for the DPE (if you can *find* a DPE)

Total minimum cost to transition from an ultralight instructor to a Sport pilot: \$1,440.

This cost does not include buying insurance on the airplane, paying registration fees and state taxes. Nor does it take into account the cost of flying or transporting the aircraft to the DAR, instructor, or DPE. In addition, if the Sport pilot wants to maintain the aircraft himself, he will have to attend a 16-hour course, which will probably cost \$200 to \$300, not including transportation, food, hotel bill, and time away from work.

If the Sport pilot wants to become a Sport airplane instructor, he needs 150 hours of flight time. He also must take *another* written exam and a practical test. Add another several hundred dollars to pay for the instructor, DPE, study guides, and for the written exam.

If the Sport instructor wants to maintain his own aircraft and use it for flight training, he must attend the 80-hour maintenance course. Cost: \$1,300 (based on the present cost to attend the Rotax seminar.) At 8 hours a day, an 80 hour course would require ten days of training, most likely at a place away from home (such as Oshkosh.) Add to the bill 10 days of hotel stay, plus transportation, food, and time away from work.

Total cost to become a Sport instructor: a minimum of \$2,000 *in addition to* the cost of becoming a Sport *pilot*. Cost to become both Sport pilot and Sport instructor: \$3440.

Now here's the real kicker: after three years the former ultralight BFI will no longer be able to instruct in his former ultralight. He will have to buy a brand new factory built, ready-to-fly "light-sport aircraft." Cost: probably at least \$20,000.

So for a mere \$23,440 a person may become a sport instructor and teach and maintain his light-sport aircraft, all of which he is already doing today as an ultralight BFI.

Perhaps the FAA will now get the point that there will be many, many BFIs who will simply walk away from aviation, especially the part-time BFIs. This is the reason that I said in the beginning of this Response that the single most important change that needs to be made to the NPRM is to drop the idea of eliminating the ultralight training exemption, and instead make it a permanent Special FAR. That way, the world of ultralighting will remain intact, as a back up in case Sport pilot is as much a failure as Recreational pilot.

My recommendation: That the FAA extend the NPRM comment period and reissue a modified NPRM after further study as to the actual costs of implementing the Sport pilot initiative, as opposed to unsupported "estimates."

Page 5374 (second column): The FAA's Enforcement Action Authority

Under the heading "The FAA's Reason for this Proposal" the FAA makes this statement: "Certificating Sport pilots, light-sport aircraft, and repairmen would allow the FAA to identify and *take certificate action against them.*"(Emphasis mine)

On page 5374 (third column): "The NTSB would investigate any accidents or incidents involving certificated Sport pilots or light-sport aircraft.."

On page 5403 (second column) the NPRM states, "As a certificated pilot, *you must comply* with 14 CFR part 61 and with the general operating and flight rules under 14 CFR part 91 of this chapter."

Page 5383 (third column): "...as a Sport pilot you would *have to comply* with parts 61 and 91 and any other applicable regulations under 14 CFR."

Page 5380 (first column): "failure to comply with mandatory safety-of-flight actions from the manufacturer would mean that the aircraft is no longer in compliance with the conditions of its airworthiness certificate."

Page 5394 (third column): "...the FAA may prescribe additional limitations necessary for operation of the aircraft."

Page 5403 (second column): The NPRM poses this question and supplies the answer: "Question: Do regulations other than those contained in this SFAR apply to a sport pilot? Answer, Yes. As a certificated pilot, *you must comply* with 14 CFR part 61 and with the general operating and flight rules under 14 CFR part 91 of this chapter. In addition, *you must comply* with all other applicable

regulations under this chapter." (Emphasis mine.)

What do the quotations above have in common? **FAA control!**

The NPRM states the reason that the ultralight training exemptions will extinguish in three years is because it won't be needed after Sport pilot instructors are certified, and that it's "inappropriate" to have an exemption in place indefinitely."

This is a disingenuous statement. First, the training Exemption has been in place for 20 years, without giving the FAA any heartburn over it being "permanent." Secondly, there are other "permanent" exemptions, such as the one given to the Popular Rotorcraft Association for *ab initio* commercial flight training in experimental gyroplanes. The EAA also has an exemption for *transition training* in experimental aircraft (EAA Exemption 7162), which gives every indication of being permanent.

Third, the FAA could easily transform the provisions of the ultralight training exemption into a permanent "Special FAR," which is exactly what the Sport pilot initiative is (SFAR 89.) (See my argument for this on page six of this Response.)

The real reason that the FAA wants the training Exemption to be extinguished is because the FAA wants control over ultralights.

Many ultralight pilots have told me that they support the Sport pilot NPRM, no matter what the provisions are, because they want to be relieved of "all the restrictions that ultralights operate under." These pilots are not FAA-certified pilots. They have no idea of the extensive restrictions that FAA pilots are subject to. They also have not stopped to consider the incredible freedom that ultralights enjoy today.

Single-seat ultralights are regulated by FAR 103. Two-seat ultralight *trainers* are governed by the terms of an Exemption promulgated by the FAA, as well as FAR 103. FAR 103 consists of only 13 sections.

General aviation pilots are subject to FAR parts 61 (pilot training) and 91 (general operating and flight rules.) Part 91 contains 94 sections that apply to general aviation, plus additional sections that pertain to turbine and transport category aircraft.

Here are some examples of regulations that general aviation pilots are subject to that ultralight pilots are not:

FAR 91.13 (Careless or Reckless Operation): this is the infamous clause directed against pilots for virtually every violation that occurs in flight, no matter how inadvertent.

FAR 91.103 (Preflight Action): before a general aviation pilot can "begin a flight" he must "become familiar with" all available information, including runway lengths at airports of intended use, airport elevation and *slope*, wind and temperature.

Almost every ultralight operates out of grass fields, farmer's lots or the desert. Presumably, many light-sport aircraft pilots will want to

operate out of the same areas. Will he be in violation if he is unable to determine the "slope" of the takeoff field? You can bet he'll be charged with violating 91.103 (along with other charges) if he flies into a bush at the end of field.

FAR 91.111 (Operating Near Other Aircraft): Mr. Ultralight BFI, do you and your student occasionally like to fly along side another ultralight, perhaps to take photos? Sorry, not allowed any more. I quote: "No person may operate an aircraft, carrying passengers for hire, in formation flight." (By the way, I understand that the popular T-34 civilian warbird training schools have a "permanent" exemption to operate contra to this rule.)

AR 91.119 (Minimum Safe Altitudes): This rule has probably caused more general aviation violations than any other. Every aviation-hating ground-pounder who sees an airplane overhead is spring-loaded to call the FAA and "report a low flying aircraft." FAR 91.119 specifies different altitude minimums depending on the different types of terrain the aircraft is flying over--congested, "other than congested" (commonly called "rural"), or sparse.

Unfortunately, the FAA refuses to define what "congested", "rural," and "sparse" is. Aviation law is full of contradictory decisions about congested area. The first thing that every new Sport pilot will need to do is to get a hold of *Federal Aviation Regulations Explained*, by Jackson and Brennan. (Contact the publisher Jeppesen at 303-799-9090.) Read the section dealing with 91.119 for an entry into the mysterious realm of aviation law.

91.121 (Altimeter Settings): "Each person operating an aircraft shall maintain the cruising altitude by reference to an altimeter that is set...to the current reported altimeter setting of a station along the route of flight and within 100 nautical miles of the aircraft."

This little rule will be a big surprise to all those pilots who are presently flying ultralights that are not even equipped with altimeters.

91.125 (ATC Light Signals): ultralight pilots, you'd better learn these light signals if you want to pass your Sport pilot flight check.

91.137 (Temporary Flight Restrictions): With the advent of enhanced national security, these TFRs have become the bane of general aviation. Issued as NOTAMS, they are all too often issued without warning at the slightest provocation, in the interest of "national security." They "temporarily" forbid flying over sports arenas, downtown buildings, nuclear power plants, political rallies, marching bands, harbors, and everything else. The penalty for a violation is severe, at least a 180-day suspension of one's certificate. See the EAA and AOPA web sites for a discussion of the impact of TFRs. (<http://www.eaa.org/>; <http://www.aopa.org/>.)

Are ultralight pilots subject to NOTAMS and TFRs? Some people say "yes," but I quote from the FAA's own words on page 5374 (first column) of the NPRM: "...certificated Sport pilots would...be required to be aware of safety-related information contained in Notices to Airmen (NOTAMS), which could impact a flight and potentially reduce accidents (*current operators of ultralight vehicles*

are not required to receive these NOTAMS.)" (Emphasis mine.)

It's a wonder how thousands of ultralight pilots fly every weekend blissfully unaware that NOTAMS even exist in the world of aviation, and yet they complete their flight safely and without a violation or threat to national security.

FAR 91.151 (Fuel Requirements for Flight in VFR Conditions): probably no ultralight pilot has even heard of the requirement to maintain a 30-minute reserve of fuel. Most fuel tanks are not calibrated, there is no indication of how much fuel is unusable in the tank, and the maximum allowable fuel for an ultralight is only 5 gallons (10 gallons for an ultralight trainer). Most ultralight pilots fly until they see "an inch of fuel" remaining in the fuel tank, and then they land. No one knows for sure if that "inch" equals 30 minutes of reserve fuel or not.

Light-sport aircraft manufacturers will have to make sure that they determine the unusable fuel in every tank, the amount of fuel flow at different power settings, and mark the tank with various quantity markings. If a pilot runs out of gas, he will be cited for violating FAR 91.151 (along with 91.13), even if he lands without harm in an empty field.

FAR 91.159 (VFR Cruising Altitudes): ultralight pilots had better buy a compass (\$100) so that they can comply with 91.159. Never used a compass before? You'll be tested on it on the flight check: including compass "lead" and "lag", and "acceleration" effects.

FAR 91.205 (Instrument and Equipment Requirements): check this regulation to see all the instruments that you'll have to put on your open-cockpit ultralight in order to place it into the experimental light-sport aircraft category. You don't have a book on the Federal Aviation Regulations? Buy one from Aviation Supplies and Academics (ASA) on their web site: <http://www.asa2fly.com/> (fax: 425-235-0128).

FAR 91.211 (Inoperative Instruments or Equipment): Let's say after you spend the money to install all the instruments required in FAR 91.205 that one of them breaks, which will occur of course, only when you're on a cross-country flight, away from home. Can you fly back home with the inoperative instrument? Maybe, maybe not. Check 91.211. But be forewarned that many a flight instructor applicant has *failed* his oral exam because he couldn't figure the complicated Alice in Wonderland labyrinth in 91.211. If you figure wrong, you're violated!

FAR 91.207 (Emergency Locator Transmitters): You don't have one of these on your ultralight? Better get one for your light-sport aircraft. They cost about \$300, not including installation. Then, they require periodic inspection and change of batteries, and a maintenance logbook endorsement. Forget the endorsement? You're violated!

