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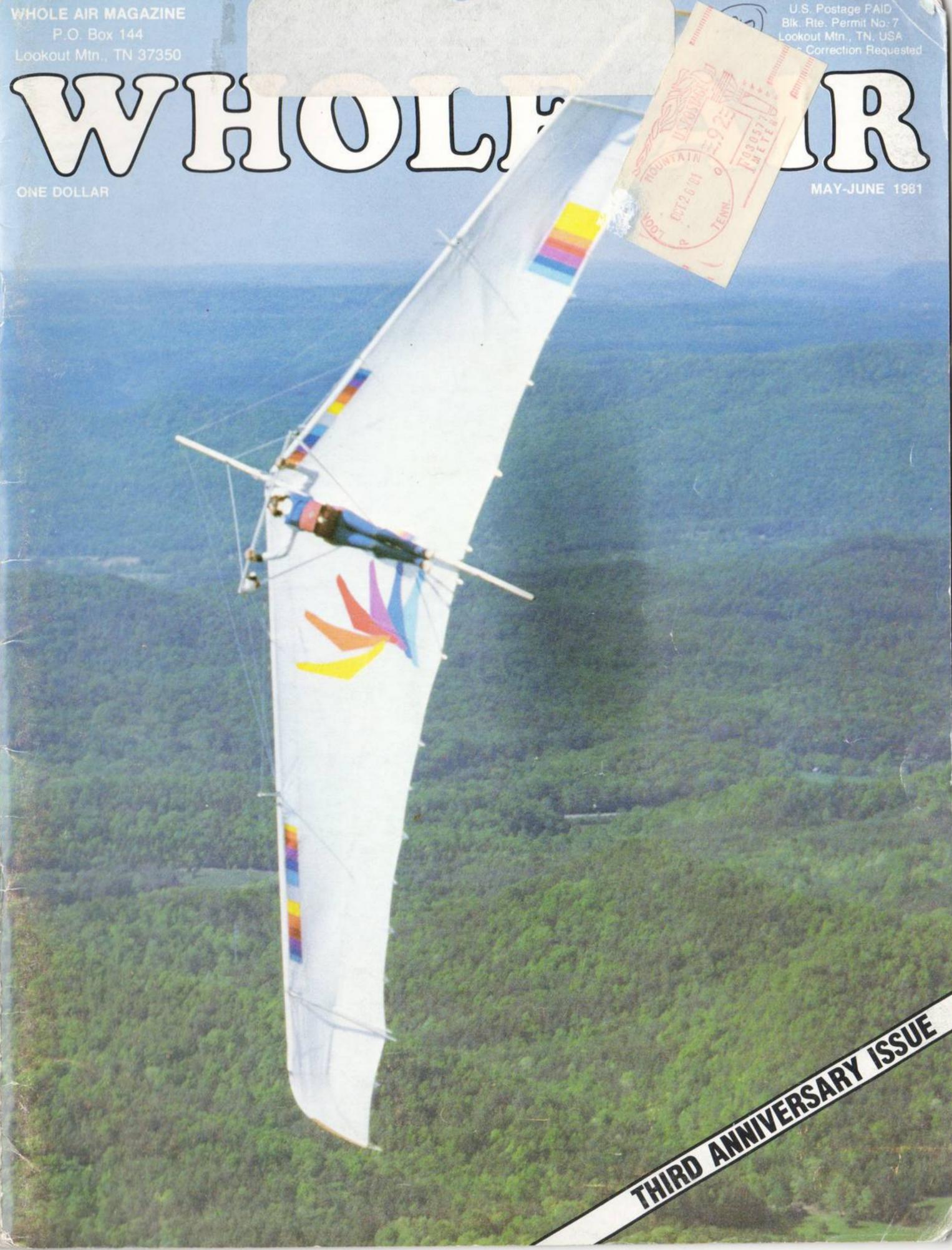
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MAY-JUNE 1981



THIRD ANNIVERSARY ISSUE



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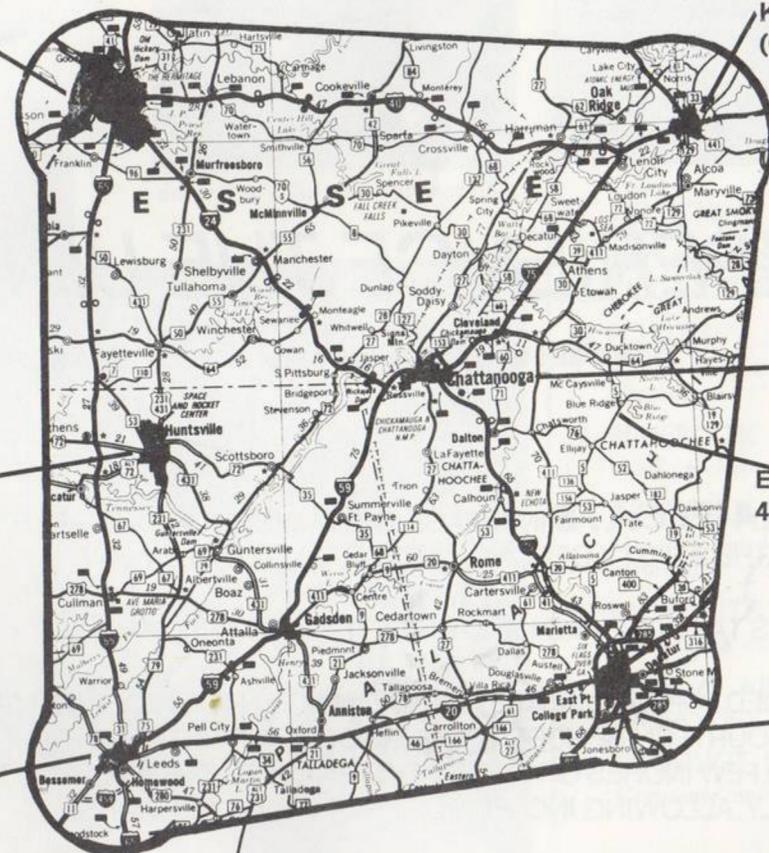
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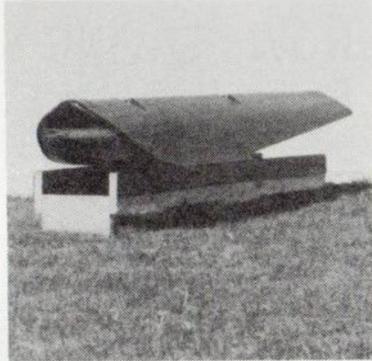
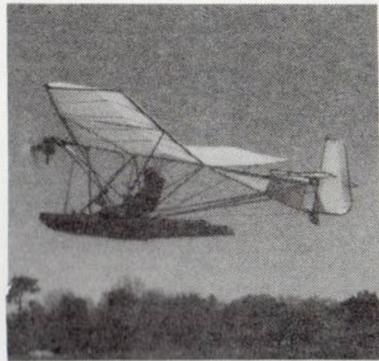
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WHOLE AIR

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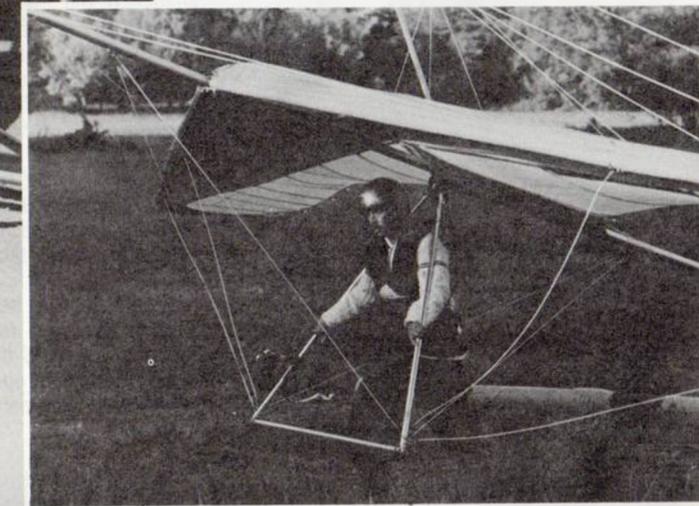
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Chris Voith

ON THE COVER:

Dennis van Dam flying his home-built Stratus VB with inlaid sail. The cover continues **Whole Air's** in-flight views but requires close examination to find the clue. The photo was taken by Chris Voith who was flying tandem with Gary Engelhardt as pilot.

Publisher's Column



"TOWING . . . THE NEXT FUTURE SHOCK?"

Hang gliding purists are feeling compromised. The USHGA is embracing power. **Glider Rider** is over half power, and **Whole Air** gives much coverage. Power is in all the aviation magazines lately, and more of it is expected. Many sites, fields and airports now have resident ultralight airplanes and their noises irritate the delicate membranes in the purist's ears.

We hear little other real complaint beyond noise, however. It is good that few criticize the fuel usage, as every glider pilot that I know drives up to the launch point. Some do so in wide-tired, gas-guzzling, four-wheel-drive vehicles. Other "purists" use tow boats, tow trucks, or hydraulic winches. Very few ride bicycles to the mountain.

But before you curse the noisy ultralight anyhow, consider this: Ultralights may very soon be able to tow you purists up to 2,000 feet, and drop you off, ready to thermal quietly. If you live near the mountains, it is still an easy and flying start to your flight. If you live in the flatlands, the advantage is obvious. The technology is here today, now. What we lack is the proper techniques to do so safely. And flying ultralights in thermal conditions is not widely understood, let alone while towing a high performance hang glider. Never doubt, though, that the many active and creative minds of our sport will soon develop the techniques and solve the problems.

We are tickled here at **Whole Air** that a solid 45% of our readers now tow or plan to start. This will be the backbone of successful towplane operations. At present, **Whole Air** is the only serious sport aviation

publication concerning itself with towing, and we are just beginning.

As I view it, towing education and experience may well play a deciding role in bringing two factions together, hang gliding and ultralight flying. I believe this is healthy, as we all know the ultraslow world of flight like no other entity. I believe also that this is wise, as the F.A.A. (and most other aviation groups) regard all of us as "birds of a feather," whether we feel the camaraderie or not.

I am going to venture a prediction here and now (end of May, 1981) that in 12 to 18 months, tow operations of the kind I have described will be in progress in some places. Inside sources say experimenting has begun. I know of several towplane or "tug" crafts under developmental work.

The acid test is by YOU . . . will you learn the techniques and safety considerations? Will you purists allow yourselves to be towed aloft by an ultralight? And will the ultralight pilot put his power to work to do so? In less than a year and a half, I say we will know the answers. And I doubt operations of this kind will draw the heavy fire that two-place ultralights are now receiving.

Thanks,
Dan Johnson

THE METEOR

FROM US MOYES: A NEW STAR ON THE HORIZON



First and Second at the New South Wales Championships

First and Second at Mt. Buffalo XC

First and Fourth at Australian Nationals

Size: 186 square feet
Nose Angle: 120 degrees



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Photos by Hank Syjut

FORUM



Dear Editor:
Your magazine is the only one that still launches its readers on new adventures that are at once entertaining, instructive, and life-saving. To qualify as good literature "Locked Out" only lacked a main character.

John Armstrong

HANG GLIDING BOOK A BESTSELLER IN NINTH PRESS RUN

Dan Poynter's best selling book, *Hang Gliding, The Basic Handbook of Ultralight Flying* is now available in a completely revised ninth edition. Initially published in 1973, it was the first book on the sport; now there are 125,000 copies in print. Revised with each printing, it is always up to date. While the big New York publishers normally make a single large press run, Poynter prefers smaller print orders so that the book may be revised each year or two to keep it current. "This sport is progressing so quickly", says Poynter, "that what was true last year may not be valid today."

PARA PUBLISHING



STORM DAMAGE—This was the scene the morning after a desert tornado hit Walter Kole's "Desert Sky Resort" in Ocotillo Wells, California, about 90 miles east of San Diego. Kole lost three aircraft to the winds, which were estimated at between 90 and 120 m.p.h. He was back in business two days later with three new Quicksilvers.

Sincerely,
Jim Gibson
Goleta, CA

Dear Editor:

People from all walks of life come to our flying fields to celebrate their love of flight. Surely our hang gliding community cannot be personified by the experiences of one man's personality. This speculation in "Pocket Thermals" darkens an already dim view of our sport. Come on, *Whole Air*, spread your wings and soar above this. Remind me of the beauty of flight in your photography. Inform me of its progress and its pitfalls with your word, but leave the hot air to nature with real thermals.

Hank Lawton

NEWS RELEASE

Southern California Hang Gliding Schools is sponsoring the 1981 Southern California Cross-Country Championships.

The contest is organized by Rich Grigsby, well-known international contest pilot, and judges include George Worthington, Peter Brock, Chris Price, Bill Bennett, Rob Kells, and others of equally impeccable character.

First place prize money is \$1,000 for each of two classes. The top three pilots of each class will receive beautiful stained-glass trophies donated by Wills Wing. In addition, over \$10,000 in contingency prizes are being offered by Progressive Aircraft, Ultralite Products, Delta Wing, Seedwings, Sunbird, and Southern California Hang Gliding Schools.

The contest is comprised of two classes of pilots, determined by their cross-country experience. The task is simple: Fly as far as you can in Southern California, any day that you wish, from now until midnight, January 1, 1982. The longest flight wins.

For more information and a copy of the contest rules, write 1981 Southern California X-C Championships, 5219 Sepulveda Blvd., Van Nuys, CA 91411.

Dear Editor:

Wrongway Ground Control

What is your reaction to a faucet handle that turns clockwise to open, or a nut you're trying to remove only to find, eventually, that it turns clockwise to remove (loosen). What if a friend loaned you his automobile, but cautioned you that the steering wheel turns to opposite of all the other cars on the road. To turn right you turn it counterclockwise. You desire to drive his car because of its attractive gas mileage and other unique features. What would you do? Go out and practice in an

empty parking until you could remember every time that it is opposite? Wouldn't you even wonder whether you might revert to the habit of years and turn the steering wheel the wrong way in a tight tense fast situation on the highway?

This is precisely what's happening with many new ultralight designs. Luckily, none have been found to have the rudders (in the case where they had rudders) hooked up backwards. But the nose steering is backwards, which is fine at 5 miles per hour if you goof, but no so fine immediately after landing at 18 or 25 mph.

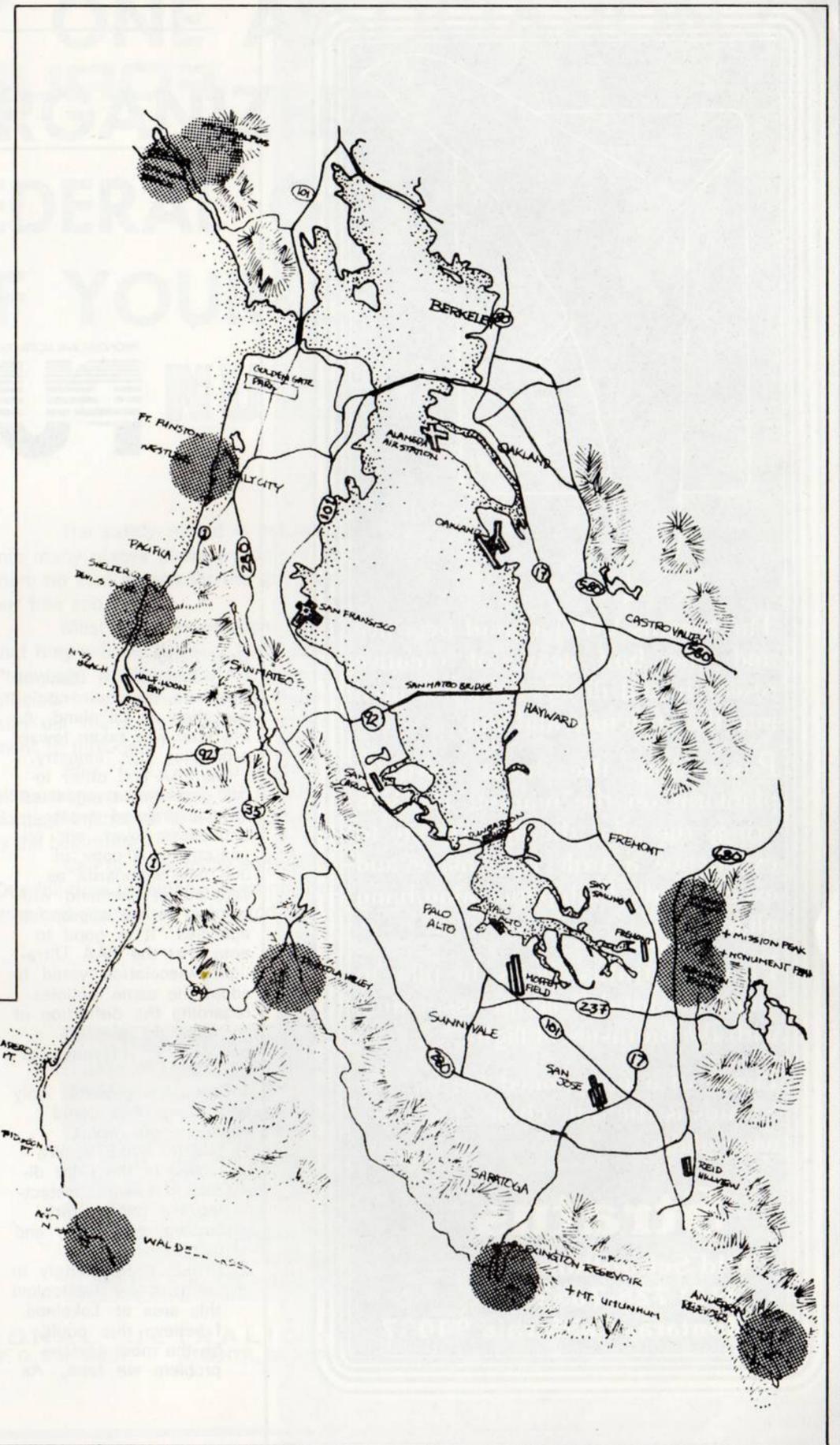
Not all of the ultralights have been checked to see if they have this particular "backwards" hook up. But enough of them do have it, including the Kasperwing, Soarmaster Trike, King Air Trike, Weedhopper, etc., to warrant a cry of concern.

