TRIKE PILOT MAKES AVIATION HISTORY

by Jon Thornburgh

On March 18, 1998 Scott Toland created aviation history. Under the watchful eye of a Designated Pilot Examiner, Scott passed his pilot's flight test while flying a trike.

A what? A "trike."

A trike is essentially an over-sized engine-powered hang glider. Although trikes are the most popular form of personal aviation in Europe, it is a relatively new flying machine in the United States.

All but two of the trikes flying in the U.S. are ultralights or two-seat ultralight trainers. As specified in the Federal Air Regulations (FAR) Part 103, ultralights are limited in weight, speed, and fuel capacity.

Except for ultralight instructors, a pilot's license is not required to fly an ultralight, nor is formal FAA training required. Although FAA training is not required, there are several non-government organizations, which offer ultralight instruction. However, this training cannot be logged as flight time toward an FAA pilot's license.

That's why Scott Toland's FAA flight exam set an aviation precedent, because, contrary to the normal rule, Scott was able to receive his official FAA flight training in his trike, and take his flight exam in the trike.

How did Scott accomplish this?

The secret to Scott's success is that he registered his trike in the "Experimental" category. Aircraft which are normally considered "ultralights" can be registered as Experimental in accordance with certain FAA procedures and restrictions.

Once an aircraft is registered as Experimental, a pilot may log his flight time in the aircraft just the same as if he were flying a general aviation airplane with a standard certification.
As a student pilot, Scott accumulated his necessary flight time while flying the trike, and received the required instruction to qualify for a Recreational Pilot certificate.

Just as any other student pilot, Scott had to get a physical check from an FAA physician (Dr. Erwin Samuelson, of Redondo Beach, California.) He took the FAA written test, and passed an oral and flight exam administered by the Examiner. Although the process sounds straightforward, there were several hurdles that Scott had to overcome to realize his goal.

The first step was to put the trike into the Experimental category. Prior to Scott's attempt, there was only one other trike in the United States registered as Experimental. This was an Antares trike built and registered by Greg Silva in September 1996.

Greg is a flight instructor at Kemmeries Aviation, near Phoenix, Arizona. Greg has the honor of being the first person to obtain an Experimental certification for a trike.

However, Greg did not undergo any FAA training in his trike, because he already had an FAA pilot's license. So even though Greg was the first person to register an Experimental trike, Scott was the first person to actually take lessons in a trike to qualify for a pilot's license.

Greg offered valuable assistance to Scott, especially in documenting the weight and balance computations, which has several characteristics unique to trikes. Thanks in part to help from Greg and John Kemmeries, Scott became the second person to certify a trike in the Experimental category.

Scott's next step was to begin his FAA flight training in the trike. He contacted Earl Lawrence, the Executive Director of the Experimental Aircraft Association's (EAA) Government Programs. Due to the reduced training requirements for the Recreational Pilot license, Earl suggested that Scott study for the "Rec license" (as the Recreational license is affectionately called,) rather than a Private Pilot license.

The "Rec license" is not well known in the United States. According to the June 1998 issue of FLYING magazine, there are 622,000 active pilots in the U.S. Of those pilots, only 265 hold a Recreational Pilot certificate. (In FAA-talk a pilot "license" is called a "certificate.") The June issue of FLIGHT TRAINING magazine notes that there were 21,552 Private Pilot certificates issued in 1997, but only 60 Recreational certificates.

The reason there are so few Recreational pilots is that it is often considered to be a second-class Private Pilot license. That's because there are restrictions placed on the Rec pilot that the Private pilot does not have. For instance the Rec pilot can only fly with one passenger, he cannot fly at night, and he is not allowed to fly above 10,000 feet.

However, these limitations are not of any consequence to Scott, because his trike only carries one passenger, and he's only interested in flying in the daytime. And the trike is much more fun to fly at 1,000 feet than 10,000.

The good feature of the Rec license is that the flight training requirements are much less than those for the Private Pilot.

The Rec student does not need to have night flight training. He only needs to fly a 25 mile cross-country, as opposed to 150 miles for the Private. The Rec student needs 3 hours of solo flight, compared to 10 hours for the Private.