FAR 91.209 (Aircraft Lights): light-sport aircraft pilots won't have to worry about lights, because they are prohibited from flying at night. (Better look up the definition of "night" in FAR 1.1) Ultralight pilots will be dismayed to hear this, because under FAR 103.11 *ultralights*

may be operated in "twilight" if equipped with a strobe light (not *position lights*, just strobe lights.)

However, *light-sport aircraft* will be grounded at sundown (give or take a few minutes to account for official "twilight".)

My recommendation: amend the Sport pilot NPRM to allow light-sport aircraft and Sport pilots to operate in "twilight" in the same conditions as delineated in FAR 103.11(b).

FAR 91.215 (ATC Transponder Requirement): the NPRM does not state whether a light-sport aircraft will be required to have a transponder. If so, standby for a \$2,000 bill, plus the headaches of installation, operation, and maintenance (see 91.413). One thing is certain: *ultralights* are not required to have transponders.

FAR 91.303 (Aerobatic Flight) and 91.307 (Parachutes): do you have an ultralight that can do aerobatics? You'd better study 91.303 and 91.307 because there's a lot of factors that general aviation pilots must contend with regarding aerobatics that ultralight pilots have never heard of, including the requirement to wear a parachute, which an ultralight pilot does not have to do. (Of course it's prudent to wear a parachute whenever one does aerobatics, but the FAA regulations do not *require* ultralight pilots to do so.)

FAR 91.309 and 91.311 (Towing): light-sport aircraft pilots won't have to contend with this FAR, because the FAA has placed a blanket restriction on all towing by Sport pilots. If this prohibition remains in effect, then the highly successful schools that use a powered ultralight to tow hang glider aloft are out of business. In spite of the excellent safety record of these schools, the FAA has apparently decided that Sport pilots will be too incompetent to learn how to tow, even with special training and a logbook endorsement. Somehow it's a miracle that *ultralight* pilots learn to tow, despite the FAA's lack of confidence in light airplane pilots.

My recommendation: amend the NPRM to allow Sport pilots to tow objects (particularly hang gliders) after training to do so and a logbook endorsement.

FAR 830 (Notification and Reporting of Aircraft Accidents or Incidents): Although neither the FAA nor the NTSB investigates ultralight accidents, Sport pilots will have the same obligation to report accidents and incidents as general aviation pilots. An "engine failure" must also be reported as an "accident."

If an aircraft receives "substantial damage" it is considered an "accident." "Substantial damage" is "any damage or failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft."

Due to their lightweight structure and the fact that many ultralights, like the Quicksilver Sprint, do not have flexible landing gear suspension, so-called "substantial damage" occurs regularly in ultralights. This "substantial damage," such as a bent landing gear axle, can be replaced in a few hours at a cost of \$200. Many ultralight pilots have walked away unscratched from an ultralight "accident," such as a trike that tips over in a crosswind, which for all

practical purposes, totally destroyed the wing, due to torn fabric and bent tubes. Many pilots have also landed an ultralight in a field without incident after an engine failure.

Although ultralight pilots have heretofore considered these instances to be a normal fact of life, he will now be required to file a report with the NTSB, submit to a detailed "accident investigation," and have an "accident" permanently recorded on his pilot record. If a pilot doesn't file the NTSB accident report he is subject to an FAA violation.

Many ultralight aviators reading this Proposal may be dubious that the FAA is so quick to violate pilots. For various political and logistical reasons, the FAA has been very tolerant in the past of illegal ultralight activity. Due to this relaxed attitude toward ultralight enforcement, many ultralighters have the impression that the FAA exists to simply offer "guidance" or "suggest" rules of operation. However, FAA certificated pilots know full well that the FAA carries a big hammer.

Skeptics would be will advised to read the aforementioned *Federal Aviation Regulations Explained*, along with the following books:

1. *Violation--FAA Enforcement Actions*, by Howard Fried (Kindred Spirit Press, P.O. Box 9132, Winter Haven, FL 33883. Tel: 800-356-7767.)
2. *Air of Injustice*, by Jim Campbell, (Kindred Spirit Press, P.O. Box 9132, Winter Haven, FL 33883. Tel: 800-356-7767.)
3. *Please Call the Tower*, by Keith Bumsted and Kelly Reeser (Paragon communications, Inc., 225 Berthoud Trail, Broomfield, Co 80020.)
4. Also see "A Dangerous New Precedent in FAA Law Enforcement," by California Aviation Attorney Phil Kolczynski at <http://www.avweb.com/articles/merrell>
5. In spite of the FAA's relative tolerance toward ultralights, ultralight pilots *have* been violated. A couple of years ago some FAA inspectors began violating amphibious seaplanes in Florida, saying that they were overweight. It has been thought for years that FAA Advisory Circular 103.7 provided for an additional weight allowance for ultralights with floats. Suddenly, the FAA decided that AC 103.7 *did not apply* to two-seat trainers. Last June 2000 (almost two years ago!) the ultralight organizations asked for clarification from the FAA. The FAA has just responded to the request on April 11, 2002 after 22 months. For more information about this subject see the archives of Aero-News Network for January 23, 2002 and April 12, 2002 at <http://www.aero-news.net/>.

It has not been the purpose of this discussion to imply that Sport pilots should be exempt from general aviation regulations. On the contrary, it is wholly fit and proper that Sport pilots adhere to the same regulations as other certificated pilots.

The purpose of the discussion is to illustrate to the FAA and to

ultralight pilots who read this Response how much freedom that ultra-light pilots now enjoy that they take entirely for granted. As noted on page five of this Response, ultralighting is not just a way of flying, it is a way of life. Ultralighters revel in the joy of unfettered flight and freedom from regulation. That's way they are content to fly in rural areas, isolated from general aviation activity.

The opportunity to fly experimental ultralights as licensed FAA pilots has already existed long before the Sport pilot NPRM was published. Most ultralight pilots could readily put up with the restrictions on the Recreational certificate, so why didn't they "upgrade" to Rec pilot? Because they *didn't want to*. They are perfectly content to stay within the niche of ultralighting.

These are the pilots who may, or *may not*, transition to Sport pilot. If a majority of ultralight pilots do not transition, the ultralight/light-sport aircraft industry will not support itself from presently certificated FAA pilots transitioning "down" to Sport pilot. The industry will wither and die, to a great loss to aviation in America.

For this reason, I say again, it is *imperative* that single and two-seat ultralighting be allowed to continue to exist by codifying the provisions of the present training Exemption into a Special FAR.

Page 5383 (first column): [The FAA Can Change the Sport Regulations in the Future](#)

On page 29 of this Response was the beginning of a discussion entitled "The FAA's Enforcement Action Authority." The discussion centered on the FAA's ability to enforce actions against *pilots*. There is also another aspect of the FAA's authority --the ability of the FAA to change the Sport regulations at any time it wants to in the future.

After the Sport pilot regulations are promulgated, and the Sport pilot program is underway, there is nothing whatsoever to prevent the FAA from changing the rules of the game, and to so do *without input from the public*.

This means that the FAA could delete the self-certified medical provision. The FAA can change the minimum number of hours to qualify for a certificate. The FAA can change the 16-hour/80-hour maintenance training requirements, or even *abandon it altogether*.

The proof is in the statements below which leave no doubt that the FAA reserves the right to change the parameters of the entire Sport pilot Special FAR, regardless of how those provisions are presented in the present NPRM:

Page 5383 (first column): "The FAA is proposing a new Sport pilot certificate...the FAA would establish a Special Federal Aviation Regulation (SFAR) under part 61...it provides us with *greater flexibility to further define the new regulations over a period of time.*"

Page 5383 (second column): "The proposed certification of sport pilots is a new concept that *may require revisions* once it is put into

place."

Page 5390 (third column): "the FAA may, however, *revise these provisions* based upon a review of safety data obtained after the implementation of this proposal.

In the year 2002 there are 200,000 less certificated pilots in the United States than there were 30 years ago, in spite of a much larger population and technologically superior aircraft. The reason? A continuous and excessive addition of regulations and requirements to fly in the national airspace or to obtain a pilot's certificate.

The April 2002 issue of *AOPA Flight Training* magazine has an article on point on page 70 called the "The Holistic Instructor," by Budd Davisson (See http://www.aopa.org/flight_training). Here is an excerpt from the article:

"Many old-time instructors lament that we're spending too much time worrying about checkrides and not enough worrying about developing basic flying skills. One of the trends they see is a general degradation of basic stick-and-rudder piloting skills. Another is the significant increase in the amount of time it takes a student to earn the coveted private pilot certificate.

Today's students are bombarded with more and more FAA-required "must know" information, which includes new kinds of navigation, FARs, airspace, etc. Over four decades the increase in this extracurricular stuff (which contributes nothing to actual stick-and-rudder skills) has helped to drive the average time for a student to learn to fly from around 42 hours to well over 60 hours.

You would think that since it's taking 50 percent longer for pilots to get their certificates that today's pilots would be better, when some claim just the reverse is true."

What are these additional rules, regulations, and curriculum requirements that Budd Davisson is referring to?

When I began flight instructing in 1972 it was possible for a pilot to obtain his private, commercial, and his *flight instructor* certificate all in a Cessna 150. And, the CFI didn't even need to have an instrument rating. Today it's impossible to do that, because FAR Part 61 has been changed so drastically by the FAA.

Over the years, more and more conditions have been added to the requirements to obtain all three ratings, especially the commercial and flight instructor. Today you must have ten hours of "complex" aircraft time to obtain a commercial or CFI. Not only must you have complex experience, *you must also take your practical test in a complex airplane.*

A CFI applicant must also have an instrument rating before he can apply for a practical test, and a commercial pilot is severely limited if he does not have an instrument license.

At first blush, one might ask what is wrong if an instructor applicant

needs an instrument rating and complex time to qualify as a CFI. Doesn't it make him a safer instructor? The answer, surprisingly enough, is "no." As the FAA piled on more and more prerequisites for the commercial and instructor certificate, there was no empirical evidence that the additional requirements enhanced safety. That's what is so frustrating about the FAA's mind-set that more and more is better.

A CFI doesn't need complex aircraft time or an instrument rating to teach basic flying to a beginning student in a Cessna 150. An instructor doesn't need either rating to teach a "taildragger transition" course, or specialize in teaching aerobatics in a Citabria. A commercial pilot doesn't need complex time or an instrument rating to tow banners, spot fish, fly pipeline patrol, give radio traffic reports, or conduct local scenic flights.

The regulations are rife with such inanity. To obtain a commercial helicopter certificate, an applicant must accumulate 10 hours of *instrument* time to fly a helicopter that has virtually no IFR instrumentation. In fact, instrument rated helicopters are so expensive and so rare, that the FAA allows the helicopter applicant to obtain his "hood time" in an *airplane*, even if he's never flown an airplane before going under the hood!

