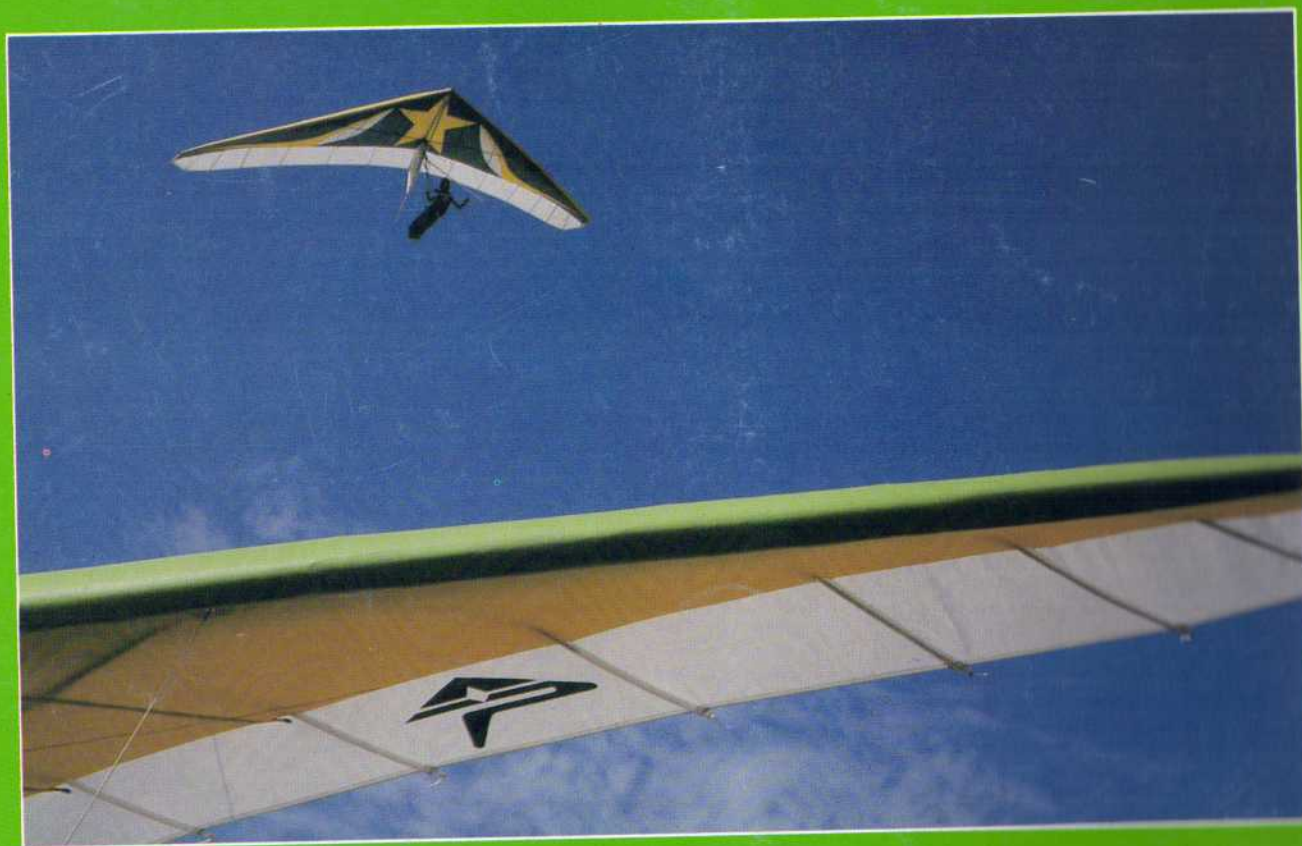


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NOVEMBER/DECEMBER 1982

# WHOLE AIR

The International Magazine for Sport Pilots

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Models - HGMA Certified	180	165
General:		
Span	35 ft (10.7m)	35 ft (10.7m)
Area	180 ft <sup>2</sup> (16.7m <sup>2</sup> )	165 ft <sup>2</sup> (15.3 m <sup>2</sup> )
Aspect Ratio	7.3	7.3
Nose Angle	135°	135°
Double Surface	67%	67%
Glider Weight	72 lb (32.6 kg)	70 lb (31.7 kg)
Ideal Hook-in Weight	180 lb (82 kg)	165 lb (75 kg)
Hook-in Weight Range	160-250 lb (72-114 kg)	135-225 lb (61-102 kg)
Wing-loading Range	1.3-1.6 kg/m <sup>2</sup>	(6.36-8.81 kg/m <sup>2</sup> )
Folded Length, in bag	17 ft (5.2m)	

### Performance Data:

Glide Ratio	10+1 @ 26 mph (42 kph)* †
Min. Sink, level flight	1.5-1.95 fpm @ 19 mph (.9 m/s @ 31 kph)* †
Min. Sink, banked flight	Performance is retained for best climb
Stall speed	14 mph (23 kph) IAS (Indicated Air Speed)
Max. Speed at Max. Loading	55 mph (89 kph) IAS
Max. Speed at Min. Loading	45 mph (72 kph) IAS
Speed Range	14-55 mph (23-89 kph) IAS

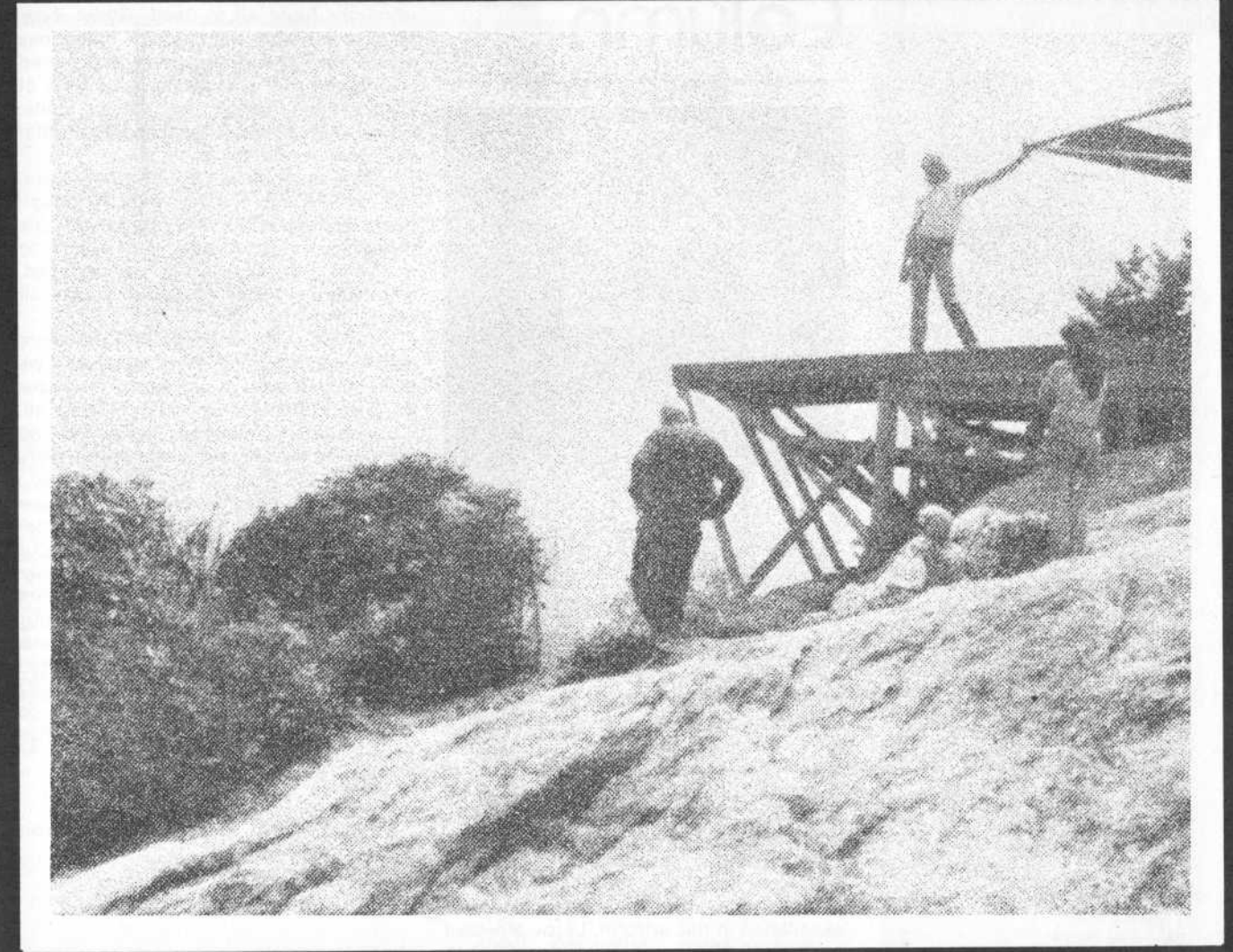
\*Performance varies depending upon glider tuning and wingloading.

†Indicated Air Speed

NOTE: Data is based upon actual flight performance at near optimum wing loadings.

Photo courtesy of Bettina Gray, Pilot: Jeff Burnett

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# THE MAGAZINE OF TOMORROW

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450 fpm Sink Rate	200 fpm Sink Rate
4° Billow	0° Billow
80° Nose Angle	130° Nose Angle
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Bikini Harness	Cocoon Harness
No Instruments	Full Instruments

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Volume 5, No. 5, 1982  
ISSUE NO. 27

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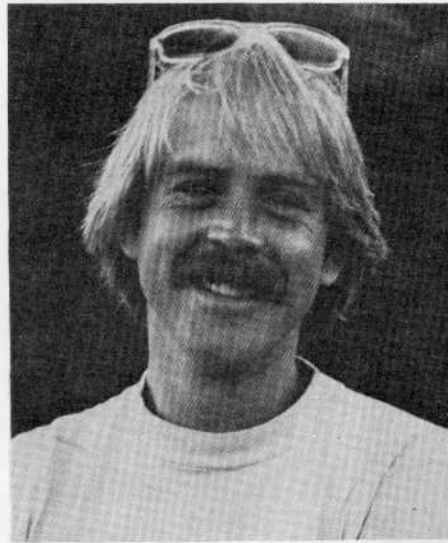
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**On The Cover;**

Grandfather Master's of Hang Gliding wind dummy, Bubba Goodman, is the subject in this intriguing view, flying in the model that took First and Second Places — the Sensor 510.

# Publisher's Column



Welcome to a happy occasion at *Whole Air*. In this issue, we begin a new phase in the long-term evolution of our magazine. With this edition *Whole Air* adds more than four new color pages. We also mark the beginning of our first inside use of beautiful full color as "content" (as opposed to advertisements).

We are further pleased that this milestone is achieved using the photographic imagery of Leroy Grannis. In addition to being widely recognized for excellence in this artform, Leroy provided our very first cover in full color, back in January of 1980.

This new color is possible for several reasons. The most important is that *Whole Air* has been able to reach the pilot in a way that attracts successful advertisers. We are proud to represent nearly every manufacturer of soaring craft, and several of the better ultralight producers. Their solid support has allowed this newest growth. And you, the reader, benefit. One inside color content page today, a centerspread next, and ambitious plans for our future.

The second reason is our desire to publish the finest quality magazine in our sport. Heft a *Whole Air*. We'll stack it up against any other entry. Our grade of paper stock is heavier and more costly than any aviation title. The same can be said for our production and printing methods. It has slowed our profitability to incur such expenses. But quality was the goal. And graphic experts agree, that our finish is second to none. Again, we think you

readers gain.

In differentiating our service, we can now say *Whole Air* has a place all its own. The ultralight soaring scene is really all ours. *Hang Gliding* continues to be widely circulated as our national association's publication. It has the non-powered end of ultralight flight all to itself. *Glider Rider* leads a veritable stampede of magazines aimed more or less exclusively at powered ultralights. But in straddling the best of both worlds, *Whole Air* stands alone. Alone, yet received so enthusiastically that we know we are doing it right.

This situation will not go to our head. We recall our beginning years as though they were yesterday. At times the struggle threatened to strip away our reserve to continue. But persevering, we reasoned, was *everything*. This *Whole Air* is the result of that determination.

As we have recalled all the more salient explanations of the success we think *Whole Air* is enjoying, we have purposely left out the most important of all.

You, our audience, some 15,000 strong, are the primary *raison d'être*. Were it not for the steady involvement of you readers... the advertisers would not have bought space... the cost of premium paper could not have been borne... and our will to go on would have lost its meaning.

So we want to say a most sincere "Thank you!" to you readers, our advertisers and dealers, our suppliers, our banker, and all our generous and talented contributors... this time especially Leroy Grannis.

We dedicate this issue to you, Leroy.

Thanks,  
Dan Johnson

# WHOLE AIR

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# FORUM

## TOW PILOT EATS CROW

Dear Editor:  
About 6 months ago I saw an article in HGM (actually it was *Whole Air* -- Mar/Apr '82), something about "SKYTING." My first impression was what a stupid name for towing. So I ignored the article. That was a mistake. We should always be open-minded about new and innovative ideas. Who knows, we might contribute to our sport.  
Well, last month *Whole Air* (Jul/Aug '82) published an article on "SKYTING" and this time I read it. Since we are towing with a Yarnall winch, I said why not look

at the system before I talk about it, so I did. It took me some time to find a telephone number for Donnell Hewett, but when I did, I had him send me a bridle. It arrived in one week.  
That weekend I towed up my Flight Designs 208 Javelin and was amazed at the roll response you have with this system. Our first day, winds were up to 10 mph. There were 5 pilots towing all day and at no time were any of us ever near a lockout. The second day proved to be the same. So in a month there is no telling what we can do with this system.  
With a three point bridle, you

were always afraid to tow in strong winds. With this system we can now tow up when there is thermal action.  
So look out! A cross country record might come from flatland hang gliders thanks to guys like Donnell Hewett and Paul Yarnall for their work with land towing systems.  
If the name turns you off, EAT CROW, and call or write Donnell. He *does* have a surprise for land towing.  
May the sky be your playground.

Tom Pendergraft

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P.S. Any North Carolina pilot that would like to see the system in operation, or give it a try, call:  
Tom Pendergraft  
919/485-2930  
Fayetteville, NC

Dear Editor:  
By installing a bungie tensioner for the rear keel tension that maintains the same tension as before at normal flying speed... it may add camber at slow speeds, and reduce it at fast speeds.  
This may make double surface gliders much easier to land and thermal soar! Really! And perhaps with no loss in performance, just a slower slow, and a faster fast.  
Bruce Mahoney

(Perhaps, Bruce. But watch the next *Whole Air* for a write-up on the new Delta Wing Streak. In our opinion, they have achieved a great deal by employing "Shark-like" unattached double surface technology. Surely it eases the landing chore on modern gliders. —Ed.)

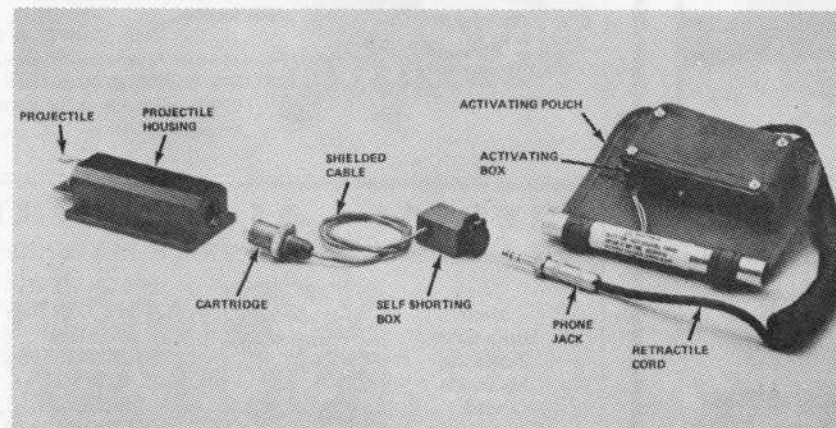


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# INDUSTRY NEWS

## Wills Offers Rich Pfeiffer "Signature Series" Duck

For pilots who want the trickiest, most competitive glider you can buy, Wills is now offering a Rich Pfeiffer "Signature Series" Duck. The "Signature Series" is the glider with which Pfeiffer won the 1982 Nationals. It specially features sandwich sail cloth in the rear body with a "Tempercoat" mylar pocket.

The advantage of the "Signature Series" configuration is that because the cloth used in the rear body and mylar pocket is highly resistant to stretching, tightening the sail and crossbar will be more effective in reducing twist and increasing performance than on a glider with normal cloth.

## ProAir Gliders Updated Free-of-Charge

In keeping with its policy of building and maintaining the finest products on the market, Pro Air has recently concluded a test program for updating all gliders built since its inception two years ago. These updates include parts and tuning which elevate glider performance and handling, and also help to prevent wear or breakage.

Any pilot owning a glider built by the ProAir Company who would like to receive the latest updates for a glider is asked to send name, address, telephone

number, date, and the name of the dealer where the glider was purchased. Send this information with the model and serial number.

All of the above information is necessary to determine when the glider was built and what, if any, updates are needed. All updates will be made free-of-charge (shipping paid by the customer), however, routine breakage is not covered under this program.

Send all requests to: Progressive Aircraft, 4544 Industrial Street, Simi Valley, CA, 93063, Attention: Product Updates.

## Progressive Aircraft CERTIFIES PROSTAR 195

Progressive Aircraft Company has completed testing on the ProStar 195 and received certification from the HGMA effective August 25, 1982. This now completes the Progressive Aircraft Company line of certified gliders: the ProAir 140 and 180; the ProStar 130, 160, and 195, and the ProBreeze 180.

The ProAir Co. crew have complete testing facilities needed for certification, including a load test vehicle, pitch test vehicle, camera and airspeed indicators. Company president, Richard Boone, holds the position of Secretary/Treasurer for the HGMA and has been a board

member since its beginning. ProAir Co. maintains active participation in the HGMA programs and testing requirements on all production gliders.

## Ultralight Events Scheduled For First Time At AOPA Meet

Ultralight aviation activities for the first time in the history of the annual AOPA Convention and Industry Exhibit will be featured at Las Vegas October 30 to November 4, during the 27th edition of the event.

Ultralight flight events will take place at the Ultralight Flying Park of Las Vegas, about 20 minutes north of convention headquarters, the Las Vegas Hilton.

Displays, including assembled aircraft, will be open daily in the exhibit center.

A series of competition events will be staged at the Flying Park and are designed to hone pilots' skills and techniques.

The AOPA Air Safety Founda-

tion will administer its written test for pilots under the newly announced FAR 103.

## Major Canadian Ultralight Trade Exposition Set for 1983.

Ultralight Dealers and Manufacturers will have an ideal opportunity to demonstrate and sell their products in 1983. The most cost-effective sales promotion medium, a major Ultralight Trade Show, is to be held at Canadian National Exhibition Place in Toronto, Canada, February 4, 5, & 6, 1983.

This three-day indoor event, labeled the first "International Ultralight Aircraft Exposition" is organized by a marketing company from Winnipeg.

experienced in organizing Trade and Public Shows. The Exposition is the offspring of a pilot project organized last March, with tremendous success.