The Rec student does not have to learn to fly in complicated radio-controlled airspace (Class A, B, C, and D airspace.) The Rec student does not have to learn to fly in poor visibility using flight instruments, and he doesn't have to navigate using electronic instruments, such as a VOR.

In short, all the Rec student really needs to do is to learn to properly manipulate the flight controls and fly the aircraft through normal maneuvers such as takeoff and landing, climbs, descents, turns, slow flight, and stalls. That's the reason why the Rec student can take his flight check after only 30 hours of flight time.

The FAA required flight time for a Private license is 40 hours, which is only 10 hours more than the Rec requirement. But according to FLIGHT TRAINING magazine, students actually average 70 hours before attaining the necessary proficiency for the Private flight check. The cost of the Rec license is normally less than half the cost of a Private license.

Once Scott determined that the Recreational license was the one to train for, he needed to find an instructor. Ironically, Scott himself was already an instructor. But he was an ultralight instructor. What he needed was an FAA certified flight instructor (CFI), who was also knowledgeable about ultralights.

Presently there are three private organizations which promote and semi-regulate ultralight flying: The Experimental Aircraft Association (EAA), the United States Ultralight Association (USUA), and Aero Sports Connection (ASC). Scott is the Director of the Trike Wing of ASC. He called the President of ASC, Jim Stephenson, for help in finding an FAA instructor who was also an ultralight instructor.

Jim recommended yours truly, Jon Thornburgh, who is an FAA CFI and an ultralight instructor for all three ultralight organizations. I was also familiar with the requirements for the Recreational license, having the distinction of training the only Recreational helicopter pilot in Los Angeles, Mr. Fred Pitcher. (Fred is now a commercial helicopter pilot and a dealer for the Revolution Mini-500 helicopter.)

Despite my ultralight experience, Scott was in the unusual position that he actually had more trike experience than I did.
Therefore, his lessons were quite unique. During his training Scott was teaching me how to fly his trike, while I was teaching Scott how to "think" like an FAA pilot instead of an ultralight pilot.

For example, some of Scott's training took place at Torrance Airport, in southern California. Torrance is only a few miles from Los Angeles International Airport (LAX). The airspace around Torrance was much busier and more demanding of Scott's navigational skills than the rural areas where he was accustomed to ultralight flying. Since I'm familiar with the Los Angeles area I was able to teach Scott the proper way to fly into congested airports.

One of the biggest problems with flying into the Los Angeles area airports, such as Torrance, Hawthorne, and Compton, was that his trike was surrounded by onlookers as soon as we landed. We would have to spend half the day answering questions about the trike. The airport tower controllers would even ask us about the trike on the radio.

Many aviation enthusiasts have never seen a trike before, and certainly no one had ever seen one at an airport in Los Angeles. This is because Scott's was the first (and so far, only) trike to operate out of an airport in the L.A. area, (or any other city.) The most common question was, "What is that thing?" and "Are there any others like it?"

The answer is that there are hundreds of trikes just like Scott's. But they are much more popular in other countries of the world, especially Europe. In fact, the manufacturer of the kit from which Scott constructed the trike, called "Air Cre-ation," is located in France.

There are also trikes in the United States, but since they are flown as ultralights they are not often seen. Ultralights are only allowed to be flown in rural areas, and not over congested places. Therefore, they are seldom seen by city-dwellers. However, because Scott's trike is registered in the Experimental category, he is allowed to fly into and out of congested areas.

Although the first Experimental trike, built by Greg Silva, was an Antares, Scott chose the Air Creation. It was John Kemmeries who first introduced Scott to flying, and who was Scott's original ultralight instructor. Kemmeries Aviation, of Peoria, Arizona, is the U.S. distributor for Air Creation. So it was only natural that Scott would buy his trike kit from Kemmeries.

Air Creation is one of the most popular trikes in the world. It is easy to fly, rugged, and the factory offers excellent customer support through Kemmeries Aviation.