Not a single one of these piled-on regulations were present in the 1970s. But they're all here today, imposed on the aviation community one by one over the years.

What's to stop the FAA from doing the very same thing to Sport pilot? Nothing! As soon as one Sport pilot fails to get back to his airport by sundown, and has an accident on landing, then all Sport pilots will be required to have night training. As soon as a Sport pilot has an accident from blundering into haze, all Sport pilots will be required to have instrument training. As soon as a Kitfox ground loops, all Sport pilots will be required to have taildragger training.

Today is it more difficult to obtain a Recreational pilot's certificate than it was to obtain a Commercial certificate in 1970. Ten years from now, it will be just as difficult to obtain a Sport pilot certificate as it is to get a Private pilot today. Then the FAA will wonder why Sport pilot was not a success, just as it wonders why Recreational pilot is not a success. And if the FAA has it's way, flying "fat" ultralights will no longer be an option, because the Sport pilot NPRM specifies that the two-seat ultralight training exemption will be extinguished in three years. Thank you, FAA.

My recommendation: Reform FAR Part 61 back to the simplicity that it was in 1970. Eliminate the requirement for complex aircraft experience and instrument time for commercial and CFI certificates. Provide for a logbook endorsement in FAR 61.31 for the privilege to fly a complex airplane after additional training.

Speaking of FAR 61.31 in the previous paragraph, the FAA cannot resist further tinkering with the regulations, even in the midst of the Sport pilot NPRM, which is supposedly dedicated to simplifying aviation. On page 5392 (third column) the FAA proposes to change FAR 61.31(k)(iii).

This provision has been around since the beginning of experimental aviation. It states that the requirement to have a specific rating, such as single-engine land, single-engine sea, etc., do not apply when a pilot flies an experimental aircraft, as long as he has *some type* of FAA pilot certificate. Although this provision appears strange at first glance, there is a good reason for it.

As used today, the word "experimental" is somewhat of a misnomer. Most so-called "experimental" airplanes are really factory-produced conventional "kit" planes that are well designed and well tested. But the experimental category was created to include the truly first-of-a-kind *experimental* flying machine. This unique aircraft may not fall under any FAA-established category or class. How then, can a pilot be required to have a "category and class" rating to fly the unique experimental, if it doesn't fall under a known category/class?

A perfect example is the powered-parachute. There are several powered-parachutes that have been placed into the amateur-built experimental category. In fact, one manufacturer, Parascender Technologies, was placed on the FAA approved "51% Amateur-Built Kit List" in 1994. (See <http://home.iag.net/~para/research.htm>.)

The question is, "What certificate is pilot required to have to fly a powered-parachute? Single-engine land? Balloon? Glider? None of the conventional category and class designations apply to a powered-parachute. That's the reason why FAR 61.31(k)(iii) exists--to accommodate unusual aircraft.

In the future there may be airplanes with wings filled with helium, or flying platforms, or anti-gravity flying machines, or magnetic-powered capsules. Even now there exists the "Solo Trek," which is a set of lift-rotors mounted on the pilot's shoulders that allow him to fly as a human helicopter. (See <http://www.solotrek.com/>)

It would be a serious mistake for the FAA to eliminate FAR 61.31(k)(iii), which allows a pilot (and a passenger) to fly one of these devices without a category/class rating. Aero Sports Connection, a national ultralight organization, opposes any change in FAR 61.31 in the March 2002 issue of its associated magazine, *Aero Connections* (Telephone 616-629-5166.) See the article "Concerns in the Sport pilot NPRM" on page 32.

My suggestion: Eliminate the provision in the NPRM which states that FAR 61.31(k)(iii) should be modified to require that a pilot have an appropriate category and class rating to operate an experimental aircraft with a passenger.

Page 5387 (third column): The FAA can Change the Light-sport Aircraft Certification Requirements in the Future

In addition to reserving the power to change Sport pilot certificate requirements in the future, the FAA proclaims the right to modify provisions relating to aircraft certification. In the NPRM the FAA makes the following statements (the emphasis in *italics> are mine):*

Page 5377 (third column): "...experimental and primary category kit-

built aircraft would be of unlimited duration, *unless the FAA finds good cause to establish a specific period.*"

Page 5377 (third column): "Changes to a consensus standard would not apply retroactively to previously manufactured aircraft, *unless required by the changed standard.*"

Page 5378 (second column): "Because of these requirements, *not all aircraft models will be eligible for a special airworthiness certificate.*"

Page 5380 (first column): "To ensure continued airworthiness of the aircraft, the FAA proposes that when an aircraft is certificated, *the FAA would assign appropriate operating limitations* requiring certain inspections."

What these statements mean is that the FAA expects the public to comment on the merits of the Sport pilot NPRM, without knowing what the full ramifications of the NPRM are, especially in regards to aircraft certification. The FAA is asking for a blank check and saying "trust us, everything will be O.K."

In fact, the entire NPRM is full of FAA requests to "trust us." We have to trust the FAA to work with the manufacturers to establish the "industry consensus standards," to establish workable import regulations for foreign built aircraft, to provide enough examiners to give practical tests, to encourage DARs to put the present ultralights into the experimental category, to produce reasonable Practical Test Standards (which we haven't even seen yet,) and much more.

Yet, just how trustworthy is the FAA?

At the Ontario Air Expo last February the FAA held a discussion on the newly issued Sport pilot NPRM. After a brief computerized power-point presentation there was a question and answer period from the audience, most of whom had not yet read the NPRM, since it had just been printed in the Federal Register shortly before the Expo.

A member of the audience asked one of the speakers, Scott Sedgwick, if light-sport aircraft would be subject to Airworthiness Directives (ADs.)

Before getting to Mr. Sedgwick's answer, let's look at what an "AD" is. If the owner of a general aviation aircraft receives a notice of an AD that is applicable to his aircraft it's as dreadful as receiving a notice of an audit from the IRS. These mandatory maintenance directives can cost an owner thousands of dollars, or even ground his aircraft. The AOPA is constantly opposing specific ADs promulgated by the FAA that are considered to be overly broad or unnecessary. Often the FAA rescinds or modifies an AD based on sufficient opposition.

For an excellent example of an AD quagmire regarding the Lake amphibious seaplane, see the article in the April 8 and April 10 issue of <http://www.aero-news.net/> entitled, "Fact and Perspective

on the Lake AD."

Scott Sedgwich's answer to the query if light-sport aircraft would be subject to ADs was "No." This answer was not correct.

Page 5380 (second column) of the NPRM states, "If public safety requires issuance of an AD, the FAA has the ability to issue one..." On page 5381 (second column) the NPRM clearly states, "...the FAA would issue an AD if public safety requires..." Either Mr. Sedgwich had not read the NPRM thoroughly, or his answer was "not operative," as the CIA refers to their misstatements.

During the same question and answer period, Sue Gardner, who is spearheading the Sport pilot initiative on behalf of the FAA, said that an ultralight transformed into an experimental LSA could be used for training indefinitely. What she failed to clarify is that, after a "grace period" of three years, an experimental LSA may be used for training *only if the training is given for free*. What this means is that all ultralight instructors who want to continue to make a living by instructing will have to buy a *brand new factory-manufactured light-sport aircraft in order to continue teaching for hire* after three years.

Although Sue Gardner's answer was technically correct, it's most likely that the questioner was referring to training for *compensation*, not training for *free*. There is no reason to inquire about "training" unless referring to training for compensation, since it's a given fact that *anyone* can give training in *any* aircraft if done for *free*.

Even the NPRM itself is ambiguous (and misleading) on this point. Page 5369 (second column) says "You could use aircraft with an airworthiness certificate issued for this experimental purpose for sport and recreation, and flight training." (Emphasis mine.) After reading this sentence, one must pay careful attention to the next sentence, which says, "For a period of three years after the effective date of the final rule, you could operate these aircraft for compensation or hire, while conducting flight training."

A rewording of the second sentence makes the message more clear. What it means to say is, "after a grace period of three years, experimental light-sport aircraft (i.e., former two-seat ultralight trainers) can no longer be used for commercial training." Further translated, this means that all ultralight BFIs who are currently engaged in commercial instruction must buy a new light-sport aircraft if he wants to continue to charge for his instruction.

The same ambiguity and convoluted language is present on page 5381 (first column): "An aircraft issued an experimental operating light-sport aircraft airworthiness certificate under proposed §21.191 (l) would be issued operating limitations under current §91.319(b) as part of the certificate. Operating limitations would prohibit the operation of experimental light-sport aircraft for compensation or hire, except when operated while conducting flight training in aircraft certified under proposed §21.191(i)(1), and also would prohibit rental of these aircraft"

It appears at first glance that you *may* train commercially in an experimental light-sport aircraft under proposed §21.191(i)(1).

Unfortunately, since proposed §21.191(i)(1) is only a proposed regulation, one cannot go to the present FARs to read the rule. Therefore, one must scrutinize the entire NPRM to find the *proposed* §21.191(i)(1). This Section may be eventually found on page 5401 (second column), where, sure enough, one learns that commercial flight training may not be done after 36 months.

Here are some more examples regarding whether or not the FAA is trustworthy. On the very first page of the NPRM there is a paragraph entitled, "For Further Information Contact:". After printing the telephone numbers (not toll-free, by the way) of Susan Gardner and Steve Flanagan the NPRM says, "Please use this phone number for questions only. Due to the large volume of questions we expect from this proposal, please leave a message and we will answer your questions in 3 days." (Emphasis mine.)

Taking advantage of this generous offer to ask questions, I have called Sue Gardner's number (202-267-5008) numerous times, and I have never received a response, let alone receive one in three days.

Here is the telephone log of the time and dates that I left my messages:

Date	Time (EST)
February 26, 2002	8:45 a.m.
March 11, 2002	10:20 a.m.
March 18, 2002	11:00 a.m.
March 26, 2002	2:00 p.m.
April 1, 2002	12:30 a.m.
April 8, 2002	8:15 a.m.
April 16, 2002	8:55 a.m.

The FAA admits in the NPRM itself that the Sport pilot proposal will generate "a large volume of questions." I ask, how can the FAA expect the public to accept a Proposal filled with ambiguities and unanswered questions and expect the public to put blind faith in the FAA that everything will work out satisfactory, when the FAA can't even live up to it's promise on the first page of the NPRM that it will answer questions on the telephone hotline?

It must be remembered that according to this proposal, two-seat ultralight training will become non-existent in three years. The FAA is asking ultralight instructors to put all their ultralight trainers into a new experimental category, to buy a new light-sport aircraft, and to become Sport instructors, all within three years, when right now there are no DARs, no DPEs, no pilot examiners, no "industry standards," no Practical Test Standard guides, and no knowledge exam questions, to name just a few non-existent infrastructures. These issues will generate hundreds of questions. Will they be

answered in a timely manner or not?

