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MAY 1986 — $2.50 / DM 6,00

ISSUE NO. 48 (2nd in 1986)

Address Correction Requested — Box 98786 Tacoma, WA 98498-0786

Bulk Rate
U.S. Postage
PAID
Tacoma, Wash.
Permit No. 440

SPECIAL SECTION: AMERICA'S CLUBS & SCHOOLS

WHOLE AIR

The Magazine of the Hang Gliding World
Das Magazin der Drachenflugwelt

ISSUE NO. 48, VOLUME NO. 9, NO. 2

FEATURES:

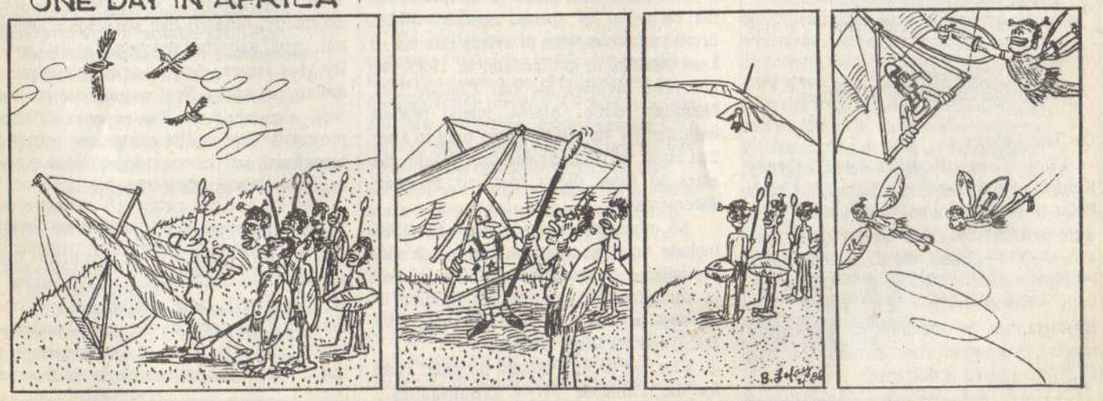
PILOT REPORT:

WHOLE AIR Magazine is published six times a year by Whole Air Inc., whose mailing address is P.O. Box 98786, Tacoma WA 98498-0786, and whose executive, editorial, and advertising offices are located at 8415 Steilacoom Blvd. SW, Tacoma WA 98498; telephone 206/588-1743.

Change of Address & Subscription Inquiries — Send to WHOLE AIR, P.O. Box 98786, Tacoma WA 98498-0786. Expiration on mailing label indicates last issue to be received. Please give six to eight weeks advance notice of address change. Send both old and new address plus mailing label from recent issue, if available. Subscription rate: U.S. and Possessions, one year $16.00; Mexico and Canada, one year $20.00. All other countries, one year $24.00; Air Mail available, write for rates. Single copy price $2.50. **Back Issues:** Many past issues are still in stock. To order, send $3.50 plus 95¢ postage to Back Issue Dept., P.O. Box 98786, Tacoma WA 98498-0786. No orders processed without the proper funds. **All Payments:** U.S. Funds only, please.

AERO TOPICS

ONE DAY IN AFRICA



Volume No. 9, No. 2, 1986
ISSUE NO. 48

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Cover Photo
Provided by Cyndy Kaufmann

On The Cover:

Pilot Greg Roselle takes Cyndy Kaufmann for a tandem flight off Utah's Point of the Mountain—south side. They were assisted by Dana Byerly (wingman and X-200 glider owner), and Mark Phillips (noseman). Camera: A Canon TX with Kodachrome 25 film. The photographer is unidentified as Cyndy handed "someone" her camera for this nicely composed action shot.

Photo by Doug Barnette

Publisher's Column

WELCOME TO 1986 with **WHOLE AIR.** Since this welcome may sound a bit belated—coming in May—a review of our publishing schedule may be in order.

Summer Fun to Repeat

WHOLE AIR went to a summer months program in 1985. This earned good response from you readers and proved to be a good choice for the communication needs of our sport. It also was a help to our sales of ad space, that being the one of the most essential parts of producing a magazine.

For the balance of 1986, we will continue this excellent start. Following that, we'll have a gap in regular issues which we plan to again fill by incorporating with our sister publication, **SPORT FLYER.** For those that subscribed since December of '85, that effort was a newsletter occupying several pages of a wide-coverage tabloid newsmagazine. It went out to some 25,000 sport aviation addresses!

More Special Issues

More news involves another repeat performance from 1985. This centers on the inclusion of special sections which detail various aspects of events that are of keen interest to enthusiasts. In 1985, we got rave reviews for our Chelan U.S. Nationals issue. Many, many readers indicated by survey that they plan to keep that issue for future reference. Again, the extra ad sales didn't hurt our financial statements.

So, planned special editions for 1986 include one for our Canadian neighbors, capitalizing on the Grouse Mountain meet in combination with the 5th running of the popular American Cup (in Invermere, B.C.), and the Expo 86 Fair.

Plus, we'll do a special program issue for the Telluride Fly-in extravaganza... possibly one for the Grandfather Masters... and we'll repeat at Chelan. Each new issue will keep you informed.

But the BIG NEWS...

Without a doubt, though, our biggest news should be very obvious to anyone who flipped through the pages of this issue. In case you found words you could-not read, don't be dismayed. It's German language, and is part of our move into the world's largest hang gliding market, Germany, plus German-speaking Switzerland and Austria. (Copies will also be distributed in England as well, later in the year.)

It's not only our biggest news, it's been the biggest effort we've ever extended for a single issue (not even considering the special clubs and schools section). We've been in intense planning since the fall of 1984 on this direction! And the work has only begun, really.

Becoming the hang gliding world's first truly international publication is the single biggest step in **WHOLE AIR** history. It is also the most expensive. We're gambling our entire future on the reaction of American and European hang gliding enthusiasts.

While many points of the development will consume more months of effort, this issue christens the voyage **WHOLE AIR** is about to begin. We'll travel around Germany and Europe seeking news and information to bring to American subscribers. And we'll continue our unique style of reporting of the American scene to many who will review our pages in Europe.

No More Foreigners

We cannot refer to developments as "foreign" anymore. We have become multinational. Such a change is exactly what we planned. But there is one enormous variable that we cannot count on... you, and your reaction. Let us know. By your letters. And by your subscription dollars or marks. We'll appreciate it. But we'll also need it. The expense of this project is likely to be recognized only by manufacturers in our sport who have exported their goods to "foreigners."

Thank You, Thank You!

One person behind a lot of this effort has remained our "secret weapon," so to speak. Mr. (or Herr) Hans Bausenwein is our European Connection. He single-handedly translated every word of German in this issue, and will continue to do so for the rest of the year.

CONTINUED on Page 5

He has also agreed (or perhaps it was our considerable arm-twisting!) to represent our journal in Europe... for subscription sales, for advertising sales, and to supply us with news. You could think he'd have to spend full-time and a half to do all this. And you'd not be all wrong.

But you'd not be all correct either. Hans, and his wife Frigga, and their staff have been involved with the hang gliding business for years. They run Aerosport International, and through this business, they distribute Airwave Gliders to Germany (very successfully, we might add), among other products and services.

Off And Running

As I write this the deadlines seem on my doorstep. And there is so much to do yet. It doesn't seem possible at this date, that you will ever read that which you are now holding in your hands. I certainly hope you enjoy it. I hope international communication brings a new standard of quality to enthusiasts around the world... all 70,000 to 80,000 of us! I hope we can properly carry the international banner for our sport. It is most exciting, and the best development in **WHOLE AIR's** eight-year history.

Our Eighth Anniversary

I think it is truly fitting that this comes as we celebrate the completion of our eighth year in the business of hang gliding communications.

Thanks,
Dan Johnson

Willkommen 1986 bei Whole Air.

Obwohl sich dieser Gruß etwas verspätet anhört--im Mai--liegen wir noch richtig in unserem redaktionellen Plan.

Sommerfreuden auch dieses Jahr

WHOLE AIR begann 1985 mit auf den Sommer konzentriertem Erscheinen der Hefte. Dies wurde von unseren Lesern gut aufgenommen und bestätigte uns darin eine gute Wahl entsprechend der Kommunikationsbedürfnisse unseres Sports getroffen zu haben. Besonders half das auf die Saison konzentrierte Erscheinen auch den Anzeigenkunden und damit uns selbst, denn ohne Werbung könnten wir WHOLE AIR nich produzieren.

Auch 1986 werden wir diesen guten Plan weiterverfolgen. Erwarten Sie also Ausgaben, die mit Juni, Juli, August und September bezeichnet sind. Dementsprechend wird es eine lange Pause geben, die wir wider mit einer Sonderausgabe unserer Schwesterzeitschrift SPORT FLYER auflockern werden. Alle, die bereits im Dezember '85 WHOLE AIR abonniert hatten, bekamen diese Sonderausgabe einer Zeitschrift, die sich miet der gesamten Breite des Spektrums der Sportfliegerei befasst. Sie wurde an über 25.000 Adressen von Flugsportinteressierten welweit verschickt!

Mehr Spezial Ausgaben

Weitere Neuigkeiten drehen sich um eine andere erfolgreiche Sache aus '85. Wir werden WHOLE AIR Hefte haben mit einem Spezial Teil, mit verschiedenen Themen im Zusammenhang mit Veranstaltungen, die für den begeisterten Sportsfreund von Interesse sind. In 1985 waren die Leute hingerissen von unserer Spezial Ausgabe zu den U.S. Meisterschaften in Chelan. Viele, viele Leser beantworteten unsere Umfrage so, daß sie diese Ausgabe aufheben wollten, um sie zu verwendend, wenn sie nach Chelan führen. Außerdem waren die zusätzlichen Anzeigen auch nicht schlecht für unser Budget.

Also 1986 wird es mehr Spezial Ausgaben geben. Diese Ausgabe enthält eine davon für unsere kanadische Nachbarn, die sich um den Grouse Mountain Wettbewerb drehen wird, eine weitere Über den American Cup, der dieses Jahr in Invermere, British Columbia, das fünfte Mal stattfindet, und schließlich noch eine über die Expo 86 Messe.

Außerdem werden wir spezielle Programmhefte für das phantqastische Telluride Drachenfliegertreffen und eventuell eines für die Grandfather Masters machen und natürlich wider eines für Chelan. Eine genaue Übersicht haben wir in jedem Heft von WHOLE AIR, damit Sie informiert sind.

Aber nun die Großen Neuigkeiten

Das sind nicht nur unsere größten Neuigkeiten, das ist ingesamt das größte, was wir je in einer enizelnen Ausgabe anfingen. Wir arbeiten an diesem Plan set Herbst 1984! Und die eignetliche Arbeit hat gerade erst begonnen.

Wir sind dabei die erste, wirklich internationale Publikation im Bereich Drachenfliegen zu werden, der größte Schritt set dem Bestehen von WHOLE AIR. Auch der tuereste. Wir setzen unsere gesamte Zukunft aufs Spiel und verlassen uns auf viel Zuspruch bei den amerikanischen und europäischen Drachenflieger-Fans. Während einzelne Punkte dieser Entwicklung mehrere Monate in Anspruch nehmen, weiht dieses Heft die Reise ein, die WHOLE AIR gerade beginnt. Wir werden durch Deutschland und ganz Europa reisen und Neuigkeiten und Informationen für unsere amerikanischen Abonnenten aufspüren. Und wir werden weiter in unserem ureigenen Reportagestil über die amerikanische Szene berichten für viele Leser in Europa, die unsere Seiten in die Hände bekommen werden.

Keine Fremden Mehr

Wir können jetzt irgenwelche Entwicklungen nicht mehr als "fremd" bezeichnen. Wir sind multinational geworden. Das ist genau das, was wir vorhatten. Aber da gibt es eine riesige, unbekannte Größe und das sind Sie und Ihre Reaktion. Sagen Sie uns, was sie davon halten, in Ihren Briefen. Und mit Ihren Abos Dollar oder D-Mark, uns ist beides recht, aber wir brauchen's auch. Die Ausgaben, die mit solch einem Unterfangen verbunden sind, sind den Herstellern in unserem Sport sicherlich nicht unbekannt, die ihre Produkte in die "Fremde" exportierten.

Danke, Danke!

Eine Person hinter vielen dieser ganzen Bemühungen ist sozusagen unsere "Geheimwaffe." Hans Basenwein heißt unser Verbindungsmann in Europa. Er allein hat jedes Wort Deutsch in dieser und der nächsten Ausgabe übersetzt, und er wird weitermachen für den Rest des Jahres.

Er hat sich ebenfalls damit einverstanden erklärt (oder vielleicht war es unser stetiger "Zuspruch"!) unser Journal in Europa zu repräsentieren, damit Sie einen Ansprechpartner für Abo-Bestellungen und Anzeigenannahme haben und damit wir eine Quelle haben für weitere Neuigkeiten aus Europa. Sie werden jetzt wahrscheinlich denken, dazu muß er ja den ganzen Tag und die halbe Nacht am arbeten sein. Nun, allzu falsch liegen Sie mit dieser Annahme nicht.

Aber allzu richtig auf der anderen Seite auch nicht. Hans, und seine Frau Frigga und ihre Mitarbeiter sind set Jahren im Drachenfluggeschäft. Ihre Firma heißt AEROSPORT INTERNATIONAL und sie sind Importeur von Airwave Gliders in Deutschland (und das sehr erfolgreich, muß ich hinzufügen) und haben noch andere Produkte und Service anzubieten.

Start Und Los

Jetzt, im April, als ich das schreibe, ist der Druckunterlagenschluß schon an meinen Fersen. Und es gibt noch so viel zu tun. Es scheint beinahe unmöglich, daß Sie jemals lesen, was Sie jetzt in Händen halten. Ich hoffe natürlich, daß Sie Spaß daran haben. Ich hoffe, daß die internationale Verständigung neue Qualitätstandards für die beigeisterten Anhäger unseres Sports bringt, rund um die Welt, allen 70.000 oder 80.000 von uns! Ich hoffe, daß wir es schaffen werden das internationale Banner unseres Sportes zu tragen. Für mich ist das ungeheuer afregend, und die beste Entwicklung in WHOLE AIR Zeit seines achtjährigen Bestehens.