The Air Creation trike can almost be described as a motorcycle with a wing. It's powered by a two-cylinder, two-cycle Rotax 502 engine, similar to the engines used on snowmobiles and jet skis.

The flight statistics are impressive. With just 55 h.p., the Air Creation can cruise at 70 m.p.h. and climb at 800 feet per minute. It consumes less than 4 gallons of fuel per hour, and has a range of 200 miles. It weighs less than 300 pounds, yet it can carry 600 pounds, which is twice its empty weight.

One of the trike's unique features is that the wing can be removed from the mast and rolled up like a hang glider wing. This allows the trike to be easily transported, with the fuselage placed on a truck or put in a trailer, and the wing tied on top. The trike pilot is spared the expense of renting a hangar or tie-down spot at an airport.

The passenger sits behind the pilot and straddles him with his legs, just like the passenger on a motorcycle. They wear motorcycle helmets, into which Scott has installed a microphone and earphones so that he can communicate with his passenger and with air traffic control.

The wing is fitted to a mast, which extends overhead the fuselage. The flight path is guided by a control bar, which is positioned in front of the pilot and hangs from the mast. Both the pilot and the passenger can reach the control bar to fly the trike.

The control system is the same as that of a hang glider. In order to climb you push forward on the control bar, and pull back to descend. This is the opposite direction that a pilot moves the control wheel on a conventional airplane.

To turn left the trike pilot pushes the control bar to the right, and vice versa for a turn in the other direction. Again, this is opposite to conventional aircraft.

Because the control movements are reversed from that of an airplane, it takes a few lessons before a conventional pilot can master trike flying. Consequently, it was difficult to find an examiner who was willing to give Scott his flight check.

Mr. Steve Ford, the senior FAA inspector at the Los Angeles FSDO was willing to give the flight test, but the FAA required that he first be thoroughly checked-out in the trike. Mr. Ford's busy schedule prevented him from being able to take the time to schedule a check-out. He suggested that Scott try to find a Designated Pilot Examiner (DPE).

DPEs are selected by the FAA as their civilian representatives to administer pilot examinations. After an extensive search, Scott contacted DPE Lyman Linson, who said that he would consider giving Scott his flight check in the trike. Scott and I went to Apple Valley Airport to meet Mr. Linson and demonstrate the trike to him.

Mr. Linson was impressed with the Air Creation and said that he would be willing to fly with Scott. We learned that Mr. Linson loves aviation, and that he's eager to fly practically anything that can get airborne.

Mr. Linson was curious why Scott was going to the effort to put his trike in the Experimental category and obtain his Recreational license, when he could fly the Air Creation as an ultralight without an FAA pilot's license.

Scott answered that there were several reasons. Probably the most significant was that he wanted to carry passengers.

He loves to introduce his friends to the joy of flying, especially to trike flying. (Since receiving his Rec license he has taken many people flying, including his first passenger, friend and co-worker Stephan Dalyai. He has also taken his mom, Judith Toland.)

Since Scott has an ultralight instructor's license, he is allowed to fly two-seat ultralight trikes. But the FAA allows two-seat ultralight trainers to be flown only for the purpose of giving flight instruction. In other words, it is not legal to take someone flying in an ultralight just for the purpose of sightseeing.

However, sightseeing is allowed when flying two-seat Experimental aircraft. But flying Experimental aircraft requires a regular FAA pilot's license, not just an ultralight license. So Scott needed an Experimental trike and a pilot's license to take his friends flying just for fun, rather than for instructional purposes.

There was another reason for Scott to make his trike "Experimental" and get his Rec license. The notation on his certificate says, "Single-engine land." Every time he flies his experimental Air Creation, he is entitled to record the flight time in his FAA logbook, just the same as if he were flying a Cessna 150 or a Piper Warrior. This is a good way for him to build up flight time toward his Private or Commercial pilot's license.

There was also the challenge of being the first person to obtain a pilot's license in a trike, as opposed to a conventional trainer. Scott felt this would be an opportunity to promote trikes so that more people would realize that they are available in the United States. Thanks to the publicity that Scott has received, people have also become more aware of Experimental aircraft and the Recreational Pilot license.