(By the way, my question for the hotline is this: "what are the prerequisites for a person to become a Sport pilot examiner (DPE)?" There is no statement whatsoever in the NPRM about examiners.)

On page 5372 (third column) the FAA discusses the "industry consensus standard" for LSA certification. The NPRM says, "By consensus standards, we mean standards developed by the industry through consensus process *with FAA participation*. Industry would present those standards to the FAA for review and publication in the Federal Register for public comment. *After the FAA accepts the consensus standards*, we would publish them in the Federal Registrar." (Emphasis mine.)

To accomplish these extensive goals will require substantial cooperation and assistance by the FAA, yet the Administration doesn't even answer it's own hotline published in the NPRM!

The March 2000 issue (page 12) of Plane and Pilot Magazine published the results of an "American Customer Satisfaction Initiative." Where did the FAA rank in the survey? Of all governmental agencies, only the IRS and OSHA had lower overall scores than the FAA. And this is the organization that wants us to "trust" that all unanswered provisions of the Sport pilot NPRM will be resolved *after the rule is made law*. (The Plane and Pilot web site is <http://www.planeandpilotmag.com/>)

Pages 39 through 42 of this Response discussed the fact that the Sport pilot NPRM requires considerable trust in the FAA to accomplish its goals; with illustrations of instances in which the Sport pilot must depend on the FAA for the continued viability of the program, such as possible future changes in the Sport pilot SFAR, whether or not the FAA will issue ADs, the formulation of the industry standards, and the requirements to be an examiner. Based on these items discussed I propose the following:

My recommendation: Delete the provision in FAR 21.191(i)(1) which states that an experimental light-sport aircraft may not be used for compensated training after 36 months, and provide for the indefinite use of experimental light-sport aircraft for compensated training.

My recommendation: Suspend the present NPRM until the industry consensus standards for aircraft certification is agreed upon and published in the Federal Register.

My recommendation: Suspend the present NPRM until all the Advisory Circulars, knowledge exams, pilot textbooks, the 16-hour/80-hour maintenance schools, Designated Pilot Examiners, Designated Airworthiness Examiners, Practical Test Standards guides, and available liability insurance are established and available.

Page 5375 (third column), page 5387 (second column), page 5407 (second column): Aircraft Salespersons

The Sport pilot NPRM states that an "aircraft salesman" may not demonstrate a light-sport aircraft in flight to a potential buyer.

To demonstrate a light-sport aircraft a salesman must have a Private pilot's license and 200 hours of logged flight time.

This is the best way I can think of to completely kill the light-sport aircraft industry. Doesn't the FAA know that the vast majority of ultralight sales are made by ultralight instructors (BFIs) who are working mostly part-time on behalf of manufacturers? Almost every ultralight "Dealer" is actually a BFI who makes sales on the side. Almost every instructional flight is also a potential sales demonstration.

Just who is going to market light-sport aircraft if the Sport instructor cannot do it as a part of his instructional business? Selling airplanes, along with instructing, is the only way for instructors to make a living. Ultralight BFIs are entirely competent to make sales demonstration flights, and have been doing it for 20 years. What would make a Sport instructor less competent than an ultralight instructor?

The FAA statement, "We believe sales demonstration flights are not consistent with the nature of sport and recreational flying" is indicative of the FAA's total ignorance of the infrastructure of ultralight marketing. Ultralight marketing is done by ultralight pilots, not professionally designated salesmen. Light-sport aircraft will not be sold by professional salesmen (or salespersons, using FAA politically correct terminology,) but by Sport pilots and instructors.

Although this "salesman" issue may appear to be a minor point, it's worth looking at in more detail, because it's an excellent precursor of why the Sport pilot initiative will fail because of such illogical and unnecessary restrictions. This restriction is indicative of why Recreational pilot failed.

The FAA itself admits that Recreational pilot was a failure, but of course, the FAA doesn't place the blame on itself. Let's review what the FAA *does* say in the NPRM about "Rec" pilot:

Page 5373 (first column): "The FAA established the recreational pilot certificate under part 61 in 1989. We intended this certificate to be a lower cost alternative to the private pilot certificate. We believed this new certificate would be attractive for persons interested in flying basic, experimental, or homebuilt aircraft."

On page 5373 (second column) the FAA continues, "Neither the recreational pilot certificate nor the primary category airworthiness certificate regulations have accommodated the sport and recreational flying community."

On page 19 of this Response I discussed the reasons for the failure of Rec pilot, which is the inordinate operating restrictions on the pilot. For example, FAR 61.101(d) states, "...A recreational pilot may not act as pilot in command of an aircraft to demonstrate that aircraft in flight to a prospective buyer." Lo and behold, this is the same restriction that is proposed against Sport pilot.

Obviously, the FAA learned nothing about its role in the failure of Rec pilot, since it resurrects the *same limitation* on Sport pilot.

Notice how the FAA says on page 5735 (third column) regarding Sport pilot, "We *believe* sales and demonstration flights are not consistent with the nature of sport and recreational flying." (Emphasis mine.) Referring to the Rec pilot certificate, the FAA says on page 5373, "We *believed* this new certificate would be attractive..." Well, what the FAA *believed* regarding the Rec pilot was *wrong*, as even the FAA admits. And what the FAA *believes* about Sport pilot salesmen is also wrong, I can guarantee.

Where are the facts and statistics to show that Rec pilots or future Sport pilots will be incompetent to demonstrate an airplane for sale? Have there been a rash of accidents by non-professional salesmen demonstrating aircraft?

The way that the restriction is written in FAR 61.101(d)(12) a Rec pilot *cannot even demonstrate his own airplane for sale*. A Rec pilot could have hundreds of hours in his own airplane, and he can't take a prospective buyer for a flight in it. Is this what the FAA really intended, or was 61.101(d)(12) just sloppily written?

Probably sloppy writing, because at least the FAA had enough insight to clarify the fact that a Sport pilot can sell his own airplane if he not a salesperson: "You could share operating expenses of a flight with a passenger, and you could demonstrate an aircraft in flight to a prospective buyer unless you are an aircraft salesperson" Page 5387 (second column.)

By the way, since the FAA apparently recognizes the slipshod manner in which 61.101(d)(12) is written, and the Sport pilot NPRM proposes other changes to Recreational pilot, why doesn't it propose to re-word or eliminate 61.101(d)(12)?

Speaking of sloppy writing, just what is an "aircraft salesperson" anyway? Is this a full-time person, especially designated as a salesman by a manufacturer, who has a tax resale license? Or is this just anyone who happens to want to sell an airplane that's not his own? Is it a flight instructor who occasionally sells an airplane for extra income? I don't see the definition of "salesperson" in the FAR 1.1 ("Definitions and Abbreviations.")

This whole subject would be ludicrous if it weren't for the fact that all ultralight sales have heretofore been done by ultralight instructors, who supposedly will make up the bulk of Sport instructors. If the instructor guesses wrongly about the definition of "salesperson" he could find himself *violated*, and grounded.

In the old days, general aviation manufacturers such as Cessna and Piper had professional, full-time salesmen who made a living flying from airport to airport to demonstrate an airplane to dealers and prospective buyers. This was some question as to whether or not the salesman needed to have a Commercial pilots certificate, since he was, in essence, flying for a living. At the urging of the manufacturers, the FAA clarified the fact that a professional salesman did *not* have to have a Commercial license; he needed only a Private pilot certificate and 200 hours of flight time (FAR

61.1139(f.)

In the scenario given above, there were very few FBO CFIs who were also professional demonstrators. However, the exact opposite is true in the ultralight community, and presumably in the Sport pilot community. All sales demonstrators in the ultralight community are ultralight instructors, and *only* ultralight instructors make sales. There *is no* infrastructure of roving professional sales demonstrators in the ultralight community. Therefore, ultralight instructors *are* salesmen, and Sport pilots *will* be light-sport aircraft salesmen, unless the FAA unwisely prohibits it.

My recommendation: completely delete Section 75 of the Sport pilot NPRM which states that a Sport pilot who is an aircraft salesperson may not demonstrate an aircraft in flight to a prospective buyer. In the alternative, amend Section 75 to at least allow Sport Instructors to demonstrate an aircraft in flight, whether or not he is an aircraft salesman. Amend the Recreational pilot FAR 61.101(d)(12) to read, "To demonstrate that aircraft in flight to a prospective buyer unless he is the owner of the aircraft."

Page 5377 (Second paragraph) and page 5400 (second paragraph): The Definition of a "Powered Parachute"

Part of the FAA's definition of a powered parachute is that it is powered by an "engine that is an integral part of the aircraft and is controlled by a pilot within a fuselage suspended beneath the non-rigid wing."

This definition explicitly excludes paragliders, and seems to exclude even paramotors. Although the terms are sometimes used interchangeably, for the purposes of this discussion I'm referring to a *paraglider* as an "unpowered aircraft that derives its lift from a non-rigid wing that inflates into a lifting surface when exposed to a wind," and a *paramotor* as "a foot-launched powered parachute in which the pilot wears the engine as a backpack, and is not enclosed in a fuselage."

Most paragliders and paramotors are single-occupant and fall under the definition of an ultralight vehicle in FAR 103. These flying machines would not be affected by the Sport pilot initiative. However, two-occupant paragliders and paramotors are becoming more and more prevalent, and have proven to be a valuable training aid, as well as a means of introducing a prospective student to flight.

There is no provision for two-person paragliders in the NPRM because they are not "engine powered," and paramotors seem to be excluded because they do not have a "fuselage." My question is, "Why?"

Why does the FAA specifically exclude these flying vehicles from Sport pilot, especially since they will no longer be able to be flown as ultralight trainers if the two-seat training Exemption is eliminated? The elimination of the Exemption and the exclusion of two-seat paramotors and paragliders will effectively preclude these devices from ever being flown again! (They don't have the

necessary instrumentation to qualify for Experimental.) Is this the intention of the FAA, or is this just an oversight? Why did the FAA specifically put the words ".by a pilot within a *fuselage*" in the definition of "powered parachute?"

The FAA is to be commended for creating the new categories of powered parachute and weight-shift-control aircraft. However, I propose a somewhat different definition for the parachute category, and the creation of several new classes.

The powered parachute category should be renamed "Parachute Aircraft" (or something similar,) and defined as "an aircraft that derives its lift from a non-rigid wing that inflates into a lifting surface when exposed to a wind."

Under the parachute aircraft category there should be the classes of powered parachute, paramotor, and paraglider.

The definitions for each would be the following:

Powered parachute means a parachute aircraft propelled by an engine that is an integral part of the aircraft and is controlled by a pilot within a fuselage suspended beneath a non-rigid wing.