Wilkommen!

Danke,
Dan Johnson

SPECIAL NEWS

Drachenflieger Magazine Editor Issues A Concern Over Hang Gliding Involvement In The Olympics Due To "Favoritism" From F.A.I. President

"Hang Gliding May Never Be In The Olympics," begins a call for help from *Drachenflieger magazine* editor, Werner Pfandler. If this statement alone was not enough to grab the attention of most enthusiasts, be advised that Pfandler is *not* known for this type of strong language. To be sure to convey his conviction exactly **WHOLE AIR** chose to restate the letter verbatim:

"F.A.I. president Cenek Kepak promotes parachuting for the Olympics without consulting the FAI central committee of the CIVL. Friends, this means trouble. If we don't fight back right now hang gliding will not be at the Olympics for a long time, if ever. "Actions to be taken...

"A) Compare the number of hang glider pilots and parachutists in your country (no military parachuting!).

"B) Press + PR. Spread the idea that hang gliding is the one and only true Olympic aviation sport. Peoples aviation sport. Because it is what flying is all about. A true sport. A real Olympic discipline, i.e., find arguments for hang gliding.

"C) Aero Club [in the USA, this the NAA through USHGA]. Write, phone, telex, cable, meet your local or national FAI man [again, this is NAA president Clifton F. von Kann, through USHGA president Russ Locke--NAA address: Suite 550, 1400 Eye St., NW, Washington DC 20005; USHGA address: P. O. Box 66306, Los Angeles CA 90066; writing them *both* is perhaps best to get the word out. —Ed.] Let these leaders know of your utmost worries regarding the way president Kepak handles today's most important issue on a non-democratic level.

"D) Olympic Committee. Write and have all your influential friends write to president Juan Samaranch of the Olympic Committee (address: C.I.O. Château de Vidy; CH-1007 Lausanne; Switzerland). Let president Samaranch know: 'Hang Gliding is the people's true olympic aviation sport. It is the closest you can get to Daedalus, the man that had asked the gods in the olympics for help to fly to freedom.'

"E) Get in action today. Tomorrow may be too late!"

Drachenflieger's Pfandler then invites those that want to know more to call him at 0049-89-76 99 21 18 (number includes international country code).

Pfandler's communication clearly represents a most strenuous attempt to gain action. Obviously he feels strongly about this.

Enclosed with his urgent communiqué was a letter from FAI president Kepak addressed to leaders of the various disciplines within FAI. And it is true, Kepak—whose task it is to fairly represent *all* divisions within FAI—talks only of parachuting, leaving out the sailplane and hang gliding communities completely, though they too were accepted by the IOC as Olympic events.

Given all this, **WHOLE AIR** felt this deserved action from hang glider pilots. After all, the opportunity to be involved in the Olympics promises great exposure for our sport.

First "National Fly-in" Scheduled In Elmira, NY

Dates have been set for the country's first "National Fly-in," according to one of the prime mover, Dennis Pagen. The event will begin Sunday, August 24 and last till Sunday, September 1st. It will take place in Elmira, New York (headquarters of America's largest manufacturer of sailplanes—Schweizer). It will also coincide with the Free Spirit Fly-in, which will itself occur on the last three days of the National Fly-in (August 30-Sept 1).

The Grandfather Masters of Hang Gliding tournament is slated to begin September 4th, so no conflict exists. However, another major draw for non-competition pilots—which the National Fly-in will hope to attract—is the annual Telluride Extravaganza. Due to the distance, some feel western pilots will prefer the Colorado event over the eastern one.

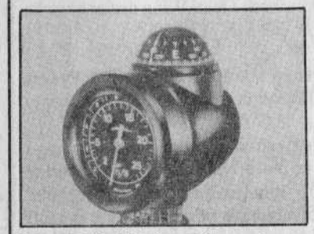
Manufacturers will be invited to display their wares and provide demo gliders at the National Fly-in. Additionally, Pagen is just beginning to put together a list of speakers to address various topics of importance to the hang gliding community. All promotions are in the initial stages of planning, however, as Pagen has been out of the country for an extended trip.

Manufacturers interested in attending, or those interested in the speakers engaged, are encouraged to call Dennis Pagen at 814/234-1967, or write 1184 Oneida St., State College PA 16801.

CONTINUED on Page 7

INDUSTRY NEWS

Ultralite Products Sells Inventory Business To Pacific Windcraft

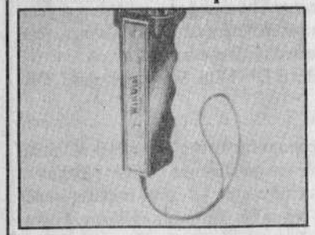


Ultralite Products has sold all inventories and parts distribution to Pacific Windcraft, as of the middle of of April this year.

After seeking such a buyer for the UP stock, Pete Brock has now contracted the sale of all materials to the Salinas outfit. Additionally, "Pacific Windcraft will employ John Cotton—an eight year veteran of UP employment—to service the parts distribution business and to see to manufacturing of further replacement components," reported Pacific Windcraft. Cotton was involved with a similar position at UP in Temecula. Calls made to the former location of the builder of the Comet line are being directed to Pacific Windcraft, and the new supplier has notified all UP dealers of this change in writing.

UP has had financial difficulties since 1985, and this move will apparently enhance their bargaining position with their bankers, while also preserving the good name the company built up since it was organized in 1972. Brock will consult the company in various aspects of UP-style manufacturing, and Pacific Windcraft president Bernasconi says, "We hope to have an on-going relationship with UP through this arrangement."

Hand-Held Wind Speed Indicator and Compass

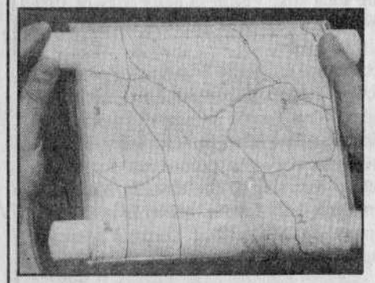


Airguide offers the Windial wind speed indicator and compass. The company manufactures a line of marine instruments, gauges, and compasses, and has now included the hand-held anemometer to their lineup. The Windial supplies readings for wind direction and speed quickly and accurately, says the company.

The Windial is "a breeze" to use (pun intentional). Simply point it into the prevailing wind. Airspeed registers on the three and half inch white-on-black dial, while compass directions are read on top of the instrument. Weighing a little over a pound, the Windial is scaled for the 5-70 MPH wind speed range. Its housing is black cycolac, and measures some seven and a half inches high. It retails for $62.95.

For further information contact Airguide Instrument Co., 2210 Wabansia Avenue, Chicago IL 60647.

In-Flight Map Holder Offered



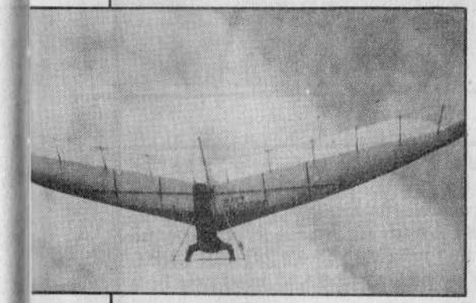
Cone Enterprises has introduced the "Never Lost Map Scroller," as an aid for pilots flying cross country treks. The scroller allows pilots to install maps of their choice into a lightweight, compact plastic box which may be mounted directly on a control bar or onto a swivel clamp. Seated pilots may strap the scroller to the legs for easy reference.

The Map scroller has a lexan viewing shield which is virtually unbreakable and protects the maps from wind and weather. Maps are cut into strips and indexed before installing on the rollers. The maps can easily be changed on the ground, and complete instructions for installation come with the product.

Developer Randy Cone says, "The capacity of the scroller is about 15 square feet which translates to over 100,000 square miles using standard aeronautical sectionals or 1/500,000 scale USGA topographical maps." The map scroller has an introductory price of $29.95. "Using maps can be particularly advantageous for pilots flying in new territory and make for easy retrieval by ground crews," added Cone.

For further information, contact Cone Enterprises at 334 Chestnut, Louisville CO 80027.

Small And Large Pilots Gain More Options With Delta Wing's New Lineup



Delta Wing has addressed the large and small ends of the pilot weight range with their 1986 lineup. "In a serious effort to cover the full spectrum of correct wing loading we have introduced some very much requested glider sizes, not presently produced by any other company," reports owner Bill Bennett.

Small pilots, traditionally used to waiting for small size of new gliders, will be pleased to hear that Delta Wing has a new 145 Lite Dream (sport class glider) and the 144 Lite Mystic (high performance class). The company will also market a craft in the so-called competition or cross country class, named the Xcel (see April 1986, pg. 14).

The 145 Lite Dream weighs in at 42 pounds and the small Lite Mystic five pounds more. These new offerings are priced at $1,595 and $2,295 respectively.

Large pilots usually do not have to wait quite as long, but now will be served by Delta Wing's offering of the 220 Lite Dream and the Mystic 188. These large models will address the needs of heavier pilots and tandem usage in both sport and high performance classes. The 220 Lite Dream weighs 65 pounds—quite moderate for its size—and the the big Lite Mystic tips the scales at only 63 pounds. These two will retail for $1,995 and $2,345 respectively.

CONTINUED on Page 8

INDUSTRY NEWS

CONTINUED from Page 7

To fill the gap between the big and small series, Delta Wing has the Lite Dream available in 165, 185, and 205 sizes, while the Lite Mystic has sizes at 155, 166, and 177. The sum of all these models gives Delta Wing 10 sizes, when the Xcel is included.

Delta Wing's top of the line (competition—X/C class) is the final configuration of their Sprint, "which we have been developing for three years," says the company. It features fiberglass radial tips, no keel pocket, and variable geometry on a 34 foot span. The Xcel is priced at $2,600 with all options included.

For additional information and ordering details, contact any Delta Wing dealer or write the company at P. O. Box 483, Van Nuys CA 91408 or call 818/787-6600.

Faired Cable Stock Made Available From Slicewire

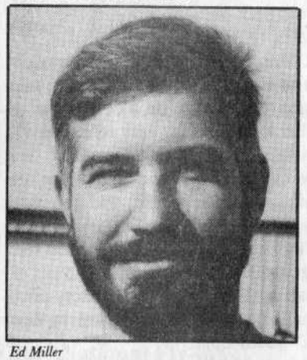
"Slicewire is aerodynamically designed to slice through the air with significantly less drag than standard wire (coated or bare)," exclaims information from the company simply named, Slicewire.

"This is accomplished with a polyurethane fairing extruded around the wire, says developer Rick Christen. "Once the wire is swaged in place, you can align the fairing manually," he continued. Slicewire utilizes high quality stainless steel wire and required no special care. The company claims that the clear polyurethane fairing is twice as scuff resistant as standard coating materials.

The product is priced at $0.69 per foot for 3/32 inch cable, and at $0.89 per foot for 1/8 inch cable. Large orders can earn quantity discounts. The company will ship orders C.O.D. via UPS. With the push for fairings on many components of modern wings, this product may indeed have a place for those pilots interested in minimizing drag.

For further information, contact Slicewire at 736 S.E. 168th Street, Portland OR 97233, or call 503/254-4549.

"Franchised Manufacturing" Expansion Continues for Pacific Windcraft



Ed Miller

Pacific Windcraft continues to expand its "franchise manufacturing" capacity as initial arrangements are made for construction of frame assemblies in West Germany. Flugdrachenbau is operated by Manfred Eibl—manufacturer of the Impulse—and complements similar operations the company has begun in England (HiWay Flight Service; John Ivers), France (Delta Sud; Dominique Jorand), Australia (Suncoast Hang Gliders; Stan Ray) and on the east coast of the United States.

The German under-license builder will ship their first Vision in early May of 1986, after receiving the approval of the German certification. All sails are built in Salinas and the first such were shipped to Flugdrachenbau in mid-April.

The east coast operation, and increasing acceptance of Pacific Windcraft products has had a beneficial effect on sales in the eastern U.S. "We are selling five times the number of gliders as in a comparable period of last year," says Pacific Windcraft's Bernasconi. Much of the credit goes to the two men who are behind the effort in Tennessee.

Ed Miller—majority owner of the eastern facility—ran production for Pacific Windcraft in Salinas for nearly two years before returning to the east. In addition to handling assembly of Salinas-built sails to Tennessee-built frames, Miller is involved in purchasing for both U.S. plants of the company. Matt Taber, of Lookout Mountain Flight Park, is the marketing arm of the eastern network, and Bernasconi credits him with a restructuring program that has enhanced sales yet has held customer satisfaction.

More growth is expected from the east, which has no other resident glider building facilities. "We feel there are more possibilities for well-run schools in the east due to population density and the greater availability of sites," adds Bernasconi.

Overall the company has fared well with its far-flung licensee operations. They claim 28% more sales in '85 than in '84, and passed the 1,000th Vision mark in mid-August of 1985. Additionally, Bernasconi reports,"Some 52% of all revenues for Pacific Windcraft have come from Europe, partly as we sell component parts to manufacturers in various European countries."

INTERNATIONAL NEWS

Multi-lingual Site Guide Published By French Club

Delta Club Millau has published a site guide to flying in the southeast of France. The small format book is professionally assembled and uses liberal advertising to fund some of the cost. But, more importantly, the 32 page booklet nicely depicts seven flying secured flying sites which the club says are "easy to reach within a quarter of an hour [so that you can expect to] fly Millau the whole year. You have the choice [of] ridge soaring, big thermals, top landings, and cross country possibilities (about 60 miles have been done already)."

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INTERNATIONAL NEWS

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Using a mix of topographical maps, road maps, aerial photos, and nicely executed artwork, the Millau site guide illustrates the launch and landing areas with directions to reach each of these.