Owning an Experimental aircraft, Scott is often asked about how to certify an airplane in the Experimental category. FAR 21.191 lists eight types of experimental certificates. Scott's Air Creation trike is registered under the most common experimental certificate, which is "Experimental, Amateur-built," some- times referred to as "homebuilt."

To qualify as a homebuilt, according to FAR 21.191(g), the "major portion of the aircraft must have been fabricated and assembled by persons who undertook the construction project solely for their own education or recreation." Most homebuilt aircraft are delivered in kit form, from which the builder assembles the final product.

The time of construction varies between various aircraft. Scott required about a hundred hours to assemble the Air Creation. His trike has all the usual flight instruments, including a communication radio and a Mode C transponder.

Part of the registration process includes submitting a number of documents. These include an "Eligibility Statement for Amateur-Built Aircraft" (FAA Form 8130-12), an "Affidavit of Ownership for Amateur-Built Aircraft" (AC Form 8050-88), and an "Application for Airworthiness Certificate" (FAA Form 8130-6.)

The best known form is the "Aircraft Registration Application" (AC Form 8050-1.) This is the form, which requests the aircraft registration number, also known as the "N" number, because the aircraft numbers in North America begin with this letter.

After the construction of the aircraft is completed, and the paperwork is in order, the airplane is examined by an FAA inspector or a Designated Airworthiness Representative (DAR.) Scott received his airworthiness inspection from DAR Bob Dentice.

Mr. Dentice's assistance was invaluable. He helped Scott with the paperwork, and drafted the Operating Limitations for the trike, in addition to making sure that the trike was airworthy and ready for flight. Mr. Dentise has a wealth of qualifications. Besides being a DAR, he is an experienced pilot, a flight instructor, and an aircraft mechanic.

Mr. Dentice requested that the first test flights of the trike be done at Hemet Airport, located about 80 miles east of Los Angeles. The area surrounding the airport is rural, with lots of open fields to land in if the trike developed trouble during its first series of flights.

So that Scott would not have to assemble and disassemble the trike every time he flew it, his friend Todd Cervantes offered to let Scott keep the trike in his hangar at Hemet.

Todd is an ultralight instructor and is the owner of a flight school, called Ultrazone Aviation. He has introduced hundreds of future pilots to ultralight flying, and he was happy to assist Scott in his quest for the Rec license.

Besides being an ultralight instructor, Todd is also an FAA Private Pilot. He took his pilot's exam from none other than
...Lyman Linson.

Scott, and everyone associated with his project, are grateful to Mr. Linson. He played an integral part in Scott's success. Not only was he willing to give Scott his flight test in a strange machine, but he was very personable and cordial. He administered a thorough but fair flight exam.

Mr. Linson was pleased to be a part of aviation history by administering the first flight exam in a trike. Best of all, he had a great time flying the Air Creation with Scott.

Which just about summarizes what everyone feels about trike flying.

ABOUT SCOTT TOLAND

(PHOTOGRAPH OF SCOTT HERE
WITH HIS TRIKE)

Scott, age 30, is a set lighting technician for the television and motion picture industry. He has worked on such projects as "Murder One," "Kiss the Girls," and "Hard Rain."

He has been interested in flying since childhood, but he didn't become active in flying until a few years ago. He was introduced to flying, and to trikes, when he visited Kemmeries Aviation, near Phoenix, Arizona.

John Kemmeries is the United States distributor for Air Creation trikes. He has one of the largest and most successful ultralight flight schools in the U.S.

It didn't take long for Scott to fall in love with trike flying. "It's about as close as you can get to feeling like a bird," he says. "There's no cockpit enclosure, so the wind blows in your face, and you can look straight down at the ground."

"You can fly the trike just a few feet above the desert motorcycle trails if you want to, or you can catch the afternoon thermals and gain lift to high altitude. If the thermals are strong enough you can even turn off the engine and soar like a glider."