The classes of "land" and "sea" are already proposed in the NPRM for the weight-shift-aircraft category. I would suggest that the FAA also add the classes of land and sea for the powered parachute category. (See <http://www.rapidlaunchusa.com/> for information on water-launched powered parachutes.)

(There is a article by Hank Austin on page 28 in the May 2002 issue of Ultraflight Magazine entitled "The Sport pilot License: Boon or Bust?" Hank writes, "When asked why the FAA didn't include amphibious powered parachutes in the regulations, the FAA officials stated that they weren't aware that they even existed!")

Paramotor means a powered foot-launched parachute aircraft.

Paraglider means an unpowered foot-launched parachute aircraft.

My recommendation: Change powered parachute from a category to a class. Adopt a new parachute category, called "Parachute Aircraft" (or something similar,) and defined as "an aircraft that derives its lift from a non-rigid wing that inflates into a lifting surface when exposed to a wind." Eliminate any reference to a "fuselage" in the definition.

Change the definition of "powered parachute" to "a parachute aircraft propelled by an engine that is an integral part of the aircraft and is controlled by a pilot within a fuselage suspended beneath a non-rigid wing."

Add the classes of land and sea for the powered parachute category.

Add the class of Paramotor, defined as "a powered foot-launched parachute aircraft."

Add the class of Paraglider, defined as "an unpowered foot-launched parachute aircraft."

Page 5377 (second column) and page 5400 (second column): The Definition of "Weight-shift-control"

The NPRM says a "weight-shift-control aircraft means a powered aircraft with a framed pivoting wing and a fuselage that is controllable in pitch and roll only by the pilot's ability to change the aircraft's center of gravity."

This definition has the same problems as discussed above regarding powered parachutes. Why does the FAA feel that it must put the word "fuselage" in the definitions of weight-shift-control aircraft and powered parachute? Apparently the FAA hasn't ever heard of the Mosquito self-launched powered hang glider, which has no fuselage other than the pilot's body. It is a traditional foot-launched hang glider with a rear-mounted, 15-h.p. Radne Raket 120 two-stroke engine used for takeoffs on level ground. (See: http://www.swedishaerosport.se/joel_press.htm and <http://www.serioussports.com/tchanggliders/index.html> for more information on the Mosquito hang glider.) Although the hang gliders depicted on the Mosquito web sites above are single-seat, there is no reason why the same concept could not be adopted to two-seat tandem hang gliders. These types of non-fuselage flying machines would be unable to fly as either a light-sport aircraft or as an ultralight, if the NPRM is adopted as written.

The Mosquito Radne Raket engine is enclosed in a canvas hang glider harness. Would this harness qualify as a "fuselage?" There are tandem hang gliding schools in which the pilot and student are enveloped in a harness. Will these harnesses qualify as a fuselage?

The most successful ultralight schools in the country are the tandem hang gliding schools. Most of the schools, such as Wallaby Ranch (<http://www.wallabyranch.com/>) and QuestAir (<http://www.questairforce.com>) use tow planes to carry the instructor and student aloft. At California-based High Adventure (<http://www.flytandem.com/>), instructor Rob McKenzie and his tandem student foot-launch from a mountain ridge.

These schools and others like them will be out of business forever if the NPRM is adopted as published, because their tandem hang gliders are not "engine powered," as specified in the FAA definition of weight-shift control aircraft. If the ultralight training Exemption is eliminated, as proposed by the NPRM, they will not be able to fly as ultralights either, since they carry two people.

On page 5400 (second column) of the NPRM the FAA defines weight-shift-control aircraft, the definition of which is given above. (What the FAA is defining is what the ultralight world calls a "trike.") On page 5377 (second column) the FAA elaborates by saying that that for an aircraft to meet the definition it must be controlled about two-axis only. An aircraft "with three-axis control (i.e. also controllable about the yaw axis) would not meet the definition of a weight-shift-control aircraft."

The FAA is apparently not aware of the flying machines which are

maneuvered in pitch and roll by a control bar but which have rudder control by moveable winglets or other means. The old style rigid-wing trikes are starting to have a comeback, with sophisticated winglets and even ailerons. Why should these hybrid types of weight-shift-control aircraft be precluded from being light-sport aircraft?

I propose a new definition of the weight-shift-control aircraft category, and two new weight-shift-control aircraft classes: powered weight-shift-control aircraft and unpowered weight-shift-control aircraft.

Under the category of weight-shift-control aircraft a new definition would be "an aircraft with a pivoting wing suspended overhead the pilot which is controllable in pitch by the pilot's ability to change the aircraft's center of gravity."

(Notice that the definition refers to *pitch* only.)

The classes of weight-shift-control aircraft should be "land," "sea," "powered," and "unpowered."

Powered weight-shift-control aircraft means a weight-shift-control aircraft powered by an engine, commonly referred to as a trike or a powered hang glider.

Unpowered weight-shift-control aircraft means a weight-shift-control aircraft that is not powered by an engine, commonly referred to as a hang glider.

There should be no mention of a "fuselage" in any of the parachute or weight-shift-control aircraft definitions.

My recommendation: **Redefine "weight-shift-control aircraft" to eliminate the words "fuselage" and "roll" from the present definition in the NPRM. The new definition would be: "an aircraft with a pivoting wing suspended overhead the pilot which is controllable in pitch by the pilot's ability to change the aircraft's center of gravity."**

My recommendation: **Add two classes to the weight-shift-control aircraft category in addition to "land" and "sea." The two new classes would be powered weight-shift-control aircraft (trike) and unpowered weight-shift-control aircraft (hang glider.)**

Powered weight-shift-control aircraft means a weight-shift-control aircraft powered by an engine, commonly referred to as a trike or a powered hang glider.

Unpowered weight-shift-control aircraft means a weight-shift-control aircraft that is not powered by an engine, commonly referred to as a hang glider.

Page 5379 (second column): The Issuance of a Retroactive "Statement of Compliance"

On page 5377 (third column) the NPRM says, "Only complete,

'ready-to-fly' aircraft would be eligible for special light-sport airworthiness certificates."

However, on page 5377 (second column) the NPRM modifies the previous statement by saying, "The FAA may issue special light-sport aircraft airworthiness certificates to aircraft manufactured before the effective date of the rule. This would require the manufacturer of your aircraft to be in a position to issue a retroactive Statement of Compliance for your specific aircraft serial number. Because of these requirements, not all aircraft models will be eligible for a special airworthiness certificate."

According to the NPRM, all ultralights that are two-seaters or overweight will have to be transformed into a new category of experimental aircraft. Three years later those experimental ultralights may no longer be used for training. Therefore, if you are a professional ultralight instructor, you will be obligated to buy a brand-new special light-sport aircraft if you want to continue instructing.

That means manufacturers will have a very difficult time selling ultralight trainers as soon as the NPRM becomes a rule, because three years later the ultralight can no longer be used for training. What I understand the FAA quotations above to mean is that, in order to preclude a precipitous drop in sales as soon as the NPRM is adopted, the manufacturers *may* be able to retroactively certify the aircraft originally sold as *ultralights*.

In my opinion, the likelihood of a manufacturer doing this is absolutely nil. Manufacturers are already going to have a tremendously increased liability delivering *brand new* light-sport aircraft. How much chance is there that they will *retroactively* certify worn-out ultralight trainers that have been used for instruction? Why would they take on so much liability?

Even if the manufacturers are willing to retroactively certify, you can bet that they will charge quite a lot. The aircraft owner would have to pay for an inspection by a factory representative, probably purchase upgraded parts, and pay for the manufacturer's liability exposure.

My suggestion: Suspend the NPRM until the FAA conducts a survey of manufacturers to determine how many will actually be willing to retroactively certify former ultralights as special, light-sport aircraft.

Page 5378 (third column): Designated Airworthiness Representatives

"Proposed FAR 21.186(b)(3) would require that the aircraft be inspected by the FAA (or an FAA-designated representative) and be in a condition for safe operation."

This statement on page 5378 raises the issue of Designated Airworthiness Representatives (DARs), the non-FAA personnel who examine prospective experimental aircraft on behalf of the FAA. As mentioned at the beginning of this Response, my niche in aviation is working with experimental aircraft, and instructing in them. (I have

been issued EAA Exemption 7162 to instruct commercially in five experimental aircraft.)

Based on my experience, I can say with assurance that there are many, many DARs who will not deal with ultralight-type aircraft, because of the liability. In the early days of ultralighting there were numerous accidents due to inferior construction, unreliable engines, and lack of pilot training. Those wild days of the past are gone, but unfortunately the reputation that ultralights are dangerous lives on in the minds of many people--including DARs.

A DAR knows that he will be named in any lawsuit that results from an accident, even if there is no evidence that the DAR was negligent when he issued the special airworthiness certificate to the aircraft. That potential exposure to a lawsuit will follow the DAR for the rest of his life. The potential liability is greatly increased if he issues operating limitations that allow the aircraft to fly over congested area, since an accident within an urban environment can cause much more damage than ultralights do when they crash in an open field.

To my knowledge, the FAA has done absolutely no survey whatsoever to determine how many DARs will actually participate in the great Sport pilot experiment. Nevertheless, the FAA *estimates* that there will be 300 DARs each year who will participate (page 5395, second column.) This figure of 300 DARs, by coincidence, is exactly the same numerical estimate given by the FAA as to the number of Designated *Pilot* Examiners (DPEs) who will participate.

I refer the reader to page 26 of this Response for my discussion regarding DPEs. To summarize the previous discussion, there is absolutely no possible way on earth that the FAA can make even the wildest guess as to how many Sport pilot examiners there will be. Why? For one thing, the NPRM is completely silent as to the requirements to become an examiner. So how does the FAA know how many pilots will be eligible?

Furthermore, I can guarantee that the present general aviation DPEs will not become Sport examiners, because of the liability (remember, ultralights are supposedly accident-prone) and because general aviation DPEs *don't know how to fly ultralights*. In spite of diligent searching, I have managed to find only one DPE willing to give a practical test in my ultralight-type Quicksilver GT-500. I have initiated training for two other DPEs who have declined to continue because the open-cockpit, tube and fabric, Rotax powered ultralights were just "too different."

Yes, I am certain that we will eventually have Sport pilot DARs and DPEs. But no one knows how long it will take, how many there will be, and how much they will charge. This is probably the biggest unknown factor regarding the Sport pilot program, and is an issue that could very easily doom the entire initiative. On page 5395 (second column) the FAA predicts that out of the 300 DARs, one hundred will come from within the FAA itself. I challenge the FAA right now to publish the names of those 100 prospective FAA DARs.