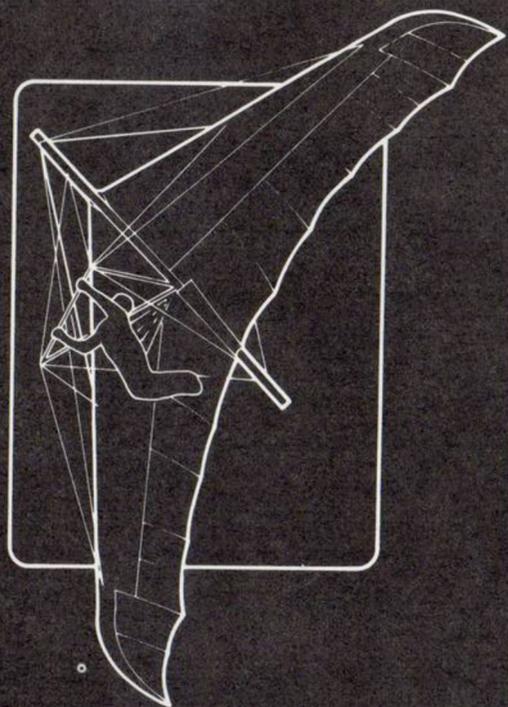
Please, designers, think about it. You want to sell as many units as possible, right? You want to sell them even to conventional airplane pilots, right? Then put a small, inexpensive cross tube at the right place and correct the problem, so that pilots won't find an excuse to not give your product some further consideration.

George Worthington
San Diego, CA

Hang glider traffic may be encountered in marked areas at altitudes up to 2000' AGL. CAUTION: Normal Traffic Scan may overlook hang gliders. Low airspeed (25 mph) makes gliders appear stationary.

For more information call
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The Stratus V-B has had over five and one half years of creative research and design manufactured into the structure and sail.

Possessing the most esthetic planform on the market, the V-B brings the pilot the opportunity to experience a truly responsive and exceptionally high performing hang glider.

Flying a Stratus allows the pilot to enjoy the total freedom associated with the fantasies of flight.

Being of a non-cloned status, the Stratus is the only choice for a flex wing glider.

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FORUM

PROFESSIONAL ULTRALIGHT MANUFACTURER'S ASSOCIATION



Dear Editor:

I would like to thank all members for their cooperation at Lakeland. A big step was taken toward organizing our industry.

The FAA and other local government agencies have expressed great enthusiasm over our organization. A copy of our new standards as adopted at Lakeland will be sent to the appropriate agencies. It is good to note that the EAA Ultralight Association voted to adopt the same policies regarding the definition of an ultralight aircraft and pilot in reference to the NPRM.

There are probably only two things that could endanger our sport:

- 1) PUBLIC SAFETY. We moved in the right direction toward protecting the public with our training, safety and test program.
- 2) NOISE. Unfortunately in the rush we overlooked this area at Lakeland. I believe this could be the most serious problem we face. As

you probably noticed the Quicksilver was one of the noisiest at Lakeland. By Oshkosh '81 we will have this problem corrected and the prototype is now being flown. Noise standards should be adopted at the Oshkosh '81 meeting. We must keep our requirements practical and effective.

It is only three months till Oshkosh '81 and we all know R&D is expensive and time consuming, so let's all try to have some good answers and suggestions ready for our meeting. Roger Worth of Cuyuna Development Company will be there to present the snowmobile standards.

Sincerely,
PUMA (Professional Ultralight Manufacturers Association)
Lyle Byrum,
President

(Publisher's note: Whole Air applauds the efforts of P.U.M.A. leaders like Mr. Byrum, and offers its support to achieve the goals.)

ONLY ONE ASSOCIATION IS ORGANIZED TO KEEP THE FEDERAL GOVERNMENT OFF YOUR BACK . . .

NULA

The safety record is **not** bad. We have **not** blundered into many places where we do not belong. And, at this time, there no **real** reason for the government to involve itself with our free sport.

Most other associations are romancing the "Fed," so that they will be the door through which all pilots must pass. Propwash! We think it is not necessary, and we will work with officials to sway them **against** regulations. Then, we will work with our members to reduce errors which invite the government to intrude.

Plus, NULA will save you a pocketful of money. Who else **saves** you money? NULA can cut the cost of vital theft/damage insurance by **\$80 per year** or more. And that is merely the beginning.

Call or write today and see what NULA can do for you! Our full-time traveling representative will soon be visiting your area and your dealer. Join today!

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7. Full-time field representative
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WOULD YOU SPEND \$1 TO SAVE \$2 . . . ?

NATIONAL ULTRALIGHT ASSOCIATION
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COMING NEXT
ISSUE

In the July-August
WHOLE AIR

1981 Nationals,
An advance report from
Gary Woods, on-site.

Float Evaluation
Ultralight float equipment
review. "If you've got it,
float it."

Interview
with E. A. A. President,
Paul Poberezny.
Anticipating Oshkosh '81

Towing
Towing Editor, Ed Quirk
reviews tow bar systems.

Tech-Panel Returns.

"Manbirds,"
a new book in review.

and much more.

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July-August
WHOLE AIR

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FORUM



STERLING'S STOLL WINS UP'S 1980
OUTSTANDING FLIGHT AWARD!

To inaugurate UP's 1981 XC competition contingency award program, Pete Brock, president of UP, Inc., surprised top Southern California XC pilot Sterling Stoll with a check for \$500 and a bright red "50-mile" shirt. The prize was awarded for last year's most outstanding XC flight. Stoll had launched from the "E" in Elsinore and flown to Indio, California. The 65-mile flight was mostly over flat ground, the last half of the flight was technically the most difficult, as Sterling had to gain enough altitude to go over 10,000-foot Mount San Jacinto above Palm Springs!

"Sterling had no idea the money was coming because no formal award program had been established in 1980," said Brock, "but after reviewing all the great flights pilots made on UP Comets last year, we decided it was time to establish our own awards program and validate all of the pilots who have been doing a great job. We know that there are literally hundreds of top XC pilots who never have the opportunity to travel to the big events and compete and believe these flyers should be recognized for their efforts in pushing the frontiers of XC flight. What better way than by establishing award programs run by the local clubs." This year any pilot flying more than 50 miles XC on a UP glider will be awarded a special "50-mile" team shirt, and will

be eligible for our Best Flight of the Year cash award.

This year Ultralight Products also announced that it was posting prize money for any club that wished to promote XC flying in their area. Pilots interested in year "Open" XC competition should have their club secretaries contact their local UP dealer, or Pete Brock directly at UP, for details of the awards program.

"Several active clubs have already contacted us regarding UP's XC program," stated Brock. "For example, this year's prize for the best cross-country flight in Southern California will be \$1,000." The 1981 Southern California Cross Country Competition is being organized and run by Rich Grigsby and Joe Greblo through their shop at the Southern California School of Hang Gliding. There are numerous awards coming up for top pilots on UP gliders. UP has again posted \$1,000 for the winner of the XC Classic in the Owens Valley and \$500 dollars for this year's winner at Cypress Gardens. Two hundred and fifty dollars will be awarded to each winner on a UP glider at any USHGA Regionals. The USHGA Nationals winner on a UP glider will win \$1,000! Ultralight Products has also posted contingency award money for "Open" year long XC events in New York, Chattanooga and Arkansas areas.

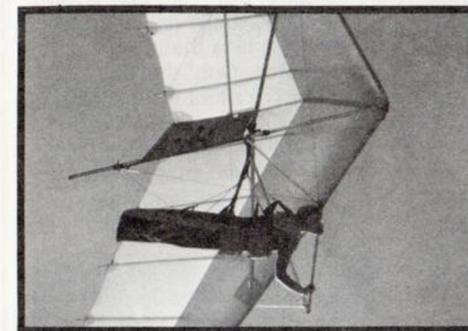
Wills Wing is...

DESIGN AND ENGINEERING



Glider design at Wills Wing incorporates both sophisticated engineering analysis and extensive "seat of the pants" development by some of the industry's top pilots. The result is a quality aircraft of sound structural and aerodynamic design with exceptionally pleasant and positive flight characteristics.

TESTING AND CERTIFICATION



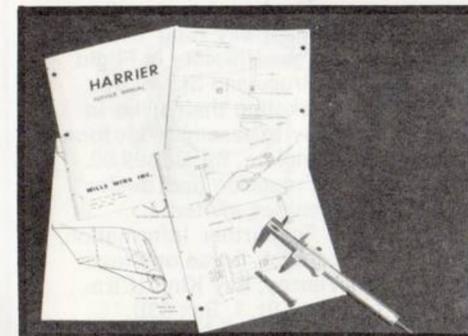
All prototypes, whether destined for production or not, are tested in accordance with the HGMA airworthiness standards. Over the years, this has provided a large base of empirical engineering and aerodynamic data for use in development of new glider designs. Following such testing, extensive further evaluation is conducted throughout a wide range of normal and abnormal flight modes and conditions. Adjustments and refinements are made in this stage before the first production unit is manufactured.

PRODUCTION AND QUALITY CONTROL



Glider production involves the care and attention to detail of trained professional craftsmen working with precision tools and jigs. As a final check, each glider is subjected to a comprehensive flight test. Low speed lateral response, turn coordination, pitch response and stability, speed and turn trim, and production quality are carefully checked before the glider is authorized for shipment. This process is then repeated by the dealer prior to delivery of the glider to you, the customer.

SERVICE AND FACTORY SUPPORT



Wills Wing has pioneered the concept of a full service network of factory supported professional dealers. Each Wills Wing dealer is supplied with a factory service notebook, and receives monthly dealer bulletins which include service updates. Dealers may also attend annual factory service seminars and participate in factory sponsored "Demo Days" and tuning seminars. Our goal is to service your needs as quickly, completely, and professionally as possible.

WILLS WING, INC.
QUALITY • SERVICE • INTEGRITY

Dealer Inquiries Invited

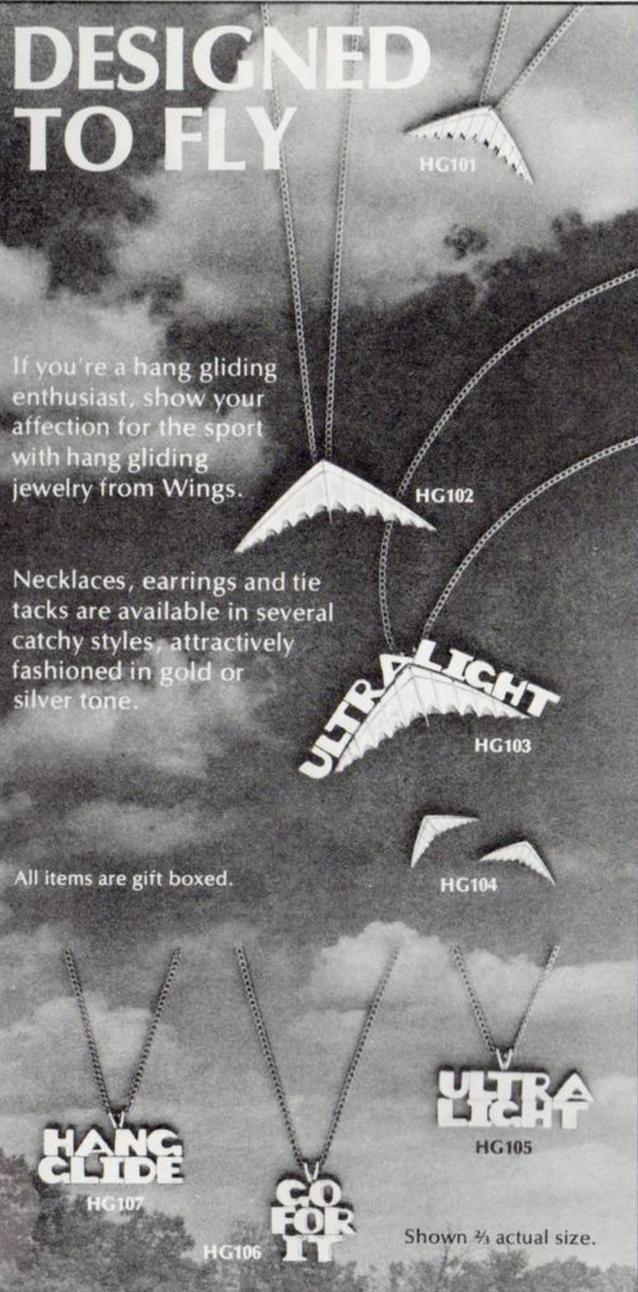
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Necklaces, earrings and tie tacks are available in several catchy styles, attractively fashioned in gold or silver tone.

All items are gift boxed.



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Enter quantity and finish desired for each item.
Available in Gold (G) or Silver (S) tone.

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____ HG103 Lg. HG Ultralight	16.00	____ HG107 HANG GLIDE saying	12.95
____ HG104 Sm. HG Earrings	10.00	____ HG108 Tie Tack Sm. HG (not shown)	7.95

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Address _____
City _____ State _____ Zip _____

Send with check or money order, postage paid to:



99 Massasoit Avenue
East Providence, RI 02914

Dealer Inquiries Invited

FORUM

SKY KING TRIKE

Sky King Ultralites, a joint venture of Bruce and Steve Yancey of Neola and Tridell, Utah, respectively, announces the production of the Sky King Trike.

Bruce Yancey says that the Sky King Trike he has designed, built and flown for Channels 2, 4, and 5 and several newspapers, is a low cost way of getting high today.

The Yancey brothers ask the following questions — Would you like to:

- Fly for a dollar an hour?
- Take your hang glider wing out and fly 400 miles?
- Cruise "hands off" at 35 to 45 miles per hour?
- Land and take off in the roughest terrain with complete confidence?
- Fly to altitudes of 18,000 and 21,000 feet?
- Climb out at 45 to 60 degrees?
- Perform "360's" within a 36 foot diameter?
- Feel the caress of a snow white billowing cloud on your cheek?
- Listen to the sound of the wind through the feathers of a thermalling bird?

If these questions tickle your flying fancy, then the Sky King Trike would be the answer for you.

Bruce Yancey analyzed the deficiencies in many ultralights on the market and built the Sky King Trike to eliminate the majority of the problems.

Every joint, fitting and tube is constructed for super strength. Bruce and Steve feel that their trike is the strongest trike in ultralight aviation.

Power for the Sky King Trike is supplied by a 45

h.p., coaxial, fan cooled snow mobil engine. The engine was chosen for dependability and power. It is capable of powering a 220 lb. man with sleeping bag, fishing pole, gun, etc., and ten gallons of gas, off a rough clearing at high elevations.

Through a simple "C.G." bracket the trike can be installed on any rag or fixed wing in less than two minutes. Only the Sky King Trike has the exclusive "YBRO" suspension with eleven inches of travel. The "YBRO" suspension provides soft landings in rough, rutted out, rock strewn fields.

Bruce has landed his trike in high grass and sagebrush, drainage ditches, and rocky fields, for TV cameras and newspaper reporters with nation-wide coverage.

The swivel mount, "C.G." bracket allows the wing to be turned 45 degrees in any direction, permitting safe take offs and landings with cross winds of 45 degrees and greater. The tremendous maneuverability in the air, and sky-rocket-like takeoffs. The trike performs 600 to 800 f.p.m. climb out from 5,500 feet above sea level.

The Yancey's use the slogan: Sky King Ultralite for the Ultimate in Flight.

Bruce and Steve are marketing their trike in easy to assemble kit form, complete, for \$2,199.00.

Franchise and dealer inquiries invited.