Scott transports his trike in a 30 foot trailer that he designed himself. He tucks the wing and fuselage in the aft portion of the trailer, and has a small living quarters in the forward portion, with a bed, stereo, storage space, and even a shower. He tows the trailer with a hefty, rugged truck.

"This is one of the great advantages of the trike," Scott remarked. "I can put it in the trailer and take it along with me wherever I go. I've enjoyed driving to flying vacations at John Kemmeries school, to Monument Valley, and locations in southern California."

Last year Scott spent two months in Ontario, Canada, where he was a member of the Trumpeter Swan Migration Project. Scott and his team members fitted their trikes with seaplane floats, and flew off the lakes in Ontario. They were trying to teach the swans to migrate south for the winter.

The Swan Project is similar to the famous endeavor by trike pilot Bill Lishman to train Canadian geese to migrate with an ultralight from Purple Hill, Ontario to Virginia. Lishman's story became the subject for the popular movie, "Fly Away Home."

"Fly Away Home" has special meaning to me," said Scott. "On the very first day that I met Jon Thornburgh, who became my future instructor, he and I went to see the premier of the movie.
We remarked at the time how fun it would be to fly trikes together and somehow do something significant in aviation."

"Little did we know then that we would create a little aviation history using a trike."

PERSONS INVOLVED IN SCOTT'S ENDEAVOR

SCOTT TOLAND lives in southern California and keeps his trike and trailer at a hangar at Corona Airport. He is an ultralight instructor and Director of the Trike Wing of Aero Sports Connection (ASC), one of three national ultralight organizations.

For more information about trikes, Air Creation, ASC, Experimental aircraft, or the Recreational pilot's license, contact Scott by home telephone at 213-664-6342 or by e-mail at STOLAND @ AOL.COM.

JIM STEPHENSON is President of Aero Sports Connection (ASC). For more information about ultralight training, and sport flying contact ASC at:
Aero Sports Connection
P.O. Box 589
Marshall, MI 49068-0589
Tel: 616-781-402

JOHN KEMMERIES has devoted his life to flight instruction in trikes. Students come to his school from all over the country.
He has living quarters available for those who would like to enjoy a concentrated training curriculum during their vacation. He is also the U.S. distributor for Air Creation trikes. Contact John at:

KEMMERIES AVIATION
8710 West Carefree Hwy
Peoria, Arizona 85382
Tel: 602-566-8026

GREG SILVA is an instructor and mechanic at Kemmeries Aviation. Greg was the first person in the United States to put a trike in the Experimental category. For more information about Greg and his Antares trike see the March 1997 issue of the EXPERIMENTER magazine, published by the EAA.

EAA AVIATION CENTER

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EARL LAWRENCE is the Executive Director of the EAA Government Programs. He is a source of a wealth of information about Experimental aircraft and certification procedures. He may be reached at:

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SCOTT SPANGLER is the editor of FLIGHT TRAINING magazine, the official publication of the National Association of Flight Instructors (NAFI). Scott wrote an excellent and comprehensive article on the Recreational Pilot certificate in the May 1998 issue of FLIGHT TRAINING. For a copy of the article contact Scott at:

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LYMAN LINSON is a Designated Pilot Examiner in the Riverside County FAA FSDO area in southern California. He loves aviation,
and enjoys meeting the pilots who come to him for their FAA pilot's certification exam. His check flights are thorough and professional, yet stress-free and actually fun because of his personable nature and friendly smile.

Mr. Linson is one of the few Examiners who will give a check flight in experimental and ultralight-type airplanes.

He is presently moving from Victorville to Big Bear Lake, so his home telephone is temporarily unavailable. His pager number is 909-778-7622.

TODD CERVANTES has an FAA Private Pilot's license and is an experienced ultralight instructor and mechanic. He is an ultralight examiner for Aero Sports Connection, which means that he can issue an ultralight instructor's license to qualified applicants. He has a flight school in Hemet, California, where Scott kept his trike during the flight test period after receiving his Experimental certification.