To appeal to the international visitors expected the booklet has been published in three languages (French, English, and German). The multilingual text includes descriptions of the sites, directions in which they are usable, warnings of obstacles and requirements for the best flying.

Pilots planning travel to Europe to fly should definitely include France—the southeastern part of the country is alpine with significant vertical and beautiful scenery—and the club guide will prove invaluable. This area of France hosted both the European Championships in 1982, and the Microlight Championships in 1985.

To obtain a copy, write Delta Club Millavois, B.P. 141, 12100 Millau, France. No charge is mentioned in the handbook.

Airwaves No. 1 Published

Airwave Gliders of U.K. has released issue no. 1 of *Airwaves*, the company's quarterly "magazine" available to owners of their equipment or by subscription.

Airwave director Rory Carter states in this first issue, "We hope [*Airwaves*] will bring you news and information about your Magic glider, whether it be new or old. Updates, retrofits, product news, technical explanations, tuning, maintenance, accident reports, factory news, dealers, pilots, places to fly, your praise, your criticisms." While the book is obviously a house organ, *Airwaves* will also be accepting advertising. Subscriptions are £3 in England, £4 for Europe and £5 ($7) for America and elsewhere.

The first issue announces the 150 Magic IV. In doing so, the factory states, "It is not intended as an out and out performer but more a pleasant handling intermediate glider. The glider is going through final modifications, among them a reduction of control frame sizes. Those interested in obtaining *Airwaves* should contact their dealer or write Airwave Gliders, Elm Lane, Nr. Newport, Isle of Wight, Great Britain.

The following news items are adapted from Gazette La Mouette *with permission from publisher Sherry Thevenot. Subscriptions are available for this international hang gliding quarterly—see ad (offered in English and French; $11.50 to the USA).*

Hang Gliding 275 Miles... Bivouac Style

The CAP 444 is a special individual flying feat as well as a real challenge to any top level cross country pilots. Its goal is to give a new dimension to flying "bivouac" style. Conceived by Swiss national champion Didier Favre, the CAP 444 is just the beginning of a long series, automatically followed with the CAP 555, CAP 666, CAP 777...

The rules are simple, based on the participants code of honor and the testimony of an official who must be informed ahead of time. A pilot will tell this witness of the intent to start and the details of the attempt.

The objective is to reach 444 KM open distance with a maximum of two turning points (corresponding to two bivouac sites) without any assistance whatsoever after the initial launch. A pilot must either land on a site from which he departs or carry his wing with no help, to the next launch. Pilots have only an eight day window to complete the task (10 for CAP 555; 12 for 666...). Task sites limited to Austria, France, Germany, Italy, Lichtenstein, or Switzerland. Sufficient oral, photographic, or other proof must be turned in to the appointed official. Documentation is due within one week.

Gazette La Mouette feels, "It's a new philosophy for hang gliding, insisting on autonomy and mastery with only a symbolic prize, the inauguration of a new CAP. So far attempts have been recorded by Favre himself, Eric Raymond, François Doebelli, Andy Niedermann. None have succeeded. The race is on...

For further information, contact one of the officials: France—Hubert Aupetit,3 rue Ampére, 94120 Ivry/Paris; Germany—Werner Pfandler, Ortlerstr. 8, D-8000 München 7; Italy—Enzo Boschi, Via Ferrari 33, 41100 Modena; Switzerland—Thomas Bosshard, Isenrietstr. 20, 8617 Mönchaltorf; Austria—Karl Petuschnig, Valleystr. 40, D-8000 München 70.

Hang Gliding Update On The Indonesian Islands

Indonesia is composed of 30,000 islands spread over 4,000 kilometers with a population of 150 million people... and 200 hang glider pilots.

Cross country flying has never been attempted due to lack of telephones, inaccurate maps and at best, a 1,200 meter (3,937 ft) cloud base. On some islands—Sumatra or Borneo where clubs do exist—the jungles are vast and dangerous wildlife is present.

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INTERNATIONAL NEWS

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However, towing is possible around Jarkarta and take off is possible from the mountains two hours from the capitol. The best site is located in the region of Jorjakarta, ten hours from the capitol in the center of Java. Bali also evidently has good soaring.

Australian Flies 198.8 Miles In Late 1985, Challenging Tudor

Australia has a new long distance record set by Mark Newlands, December 24 last year. After seven hours clad in summer clothes using a Keller harness, Newlands broke the country record by flying 320 kilometers (198.8 miles). The flight was tow launched during the Flatland X-C Challenge in New South Wales.

With only two years of experience in hang gliding, flying a Moyes GTR 162, Newlands managed to top Rick Duncan's former record of 292 km, also tow launched.

Gazette La Mouette points out, "This puts the Aussies less than 23 miles before they match Tudor's still-holding 221.5 mile flight." The flight also matches the '85 Owens Valley performance of Rick Rawlings in his HP.

German Government Requires Materials Testing On Older Gliders

Germany will require all registered gliders to undergo material control tests every five years beginning January 1, 1987. "Numerous accidents caused by ruptured tubing, wing and cable adjustments, etc," were cited as explanation for the new rule.

Every hang glider manufacturer or importer will be obliged to organize control tests at the pilot's expense. The sail will be removed to inspect the frame, measure the rigging, and verify washout twist. Stamps will be issued to each wing that undergoes the tests.

"Initially German pilots put up a great fuss over this new ruling, but the results of the first tests calmed their protests." expressed *Gazette La Mouette*. "Results showed that 30-50% if all 'aging' wings were in 'dangerously' bad condition." As of the effective date, all new hang gliders in Germany will have a sticker indicating the washout, the luff line and batten measurements to facilitate controls.

The reason given for the severity of the rule is that, "Several manufacturers made adjustments on their gliders after the Gütesiegel certification tests to obtain greater speed." Two of these were forced to call back their entire line of production to readjust the altered washout.

American Woiwode Is Only Foreign Pilot In South African Nationals

Only one foreign pilot flew in the South African Nationals. John Woiwode of Minnesota (USA) flew in the meet which reportedly enjoyed outstanding conditions over the '85 Christmas holidays.

Hugh Williams took first place and Mathew Stubb second. The meet finalized national ranking with Williams first (Airwave Magic IV), Stubbs second (La Mouette Hermes), Lippstreu third (La Mouette Hermes), Mandel fourth (La Mouette Hermes), Crous fifth (Airwave Magic III).

Hang Gliding Is Fastest Growing Air Sport In Spain

Among all air sports in Spain, hang gliding is the only one to have shown an increase in licensed members, now listed at 1,500. Also the Spanish Hang Gliding Association recently established various commissions for sites, competitions, instructions, etc.

The European Ultralight Championships will be held in Spain in July of 1986.

Prize Offered For Crossing 16,000 Foot Mount Blanc

Any pilot who succeeds in crossing the alps from Arpuilles (Aosta), Italy and landing in Chamonix, France will receive a special prize. The attempts are related to the combined Ski-Delta competition—Mount Blanc Gran Gala—and call for the successful pilot or pilots to cross Mount Blanc (16,000 ft., see April 1986, pg. 15). At last year's event, a lone local pilot achieved the goal.

The following items are excerpted with permission from the BHGA's Wings! *magazine, material edited by Bart Doets, who quotes Germany's* Drachenflieger *among other sources. Information may be obtained on subscribing to the British magazine by writing BHGA, Cranfield Airfield, Cranfield, Bedfordshire, England MK43 0YR.*

Nimbus Rigid Superwing Continues Evloution

The Swiss-designed Nimbus continues to evolve with test results recently released. Test flying has shown remarkable performance on this design (see July 1985). Maximum glide was found to be 18:1 at 30 mph, with a minimum sink rate of 150 fpm at 26 mph. The wing stall at around 17 mph and is easily flown with the large tip rudders activated by twist grips similar to the Fledge. Doets felt, "With its rigid wing, the Nimbus is likely to be a good aerobatic machine."

The design of the wing tips and rudders seems to have been changed slightly. Reports

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INTERNATIONAL NEWS

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of turning problems with the prototypes evidently caused some concern, hence the modifications to proven configurations. Originally the Nimbus used movable surfaces which extended beyond the wing, possibly described as "horizontal rudders."

It is being marketed as a kit, and costs approximately $1,500 (subject to considerable fluctuation with exchange rates). It takes about 100 hours to build. The Nimbus would easily qualify as a hang glider under the U.S. Federal Aviation Regulations, Part 103.

23 European Fatalities Recorded In One Year Of Flying

Twenty three deaths is the total figured by *Drachenflieger* in one year of hang gliding in central Europe, including Germany, Austria, and Switzerland (representing a population of about 15,000 active pilots). Doets states, "[The] list of the causes [includes situations] in which most of us can find one or two [occurrences] that almost got us, too."

Eight deaths resulted in flying too slowly and/or in turbulence while in the vicinity of obstacles (trees, buildings, or cliffs). Four happened due to unairworthy gliders; four for first or early altitude flight problems; two failures to hook in; one for poorly knotted hang loop (no backup) one for a stall after a deployment of a drag chute. "One last victim might have survived if he had only worn another helmet than the ice hockey helmet that broke on impact," reports Doets.

Problems On Keller Brand Enclosed Harnesses Receive Cures

Some Keller integral harness have suffered torn leg straps. It concerns only a certain series, and the manufacturer offers to repair any of these cases free of charge. All pilots flying with this full enclosure harnesses should inspect the stitching on their leg straps.

A year ago, Freddy Keller introduced a version of his Integral with an inverted french connection in the top. This enabled a pilot to stay parallel with the airstream even when flying fast. The fastening of this french connection has come apart on a number of cases, fortunately with no harm to the pilots.

Keller has now developed a new connection, and will convert harnesses that are made the old way, also free of charges. Pilots with these harnesses should contact their dealers.

GENERAL INTEREST NEWS

Company Featuring Hang Glider Wine Offers New Varieties

Weston Winery—the company featuring hang gliding on their labels—has introduced two more varieties the the series.

From a vintage 1982 Merlot harvest comes a new Cabernet Sauvignon, and a special White Reisling, to complement the famous Gewurtztraminer blend Blanc de Blanc.

The new offerings are also packaged with the rear label which give a positive commentary about the sport of hang gliding, as well as showing a glider on the front identifying label. Color coordination matches labels to the glass and foil cork wrapping.

Prices remain $6 per bottle or $65 per case, plus shipping. Regional director Mike King—associated with the promotion for the vintner encourages, "[These make] excellent gift ideas for your hang gliding friends and relatives." Contact the winery for further details by calling King at 208/362-1848 or 465-2221 (days).

Is NASA Building Trikes?

A hang glider-appearing NASA research vehicle has been put on display in the EAA Air Museum in Oshkosh, Wisconsin. The pioneering craft called "Parasev 1-A" was used by the astronauts to evaluate possible landing systems for the early manned programs.

The experimental vehicle was built and flown by NASA at Edwards Air Force Base in California and originally used more than 20 years ago. EAA Air Museum director Ralph Bufano said, "Parasev was an early forerunner of hang gliders."

"The design, which features a pivoting wing, captured the imagination of America's youth and provided the impetus for the hang gliding and ultralight movement that was immensely popular a few years ago [sic]," Bufano explained. "The Parasev was controlled by maneuvering the wing independently from a pivotal point atop the fuselage. It followed the Rogallo theory of a sailwing, which was developed [by Rogallo] in trying to provide a lightweight, stowable structure that permitted a controlled, gliding landing for NASA spacecraft instead of direct, vertical descents that typified parachute landings."

"The Parasev [has] basically [a] triangular shape with tubular leading edge spars plus a center spar which runs the length of the wing. In operation, the wing fills out into two half cones, one on each side of the center spar, to provide stability." Bufano said the vehicle had made more than 300 successful landings.

Bufano said the vehicle was on loan from the Smithsonian Institution's National Air and Space Museum. It will remain on display indefinitely during normal museum hours.

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1986 NATIONALS UPDATE

Nationals Entries Arriving At Brisk Pace

Organizer C.J. Sturtevant offers these update items on the 1986 Nationals: As of April 1st, more than 20 entries deposits have been received, including those of several top-ranked American and Canadian pilots.

The Chelan City Council has secured permission to have camping available on the track area of the local high school. This grassy field is right in town, convenient to the lake and all local businesses. The cost will be $5/person/night. RVs may park in the lot and use the facilities. The state campground still had space in late March; those interested may call them at 509/687-3104.

In addition to trophies, some prizes have been solicited including donations from Ball Vario, Litek, promises from Wills, Airwave, Bennett, Pacific Windcraft, Airplay'n Flight School, and Mission Soaring.

Sturtevant reports, "Because of the changes in the CPS, [competition administration committee chairperson] Liz Sharp has agreed to allow us to ignore the rule that says we have to allot 50% of our slots for World Class and 50% for Sporting Class. This year a person may register in whichever class he or she desires." This decision will be made publicly at the first pilots' meeting.

Sturtevant also reminds Nationals-bound pilots to secure their own retrieval, to have 35mm cameras, and recommends radios. Personal checks will be accepted for entry fees till June 1, after which all payments must be certified check, money order, or cash.

Pilots may contact Sturtevant at 206/888-3856, evenings, Pacific Time.

REGIONAL NEWS

Action By Sierra Club May End Flying At San Francisco's Mt. Diablo Site

The Sierra Club is going to turn Mt. Diablo into a wilderness area and remove the launch, towers, and road at the site regulated by San Francisco's Wings of Rogallo club. The action is not imminent, but the Sierra Club is apparently ready to fight it out for some time. Wings of Rogallo site committee members are looking into ways to respond to this threat to one of their flying sites.

In addition, [the city of] Fremont is evidently going to turn the landing area at Mission Ridge (see April 1986, pg. 24) into a golf course. Mission Ridge is temporarily closed to flying until the hang gliding club can renegotiate their contract with the East Bay Regional Parks personnel. The problem hinges on the availability of additional insurance [over USHGA's base coverage]. The club hopes "economic realities will nip [development of the golf course] in the bud."