## "Ultralight Pilot" Appears On Street

*Ultralight Pilot*, a new bimonthly publication of AOPA, is on the streets for September/October, and Advertising Director, John Gorsuch, said he is pleased with its early reception.

The magazine is distributed as a member service for AOPA's Ultralight Division, and is on single-copy sale at ultralight dealers across the nation for \$3.00. The first issue of the four color, slick-paper publication carried 56 pages plus cover.

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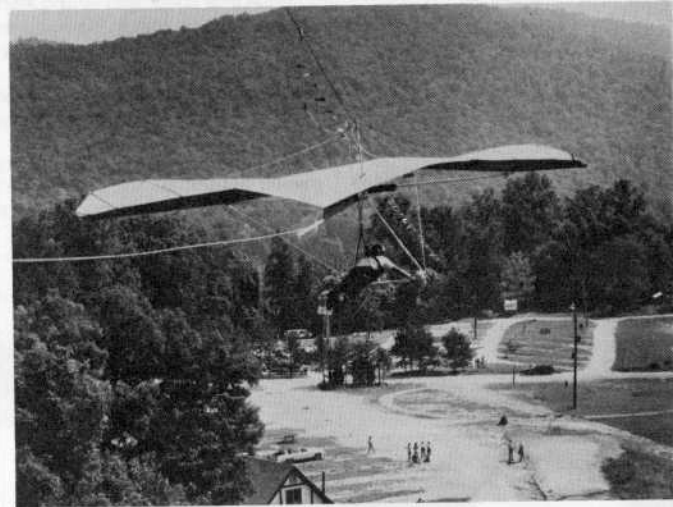


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 your shop is interested in this system,  
 contact Tom Phillips ASAP.)



## POSITIVELY SIMULATING

## NEWS

### Simpson's Little Bi

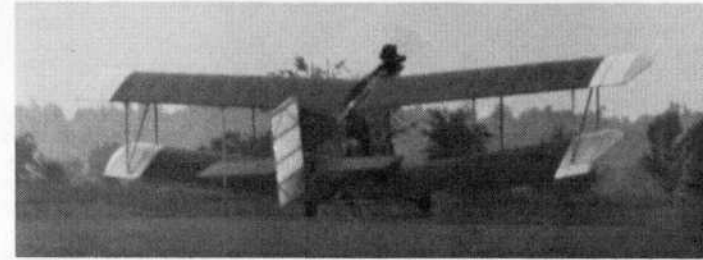
James and Giles Simpson, operators of Simpson Midwest Ultralights of Missouri, have designed, built and flown the latest addition to the field of ultralights, a simple light-weight biplane known as Simpson's Little Bi.

The father and son team have been designing their aircraft in the heads and on paper for several years, while demonstrating what an ultralight is and attracting a

great deal of attention to the sport in the southeast Missouri/northeast Arkansas area. They have also been flying, building, and selling kits for other ultralights and designing accessories and innovations for some of them.

They finally had time to build their prototype this past spring and summer, completing it just in time to make their test flights before taking a few days off to visit the EAA Convention in Oshkosh.

For more information on the Little Bi plans, send \$2.00 to Simpson Midwest Ultralights, Rt. # 1, Box 114, Fisk, MO., 63940 or call 314/686-3578.



### Two-Place Eagle Debut

American Aerolights introduced their new Eagle 2-Place to crowds attending the Ole South Fly-in at Tullahoma, Tennessee. With the advantage of a two-place airplane and the convenience and low cost of an Eagle ultralight, this experimental class airplane is quickly developing popularity among licensed pilots. Private pilots can share flying with a passenger, and student pilots can log airtime toward advanced pilot ratings.

The Eagle 2-Place sports dual steering wheels and centrally located throttle, so "co-pilots" can fly too. It easily converts for solo flight by relocating the pilot's steering wheel, seat, and throttle. Unlike other two-place homebuilts in this lightweight category, handling qualities actually improve in the single-person mode.

Pitch control of the new model is achieved through elevator and weight shift, a combination proved more effective than elevator alone. Both pilot and passenger seats are guided on

tracks which prevent sideways motion. Progressive spoilers and tip rudders produce highly efficient roll response. This coordinated system is activated by the steering wheel. The factory claims that when maximum roll control is most needed — at slower speeds during take-off and landing — the newest Eagle has it.

The two-place Eagle does not rely on engine power and prop blast to maximize its effectiveness. As a result, maneuverability remains consistent with or without power, and engine-off landings can be precisely controlled. Special shock absorbing landing gear and nosewheel steering assure smooth operation on paved runways and unimproved fields. The power for the two-placer is the popular twin cylinder Cuyuna 430R, giving a respectable climb.

As an FAA approved kit, the Eagle 2-Place is complete, and priced at only \$5,795.00. For more information, contact American Aerolights, 700 Comanche NE, Dept. WA, Albuquerque, NM 87107.

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# NEWS

## "Ready to Fly Away" Mitchell Wing

Mitchell Aircraft announces "No More Building" as they are now able to deliver their Mitchell Wing model B-10 complete under the new FAA rules. Until now this model of ultralight has been sold only in kit form, under the old rule of 51 percent customer built.

The B-10 model was first designed and flown in 1975, and thousands have been sold. The structural safety record has been perfect. Now, pilots will be able to

come to the factory, receive a check-out in a two-place trainer, and fly his or her ready-built B-10 home.

The B-10 comes equipped with an airspeed, compass, altimeter, and dual cylinder head temperature/RPM gauge as instruments. Full of fuel with two hours of production test flying, the B-10 is really "Ready to Fly Away," for \$5,995.00.

## ADD receives new aircraft

Two new homebuilt ultralight aircraft have been donated to ADD, the organization under whose banner Zane Eldo Myers set 7 World and 7 American ultralight records earlier this year.

Dr. Robert Smith of Columbus, Georgia donated his Mitchell U-2 and trailer and John Haven of Montana his B-10. Both airplanes were completed and test flown by their owners prior to giving them to ADD.

Myers publicly thanked both Haven and Smith for the generosity at ceremonies during

the EAA Oshkosh Convention. It is not certain at this time if the aircraft will be used to set additional ultralight records or sold to help finance ADD projects.

ADD is Abilities Demonstrated by the Disabled, is a non-profit, charitable organization and donations are tax deductible.



## Vector 610 Wins London to Paris Race

The Great Microlight Race from London to Paris, staged over the September 3rd weekend, began with 76 aircraft from ten countries scheduled to start at Biggin Hill, London, and ended with 30 aircraft completing the race in Paris. The winner of the 3-day, 5leg event, was selected by a point system based on four criteria: accuracy of navigation; speed; fuel consumption; and landing accuracy on the final leg.

A Vector 610 piloted by Jacques Antoine Breuvart won top honors in the 3-axis category. The Vector also took first place for best speed and most accurate cross-channel navigation. Breuvart, an advertising executive with 110 hours of flight time, landed at Le Touquet within one minute of his estimated flight time. The weight-shift category was won by Francis Thovex, a French entry flying a Daniss Sabre 23. An estimated 65,000 spectators cheered their arrival.

## Convention a Success

The First Annual EAA International Ultralight Convention met all of its expectations and achieved all of its goals, the organization reports. Two main objectives were to expose the general public, present enthusiasts, and would-be ultralight owners to as many types of ultralights as possible; and to provide EAA ultralight flyers the chance to compete in a series of events.

EAA Chief, Paul Poberezny said that while he was sure the predominantly poor weather conditions kept many participants and spectators home, he was pleased with the turnout. EAA reports that 18,000 people attended the Convention to watch the competitions, inspect the ultralights on display, and decide whether they would get into the fast growing sport. Poberezny says, "These folks went home well satisfied." He also indicated that although 101 ultralights were registered in competitions and judging, unofficial counts show that at least 140 craft were on the field.

Dr. Paul MacCready addressed the Convention on Saturday (9-4). He discussed the developments and success of the Gossamer Condor, Gossamer Albatross, and the Solar Challenger.



## Condor Two-Place "Loveseat"

Designed for wide-bodied pilots, the newest aircraft from Seahawk Industries will comfortably accommodate two standard weight persons.

The Condor III comes equipped with what the factory calls a "loveseat." The wide seat with single seatbelt is capable of being flown from either side of the seat, or a solo pilot (of up to Extra Large proportions) may simply seat himself in the middle.

The Condor III uses a conventional control system (rudder pedals controlling rudder), and by employing a swivel bar rudder pedal arrangement, can still be operated completely from either half of the wide seat. The Condor II

(single seat model) uses a center mounted joystick which makes the two seat conversion much simpler. This further permits solo/dual operation with no adjustments to the airframe.

Power for the Condor III is by either a 40-horse Kawasaki 440 or the water cooled Kawasaki Invader, which puts out 75 horsepower. The airframe has been strengthened to handle this power, and the III thus offers a respectable and safe two place climb rate. The craft can also be operated successfully from waterways when floats are installed.

For more information on the Condor III "Loveseat" or Condor II single place, write Seahawk Industries at 10772-W S.W. 190th Street, Miami, FL, 33157.



## Jeff Burnett

We inadvertently left out Jeff Burnett's name in our American Cup feature last issue. We would like to apologize for this error. Jeff served as Team Captain. —Ed.

## Training Program Qualifies Pilots for Liability Insurance

Pilots of ultralights who receive a certificate from the AOPA Air Safety Foundation will be automatically accepted for liability insurance through the AVEMCO Insurance Company, the two organizations announced today.

The certification program for pilots requires passing a written test as well as demonstrating an acceptable standard of piloting technique.

AVEMCO is offering four different coverages which the company says are tailored to the specific needs of owners and pilots.

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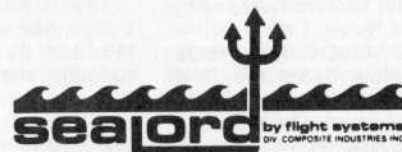
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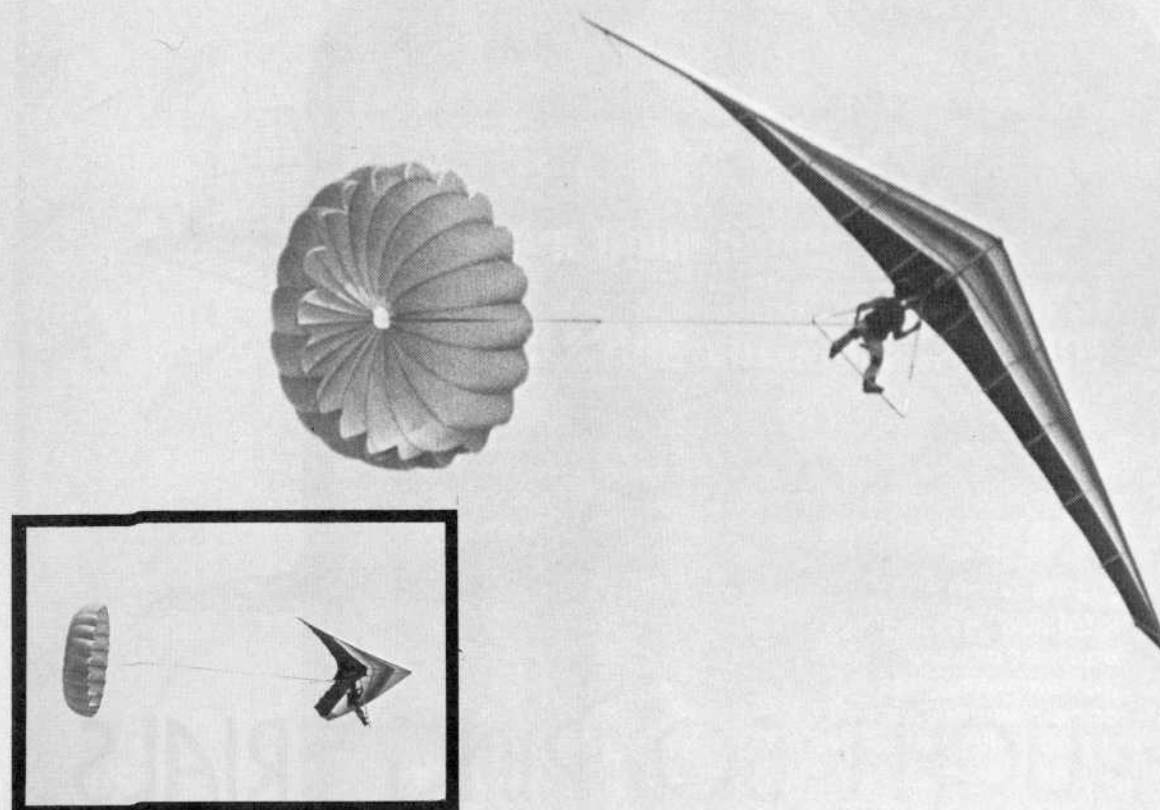
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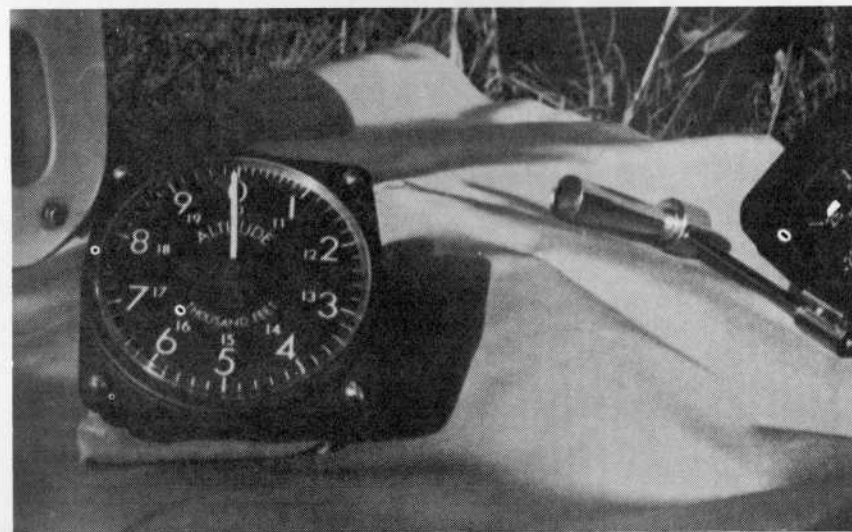
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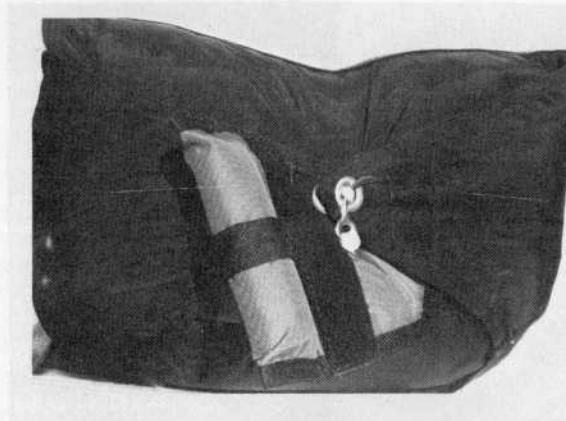
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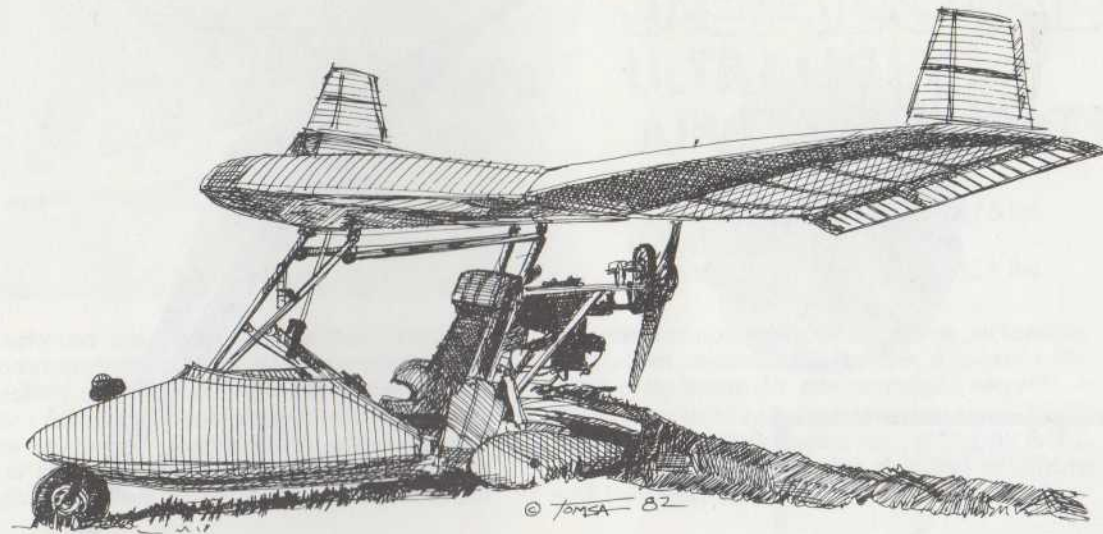
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## ULTRALIGHT SOARING TRIALS

by Tom Kreyche

Although George Worthington's fatal accident cast a shadow on the Ultralight Soaring Trials, the contest was carried on in his spirit; he'd wish it no other way. George was the outspoken proponent of ultralight soaring flight, and with his stimulus, the Owens Valley Hang Gliding Center organized the event.

Although the beginnings were certainly modest, the intent was simply to gather a few enthusiasts, to contribute ideas to the design and philosophy of ultralight soaring contests. The Owens Valley has provided a suitable testing grounds for the development of safe, adequately performing hang gliders, with the aid of the *Cross Country Classic*, and other contest. The *Soaring Trials* will hopefully continue in a similar fashion, with soarable ultralights. The contest was not heavily promoted since the (now released) FAA regulations had the serious potential to prevent the use of the Bishop Airport. Fortunately, we now have the go-ahead to continue with ultralight development, in a quite liberal framework.

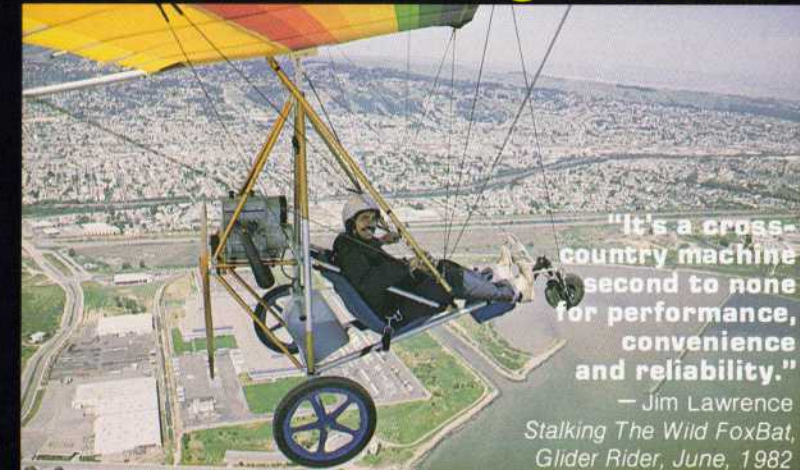
As it were, a reasonable cross-section of ultralights with soaring capability participated. Steve Grossruck arrived with

a Kasperwing contingent, Jeff Stephenson represented the Mitchell Wing company, and Gil Kenzie arrived from Utah with his Hummer. Mark Smith drove straight out from Chicago, where he had attended an R/C (radio controlled) convention, also demonstrating his Wanderer; George Worthington was enthusiastic about the ship, and came to pilot it, from San Diego. The Owens Valley Hang Gliding Center intended to participate with their Nomad, but business commitments (read: great summer soaring weather!) prevented its completion by the contest date.