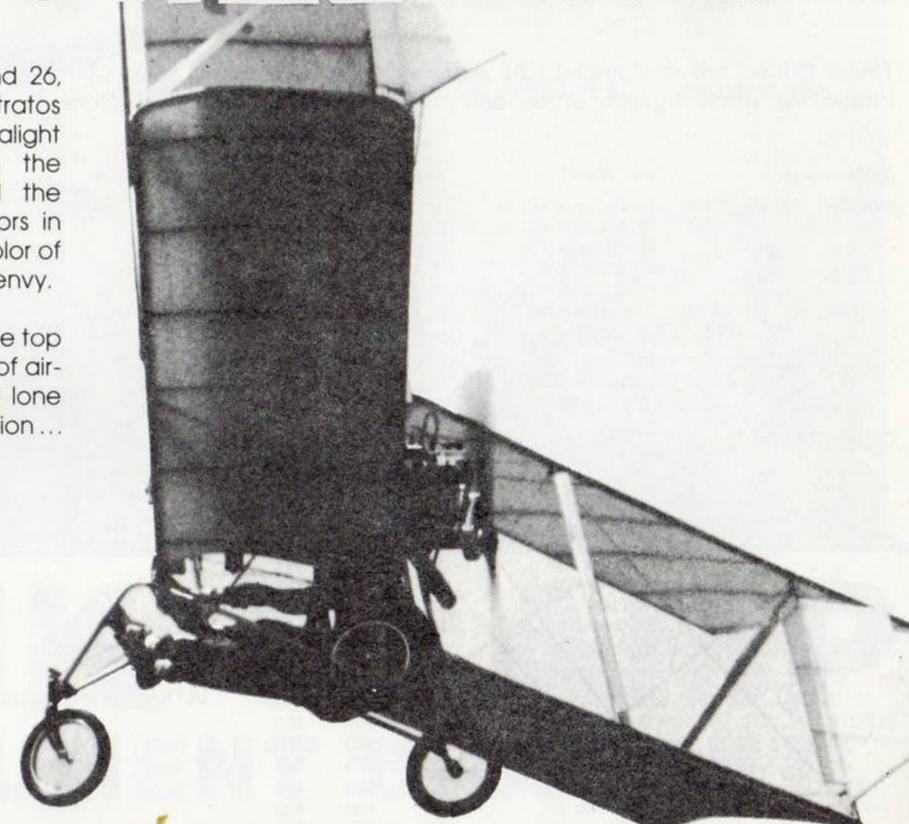
For further information, contact: Bruce or Steve Yancey, Sky King Ultralites, Rt. 1, Box 53B, Roosevelt, Utah 84066.

Or phone: 1-801-247-2563.

GET MOTORVATED... WITH A CGS POWERHAWK!

The dates were October 25 and 26, 1980. The event was the Blue Stratos World Invitation Powered Ultralight Championships. They claimed the largest paid attendance and the largest purse paid to competitors in any ultralight competition. The color of the day was green. Green with envy.

Competitors included some of the top names in hang gliding, a variety of aircraft and powerplants and one lone Easy Riser with a little ... motorvation ... a CGS POWERHAWK!



Everyone started out on an equal basis, but it rapidly became apparent that the Riser had a distinct advantage. Owner and pilot, Terry Presley had wisely chosen the CGS POWERHAWK 150 as the driving force to put him in front and keep him there. Whether it was fuel economy, speed or rate of climb, the CGS POWERHAWK powered Riser was the obvious leader.

That's not the beginning. This has been going on for quite a while. Ask Gary Ingram, Tullahoma Grand Champion, or Terry Fuller with Best Ultralight at Marion, Ohio. They know all about the high static and dynamic thrust that will get that Riser or Mitchell Wing or Fledge into the air fast. For more information, send \$5.00 to CGS AVIATION.

Get Motorvated! Get the CGS POWERHAWK and be Number One!



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BLUEBOOK

EDITION NO. 19

These prices are designed to be guidelines for evaluating your glider or one you wish to buy. We do not intend for these figures to be considered the final authority. Consult your local qualified dealer.

Manufacturer	Year	Model	Size	Clean Price	Avg. Price	Manufacturer	Year	Model	Size	Clean Price	Avg. Price
BENNETT DELTA WING	77	Phoenix 6C	Jr.	550	450	SEAGULL AIRCRAFT	77	Seahawk	170	550	450
	77	Phoenix 6C	Sr.	425	400		77	Seahawk	190	550	450
	77	Phoenix 6C	Reg.	500	425		77	10.5 Meter	—	625	525
	77	Phoenix 8	Reg.	650	375		78	Seahawk	170	675	525
	78	Phoenix 8 Super	Reg.	675	450		78	Seahawk	190	675	525
	78	Phoenix 12	Reg.	650	525		78	10 Meter	—	825	750
	79	Phoenix 6D	185	800	650		78	10.5 Meter	—	825	750
	79	Lazor	190	900	775		79	Seahawk	180	950	625
	80	Phoenix 6D	215	1075	775		79	10 Meter	—	975	700
	80	Lazor II	175	1075	875		79	11 Meter	—	975	700
CGS AIRCRAFT	77	Falcon V	185	650	500	SKY SPORTS	77	Bobcat III	Lg	675	600
	77	Falcon V	220	600	475		77	Merlin	160	600	500
	78	Falcon 5½	Med.	750	625		77	Sirocco I	156	600	475
	79	Falcon 8	Med	900	800		77	Sirocco I	175	575	400
EIPPER FORMANCE	77	Flexi II	185	525	475	78	Osprey	175	700	525	
	77	Flexi III	185	575	500	78	Sirocco II	164	257	600	
	77	Cumulus 10	Med.	550	525	79	Eaglet	191	550	425	
	78	Flexi III	Lg.	700	600	79	Osprey 2	175	625	550	
	78	Cumulus 10	Med.	675	500	79	Sirocco III	189	950	725	
	78	Antares	Med.	875	600	ULTRALITE PRODUCTS	77	Firefly	174	650	500
	79	Antares	Med.	875	600		77	Dragonfly Mk. II	196	700	550
79	Antares	Lg.	925	675	78		Firefly	154	800	700	
77	Cirrus	3	600	400	78		Spyder	176	850	675	
ELECTRA FLYER	77	Cirrus	2	500	300	78	Condor	178	900	775	
	77	Olympus	160	575	525	79	Mosquito	166	1200	850	
	78	Cirrus 5	C	600	475	80	Firefly 2B	181	975	700	
	78	Cirrus 5	A	600	500	WILLS WINGS	77	SST	100C	625	575
	78	Olympus	160	625	555		77	SST	100B	625	550
	78	Olympus	180	625	550		77	Universal	100A	525	500
	79	Dove	A	800	575		77	X-C	185	600	550
	79	Trainer	—	400	400	78	SST	100C	700	650	
	79	Cirrus 5	A	650	625	78	Alpha	185	825	775	
	79	Olympus	160	725	650	78	Alpha	215	825	775	
79	Floater	205	900	675	78	X-C	215	800	775		
FLIGHT DESIGNS	79	Lancer	190	900	675	79	Alpha	185	950	750	
	80	Lancer	175	1000	900	79	Alpha	215	1000	850	
MANTA PRODUCTS	79	Fledge	IIB	1200	1000	79	Omega	220	1000	875	
MOYES DELTA WING	77	Maxi I	200	700	625	79	Omni	187	975	825	
	78	Maxi II	200	925	775	79	Raven	209	1075	875	
	79	Maxi III	200	975	850	80	Raven	209	1225	975	
	80	Stingray	200	1000	775	80	Raven	229	1200	975	
	80	Maxi IV	200	1075	825	AMERICAN AEROLIGHT	80	Twin Eagle	—	3400	3100
80	Mega II	172	1400	975	EIPPER MICROLIGHT		80	Quicksilver	CM	3450	3125

NOTE: DEALERS! Write to us to participate in the Used Glider Bluebook. We would like to get your input on prices, to better represent all parts of the U.S.

NOW ALSO . . . Used ultralights will make their entry to the Whole Air Bluebook. Dealers . . . send your ultralight sales, too!

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STATISTICS

We had excellent response to our first "Statistics" installment in a few issues. Over 200 of you had returned your cards by our deadline time, representing a bit less than 5% of our paid circulation. And of those, 117 filled out the survey correctly and completely, so as to be included. This is a reasonable sampling of the community, just over 2 1/2%.

One of the things you told us was that 3.05 persons read each copy of *Whole Air*, so that we are seen by some 13,000-plus readers. We estimate this group to be just slightly more populated by experienced hang glider—ultralight—tow pilots than by relative novices. We also found out some other interesting facts.

When asked if a new glider would be purchased in 1981, 51% of you said, "Yes." We believe this is a slight drop in the number of all pilots considering a purchase soon. But it would still indicate very strong sales prospects. If you reflect on the recent decline in the number of glider manufacturers, this would seem to forecast a bright outlook for those remaining companies.

If you said you were planning a purchase, we asked you to name one brand only which you had in mind. You reported the following:

Wills Wing	38%
Ultralight Products	27%
Moyes	13%
Flight Designs	7%
Manta	4%
Seedwings	4%
Stratus	4%
Spectra (Aolus mfr.)	4%

IMPORTANT NOTE: As we have cautioned in the past, do *not* regard the above numbers as facts; these are *prospective buyer statements ONLY!*

HANG GLIDING STATISTICS by Dan Johnson

Twenty-seven percent of our readers now fly or have flown an ultralight. We thought that was about right, but we were surprised indeed that 51% of you now own or foresee the purchase of an ultralight, exactly as many as plan to buy a new glider. In several cases, these potential owners are the same individual.

For those planning to buy an ultralight, we asked which brand. The leader was a multiple brand situation, as "Trike" was the most stated, though some specified a brand name preference, e.g. Bennett Delta Wing, Soar-master, Manta. Of course, this vote may have been influenced by trikes being on our cover, being our lead story and by the "new" quality of this type of hardware. Results are as follows:

Trikes (all brands)	28%
Eipper Formance	17%
Pterodactyl	15%
Mitchell Wing	8%
American Aerolights	8%
Wizard	4%

A few responses also named Goldwing, CGS Aircraft, Gemini, Kasperwing Weedhopper, Teratorn and Manta. Further explanation for the high trike count is that many of our readers currently own "trike-a-ble" wings.

Again, we were taken aback by the large percentage of you who now tow or plan to begin towing. Forty-five percent will use this as a launch method,

good preparation for our predicted "future shock" (see editorial on page 6).

Which article was your favorite? Well, as could perhaps be expected, our cover story on trikes swept the field, attracting an amazing 41% of you. Here are the tabulations:

"Trikes"	41%
"European Showdown"	12%
"Pocket Thermals"	11%
"Product Lines"	11%
"National Champions"	8%
"Sites"	5%
"Forum"	4%
"Motorized"	3%
"Statistics"	2%

(Incomplete listing. Only one article per reader was counted.)

One last comment regarded hang gliding's stagnation or "dying out." An overwhelming 93% of you said emphatically, "No, it is not!"

We thank you for your input. It is very useful to know what you would like to read and buy and do. Keep it up! We will report any variations in the above breakdowns should the balance of the cards we receive bring any changes.

Now, for our next Statistics column, we will use results from George Worthington's article (see pages 39 and 40). Those 51% of you planning to buy ultralights can use this means to affect manufacturers. Do them, us, and most of all, yourselves a big favor and fill out your card, mailing them back as soon as possible. We pay the postage. We will again count and calculate the responses and report them here next issue.

Odyssey introduces the VAMPYR . . . the new leader in flex-wing performance and refinement is now being produced in America.

Developed in Europe and debuted at the 1980 American Cup, the VAMPYR impressed all with its spectacular performance and beautiful aesthetics.

The VAMPYR is a modern, double surface, hidden cross/bar flex/wing, with aero dynamic refinements and features not found on other gliders.

FEATURES INCLUDE:

- ENCLOSED SHIFTING CROSSBAR WITH BACK-UP CABLES
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- KEVLAR-MYLAR LAMINAR FLOW LEADING EDGE COVER.
- FULLY ENCLOSED NOSE PLATE
- FOAM LEADING EDGE CUFF FOR WIDER SPEED RANGE.
- INTRODUCTORY PRICE: \$1900.00

Write or Call Odyssey for More Details.

ODYSSEY Box 299 Amherst, MA 01002



—Henderson Photography

UP COMET 185

A kick to the right and the big 185 COMET goes to work for Eastern top-ranked competition and X-C pilot, Matt Wagner. The 185 COMET delivered a big win to Matt in the first Southeastern League (a series in which Matt was overall champion last year). The 185 COMET also brought Matt a cool 55 mile "flat land voyage" in late April.



BIG WINNERS
 Matt and his 185 COMET are an unbeatable team. They offer this advice: "If you want to win big in competition, you simply must fly a 185 COMET. The track record eclipses that of any other competition level glider. Whether you fly in South Africa or in the Southeastern USA, the 185 COMET is the best ship the U.P. team as ever built."
 "In Tennessee's 1981 Southeastern League, seven of ten top finishers were flying COMETS. In the 1981 competition season, COMETS seem destined to the same sweeping victories that the model achieved throughout 1980. That's why pilots everywhere are choosing COMET as their opportunity to win big in 1981."
 Matt continues, "My new 185 COMET will out-thermal the 165 I flew till recently. I feel it has a better L/D at the same wing loading, and I find better minimum sink and greater speed range than I've ever had. It can make you a big winner in 1981. If you hook in at over 200 pounds, you have a single choice to win big . . . the 185 COMET."

SPECIFICATIONS 185 UP Comet

area	20' 4 3/4"	185
leading edge	8' 7"	120
keel	78 lbs.	0
nose angle	9 / side	34.8'
billow	6.6	
weight	150-250 lbs.	10:1+
battens	180 fpm	
wing span	15-50 mph	
aspect ratio	15 mph	21 mph
pilot weight range*		
glide ratio		
minimum sink		
speed range		
stall speed (indicated)**		
max L/D speed (indicated)		

*INCLUDES ALL FLYING GEAR: HARNESS, HELMET, VARIO, PARACHUTE, ETC.
 **ACTUAL STALL SPEED APPROXIMATELY 6 MPH FASTER.
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PARACHUTE SEMINAR

by Chuck Toth

Angle of attack, good; wind, OK; sail, filled; hooked in, let's go, run like crazy . . . ah, good clean launch.

Crack! What the . . . ? How . . . ? Oh, my God . . . failure? Sail flapping, not flying any more. Got to go for my chute. Chute? Never used it. Do I have enough altitude? Do I have time? How do I deploy it? Fumble . . . search . . . look . . . dig . . . tear . . . peel, got it now. Throw! Ugghh . . . it's dropping, spinning, not filling.

Pop! Chute filled and I'm slowing down. Wow, it worked! Pretty quick, too. Gee, Crystal's new simulator is the perfect tool for learning **how to deploy** and use you chute quickly and safely.

You know how many times we all practiced launching, coordinating turns, setting up good approaches, landings, practice, practice. Then, do it again and again. Till we finally do it right every time we fly. But, how often do any of us Diver Drivers practice parachute deployment? Oh yes, we have all read about Chris Price doing chute deployments, Trip Mellinger testing them, and so on.

There has been a couple of articles about some unlucky pilots **having** to use their chute after having a mid-air or some other awful thing happened to them, and they survived. The chute worked like it should, but . . . but . . . does it always work? What about the times when they did not work? Why not? Or why did they not deploy? Or

did they, only to experience a malfunction?

Well, **now we can** practice deploying, over and over again, until it, too, is a reflex action. We can practice until deploying our chute comes as easily as telling our friends about coring that big one, and getting on top (ugh, not again).

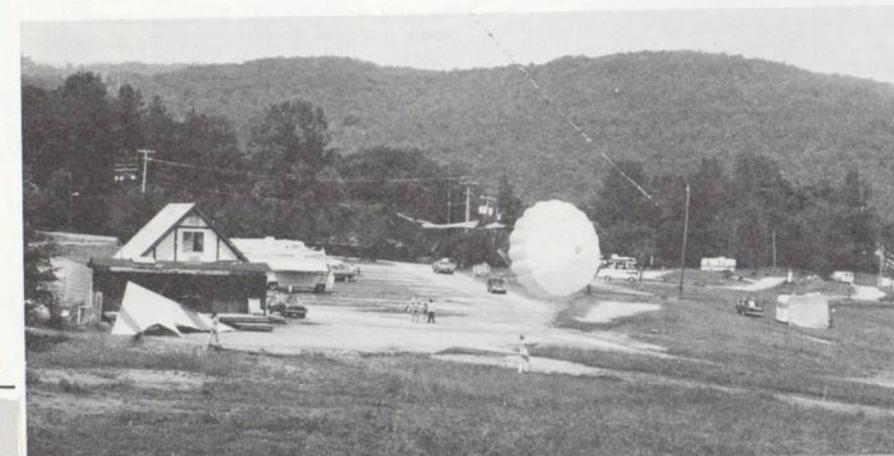
Really, you will want to check this out. At Crystal Flight Resort, in Chattanooga, on July 11 and 12, 1981, there will be a parachute seminar. But don't turn away, for this will **not** be just another parachute seminar, just a lot of talking and guessing, and dropping our chutes on the floor from three or four feet.

The Crystal Chattanooga Seminar will actually promote learning **how** to deploy **in the air**, while actually flying. You will be timed on how fast you deploy, and how fast the chute opened. And when you land you can see how you did on Crystal Motel's video system. Now this is going to be a **real** Parachute Seminar.