For additional information on site requirements for Bay Area sites contact the Wings of Rogallo.

Information from Wings of Rogallo Flight Line *April 1986.*

"King Mountain" Opened In Region 5

Region 5 has a new site, named "King Mountain." Director Mike King amplifies this as "mis-appropriately named 'King Mtn.'," and adds that the site acquisition helps a slow start to the flying season in Idaho.

King Mtn. is established near the southern end of the Lost River mountain range. One early report calls it, "the best site in Idaho!" after a reported 74 mile XC flight by Ken Cavanaugh of Pocatello, and numerous 35-40 mile flights. An XC event has already been tentatively scheduled for June 27-29. Further details will be available later.

Flight Realities Appointed Exclusive Delta Wing Dealer For San Diego County

Flight Realities of San Diego has been appointed the exclusive dealer for Delta Wing Gliders, covering all areas in San Diego county. The appointment of the business run by past USHGA president Steve Hawxhurst went into effect about the middle of April.

Delta Wing advises that Flight Realities will make announcements on demo days for the Delta Wing line of gliders, and adds that dealer support team visits are in planning, as well as a glider trade in promotion called "Alladin Trade-in Days.

For further information, contact Flight Realities at 1830 Clove St., San Diego CA 92106, or call 619/455-6036.

DIRECTORY

NORTH MOUNTAIN

HIGH SIERRA SPORTS
286 E. Winnie Lane
Carson City, NV 89701
702/885-1891
Northern Nevada's complete hang gliding and windsurfing shop. All major brands available. USHGA Certified Instructor, Observer, and Region 2 Examiner. Sales, Service, Rentals, and Lessons.

TREASURE VALLEY HANG GLIDERS
Box 746
Nampa, ID 83653
208/362-1848
Offers the finest in gliders (from Magics to Mystics, Sensors to Saphirs, Hermes to Heaps), accessories, USHGA Certified Instruction, and flying accommodations.

SOUTH EASTERN

KITTY HAWK KITES (EAST)
P.O. Box 340, Dept. 105
Nags Head, NC 27959
919/441-4124
Learn to hang glide on soft sand dunes near the site where the Wright Brothers learned. Beginning and advanced lessons, and ratings available daily. Complete inventory of new gliders, accessories, and parts.

NORTH EASTERN

MOUNTAIN WINGS
Box 1022/Main Street
Kerhonkson, NY 12446
914/626-5555
Ellenville area's most complete HG shop. Mtn & Training hills for all winds. Exclsv dlrs for: WW, Bennett, Pac, Windcraft, Manta, Seedwings, Cosmos trike. Also Dlr for: Airwave & Pro Air. USHGA Cert. Instr., towing, repairs, parts, access., ultralight instr. Phantom sails, camping, tours, bunkhouse.

MORNINGSIDE FLIGHT PARK
Rt. 12, RFD 2
Claremont, NH 03743
603/542-4416
Full service flight park, camping, lessons, precision repairs, sailmaking, parts, accessories, premier New England flying here and nearby. Rides to top. Factory authorized sales and service for the following: Airwave, Bennett, Moyes, Pacific Windcraft, Seedwings, Wills Wing.

FLY HIGH HG'ING INC.
R.D. 2, Box 561
Pine Bush, NY 12566
914/744-3317
Serving the NYC, Albany, NJ and CT area. Area's most inexpensive prices. All major brands. Cert'd Instr. Expert Repairs. Any and all accessories available. Ask for Paul Voight.

CANADA

FLY-WEST HANGLIDING LIMITED
2207-42 Street, SE
Calgary, Alberta
CANADA T2B 1G4
403/235-4653
Dealers for Progressive Aircraft Co., Polaris from Italy. Sales, service, rentals, and accessories. Certified Instruction: Radio equipped, beginner to mountain flight.

NORTH PACIFIC

SAN FRANCISCO WINDSPORTS
3620 Wawona
San Francisco, CA 94116
415/753-8828
For all your hang gliding needs, we sell and service all major brands. Send $2.00 for Price List. Private and group instruction by Certified Instructors.

Ken de Russy's
HANG GLIDER EMPORIUM
613 N. Milpas St.
Santa Barbara, CA 93103
805/965-3733
Year 'round highest quality personalized instruction on beautiful grassy hills by the beach, and 3600 foot site 6 miles from beach. Buy, sell, or trade. Extensive inventory.

EUROPE

NOVA-AIR AERO SPORT SYSTEMS
Am Bahnhof
8531 Illesheim
WEST GERMANY
Tel: 09841-8883
We sell and service all models of equipment. School instructor is special-rated by USHGA (I-IV) and is German Instructor/Observer.

RON HURST HANG GLIDING SAFARIS
Im Brunnli 10
CH-8152 Opfikon
SWITZERLAND
Tel: 01/810-26-48
Visit Switzerland and encounter the rapture of flying the Swiss Alps.

Please mail your address changes, preferably with a copy of your current mailing label, to: CIRCULATION DEPARTMENT, POBox 98786, Tacoma, WA 98498-0786.

The First Annual WHOLE AIR Listing of

GREAT AMERICAN CLUBS & SCHOOLS

KEY TO LISTING DETAILS:
(Numbers relate to those on Map beside a "©")
- Listed by Time Zone, divided by North, South, or Canada (alphabetical within grouping)
- Name of Association or Club
- Address
- Contact Name and Phone Number
- Newsletter Name (if any)
- Brief Description of Activities and Other Information (if sent to magazine)

See Map in CenterSpread, Pages 22 & 23

IMPORTANT NOTE: All the clubs listed in this special presentation have been in contact with **WHOLE AIR** magazine, thereby proving their current activity level. Other clubs and associations do exist, of course. However, since this publication has had no recent contact with them, no verification of their activity was available for publication. All clubs were contacted by mail in October 1985, and again through a message in the April 1986 edition of **WHOLE AIR**. Contact is encouraged with the clubs listed below as it is felt they will indeed respond to inquiries. Clubs not receiving a listing are encouraged to contact **WHOLE AIR** as soon as possible to assure being listed in future special presentations. *All information subject to change without further notice.* —Ed.

NORTH PACIFIC

1- Cloudbase Country Club
P. O. Box 629
Issaquah WA 98027-0629
Contact: C. J. Sturtevant
@ 206/888-3856
Cloudbase Country Club Newsletter
Sponsor of the 1985 and 1986 U.S. Nationals.

2- Coastal Condors
P. O. Box 828
Marina, CA 93933
Contact: John LaTorre
Newsletter
Club newsletter published monthly. Club consists of 25 paid members, an active group that controls the flying sites of Marina Beach, and San Luis Reservoir.

3- Marin County Hang Gliding Association
20-A Pamaron Way
Ignacio CA 94947
Contact: Ginny Farnsworth
@ 415/457-4684
Newsletter

4- North California Hang Gliding Association
812 Garnet Street
West Sacramento CA 95691
Contact: George Hamilton
@ 916/371-3619
The NCHGA Pilot
We fly quite a few sites in Northern California, and have monthly fly-ins or clinics. We also publish an entertaining and useful newsletter

5- Rogue Valley Hang Gliding Association
P. O. Box 311
Medford OR 97501
Contact: Joseph Bova
@ 503/488-2317 (evenings)
or 503/770-4520 (days)
RidgeRunner
8th Starthistle X-C Competition June 21-22 at association's premier northwest USHGA-insured, 2,200 foot AGL Woodrat Mtn. Only Oregon USHGA Chapter, $12/yr. dues; $5/year Woodrat non-member pass.

6- Wings of Rogallo
18880 Tilson Avenue
Cupertino CA 95014
Contact: Greg Shaw (editor)
@ 408/257-9080
Flight Line

SOUTH PACIFIC

7- Crestline Soaring Society
P. O. Box 2454
Crestline CA 92325
Contact: Debbi Renshaw (Crestline Air Park)
@ 714/887-9275
Flypaper
C.S.S. has a lease from the Forest Service on the Crestline launch sites. We offer consistent soaring noon to dark, June thru Sept. Daily launch fee $3 (non members) free to members. USHGA membership required. Hang III, or II under instructor supervision.

8- Santa Barbara Hang Gliding Association
613 N. Milpas Street
Santa Barbara CA 93103
Contact: Bonny Nelson
@ 805/965-3733
Newsletter

9- Sylmar Hang Gliding Association
14456 Foothill Blvd #58
Sylmar CA 91342
Contact: Craig Baker
Hi Times

10- Ultralite Flyers Organization
P. O. Box 81665
San Diego CA 92138
Contact: Dan Sutherlin
@ 619/440-3042
The Flier

HAWAIIAN ISLANDS

11- Hawaiian Hang Gliding Association
P. O. Box 26265
Honolulu HI 96825

NORTH MOUNTAIN

12- Golden Vultures
80 Clear Creek Ln. #8
Golden CO 80401
Contact: Steven D. Sweat
@ 303/279-7817 (evenings)
or 303/424-5576 (days)
Vulture Vector
Our club offers local soaring information, directions to sites, used equipment for sale, intermediate thru advanced instruction, plenty of work for the willing.

13- Grand Valley Flyers
2493 W. Mesa Ct.
Grand Junction CO 81501
Contact: Darrell McKay
@ 303/434-7187
Four sites within 50 mile radius ranging from training hills to 3,500 foot vertical. Great X-C potential.

14- Storm Peak Hang Gliding Club
Box 1844
Steamboat CO 80488
Contact: Chris McKeage
@ 303/879-4603

15- Sunnyslope Soaring Society
Box 746
Nampa, ID 83653
Contact: Mike King
@ 208/362-1848 (evenings)
or 208/465-2221 (days)
The society meets on an irregular basis, to discuss hang gliding in general and noteworthy news or problems in particular. We welcome all pilots to contact us, and hopefully slow down for some flying while passing through enroute to the 1986 U.S. Nationals.

16- Telluride Air Force
Box 456
Telluride CO 81435
Contact: Jack Carey
@ 303/728-4759 (mornings)

17- Utah Hang Gliding Association
7615 South 230 East
Midvale UT 84047
Contact: Steve Rathburn
@ 801/268-2848
Soaring Times
The club operates to promote safety and preserve flying sites. Sites managed: Point of the Mountain, south and north side; and Francis Peak.

SOUTH MOUNTAIN

18- East Valley Hang Gliding Association
1114 W. Cornell Drive
Tempe AZ 85283
Contact: Doug Gordon
@ 602/897-7121

CANADA MOUNTAIN

19- Alberta Hang Glider Association
Box 2011, Station "M"
Calgary, Alberta
Canada T2P 2M2
Contact: Steve Soinenen
403/286-7599
The Flypaper

20- Cochrane Hang Gliding Club
Box 4063
Postal Station "C"
Calgary, Alberta
Canada T2T 5M9
Contact: Vincenne Muller
@ 403/932-6760
Cochrane Club News
Cross Country Guide Published for all of Canada.

NORTH CENTRAL

21- Chicagoland Hang Gliding Club
300 N. Green bay Rd. #405
Waukegan IL 60085
Contact: Brad Kushner
@ 312/360-0700
Brand new club starting up this year. Flying sites scattered in 100 mile radius. Call for info. Working in conjunction with the Madison (WI) HG Club.

22- Cross Country Tow Pilots Association
8435 Spring Street
Racine WI 53406
Contact: Steve Schultz
Newsletter
A 60 member club that promotes towing, operating from a secured site midway between Chicago and Milwaukee.

23- Madison Hang Gliding Club
5018 Marathon Drive
Madison WI 53705
Contact: John Stillwell
@ 608/238-1205
University oriented club. Owns 2 gliders. Working in conjuction with Chicagoland HG Club. Call for info.

24- Northern Sky Gliders, Inc.
P. O. Box 364
Minneapolis, MN 55440
Contact: John Woiwode
@ 612/373-1709
The Current Flyer Newsletter
Annual handbook published with descriptions and photographs of area sites. Club established 1974.

25- Skyline Sky Dogs
9727 Halie Road
Duluth MN 55810
Contact: Dan O'Hara
@ 218/624-4500
We have a series of coastal sites on Lake Superior and two inland sites. Also, a large towing area with frequent X-C. Several annual parties.

SOUTH CENTRAL

26- Alabama Hang Gliding Association
732 - South 81st Street
Birmingham AL 35206
Contact: Earl Chambers
@ 205/836-1969
Wing Nuts
We have several fly-ins a year at the five sites within a 40 mile distance of Birmingham. Two sites are cliff launches with 800 feet vertical.

27- Arkansas Hang Gliding Association
2418 LeHigh
Little Rock AR 72205
Contact: Larry Haney
@ 501/224-2186
Site Guide Published.

28- Buffalo Mountain Flyers Association
4501 N. Villa
Oklahoma City OK 73112
Contact: Steve Michalik
@ 405/943-5484
Center for best mountain and X-C soaring in 500 miles. Four alternate sites within one hour or less. Instructors, observers, camping, motels, friendly Talahina, OK.

29- Houston Hang Gliding Association
6327 Dellfern Drive
Houston TX 77035
Contact: Henry Wise
@ 713/729-4233
Wind Writer

30- North Texas Hang Gliding Association
Fort Worth,Texas
Contact: Bob Cummings
@ 817/327-2978
Wingnut News

31- Oklahoma City Hang Gliding Association
6717 N. St. Clair
Oklahoma City OK 73116
Contact: Charles Hall
@ 405/843-7795
High Ten
Monthly meetings on the 3rd Tuesday of each month. Information and activities.

CANADA CENTRAL

32- Manitoba Hang Gliding Association
47 Jolliett Crescent
Winnipeg, Manitoba
Canada R3K 0M9
Contact: Mike Gaskin
@ 204/888-3616
The Flatland Flyer
Successful tow operation and several small sites within two hours drive of Winnipeg. Tows to 3,000 feet are standard.