Machines were assembled and test flown on Thursday, September 9th, and Friday morning. A morning gas-consumption evaluation task was run in calm conditions. The second task of the day required an out and return flight to White Mountain Ranch, a round trip of approximately 40 miles. This task was timed, maximum fuel consumption was determined to be four liters. All pilots launched within a short period of time. George's fatal accident — the structural failure of the Wanderer's right wing — took place shortly after takeoff, upon entering a thermal at about 400 feet AGL; no



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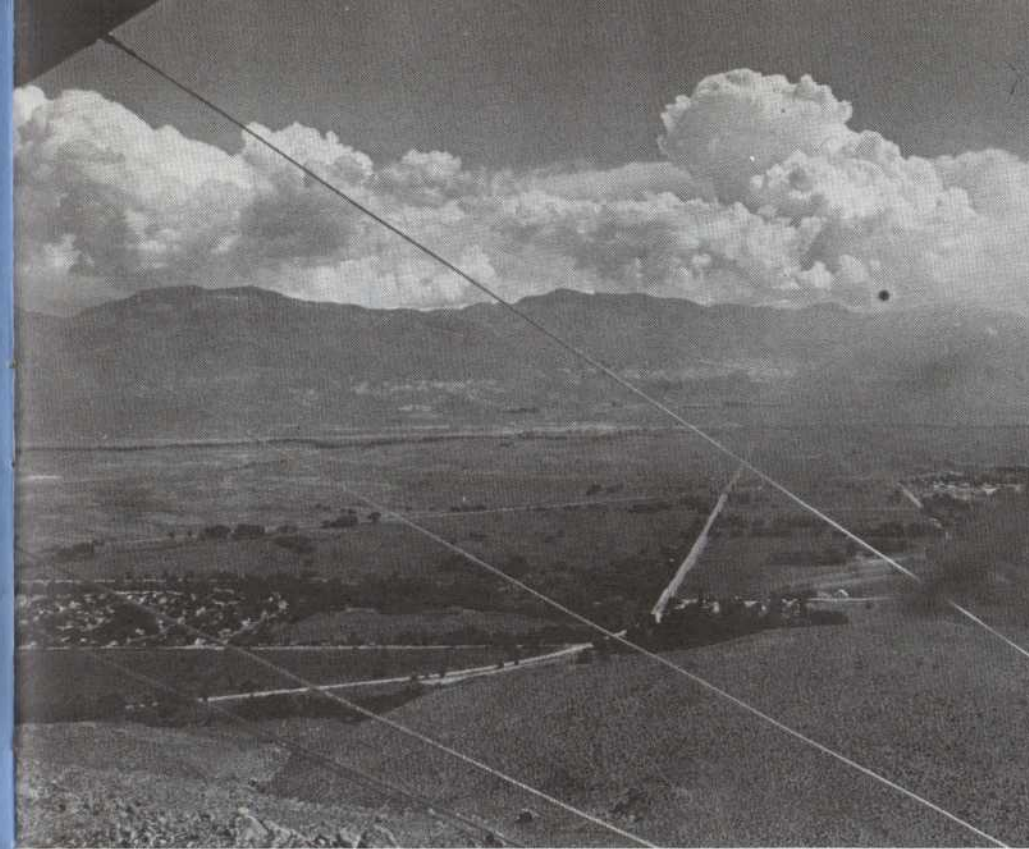
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#### Ultralight soaring with a dust devil in the Owens./Photo: Steve Grossruck

Most pilots were in the vicinity, and upon observing the accident returned to the airport to offer assistance. Steve Grossruck, unaware of the accident, was the only pilot to attempt the task, completing the flight with a fuel usage of 2½ liters.

On Saturday, a gusty North cancelled the day for contest flying, but near sunset the wind abated. Jeff Stephenson and Steve Grossruck promptly jumped into their crafts, and took off for a North-facing ridge near Coyote Peak in the Sierras. The light evening wind and late thermals boosted them to near 10,000 feet for a prime view of the Palisades Glacier, and the vast area of the Eastern Sierra Navadas' formidable terrain.

Sunday morning saw most pilots busy tuning motors and tweaking various other components. The day's task was set: out and return flight of 68 miles total, turnpoint at Benton, north of Bishop. Jeff Stephenson in his beautiful Mitchell Wing finished the task in 3 hours, 22 minutes with a fuel use of only 2½ liters. Steve Grossruck and Scott Rutledge, both flying Kasperwings, ran out of fuel late in the day, and landed out on course. Gil Kenzie also "finished" the task, albeit in an unusual (and unscored) fashion. Nearly out of fuel, he landed near Chalfant Valley, taxied up to the local store/gas station, re-fueled, and headed back to Bishop. He returned to the airport late in the day, having consumed somewhere around five gallons of fuel!

In recognition of his accomplishments, Jeff Stephenson was awarded the contest's only prize, a certificate for Janie's Sporting Ranch (Queen, Nevada location),

for best performance in the non-collapsible rigid wing category. Well, maybe he had the *only* glider in the category!

#### POSTSCRIPT

Ultralights *can* soar! Obviously there is a difference in performance of the various craft. A pilot willing to spend the extra time building a more complex aircraft, such as the Mitchell Wing, will find his efforts well rewarded. Other pilots, perhaps seeking more versatility and less building time, trade off a bit of performance for craft such as the Kasperwing and the Hummer. All these ships carried minimal power systems: single cylinder two cycle, most with the obviously effective reduction drive. Soaring machines do not need big weight and big horsepower!

Many new ideas were presented for future ultralight soaring contests. One of the pilot's main complaints was the restriction from thermalling in the airport area, which required them to use extra fuel to fly out of the area. The amounts of fuel required to sustain flight long enough to find soarable condition became more obvious. More information was gained to help solve one of the most difficult contest questions: how to balance fuel consumption and elapsed time on timed goal tasks. There is a number of alternatives, such as computing handicap formulas for the various aircraft, simply setting maximum fuel limits, and ignoring elapsed time altogether. The *Soaring Trials* are planned to continue next year to help solve all these questions, and hopefully help pilots and manufacturers discover the rewards of soaring flight. Let George Worthington, in all his actions and accidents, be a lesson to us all! §

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# BARBADOS

## THE SMILING ISLAND

Text by Doug Barnette

Barbados, the southeastern outpost of the Caribbean, shoulders the Atlantic on its windward shore. Its many charms have thus far eluded the hordes of tourists that clamor over its northern neighbors. Although a small coterie of knowledgeable visitors call themselves "Bajuns" in their hearts, many travelers have yet to discover the cane-covered hills of the singular island of Barbados. Barbados is the first and only scout to face the Atlantic seas on their unchecked advance from Africa. Cane fields cover most of this coral island and wave a greeting to visitors who swoop into Seawell Airport or sail into the Bridgetown harbor. The island offers its sandy shores, and its turbulent windward side contrasting the western coast where the winds can be placid while the eastern shores roar with the Atlantic breeze. The entire island of Barbados measures 14 miles at its widest point, and 26 miles at its longest.

In August of 1982 a letter was received querying a trip to Barbados sponsored by Amstel Beer and Hawaiian Tropic Tanning Laboratories. The island had never been flown by any powered or unpowered ultralights, and after a phone call to Bo Underwood (the Regional Director of Hawaiian Tropic in Daytona Beach, Florida), it was ascertained that the Barbados sponsors desired to have a parachutist accompanied by two hang

glider pilots, put on a demonstration from the overlooking cliffs during the Barbados National Surfing Championship.

Coincidentally, Bo Underwood is an expert skydiver with many world-class jumps and relative star teamwork. Bo declared that I could invite another hang glider pilot, and my selection was Dan Johnson. In his right, Dan is an excellent pilot as well as a CFI. He is extremely easy to work with, and his character would keynote professionalism, therefore he was the perfect choice.

As the date of departure grew nearer, and shipment of the gliders was being accomplished, I had to order some parts from Pete Brock of UP Sports. During the conversation Pete asked about the possibility of sending along a UP Sports representative to bring down two wave-jumping wind surfing sail boards. After a quick call to Bo and an exchange of phone numbers, it was decided between Bo and Pete that Sterling Stoll would gather himself and the boards together and ship them to Miami for forwarding along with our hang gliders. So with Dan Johnson, Sterling Stoll, Bo Underwood and I traveling to Barbados, the scene was set for a pioneering of hang gliding on that island.

In the early morning of September 22, Dan arrived at the Miami International Airport. Half a score hours later, Sterling

showed up. Later that afternoon, we all threw our gear into the taxi to traipse off to meet Bo. The gliders should have already been in Barbados by now. With the wind surfers being shipped, most of the hard work was already finished.

After a 2,000 mile, four and a half hour flight, we swooped into Sewell Airport. We were greeted by a group of locals, including Paul Hadchity, the Hawaiian Tropic distributor, and Bill Thompson, the Barbados Surfing Championship Director.

Barbados typically has the same kind of Customs which exists throughout all the Caribbean, Central and South American countries with reference to importation. Goods arriving in the country via freight are bonded to 100% of the retail value. So something costing \$1000 in the United States would cost \$2000 in Barbados. Our declared value for insuring the hang gliders was quickly changed into the bonded funds necessary to import it for the Surfing Championship, with a guarantee that we would take our hang gliders and wind surfers and parachute back to Miami when the meet was over, instead of selling them in the Islands. We quickly found out there was no way around this, as the people putting the meet on knew everybody of importance there, and it still took two and half days to actually get our gliders out of Customs. Luckily we were there in plenty of time, so we had a couple days to sit and enjoy the tropical atmosphere while this laborious process was being undertaken.

Our host, Paul Hadchity, had supplied us with four condominiums and two rented cars, a part-time cook and had made us feel right at home from the beginning. Those first few evenings we were introduced to a number of footrills in notorious pirate bars in the Hastings district.

Hastings is located across the Island southwest of Bathsheba, the most popular surfing beach on the Island. Friday evening we strapped our Comet and ProStar onto a Moke (a small yellow, windowless, canvas topped fantasy island beach buggy) and drove across the Island to the Surfing Championship. We arrived there late Friday evening, while supplies were being put up for the meet which would begin on Saturday morning. We had a cute cold-water beach house, where the judging would take place. The house overlooked

the largest waves in Barbados, that weekend three to six feet. On the way to the beach house, Dan and I made a side trip to Hackleton Cliff and took a look at the flying spot which had been chosen, overlooking Bathsheba. It was quite a startling view, 930 feet over the beach and about 7,000 feet away, a little further than we had anticipated! The wind that evening was crossing about 90 degrees, so we opted to fly the following day during the meet. Both of us knew these would be the very first flights ever on that island other than regular airplane traffic.

Everywhere we went people would crowd around us, as Barbados is an extremely primitive country when one is away from the urban developments. News of us had reached the outlying farms and sugar can plantations, and when we arrived at the launch site on Saturday morning, a hundred people greeted us. The winds were still crossing, even a little more severe (110 degrees) with a velocity between 15 and 18 mph. One of the farmers went home to get a cutlass in order to chop out a launch clearing in the thick vegetation, which bordered the cliff's edge. Our set-up area was a beautiful site, with acres of buyou grass. Just as we finished clearing and were ready to contemplate our first crosswind launch, Bo showed up above in a Cessna 172 and began his approach to the beach by throwing a streamer out and projecting the wind direction for his first jump.

Bo climbed to about 5,000 feet and made two passes at that altitude and then started his red smoke can from the airplane, which notified the officials that he was ready to jump. All the action on the beach stopped! Over 5,000 spectators plus the folks on the cliff watched Bo free-fall for 3500 feet. After he opened his chute, he did some 360's and a couple of reversals, and then slam-dunked the bull's eye with a perfect landing. The crowd really enjoyed that.

It was a gorgeous day. A few rain cells passed through, but after each one the winds picked up and it became quite a good day for surfing, which was the real reason why we were all there. It was obvious an off-shore breeze would hold up the waves better, so after a few vain efforts to try and explain the cross conditions, we went ahead and pulled off two of the diving-est, crosswind launches either of us could remember. There were about 200 feet to the tree tops, and we used up three-quarters of that riding the rotor. Dull downwind, side crabbing with a few rotor rolls were our first five hundred feet. At that point, I realized that I had cleared most of the land mass to the upwind side, and I was going to be flying in smoother air, so I settled down to enjoy the tropical view. Screened doors were slamming and children were running around the yards screaming at me in surprise, only to set the stage for Dan's launch.

Both of us got to the beach with the

same altitude (about 250 feet). I did three or four 360's and flew around the surf as I made my final, and landed amongst the crowd of spectators. Dan, on the other hand, did a few whangs (wingovers) and settled within ten feet of the parachuting bull's eye. After each flight, hundreds of people crowded under the gliders. We became celebrities on the spot. Certain members of the community were at our disposal, and we had some of the most beautiful girls on the Island ready to chaperone us.

The Cockspur Rum Punch, which is kind of the national drink, became our official "breakfast of champions."

Everyone was excited about our flights and could not wait till Sunday for us to fly again. The conditions on Saturday were too severe for a second flight.

Sunday awakened with a ninety degree cross, with Bo making more parachute jumps. Again we found ourselves dealing with that cross, so only two flights were possible for that day, too. Dan took off and lost about 300 feet on the way to the beach. He must have run into some warm air convergence, because he slowly gained back the altitude he had lost. Off to the southeast, a thunderstorm was approaching, thus influencing the air into which Dan had flown. Minutes after he landed, I took off. My flight was quite different, as I rode the hill side a few hundred feet off the ground. Three quarters of the flight was like that — would I make it or would I have to pull off a landing in the palm trees? The storm would pass us to the south, but its winds were affecting the coast with a 90 degree cross at about 20 mph. As I flew over the beach house, I realized that I could ride one of the finger ridges 100 or so feet above it, much like ridge lift. So I turned my glider nose into the wind parallel to the beach and began to soar. I hung in for about ten minutes and then I had to jump to another ridge and cross power lines which separated me from the ocean and the landing area.

Dan, Bo, and I had satisfied our sponsors and spent the remainder of the afternoon answering questions and talking to interested people about bringing hang gliders to Barbados. The next couple days were spent packaging gliders and shipping back to the States. We would have loved to have spent more time flying the island, because we found at least a half-dozen sites where you could set up your glider next to your automobile, and then soar coral bowls, landing back on top again.

We discovered smooth, coastal soaring conditions almost everywhere on the windward side of the Island. It seems only natural that hang gliding and powered ultralights will saturate the Caribbean in the coming years. I am pleased that I had the opportunity to help pioneer the flying in Barbados. §

## ...FALSE.

There is only one intermediate glider on the market that was developed as a high performance glider; the Wills Wing HARRIER.

In the two years since its introduction, HARRIERS have logged multiple cross-country flights of over 100 miles and consistently placed in the top ten in major meets such as the Nationals, the Southern California Regionals, the Grouse Mountain World Invitational and the Masters. *No other intermediate has established a record of performance that compares to this.*

More importantly, HARRIERS have given thousands of pilots the opportunity to experience the rare combination of truly high performance and exceptional handling. If you're an advancing intermediate pilot looking for a true high performance glider, take a look at a Wills Wing HARRIER.

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# BREEZ



Text and Photos by BJ Schulte

These days, it seems every manufacturer is coming out with their own intermediate glider. Personally, I think a few of them might be a little unforgiving of error for a beginner pilot.

I feel the Breez is an exception to the rule. Besides being a little lighter in weight than some intermediates, the Breez is one of the easiest gliders I have ever flown.

Set-up on the Breez is very similar to most other intermediate gliders — quick and simple. Assembly of the control bar is accomplished with one clevis pin and safety ring, just like its bigger brothers, the Pro Air ProStar and ProAir Series I. Stand the bar up and remove the beautiful rainbow colored coverbag. Attach the front flying cables with a clevis pin and the rear keel tensioner with a pip pin.

Spread the wings three-quarters of the way out and insert the pre-formed ribs, with the exception of the last pocket on each wing. Now pull the wings out the rest of the way, and tension the crossbar. I found the easiest method was by grabbing the crossbar from behind and pulling it straight back. A long cable runs from the noseplate to the crossbar junction and a short cable from the kingpost attaches to a tang on the crossbar center hardware with another pip pin and back up safety wire. All this is pretty much exactly like the bigger

brothers again. While this practice is common for major manufacturers, it is certainly logical to use similar hardware and technique on intermediate models, for two reasons. First is cost-effective, allowing quantity purchases of certain hardware, and secondly, the new pilot is rather conditioned to a company's methods. This enhances familiarity for this potential buyer when the pilot looks around at more advanced models, when skills have progressed to that point.

Velcro strips are sewn into the bottom of the sail and wrap around the crossbar, securing it to the sail. The last set-up step is putting in the defined tips.

The tips are stout looking and have a smaller diameter rod protruding from the end. Slide the tips in the pockets and look inside the sail for a slot in the rear of the leading edge. Place the rod in the slot and lift it upward, while pushing the tip in the rest of the way. The tip is secured with a plug and cord that is doubled around itself. I found the tips required less effort to tension than the ones on the ProStar, which is good, as they are very tight on that high performance model. Set-up time is approximately 10-12 minutes, from car-top to pre-flight.

Launching a Breez is just as the name implies. It is tight-wired and has good

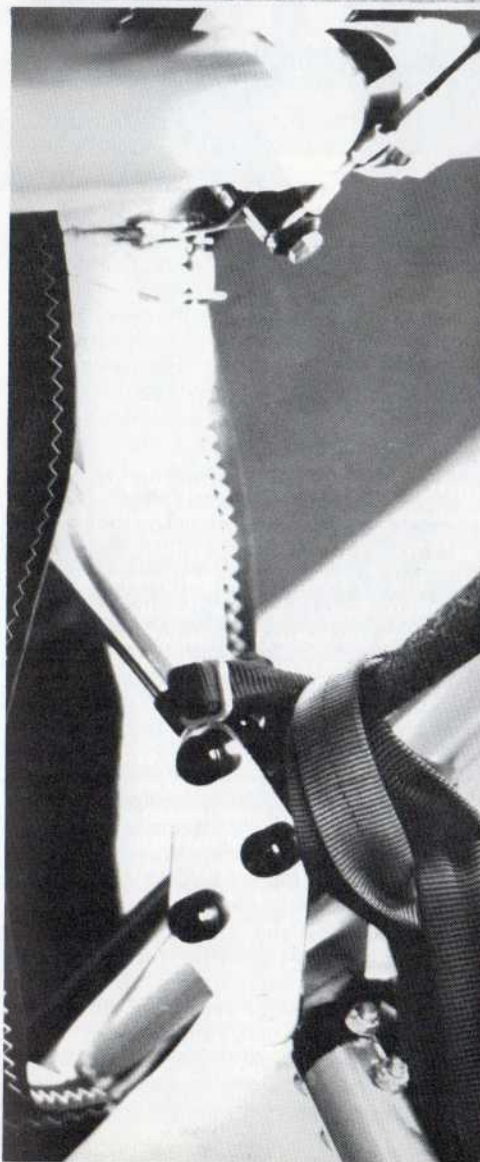
static balance. Its weight was a pleasant change compared to other gliders I have test flown. I felt fully in control throughout the whole launch sequence into a rotoed crosswind, not your ideal launch conditions.