Page 5381 (first column): [Experimental Light-Sport Aircraft Are](#)

Subject To Ultralight Limitations

Within three years after the Sport pilot initiative goes into effect, all ultralight vehicles which do not meet the strict definition of FAR 103 (single seat, 5 gallons of fuel, etc.) must be transformed into experimental aircraft, or they will be grounded forever. When DAR issues an airworthiness certificate for operating an experimental aircraft, he also issues an accompanying list of "Operating Limitations."

The operating limitations ("ops limits") are partially dictated by the FAA and partially issued at the discretion of the DAR. Unlike a few years ago, the recent change to the DAR handbook, FAA Order 8130.2D, change 3, allows for experimental aircraft to operate over congested area. However, it appears that the experimental light-sport aircraft will not be allowed to operate over congested area.

On page 5381 the NPRM says, "Operating limitations for existing aircraft that exceed the weight, occupant, or performance limitations of part 103 would be similar to those that currently exist for vehicles operating under part 103..."

This innocuous statement could indicate that even though a *former* ultralight is now an *experimental* aircraft, it would be subject to the ultralight rules of FAR 103. The requirement to adhere to FAR 103 would mean such things as prohibited operation over congested area (FAR 103.15), or relegate even a lighter-than-air experimental light-sport aircraft to the lowest level of the yield right-of-way rules (FAR 103.13).

Unlike ultralights, however, the experimental light-sport aircraft will be subject to the dreaded AD notices (page 5381, second column.) For a review of AD notices, see page 39 of this Response.

My suggestion: The FAA should allow DARs to issue operating limitations to experimental light-sport aircraft which are the same as those issued to experimental amateur-built aircraft.

Page 5382 (second column): Providing Evidence That An Aircraft Kit Was Assembled Per The Kit Manufacturers Instructions.

Proposed section 21.193(e) delineates the requirements for kit builders to obtain an experimental light-sport aircraft certificate under proposed section 21.191(i)(2). The NPRM states, "Under the proposal, the owner would have to provide *evidence* that the aircraft was assembled per the kit manufacturer's instructions."

My question: what kind of "evidence" is required?

The NPRM also says that the "applicant would need to provide the Statement of Compliance issued by the manufacturer." How does the applicant get this "Statement of Compliance?" Must the applicant make arrangements with the manufacturer to have a factory representative visit the construction site and examine the completed kit? If so, how much will the builder have to pay for this service?

My suggestion: The FAA should clarify what "evidence" an applicant must provide to demonstrate that a kit-built experimental light-sport aircraft was assembled according to the manufacturer's instructions.

Page 5388 (third column): Ultralight Organizations Must Furnish A Notarized Copy Of An Ultralight Pilot's Records

Delving again into FAA required paperwork, the Sport pilot NPRM says that an ultralight pilot must obtain a notarized copy of his pilot records from his ultralight organization in order for his flight time in ultralights to be counted toward his Sport pilot rating.

Why does a copy of his flight records have to be "notarized?" What difference does it make if the records are notarized or just signed or stamped by an officer of the organization? Most notary services cost about \$10. Aero Sports Connection has 1600 ultralight instructors. That comes to \$16,000 in notary fees, plus the time and effort wasted in obtaining the notary service. A notary stamp is no more a guarantee that the information in the pilot's record is accurate than the pilot's statement that it is accurate. The requirement that the records be notarized should be eliminated.

My suggestion: eliminate the requirement that an ultralight pilot's records must be notarized by a national ultralight organization.

Page 5383 (third column): A Sport Pilot Would Need A Medical Certificate Or A Driver's License To Operate A Light-Sport Aircraft.

The FAA is to be commended for proposing a driver's license as a substitute for a medical certificate. However, the NPRM says that if a driver's license is rescinded for *any offense*, a Sport pilot could not operate a light-sport aircraft unless he obtained a medical certificate. In some states, a driver's license may be suspended for the failure to pay child support, failure to pay taxes or a student loan, or for other similar reasons. This should not be grounds for rescinding a Sport pilot's flying privileges.

My suggestion: a Sport pilot should be suspended from flying a light-sport aircraft only if his driver's license is revoked for a reason that would affect his ability to safely operate an aircraft.

Page 5385 (first column) and page 5404 (second column): A Student Pilot Cannot Operate A Light-Sport Aircraft Which Exceeds 87 Knots.

According to the NPRM a student may not solo a light-sport aircraft that exceeds 87 knots, but once an applicant has received his pilot certificate he may obtain additional training and fly a light-sport aircraft that has a maximum cruise speed of 115 knots. This rule requires that a Sport instructor must have two light-sport aircraft in order to provide full service instruction--one for students and one for upgrading Sport pilots.

I feel that this rule is unnecessary, does not enhance safety, and places an undue burden on both sport instructors and light-sport

aircraft manufacturers. There is no such rule elsewhere in general aviation.

As noted on page 22 of this Response, unlike a Private pilot, a Recreational pilot is not allowed to fly a light-sport aircraft without a further showing of proficiency under the Sport pilot Special FAR Section 91 (see NPRM page 5407, third column.) Yet even a Recreational pilot has *no speed limitation whatsoever* and neither does a *student* Recreational pilot. Nor does a *student* Private pilot. (I once instructed and soloed a student pilot in a Bonanza, which had a cruise speed of 150 knots.)

Why does the FAA feel that Sport instructors will be less competent to teach a Sport student to solo a 115 knot light-sport aircraft than a general aviation CFI? If a Sport instructor is competent to transition a Sport pilot to a 115 knot aircraft, why can't he train a student in a 115 knot aircraft? The instructor may tell the student that it take longer for him to solo a 115 knot airplane than an 87 knot airplane, but that is a decision which should be left to the student when he elects to receive his training in the faster machine.

My suggestion: eliminate the provision in SFAR Section 35(e) that restricts a student Sport pilot from operating a light-sport aircraft that exceeds a cruise speed of 87 knots.

Page 5385 (second column) and page 5404 (third column):
Expanded Privileges To Operate In Class B, C, Or D Airspace.

The FAA is to be commended for allowing Sport pilots to operate in Class B, C, and D airspace with additional training. However there is an ambiguity raised by the wording of SFAR 89 Section 37.

In order to obtain a logbook endorsement to operate in the expanded airspace, must the student receive instruction in all *three* classes of airspace (B and C and D)? Or may a student receive instruction in only Class D airspace, for example, and then receive a logbook endorsement which expands his privileges to flying in Class D airspace but not Class B and C? In other words, may an instructor endorse a student for Class B airspace or Class C, or Class D separately?

My suggestion: the FAA should re-word SFAR 89 Section 37 to clarify that a Sport pilot may obtain the privilege of operating in Class B airspace, or Class C airspace, or Class D airspace individually and distinct from each other, depending on which Class airspace he receives additional instruction.

Page 5386 (first column): Designated Pilot Examiners Will Have To Be Qualified In Each Light-Sport Aircraft Make And Model.

As explained on page 14 of this Response it is an excessive burden on Sport pilots and instructors to show qualification in every light-sport aircraft make and model and there is no compelling safety reason. The same is true for Sport examiners.

My suggestion: Eliminate the requirement that a Sport examiner must be specifically qualified in each make and model of light-

sport aircraft in which he would conduct a practical test. Limit the specific qualifications to category and class.

Page 5386 (second column): Where Will Sport Pilot Designated Pilot Examiners Come From?

The FAA envisions that the initial cadre of FAA-designated examiners would come from the group of "advanced" flight instructors established in FAA-recognized ultralight organizations.

This is completely unrealistic for the following reasons:

1. Less than 10% of the ultralight instructors are Advanced Flight Instructors (AFIs.)
2. Less than 10% of the AFIs are already FAA-licensed pilots.
3. Less than 2% of the AFIs are already FAA certified flight instructors.
4. In order to become a Sport examiner, an AFI first has to transition to Sport *pilot*, then to Sport *instructor*, then to Sport *examiner*. (See SFAR 89 Section 153.) This will take months, if not longer, especially since the FAA specifically states that "the initial cadre of FAA -designated pilot examiners would receive standardized FAA-designated examiner training." Page 26 of this Response delineates the extensive process and qualifications involved in becoming an examiner.

The lack of examiners could stifle the Sport pilot initiative, just as it has the glider-trike project that I founded. (See "The Experimental Glider-Trike Program" at <http://www.ultraflight.com/jonThornburghFrame.htm>).

My suggestions: The FAA should suspend the implementation of the Sport pilot NPRM until after several hundred FAA Aviation Safety Inspectors are checked out in ultralights and become ultralight AFIs. These Aviation Safety Inspectors would then become the first Sport pilot examiners.

The FAA should seek out general aviation Designated Pilot Examiners who are willing to become Sport pilot examiners, pay for their transition to ultralight AFIs, and then transition them to Sport examiners at FAA expense.

The FAA should also modify SFAR 89 Section 153(a) to allow an AFI (after meeting the requirements of Sections 117 and 119) to transition directly to Sport *instructor* without first becoming a Sport *pilot*.

The FAA should provide Sport instructors with on-site examiner training courses, without requiring them to travel to Oklahoma City. The Designated Examiner Course should be done at FAA expense.

ANALYSIS OF SPORT PILOT TRAINING REQUIREMENTS

The following is an analysis of the Sport pilot training requirements that have not already been addressed in the preceding discussion.

Page 5404 (first column): Meta-Stable Stalls

Proposed SFAR 89 Section 33(c)(12) requires that a powered parachute student pilot must have training in "meta-stable stalls and avoidance." In some parachutes this can be dangerous. This would be equivalent to requiring that a student be instructed in spins in an airplane, which is not even required of private pilot and commercial pilot applicants. This clause should be changed to state that a student must receive *ground* instruction on the cause, correction, and danger of meta-stable stalls.

My suggestion: eliminate any requirement for a flight demonstration of meta-stable stalls in powered parachutes.

Page 5408 (third column): Aeronautical Experience Required To Be A Sport Instructor

The requirement to have 150 hours of flight time to qualify as an airplane or weight-shift control Sport instructor is excessive. The same is true regarding the 100 hours to become a powered parachute instructor.

Until two years ago, all three national ultralight organizations only required 55 hours to qualify as an ultralight instructor (40 hours of flight time plus 15 hours of instruction specifically on how to teach flying.) At the present time the EAA and USUA require 100 hours of experience; ASC still requires the 40+15 hours.

Even the EAA/USUA 100-hour requirement is 50 hours less than the FAA proposal. There is no difference in the accident rate between the EAA/USUA 100-hour instructors and the ASC 55-hour instructors. There is also no difference in the accident rate between the ASC, EAA, and USUA students. I propose that a minimum of 55 hours is sufficient experience to be a Sport instructor. In the alternate, a minimum of 100 hours is sufficient.

My suggestion: Change SFAR Section 117 (a)(1) and (c)(1) and (d)(1) and (f)(1) and (g)(1) to read "55 hours flight time as a pilot."