NORTH EASTERN

33- Capitol Hang Gliding Association
P. O. Box 8808
Rockville MD 20856
Contact: Jerry Nielsen
@ 301/589-4434
Skyline

34- Central Virginia Hang Gliding Association
320 Camellia Drive
Charlottsville VA 22903
Contact: Bauvard Hosticka
Newsletter
Newsletter published 6 times per year. Sixty names on club list.

35- Daedalus Hang Gliding Club of Western Pennsylvania
88 Walnut Street
Natrona PA 15066
Contact: Pat Brooks
@ 412/224-2421
Templeton Trade Winds
Annual meeting, parachute repack, local instruction weekly. Exceptional towing facility, 60 miles flights from Templeton. Yearly sponsors of the Allegheny Challenge, Region 9 Team X-C Challenge.

36- Ladies International Pilot's Society
3 Ivanhoe Road
Worcester MA 01602
Contact: Jan Siskind
@ 617/753-1568
Lipservice
This is the only known organization exclusively serving female hang glider pilots with news, tips, and other information.

37- Maryland Hang Gliding Association
P. O. 1031
Hunt Valley MD 21030
Contact: Bill Roberts
@ 301/768-1612
Windwriter
We meet the 1st Thursday of each month at Oregon Ridge Park. We are co-owners—with the Capital Hang Gliding Association—of the Pulpit HG site in McConnelsburg, PA.

38- Mountaineer Hang Gliding Association
Rt. 3, Box 48
Philippi WV 26416
Contact: Jim Rowan
@ 301/729-0773
The Wing Thing
We have 30+ members in WV, MD, PA, VA. Several mountain sites facing predominantly NW/SE. Basic instructors and observers available.

39- Nittany Valley Hang Gliding Club
1184 Oneida Street
State College PA 16801
Contact: Dennis Pagen
@ 814/234-1967

40- Roanoke Valley Hang Gliding Association
304 E. Washington Street
Blacksburg VA 24060
Contact: Richard Cobb or W.W. Richards
@ 703/961-2878 or 345-9128
Thermals
The RVHGA has an active membership of 15-20 pilots

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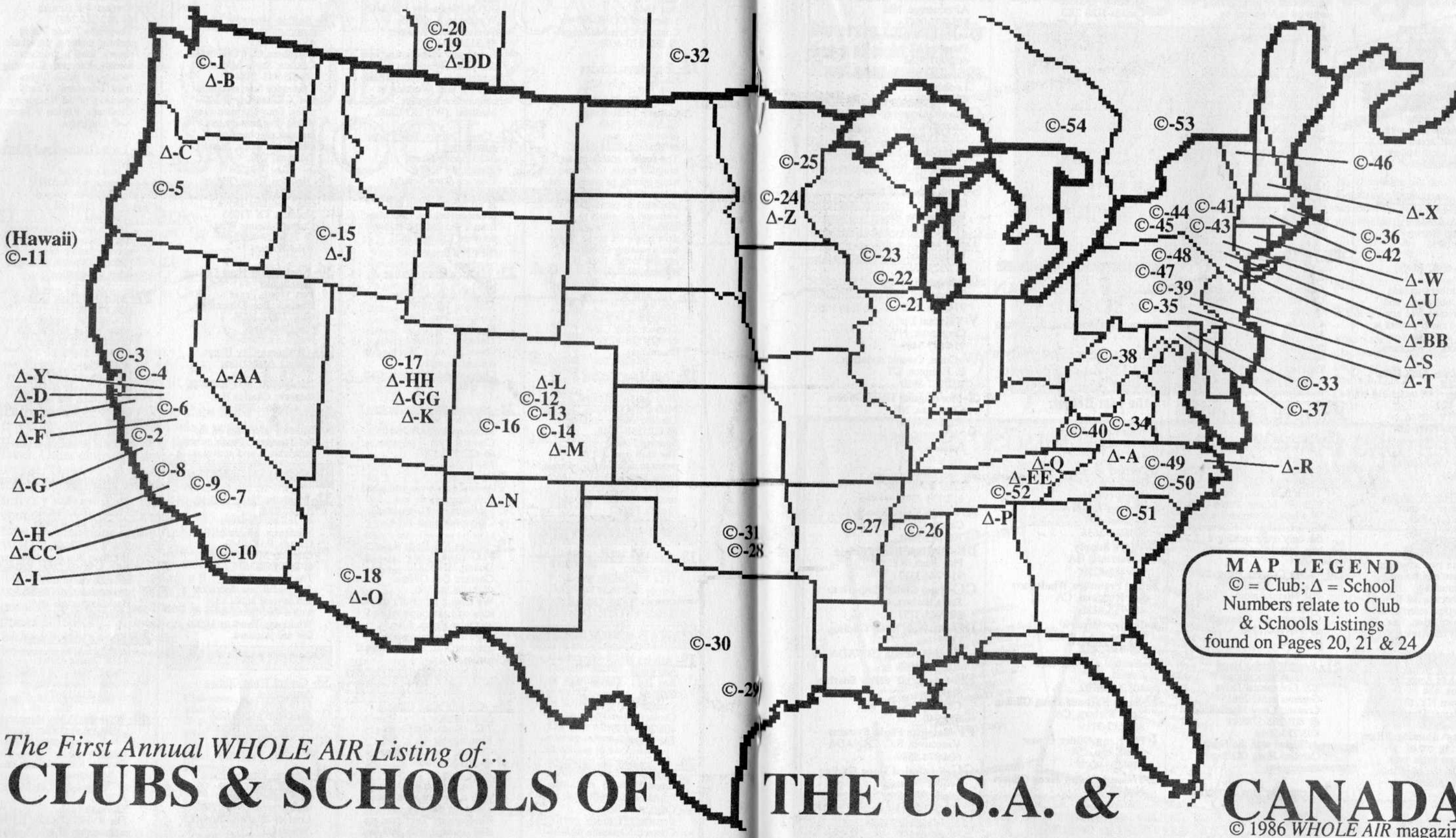


MAP LEGEND
© = Club; Δ = School
Numbers relate to Club
& Schools Listings
found on Pages 20, 21 & 24

The First Annual WHOLE AIR Listing of...

CLUBS & SCHOOLS OF THE U.S.A. & CANADA

CLUBS & SCHOOLS

CONTINUED from Page 21

around Roanoke (southwestern Virginia). We have 8 sites, facing most directions.

41- Rochester Area Flyers
55 Oliver Street, Apt. 3
Rochester NY 14607
Contact: Doug Fleischman
@ 716/454-2179
RAF Newsletter
Fly the beautiful Finger Lakes region—Certified instruction, 2 training hills, 6 soarable sites with one and a half hours drive. Octoberfest; local dealers; and active monthly meetings.

42- Skyriders of New England
67 Glen Street
Malden MA 02148
Contact: Bud Brown
@ 617/322-0936
(evenings)
or 617/253-6387 (days)
Newsletter
Our 65 members include instructors, observers, and regional director. We just completed a ramp project at a new site, and seek new and old pilots as members.

43- Southern New York Hang Glider Pilot's Association
P. O. Box 124
Millwood NY 10546
Contact: Bob Havreluk
@ 914/225-3029
(evenings)
or 914/945-1547 (days)
Hawk Talk

44- Southern Tier Skysurfers
318 Doyleson Avenue
Endwell NY 13760
Contact: Bob Langer
@ 607/785-2043
What's In The Wind
We regulate two advanced sites, operate one training site, hold monthly meetings, occasional fly-ins and parties, referrals to certified instruction, free supervision for novice members.

45- Susquehanna Horrdogs Soaring Pilots Association
R.D. 2, Box 434
Cooperstown NY 13326
Contact Name: Dan Guido
@ 315/866-6153
Susquehanna Horrdogs? Rare bread soaring out of Susguehanna flight park dedicated to the relentless pursuit of airtime. Forty acres training. Four mountain sites. Join us!

46- Vermont Hang Gliding Association
P. O. Box 282
Randolph VT 05060
Contact: John Pettinato
@ 802/728-9726
Newsletter
VHGA is the sole regulatory body acting to further the promotion of hang gliding activity in Vermont by acting in conjuction with state agencies and state laws.

47- Water Gap Hang Gliding Club
R.D. 2, Box SV-21A
East Stroudsburg PA 18301
Contact: William Sayer
@ 717/421-5095
Newsletter
Annual events: spring chute repacking workshop, Holloween party and fly-in, Christmas party. Three to five sites regulated. Certified instructors and observers. Eastern PA and NJ pilots.

48- Wind Riders Hang Gliding Club
819 North Street
Collingdale PA 19023
Contact: Christian Titone
@ 215/286-9427
Cloudbuster
Wind Riders cover the southern Pennsylvania, southern New Jersey, and Delaware areas. We offer training, mountain sites, and towing.

SOUTH EASTERN

49- Buzzard Club
167 Wildwood Road
Lenoir NC 28645
Contact: Travis Bryant
@ 704/758-9331
Three mountain sites: Hibriten, Moore, Pores. N-S-W winds, 45 minutes apart. All are Hang IV. Hibriten is the only one requiring a key. Instruction available.

50- North Carolina Hang Gliding Association
701 Northampton
Cary NC 27511
Contact: Jake Alspaugh
@ 919/760-1390
AirTimes

51- South Carolina Hang Gliding Association
209 Continental Drive
Greenville SC 29615
Contact: Larry MacDonald
@ 803/268-5788 or
803/233-2044
Affiliated with the North Carolina Hang Gliding Association.

52- Tennessee Tree Toppers
P. O. Box 144
Lookout Mountain TN
37350
Contact: Cliff Whitney
@ 615/949-3384
Branches

CANADA EASTERN

53- Association de Vol Libre du Québec
5883 St. André
Montréal, Quebec
Canada H2S 2K3
Contact: Jean LéTourneau
@ 514/274-9078 (p.m.)
Bécois Volant
Represents 12 affiliated clubs. Newsletter published in French language.

54- Etobicoke Hang Gliding Club
1220 Sheppard Av. East
Willowdale, Ontario
(Toronto area)
Canada M2K 2X1
Contact: Matt Redsell
@ 416/964-0819
Associated with the Ontario Hang Gliding Club (@ 416/496-4289).

NORTH AMERICAN SCHOOLS

Schools Represented By a "Δ" Symbol, Followed by a Letter, Keyed to the List Below:

A-Sauratown Kites
Winston Salem, NC
919/760-1390

B-Airplay'n
Seattle, WA
206/467-8644

C-Oregon Airwave
Portland, OR
503/245-2636

D-Pilot's Supply
Sacramento, CA
916/485-4229

E-San Francisco Windsports
San Francisco, CA
415/753-8828

F-Dunlap Airpark
Dunlap, CA
209/338-2422

G-Central Cal Airwave
Salinas, CA
408/449-6702

H-Santa Barbara Hang Gliding
Santa Barbara, CA
805/687-3119

I-The Hang Glider Center
San Diego, CA
619/450-9008

J-Treasure Valley Hang Gliders
Nampa, ID
208/362-1848

K-Utah Airwave
Salt Lake City, UT
801/562-2520

L-Boulder Flight
Boulder, CO
303/444-5455

M-4 Corners Airwave
Durango, CO
303/247-1515

N-UP Over New Mexico
Albuquerque, NM
505/292-0647

O-Arizona Windworks
Phoeniz, AZ
602/997-5364

P-Lookout Mtn Flight Park
Lookout Mtn., TN
404/398-3541

Q-Hawk Airsports
Knoxville, TN
615/573-9593

R-Kitty Hawk Kites
Nags Head, NC
919/441-4124

S-Penn. School of Hang Gliding
Waynesboro, PA
717/762-7858

T-Sky Sails
Williamsport, PA
717/322-8866

U-Mountain Wings
Kerhonkson, NY
914/626-5555

V-Thermal Up
Cragsmoor, NY
914/647-3489

W-Conn. Cosmic Aviation
E. Hampton, CT
203/267-8980

X-Morningside Hang Gliders
Claremont, NH
603/542-4416

Y-Mission Soaring
Fremont, CA
415/656-6656

Z-Northern Sun, Inc.
Lake Elmo, MN
612/731-1311

AA-High Sierra Sports
Carson City, NV
702/885-1891

BB-Fly High Hang Gliding
Pine Bush, NY
914/744-3317

CC-Hang Glider Emporium
Santa Barbara, CA
805/965-3733

DD-Fly-West Hang Gliding, Ltd.
Calgary, Alberta CANADA
403/235-4653

EE-Sequatchie Valley Soaring Supplies
Chattanooga, TN area
615/949-3384

FF-Bateman Flight Systems
Vancouver, B.C. CANADA
604/874-5589

GG-Southwind Hang Gliding School
Sandy, UT
801/571-8535

HH-Wasatch Wings
Riverton, UT
801/254-2242

WHOLE AIR Pilot Report: Polaris GZ

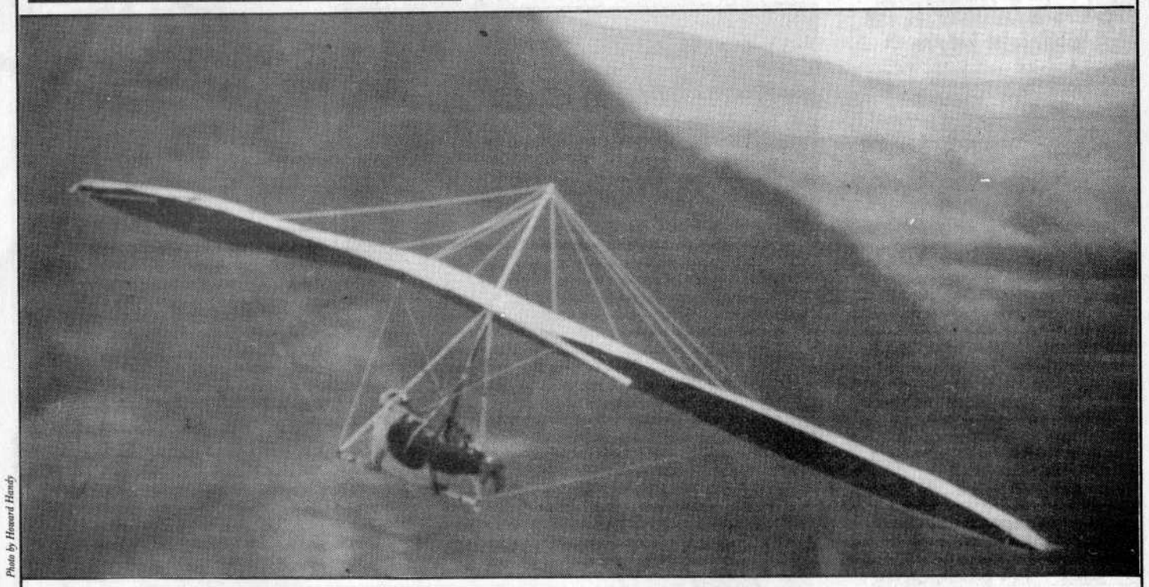


Photo by Howard Handy

A Ferrari for hang gliding? Perhaps.
An ill-handling high performance glider? Perhaps.
God's gift to state-of-the-art design? Perhaps.
A cheap rip-off of the Ultralite Products GZ? Perhaps.