Hands off, the glider seemed to fly a little fast, somewhere close to best glide speed. Bar pressure was light and roll was quick and effortless, similar to the light touch Harrier II.

The sail is clean and the hardware impressive. Again, much of this is borrowed directly from the rest of the Pro Air Company family of gliders. The only fault I could find, without using the glider for a long time anyway, was with the plastic caps which are to cover the bolt heads at the crossbar junction. They came off soon, as on nearly all brands and models, which made the keel susceptible to abrasion damage during set-up and breakdown. Perhaps the industry could find a glue that could remedy the problem.

Other than that, there was not a single thing that I did not like about this glider. The overall appearance of the glider is top notch.

However, I did have a problem with the flare-out for landing. Flying a double surface glider all the time, I tried to land it like one. I choked up high on the



(Opposite page) The author flies the Breez overhead for a planform view. (This page) Clockwise from top — The full assembled Breez. A close-up of the center junction hardware. A complete center view of the completed assembly./Photos by BJ Schulte.

downtubes, jammed it up hard and could only get the nose up to a point before experiencing a lot of bar pressure. All forward movement was stopped, but my feet were not below me. Perhaps a less aggressive flare, with hands lower, would be sufficient. It is very possible that the factory has designed this into the Breez, as it enjoys an excellent reputation with a rather large number of schools who utilize it as a primary trainer. In fact, the next portion of Breez evaluation will be to place it in training for a short time, hopefully to compare it with other intermediates with which this has been done.

(EDITOR'S NOTE: The Pro Air Breez will join the Flight Designs Javelin and the Wills Wing Harrier II, along with others, in a spring write-up concerning use of the new style of intermediates with pre-formed ribs in primary training applications.)

Overall, the Breez is a quality ship and would give any novice or intermediate pilot many enjoyable hours of flight time. I firmly believe my students would have no problem training on it in spite of the low and medium speed glide and sink performance which it offers. §



## KITTY HAWK KITES

**LOCATION: Nags Head, North Carolina**  
**OWNER: John Harris & Ralph Buxton**

by Robyn Ray

In 1974, in a tiny garage across from the 13 stories of sand called Jockey's Ridge, John Harris and Ralph Buxton dreamed of a place where fun has no end. They called their garage Kitty Hawk Kites and thus was born one of the first hang gliding schools in the east. Today it has grown to teach more than 5,000 people a year to learn to fly hang gliders and since 1974 has taught over 30,000 people.

One of the reasons they picked the spot at Jockey's Ridge is the soft sand. They feel it is the best way to learn from a safety stand point. They also picked this place because it is the same area the Wright Brothers made their contributions to aviation.

They are members of the First Flight Society which sponsors the Wright Brother's Celebration held each December. Recently the First Flight Society voted to administer the Rogallo Award given by Mr. & Mrs. Francis Rogallo which gives a \$1,000 prize to the hang gliding pilot who can launch from Jockey's Ridge, thermal out of the park, fly north to the Wright Brothers Monument, circle the monument and return to land in Jockey's Ridge State Park.

Mr. & Mrs. Rogallo also live in this same area. He is known as the father of hang gliding and can often be found at Kitty Hawk Kites giving words of wisdom.

There are other awards given at Jockey's Ridge. Kitty Hawk Kites recently awarded \$100 to Dan Skadal from Somers, Iowa for beating the old duration record. Dan flew over Jockey's Ridge for 5 hours and 21 minutes beating Pete Soule's record of 4 hours and 52 minutes.

John and Ralph have continued to follow their dreams and have made Kitty Hawk Kites more than a hang gliding school. It is now a complex of two retail stores, a sailing school, and ultralight school and complete repair facility which fabricates Seagull Aircraft replacement parts.

In Kitty Hawk Kites' retail store, which is no longer a small garage — but is now known as "The Great Big Shop In The Sky" — you can find a beautiful array of flying things like kites from all over the world, air brushed clothing — many of which are flight oriented, — T-shirts of all shapes,

colors, and sizes, toys galore and a hang gliding pro shop with a complete stock of instruments, helmets, harnesses, and any hang gliding accessories you could want.

Just next door is Kitty Hawk Kites' sports center known as Kitty Hawk Sports. It features almost anything to do with water sports, from swimwear, sportswear, and shoes to some of the top names in windsurfers, sailboats, catamarans, and boogie boards. There you can also sign up for lessons on any of these.

At the sailing site you can see all these sports in action. It is located on the sound a few miles south of the Kitty Hawk Kites complex.

The latest addition to the Kitty Hawk Kites family is the ultralight school at the Culpeper Municipal Airport in Culpeper, Virginia. Here you can learn to fly these aircraft that look like part glider, part airplane, but for a much smaller price than airplane flying.

For any type of repair or modification on any of these sport crafts there is also a workshop at Kitty Hawk Sports. Here you can see ultralights built, sails repaired, and wrecked hang gliders brought back to life. Seagull Aircraft and replacement parts are manufactured and shipped all over the world. A wide selection of tubing, aircraft hardware and materials are kept on hand.

John and Ralph have sure put a lot of time into dreaming and making these dreams come true. Right now they are dreaming and working on even more plans for making places for people to come and have FUN! §

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# 1982 WORLD INVITATIONAL AEROBATIC HANG GLIDING CHAMPIONSHIP

by David Stanfield

"Telluride is one of the best-kept secrets of the nomad set. Until they build a ski resort in Tibet, Telluride is the best thing going for an otherworldly high-altitude vacation." Quotes courtesy *OUI Magazine*.

So anyway, Dave Gibson entered the aerobatic "envelope" at what seemed to be 16,500 feet MSL — cloudbase. The dark blue sky behind him engulfed his all-white Comet. The film director of this year's Aerobatic Championships looked through his camera — zoomed in all-the-way; focused; mumbled a few four letter words — then said, "He's so high up there, it's ridiculous. I can barely see him... he's a mile-and-a-half above us. I can't film him from there!" Jeez, if it's not one thing, then it's another.

Confronting this year's contest was Mother Nature — with rain, sleet, snow, and winds in excess of 60 mph. The weather extremes in the Rocky Mountains are similar to an emotionally unstable person with split personalities. It is either really good flying conditions, or horrible, and quite unpredictable. But it did happen. Safely. And it all was captured on film and video for cable television — destined to air on E.S.P.N. and/or U.S.A. Network, as a half-hour sports special.

Scoring was done by reviewing (again and again) the aerobatic flights on half-inch video. The competition pilots, now (temporarily) known as the Professional Hang Glider Pilots Association (PHGPA), scored themselves every evening after that

day's flights.

It took six days to crown Ron Young as the new World Aerobatic Hang Gliding Champion, and he was the unanimous winner. Four consecutive LOOPS in his flex-wing glider was the show stopper, truly a daring freestyle routine. Confidence and precision-type strength aid Ron's skill in being one of the world's most spectacular performers in the sport.

A hang glider test pilot, Young has logged over 1,000 hours of air time and 3,000 plus hang gliding flights in his nine year career. His lovely new wife just happens to be his greatest fan, but when the 1982 Aerobatic Championships are finally televised, I'll bet Ron will pick up a couple of million more admirers.

## OFFICIAL RESULTS

**FIRST — RONALD YOUNG**  
Lake Elsinore, California  
Glider: Custom 185 UP Comet  
Sponsors: UP Sports  
Hang Gliding Experience: 9 years  
Age: 28  
Occupation: Hang Glider Test Pilot

**SECOND — ROB KELLS**  
Santa Ana, California  
Glider: Wills Wing 160 Duck  
Sponsors: Wills Wing, Ocean Pacific  
Hang Gliding Experience: 7 years  
Age: 27  
Occupation: President, Wills Wing Inc.

**THIRD — C. DAVID GIBSON**  
Lake Elsinore, California  
Glider: UP 165 Comet "Left-O.V.R."  
Sponsor: UP Sports  
Hang Gliding Experience: 8 years  
Age: 25  
Occupation: UP Sailmaker

**FOURTH — CHUCK DUGAN**  
Crested Butte, Colorado  
Glider: Sensor 210E (180 ft<sup>2</sup>)  
Sponsor: Crested Butte Mountain Resort  
Hang Gliding Experience: 10 years  
Age: 29  
Occupation: Professional Ski Racer & Coordinator

**FIFTH — CHRIS PRICE**  
Lake Elsinore, California  
Glider: UP 185 Comet  
Sponsors: Price Company/Price Prone  
Harness  
Hang Gliding Experience: 11 years  
Age: 31  
Occupation: President, The Price Company  
Stunt Pilot

*NOTE: Watch for the 1982 World Aerobatic Hang Gliding Championships to be aired on E.S.P.N. and/or U.S.A. Network cable stations in the winter/spring of 1983.*

**Greg Duhon practices for Leroy's camera at the Telluride Aerobatic Championships/Photo: Leroy Grannis**

§





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Doug Barnette Photography/Idea Graphics



# JAVELIN

S P E C I F I C A T I O N S

### JAVELIN 168

Leading Edge	18 Feet
Keel	12 Feet
Span	31 Feet 8 Inches
Nose Angle	122 Degrees
Sail Area	168 Square Feet
Aspect Ratio	6.1
No. of Ribs Per Side	7
Sail Billow	0 Degrees
Pilot Weight Range	115-195 Pounds

### JAVELIN 208

Leading Edge	18 Feet 4 Inches
Keel	12 Feet
Span	32 Feet 2 Inches
Nose Angle	122 Degrees
Sail Area	207 Square Feet
Aspect Ratio	5.2
No. of Ribs Per Side	7
Billow	0 Degrees
Pilot Weight Range	160-240 Pounds

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. . . that a glider couldn't be lighter — Flight Designs releases the JAVELIN. At 54 pounds flying weight, it is 14% lighter than the very popular Super Lancer series.

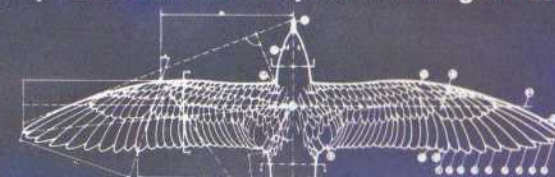
. . . that new gliders were getting too hard to land — Flight Designs presents the JAVELIN. State-of-the-art in every respect except one, it lands easily. Probably more so than your old intermediate does.

. . . that gliders got more complex as they developed — Flight Designs engineered the JAVELIN. Quick(est) set up going boasts an Easy-Slide, shifting crossbar, with all pip pins and no tensioners.

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. . . that new designs needed a few weeks to "get the bugs out," and even more time to reach stock levels — Flight Designs offers the JAVELIN, proven through the winter (at a number of our most professional dealers) and ready today for immediate delivery.

The JAVELIN is NOT just a cheaper version of the Flight Designs high performance glider. It IS a high performing glider that is deluxe in every way — like you have come to expect from Flight Designs.



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# HENSEN'S RAMP

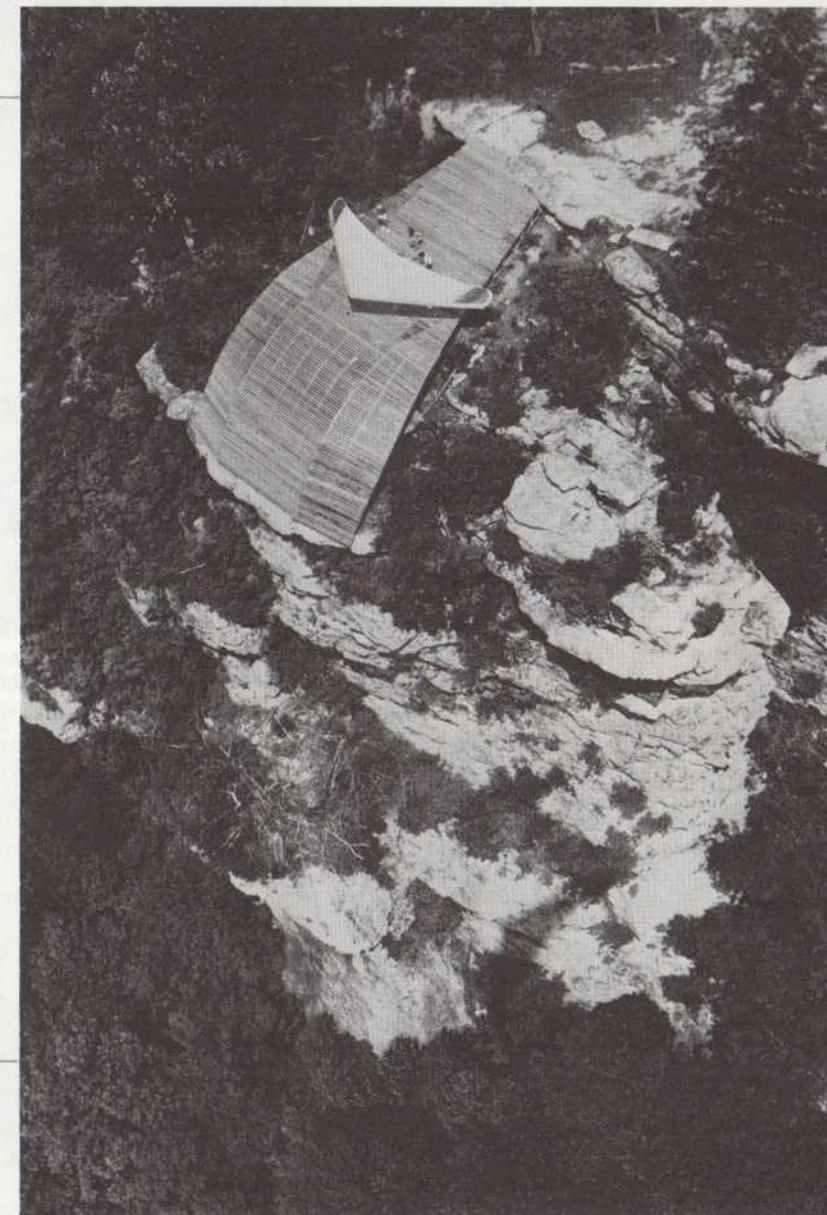


Photo: BJ Schulte



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I understand the membership dues are \$29 annually, of which \$15 is for my subscription to ULTRALIGHT PILOT magazine, \$3 for the AOPA Newsletter and 50% as a contribution to the AOPA Air Safety Foundation. (Any member not desiring to support the aviation safety work of the Foundation may send \$28.50 in lieu of \$29.)

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I own aircraft and/or ultralight registration: N \_\_\_\_\_ Make \_\_\_\_\_ Model \_\_\_\_\_  
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Former member:  Yes  No AOPA No. (if known) \_\_\_\_\_  
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Enclosed is my:  check or money order  Visa charge  MasterCard in the amount of \$ \_\_\_\_\_  
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WA/11-2(416)

Membership and insurance privileges begin when SIGNED certificate has been received, approved and recorded by the AOPA Registrar.

by Dennis van Dam

If we examine hang gliding flight in terms of its most critical phases, it would generally be agreed that launching and landing are the main contenders. In the east, launching in higher winds is particularly more critical because its usually done from cliffs, rather than hillsides. This article, then, is concerned with the nature of cliff launches and what has been done in one instance to make it a safer, less hectic procedure.

When cliff launching in high winds was first attempted, it was discovered that

standing back from the edge and running full bore into the lift, would almost certainly find the pilot atop the wreckage of his glider, a little further back than where he started.

What evolved, as a result, was a procedure called wire launching whereby the glider was launched directly from the cliff's edge. This was further facilitated by the invention of hang gliding launch ramps. The launch ramp was initially conceived to provide an inclined platform for running launches in light winds and for wire launching in high winds.

For those not familiar with cliff

launching, a description of the eastern variety of launch ramp is in order. If such a description were limited to three words, "tilted boat dock" would have to be the most succinct choice.

Varying in size from "rowboat docks" to "ocean liner docks," these ramps were often designed under duress, that is to say, it was so arduous when construction began. In the ensuing flurry of pounding hammers and buzzing saws, a box-like structure emerged, hopefully with enough light left in the day for a trial flight. Perhaps to state that all launch ramps were designed and constructed in a single day is somewhat of

an exaggeration. Regardless of the time spent planning and building most ramps, then all seem to assume the same cuboidal nature.

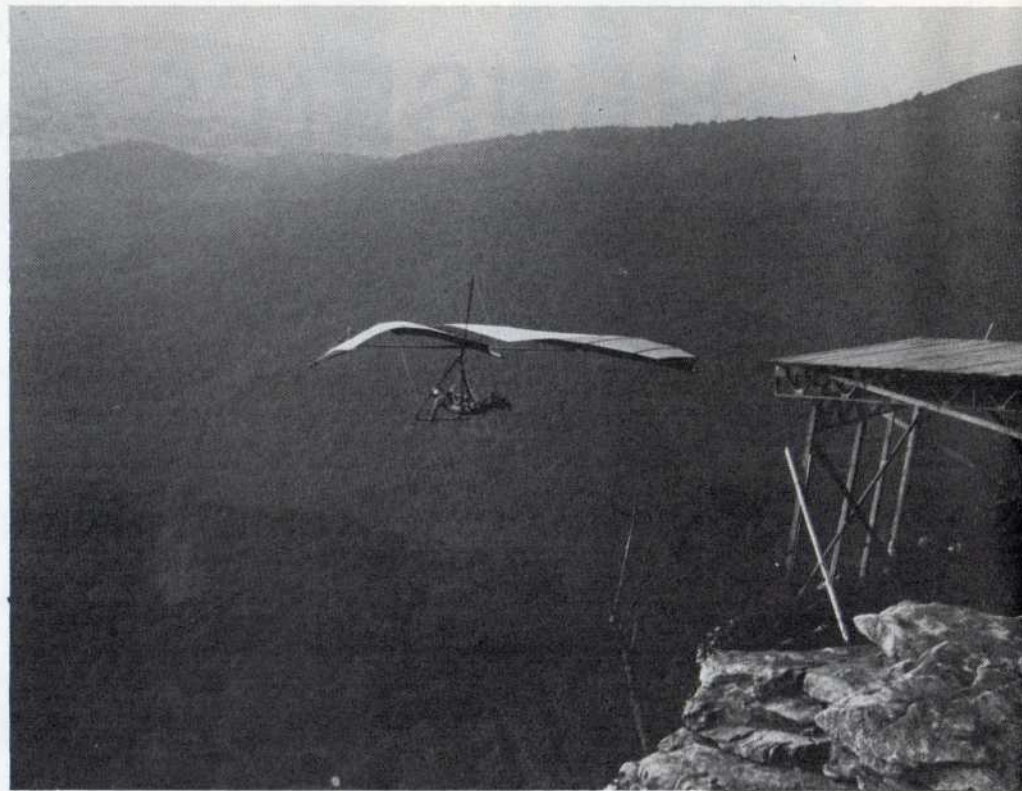
In high winds, the hard edge of the cliff (and the ramp) generates a fluid dynamic phenomenon we all know as a rotor. The rotor provides turbulent and irregular airflow from the ramp's edge on back. The procedure for wire launching, then, is for three or four wiremen to walk the pilot and glider through the bad air to the end of the ramp, via the lower flying wires. There the glider is positioned as squarely as possible in the initial "curl" of air blasting up and over the edge. By means of constant communication with the pilot, the wiremen adjust the glider's position until it assumes a neutral attitude as indicated by neutral or even pressures felt on the wires. At this point the pilot clears his wiremen and steps out into the lift.