You can develop repacking skills, directed by Master Rigger Leon Riche of High Adventure Sports. You can find out if your chute deploys successfully after **you** have repacked it. And you can repeat the experience. And after two or three deployments and repacks, we think you will feel a lot more comfortable about your back-up system.

Make sure you sign up as soon as possible, because space-really is limited. Just bring your own chute and gear, an open mind, along with a helping hand (for the other pilots, while you are in line), and twenty dollars. Reserve your chance to realize deployment on Crystal's Real Environment Simulator on July 11 and 12, 1981. Send full payment to:

Chuck Toth
 c/o Crystal Air Sport Motel
 4320 Cummings Highway
 Chattanooga, TN 37409
 Phone (615) 821-2546 or 825-1995
 daily, 9 to 4.



MOTORIZED

Chuck Slusarczyk
President, CGS Aviation, Inc.

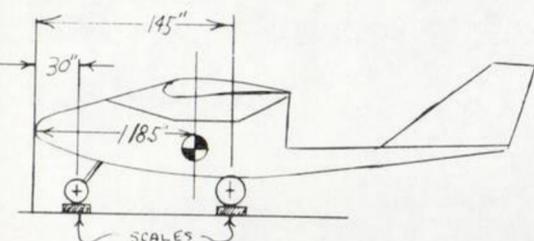
TABLE "B"
WEIGHTS

RIGHT WHEEL	145#
LEFT WHEEL	155#
NOSE WHEEL	90#

TABLE "C"
WEIGHT X ARM = MOMENT

	WEIGHT	X	ARM	=	MOMENT
RIGHT WHEEL	145#		145"		21,025." lbs
LEFT WHEEL	155#		145"		22,475." lbs
NOSE WHEEL	90#		30"		2,700." lbs
TOTALS →	390#				46,200." lbs

DWG. "A"



One of the least talked about things in ultralight circles is weight and balance. In the early days of hang gliding, pilots would just alter the location of the harness suspension point fore or aft until the glider flew right. Early powered hang gliders or ultralight pilots would do the same thing. Although the term weight and balance calculation might sound scary, it is actually easy to do and can contribute to the safe flying of any ultralight.

The ultralight manufacturer should provide a C. G. envelope for a specific design. This little exercise will allow you to determine whether your particular craft falls within that envelope. A center of gravity that is aft of the C. G. envelope could be dangerous. An aft C. G. can cause pitch controls to become sensitive, stalls to break sharper and a tendency to spin can be present.

In order to do a weight and balance, you will need three scales (bathroom type will do), tape measure, pad and pencil and recommended C. G. envelope from your ultralight (powered hang glider) manufacturer. We will work an example using typical ultralight weights. Since the pilot is such a high percentage of the total gross weight, most C. G. envelopes are given in a loaded condition; that is, with pilot on board. Check with the manufacturer of your particular craft, though.

We will want to weigh the ship in a level flight cruise attitude. Therefore, in the case of a tail dragger, it will be necessary to raise the tail by placing it on a chair or box. Place a scale under each wheel or, in the case of tail dragger, under the main wheels and tailskid or wheel. After mounting on scales, block wheels so it will not roll off. If your CG envelope is based on loaded conditions, make sure you sit in your pilot's seat in your normal position.

Make a little chart for yourself to keep your data in order. See Table B, Drawing A shows the ultralight on the scales. You could also sketch the measurements in a little drawing, as I have done.

We now have the loaded weights and will need to convert this data into a center of gravity. We are going to use some terms that many of you probably have heard, but are unsure of their meaning. Have no fear and press on.

Datum: Datum is a fixed line from which we can measure. It is usually a fixed vertical line through a convenient location, such as a prop flange, firewall, leading edge, etc. In our example it is the nose of our ultralight.

ARM: This is the distance from the Datum line to some part of the craft. It is usually expressed in inches. In our example it will be the distance from our Datum to the centerlines of the nose and main wheels. It could also be from the Datum to a battery, fuel tank, etc.

Moment: This is the product of multiplying the ARM times the weight. The answer, in our example, will be in inch-pounds.

See, that's not so difficult, and for the next steps, if you can add, multiply and divide, you'll be proficient in doing weight and balances. Now what we'll do is find the total moment of each component. In our case we only have three components.

Look at Table C and see how it's done. When we multiply the weights times the arms we get the moments. We now add all the weights to get a total weight and add all the moments to get a total moment. We will then divide the moment by the weight and our answer will be the center of gravity (C.G.) in inches from the Datum. Our total weight is 390 pounds and the total moment is 46,200 inch-pounds. When we

divide 46,200 by 390 pounds we get 118.5 inches. This is our center of gravity location in the longitudinal plane. If the manufacturer gave us a C.G. envelope of 116-120 inches, we would fall into the safe C.G. range. If we were out of the C.G. envelope we would have to move our pilot seat forward or backward until the C.G. was proper.

Knowing how to do this calculation will enable you to safely add fuel tanks, radio or battery and locate them safely on the craft without disturbing a safe C.G. condition. Usually the C.G. is located at about the quarter chord of the wing.

This exercise only determined the fore and aft C.G. location. The C.G. also has a vertical component to it. What this means is that, in our example, the C.G. is located on a vertical line 118.5 inches behind the Datum line and that somewhere up or down on that 118.5-inch line is the vertical location of the C.G. Usually you do not concern yourself too much with the vertical placement unless you are designing your own ship.

If you chose a Datum line closer in, for example the leading edge of the wing, then you will have to deal with positive (+) and negative (-) numbers. On our example if you were to use the leading edge of the wing for a Datum point, then the arms to the left would be minus and the arms to the right would be plus. The minus moments will be subtracted from the plus moment to find the total moment. Do not forget when multiplying a plus and a minus number the answer will be minus and when multiplying a minus times a minus the answer will be plus.

So now go out and measure, weigh and calculate your ultralight and "know thy C.G."

Fly Safe!

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These are exciting, full color, hand silkscreen printed designs; not rubbery iron-ons! All shirts are U.S. made, heavyweight, 50-50 blend fabric. Choose from blue, yellow, gray or tan.

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OWENS VALLEY

X-C COMPETITIONS

By Tom Kreyche

Photos by Bill Kelsey

After a late, mild winter in the Owens Valley, the spring soaring season boomed to a start on the week-end of April 11 and 12. Saturday, I topped out in the moderate thermals at 11,450 feet and managed a flight to our shop at the Bishop airport, while the sailplanes were able to climb to 18,000 feet in mild wave conditions. The next day, the dust devils were churning up the valley floor, and strong thermals boosted my Comet to 15,200 feet over the spectacular snow fields of the White Mountains. The moderately heavy snow cover didn't seem to dampen thermal activity significantly, but spacing was definitely farther apart than the usual conditions later in the spring. This made for a fairly easy flight White Mountain Peak from our Piute launch, and back to the airport for about 27 miles. This fantastically scenic flight over the frozen wastelands of the Whites was a perfect introduction to what promises to be another record-breaking year in the Owens Valley.

“Our new meet this year is the Cerro Gordo Cup.”

This year, Don Partridge, Mark Axen and I have teamed up in forming the Owens Valley Hang Gliding Center, which is coordinating all the soaring events in the Owens this year. Besides offering a soaring camp for intermediate pilots less familiar with mountain thermalling, we are providing transportation

OWENS VALLEY

for pilots visiting the Valley, and holding the cross-country meets. We also will be offering glider sales and repair. This year we are continuing the X-C Open, X-C Qualifier, and the X-C Classic. Our new meet this year is the Cerro Gordo Cup.

The X-C Qualifier is changed in format from last year's Qualifier. Instead of calling daily tasks, and accumulating a score, there is only one task: Fly back and forth between two turnpoints, about 40 miles apart, as many times as possible. The longest flights of the five-day event qualify the top pilots to fly in the '81 X-C Classic if they wish. This one-task meet enables pilots less familiar with the local conditions and terrain to gain experience, and provides veterans the opportunity to increase endurance and fly long distances along the course. Pilots can fly for fun or as seriously as they wish, without the pressure of daily competition scoring. Cameras are required. More on that later!



The X-C Open and X-C Classic are essentially the same as the previous years, but with some important changes. Both events are now nine days, and the last day of the meets is non-scoring for a fun fly-in, providing an opportunity for an awards ceremony party. Daily tasks are called, with more emphasis placed on out and return tasks to goals, while retaining the option for calling open distance tasks. The change in emphasis is for several reasons, and generally mirrors the development of sailplane contests. Open distance tasks are very time and energy consuming, pilots return very late, and large driving distances are required for retrieval. Goal tasks require more efficient flying. In last year's Classic, an out and open distance return task was won by a pilot who flew for a long period of time, while the No. 2 pilot flew considerably less time, but was beat in distance by a very short margin. This year, the requirement of reaching a goal will reward the pilot with the shortest time. The development of pilot skill and glider efficiency is demonstrated by the change in pilots' attitudes over the last three years. Originally, a task of 33 miles to Janies was considered very difficult, while last year it was generally considered too easy!

OWENS VALLEY

There are also several important changes in the scoring system. Basically, it is the same 3/4-point system as last year, but the penalty points are assessed differently. The number of penalty points assessed against pilots not making the daily goal is proportional to the number who do make it, with max points assessed after 33% finish. This tends to minimize the advantage that daily finishers in unusual weather conditions get when only a few pilots make the goal. The second important change is concerning the pilots who decide not to fly, for whatever reasons. Instead of being scored on the average of their number, they will all be scored the point after the last place finisher who did not fly. That pilot, although he did fly, did not beat anyone. This will reduce the pressure on pilots who fly in marginal weather conditions, since if only a couple of pilots fly, and conditions then deteriorate, those pilots who did fly will be rewarded, but with less of an advantage. With this system, every day that anyone flies counts towards the final score.

Many different systems for devaluing the scoring system were discussed, but we felt it essential for any system to be easily understood, and to produce a believable winner. Scoring systems shouldn't beat pilots, only other pilots, and perhaps the weather. Most of the credit for this system (and responsibility!) goes to Chris Price, who seems to be carrying on a one-man revolution for scoring hang gliding contest! Every morning, printouts of the pilots' previous day's finish, and new cumulative score will be posted. These will be unofficial, while official daily results will be posted that evening, in case of missing documentation, protests, etc. John Green of Tucson has worked out a program for scoring the contests using an Apple computer. The use of the computer will speed up the process considerably, and as a bonus, all the information required by Mike Meier for calculating the meets into his USHGA scoring system is immediately available.

Now for the sticky part! Cameras and turnpoint photos. Helmut Reichmann and George Moffat repeatedly tell sailplane pilots to develop these skills, and hang glider pilots are going to have to spend time practicing also. Although the complications are lamentable, there is no other practical alternative other than running straight line tasks. Sample photos and maps of

all turnpoints will be posted before the start of the meets, showing pilots exactly what is required. Since we are developing all photos nightly, 35mm or 126 cameras are the only ones which may be used, since the film width is the same. The quality of 110 photos is laughable, and they will not be accepted. Pilots must test their cameras prior to the contests or risk being severely penalized if their photos don't turn out. We have to be very strict: no photos or bad photos, and the score will be as if the turn point wasn't made. Pilots whose photos are disallowed, will be shown the negatives, and explained why.

This year, we are introducing a new contest, the CERRO GORDO CUP. The only task is to fly as far north as possible! Due to a conflict of interest with some pilots and glider manufacturers, the qualifying basis is changed from its original conception. It is now based on the longest footlaunched hang glider flights in the year immediately preceding the meet. The winners of the X-C OPEN and X-C CLASSIC will be included if they wish to attend. The

CUP trophy will be awarded to the pilot with the single longest flight during the seven days of the meet. This meet is designed to recognize the skill and endurance involved in strictly open distance flying, and most experienced pilots feel that 150 miles is a readily attainable goal.

Trophies will be awarded for the winner of the CUP, and the first 3 positions in the OPEN and CLASSIC. They again will be masterful stained glass windows designed by Jeff Steber.

After the CERRO GORDO CUP, we intend to be making transportation runs to our exclusive launch site on Cerro Gordo Peak, not the common launch site on Silver Spur, as long as record distance weather persists.

All the Owens Valley cross country events this season are expected to continue to expand the boundaries of foot-launched flight. We also hope that they will provide stimulus for furthering the development of our flying technology, and increase the level of pilot skill and experience, while continuing the Owens Valley's excellent safety record.

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ORIGINATORS OF XC CLASSIC AND OPEN

Photo by Bettina Gray

PILOT REPORT

STRATUS V B

By Dan Johnson



PREFACE

In earlier days of glider reports (circa 1978), criticism had been leveled at these efforts as they were too positive. It was explained that reporting undesirable qualities of any given design permitted a potential buyer to eliminate that design from the choices available. This argument is quite valid. For if all gliders are perfect and flawless, which one would make the best purchase?

Well in reality, the reports never claimed any one craft was indeed perfect or flawless. But, as we stayed primarily with major brands, established companies with experienced designers, it stood to reason that their gliders were genuinely good products. One could nit-pick any of them, like any product, and create negatives which in reality, were not so terrible. Still, a dilemma remained. If the aircrafts were well made, flew well with acceptable characteristics, carried fair prices with reasonable delivery, and adequate back-up service, what was the point in trodding heavily over their smaller drawbacks?

The point is simply this . . . ideally help trim the number of choices to one ship for any buyer, so your typical pilot could afford that craft which he found best suited his or her flying needs.

As we established our newer, more thorough Pilot Reports a year ago in the May/June '80 issue of WHOLE AIR, I dug deeper to discover the undesirable characteristics of even the best. It helped some, others still said, ". . . too favorable." How about another solution?

If I wrote about "specialty" gliders, it would be possible to report factors that helped some pilots to decide against that craft. While Comets, Harriers, Lancers, Lazors, or Megas might be hard to choose between, an ASG, Stratus or Highster might be simple to decline. "It's just not my style," one could almost hear some pilots reply.

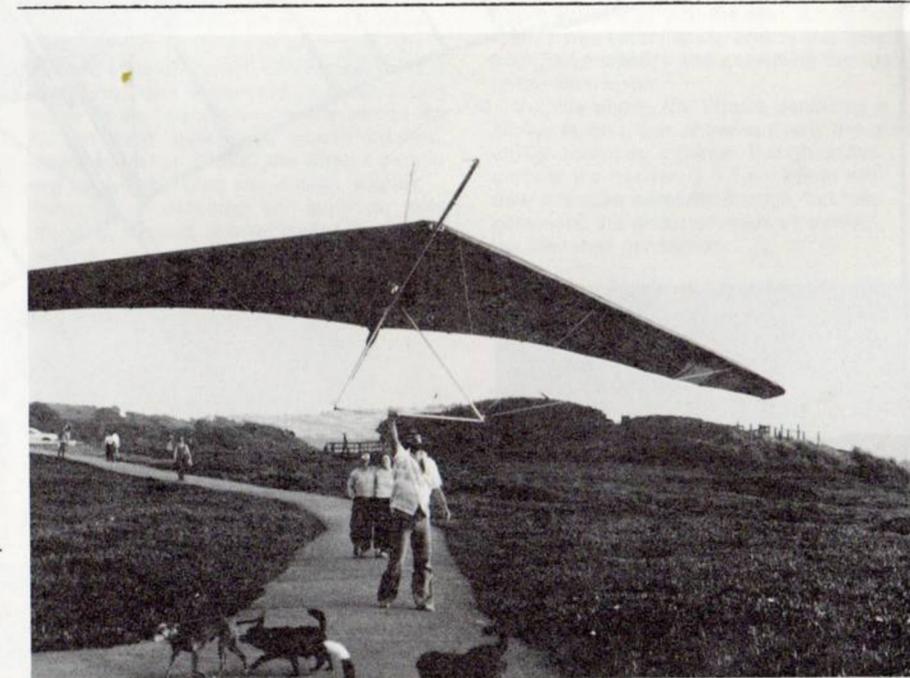
For our Pilot Report in this May/June WHOLE AIR, we chose the Stratus VB. Very popular in San Francisco, and with pockets of loyal supporters elsewhere, still the Stratus plainly was not for everyone, especially the bowsprit Stratus. I thought I would find much to criticize in the glider.