Todd Cervantes
ULTRAZONE AVIATION
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R.A. "BOB" DENTICE has enough credentials to fill a dozen business cards. He is an FAA flight instructor and an airline transport rated pilot who has flown everything from World War ll fighters to modern day ultralights.

He is an aviation mechanic, and a "DME," which means that he can examine applicants who wish to become mechanics. Mr. Dentice is also the DAR who performed the airworthiness inspection on Scott's trike to qualify for the Experimental category.

To top it off, Mr. Dentise has a parachute riggers license and an Air Traffic Controller's certification.

For more information about anything within Mr. Dentice's expertise contact him at:

Bob Dentice
9105 E. Acadia Avenue
San Gabriel, CA 91775
Tel: 626-575-3218
E-mail: N6D @ AOL.COM

DAVID KARNES, and his son GREG, are the owners of Mission Air, at Torrance Airport, California. It was at Mission Air that Scott kept his trike while in training in the Los Angeles area.
Mission Air is a full service flight school, specializing in Katana aircraft trainers and Experimental aircraft.

Mission Air is a dealer for Rotax and 2si engines. Their mechanic, Gene Piedras, is highly experienced in two-cycle engine maintenance and repair.

Mission Air also sells 30-foot "shade hangers" for ultralights. The price is in the $2,500 range, which is the least expensive in the United States. Mission Air can be reached at:

Mission Air
2955 Airport Drive
Torrance, CA
Tel: 310-540-1862

For information on the shade hangers, call Mission Air, or the designer, Kelly Jenkins, at 310-534-1877.

DR. ERWIN SAMUELSON is a physician who is authorized to give FAA flight physicals. He examines the pilots from Mission Air, and gave Scott Toland his aviation physical.

Dr. Samuelson is especially appreciated by pilots in southern California because he his known for working with the FAA on behalf of a pilot who has a medical problem which might initially appear to be disqualifying.

The doctor and his staff are very personable and friendly. His lovely receptionist, Sharon Gonzales, is taking flying lessons and works as a dispatcher at Mission Air on the weekends.

Erwin Samuelson, M.D.
1970 S. Prospect Ave.
Redondo Beach, CA 90277
Tel: 310-540-0375

MIKE JACOBER is an Air Creation dealer near Anchorage, Alaska. He is famous throughout the state for his incredible flight in a trike over the top of Mt. McKinley (20,320'), the highest mountain in North America. Mike has trained hundreds of trike pilots to fly in Alaska, much of the instruction given on ski equipped trikes in winter.

Mike is in the process of duplicating Scott's feat of certifying a trike as Experimental and training for his FAA pilot's license. But Mike's project has a twist to it.

Because of the terrific soaring opportunities along the mountain ridges of Alaska, Mike is intending to certify his trike as a "Motor Glider" and train for an FAA glider license, rather than the Recreational license that Scott Toland obtained.

Mike and John Kemmeries are friends, although one lives in Alaska, and the other in Arizona; which shows that trikes can be flown from the coldest climate to the hottest desert.

For more information on trike flying in Alaska, or to request a video of Mike's thrilling flight in May 1993 to the top of Mt. McKinley, contact:

Mike Jacober
ARCTIC SPARROW AIRCRAFT
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JON THORNBURGH is a FAA Certified Flight Instructor, an ultralight instructor and an ultralight pilot examiner. He is the proud owner of an Air Creation trike, an experimental Keuthan Buccaneer amphibious seaplane, an experimental Quicksilver "Sport" ultralight, and an FAA certified Quicksilver GT-500 "Primary Category" ultralight.

See the May 1998 issue of ULTRAFLIGHT MAGAZINE for Jon's article entitled "The Differences Between Ultralights and General Aviation Airplanes."

In the same issue of ULTRAFLIGHT MAGAZINE is a feature about "Famous Ultralight Enthusiasts". In the article is an interview with actor Jeff Daniels, who was the star in "Fly Away Home," and who is a trike enthusiast. Also featured is the actor Lorenzo Lamas who took flying lessons with Jon Thornburgh and experienced his first solo flight in Jon's Quicksilver GT-500.

Jon's toll-free voice mail number is 888-600-0054.