A point of view

A lot depends on your point of view. We're pretty sure the Italian manufacturer, Polaris of Costacciaro, Italy would love for us to tag the Polaris Gamma Zero as the Ferrari of hang gliders. After all, their autos are some of the most revered machines in the world, as evidenced by the company's three year (!) backlog. They are fast, smooth, beautifully designed, and have appeal that simply will not quit. They're also outrageously expensive. The GZ is not. So much for the Ferrari comparison.

If you are a strictly recreational pilot—one of the growing number of experienced pilots who are "coming out of the closet" and admitting they are not solely after performance when handling refinements are thrown to the wind—then you might describe the 15.9 meter (177 square foot) GZ as a real truck to fly.

If you are a die-hard competition pilot, that same glider may represent one of the better values for your money, *still* offering you very high performance. You might even say the handling is not bad at all, even pretty good (the lack of objective statements is deliberate).

Finally, if you are part of the design group that gave birth to UP's GZ, you would undoubtedly have great disdain for the Polaris GZ. The folks at Polaris just as obviously have their own ideas (see "Doi Malingri On the GZ Lineage").

What's The Point?

All we've shown so far is that many different points of view are possible. That's nothing new. And these points could be made about a great many gliders that have been produced. But it may help end a tendency that we're tired of... the one that says every new glider stretching the performance envelope is also possessed of "good" to "great" handling.

On scales of 5 or 10, handling on these new superwings has *usually* been rated as 4 or 8. We think that is unfair to those gliders that genuinely deserve those ratings (see "The Emperor's New Clothing"). It's a very old aviation adage which proclaims that every gain in one area necessarily decreases benefits in some other area, or "all [aviation] design is compromise."

In fairness to Polaris' GZ, and to other pilot reports that follow in **WHOLE AIR**, we felt it important to issue the above "disclaimer." And now... ladies and gentlemen pilots, on to our report.

America's First

I was pleased to pilot the first [known] Italian GZ in the USA. On the launch at Washington state's Dog Mountain (1976 Nationals site), I had a kind of pride in this distinction. You might imagine roaring up to your club picnic in a Lamborghini SuperAmerica and watching keenly as every eye at the event takes

in your sleek transportation. One pilot told me, "Oh, you're from **WHOLE AIR**. I figured you had to be sponsored to have such expensive equipment." It made me feel kind of important.

Too bad this sensation didn't last when I got into the air.

Again, in fairness to the GZ, it was not a GZ-HP-Sensor type of day. The lift was extremely light, the skies crowded. Also, the GZ had me at the controls.

Now, I claim to be a good pilot. I've a lot of experience flying many, many different kinds of aircraft. The list also includes over 50 models of hang gliders. I get up with the best pilots (usually), do very few dumb things (knock on wood), and don't care at all for competition pilots who manage to look down their noses at "the rest of us," (even if they may be above me or us while doing so).

But, it is also no secret to those with whom I get to fly that I am not a competition pilot. My last meet was the grandiose-sounding Midwest Open at Frankfort, Michigan in 1975. I also don't even pretend to be a cross country enthusiast. The amount of time required for lengthy cross country flights is a luxury I can rarely afford. For me a 25 mile X-C is just as gratifying as notching up several 75 mile flights. I don't consider the number of miles flown as an indicator for how much I enjoyed hang gliding on any given day.

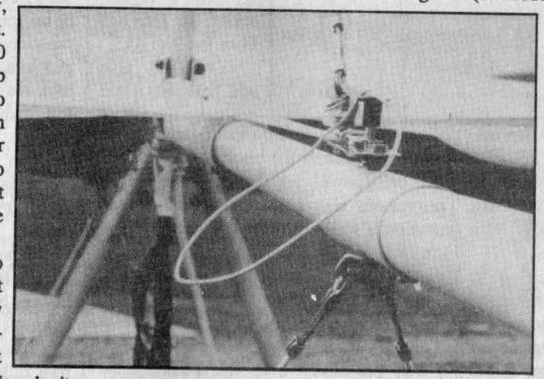
So, the GZ was probably wasted on me. It is a cross country machine, and if that distance flying is in a contest, so much the better. I'd have been better off (read to mean: had more fun) flying Pacific Windcraft's Eclipse, or Delta Wing's Lite Dream, or Wills' new Sport.

"Ugh!" for Handling

You then will not be surprised to hear I hated the handling. Polaris news releases from last year reported in this magazine said "their" GZ was very similar to the UP edition, but had better handling. Well, now I wonder about their criteria for same.

The GZ rolls *in* quite nicely. I don't mean that as just a pleasant statement. It really does. When you know that I hook in at about 175, and was flying a 177 sqaure foot, tightly stretched wing, good roll-in is a positive remark.

Roll out was awful. Even terrible. Due to inexperience with the GZ... due to too many weeks of reduced flying... due to too light a weight on too big a glider, I nearly lost the GZ in the trees behind and to the side of Dog's launch. After rolling in to a turn to chase a small thermal, I fell out the backside and found myself looking at the trees only about 50 feet below. Struggling mightily I was able to continue on around and escape the embarrassment of blasting into the side of the mountain. But it made me think I was exercising on the Italian equivalent of a heavily loaded Nautilus machine. Ugh!



HAND STRAIN—The crossbar tensioning system on the GZ is the most difficult we have encountered. Fortunately, the rest of the finish quality is much better.

For the rest of the flight, I flew much more conservatively, and had no more trouble. But upon landing, a few observers of the backside incident told me they

thought I was in trouble (...bad for my pilot self esteem).

Thermalling, however.

While the above may make some pilots sure they don't want a Polaris GZ, more should be said.

The GZ holds a thermal quite well indeed. Again, I see no reason to wax eloquent when it was not the case. But, truly, this GZ would lock into a thermal and stay in it with considerable ease. That was swell. Had not the thermals been light and a bit ragged, I might have climbed very well.

The trouble is, I'm one of those pilots who likes to manipulate the glider while in thermals. Doing so in the GZ was two things: 1—it was no doubt unnecessary, the glider was doing just fine on its own (at moderate bank angles at least); and 2—it wore me out. As the flight continued, I got lower and lower relative to a flock of other pilots. I figured I was just doing a lousy job at first. But I later recognized that I was tiring, and not putting the same effort into optimizing the thermals. I settled down to just driving around in the larger but weaker lift area further out in front of Dog, and discovered that I did better. I also liked it more.

The GZ also wants to tighten up in turns when the bank exceeds, say, 25 degrees. Flat turns—if you can even achieve them—are fine in light lift, but in stronger lift, you'll be fighting the GZ to keep it from continuing to bank further.

No matter what, this report seems to be negative about the GZ. Again, I say this is not entirely fair. I'm only one pilot with tastes in flying machines that are definitely not typical of all pilots.

So it should be said that, according to the supplier of this glider—Rod Porteus of Fly-West Hang Gliding in Canada—Rich Pfeiffer will be using the Polaris GZ for competition in the 1986 season. That's no small statement. Pfeiffer is widely known for having no allegiance to brand names. He is known for choosing whatever glider that he feels will make him the most competitive. And, reportedly, the GZ is that bird—for now, at least. Though initial reports from his success at an Italian meet in March were not glowing, he too may be getting used to the GZ, and *may* end up showing us that it will outperform anything in the sky. (Maybe.)

Racing Around

In some of those moments where I felt fatigue arriving, I chose to pull in hard on the bar. Talk about some excitement—the good kind—the GZ offers some real speed range.

On the slow end, the Ball 652 deck's

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airspeed indicator revealed a trim speed (hands off) of about 22 MPH. Stall speeds ranged from 16 MPH on the slowest entries to 20 on the more abrupt "hard" stalls performed. In the thermals at an average bank of approximately 30 degrees, trim speeds appeared to be about 23 or 24 MPH. I did not take the opportunity to perform accelerated stalls (stalls in turns), so cannot compare turning stalls with turning trim speeds.

Arms-extended speeds ran up to an indicated 50 MPH with ease. Interestingly, flight at these speeds was very steady, with no wandering of the nose whatsoever. All this would seem to confirm my initial impressions that the GZ might excel at serious cross country flying, especially in a competitive environment. I never "buried" the bar by tucking into an absolute full forward position. Not doing relates only to that approaching fatigue level. I felt very confident in the GZ at higher speeds, and believe it might behave very nicely even at 60 MPH or better, which I am also sure it could achieve (again, based on readings from the Ball 652).

I should also add here that I did not have the GZ in its tightest sail tension configuration. As you can see from the photos, the GZ uses the ball swivel tip design. Freedom of movement was quite fluid. Adding sail tension is a one-increment situation where a quarter inch spacer is placed between the end of the leading edge tube and that swivelling ball.

GZ SPECS

Area	14.9	15.9
Nose	122º	122º
Spar	10.7	10.7
A. R.	7.7	7.2
Battens	19 & 6	19 & 6
Sailcloth — lower	3.8	3.8
T.E.	4.5	4.5
Weight	31 kg	32 kg
Pilot	55-85 kg	80-105 kg

Takeoff and Landing

I can practically hear the Polaris crew groaning after this subtitle. "What'll he say now?"

Take heart, guys. The GZ launched like a properly mannered glider should. It was statically a bit tail heavy, but this quality is returning to hang gliders I've hefted in the past year or so. No one seems to be complaining. My takeoff was into about eight miles an hour, down a steep ramp with few obstructions. Perfect. I'm an eastern pilot (Chattanooga mainly) and I love diving off cliffs. The steeper the better. So, Dog was an easy launch. But, the GZ is a big glider for me, and I had never launched it. Also, I was more out of practice than I'd like to be. Still, no problem. Comments in the landing area told me the launch looked as good as it felt, and without any special effort on my part.

The landing. Aah, the landing. Nemesis of pilots with relatively short arms (me) flying modern glide-forever craft.

A piece of cake. Again, I was blessed with a few miles an hour of wind, which always helps. But the landing was as easy as any I can recall since the days of Ravens and Lancers. Effortless, smooth, to a full stop. No tendency whatsoever to drop a wing. Just plain terrific. What a pleasure.

This all while I was 20-30 degrees crosswind. With the GZ's rollout sluggishness, I took no chances on approach. Gentle turns along a S-path brought me near the intended target. A few landing area comments questioned my methods in that meandering approach path. But no one could fault the coordinated touchdown which the GZ permitted.

Additional Commentary

Setup, that part of flying with which we all must deal is fairly reasonable in the GZ. I'll spare you the customary, "...and then you spread the wings" part of these reports, just to hit the highlights.

The GZ is a European glider. For those that have never set up a European glider, they by and large offer an ease of rigging superior to most American wings. Why, I don't know. European gliders usually sport trick looking hardware, and builders apparently pride themselves on simple, easy setup and takedown. Pacific Windcraft's Bernasconi uses his European heritage and connections to employ more of these components than other U.S. manufacturers. Plus, international influences in this area have improved American machines over the years. The difference in rigging ease is not as great as it once was, but in this writer's opinion, they are still ahead of the Yanks.

Except...

Never in my days of assembling CFX (concealed, floating crossbar) gliders have I struggled so with the crossbar pullback. Those Italians must have strong arms and calloused hands if they can tension the GZ alone. At one point I had four assistants, and still couldn't do it. Finally, a pilot saw my predicament. He unvelcroed the sail, and shoved back on the crossbar itself to allow me to clip the pip pin in place. Canadian distributor Porteus says he has had to use this technique as well.

Photo by Howard Handy

Surely with the other nice hardware on the Polaris glider, the designers could incorporate some mechanical advantage system into the GZ. It needs such an aid badly. If you're a cross country pilot, or a frequent competitor, or at least heavier in hook-in weight, I believe you should *seriously* consider the Polaris GZ. While not HGMA certified, it has passed the German Gütesiegal (their equivalent to HGMA certification; see elsewhere in this issue). Gosh. It went real fast and did so very comfortably. Plus, it's near hands-off thermalling abilities are notable. Pfeiffer's apparent choice of the GZ is not to be taken too lightly either.

But, if you are a recreational pilot, whose pleasures involve light handling,

CONTINUED on Page 30

A Few Words from Polaris President Doi Malingri...

The "Other" Side of the Story...

I'm Doi Malingri. I'm the boss of the Polaris hang glider manufacturing company. Everybody in Italy knows this and therefore one might think an article written by me about the birth of a new generation of hang gliders would be biased. This history is nevertheless well documented (in the Italian and French hang gliding magazines—*L'Aquilone & Vol Libre)* regarding the dates, places, and events. In any case the piece boasts my Italian wit that **WHOLE AIR** believes is worthwhile for reading.

If you look around in Europe at the different hang glider designers, you won't see many designers still tearing their hair out trying to make the keel pocket shift properly. Anymore almost nobody continues to support this widespread —and until recently—indispensible portion of the sail.