Page 5408 (third column): Spins Required in Weight-shift-control Aircraft

According to SFAR 89 Section 115(a)(12) a Sport pilot instructor must have "flight and ground training in spins in airplanes, gliders, and *weight-shift-control* aircraft" (trikes.)

Most trikes are extremely resistant to spinning, and even if it is possible to get a trike to spin, it is very dangerous, because there is no rudder to stop the yaw. See Dennis Pagan's excellent article on spins at <http://www.usbga.org/article07.asp>.

My suggestion: eliminate the requirement from SFAR 89 Section 115(a)(12) that a Sport pilot trike instructor applicant must

receive flight training in spins.

Page 5410 (second column) and page 5411 (second column): Sport Pilot Flight Review

SFAR Section 113(d) addresses a "flight review for a Sport pilot." The NPRM does not specify what this flight review will entail.

FAR 61.56(a) ("Flight Review") specifies that a flight review consists of "a minimum of one hour of flight training and one hour of ground training." FAR 61.56(c) states that a pilot must have a flight review every 24 months.

The specifications delineated above are part of the so-called "Biennial Flight Review," well known by every general aviation pilot. However, what is not so well known are the flight review requirements for Recreational pilots. FAR 61.101(f) ("Recreational Pilot Privileges and Limitations") reads: "A person who holds a recreational pilot certificate, has logged fewer than 400 hours, and has not logged pilot-in-command time in an aircraft within the 180 days preceding the flight shall not act as pilot-in-command of an aircraft until the pilot receives flight training and a logbook endorsement from an authorized instructor, and the instructor certifies that the person is proficient to act as pilot in-command of the aircraft."

What FAR 61.101(f) means in plain language is that a Rec pilot must have a "Biennial Flight Review" every six months if he doesn't fly for 180 days.

Question: Since a Sport pilot certificate is supposedly a lower certificate than a Recreational pilot certificate, will the Sport pilot be subject to FAR 61.101(f)? Will the FAA impose even stricter requirements for Sport pilot flight reviews? On page 5411 (second column) the FAA claims that the Sport pilot will be subject to FAR 61.56, but that doesn't mean that it won't impose *additional* flight review requirements.

My suggestion: Revise the NPRM to include more specific details about the requirement for Sport pilot flight reviews. Extend the May 6, 2002 deadline for comments on the NPRM so that the public may comment on the flight review.

Page 5412 (third column): The NPRM Proposes Two New Aircraft Categories: Powered Parachute And Weight-Shift-Control.

The FAA is to be commended for proposing to establish two new categories of aircraft: powered parachute and weight-shift-control, normally called a "trike." Unfortunately, one may only obtain a private pilot certificate in these two new categories. There is no provision for obtaining a commercial certificate. Therefore, powered parachutes and trikes cannot be used for sightseeing, crop dusting, pipeline patrol, aerial photography, traffic reporting, etc., although trikes and powered parachutes are ideal for these types of missions.

My suggestion: I propose that the FAA provide for pilots to

obtain a commercial certificate in the categories of powered parachute and weight-shift-control.

Page 5413 (third column): Night Flying Requirements

The requirements to become a Sport pilot are set forth in a Special FAR, called SFAR 89. Under SFAR 89, one may obtain a Sport pilot certificate for the new aircraft categories of powered parachute and weight-shift-control (trike.) However, the Sport pilot NPRM also establishes the opportunity for pilot to obtain a *Private* pilot certificate in the two new categories.

The Private pilot requirements are set forth in a proposed addition to FAR 61.109. The minimum flight time to qualify for a Private pilot certificate is 40 hours, which is only 20 hours more than the minimum time to become a Sport pilot. However, the *intensity* of the required training is much more for the Private pilot than for Sport pilot. For example, a trike student is required to make a *solo* cross-country flight of 150 miles for Private, but only 75 miles for Sport pilot.

The most significant difference between the Private and Sport, is that the Private pilot curriculum requires a 100 mile cross-country at **NIGHT!** If ever there was proof that the FAA knows very little about ultralight flying, this requirement is it.

As explained on page 12 of this Response, the number one fact drilled into every ultralight student is "never fly over an area where you can't make a safe emergency landing in case of an engine failure." There are two reasons for this axiom: (1) two-cycle ultralight engines have a notorious reputation for sudden engine failure, and (2) an ultralight has a very short glide distance after an engine failure. (For an explanation about this phenomenon, see my article, "The Differences Between Ultralights and General Aviation Airplanes" at

<http://www.ultraflight.com/jonThornburghFrame.htm> or

<http://groups.yahoo.com/group/JonThornburgh/message/245>

A competent ultralight pilot *always* flies with his eye on a potential landing site in case of an engine failure. With that in mind, how in the world can an ultralight-type light-sport aircraft be safely flown at night, when it's impossible to pick out an emergency landing spot? The potential for disaster is staggering, considering that light-sport aircraft may be flown over *congested* areas. And the FAA has the audacity to proclaim that the Sport pilot initiative is necessary to make light aircraft flying *safer* than ultralight flying (page 5374, first column), (page 5374, third column), (page 5375, first column: "The FAA believes that these proposed regulations would improve safety.")

All it's going to take is just one accident at night into a house in the middle of a city, and the public will be screaming for the demise of light-sport aviation. In addition, aircraft insurance rates will skyrocket for sport flying. On page 5387 (third column) the FAA makes a very prophetic statement (*italics* mine): "...you [*a Sport pilot*] could operate, even light-sport aircraft, at night with a private

pilot certificate. The FAA would allow you to fly over congested areas, which is not allowed under part 103 [*ultralight regulations*]. However, any particular light-sport aircraft may have operating limitations that prohibit such operations. (Emphasis mine.)

Do you think that a light-sport aircraft manufacturer with any instinct for survival in this litigious world would dream of putting lights on its aircraft and allowing operations over congested areas after one accident occurs at night? The fear of being sued out of business would outweigh any concern for lost sales by prohibiting such flight in its Operating Limitations. Therefore, one of the main selling points of the Sport pilot initiative--flying over congested areas--will be prohibited by the manufacture's Ops Limits, even though not prohibited by the FAA.

Before coming up with this night cross-country requirement did the FAA even talk to the handful of pilots who have flown a trike at night? I am one of the few people who have legally flown an experimental trike at night, along with others such as Barry Palmatier, Greg Silva, and Scott Toland.

Although I am the founder of the glider-trike program and have flown overhead Los Angeles at night, I never fly outside of gliding distance of an airport. I would not think of flying a 100 mile cross-country over Los Angeles at night, outside of an engine-out gliding range of a well-lighted airport.

In my opinion, in order for night flying to be even marginally safe it will require that a trike be equipped with a four-cycle engine, such as the Rotax 912, which is certified for night flight on the Katana. Of course, trikes would also have to be equipped with position, navigation, and landing lights, as well as instrument lighting. Therefore, the cost of buying a trike equipped to safely comply with the requirements to obtain a private pilot weight-shift certificate will be thousands of dollars more than present day ultralights cost. This will greatly detract from the viability of the Private pilot initiative, in spite of the other advantages of being a Private pilot over a Sport pilot.

Can a flight instructor with a Sport pilot rating provide training to a student who wishes to be a Private pilot with a weight-shift-control rating? The answer is, "no."

In order for an instructor to provide training for a weight-shift Private pilot applicant, the instructor must *first* become a weight-shift Private pilot *himself*. This includes Sport instructors and FAA CFIs who wish to teach Private pilot weight-shift.

Ultralight Advanced Flight Instructors such as Mike Jacober and John Kemmeries have thousands of hours instructing in trikes, and they have developed very successful ultralight schools. In order for them (and others like them) to teach Private pilot weight-shift, here are the hoops they will have to jump through:

1. Transform their ultralight trainers into experimental light-sport aircraft for three years, then buy brand-new factory-built light-sport aircraft,

2. Take written, oral, and flight exams to become Sport pilots,
3. Take written, oral and flight exams to become Sport instructors,
4. Take written, oral, and flight exams to become weight-shift Private pilots. In the process of becoming Private pilots they will have to equip their trikes with lights and then take a 100 mile night cross-country.

Mike Jacober and John Kemmeries would have to do all this just to continue doing what they are already eminently qualified to do as ultralight pilots.

As mentioned previously, I am the founder of the glider-trike program. This program provides the opportunity for a person with no flight experience to become an FAA-certificated trike pilot, with his flight exam and all his flight training done solely in a trike. See "The Experimental Glider Trike Program," and "The New Glider-Trike Project" at <http://www.ultraflight.com/jonThornburghFrame.htm>. Also see <http://groups.yahoo.com/group/ExpTrikes>.

As I flight instructor in this project I have taught private, commercial, and flight applicants to become FAA-certificated glider-trike pilots. Despite this experience, however, I will *not* be able to provide instruction to Private pilot weight-shift applicants, unless I must first obtain a Private pilot weight-shift certificate myself. (See proposed FAR 61.195 (k) ("Flight Instructor Limitations and Qualifications.") This will never happen, since I refuse to fly a 100 mile cross-country at night.

Has the FAA asked instructors such as Mike Jacober and John Kemmeries if *they* are willing to teach 100 mile night cross-countries? John Kemmeries flies in the desert of Arizona, which would be pitch black at night. That's a perfect set-up for an accident due to spatial disorientation, which killed John Kennedy, Jr.

Everything said about flying night cross-country flights in trikes also applies to the Private pilot powered parachute rating, except that the cross-country requirement for powered parachutes is 25 miles, instead of 100 miles.

Since the FAA has so astutely introduced the building block concept in the Sport pilot NPRM, in which Sport pilots can obtain a basic certificate with limitations that are removed with additional training, why doesn't the FAA apply the same concept to the powered parachute and weight-shift Private pilot ratings in regards to night flying?

My suggestion: The FAA should delete the night requirements of FAR 61.109(i)(1)(ii), 61.109(i)(1)(ii)(A), 61.109(i)(2)(ii), and 61.109(i)(2)(ii)(A) for the Private pilot certificate for powered parachute and weight-shift-control aircraft.

The basic Private pilot certificate should be for day flight only. The FAA should re-word and reinstate the FAR 61.109 night provisions as *options* available to a Private pilot if he elects to

have an unrestricted certificate that includes day and night privileges. A pilot should be able to acquire night privileges with additional training and a logbook endorsement from an instructor.

A flight instructor who has only the day Private pilot privileges could instruct a Private pilot applicant for day flight only. A flight instructor who has both the day and night Private pilot privileges could instruct and endorse a Private pilot for night flight privileges.

CONCLUSION

This is the conclusion of my Response to the Sport pilot NPRM. I would like to thank the FAA for initiating the Sport pilot NPRM and for its willingness to make changes to the NPRM based on responses from the public. I also thank the FAA for taking the time to read my Response.