Under favorable conditions this method can repeatedly provide safe and predictable access to the sky, registering perhaps a two on the anxiety scale of zero to ten. It is, however, dependent on having present at least three people to serve as wiremen, who in addition to being available, need to be experienced. Using your girlfriend on the nose and a couple of spectators on the sidewires tends to run the anxiety factor up into the midranges. So does faking it — by using a crew of only two... or one. I am sure all you veteran cliff launchers know about this situation.

Also essential to maintaining low readings on the "meter" is the presence of a small platform about 20 inches below the end of the ramp, where the noseman stands. The significance of situating the noseman here instead of up on the ramp is two-fold. It gives him room to duck out of the path of a launching glider, and it allows the glider to be situated all the way on the end of the ramp, in the cleanest air. Here, it can more easily be neutralized prior to launch. Without it the potential for a launching pilot to run into the noseman is far greater.

If we realize the turbulence generated by the cliff's edge to be the cause of the critical nature of cliff launching, it can be seen from the previous descriptions, that the common ramp does not really offer a solution to the problem since it does not address the cause. In other words the ramp does nothing to remove the turbulence, in fact, its square end only adds to the problem. At best the ramp allows us to deal with the problem using the wire launch method. A solution, then, would involve getting rid of the turbulence. It seems obvious that in order to do this, we need to get rid of the sharp edge of the cliff.

If we observe any instance in which an object experiences motion relative to a fluid, and given that said object was designed with this motion in mind, either by man or by nature, even the most casual glance will reveal the abundant use of curved lines and convex surfaces in the shaping of the object. This serves to



**Publisher Dan Johnson launches off an early, much simplified, version of the Hensen Ramp, circa 1979.**

provide efficient, turbulence-free passage through the fluid by the object. From fish and birds to boats and planes, the examples are countless. "Aesthetic, Flowing Transition," and "Functional" are words or phrases encountered in describing these examples. Needless to say, these words do not apply to our ramps.

The belabored point contained herein is that if launch ramps were curved in such a way as to meet the cliff's edge, they would provide smoother, more laminar airflow in which a glider can launch. This, at the very least, would make wire launching a less intense process, perhaps requiring fewer wiremen. At best it would eliminate the wire launch procedure altogether.

This then was the basic premise under which one aspiring young designer (myself) and members of the Tennessee Tree Toppers Club set about replacing the old Hensen's Gap ramp with one of the new curved technology type.

The decision to replace the ramp was prompted in part by its deteriorating condition, but primarily by the ramp's history as being precarious to launch from in high winds. With a full wire crew it was always difficult, sometimes impossible to neutralize the glider. Compounding the problem was the lack of a noseman's platform. This provided the undesirable risks for the pilot and noseman previously described. On two occasions I walloped the noseman as he dove under a side wire. On a third I did not get away with it. The side wire hung up on the noseman's helmet as I launched. Result — Noseman went over the edge and fell six feet to the end of his

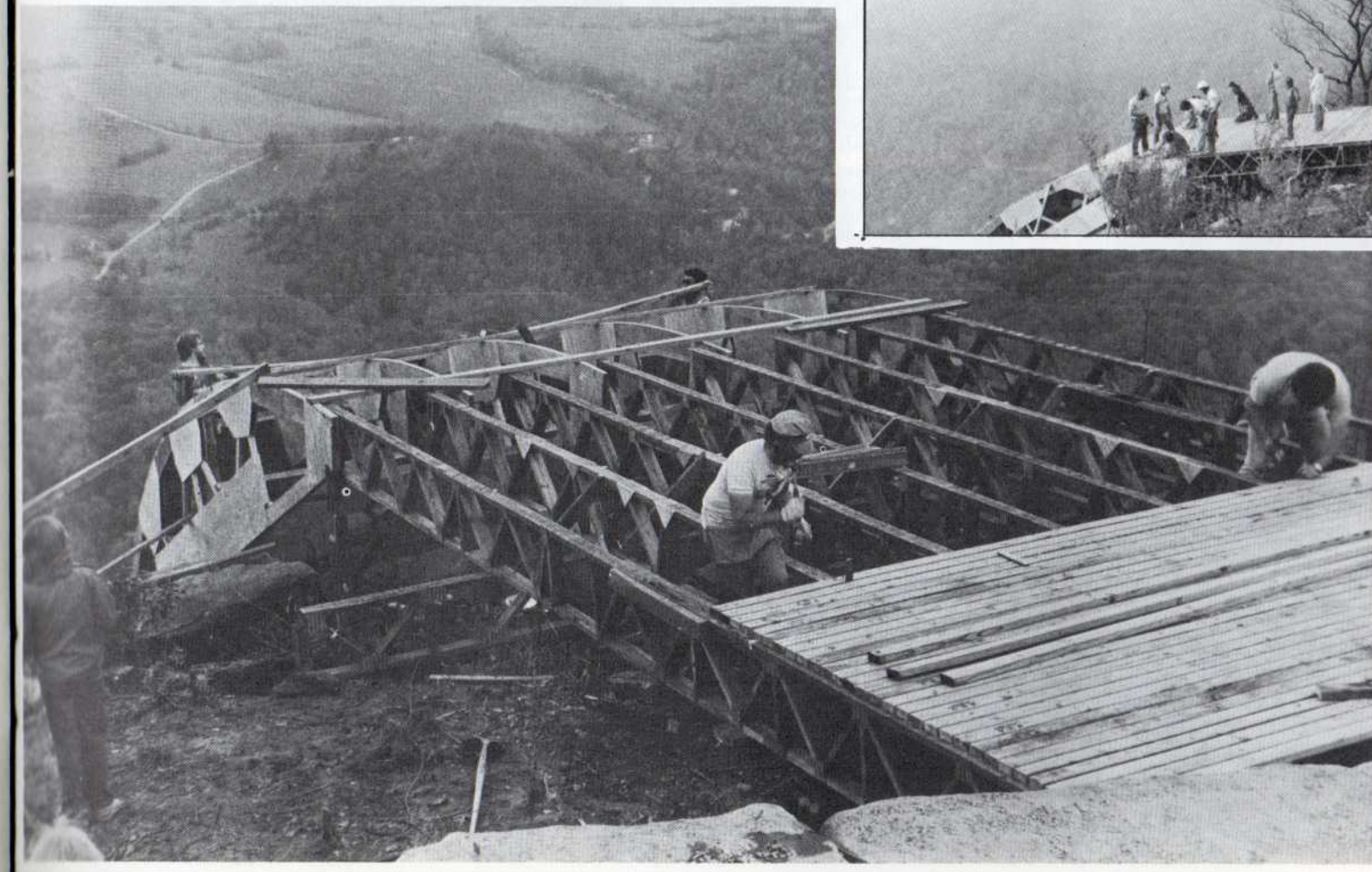
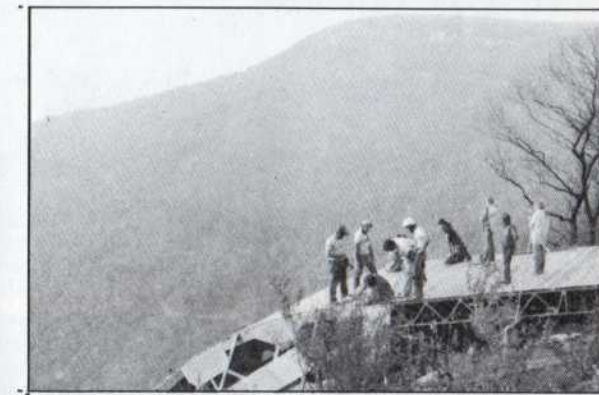
rope; Pilot and glider went over the edge and fell forty feet onto a ledge covered with soft scrub. Beyond the ledge it is about 150 feet to the ground. Lucky noseman; luckier pilot. It was at this point that the lines for a radial ramp began to form in my head.

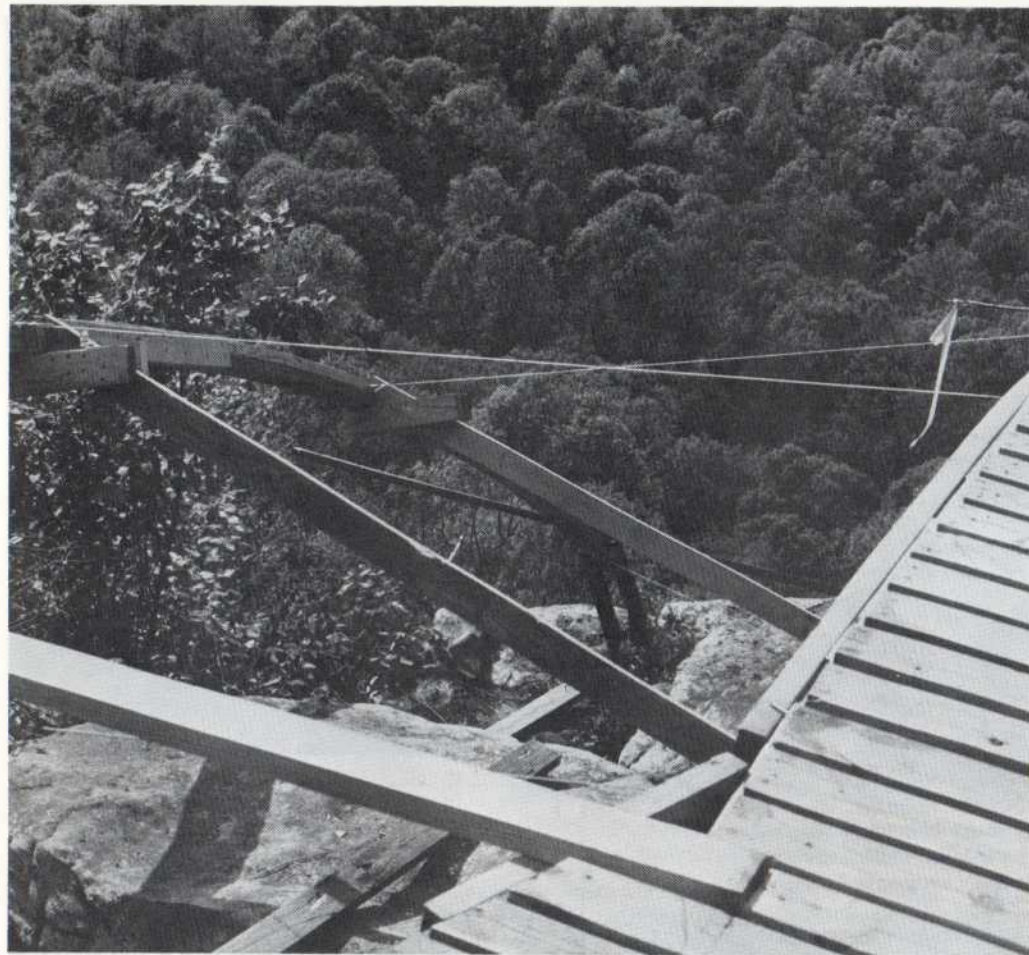
The shape that emerged was the result of some testing, some deliberation with others, and a large amount of intuitive deduction. Besides having the primary quality of being curved, the ramp needed to be at least a glider span wide in order that the entire wing would reap the benefit of the laminar airflow. The width, then, worked out to be thirty eight feet. The ramp's length was dictated by the length of the building site — sixty feet.

By means of a disc arrangement graduated in degrees with a wind vane mounted in the center on a pivot, the wind was established to be striking the cliff at an angle of 55 to 65 degrees from horizontal. This then is the angle at which the bottom of the curve meets the cliff's edge. Testing done with a tufted scale model mounted on top of a car confirmed that moving air indeed follows a curved surface in an orderly manner (sort of like performing tests to make sure gravity exists). The model did provide some useful information though. The sharp edges of the sides of the model generated a vortice of sorts, much like the tips of a lifting wing would. In an effort to counter this effect, the sides of the ramp were lowered (see photo). As well the lowered "wings" served to accommodate cross winds. The line of the curve itself was determined on paper "by the eye." This



**Clockwise from upper left — The curved trusses arrive at the site (author van Dam in foreground). Moving the heavy trusses required several strong men working together. Designer Dennis van Dam prepares to give the new ramp its first launch. The Decking goes on the completed structure.**





(This page) The "wing" bracing is added. (Opposing page) Two aerial views of the finished ramp; the upper nearly straight on and one hundred feet overhead. The lower view is an oblique profile of the completed project on the 1450 foot ridge./Aerial photos by BJ Schulte.

worked out to be a smooth arc that covered twenty five feet of horizontal distance and seventeen feet of vertical distance. The radius is tighter in the front and more gradual in the back.

The medium of construction chosen was wood. The alternatives were landfill contained by a retainer wall, concrete trowelled over a form with tentative consideration given to high density foam used in new experimental "free form" homes. In spite of its combustible nature, wood was chosen as the cheapest and easiest material with which to work.

The first step in the construction sequence was to prefabricate six curved trusses that would form the base for the "working" end of the ramp. The foundation for the rest of the ramp was erected from trusses salvaged from the old ramp. The lowered wings of the ramp were formed by laminating one layer of 2 X 4's onto another while both layers were bowed. This process "set" the double layer into a curve similar to the main curve. These curves (one each side) were further supported by bracing, and served as the outside edges of the ramp. The entire structure was decked over with 2 X 4's. The ramp is secured by means of a twenty foot length of four inch angle iron which is directly bolted to the brow rock.

In a Herculean effort put forth by club members as never before seen, the ramp was completed to a launchable state in one

weekend. Including two days spent prefabricating the curved trusses, the entire ramp took nine days to complete. If nothing else, the result was at least pleasing to the eye.

It did not take very many trial launches to prove the ramp was "functional" as well as aesthetically satisfying. However, tentative expectations on the part of the designer for his creation to be self-launchable proved to be wishful thinking. It is still necessary for a pair of side wire men to walk the glider through mild turbulence along the rear portion of the ramp out to the curve. There, they serve to guard his side wires in case the pilot gets a wing up. In terms of the ducking noseman dilemma, the ramp is a complete success. There is absolutely no need for one. Pitch of the glider is controlled entirely by the pilot in all but the gustiest conditions. In this case a man guarding the keel serves as a precautionary measure. Neutralizing the glider is done easily and without physical effort. Upon clearing the wiremen, launch is effected by a few quick steps into smooth lifting air.

One tendency left over from cliff launching is to be pushing out as the pilot launches. This has resulted in many sloppy-through-stalled launches. The procedure required here is more akin to hill launching in that the nose needs to be kept low until flying speed is established.