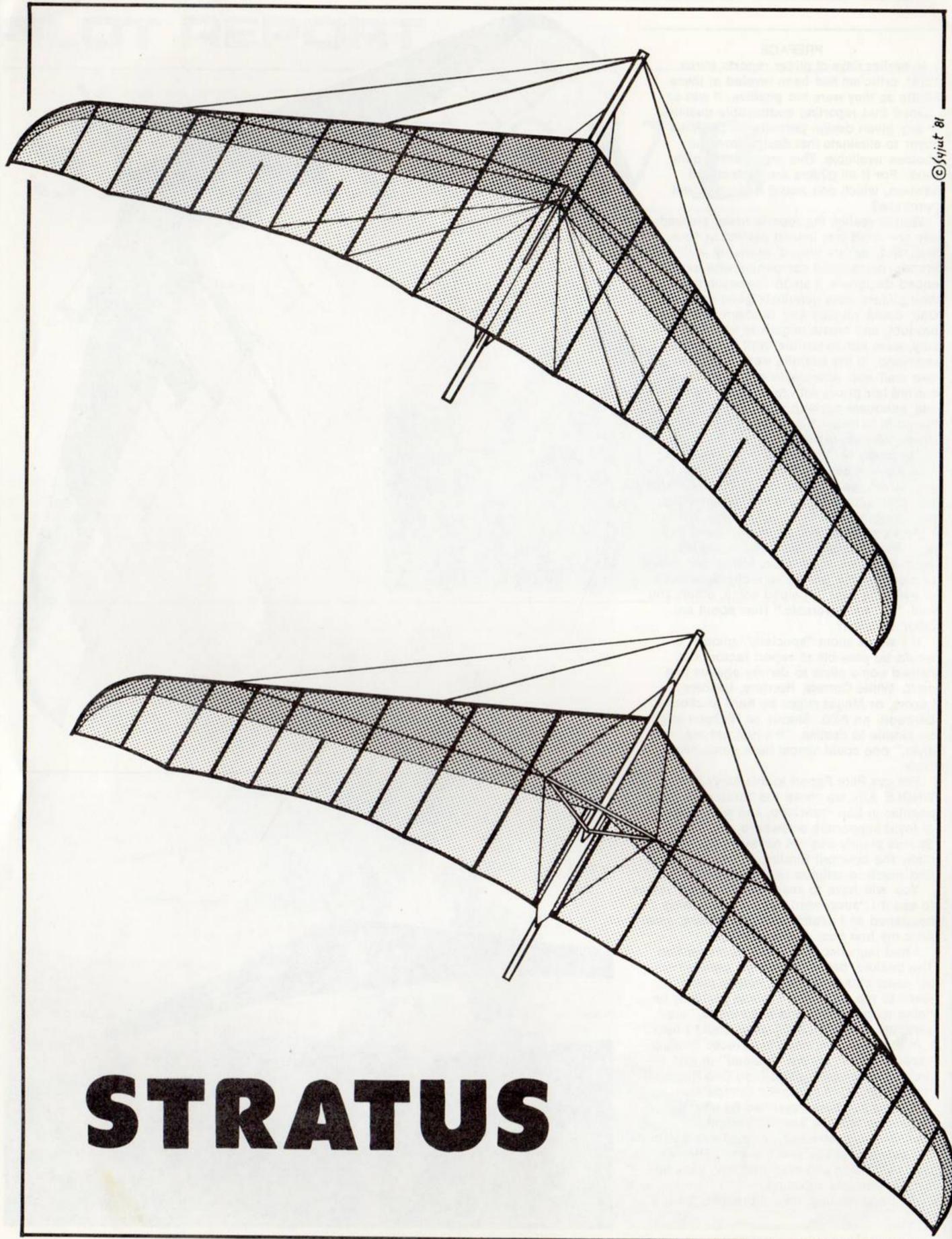
You will have to read the following report to see if I "succeeded," but a funny thing happened as I approached the landing area after my first hour and a half flight.

I had launched with some apprehension. The beaked, flat wing differed greatly from my usual choice of glider. Fellow pilots joked to me about how I would probably be doing loops, wangs and barrel rolls, inadvertently or deliberately. How could I help it in the awesome, double-surfaced Stratus, especially the very one "trained" in wild aerobatics by none other than Dan Racanelli for the 1980 Cup Aerobatic Competition.

After a half hour, mystified by what was needed to turn the Stratus, I began to thermal more effectively. I enjoyed the blazing speed possible from the ship. The sail was very clean and even that ugly beak began to look less imposing.

As I approached, then, I thought, "Huh, I





© Sybil 81

PILOT REPORT

never expected to like this thing. Yet here I am, about to land, and finishing a most enjoyable flight. Guess I just have a bit of old Will Rogers in me that says, 'I've never flown a glider I didn't like.' If it didn't scare me or hurt me, and if I got high and went far, what was to dislike?"

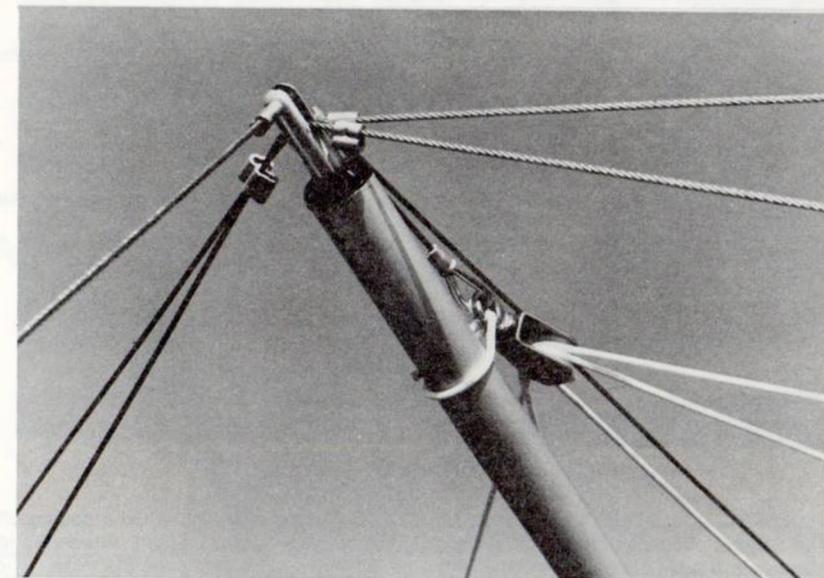
CONTROL

Control authority in the Stratus VB is quite good. A movement on the bar brings a proportional action from the glider, producing a very tight feel. Authority decreases sharply as incipient stall is reached, and by that lowest of flying speeds, lateral control is virtually gone. At stall, you have a full-fledged squirrel on your hands, a glider which will fall off on either wing as readily as go straight ahead. It can be turned at slow speeds, but you must maintain a sort of "balance." If you lose that balance you are out of control. This is something learned with experience, I am told, and something not learned in an hour and a half flight.

Not only is authority restored at higher, more normal flying speeds, but the Stratus is then also quite predictable. The tight feel which provides enough authority, also assures the pilot. Your control desires result in which you planned before input. Speed is the key, more is required than on many gliders.

Its speed range is a joy, amplified by the cleanliness of a Denny Pimental sail. Bar to your knees, with delightfully light bar pressure, you can streak across the sky way ahead of most gliders. It affords a nearly stunning sense of rapid motion. The Harrier and Stratus run noseplate to noseplate, at what is sometimes called "zoom speed." This is not a best glide speed, but can sure leave your eyes watering down your cheeks. I believe the Stratus will outrun the Comet, though not retaining so favorable an angle. At speed the bar pressure is much lighter than the Comet, and is similar to the Harrier.

Energy retention was a quality I did not assess very well, as I had no desire to fly the Stratus inverted on my first flight. In my opinion it does not hold energy quite as efficiently as Comets or Harriers. Since loops (or more accurately, flips?) have been done by experts like Racanelli, it's obvious energy retention is adequate for many aerobatic maneuvers.



It can never really be called control ease, however. While my flight was an exception to the rule as the ship was trimmed too slow, and even discounting the exertion needed for continuous pull-in, my final response was that more muscular energy is mandatory than in a Comet, Harrier or any number of "floaters." In my opinion, the glider is tiring to thermal for several hours. In its habitat of oceanside ridge flying, the Stratus can excel with its present control ease. In fact, precisely as it has a tightness of feel, I can see why Racanelli and cohorts love to wing-over and wang in the steady breezes of Westlake.

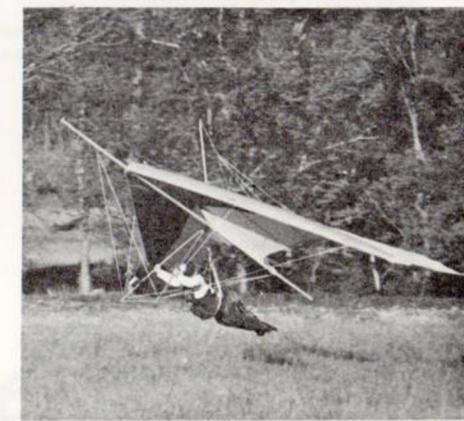
PERFORMANCE

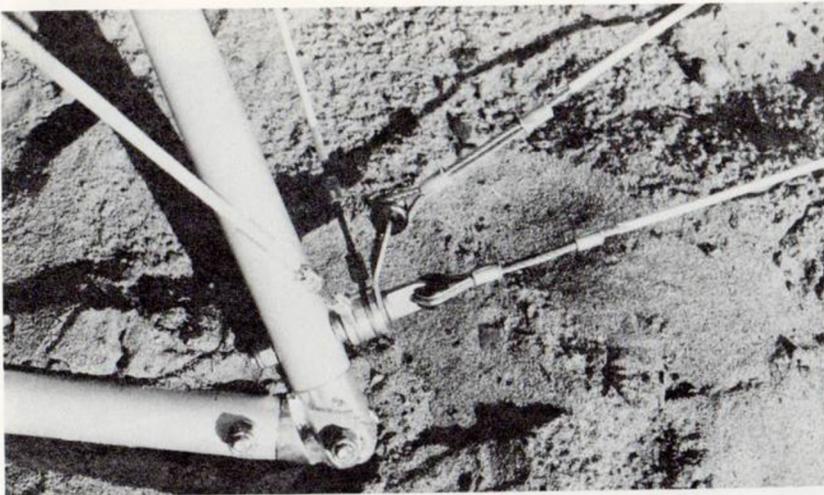
The double surface, no deflexor, crossbarless Stratus has 1981 performance very nearly as good as the 60 percent double-surfaced machines which are today considered state-of-the-art. The Stratus folks do, of course, have some even more advanced ideas on the board, one cleverly named the Bowen Aero (after one Bowen brother, Wayne). Matter of fact, the Stratus people are always changing any design, slightly tweaking, re-attaching sail surfaces, experimenting. It's part of what makes Stratus a legend.

Consider that the Stratus is pushing the gray old age of nearly six years, when you evaluate its performance. True, now double-surfaced and stripped of deflexors and crossbar, it has gone through changes, but essentially it remains the same platform as in 1976. At that time, Swallowtails and Drag-onflies were perhaps considered the standard. No wonder the Stratus maintains such a mystique. Imagine what pilots thought of it then!

The sink rate of the VB is very good, better than I expected. It is not as good as Comets or Harriers, but very close, and in ridge lift, the glider can excel. I found myself challenged by a lightly loaded Maxi, which easily climbed above while I wandered through light to moderate lift trying to figure out how to turn the ship. A half hour later, I was catching up, and by the time an hour had passed, I was examining the top of the Maxi's sail.

In glide angle, the Stratus generates a similar feeling, not showing nearly the glide at high speed as a Comet, though rather close to the Harrier. I did not get to evaluate this area carefully enough, but feel convinced the glider exceeds all models but the latest generation.





STALL

The Stratus continues to support my experiences in double-surfaced gliders, exhibiting a mellow stall. Matter of fact, I could not get the Stratus to break conclusively. Recall I felt the trim speed was too slow, or perhaps the bar was too far forward. Still, I got the bar to my fingertips, and held it there, while the Stratus just munched along. The same was true in a 45-degree bank (accelerated stall).

The glider does show, however, a nasty tendency to drop a wing, spiralling momentarily and rushing out 180 degrees from entry heading, if you stall one wing unevenly from the other. I took care to stall straight ahead and only felt this quality once, but it would be most disconcerting if it happened fifty feet over the ridge. In the turning stall, the Stratus merely increased the spiral dive, not threatening to plunge toward the outside wing.

LAUNCH AND LANDING

Stalls relate heavily to launches or landings, primarily as these are close-to-the-ground operations. And the Stratus stall is predictable enough to settle your attitude when leaving a steep cliff.

Another quality which makes the Stratus an easy launching design is a very slight nose heaviness. At first I thought it was amazingly nose heavy, but in retrospect I feel that sensation was incorrectly heightened by all the statically tail heavy craft I have flown lately. The Stratus is lighter than current deflexorless designs of today, and the combination of qualities makes launch a low-worry phase.

Landing, I thought, would be another matter. But, surprisingly, it went very well, and indeed, perhaps because I was mentally up, I had the best landing of three bowsprit gliders flying that day (another being a second Stratus).

Two factors are paramount in order to feel similarly about landings. First and foremost is to keep it flying on final . . . remember that tip stall. Secondly, plan a full stall touchdown. I do not think you can fly

the Stratus in to land while bleeding off speed till you have a light, three-step landing. You will surely bang the nose. The glider will not parachute with any feasibility.

GROUND HANDLING

The VB is relatively light (55 pounds) and has good enough static balance to ground handle better than most state-of-the-art ships. The rather short control bar also eases this mode of transport. Bringing the glider up to neutral for pick up is easier than other wide nose ships, especially the Harrier, as the bowsprit holds it part way up for you.

SET-UP—TAKE-DOWN

Forget the beak for a moment and the Stratus sets up and de-rigs as well as most contemporary designs. Of course 20 battens plus two tip "wands" will extend the time of assembly somewhat, but perhaps this is a price you pay for clean sails. Now, I would like to forget the beak altogether, or maybe have the factory send a long-armed man to assist with that part of assembly. I hate the system by which the wings are extended into position. The process calls for slipping a large diameter tube over a slightly smaller machined flange, while retaining steady pressure and pulling the beak down cautiously. An oversleeve eventually slides back and makes the connection solid. But I was sure I would clunk

myself on the head or lose a finger in the snug connection. Stratus lovers seem to overlook, or deal with this, but I would strongly prefer hinge plates as I have seen on some bowsprit Stratii.

FRAME AND SAIL FINISH

The hardware is brute, thought not so smoothly finished. The frame seems very strong, if not shiny. The lexan batten halves seemed flimsy, but appear to do what is required, though I did find the ends will crack. In general, overall polish is just not comparable with any of the major manufacturers. But ask any Stratus pilot if they care.

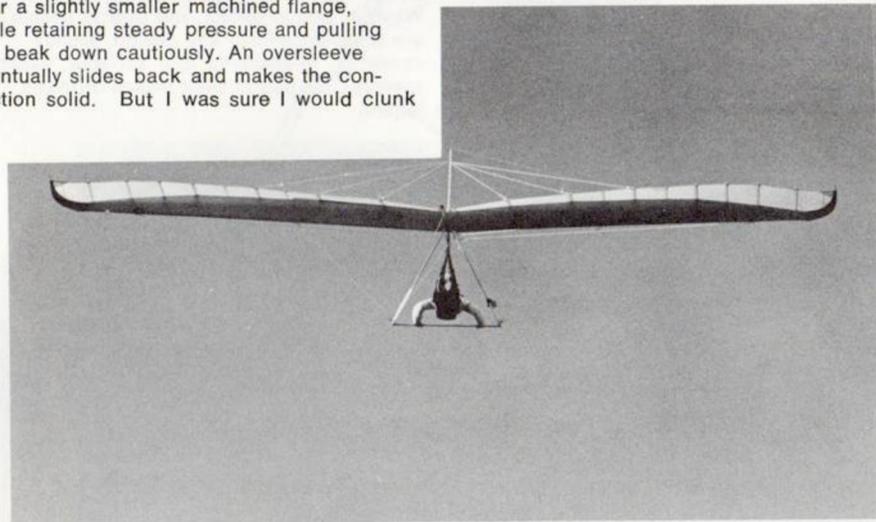
The sail, now, is a different case. While the one I evaluated went through several reworkings, the production models exhibit some of the best sail craftsmanship available. Sailmaker Dennis Pimental (Aerial Designs) is a true artist with dacron and has done some beautiful inlaid graphics as well. As I said before, the Stratus sails stay flutter free as well as any design made.

PURCHASE FACTORS

The Stratus retails for \$1,695. Considering that they have developed this wing for more than five years, and that it eloquently achieves its design goals, you cannot go wrong at that price. You might select this glider and never buy another. Stratus loyalty is intense. While the factory will endlessly change minutiae, you can be fairly confident that they will stick with what is undoubtedly the oldest platform still flying.

POSTSCRIPT

The Stratus featured on our cover this issue is a homebuilt variety, constructed by Chattanooga Dennis Van Dam. The especially striking sail shows many colors, all immaculately inlaid by Van Dam. The graphics are even repeated in the double surface so that each individual color lines up with its counterpart in the main body of the sail. Van Dam operates a sail loft under the name of Aerial Dynamics (see his ad next issue). Thanks to Dennis for considerable assistance in developing this report.