Sincerely,

Jon Thornburgh

Ultralight Instructor and FAA CFI

APPENDIX

This is a summary of each comment and proposal in my Response to the Sport Pilot NPRM.

1. Transform the present ultralight two-seat training Exemption into a Special FAR which incorporates exactly the same provisions of the present Exemption, plus provide for an "ultralight pilot's license" which is issued by a national ultralight organization that allows an ultralight pilot to carry a passenger without having to be an ultralight instructor.
2. Suspend the Sport pilot initiative until the numerous questions discussed in this Response are addressed. In the meantime, amend the FARs to implement the excellent features of the Sport pilot NPRM that are delineated below:
 - a. Amend FAR 61.31 to adopt the concept of basic training leading to a basic license with restrictions and basic privileges (the "building block" approach) to *all* pilots certificated under FAR Part 61. The basic privileges can be expanded (and the restrictions removed) after advanced training and a logbook endorsement by a flight instructor.
 - b. Apply the "light-sport aircraft" industry consensus "certification" standards as a marketing *option* for single and two-seat ultralight manufacturers, as well as for the manufacturers of experimental aircraft. Allow manufacturers to deliver ready-to-fly light experimental aircraft that meet the industry consensus standard.
 - c. Amend FAR 91.191 to allow an ultralight to receive an

experimental airworthiness certificate without the owner being required to comply with the "51%" amateur-built rule, and without being required to put the aircraft into the experimental-exhibition category.

d. Amend the FARs to permit a non-A&P mechanic to attend a maintenance school, such as proposed by the Sport pilot NPRM, in order to obtain a Repairman's certificate to perform maintenance on his experimental aircraft without building 51% of the aircraft.

e. Allow experimental two-seat ultralights to be used for commercial instruction.

f. The Sport pilot NPRM introduces the concept of a Sport Pilot Instructor who is not required to fulfill the same requirements as present day CFIs. For example, the Sport instructor is not required to have an instrument rating, a commercial certificate, or "complex" aircraft time. Amend FAR Part 61 to adopt this concept for all certified flight instructors, eliminating the requirement for complex aircraft time or an instrument rating. (Neither of these requirements were necessary in the 1970s for flight instructors or commercial pilots.)

g. Establish the new categories for powered parachutes and weight-shift (trike) aircraft.

h. Allow FAA-certificated pilots to operate aircraft under 1,232 pounds with a self-certified medical (driver's license.)

3. Change the name "light-sport aircraft" to just "sport aircraft."

4. Allow Sport pilots to fly an airplane that has retractable gear, controllable pitch propeller, or has two engines with additional training and a logbook endorsement.

5. Remove the 10,000 foot altitude restriction from Sport Pilot. In the alternative, keep 10,000 feet as a "basic" limitation, to be removed with additional training and a logbook endorsement.

6. Completely eliminate the special training and logbook endorsement for each light-sport aircraft make and model. Substitute training and logbook endorsement for authorization to fly a different category or class aircraft.

7. Eliminate the requirement that a Sport instructor must have 5 hours of pilot-in-command time in each make and model of light-sport aircraft in which he intends to instruct.

8. Clarify the requirements for an institution to qualify as a maintenance training center and the requirements for students to graduate from the training center, and allow the public to comment on the proposed requirements before the NPRM is implemented.

9. I propose that ultralight manufacturers, the FAA, and other affected parties get together and create and publish the industry consensus standard before the public is obligated to respond to the NPRM without a full awareness of the ramifications of the light-sport

aircraft certification process and costs. Suspend the NPRM until the industry consensus standards is agreed upon and published in the Federal Register.

10. Revise the Recreational pilot regulations to make it a viable certificate. Allow logbook endorsements for expanded Recreational pilot privileges commensurate with additional training.

11. Change NPRM Section 91 to allow a Recreational pilot to enjoy the expedited means of exercising Sport pilot privileges, instead of requiring a Private pilot certificate or higher.

12. Extend the comment period for the NPRM and reissue a modified NPRM after further study as to the actual costs of implementing the Sport pilot initiative, as opposed to unsupported "estimates."

13. Amend the Sport pilot NPRM to allow light-sport aircraft and Sport pilots to operate in "twilight" under the same conditions as delineated in FAR 103.11(b).

14. Amend the NPRM to allow Sport pilots to tow objects (particularly hang gliders) after training to do so and a logbook endorsement.

15. Reform FAR Part 61 back to the simplicity that it was in 1970. Eliminate the requirement for complex aircraft experience and instrument time for commercial and CFI certificates. Provide for a logbook endorsement in FAR 61.31 for the privilege to fly a complex airplane after additional training.

16. Eliminate the provision in the NPRM that states that FAR 61.31 (k)(iii) should be modified to require that a pilot have an appropriate category and class rating to operate an experimental aircraft with a passenger.

17. Delete the provision in §21.191(i)(1) which states that an experimental light-sport aircraft may not be used for compensated training after 36 months, and provide for the indefinite use of experimental light-sport aircraft for compensated training.

18. Suspend the present NPRM until all the Advisory Circulars, knowledge exams, Pilot Textbooks, the 16-hour/80-hour maintenance schools, Designated Pilot Examiners, Designated Airworthiness Examiners, Practical Test Standards guides, and available liability insurance are established and available.

19. Completely delete Section 75 of the Sport pilot NPRM which states that a Sport pilot who is an aircraft salesperson may not demonstrate an aircraft in flight to a prospective buyer. In the alternative, amend Section 75 to at least allow Sport *Instructors* to demonstrate an aircraft in flight, whether or not he is an aircraft salesman. Amend Recreational pilot FAR 61.101(d)(12) to read, "To demonstrate that aircraft in flight to a prospective buyer unless he is the owner of the aircraft."

20. Change powered parachute from a category to a class. Adopt a

new parachute category, called "Parachute Aircraft" (or something similar,) and defined as "an aircraft that derives its lift from a non-rigid wing that inflates into a lifting surface when exposed to a wind." Eliminate any reference to a "fuselage" in the definition.

Change the definition of "powered parachute" to "a parachute aircraft propelled by an engine that is an integral part of the aircraft and is controlled by a pilot within a fuselage suspended beneath a non-rigid wing."

Add the classes of land and sea for the powered parachute category.

Add the class of Paramotor, defined as "a powered foot-launched parachute aircraft."

Add the class of Paraglider, defined as "an unpowered foot-launched parachute aircraft."

21. Redefine "weight-shift-control aircraft" to eliminate the words "fuselage" and "roll" from the present definition in the NPRM. The new definition would be: "an aircraft with a pivoting wing suspended overhead the pilot which is controllable in pitch by the pilot's ability to change the aircraft's center of gravity."

22. Add two classes to the weight-shift-control aircraft category in addition to "land" and "sea." The two new classes would be powered weight-shift-control aircraft (trike) and unpowered weight-shift-control aircraft (hang glider) as defined below:

Powered weight-shift-control aircraft means a weight-shift-control aircraft powered by an engine, commonly referred to as a trike or a powered hang glider.

Unpowered weight-shift-control aircraft means a weight-shift-control aircraft that is not powered by an engine, commonly referred to as a hang glider.

23. Suspend the NPRM until the FAA conducts a survey of manufacturers to determine how many will actually be willing to retroactively certify former ultralights as special, light-sport aircraft.

24. The FAA should allow DARs to issue operating limitations to experimental light-sport aircraft which are the same as those issued to experimental amateur-built aircraft.

25. The FAA should clarify what "evidence" an applicant must provide to demonstrate that a kit-built experimental light-sport aircraft was assembled according to the manufacturer's instructions.

26. Eliminate the requirement that an ultralight pilot's records must be notarized by a national ultralight organization.

27. A Sport pilot should be suspended from flying a light-sport aircraft only if his driver's license is revoked for a reason that would affect his ability to safely operate an aircraft.

28. Eliminate the provision in SFAR Section 35(e) that restricts a student Sport pilot from operating a light-sport aircraft that exceeds a cruise speed of 87 knots.

29. The FAA should re-word SFAR 89 Section 37 to clarify that a Sport pilot may obtain the privilege of operating in Class B airspace, or Class C airspace, or Class D airspace individually and distinct from each other, depending on which Class airspace he receives additional instruction.

30. Eliminate the requirement that a Sport examiner must be specifically qualified in each make and model of light-sport aircraft in which he would conduct a practical test. Limit the specific qualifications to category and class.

31. The FAA should suspend the implementation of the Sport pilot NPRM until after several hundred FAA Aviation Safety Inspectors are checked out in ultralights and become ultralight AFIs. These Aviation Safety Inspectors would then become the first Sport pilot examiners.

The FAA should seek out general aviation Designated Pilot Examiners who are willing to become Sport pilot examiners, pay for their transition to ultralight AFIs, and then transition them to Sport examiners at FAA expense.

The FAA should also modify SFAR 89 Section 153(a) to allow an AFI (after meeting the requirements of Sections 117 and 119) to transition directly to Sport *instructor* without first becoming a Sport pilot.

The FAA should provide Sport instructors with on-site examiner training courses, without requiring them to travel to Oklahoma City. The Designated Examiner Course should be done at FAA expense.

32. Eliminate any requirement for a flight demonstration of meta-stable stalls in powered parachutes.

33. Change SFAR Section 117 (a)(1) and (c)(1) and (d)(1) and (f)(1) and (g)(1) to read "55 hours flight time as a pilot."

34. Eliminate the requirement from SFAR 89 Section 115(a)(12) that a Sport pilot trike instructor applicant must receive flight training in spins.

35. Revise the NPRM to include more specific details about the requirement for Sport pilot flight reviews. Extend the May 6, 2002 deadline for comments on the NPRM so that the public may comment on the flight review.

36. I propose that the FAA provide for pilots to obtain a commercial certificate in the categories of powered parachute and weight-shift-control.

37. The FAA should delete the night requirements of FAR 61.109(i)(1)(ii), 61.109(i)(1)(ii)(A), 61.109(i)(2)(ii), and 61.109(i)(2)(ii)(A) for the Private pilot certificate for powered parachute and weight-shift-

control aircraft.

The basic Private pilot certificate should be for day flight only. The FAA should re-word and reinstate the FAR 61.109 night provisions as *options* available to a Private pilot if he elects to have an unrestricted certificate that includes day and night privileges. A pilot should be able to acquire night privileges with additional training and a logbook endorsement from an instructor.

A flight instructor who has only the day Private pilot privileges could instruct a Private pilot applicant for day flight only. A flight instructor who has both the day and night Private pilot privileges could instruct and endorse a Private pilot for night flight privileges.

SUPPLEMENT TO THE APPENDIX

The recommendations listed in the Appendix may be found in the body of the Response on the pages listed below:

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