All of them are now crying in unison, that they have used the keelpocket only to write the names of their firms on it... that their magazines have many prototypes without this anachronistic component. Only someone very audacious would exhibit it, and at that only on some dusty specimen of bamboo and plastic.

Thanks to the hospitality of **WHOLE AIR** magazine, I would also like to tell the Polaris version of this case [of glider development]. While I am aware that Polaris is regarded as the "rank Xerox" of the hang gliding sector, this time Polaris is the originator of the avalanche. You will [probably] not believe me because: 1st) I am notariously not very trustworthy; 2nd) I own Polaris; and 3rd) I am not an American, though at best, something of a converted American.

At one time it seemed a good suggestion and useful to organize a trip to visit the famous American factories of myth enshired by us Sunday hang glider pilots. American president Reagen creates quite an image of this glorious country: "Our boys are brave." But what a shame... [in hang gliding circles] old Europe has put up a better show. It is not without reason that 35,000 pilots are flying on our side in contrast to the 6,000 on their side. Also in contests, they begin to take defeats Vietnam-style by guys like Mr. Peanut from Europe.

Keelpocketless GZ Lineage

But let's turn toward ourselves. Tino Venturi, designer at Polaris, is crazy. This man is quite well known among his buddies and admirers. Most think he should be kept out of sight in the factory.

Long ago, back in '83, instead of worrying about the production of hang gliders, he arrives at Polaris, jumps out of his rattletrap car, and cries, "They are all fools!! The keelpocket serves no purpose!!" He writes an article which was published by *L'Aquilone* and *Vol Libre,* and closes himself in his messy office to design little paper ships.

A few weeks later Venturi—striving to raise his image by techincal achievements in hang gliding (which works not at all)—contructs a new machine he calls "Epsilon." I rename it the "Zero," because in my great farsightedness, I know that this is the initial point of big things. The design flies well and is beautiful to look at. To justify Tino's damage to our equipment and his waste of our material, I convince my colleagues to write this up and it was published in *L'Aquilone* in November of 1983.

I fly it without success for evident reasons and because—from my point of view—of the hostility I felt in my comparison flights (senility comes along with paranoia for we in this industry). My companions laugh at me and don't worry about the time it takes me to get used to it. This glider is eventually sold to an untalented Roman who still flies it.

Everything stays rather quiet about the Epsilon/Zero except for visiting American J. C. Brown, who took a model with him back to the USA.

Polaris sets up some stages of the manufacturer of this glider. I segregate myself with another employee, Guerino, to make refinements. We will finally design what will be called the Gamma Zero. This impressive craft flew for more than a year is I was delighted by having a picture of it published in *Vol Libre* in their August '84 issue. No doubt this was due to my well-known handsomeness and imposing physical shape.

My friends congratulate me when we emerge from the design work, yet I hide the secret of this design which has characteristics to make it fly better. I made a version of it in mylar and sold it in Columbia, where I went for business reasons. (No. you malicious readers, I did not go to find any white powders. I went just to earn money for Polaris.

But Back In the USA

In the meantime, J. C. Brown—who [at that time] worked at UP contacts us and asks if we would like to produce the Gamma Zero—also called the GZ—in collaboration with them. We are obviously excited and they build a version that is derived from the Epsilon. To maintain the initials "GZ," they call it Glide Zilla, after a Mexican deity obviously important to the UP staff.

Brown puts the final touch to the GZ/UP. It looks beautiful but can only be handled by him and Larry Tudor. We work at the Gamma Zero and continue our negotiations with UP, thanks to my persistance about international agreements. (I am dressed like a company executive in my English suit with brief case, and I practice in front of the mirror in the evening before the final talks.)

Finally, nothing happens, because we find out that our version is better than theirs. And also because these short-sighted Reaganians—advised, I guess, by the hang gliding equivalent of their Kissinger—to be on their guard with us unless we put up a casino full of money with no guarantee that they will return it (probably they would just find another idiot from Europe).

Although I am disgustingly rich and my cohorts are disgustingly poor, they are frightened by the risk of putting money in bond, and of contracts that do not spell out all the destinations for that money. We continue, however, and immediately after this the Polaris GZ is placed in production.

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manipulating thermal usage, or simply playing in the lift, take a pass on the GZ. It's not for you.

Now... Polaris has a complete line of gliders and one of them could be just exactly what you're seeking.

And, due to still somewhat favorable exchange rates between dollars and Italian lire, the Polaris line can offer reasonable pricing. It is not as dramatic as a year ago though, when the top of the line Polaris glider could be had for the equivalent of about $1,600 (without shipping or duty).

For More Information

The sole North American distributor at this time is the above-named Rod Porteus of Fly-West Hangliding Ltd. You may write Rod at 2207-42 Street, SE; Calgary, Alberta; Canada T2B 1G4, or call him at 403/235-4653.

The Emperor Has No Clothes

Once a long time ago (according to legend), a swindler sold an invisible wardrobe to a vain and gullible emperor. His subjects, not wishing to embarrass the emperor and incur his wrath, went along with the deception. However, this house of cards came tumbling down when a child's innocent observation stated the obvious, "The Emperor has no clothes!"

The entire fraud was destroyed by this direct and simple revelation. No amount of self deception could perpetuate the illusion any longer.

Now, as I see it, a similar deception is going on right now in the hang gliding community. It's success depends, in part, on a hang glider pilot's vanity. Most of the flyers I know are very competitive people. Their egos, if not oversized, are indeed large. They have to be in order to challenge an entire planet's gravitational forces.

Do you flyers remember how well Lazors, Ravens, and Seagulls handled? Remember how much effort it took to stand them up on a wingtip and go the other way? Sure, they didn't have a zillion-to-one glide, but they turned right now, with no argument.

Now mentally, while you're remembering what it was like, contrast that memory with the effort it takes on today's current crop of wunder wings. (You "wunder" where you're going to end up.) I ask you, if today's wings can win review scores of five on a scale of one to five for their "good" handling, is there some kind of deception going on here? My question is good as compared to what? A Mack truck with flat front tires?

The success of this deception depends upon the intended victim's vanity/ego in which he/she says to themselves, "I'm good enough to handle these hot new wings." The danger is that these "wunder wings" are so stiff, so spirally unstable, that in many flying situations, the Wunder Wings are uncontrollable. I've seen may of the really good pilots on state-of-the-art gliders out of control close to the ground.

I think that a solution to the current handling problem is some form of aerodynamic flight controls. For example, wing warping like the Wright Brothers. Why not use the luff lines to work full-time, since you're already paying the drag penalty for them anyway?

Until aerodynamic flight controls are used, most hang glider pilots will continue to be a passenger rather than "Pilot-in-Command."

PETE OSBORNE
Mt. Joy, PA

To complete this nice story that I have told you, there are two further particulars regarding Torrey Pines, test site of the American GZ (and also the sacred place of Southern California hang gliding).

Launch Misstep

At this site, they are testing the hang gliders also made by Wills Wing. (They are fantastic, these Americans! This would be like if we would test our gliders as well as those of LaMouette and Airwave at our test sites. What else can I do but laugh about it?) Shortly after the first appearance of the GZ, the HP was in production. (The guys at Wills Wing are better off financially, and also pretty alert concerning the serial production of beautiful wings.)

And now for one of my unparalleled appearances that time on the intercontinental level... At this sacred place where many great rogallos have flown, J.C. finally convinces me to test fly his personal UP/GZ. I make one step (a wrong one) and wrap myself up at launch smashing the leading edge and other small parts including the sail. Nevertheless, the GZ/UP had surpassed the strict test regulations of the USA, but it has failed in the famous and dreadful "Malingri test." J. C. says gentlemen-like (but a little greenish in the face) that it is not important. It seems that several years ago, a similar adventure has happened to Luigi Accusani with not quite so special a prototype. So by crashing valiantly, I reflect further credit on the fame of the Italian pilots, but I do not augment it.

Postscript

This is in short words the history of the gliders with integrated keel pockets as it happened. You are also free not to believe me, but at least you should listen to my final advice: Don't take pains to care about us or the others! We tell you something about resistances, aerodynamics, theoretical and practical megabattenal studies, revolutionary discoveries... Balls!! I have the suspicion after I have seen this story that ever since hang gliders like the GZ and those that preceded them have been born, nevertheless only one thing is left to say... they all fly.

Happy Landings,
Doi Malingri

Translated from the Italian by Hans Bausenwein

Disclaimer

Since Doi "pulls few punches," as it is said, we feel some folks in our sport may take great issùe with Malingri's version of this tale. The UP team will surely see this all another way, as will others whose designs Polaris has "copied" or "refined" (depending on your point of view). Additionally, Wills Wing may disagree that their HP had any relationship to the GZ Malingri saw at Torrey Pines.

***WHOLE AIR** cannot verify these statements, nor do we believe it is vital to do so. Malingri's commentary is primarily intended to be entertaining material, not pure facts. —Ed.*

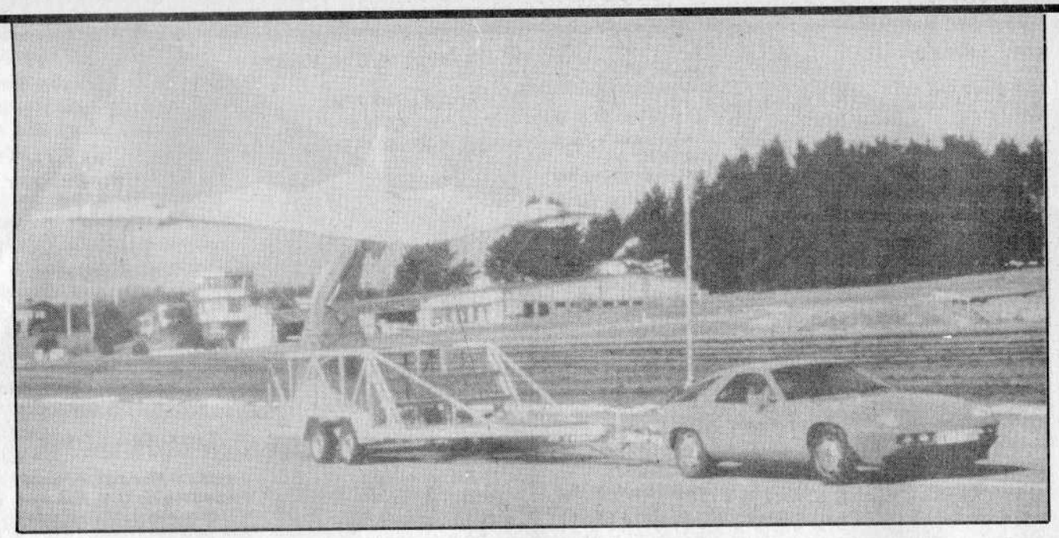

Photo by Professor Schonherr

AMERICAN & GERMAN

The June 1985 issue of Hang Gliding *magazine contained an interview of Mike Meier by Eric Fair. This interview dealt with the topics of hang glider certification and airworthiness. In addition to commentary on the general topic of certification procedures, the article referred heavily to the German DHV-Gütesiegel program (see below). Meier felt confusion (in the German community's understanding of the article) was mistaken for an attack (by him) on the German certification program. Nevertheless Meier's counterpart in Germany—Professor Schönherr—wished to respond to these interview comments. Especially as this issue represents* **WHOLE AIR's** *entry to the German and European hang gliding market, the subject seemed to cry out for more information to contribute to a better understanding by the rest of us. The DHV Gütesiegel is widely respected in Europe, being its primary testing organization, yet the HGMA has a most commendable record itself. We here at* **WHOLE AIR** *felt the issue is best served by allowing both entities to have their opportunity to elaborate.*

Below, then, appears first a reply from Schönherr to the original article, followed by a response from Meier. Both were submitted at our request, and are presented without editing for both American and European communities to assess for themselves. Comments on these articles are welcomed. Please write: DHV/HGMA, Box 98786, Tacoma, WA 98498-0786, USA. (Europeans may write to: Behringstr. 6, D-8500 Nürnberg.)

THE JUNE ISSUE of *Hang Gliding* brought a lengthy interview with Mike Meier, the president of the American Hang Glider Manufacturers Association, which contained a multitude of errors and misunderstandings concerning the DHV-Gütesiegel. *(Ed. Note: The DHV is the German equivalent to the USHGA, and is one of two aeroclubs representing German pilots. The other is the DAeC. The Gütesiegel is the "seal of approval," or equivalent of HGMA certification compliance.)* This was obviously due to a certain amount of wrong information, because nobody made an interview with the DHV against whom the attacks were directed. In the full text of the interview, Mike Meier had to confess: "...I have a copy of their standards (he refers to the standards for the DHV-Gütesiegel), but it is in German and I don't read German..." Thus, Mike Meier criticizes what he does not really know himself.

"...Mike Meier criticizes what he does not really know himself."