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

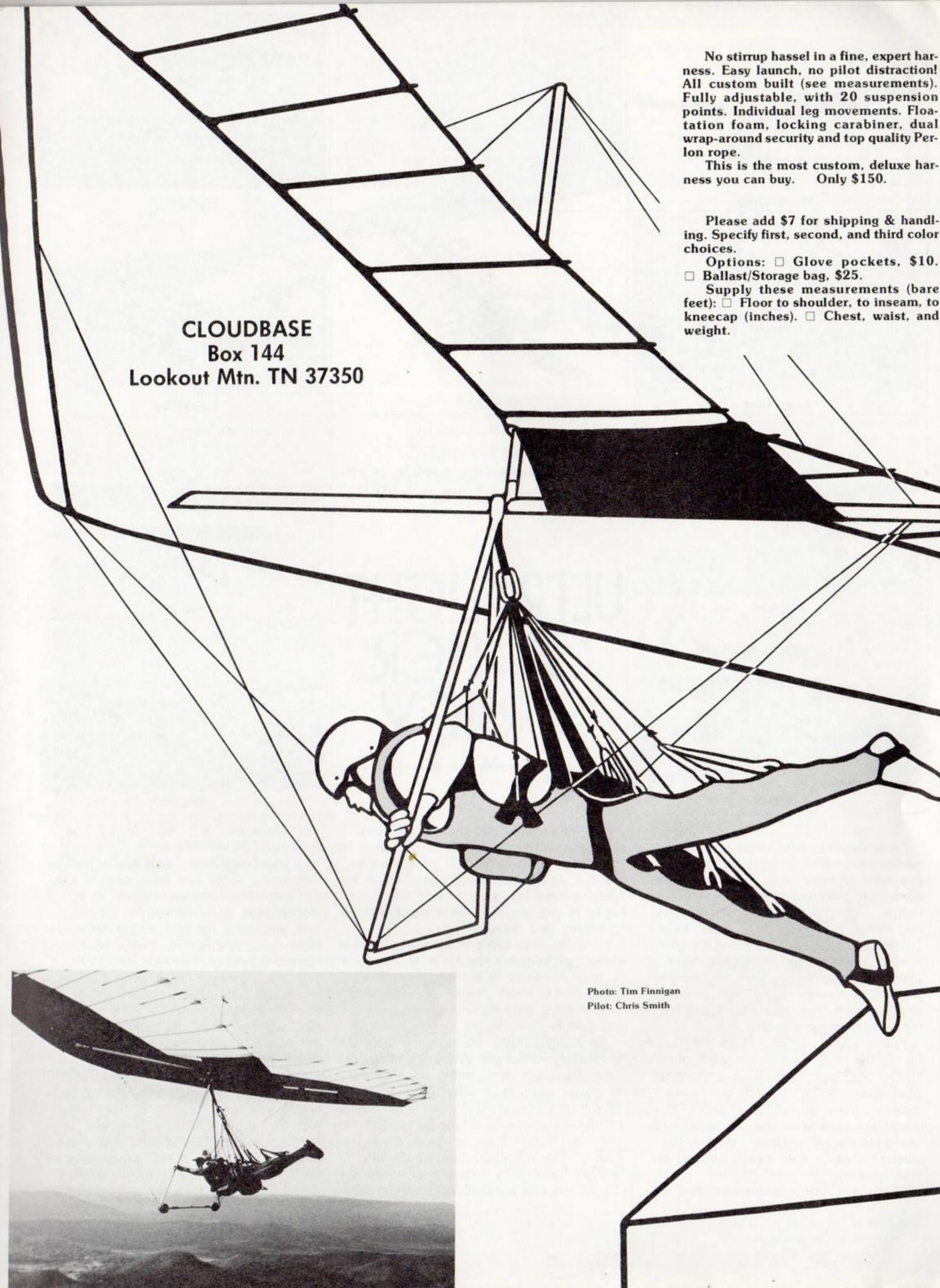
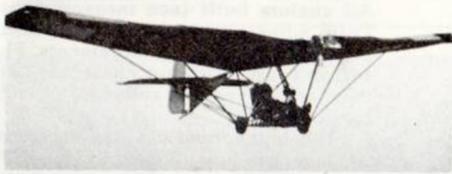


Photo: Tim Finnigan
Pilot: Chris Smith



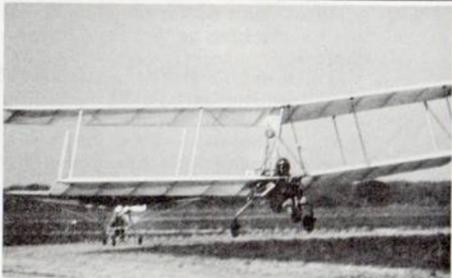
Weedhopper



Mitchell Wing



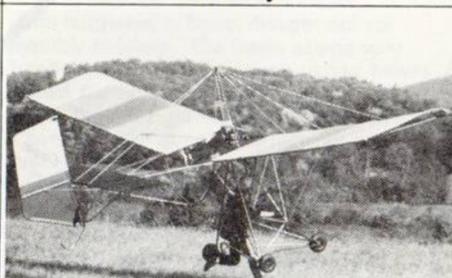
Pterodactyl



Easy Riser



Lazair



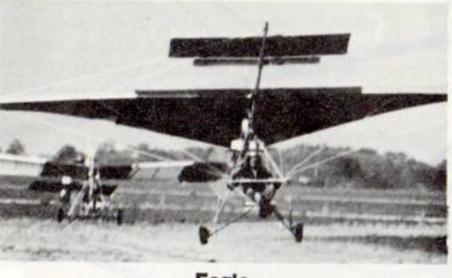
Quicksilver



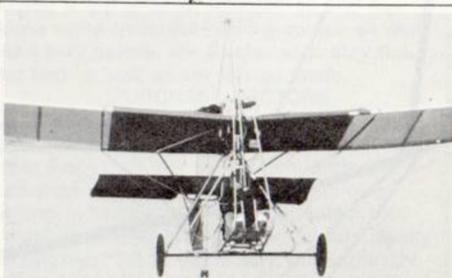
Hummer

When the owners speak, manufacturers (and the world) listen . . .

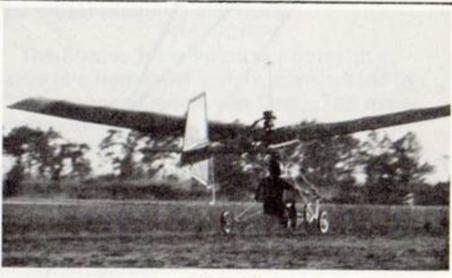
ULTRALIGHT OWNER SURVEY



Eagle



Rotec Rally



Wizard

"Ask the man who owns one" is sound advice to anyone looking for an honest appraisal of a product. And it's especially good advice in the field of ultralights. Anyone who goes to a fly-in and takes a careful look can't help but notice the huge variation in quality among the various ultralights being marketed. Some are truly superb examples of workmanship and design, while others look like they were hacked out of scrap with a dull axe.

Flying characteristics also vary widely. Differences can be in pitch sensitivity, ability to handle a crosswind, stall characteristics, altitude needed to recover from an engine failure (very important during a landing approach), performance at altitude (everyone doesn't live at sea level), control authority, etc.

There are other factors beyond the

flying qualities that should interest the prospective ultralight buyer/pilot. How easy is it to build? What quality are the parts and instructions? Does the factory back up its product? How reliable is the engine? How convenient is transport and set-up?

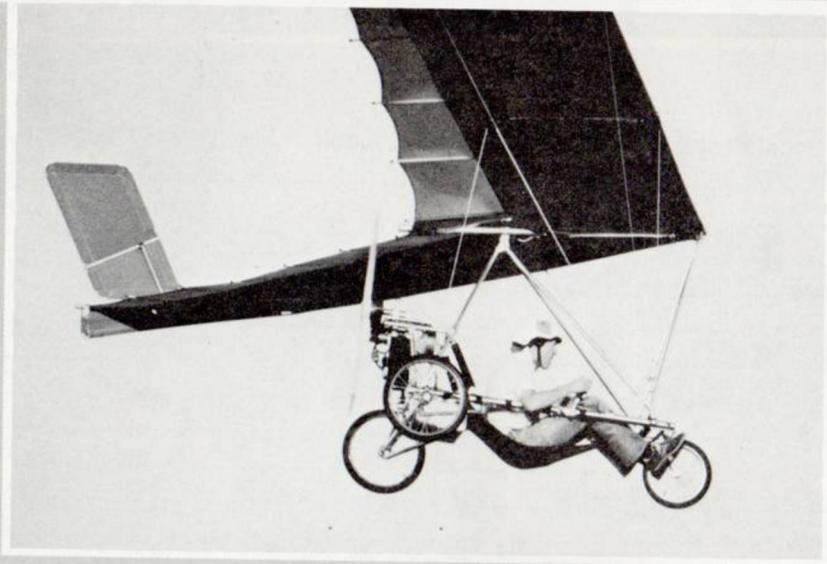
A flight test can't completely answer these questions because a test pilot is only exposed to a brand new machine for a short period of time, and a test pilot only reports on one viewpoint—his own.

So *Hang Gliding Magazine*, *Whole Air Magazine*, *Ultralight (EAA)*, and *Ultralight Flyer* are cooperating on a series of owner surveys of ultralights. We want to get the honest, unbiased evaluations of the people who know best—the owners. If you own or have owned any of the ultralights listed on the survey form, take a couple of minutes to fill it out and send it in (to Hang Glid-

ing Magazine, P.O. Box 66306, Los Angeles, CA 90066).

If you have more than one ultralight, Xerox the form. Tell your friends who fly, too. This is your chance to tell the world what these ultralights are like.

If you have more answers than we have questions, great. Write your comments down on another piece of paper and send them in with your survey. We want your honest appraisal of all the good points and the bad points. And whether they are complimentary or not, we will print the results—all of them, no matter who gets upset. If there are any problems reported, we'll try to find some solutions. And if there aren't any solutions, we'll report that, too. We think it's time you, our readers, were given something more than manufacturer's press releases. So send in your survey form(s) and stay tuned. It's going to be interesting.



- Weedhopper
- Easy Riser
- Mitchell Wing
- Pterodactyl

- Quicksilver
- Rotec Rally
- Hummer
- Wizard

- Lazair
- Eagle
- Other

Did you buy it new or used? _____

Who built it? _____

How long did it take to build? _____

Were there any problems in building it? _____

How good were the instructions? Very Good Good Fair Poor Very Poor

How helpful was the factory? Very helpful Average No help at all

How often do you fly it? _____

How many hours have you flown it? _____

How long do you usually fly? half hour or less one-half to one hour over an hour

Do you fly from airports? _____

How did you learn to fly it? Teach yourself Instructor Simulator

Do you have a private pilot's license? _____

How many hours of ultralight instruction did you get? _____

How long does it take to completely set it up? _____

How many people are needed for setup, including yourself? _____

How difficult is setup? Easy Average Difficult

How would you rate the workmanship? Outstanding Good Mediocre Poor

How easy is it to fly? Easy Average A little tricky Very tricky

Does it have any handling problems? _____

If so, what are they? _____

What is your average fuel consumption? _____

Have you ever had an accident or in-flight failure? (including landings)? _____

If so, what happened? _____

How do you rate your local dealer? Very good Good Fair Poor Very poor
Why? _____

Do you have any hints for building, flying or maintaining it? _____

What are its best features? _____

What are its worst features? _____

What engine do you use? _____

What prop? _____

What reduction unit? _____

Has the engine ever quit on you? _____

If so what happened? _____

How reliable is the engine? Very reliable Average Unreliable

Does it have any maintenance problems? _____

Have you ever had a prop break? _____

If so, what happened? _____

How would you rate your prop? Excellent Good Fair Poor Very poor

Why? _____

Have you had any problems with your reduction unit? _____

How would you rate your reduction unit? Excellent Good Fair Poor

Would you buy another ultralight of the same brand or recommend that a friend buy one? _____

Why or why not? _____

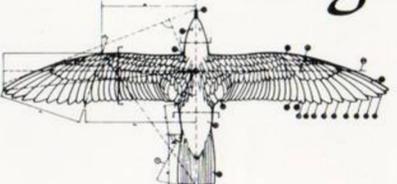
Additional comments _____

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P.O. Box 66306
Los Angeles, CA 90066



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Flight designs



	SL 155	SL 180	SL 200	SL 220
Leading Edge	16'6"	18'4"	19'	19'6"
Keel	8'	11'	12'	12'
Span	28'5"	32'8"	34'8"	34'8"
Nose Angle	118°	120°	120°	120°
Sail Area	152 sq. ft.	180 sq. ft.	200 sq. ft.	220 sq. ft.
Billow	1/2°	1/2°	1/2°	1/3°
Pilot Weight Range	90 - 135 lbs	120 - 175 lbs	170 - 210 lbs	180 - 240 lbs
Stall Speed	16 mph	16 mph	15 mph	15mph
Top Speed	42 mph	49 mph	47 mph	46 mph
Aspect Ratio	5.4	6.09	6.32	5.2
Glider Weight	46 lbs	55 lbs	62 lbs	72 lbs

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The following article is a supplement to the **Whole Air/Hang Gliding** Ultralight Owners Survey, from Page 34. That effort accomplishes certain goals, but has a lone drawback. It will require some time for a sufficient number of responses per plane to flow toward the USHGA offices. This means anywhere from weeks to months before you can read the results of that more thorough survey.

Because of the very rapid **Whole Air** feedback system afforded by the Reader Card service, we can tally many responses to Worthington's survey in time for release in our next issue (July/August). We invite you to pull out the Reader Card and complete George's survey. It only asks that you rate 7 of 26 factors as to which ones you feel need the most development work.

Take a few minutes, fill out our Card, and read the results next issue. You will have to refer to the article to mark the boxes, as space did not permit explanations on the Reader Card.

What do Ultralight Pilots really want?!

By George Worthington

First, we think your imagination and interest should be excited and stimulated before you try to answer the questionnaire at the end of this article.

So, let us first agree on what **has** been happening, very briefly, over the past three years that we can organize our perspectives for what we want to happen in the "ultralight movement" over the next three.

During the last three years there have been only three key influential factors guiding the ultralight development:

1. The FAA (i.e. their attitudes on foot launch, hands off, wait and see)
2. The designers and manufacturers (i.e. the quality and quantity of hardware being offered)
3. The pilots (i.e. who have succumbed to temptation and made the purchases)

From the above we can readily see that, we, the pilots, will only have about a third of the total influence over the next three years. But in a sense it is the most important input because ultimately the movement will stagnate and die if we do not buy the hardware. So let's take this questionnaire seriously and try to have the maximum effect possible on our fabulous sport.

A quick review of the eight major trends which have occurred over the past three years is essential.

1. larger engines
2. increase in the net weight of the ultralight
3. increased cost which exceeds the inflation factor
4. less weight shift, more 3 axle control

5. more instrumentation (air speed indicators, etc.)
6. partial enclosures of the cockpit area
7. greater climb performance
8. higher speed performance

It seems very likely that we would all readily agree that in some cases we have gone about as far as we can go in a few of these eight trends. For example, let's take the increase in weight. More than half the 110 ultralights brought to Porterville in April 1981 weighed over 180 pounds. Several weighed over 220 pounds and one weighed 320 pounds. So it is obvious that some serious consideration will have to be given by everyone to prevent the increase in weight over the past three years to be duplicated over the next three.

Well, so much for a brief explanation of the past. Now, we want to know what's ahead.

Twenty-six separate but sometimes inter-related factors for future trends can be identified, and they will form the basis of our pilot questionnaire. We think a few words of explanation about each of them will be helpful and will stimulate a better and more accurate response from you. In no particular order, they are, as follows:

1. **HIGHER SPEED.** This could go to ridiculous extremes in a hurry. Aviation in the U. S. already has midget racers which can do 300 mph, and which weigh 550 pounds. These craft are pretty useless for anything except racing.
2. **ROUGH FIELD LANDING CAPABILITY.** There is a very wide difference now among ultralights in this category. If an engine quite at 300 feet on a cross-country flight it would be comforting to know that your machine can be set down anywhere on unimproved, very small areas of natural ground. Generally speaking, attaining an increase in this capability means beefing up the landing gear, which inevitably means added weight. It's too bad that we do not have a contest in a rock and sagebrush field so that this capability could be demonstrated and proven. As it is, we are forced to guess which ultralights are best in this area of performance. Designers can, if they want, greatly increase the present level of this capability.
3. **IN-AIR RESTART CAPABILITY.** If the engine quits while idling, a restart capability could avert a forced landing. For engine-off-soaring fun, a restart capability is a "must." Small engines, and some of the two-cylinder engines, are relatively easy to start with a pull on the rope. Electric starters can be added to certain units, but need a battery and will add 6 to 20 pounds in total weight.
4. **MILES PER GALLON.** Some of the larger engines are burning up to three gallons per hour. If gas goes to \$2.50 this would be \$7.50 per hour for fuel alone. Gas consumption is a function of streamlining, total weight, as well as engine size.
5. **ENDURANCE.** This means fuel capacity and gallons per hour. It is similar to mpg, but different enough to warrant a separate category. If a ship can fly on 1/8 power and conserve fuel and remain airborne a long time . . . this might be attractive.
6. **SMALL FIELD TAKE-OFF AND LANDING CAPABILITY.** If the field is very small and surrounded by trees and is 6,000 feet in elevation this becomes a crucial performance factor. The smaller the area suitable for operation, the more useful and practical the ultralight.
7. **ENGINE-OFF SOARING CAPABILITY.** Every ultralight can soar if the lift is powerful enough. However no one seems to know which ships can do better in this category. Only one, the NOMAD, seems to have been designed specifically to be an optimum soarer. This capability **must** be tested and **will** be tested in national contests. It will be fun and we are bound to get some pleasant surprises.
8. **CLIMB CAPABILITY.** We've made our biggest progress in this area. Do we need still more? It probably depends on what we must sacrifice to get more climb.
9. **PILOT COMFORT FROM THE ELEMENTS.** We are seeking more windshields, some partial enclosures like the B-10 with a pod, and total enclosures like the U-2. Pilots flying in the winter in the cold areas of the U. S. might rejoice, particularly if the cockpit fairing is removable.
10. **VISIBILITY.** Certainly the visibility in the Hummer is unexcelled. And certainly cockpit visibility is desirable and important. Cockpit fairings and enclosures will tend to reduce this capability as will canard surfaces and "tractor" use of engines.
11. **PORTABILITY AND STORAGE CAPABILITY.** The importance of this item cannot be overstated. A fold up glider like the Fledge and rogallo is ideal. From this ideal situation we go all the way to some ultralights which require a trailer for hauling and for storage. A trailer is costly to build, takes up space, requires license plates, is a pain to tow long distances, etc., etc.
12. **FAA INVOLVEMENT.** Certainly, we want the FAA to stay out. Certainly they will invite themselves in, to one degree or another, sooner or later. The way to minimize their involvement is to avoid building two-place ultralights, avoid cockpit enclosures, avoid weight increases, pretend that the ship can be foot launched and look responsible in the air at all times.
13. **REDUCTION OF NET WEIGHT.** Some designers have stated that one of their present aims is to reduce the weight of their machine so that

SURVEY

performance (especially climb) will be increased. Everyone would agree that the 70 per cent increase in weight of the average ultralight over the past three years cannot take place over the next three. If it did, it would mean an average net weight of 300 pounds.