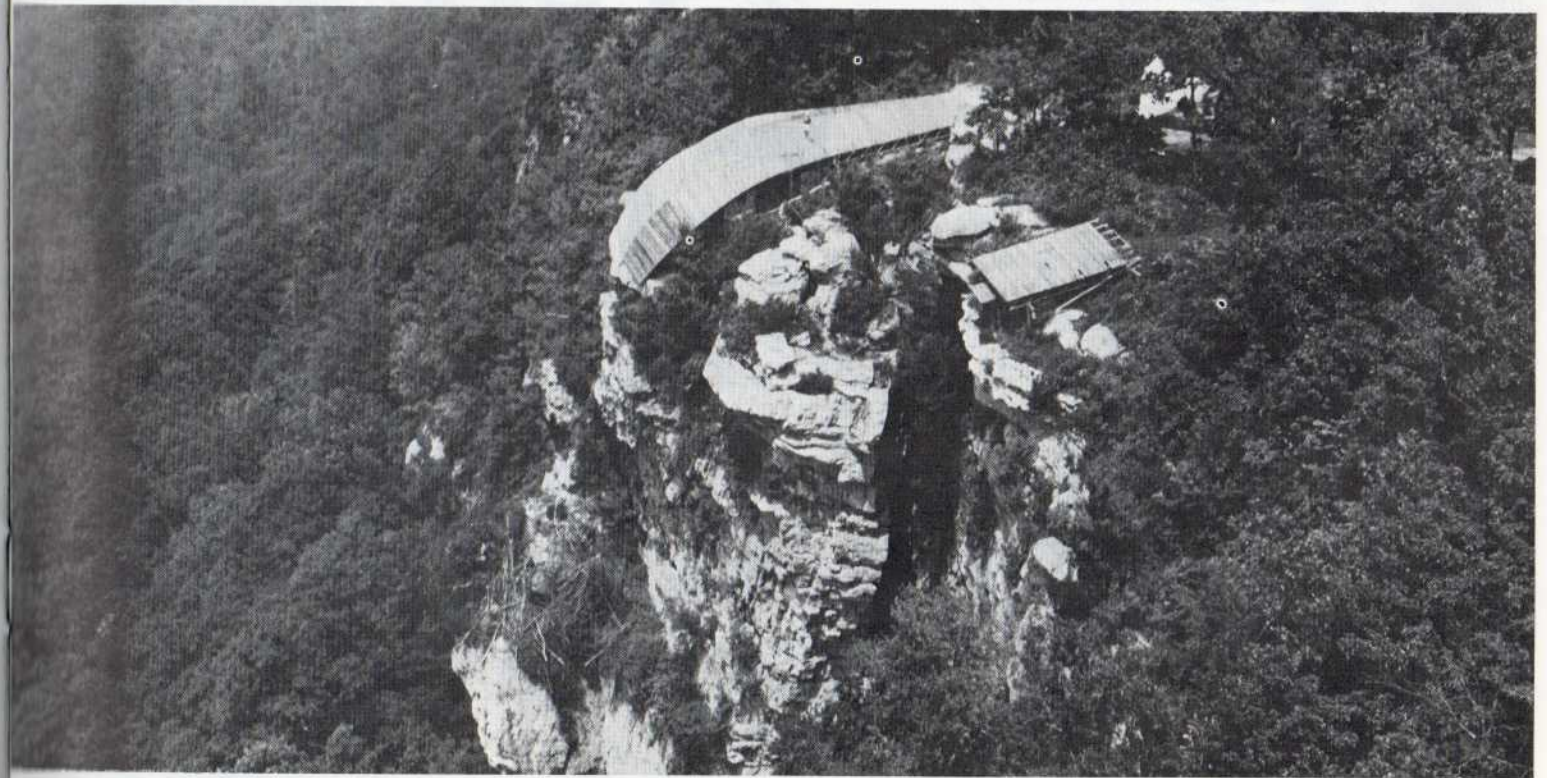
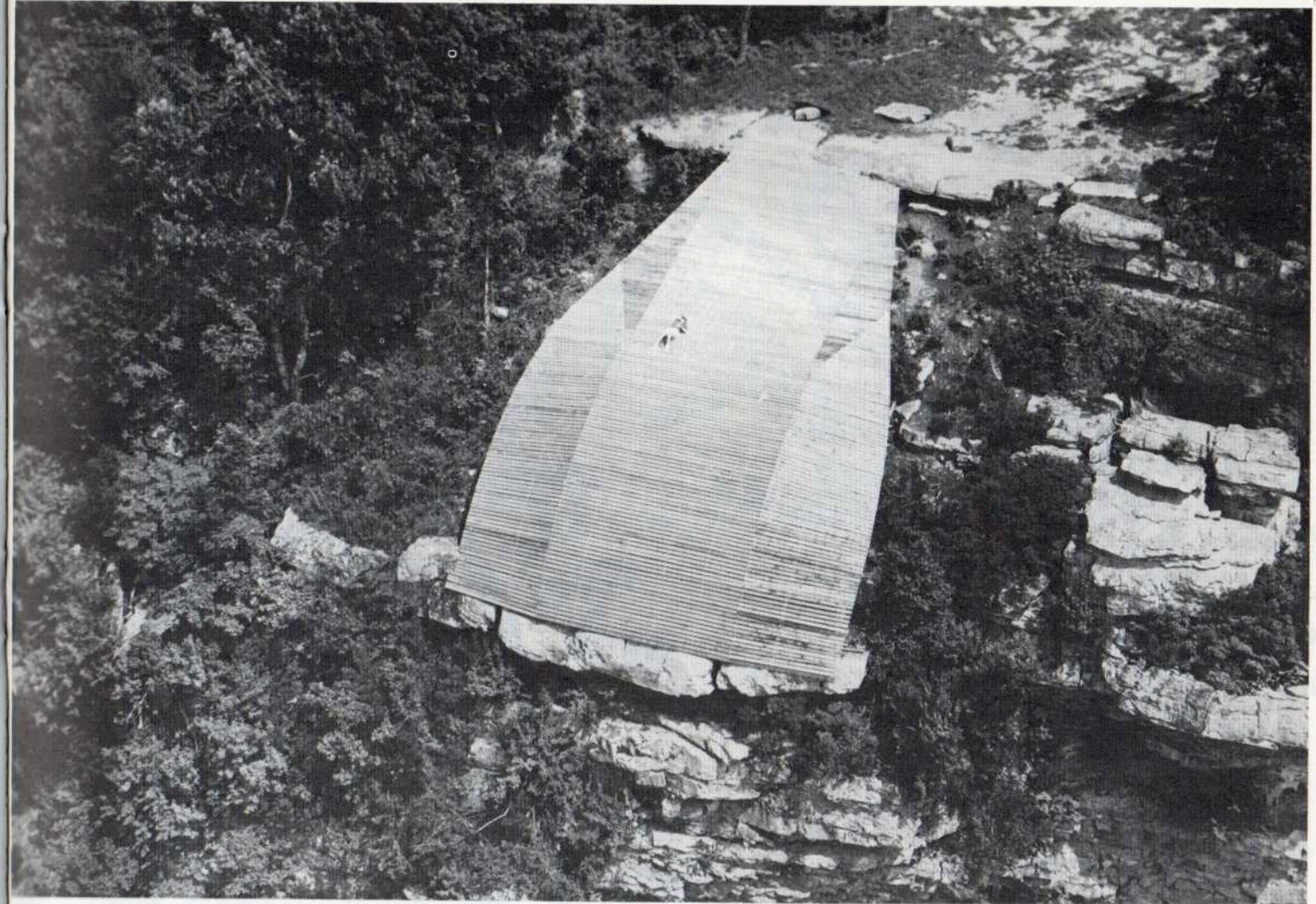
To say that this is the ultimate in

launching facilities would be analagous to making a similar statement about trunk tip gliders in regards to glider technology. It is, however, a big step in the right direction. By means of more thorough testing, perhaps with smoke bombs, a more precise curve can be generated. The objective would be to make a launch facility that is totally self-launchable. Another feasibility would be a "double wide" to accomodate one-on-one competition launches.

Who knows, it may even go as far as mechanization and computers as was related to me in a friend's version of the ultimate launch facility. The glider is mounted via four release points on top of a large boom which is extended fifty feet out into the lift. Each release point is equipped with pressure sensors connected to digital displays in front of the proned-out pilot. The glider's attitude is mechanically adjusted until all the displays show equal pressure. Then the pilot "hits the button."

Without the vote of confidence provided by the members of the Tennessee Tree Toppers Club, in terms of financial investment and their physical assistance, I would not have been able to manifest my creative aspirations as they pertain to this ramp.

I extend my thanks to those who lent a hand. §



by Aer Stephen  
Illustrations by Sidney J. Bartholomew

Hurry up and wait. Marathon Hang-Arguing sessions. Backside duration duals. Frontside — glider setup/hold for hours in high winds/breakdown — drills. Endless pilot meeting and call-ins. The Seventh Masters of Hang Gliding did finally end. The Champion was finally dethroned and a native-bred birdman grabbed the cash.

This was the longest Masters ever. An extra day was added to the scheduled days to assure the contest of maximum rounds and a finish on Sunday. The seven day event would crown the 1982 Masters Champion, and he would take home the \$5,000 First Prize from the \$10,000 purse — by far the richest event in hang gliding.

As all the pilots came together for the first time on Sunday evening, there was much in question. The roll call was given and the desired field of 24 pilots was short by two. The pilots were asked to seed themselves, and Steve Moyes was of course seeded first. Nevertheless, everyone was thinking he could not possibly win it for a fourth consecutive year — could he? Rich Pfeiffer, fresh from a second consecutive Nationals triumph, was seeded second. Stew Smith, the Rogallo Trophy winner at the American Cup, and Cup American Team Captain, Jeff Burnett were the third and fourth seeds. Both very familiar with Grandfather Mountain (and dubbed Team Members for *life* by Hugh Morton), they would be hard to beat. Dave Ledford, from nearby Asheville, NC, who was last year's runner-up, received the fifth seed. Dennis Pagen — in the role of Meet Director, and Joe Foster, Mountain Main Man and Assistant Director — disappeared behind the task board for what seemed to be an eternity for the hungry pilots; to figure out the seed that was not needed until the next day. A trend had already been started that was to be representative of future pilot meetings. Finally, a vocal multitude encouraged them to get on with things and the endless discussion of possible tasks began. The pilot meeting went on for 3½ hours that first night and continued and continued the next two mornings. "The course worked great last year; let's just do it that way!" was a familiar cry in response to some untried changes. And in the end, it took nearly three days worth of Hang Arguing to return the tasks to basically their origin.

*Continued on Page 40*



The main course — cleverly dubbed the "Peripatetic Pylon" (got your Webster handy?) by Mr. Pagen — underwent some slight but progressive improvements over last year's no name front side course. The race would begin with a one-on-one launch from the twin ramps on the Northwest facing Spectacular View Cliff. There would be a pylon across the gap about 1/2 mile to the northeast and 300 feet higher than launch at the base of McCrae Peak. This pylon would be used in light conditions when it was necessary to work thermals to achieve it. If the condition was honking, a pylon on the very top of McCrae Peak — 3/4 mile from launch and 650 feet higher — would be used instead. One of these two would be pylon #1. On a day when this pylon could be achieved without turning, it would not be a scored (or race) pylon to help eliminate the advantage the pilot on the closest ramp would have. Pylon #2 was located on top of Calloway Peak this year, over two miles from launch and 700 feet higher than take-off. The race would then continue all the way back past launch and to a non-scored turnpoint pylon off the mountain and toward the Designated Landing Area (DLA), the McCrae Meadows. A series of overlooks provides increasing distance possibilities for the turnpoint and the toughest one for conditions would be utilized. From the turnpoint, the task was once again altitude gain to either the finish pylon at launch or past launch for another lap (the two lap course totalled approximately ten miles). The course would always end with an altitude gain race from the unscored turnpoint to the finish pylon at launch. Unlike the previous year, in which the winner was the first to cross the finish line diving from McCrae Peak — this year's course was a series of small races, all altitude gain. The pilot with the most pylons achieved would win the match. Both pilots achieving an equal number, the pilot with the most pylons achieved *first* wins. In case of equality still, the pilot achieving the last scored pylon first wins. If the pilots could not get on the course, the task became duration. To stop pilots from trying to soar the small ridge below the DLA and force each other to land out, a pylon was placed at ridge top level at the Meadows and if a pilot went below its crosshairs, he would be declared the loser of the match.

The southeast facing Backside course would be a one-and-one affair with a timed launch from the single ramp. The pylons would be timed as would the landings. The only course used, as it turned out, was exactly the same as last year, with a first pylon about 1/4 mile to the northeast and 100 feet higher, and a second pylon on top of McCrae Peak, 650 feet higher and 3/4 mile away from launch. The first pylon was not scored and counted as a winner only if one of the two pilots achieved it. If both pilots achieved the first pylon, the task was still duration. The first pilot to cross the second pylon was the winner. The course



could have been extended to a turnpoint by launch and a second lap, but the option never was utilized.

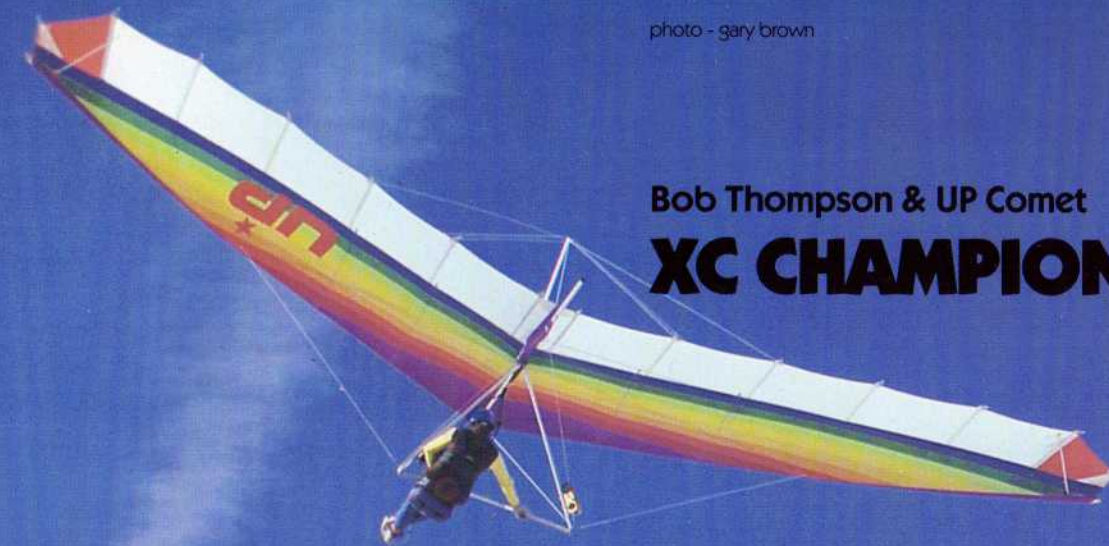
Much discussion was entertained on possible cross country tasks. With the supply of experienced competition pilots available and non-flying time abundant, the hang-arguing served to feed the fire for the future while thoroughly frustrating the Meet Director (now being referred to affectionately with his favorite nickname — Dense Pages) as well as the pilots. Nothing was ever settled on, and the weather took care of any lingering ideas.

There was a pre-meet lobbying by the California pilots to throw out all landing points, but the final ruling was they would

still be used to break ties. However, there would be no spots this year, just the whole inside of the 1/5 mile track would be the scoring area. Touching the rear of the keel or a tip on the ground still allowed a pilot a top landing score of two points. Touching the control frame reduced the score to 1, and nosing in scored zero points. The DLA consisted of the whole of the two fields called the McCrae Meadows. The consensus thought on using landing points is that a pilot should always strive for a safe and graceful landing. If landing points were taken out totally, it could encourage a pilot to sacrifice a safe landing for a win. Landing points would

Continued on Page 43

photo - gary brown



Bob Thompson & UP Comet  
**XC CHAMPIONS!**

UP Comets sweep "Arizona Open"  
XC Championship!

- 1 Bob Thompson — 52.5 miles **165 UP Comet**
- 2 Rik Fritz — 44.0 miles **185 UP Comet**
- 3 Bob Thompson — 40.0 miles **165 UP Comet**
- 4 Bob Thompson — 37.0 miles **165 UP Comet**
- 5 Dave Evans — 33.0 miles **165 UP Comet**
- Bob Thompson — 33.0 miles **135 UP Comet**
- 6 Gary Brown — 30.0 miles **165 UP Comet**

In a year long contest sponsored by USHGA Chapter 4 and the Arizona Hang Gliding Assoc. of Glendale, Arizona and open to all pilots and gliders, UP Comets again swept the field! UP Comets flew the five longest official distances of the event. Winning pilot, Bob Thompson, picked up \$250.00 in contingency money from UP Sports and a commitment from Ultralite Products to double the money for the 1982 event!

Note — UP Comets and Geminis are available for immediate delivery in all sizes and colors. Contact your UP Sports dealer today. For full information, specs, photos and price lists, send \$2.00 to UP Sports, P.O. Box 659, Temecula, CA 92390. 714-676-5652. All UP Comets and Geminis are HGMA certified.

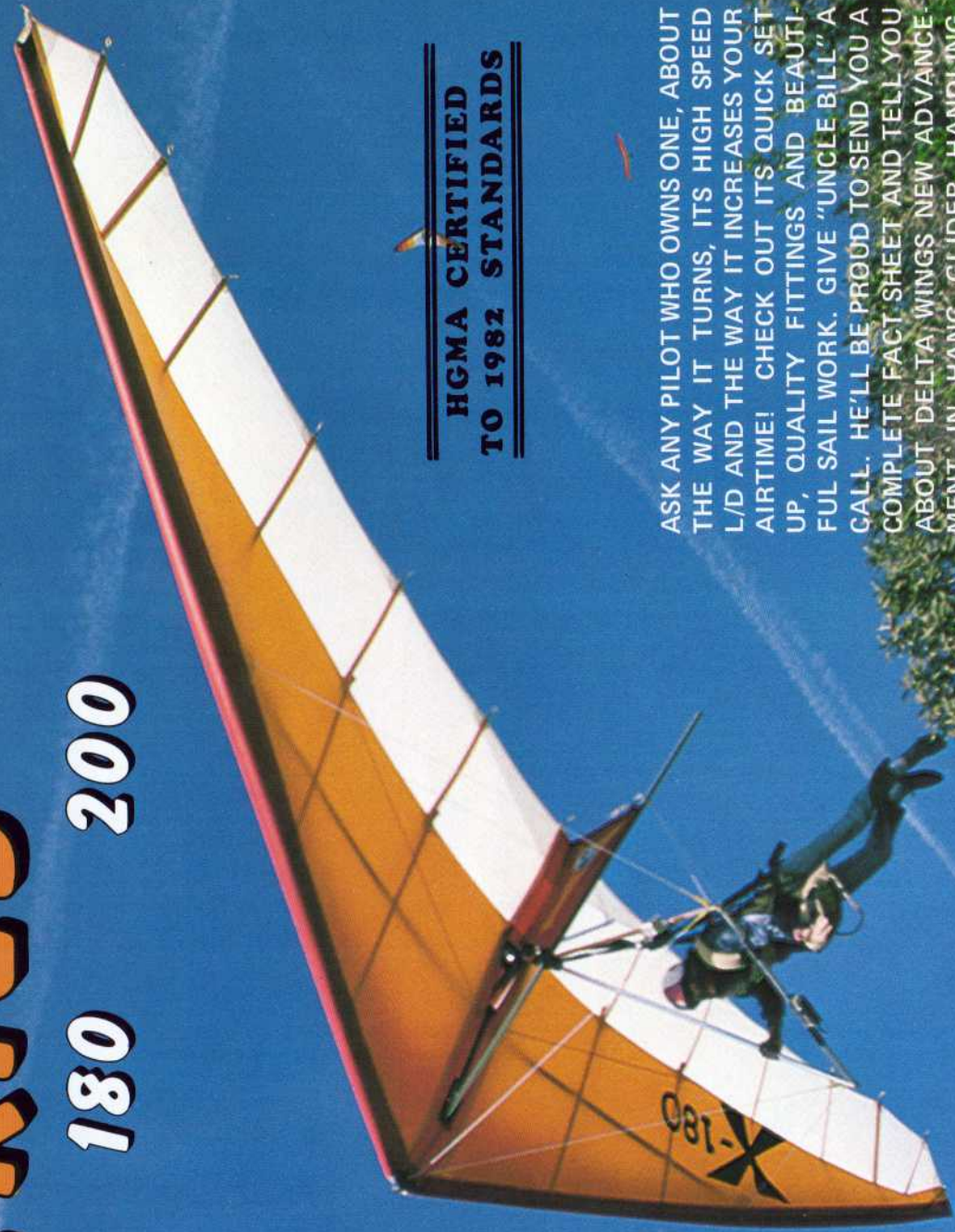


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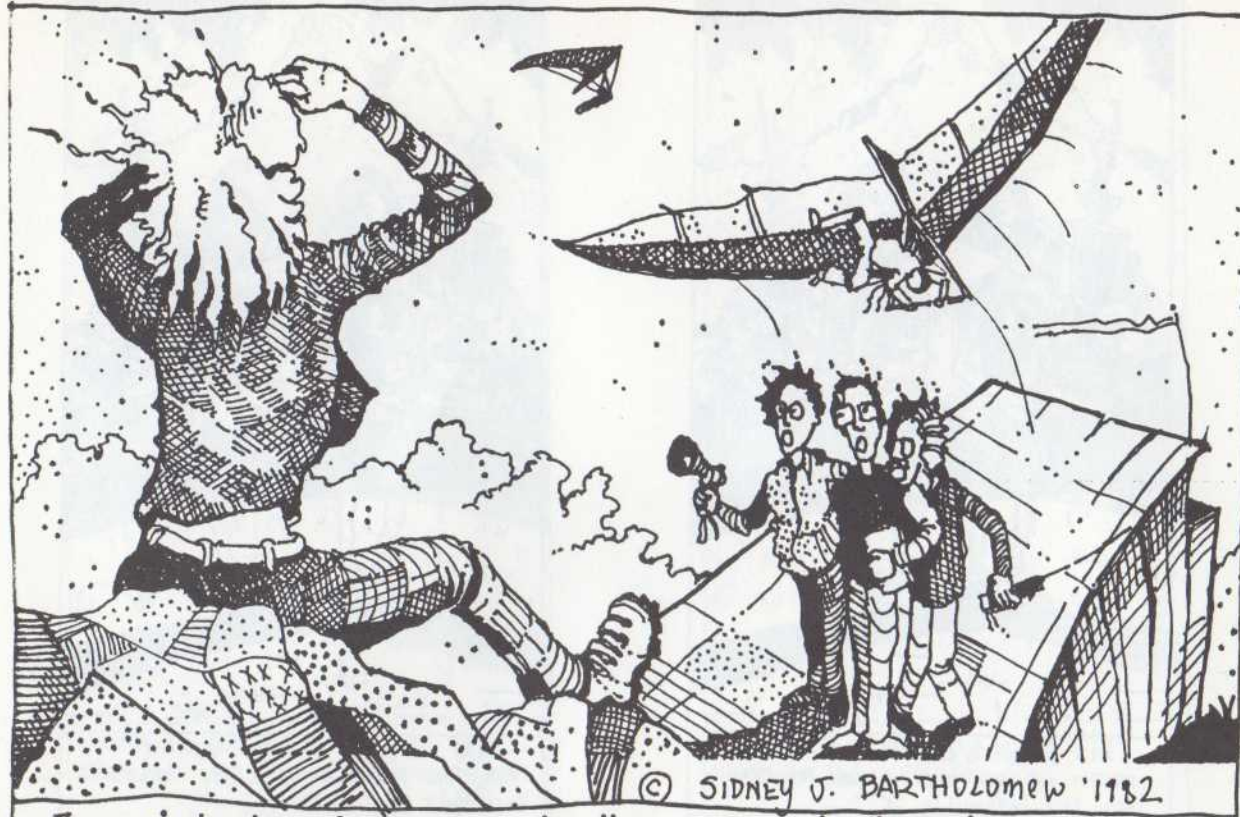
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MASTER'S



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The wind dummies were at the mercy of the chilly NW winds that provided the necessary lift for all of the standouts at the Masters of Hang Gliding.....

only be used to break any ties in the final standings.