14. **NEGATIVE AND POSITIVE "G" LOAD CAPABILITY.** Very few designer-manufacturers have conducted G load testing. There could be a lot of startling surprises if they did. As it is today, we are operating mostly on faith, and there are going to be a lot of white knuckles while daring pilots operate in turbulent conditions. Is it time that tests were made and data disseminated?
15. **COCKPIT FAIRING.** If it's convenient removable and very light and rugged, it might be highly desirable. A fairing, surrounding only the top half of the nose wheel, the pilot's legs and the cockpit seat was installed on the B-10 Mitchell Wing. It increased the cruise speed 15 mph! The pilots head and shoulders stick out above this pod and the visibility is undiminished.
16. **ENGINE RELIABILITY.** No engine is perfectly reliable, but there have been a tremendously high percentage of engine failures in ultralights. Of course, the pilot's use of the engine may be just as important as the engine quality. Nevertheless, the engine quality as it relates to in-air engine failure has tremendous room for improvement.
17. **COST.** Our first hang gliders, which were mostly excellent flying machines, cost \$500 in 1975. Today, the ultralights, which grew out of these machines, cost an average of \$3,800. Inflation has added \$500, but the rest (\$2,800) has come about because of engines, increased quality and the fact that pilots are willing and able to pay \$3,800. It does not seem likely that any of the manufacturers are making undue profits. Even so, the climb in cost must stop somewhere. A good safe 20-year-old 2-place used airplane can be bought for \$5,000, and as pure transportation it will beat any ultralight.
18. **ABSOLUTE ALTITUDE CAPABILITY.** This is much more important than generally recognized. The time of year when ultralights are the most fun is maybe July. The place is the mountains. There is a thing called density altitude. A 6,000-foot mountain meadow in July could easily have a density altitude of 10,000. If your ultralight service-ceiling is only 12,000 you are likely to be unable to get off the ground.
19. **ENGINE LIFE AND MAINTENANCE.** A vital factor in general aviation is TBO (time between overhauls). At present there is a vast difference among ultralight engines, in actual use, in their life, before requiring expensive maintenance. Some go only 10 hours. Some go 300. Also, some engines are extremely temperamental and require constant re-tuning, plug changes, etc. The designer-manufacturer through engine selection, detuning, and pilot-education can make fantastic increases in this area if we, the pilot/buyer demand it.
20. **SMALL TURN RADIUS CAPABILITY.** Here again the difference among ultralights is really large. This is of vital importance in getting into and out of very small, tree-lined fields. There is evidence that some ultralights can make a controlled 360 turn in a diameter of 50 feet, while others require 300 feet.
21. **REPAIRABILITY.** One manufacturer carefully and purposefully uses only items available at hardware and surplus stores. He makes only a Trike. When the Trike is damaged, repair is simple and inexpensive. Here again, there is a vast difference between ultralights in this area and how easy, cheaply and quickly damage to a ship can be repaired. If the average pilot can repair normal damage it should be a big plus.
22. **BUILDABILITY.** Ideally we would like all ultralights to be delivered to us complete and flight tested. Under the insecure, spongy, nebulous rules of FAA governing ultralights at present, many manufacturers opt for the 51 per cent rule applying to experimental aircraft. Others sell kits to lower costs and to reduce liability. Some kits are taking as much as six months to build. Many are never completed. Buildability is a real problem not always understood by the enthusiastic pilots who order ultralights.
23. **PASSENGER CARRYING CAPACITY.** Whether they know it or not, the manufacturers who are building two-place ultralights are really opening a Pandora's box of unwanted problems. Accidents will happen, and lawsuits will follow, as sure as night follows day. And the FAA will immediately rush to protect itself by making constraining rules. If we are smart we will shout "NO TWO-PLACE ULTRALIGHTS."
24. **NOISE.** Many manufacturers are making progress in this very important public relations matter. There were some very quiet machines at Porterville in April 1981. If we wish our movement success we might consider becoming very interested in this item.
25. **CRASH SURVIVEABILITY.** In the interest of weight, climb, cost, performance, etc., very little overt action has been taken by manufacturer/designers on this item. There is a vast difference in this category among today's ultralights. Everyone must begin to think and talk about this subject with the same motivation and goals that we have seen in automobiles. Pilots only have one precious body and it is made up of dozens of very fragile, hard-to-replace parts.
26. **FOOT LAUNCH CAPABILITY.** The foot launch idea, as a practical matter, is all but dead in ultralights. But it is spectacular and wonderful to see an ultralight launched and landed in this manner. So we should rejoice that a few (Quicksilver, Easy Riser, etc.) can sometimes be seen foot launching (and landing) from a flat, tiny piece of ground. Ultralight flying will have lost a precious capability when the trend is complete and when absolutely no one can or does attempt foot launch/landings any more.

Take the card enclosed with this issue and fill it out to let us know the order of your priorities. This card represents your vote on what ultralights pilots want over the next three years. If we speak up, the designer/manufacturers will pay attention:

ULTRALIGHT PILOT SURVEY CARD
Of the 26 areas-of-change listed below pick only seven, and in order of importance assign them a number of 1 through 7. The most important will receive a Number "1." The second most important will receive Number "2," etc. But pick only seven.

- 1. Higher speed
- 2. Rough field landing capability
- 3. Better air restart capability
- 4. More miles per gallon
- 5. More air-hours per gallon
- 6. Small field landing capability
- 7. Increased engine-off soaring capability
- 8. Increased climb capability
- 9. Better pilot comfort from elements
- 10. Increased pilot visibility
- 11. Better portability and storageability
- 12. Less likelihood of FAA regulations
- 13. A reduction of net weight
- 14. More negative and positive G-load capability
- 15. More cockpit fairing
- 16. Better engine reliability
- 17. Lower rate of cost increase
- 18. Higher absolute altitude capability
- 19. Longer engine life and easier maintenance
- 20. Smaller turn radius capability
- 21. Better repairability
- 22. Easier buildability
- 23. Increased passenger carrying capability
- 24. Lower noise
- 25. Greater crash surviveability
- 26. Greater foot-launch capability

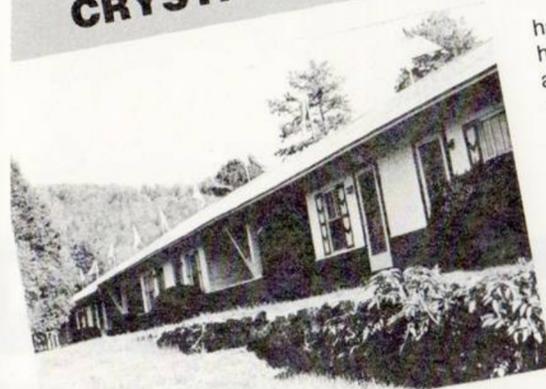


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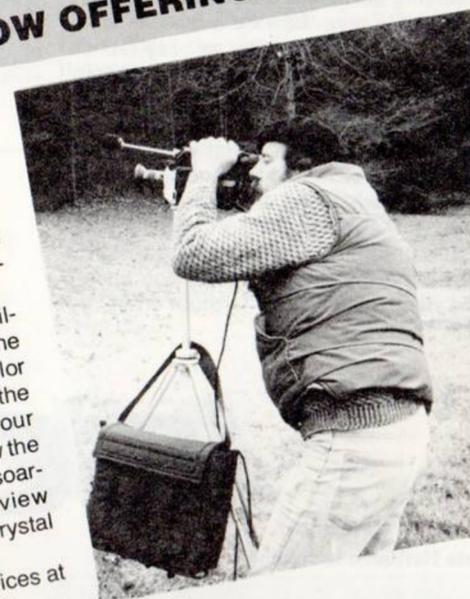
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Joe Greblo soaring Playa del Rey.



By Lynn Miller

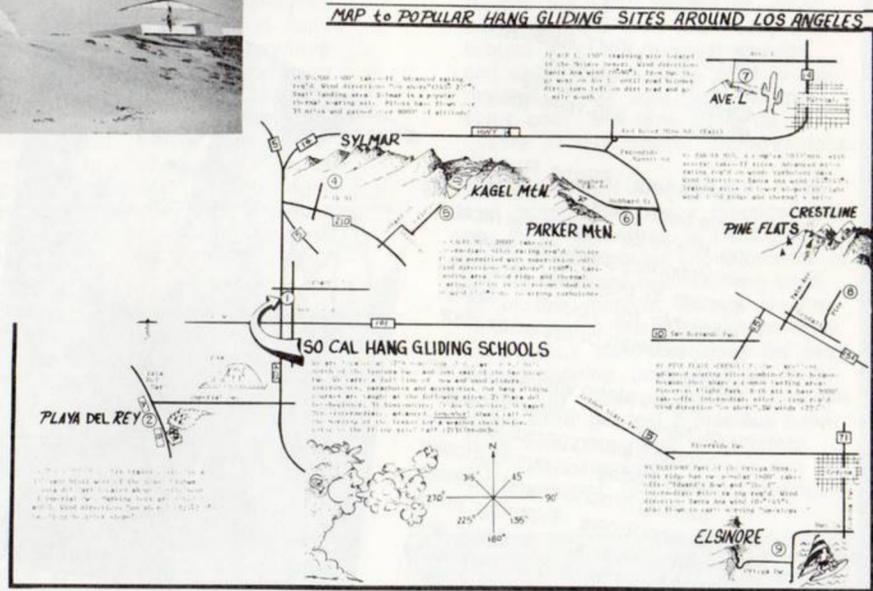
With summer coming on, pilots everywhere begin to dream of a great sky-trek around the country to visit and fly new and promising sites. Sunny Southern California is the hang gliding "Mecca" of the world, featuring boomer thermals and reliable weather. Following we will list the "don't miss" of the greater Los Angeles/San Diego area and the basic information needed to fly them. But always be sure to check with locals for details before launching.

TORREY PINES

Beginning from the San Diego area and moving north, the first site a traveling flier would want to visit would be the famous Torrey Pines. Torrey is a west-facing 300-foot ocean cliff with on-top or beach landing areas. You must be a Hang 4 to fly there, as well as have two locals as sponsors who will vouch for your ability and good judgment. Flight Realities is the local shop to contact if you wish to fly Torrey.

LAKE ELSINORE

Moving north and eastward we come to Lake Elsinore. Edward's Bowl is an 1,800-foot mountain with an easy launch and acres of landing area at the bottom. It has good thermaling and cross-country potential, but you'll need a northeast wind to launch. Northwest winds are a bit cross for launch and quite a rotor is created when the wind spills over the ridge to the left of take-off. Consequently it is best not to take your first flight here in northwesterly winds. You should be a Hang 3 to fly here without an instructor.



The landing field at Kagel.



the end of the ridge, where you will see an object that looks like a blank billboard. The house thermal lives here. When you get 300 feet or so below the board, you should begin considering flying out to the landing area because you have two miles or so to go to make it. On the way you have to fly over some 800-foot foothills, so don't wait until it's too late before leaving the Crestline ridge. When flying out to the landing area, avoid flying down the canyon-gap between Marshal and the foothills because the wind blows hard through there due to the Venturi effect, and your penetration will be much worse than if you fly over the foothills. Even though it seems to appear that flying over the foothills is a longer route to the landing area, it is a much safer route. But don't get caught real low back in the canyon beyond these foothills, for there you will encounter rotor, sink, and a poor choice of landing areas, not to mention your long walk out.

Obviously Crestline is a complicated site, and you should be a real good Hang 3 before considering launching there. If you're unsure, Pine Flats is a 3,000-foot hill without the worry of having to make it out to a decent place to land. Experienced pilots often fly from Crestline to Pine Flats and over to Marshal, then back to Crestline. If you're a good thermaler, you'll love it here. Contact Andy Jackson at Pinecrest Air Park for further information (714) 887-9275.

SOUTHERN FLY

Kris Hartinian launching from Kagel.



CRESTLINE

If Elsinore is blowing down and west winds prevail, head northeast to fantastic Crestline to be sure of a good flight. Here you can launch from three different mountains (although Pine Flats and Marshal Peak are closed to auto traffic during the summer months because of high fire danger.)

The Crestline launch is 3,500 feet high, and is both ridge-soarable (when there's enough wind) and thermal soarable. After launch, head to the right down to

CALIFORNIA ING

Trainers can practice at the 75-foot foothills at the bottom of Crestline; also a good place to test glider trim before going up to the big stuff.

PLAYA DEL REY

Moving into the Los Angeles area, you will find hills for all levels and needs. Playa del Rey is a 30-foot beach dune for training and test flights. Be sure and limit your flights to the hill at the immediate end of the beach parking lot in order to keep the Beach Patrol happy and the site open.

so. cal. sites

SYLMAR

In the San Fernando Valley, the Sylmar range has several good launch sites and good cross-country potential. The famous Sylmar site—thermal capitol of the world—is demanding in launch and landing area, so be sure you are a Hang 4 before you attempt to fly there. The landing area is particularly hairy, being short in length, narrow in width, and surrounded by wires on the west side and a ridge on the east. Landing here in an east wind means turbulence all the way to the ground, so be prepared.

KAGEL

Three miles southeast of Sylmar is Kagel Mountain. Kagel has a good launch and acres of landing area. However, be sure and notice the two sets of wires you must fly over just before you reach the landing area. They are in-

visible from the air, so scope them out in the landing area—they *have* been hit! If you leave Kagel Mountain before you get much below the end of the main ridge, you should reach the landing area with plenty of altitude to clear the wires.

While Kagel can be flown by a Hang 3 (or 2 with supervision), it gets very crowded. This is typical of all Southern California sites. If you are going to soar, please make sure you keep your eyes peeled at all times, for there will be many gliders in your immediate vicinity. There will also be many other pilots who, due to inexperience or forgetfulness, will not be looking for you. Mid-air accidents have occurred simply because people err. Watch out carefully for yourself.

Finally, before going cross country at Kagel, check with a local about restricted and prohibited air space areas close by.

PARKER MOUNTAIN

When the Sylmar sites are blowing down due to Santa Ana winds, the local pilots trek north on Highway 14 to Parker Mountain. This is a 1,200-foot ridge-soaring and thermaling site. When not soarable, Parker can be flown by a Hang 2—it has good launches and miles of

slightly sloping, bushy desert landing area. However, Parker is infamous for very strong winds which often pick up—even more after noon, so you should be an experienced Hang 3 before launching into high winds. Winds of 35-45 and more are common in the afternoon, so watch your penetration if you're in the air.

Parker's landing area lies on the lee side of a small ridge, so that landing can be quite rough when the wind is blowing hard enough to create a rotor in the landing area. If it's blowing hard on top, be prepared for some junk coming in and keep up speed. Again, consult locals for details.

AVENUE L

On those frequent days when Parker is blasting 40-plus m.p.h., die-hard pilots journey all the way out Highway 14 to Lancaster to soar the 100-foot training hill there. On light days Avenue L can be an excellent place for beginning Hang 2's, requiring only a northeast wind to be flyable.

Please enjoy your trip to California! There is a lot more to know about each site, so be sure and have a local describe details for you. Happy flying!