When Monday's fog appeared settled in for the day, spirits waned a bit, but optimism held on and everyone was requested to stick around in case. Please, just no more task discussion. "Wasn't this supposed to be settled before we got here anyway?" was a common pilot comment. Dug Lawton pulled out his video machines and the Telluride Aerobatic Film was enjoyed. Then Bill Moyes presented a much-requested new film he and Steve had made this last February in Africa. The hour long premier showing (Steve had not even seen the final version) of "Birdmen of Kilimanjaro" was, to this writer, the special highlight of the whole event. A cultural education, the wildlife, the natives, the assault, the frustration, the personalities, and the suspense were truly inspiring. Much more than another hang gliding movie, this was a film of a quest -- a quest for life.

Monday's fog turned to Tuesday rain, and Hang-Arguing had another morning session. Pilot meetings at regular intervals kept the pilots and meet personnel on the mountain, in hope, but Mother Nature was having a field day. Hugh Morton held a picnic at the Morton Estate for the pilots

and officials that evening. If the weather was not torture enough, how about a cookout featuring *more Grandburgers* and Old Milwaukee beer? The "Kilimanjaro" film was a highly requested after-dinner activity, and some folks went looking for culture and took advantage of the special home-turf performance of Doc and Merle Watson in nearby Blowing Rock.

Wednesday and Thursday proved to be the most grueling days of the contest, and still no flying. Nothing like the borderline to blown-out conditions to play with one's head. The big blow at the northwest frontside had lowered to reasonable lulls and by 2:00 the call was to set-up and the action was welcomed. John Sears, our Chief Judge, doubled as wind dummy along with Bubba "Everybody's Friend" Goodman and Robert "The Neck" Crowell. The Callaway Peak Pylon was achieved and the distant overlook turnpoint could be used. But then the wind picked up, cloudbase lowered, and the intricate web of people in various locations that it takes to make a hang gliding competition happen, kept the radios on, and sat, and waited. The wind dummies tried to read a lull and survived their landings in the Meadows. The fast flying had ended, and the furious humor -- led by the frenzied wit

of Sid Bartholomew -- helped keep the attitudes from blowing out with the winds. We all hung on until 6:00 and then packed the wind-blown sails with new nicks in them in their bags and dragged our chapped and burnt faces down the hill towards home.

Thursday's high winds once again lulled, and in early afternoon we prepared for the best, but somehow expected the worst. Once again the dummies set the course. By 4:00 the competitors were ready. Moyes and Wagner stepped on the end of the ramps. Steve calls to talk (heavy Aussie accent now), "Aer, I don't like it. I don't feel good. I'm gonna refuse to launch." And so did the next two pairings. The winds had started to become more moody again, and all were glad to wait and let a trend settle. Sure enough, the subtle border-line velocities pushed just out of reach. So we waited, and waited. Mutiny had set in, and all but Steve Moyes had started or completed breakdown by the time the final word was to be given at 6:00. Just before 6, Moyes was checking out the velocity, and it was sitting on 20-25. Just as it seemed the Aussie Ace had played the cards to the hilt, the wind gusted up past 35, and wait was over.

continued on page 44



... AND I'd like to ESPECIALLY THANK HUGH MORTON AND PIEDMONT AIRLINES FOR MAKING ALL THIS impossible. CUT



... AND I'D LIKE TO THANK EVERYONE THAT MADE THIS POSSIBLE ESPECIALLY HUGH MORTON AND MONT PEED AIRLINES. CUT



... AND I'd like to especially thank Hugh Mountain and Piedmont Van Lines. CUT



... AND I would like to especially thank Huge Morton. CUT

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**PAST MASTER'S CHAMPIONS**

1976	Mike Arrambide
1977	Tom Peghiny
1978	Dave Rodriguez
1979	Steve Moyes
1980	Steve Moyes
1981	Steve Moyes
1982	Dave Ledford

Finally, Friday flying. The front had pushed through and a Backside day started to materialize, adequate for competition by 11:00. The southeast flow was light and variable and intermittent cloud cover provided challenging thermal cycles. Smith and Burnett were upset by Lawton and Degtoff. Moyes, Pfeiffer, and Ledford came home winners. Bruce Case ran into a landing conflict with Debbie Renshaw (both were flying other competitors) as she dove in under him in the DLA. Trying to avoid a double catastrophe, he opted for another 180 and smacked into the bank on

the edge of the landing field. Miraculously, he was ready to launch in the second round after a quick trip to the hospital for X-rays on his wrist. But unfortunately, a bent leading edge was not discovered in time and he had to forfeit his next flight with, ironically, Debbie Renshaw. Moyes, Pfeiffer, and Ledford remained undefeated after Round 2 along with Willie Muller and Mike Meier. Round 3's condition turned into a strictly duration contest and had to be called with three flights to go. Mike Degtoff pulled off the upset of the day by defeating Steve Moyes. Many stared in disbelief as Moyes — ahead in time and altitude — let Degtoff head for the DLA alone as he attempted to keep working the launch area. Degtoff ran into some adequate lift, and was able to out-last Moyes by 22 seconds for the win. Moyes, in the attempt to add precious seconds to his time, chose to land out of the point scoring area and cruised all the way down the slight slope in the neighboring field, but it was not enough. Pfeiffer, Ledford, Meier, and Muller would have to wait for another day to face off.

The incredible bad streak of weather resumed on Saturday as northwest winds howled and rain fell. The Annual Masters Party moved to a new location in Blowing Rock that evening, however, and the gathering proved to be high spirited and very eventful. This party was held at the author's rambling bachelor pad — a halfway house located at the end of a dead end street in the fashionable hamlet. Good

times? Why, Mortician Mike Meier was witnessed partying hard and even smiled... once. Bob England disappeared early with the local Val, Wax Magnum (Matt Wagner) was seen doing elephant calls while standing on his head. The international group was also infiltrated by the local Buzzard Club and friendly, curious folk from the neighborhood. The hors d'oeuvres proved magic as the eyeballs enlarged and the feet did not stop dancing for hours. Greg DeWolf, "Mr. Ocean Pacific," was captured exclaiming, "Far out!"

Those who left early to rest up for Sunday met the heavy eyelids of those who did not, at the regular 8:30 pilot meeting. (Luigi Chiarini was found sleeping at the door with a "Here" sign taped to his magnanimous forehead.) No advantage was achieved, however, as all would face more rain and fog together. Willie Muller, convinced that his presence was causing the streak of weather, and whose Pimp Pink and Passionate Purple Comet (nice colors, Pete) held a share of the lead, unfortunately had to depart for his Canadian homeland. Willie's strategy of flying above resident thermal producer, Sid Bartholomew, had proved as hot as the colors of his glider. Too bad the winds were not blowing 100 mph out of the southeast; Willie could have flown home.

Monday continued foggy and rainy. Bruce Case flew Mike Meier, next to depart, to Knoxville in his Cessna, and returned with a report of a 70 mile band of rain still to

come. The day was called at 3:00 in the rain and by 4:30 a few stragling pilots were soaring. It's not nice to fool the Master's, Mother Nature! Chris Bulger also had other commitments and was forced to leave the contest.

Tuesday — the ninth day of the ordeal — started out bleak but by noon, southeast conditions brought the competition to life once more. Ledford and Pfeiffer locked horns with Dave skying out while Rich struggled. Pfeiffer finally hooked one down low and had regained to launch just as Ledford crossed the finish line. Bruce Case attempted to compete, but his injured wrist would not cooperate and he was forced to withdraw from the contest. Bruce's performance was honored by being presented with the Murchison Sportsmanship Award by the pilots.

Round IV was also completed before more rain and cloudbase fell to close out the day's action. Occasional bursts were made onto the backside course to spice up the mostly duration duels. Ledford sat alone in the lead at 4-0. The Degtoff/Gilmour match ended with Gilmour in the trees and Degtoff narrowly escaping the same fate as they pressed the outcome to the very limit. Degtoff, the 15th seed, was proving to be a real contender for the championship. (Because of his seed number, Degtoff drew the toughest rounds of all, flying seeds 1-7 before the meet was over.) Moyes, Pfeiffer, and Wagner were also close at 3-1. Burnett and Smith had rebounded from upsets and were hanging

in there at 2-2.

As Wednesday began to become frontside flyable in mid-afternoon, the competition began to be rolling toward completion. Due to a ruling that the minimum number of rounds before the finals must be five, and that the minimum number to complete the contest must be seven, all were aware that, as this round would end, the final two rounds would begin immediately. Once again, a mid-day lull in high and gusty northwest winds invited us up to take-off. Perhaps, just maybe. Ballast was stuffed into place. Wind dummies provided a maximum 2 lap, 4 races, 10 mile task (pylon #1 not being a race in order to take away the launch distance differential). Speed and Glide. A day when a pilots particular glider choice and style of ride can speak for gaps at the finish line very loudly. The Sensor's trailing edge proved noisy, but they were still fast. Stew Smith, an ant's weight on the Sensor 180, ballasted up, and hanging from the only French Connection used in the meet, had no problem maintaining the altitude and speed to out-run Rich Burton's Comet. But Burnett's Comet overcame Lawton's Sensor. The Sensor of the meet was proving to be Ledford's, as he had out-thermalled Pfeiffer's Duck and also streaked past Degtoff's Sensor in the Round V race.

The "Match-up of the Round" led off the whole high speed day. Moyes' Missile would race the highly tweaked Rich Pfeiffer Signature Duck. The Duck sported the new

sandwich (dacron/mylar/dacron) tri-ply sailcloth, tempercoat slickened leading edges, and severely faired steel molley "Julienne" control frames. Suited up in the Bulletman harness with special matching ballast attire, Mr. Competition left the tri-ply Missile of the Champion fluttering its trailing edge. Also sighted slipping past Ledford's Sensor, the special Duck was definitely proving its point.

Wagner's Comet was edged by Gilmour's Missile, but a pylon protest would result in a re-flight before the next round. Unfortunately, we did not get a chance to see the Streaks handle the condition. The Bob from England, now designing in Van Nuys, and Luigi Chiarini would pack the "Freaks" down the road before the rounds finish on a future day. Regardless of outcomes, their flights could not put them in the finals. The northwest winds once more unmercilessly picked up and the day was called. The three Streaks were matched against two slick Ducks and a Comet, which would have given the innovative design of England a chance to prove itself to the highly interested crowd. (Bob will be fondly remembered for his unique rock-and-roll renditions while waiting for a launch window.) In the re-flight the next day, a Wagner victory over Gilmour provided the finalists. Ledford was holding on to his lead for the third consecutive round at 5-0. Pfeiffer and Wagner were in at 4-1, staying a step ahead of the group now at 3-2. Arrambide, Burnett, Degtoff, Moyes, and Smith.

Continued on page 46

An eleventh day in the eleventh hour and conditions did not look promising. Winds were still northwest and gusting to 70 mph at 10:00 a.m., and still 40-50ish around noon. Between 1:30 and 2:00, the center of the high pressure was upon us and the wind dropped to 10-15 and dying as the pilots rushed to set up. The thermals were popping as the wind kept dropping and the launch windows went from 10 seconds with a 5 second countdown, to "Ready-Open-4-3-2-1-Closed," to keep the pilots in equal elements of the fast changing light cycles. By the end of the quick round, Ledford and Wagner launched in almost no breeze at all, and flew in the momentary convergence forming as the wind was switching to southeast. Pfeiffer was a winner against Burnett in the closely contested one lap race on a short 2½ mile course. Thermalling skills and quick decisions were very necessary in this optimum condition for competition. Moyes hooked a boomer to the left of launch and gained enough altitude to stuff the bar for the short course's distance as he defeated Arrambide. Degtoff turned right and Smith left as Mike spiralled up and Stew struggled. Once more one of the two pilots (Degtoff) made the course with ease. Ledford then out-lasted Wagner and Round 6 was over.

Before the seventh and final round could start from the backside, the "Dense Pages Card Shuffling Show" had to come up with the match-ups. It appeared Dave Ledford at 6-0 had clinched the championship and due to a precedent set at the recent Nationals, should be pulled from the round and the rest of the field left to fight it out for the remaining places. But what everyone else had passed by was brought to light by Dave himself. Ledford could lose to Pfeiffer, alone at 5-1, and have a non-scoring landing while Rich aced his, and the two would be tied for the Championship, at 6-1 with eight landing points! A Pfeiffer/Ledford rematch would be necessary. This last round of duration duals did not take long. What happened with Pfeiffer and Ledford was just the opposite of what could have been. Ledford out-lasted Rich and aced his landing. Rich will no doubt test the USHGA liability

insurance policy as he fell out of a tree and rammed his keel into the hood of a Datsun 280Z. Smith defeated Burnett, Degtoff topped Arrambide, and Moyes had to use his neighboring field, downhill landing tactic again to defeat Wagner by seconds. With landing points breaking ties, Degtoff grabbed Second, Moyes Third, and Pfeiffer fell to Fourth.

FINAL THOUGHTS

The record eleven day contest yielded the minimum number of seven rounds, but did produce a clear-cut winner as Dave Ledford came away the undefeated Champion with a two flight cushion. Out of the four Sensors entered, they swept the top two places and finished in the money three out of six places. Comet's led in numbers with seven, but that is down to less than a third of the field. Wills Wing made a rebound this year with five Ducks entered. Bennett's new Delta Wing 160 Streak was flown by three contestants, while the two Aussies were the only pilots to fly the Moyes Missiles. Replacing the Harrier as the meet's most antiquated model, the lone Demon will probably be replaced shortly as the Flight Designs flagship.

The pilots were representing a small taste of a desired international flavor with only three nations represented: 19 Americans, 2 Australians, and a lone Canadian made up the field. This group did, however, contain some unique qualifiers. Chris Bulger, at 17, was the youngest pilot ever to compete, and Willie Muller, the oldest (we promised not to tell). Debbie Renshaw — in a move by the competition committee that was greatly questioned by the competitors — became the first female novelty pilot.

But where were the Brits? A Calvert? Carr? Hobson? Hughes? How about World Champion, Pepe Lopes? Or Thevenot? Guggenmos? DeGlanville? Looking closer to home, no Larry Tudor, Jim Lee, Eric Raymond, Joe Greblo, Rich Grigsby! The Masters of Hang Gliding should ideally live up to its name and garner all the masters of the sport. The X-C Classic held annually through the middle of July this year drew

top foreign pilots from fifteen different nations. This flock all gathered to pay over \$400 to compete for zero prize monies. The Owen's Valley provides the pull. The Grouse Mountain Meet follows closely in the end of July, so many pilots can stay and compete in it also. The Masters is still over a month away and a possible \$5,000 purse just does not warrant these top competition pilots, who are also professionals running their own businesses, to hang around for the lengthy period. One way to try for a masters Master's would be to reschedule the event. Checking the logs of the past two years, the first of August would have been exceptionally good at Grandfather. Sure, hindsight is easy, but the point is the pilots are already in the country and probably would be more inclined to make the two meet stay in the U.S. into a three meet stay and return international status to the Master's. May is also a very good month at Grandfather but would run into the same schedule problems for the foreigners. The only other possibility seems to be to offer a \$100,000 purse and pay handsomely the first ten places, or all of the finalists. (Contrary to popular belief, September is not always so unlucky; this year Sep 21 - Oct 5 provided 14 out of 15 days soarable!)

This year, five out of seven rounds were from the backside. Another ramp is needed for an exclusively one-on-one format for next year. If the the existing ramp is moved more to the southwest, another ramp could easily be placed to the left of the present one, to accomodate the state-of-the-art launch procedure.

Finally, not intending to take anything away from this year's Director, this important job has qualifications that can best be met by an experienced international competition pilot that also is very familiar with the mountain, and has many times flown the tasks he is asking the competitors to perform. Perhaps Jeff Burnett and/or Stew Smith will take the reins for next year's event. An early invitation accompanied by a complete format of tasks and scoring is sure to take out some of the mystery, and assure the pilot will agree on the format if they choose to accept. §

**The MASTER'S of HANG GLIDING**  
**September, 1982**  
**Grandfather Mountain, North Carolina, USA**  
**FINAL RESULTS**

Pilot	Home	Glider	Record	Landing Points	Winnings
1. DAVE LEDFORD	Asheville, NC	180 Sensor 510	7-0	10	\$5,070
2. MIKE DEGTOFF	Anniston, AL	180 Sensor 510	5-2	12	\$1,550
3. STEVE MOYES	Sydney, Australia	180 Missile	5-2	8	\$1,050
4. RICH PFEIFFER	Lake Elsinore, CA	180 Duck	5-2	6	\$750
5. MATT WAGNER	Atlanta, GA	185 Comet	4-3	12	\$540
6. STEW SMITH	Linville, NC	180 Sensor 510	4-3	10	\$340
7. MIKE ARRAMBIDE	Ventura, CA	185 Comet	3-4	14	\$30
8. JEFF BURNETT	Milford, NH	185 Comet	3-4	12	\$30

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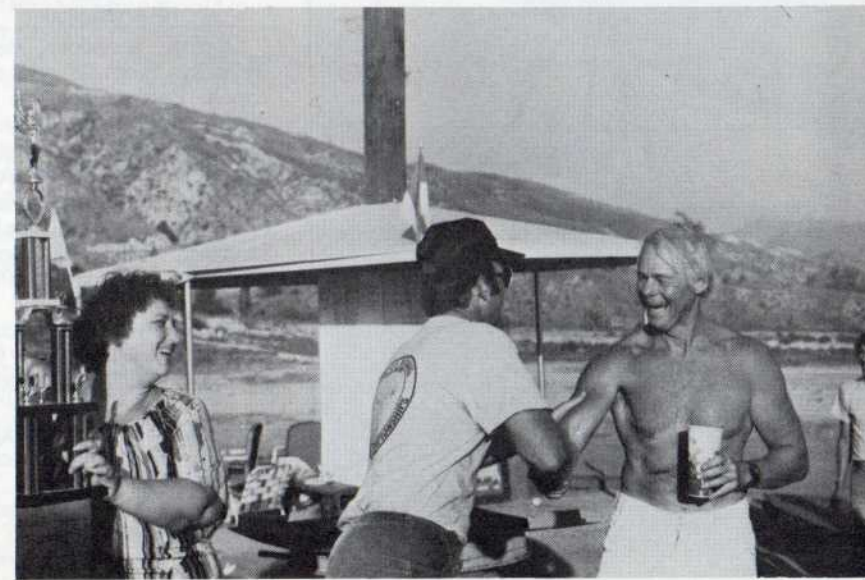
Supply these measurements (bare feet):  Floor to shoulder, to inseam, to kneecap (inches).  Chest, waist, and weight.







Clockwise from upper left — 1st Place/Rich Pfeiffer. 2nd Place/Eric Raymond (left) and Chris Price. Walt Dodge congratulates Tim Cobb who won the Sportsmanship Award. Meet Director, Walt Dodge. 3rd Place/Mark Bennett (left), Mike Arrambide (center), and Greg DeWolf.



# 1982 NATIONALS at Pinecrest

by John Zerlinden

The 1982 U.S. Nationals, held at Pinecrest Air Park, proved to be the best Nationals ever held. Many factors lead to this very successful meet. One was extremely consistent flying weather. Not a single day of flying was lost to unruly conditions. Another was that the meet was exceptionally well organized. Under the watchful eye of Walt Dodge, the Meet Director, it went smoothly round after round with little complaint. The tasks were well defined at launch. The pilots briefing each morning left little doubt in anyone's mind of what was expected.

The facilities, Andy and Juanita Jackson's Pinecrest Air Park, were quite adequate, and are considered to be the best in the world. And the pilots, contrary to rumors that the Southern California pilots wanted a blood bath and were all carrying guns, behaved themselves in a truly professional manner. The only protest of the meet was dealt with by a Protest Review Board consisting of an odd number of pilots from across the country, flying different makes of gliders. The biggest topic of the meet was how well everything was going, and how much fun everyone was having.

There was excitement in the air as Keith Nichols played sportscaster and kept the spectators engrossed in the action.

The US Festival was going on concurrently with the Nationals. Rob McKenzie gave 300,000 people a Crestline tandem flight by hanging 45 pounds of video gear on his glider, and having the tape shown at the Festival.

There were no mid-air, no serious accidents, and everyone worked together to bring a new level of professionalism to hang gliding competition.

The new "surprise" glider of the meet was the Delta Wing Streak. It took two 4th places, a 5th place, and a 7th, and left everyone aghast with its startling climb rate, and "standard like" landing ability.

The Streak and the Duck are definitely gliders to watch in future competitions. Considering the fact that only four Streaks entered in a field of 67, it did very well. Rich Pfeiffer, upon receiving his trophy, said he was glad that Bill Bennett finally had a competitive glider.

Pfeiffer, who was seeded No. One, had First Place all wrapped up a day before the meet was actually over, on his Wills Wing Duck. Round after round, he consistently beat his opponents, losing only 1 of 12 one-on-one matches.

Following Rich, and equally sharing Second Place, were Chris Price and Eric Raymond, both flying Comets and winning 10 of 13 rounds.

Third place went to three pilots, Mark Bennett, Mike Arrambide, both on Comets, and Greg DeWolf, with his Duck. All three won 9 of 13 pairings.

The Open Class was flown by fourteen contestants and it, like the certified class, was a hot and heavy competition, with First Place going to Rich Burton on a Comet, and Second Places shared by Tim Cobb on a Comet, and Jerry Sturmer flying a Sensor 510. Third was taken by five pilots: Rex Miller, Steve Mawhinney, Paul Clock, Lee Gardener, and Bill Blood.

A separate competition, a spot landing contest, went to Rex Miller, First Place on his Fledge, and Greg DeWolf, Second on a Duck.

Walt Dodge and Launch Director, John Osborne came up with another award, for Sportsmanship. It went to Tim Cobb.

As Juanita Jackson cooked the pilots steaks, Rob McKenzie flew over and dropped a skydiver from his tandem ship.

Following Rob came an aerobatic parade, filling the sky with circular smoke patterns. When the sun set, Dean Tangi showed a slide show on competition team financing around the world. As the airpark slowly began to empty, everyone knew something real good had happened there. It was truly a perfect meet. §

## CERTIFIED CLASS

1st	Rich Pfeiffer	Duck
2nd	Eric Raymond	Comet
	Chris Price	Comet
3rd	Mark Bennett	Comet
	Mike Arrambide	Comet
	Greg DeWolf	Duck
4th	Jeff Burnett	Comet
	Bob England	Streak
	Kevin Kernohan	Comet
	Chris Bulger	Demon
	Dave Beardslee	Sensor
	Gene Blythe	Comet
	Luigi Chiarani	Streak
	Jeff Huey	Sensor
	Ken Brown	Demon
5th	Mike Meier	Duck
	Stewart Smith	Sensor
	Mike Tudor	Comet
	Ron Young	Comet
	Mike Newman	Comet
	Mark Gibson	Duck
	Ted Zinke	Comet
	Mike Benson	Duck
	Steve Luna	Streak
6th	John Mucha	Comet
	Rich Rawlings	Pro Star
	Dennis Yeomans	Comet
	Conrad Agte	Comet
	Paul Voight	Duck
	Gerry Bell	Comet
	Terry Wilkins	Duck
	Mike King	Comet
7th	John Ray	Comet
	Debbie Renshaw	Comet
	Dick Cassetta	Sensor
	Randy Grove	Sensor
	Russ Kidder	Comet
	Scott Greenawalt	Pro Star
	Dave Little	Streak
8th	Dwight Stephen	Comet
	Mike Mills	Missile
	Don Underwood	Comet
9th	Tim Saloga	Comet
	Steve Stackable	Comet
	Harry Mills	Meteor
10th	Bob Killingsworth	Comet
	Paul Frost	Missile
	Howard Osterlund	Duck
	Steve McQuilliams	Duck
11th	Rick McHattie	Comet
	Jim Okomota	Duck
12th	Shannon Raby	Demon
	Carmen Cappella	Comet

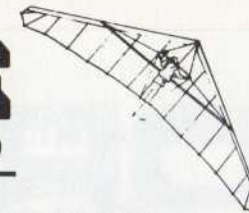
## OPEN CLASS

1st	Rich Burton	Comet
2nd	Jerry Sturmer	Sensor
	Tim Cobb	Comet
3rd	Rex Miller	Fledge 3
	Steve Mawhinney	Missile
	Paul Clock	Sensor
	Lee Gardner	Pro Star
	Bill Blood	Sensor
4th	Dean Tangi	Sensor
	J. T. Collins	Comet
5th	John Beebe	Gosshawk
	Chris Kastner	Sensor
	Dave Gibson	Centurion
6th	Betty Moyer	X-140



Clockwise from upper left — Andy Jackson, owner of Pinecrest Air Park, checks a load of gliders. Rob McKenzie and passenger. Walt Dodge and Monica Brown at the scoreboard. Marshall launch. Kevin Kernohan's double French connection.

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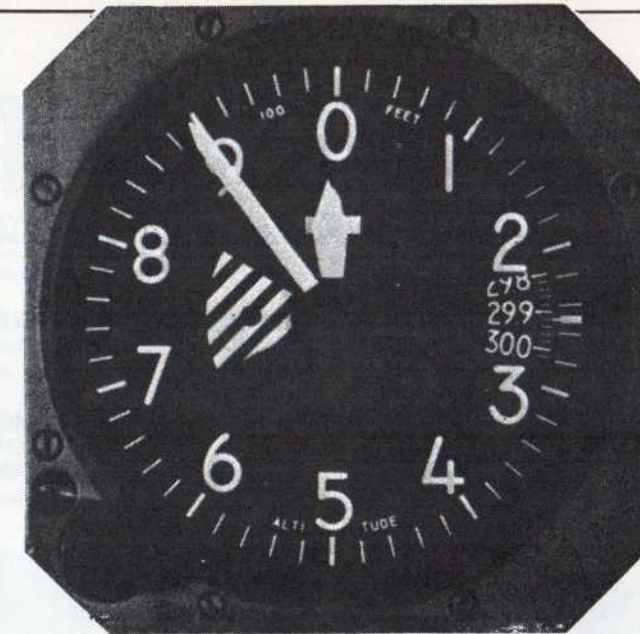
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# PRODUCT LINES

CHATTANOOGA, TENN. — The competition season has nearly wrapped up. Our issue here describes the Nat's, Master's, and Telluride Aerobatic Meet, even an ultralight soaring contest. But more comments continue to arrive on our Jul/Aug "Product Lines" re-hash of the SoCal League meets. Last issue (Sep/Oct) the UP Sports guys wrote to correct some inaccuracies. We're glad they did. Mark Bennett commented that the Windsports and #1 Sensor Teams flew well and should've tied for First, except for losses in the final eighth round. **Steve Pearson** further amplified this a bit saying, they would've tied for First "... had it not been that both these teams were soundly thrashed by the #2 placed Will Wing Team of Pearson, Meier, and Pfeiffer." **Wills** tends to underplay competition even when their record is as good as it has been lately, but thanks for speakin' up, Steve. News to the east still comes by stage coach and iron horse, so we just gotta be kept straight by the news-making California continent. But there is no trouble in "paradise," just in case any of you interpret these UP/Wills interchanges as hostile. Matter of fact, **Pete Brock** has invited **Steve Pearson** and **Rob Kells** to join Comet-upside-down-pilots, **Ron Young** (No. One at Telluride), **Larry Tudor**, **Greg Duhon** (see page 29 this issue), Dangerous **Dave Gibson**, and lovable **Dan Raccanelli**. They'll all be headed to **Beppu, Japan**, site of the last World Meet, for an Aerobatic Showdown. Weather permitting, we'll try and provide first coverage of the event, as we're solidly supportive of aerobatics. We heartily agree with Pete that this type of hang gliding holds the most promise for spectator excitement. Contrarily cross country contests are a bit like sailplane race watching. "There they go!" (then retire to a fun spot till evening when) "... and here they come!" Great for participants and enthusiasts perhaps, but *dullsville* for your common spectator. Hopefully TV coverage other mass media opportunities will come of this, and, as such, aerobatic shows could be a major way to promote growth of our sport. Best of weather guys! While we spoke with Brock, we found UP is nearing completion on a number of subtle but meaningful changes for their **Comet II**, which will be put on the market somewhere in early 1983. Also they've hung the German Limbach engine on their **Arrow** and continue a typically UP-type of controlled and thorough development of this exciting craft. Next issue, *Whole Air* will release some statistics on reader interest in UP's Arrow and other similar ideas, but we'll preview you now to say interest is exceedingly high. No projected release date is forecast for the Arrow, but they're fully into it, and Pete suggests it should do some nice things for ultralight glider aerobatics as well, being stressed for 6 positive G's. One certainty it seems, however, is a general price increase. Pete relayed some thoughts he and Bill Bennett have had, and it all pointed to seeing the \$2000 barrier broken by most major glider producers. Uncle Bill's **Streak** is already at \$2250, and the Comet II (plus many others, we'd expect) will approach that, from \$2100 and up. Pete will try to hold the increase to 8 percent. As we've just mentioned **Uncle Bill and his Streak**, we want to advise you that we'll have a mini-feature on this exciting new glider from Delta Wing. In harmony with our proposed new methods, these write-ups will be more superficial, but still informative on new products. They will be balanced with much more comprehensive Owner Surveys. The plan is to produce the initial survey article in our next (Jan/Feb) issue, due out before Christmas. **Glenn Brinks**, who did such an outstanding job on our ultralight version, will head up this newest (and first... again!) review of equipment. Watch for both — Owner Survey and **Streak** mini-feature — in the next *Whole Air*, unless unforeseen delays arise. **Wills Wing** is working on a new harness. A lightweight job with no foam but sky diver harness strength — the strongest they've ever built. It'll fold into itself for packing, just like those nylon parkas with the pocket on your stomach, remember? Prices should stay constant with today's, but even so, they're goal is to obtain a TSO on it (Technical Standard Order). Another area where the Willswingers are excited and talkin' is aerobatics. Yep, we're back to it. **WW Prez' Rob Kells** gave us more on the new **Aerobatic Ass'n** (actually named the Professional Hang Glider Pilot's Ass'n). They've devised a preliminary seeding for pilots currently involved (see below) BUT want to invite all interested pilots, as this is no clique. They plan to promote the sport by this vehicle but stress three things: Safety, Safety, and Safety. An Open Qualifier for pilots not now involved will be held probably in Utah; date, time, and actual site to be announced. A circuit is being developed around the world, with this year's Telluride and Beppu kicking off those plans to a good start. Some other possibilities for this Grand Prix of Hang Gliding are Rio, Hawaii, Grouse, Europe, etc. The **current seed** (in order) lists No. One **Dan Raccanelli**, then **Ron Young**, **Rob Kells**, **Dave Gibson**, **Larry Tudor**, **Roy Haggard**, **Greg Duhon**, **Steve Pearson**, **Brad Harris**, **Pat Maggard**, **Eric Raymond**, **Wayne Bowen**, **Dave Ledford**, **Bard Chrisman**, **Chris Price**, and **Chuck Dugan**. We've offered to do all we can to promote this evolution, so keep watchin' the pages of *Whole Air*! At Progressive Aircraft, a new glider nears completion — the **ProStar II**.

Featuring much more double surface, it also uses an un-attached lower surface a la Shark and Streak, but with Boone Differences. Only a single extra lower batten is added, which with less trailing edge tension help make this what the factory feels is the best handling version yet of the non-attached lower surface gliders. A trick inside-the-sail device reduces mid-span billow, but in a way that keeps tip-to-keel tension from having to be so great, hence lightened handling. Of course, easy frame inspection and repair plus forgiving landing qualities are bonuses on this type of construction. We'll be surprised if we don't see lots more of this technology in the future. Still in Southern California, **Steve Moyes** tells us he and dad, **Bill**, plan to open a Moyes glider company in Region III. We didn't hear what this means to U.S. Moyes, of which Bill owns 50 percent, but it may well help the sagging sales of Moyes gliders in the U.S. Now zipping up the coast to Region II, we see a new vitality in the sport in Jean Michel Bernasconi's **Pacific Windcraft** as he enjoys *double* the projected introductory sales on his new **Vision** (see Inside Front Cover) and accessory products. He's playing successfully with the "big boys" as witnessed by full color advertising. Visions are being delivered, on a 3-4 week *guaranteed* delivery and reactions seem to be good. One specialty of the Vision is a choice of three firmnesses in sail cloth, to suit it to your particular skills and desires. Nice new idea. They've some new tubing to streamline their kingpost called the "Torpedo System" and it will be standard equipment on new PW gliders after full testing. Bernasconi also has good prices on his S-26 parachutes, and a line of wrist altimeters at a very reasonable cost. Last, the frenchman offers a **French Connection** at a bargain value. Check 'em out. **Manta** has a new diver, too, called the **Fledge III ET**, which is *not* Extra-Terrestrial. The ET means Extended Tips and ups sail area from 157 to 177 squares. It offers an improved sink rate and, perhaps surprisingly, a greater top end. On their **Foxbat** trike system it flew as slowly as the standard III, but went much faster. Not available to the public yet, while undergoing final testing, it ought'a be ready in early 1983. Flight Designs revived their once-dropped **Titan**, and now apparently are pleased with it and their new **Demon II** projects. They plan to send **Ken Brown** to Chattanooga's **Great Race** to compete. The Titan, you might recall, did well in the Fort Funston race so it could be a contender at the classic race in Tennessee. Speakin' of Tennessee, the Tree Toppers club has upped the ante on its **OLDEST X-C** contest. The club truly had the granddaddy of the X-C contest events way back in 1978, and now makes it more valuable. A new \$1,000 cash prize is offered for the 1983 event. Due to contingency prize promises from several businesses, the first pilot to hit or exceed 100 miles could easily win up to **\$3,000 or more**, it is expected. You *must* be a year member, the flight *must* start from a club site, and you'll have to prove your distance to the club's Board of Directors. Check with the TTT at PO Box 136, Lookout Mtn., TN 37350. It's not a new company at all, but the **Condor** by **Seahawk Industries** is new to our pages. See the ad (centerspread) for a look at their deluxe, Kawasaki powered ultralight. They've been a major supplier of this clean machine to South America for over a year. Matter of fact, they have a dealer in every S. American country, no small feat considering the massive amount of red tape involved. But now the Condor will become available to the USA. They have a II and III model of the Condor, being single and "wide" seat variations. You can get a 40 horse or 75 horse Kawasaki, which ought'a give it some kinda climb, even with two aboard. Plus this craft can fly slowly enough to be a great flex-wing towplane. Write or call at 10772-W S.W. 190th Street, Miami, FL 33157, or 305/238-3920. Ask for E-Z — a hang glider pilot, now VP at Seahawk. In other ultralighting, the word is **Eipper Prez Lyle Byrum** got a little radical at the Salinas Air Show and broke his MX Super. He was high and threw his chute for a safe landing right on the runway at show center. In fact, till the announcer got the proper word some 30 minutes later, he and the crowd thought it was all part of the act. We're real glad Lyle wasn't hurt, but want to warn all ultralight pilots to **be careful and wear a parachute!** Compared to hang gliding, ultralights are getting a bad reputation for fatalities, several of which *could* have been prevented if a chute had been used. By this time most readers will know of the *very sad losses* of three more hang gliding names turned to ultralight flying. **George Worthington** (known to virtually every hang glider pilot), **Bob Lovejoy** (original designer of the Quicksilver — killed on his own new design, the Avion), and **Nels Johnson** (operator of Sky Works in Milpitas, and a top pilot in Northern California) have all lost their lives in powered accidents, all on new, un-proven craft. **PLEASE!** (as loud as print can say that word) **be careful!** Be sure of what you are flying. Wear a parachute. Know how to use it. If you must, test new designs in safe, controlled conditions, and use an organized program to do so. Let's end this loss of valued lives. Our sincerest condolences to the families of these talented pioneers. Got news or opinions? Send 'em to Product Lines, Box 144, Lookout Mtn., TN 37350.

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