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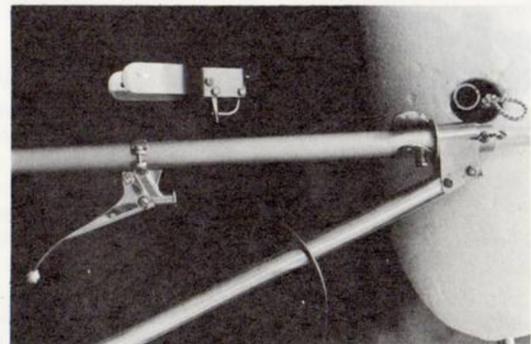
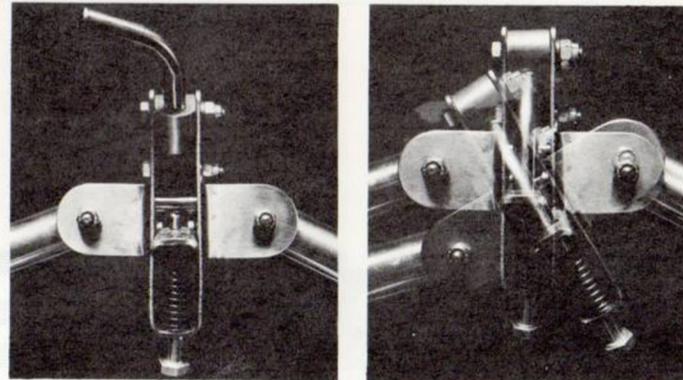


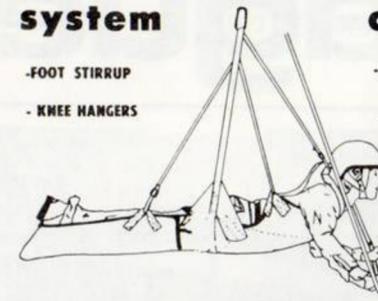
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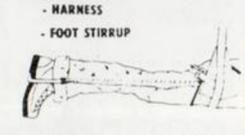


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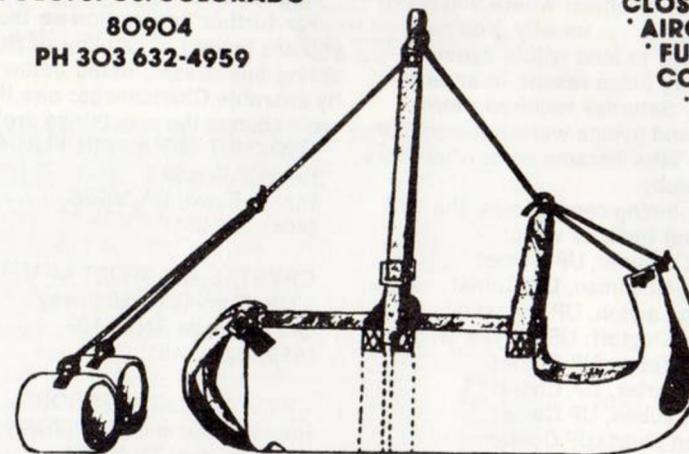
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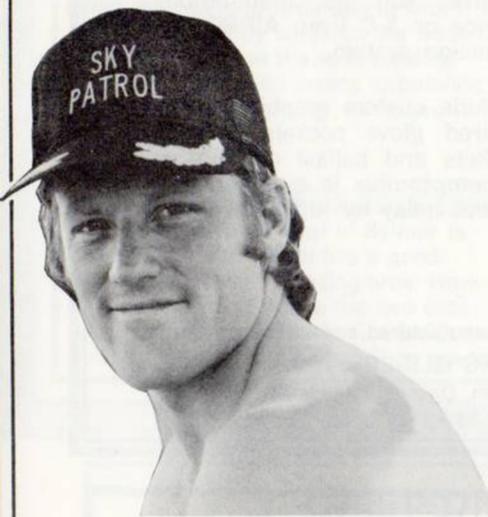
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Southeastern League

Report from Marc Kenyon

Some things change, some things do not. Last year this was the Lookout League. Last year Matt Wagner was overall champion. This year it is the Southeastern League; so far this year, Matt Wagner is the hands-down winner. Oh yes, Matt changed gliders (Spirit to Comet), but not personalities (entertaining as ever).



Matt Wagner



no protest or unusual complaining, so the future is bright for those pilots looking to sharpen their competition skills. The good reasons to fly these contests has fortunately not changed.

It was interesting to note that on Saturday the 25th, more pilots scored zero than 1,000, in a contest where you score one or the other . . . usually. You see, though, failure to land within eyesight of the landing judge results in an automatic zero. Saturday required more scratching and pylons were reached, but the landing area became somewhat more elusive thereby.

Of 20 beginning competitors, the 10 prize-winning finalists were:

- 1—Matt Wagner, UP Comet
- 2—Buba Goodman, UP Comet
- 3—Doug Lawton, UP Comet
- 4—Mike Degtoff, US Moyes Mega
- 5—Matt Tabor, UP Comet
- 6—Tim Carter, UP Comet
- 7—John Lubon, UP Comet
- 8—Bruce Short, UP Comet
- 9—Tom King—Pro Air Series I
- 10—Frank Knippers, Wills Raven



Future dates are:

- June 27-28
- July 25-26
- August 22-23

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No. 18
MAR/APR 81

Interview with national champions of America and Canada. Ontario flying sites. Eleven people in the industry comment on the Trike. Pocket thermals. Editorial on Sun 'N' Fun meet.



No. 16
NOV/DEC 80

Masters, Nationals, Cup by Starr Tays. Ultralight Aircraft Report: Eipper Quicksilver. Pilot Report: U.P. Comet. Towing Lockouts. Sneak Preview: Harrier, Viper, and ASG-23.



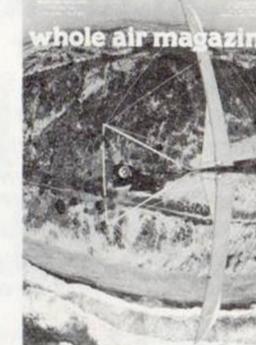
No. 14
JUL/AUG 80

More Motorized. Thunderstorms. 1980 Nationals. WAM Interview: Pete Brock. Pilot Report: Sierra. Minibat sailplane kit. Sites: Bay Area (No. Cal.). Lookout Mtn. League



No. 17
JAN/FEB 81

Suspension System Tests. Sites of Hawaii. Pilot Report: Wills Harrier. Interview with Dick Turner. Cable Flight Simulator. Locked out of control. Certified Glider List.



No. 15
SEP/OCT 80

"Thermals and Thermalling." Pilot Report: Moyes Mega 2 Interview: Don Miller. First Ultralight Report on Sky Sports Humbug. Oshkosh 80. "Inz & Outz" by Michael Jones.

No. 13
MAY/JUN 80

Safety Advisory Tech Panel Premier. Editorials on Glider Reports. New Pilot Report: Raven. Dual Sites—Montana and New York. Winch Towing.

No. 12
MAR/APR 80

Interview with Tom Price. Glider Reports: Firefly 2B and Lazor II. So. Cal. League pictorial by Bettina Gray. Tow Sites of N. Carolina. Regulation.

No. 11
JAN/FEB 80

Statistics of Injuries Part I. "Can America Compete?" by Tom Peghini. Motorized Premier. "Getting Radical." Glider Reports: Falcon 8 and Maxi. Interview with Bill Bennett. Tow Premier. Florida Sites. Interview with Eagle Sarmont.

No. 10
NOV/DEC 79

"You Can Learn About Flying From This. Euro Market Premier. Dual Glider Report: Lancer and Sirocco III. Sites—Michigan. "The American Cup."

No. 9
SEP/OCT 79

The Crestline Nationals. Interview—Rob Kells. Sites Premier—Tennessee. Glider Report: Seagull Seahawk. WAC Dealer Directory.

No. 8
JUL/AUG 79

More Action Line. Graphite article. "The Ravens of Grandfather." Premier Glider Report—Wills Omega. Supine advice. The pilot band "Flyer."

No. 7
MAY/JUN 79

"Hang Glider Performance" by George Worthington. More Art by Baker. Government Regs. Premier of Forum. Bird Flight by Paul Burns. Safety Tips and more Product Lines.

No. 6
MAR/APR 79

More Action Line. Hang Glider Art by Don Baker. "The Comeback" by Paul Burns. "Solar Powered Ultralights" by Hank Syjut. Parachute seminar at Crystal

No. 5
JAN/FEB 79

Statistics of gliders and models. Premier of Consumer Action Line. Heckman Interview. Parachute advice. All USHGA Directors addresses.

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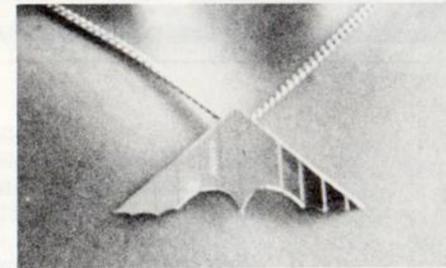
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PRODUCT LINES

CHATTANOOGA, TN --- The competition season has erupted. Both for gliders and ultralights. Some familiar names in both. Rich Grigsby won the South African Nat's at the end of April, flying (what else?) a Comet. So were several other top finishers. Ian Jarman was there representing the Moyes Boys. And Jeff Scott attended for the Wills Wingers. They and seven others had their whopping \$1900 (each) round trip air fares funded by a tobacco company, a welcome contribution. Jeff Scott set a new South African distance record, flying in his Harrier 177 for 86 miles. Another UP victory was recorded in the Vedder British Columbia Open, where Comets swept nine of ten top positions. A Harrier invaded the exclusive Comet club in the No. 6 slot. Champion was Rick Mercier, and again, an X-C flight happened concurrently as Sept-Oct WHOLE AIR Interview-ee, Don Miller, set a new Canadian cross-country mark flying 73 miles from Swansea in his Comet on May 17. Congrats to Grigsby and Mercier, and to Scott and Miller for extra-fine Comet and Harrier endorsements. Back in the USA, still another Comet win was recorded as Doug Lawton of Atlanta took the second meet of the Southeastern League in Chattanooga. Doug took over for his temporarily disabled hang gliding business partner, Matt Wagner, who won the first meet and was overall champ last year. Nice of the guys to keep the wins in the family, so to speak. What do balloons and ultralights have in common? Well, the Great Mello Yello Sky Show Tour, of course. The first two for the national series of Sky Shows took place in Birmingham (5-16-81) and in Chattanooga (5-23-81). The events included a balloon race with twenty participants, sky diving exhibitions, and a show-stealing, four craft ultralight pylon race, with a "Gentlemen, start your engines..." run-for-your-craft, LeMans style start. These all day events drew well over 20,000 persons at each show promoting the new Coca Cola company product. Two Mello Yello-in-laid DoubleQuicks and one Coca Cola DoubleQuick lead the race in grand style, representing an extraordinary promotional chance for Eipper-Formance, as they position themselves and their Quicksilvers with the No. One Logo in the world. Some ten to fifteen more major metro areas are expected to host the Sky Spectacular. Nice to have Coke (and a Smile) on our side! Speaking of big-time sponsors, American Aerolights, Larry Newman, says rumor of a tax dodge sale of Electra Flyer (hang gliders) was definitely not true. Things are going just fine for the Eagle manufacturer as they begin a major affiliation with another top logo, Budweiser. Watch for this name in many national promotions. Thinking of advertising blitzes, the Blue Stratos (Old Spice) people are to begin a biggie, complete with a good dose of flying scenes -- only hang gliders this time. On the tube, we think it's a Lancer; yet we wonder if they won't also use their special Blue Stratos Quicksilver, which liason Keith Nichols has, specially built for airline baggage standards. In other ultralight product news, an "old" company, Ultralight Flying Machines or UFM, has plans for a new craft. UFM owner, Larry Mauro, says he will concentrate on a new motorized design primarily concerned with soaring performance, very light weight, and quiet power. The craft will be built in a new and more modern plant which will house an aerodynamic test lab and flight test facilities. They will also make complete accessory packages for transport and operation, a much-needed addition to the world of ultralights. With their new motorized entry UFM is aimed explicitly at a soaring enthusiast in all areas. Contact them at 2960 Corvin Dr., Santa Clara, CA 95051. As a cross-over from ultralight vibrations to hang glider chatter, a report comes from Pixie Slusarczyk (Chuck's wife) that CGS Aircraft is ceasing production of their hang glider line. The old Chuck's Glider Supplies became two firms, CGS Aviation (power) and CGS Aircraft (hang glider mfg). Another foot-launched company leaving the market. Going back, we can see what happened to CGS, Electra Flyer, and earlier, more subtle change-overs within Manta, UFM, Mitchell Wing, Sky Sports, Waspair, and Eipper, all once exclusively glider manufacturers. Among companies doing quite well in gliders though, Wills Wing reports the new spanwise cut of the Harrier sail will hasten production, and bring about even cleaner sails. This is a change which helped UP's Comet in a similar way. If you have one of the many on order, you may need to alter your color pattern. See your dealer. John Reising of Spectra Aircraft is pleased to tell us his Aolus 170 is now HGMA Certified. Spectra is a new WHOLE AIR advertiser, see page 17. We've gotten some good questions on this unorthodox design. Pilots always seem to go for something new. And we're lucky as John has an Aolus headed to Chattanooga for a Pilot Report. Look for the write-up this season. Another new company emerging is Aerial Dynamics. Name sound familiar? You saw it at the end of the Stratus Pilot Report. You saw

some work by owner, Dennis van Dam, on our cover. Aerial Dynamics specializes in sail customizing, with quality inlay work, repairs and other custom sewing. Should be a relief to those customers who have had to wait weeks, even months, for sail work from a manufacturer. The big boys see custom work as an interruption in their production lines, especially like now, when demand is highest. Check out van Dam's ad in the Classified section this time (page 53). Last news in glider companies is that, according to Odyssey spokesman, well known designer-pilot, Tom Peghiny, the Vampyr (note correct spelling) is to be certified and ready for production at the end of May or early June. Quite a bit of talk about this American version of the high performance New Zealand wing. A couple of new associations in the news. Serving pilots with support functions is essential in an industry which does not have the government providing these services. Joining the new trade associations of the HGDA (Hang Glider Dealers Assoc.) and the PUMA (Professional Ultralight Manufacturers Assoc.) are the NULA (National Ultralight Assoc.) and the proposed North American Hang Gliding Assoc. The latter is a group of dissatisfied hang glider pilots who are ready to act with their own organization should the USHGA continue to embrace power. August 15 was set as a deadline/meeting date to go or no-go. They claim to have the organizational framework ready and a magazine in line, if they go through with the plan. Keeping us unregulated and saving pilots money are the primary goals of NULA, an Atlanta based organization. Roy Roberts, a pilot and Georgia attorney, is working with several dealerships, manufacturers, Washington representatives, an insurer, and other associations, like the E.A.A., to provide certain distinct new functions. The NULA feels self-regulation is possible and can work within the definitions of airspace and safety requirements of the F.A.A. The Association can also pass along an \$80 savings to its members for physical damage and theft insurance, which are vital to bank financing. Yearly dues are \$25; both glider and ultralight pilots are welcome. They have also contracted with WHOLE AIR to serve as their membership magazine offering. See their ad on page 11. The last word is on some fine flying by tow pilots. Tommy Bartlett Water Show tow pilot, Brian Jackson, set a new endurance record at Crystal Flight Resort (Raccoon Mtn). Brian logged 6 hours and 3 minutes at a place Britain's Brian Milton defined as, "a very difficult site to fly brilliantly." Jackson has 60 hours and 1865 flights, not unusual numbers for show-tow pilots. He broke the record previously held by another tow pilot, Ray Foley of Florida. Ray flies Chattanooga mountains regularly and is one of the East's most accomplished micro-therm-alers. He recently climbed out to 5000 + AGL after an 800 foot release from a boat tow in Florida. Ray has averaged something like an hour and a half per flight in a long series of recent low release tow launches, pretty spectacular in the super-flat Sunshine state. (Watch out for sink holes, Ray!) He flies a Comet 165 supine; Brian Jackson was on a Mega 200. We wonder if they will compete in the 8th Annual Cypress Gardens Tow Championships, August 5-9. This is one of the (if not the) oldest continuing contests in the world. It pays well. A \$5000 purse will go \$1500 to First Place, \$1200 to Second, \$900 to Third, and pays through 10th, with contingency prizes from UP and Moyes. It's limited to 48 pilots and costs \$75. Got news or opinions? Send 'em to Product Lines, Box 144, Lookout Mtn., TN 37350.

LAST MINUTE FLASH
(END OF MAY '81) --- Yep, it's true, there's a new world's record (unofficial) for straight line distance. Verified by friends, Jim Lee can still lay claim to having bested the best, flying a whopping 42 miles over Eric Raymond's also unofficial mark of 126. Full reports are to appear in HANG GLIDING and GLIDER RIDER, probably in July. Heading South-southeasterly from Sandia Peak in Albuquerque NM, Jim got low (1000 AGL) right in back of the mountain (forested), was lent a thermal by a farmer's field (to 16000 foot cloudbase). Thermal after fast drifting thermal, Jim worked his way to Clines Corners. After having been supplied with a regular series of cumulus thermal indicators, and thereby getting to 18000, staying above the ground 12000 to 14000 feet, the going got much more sparse at 80 miles out. Few roads, almost no traffic, and indicators gone, Jim still tracked downwind, nearly over a road for 88 more miles. A grand total of 168 straight-line to Melrose NM (near Clovis for you map lookers) figured to a flight path of 176 miles, a very efficient route. Pretty grand day for Jim Lee and his Comet 165. We understand Pete Brock will be heading out to Albuquerque for photos, more details, and another feather in his UP Comet Hat. Good lift to you all, as the 200 mile mark looms ever closer! (WHOLE AIR)

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