Before answering Mike Meier's reproaches, I would like to compare the HGMA and the DHV certification standards. Both organizations use aerodynamic test vehicles, load test vehicles and they require test flights. Apart from organizations questions (which are of a different nature in the USA than in the FRG), the main difference lies only in the aeromechanical test vehicle: The DHV uses a 3-component test vehicle (measurements of lift, drag, and moment), whereas in the HGMA each manufacturer uses his own 1-component test vehicle (only measuring moment).The DHV has approved the HGMA certification for years. It requires, however,—if not performed in the USA—the additional passing of a 3-component test, because this guarantees a more compete safety coverage. The HGMA, on the other hand, does not accept the DHV-Gütesiegel as equivalent to the HGMA certification, because the HGMA pretends to require higher pitching moments that the DHV, and the HGMA-tested hang gliders are, according to them, thus less sensitive to tumbling than DHV-tested hang gliders. Anyway, also the HGMA sees the key for

English version continues on page 34

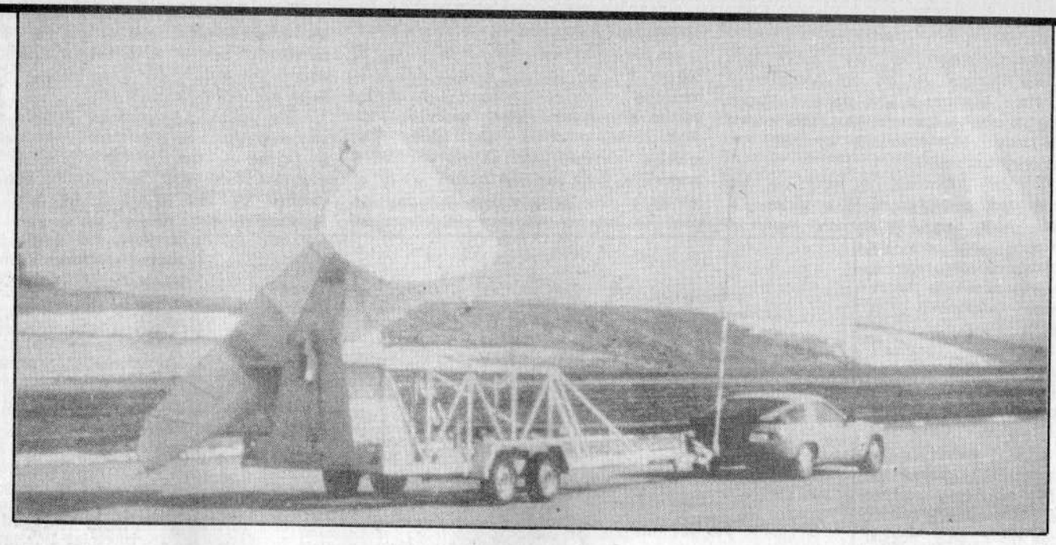

Photo by Professor Schonherr

CERTIFICATION

IN DER JUNI-Ausgabe des "Hanggliding" erschien ein langes Interview mit dem amerikanischen Drachenhersteller-Präsidenten Mike Meier, in welchem das DHV-Gütesiegel mit einer Fülle von Irrtümern und Mißverstandnissen bedacht wurde. Offensichtlich is Fehlinformation in Kauf genommen werden, denn keiner hat den angegriffenen DHV interviewt. Im vollem Text des Interviews ist Mike Meier das Eingeständnis entschlüpft: "...ich habe eine Kopie ihrer Richtlinien (gemeint sind DHV-Gütesiegelrichtlinien), aber sie is in deutsch und ich kann kein Deutsch." Mike Meier kritisiert also, was er selbst nicht genau kennt.

Bevor ich auf Vorhaltungen Mike Miers eingehe, möchte ich HMGA- und DHV-Zulassung kurz gegenüberstellen. Beide Organisationen verwenden Flugmechanik-Meßwagen, Festigkeitsmeßwagen und verlangen Testflüge. Abgesehen von organisatorischen Fragen (die sich in den USA anders stellen als in der BRD), liegt der Hauptunterschied nur im Flugmechanikmeßwagen: Der DHV verwendet einen 3-Komponenten-Meßwagen (Messung von Auftrieb, Widerstand und Moment), während bei der HGMA jeder Hersteller seinen eigenen 1-Komponenten-Meßwagen (nur Momentenmessung) betreibt. Der DHV anerkennt seit Jahren die HGMA-Zulassung, er verlangt allerdings--falls nicht in den USA ausgeführt--das zusätzliche Bestehen eines 3-Komponenten-Tests, weil hierdurch eine lückenlosere Sicherheitsabdeckung besteht. Die HGMA ihrerseits anerkennt das DHV-Gütesiegel nicht als äquivalent zur HGMA-Zulassung, vor allem, weil die HGMA höhere Momente verlange als der DHV und somit HGMA-geprüfte Drachen weniger überschlagsgefährdet (Tuck) seien als DHV-geprüfte Drachen.

"Herr Schönherr never does dispute my contention... that the HGMA standards are more stringent... except to try and cast doubt on the accuracy and relevance of HGMA testing procedures."

Immerhin, auch die HGMA sieht den Schlüssel zur Tuckverhinderung im aerodynamischen Aufrichtemoment, prinzipiell sind wir da einer Meinung. Warum dies jedoch mit dem 1-Komponenten-Meßwagen nich genügend festellbar ist, soll bald gezeigt werden.

Im folgenden seien die vielen Seiten langen Vorhaltungen Mike Meiers zusammengefaßt, auf ihren Kern konzentriert und ihnen jeweils meine Antwort gegenübergestellt.

Vorhaltung:

Die vom DHV zugelassenen Geräte in Europa hätten einen sehr neidrigen Sicherheitsstandard.

Antwort:

Zirka 80 Prozent der in Europa gelfogenen Geräte haben den DHV-Flugmechaniktest und weitere DHV-Geräteprüfungen absolviert. Es ist damit nur logisch, daß bei Unfällen DHV-Zulassungen oft auftauchen. Technisch bedingte tödliche Unfälle mit Geräten im DHV-Gütesiegelzustand hat es in Europa seit 1979 nicht mehr gegeben. In den USA werden tödliche Hängegleiterunfälle nicht zentral erfaßt und bekanntgegeben. Naturgemäß werden dadurch viel weniger Todesfälle publick. Die Unfallrate in den USA wird deshalb unterschätzt.

Vorhaltung:

Die Deutschen Hersteller schummeln bei Gütesiegeltests, sie trimmen die Geräte schwanzlastig, nur um zu bestehen und ändern dies nach der Prüfung wieder ab.

Antwort:

Dieser Vorwurf geht an dies Adresse der deutschen Hersteller, die ihn beantworten sollten. Immerhin hat der DHV durch Dokumentierung der wichtigsten geometrischen Gerätedaten ein Werkzeug geschaffen, um die meisten Modifkationen nachweisen zu können. Im übrigen kann

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pitchover-prevention in the aerodynamic pitching moment, so we are basically of the same opinion in this question. I am going to show, however, that this cannot sufficiently be measured by the 1-component test vehicle.

In the following, I reply to the summarized reproaches of Mike Meier *(Ed. Note: These summarizations are made by Schönherr, and are not verbatim. Please refer to the original article for in-context understanding of Meier's comments.)*

Reproach: The hang gliders certified by the DHV have a low safety standard.

Response: About 80% of all hang gliders used in Europe have passed the DHV aerodynamic tests and additional DHV tests. It is thus only logical that DHV certifications come up frequently in connection with accidents. Since 1979 there have not been any fatal accidents which were due to technical failure of hang gliders in the state of the DHV-Gütesiegel in Europe. In the USA fatal hang gliding accidents are not registered centrally. This is why much less fatalities become public. The accident rate in the USA in thus underestimated.

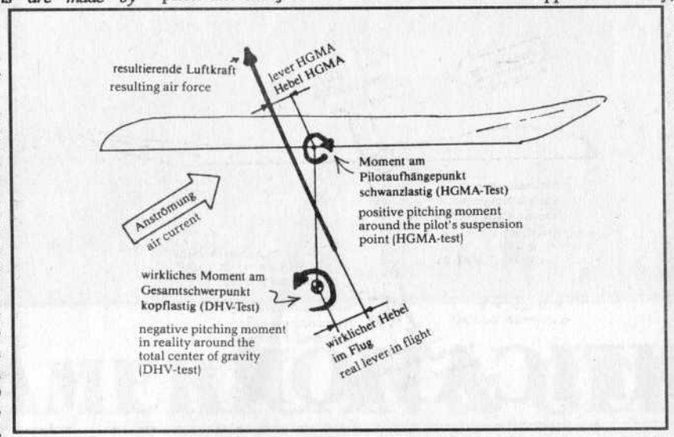
Reproach: German manufacturers cheat to pass the Gütesiegel tests. They trim their hang gliders tail heavy, only in order to pass, and change this after the test.

Response: This reproach is directed at the German manufacturers and it would be their job to reply. By documenting the most important geometrical hang glider data, the DHV has created a tool which enables the manufacturer to prove most of such modifications. Furthermore, the tail heaviness of a hang glider trimmed in such a way cannot remain undetected in a 3-component test. The velocity polar shows immediately if, for instance, during the best sinking there is a trimming balance or if there is still a tail-heavy trimming. The 1-component test cannot measure any flight performance. It does not thus give any information as to whether the hang glider was trimmed and airworthy or not.

Reproach: The DHV standards only require stability, whereas the HGMA requires a certain amount of stability which make the HGMA hang gliders safer against pitchovers than the DHV hang gliders. This is the main reproach of the interview.

Response: I am glad that this reproach came up because it gives me the opportunity to point to an error that has existed for a long time.

In the HGMA's view, it is wrong to believe that the pitching moment which is measured in the 1-component test in the pilot's suspension point describes the flight stability of a hang glider. The moment reference point is not the pilot's suspension point, but the overall center of gravity of the flying system including the pilot. Let me just take two cases from the multitude of possible misunderstandings which can be caused by the 1-component test. In this case the 1-component test gives pitching moments, whereas in reality the system is nose heavy.



The above figure shows a hang glider and the resulting air force, such as it can act as the cause for pitchover at high angles of attack. The pitching moment created by the air force is given by the lever to the reference point. The HGMA test measures tail heaviness in the pilot's suspension point. With reference to the overall center of gravity (the real flight situation), however, there is nose heaviness.

The above figure shows a hang glider and the resulting air force, such as it can act in the case of negative angles of attack, the decision point between pitchover or pitching up. This example is valid for the case that the pilot holds fast to the control bar. The 1-component test would predict tail heaviness and positive pitching moments in this case—a highly perilous error— the hang glider being actually nose heavy and inclined to pitchover.

The HGMA 1-component test is not only imprecise, but even more problematic is the fact that in the examples used here, the pitch-up reserve required by the HGMA gives only an apparent security, because the greater the air force, the greater the positive pitching moment which the HGMA would measure. Whereas in reality it is the nose heaviness and the inclination towards pitchover that is all the greater. It is only the 3-component test as required by the DHV that makes it possible to find out the pitching moments around the overall center of gravity that are relevant for the flight stability. And it is only the 3-component test takes into calculation the nose-heavy influence of the pilot's drag, which is not at all taken into account by the HGMA.

Pitching moments around the pilot's suspension point are any moments whose influence for the real flight stability is unforeseen. This holds true in particular for extreme situations which cause the pitchover. It is therefore useless to discuss the shape of pitching moments around the suspension point, as does Mike Meier, or even to deduce therefrom a higher safety level for the HGMA-tested hang gliders.

Mike Meier gives two diagrams showing control force courses. The worst diagram is intended to be an example for the DHV-tested hang glider, which would pass his test without problems. But this, too, contains the error that the moments measured around the pilot's suspension point would be the real control forces. A diagram so generated does not exist for the DHV certification and a comparison of the necessary shapes is thus useless. In addition, the DHV hang gliders must meet the limits in five totally different diagrams at one time, in order to pass the vehicle certification tests.

The HGMA aerodynamic test vehicle standards are based on the state of knowledge of about 1978, only the limits have been somewhat raised in the meantime. In addition, the HGMA requirements—referred to the problematic pilot's suspension point—can partially not be met. For instance, how can you meet a given pitching moment for "zero lift" when only this one component "moment" is measured and when there is no

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Photo by Professor Schonherr

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die Schwanzlastigkeit eines vertimmten Gerätes bei einem 3-Komponenten-Test nicht unbemerkt blieben: Die Geschwindigkeitspolare zeigt sogleich, ob etwa beim besten Sinken ein Trimm-Gleichgewicht besteht oder ob dann noch schwanzlastige Vertrimmung herrscht. Beim 1-Komponenten-Test kann keinerlei Flugleistung gemessen werden. Es gibt damit keine Information bei diesem Test darüber, ob der untersuchte Drachen getrimmt und flugfähig war oder nicht.

Vorhaltung:

Die DHV-Richtlinien verlangen nur Stabilität, während bei der HGMA ein bestimmtes Maß an Stabilität vorgeschrieben sei, was die HGMA-Drachen sicherer gegen Vorwärtsüberschläge (Tucks) mache als die DHV-Drachen. Dies ist der Hauptvorwurf des Interviews.

Antwort:

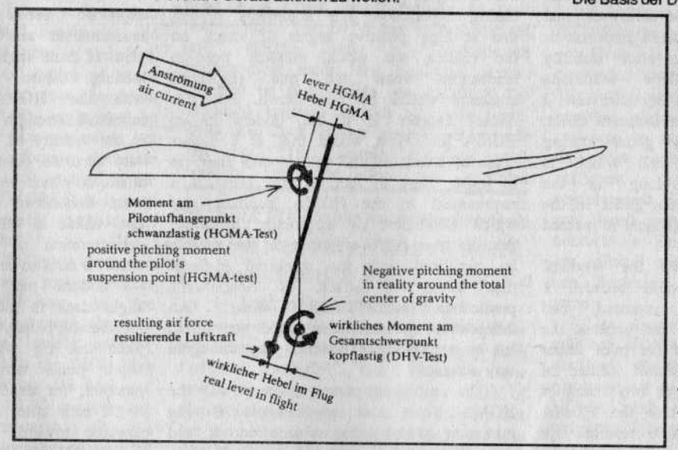
Ich bin dankbar, daß dieser Vorwurf erhoben wurde, gibt er doch endlich Gelegenheit, auf einen schon lange bestehenden Irrtum hinzuweisen.

Es ist ein Irrtum zu glauben, daß Moment, welches beim 1-Komponenten-Test am Pilotenaufängepunkt gemessen wird, die Flugstabilität eines Drachens beschreibt (HGMA-Ansicht). Nicht der Pilotenaufhängepunkt ist der Momentenbezugspunkt, sondern der Gesamtschwerpunkt des fliegenden Systems *inklusive Pilot.* Aus der Vielzahl möglicher Fehlinterpretationen, welche der 1-Komponenten-Test verursachen kann, sind nachfolgend 2 Fälle herausgegriffen, wo der 1-Komponenten-Test am Pilotenaufhängepunkt aufrichtende Moment mißt, in Wirklichkeit jedoch Kopflastigkeit besteht.

Die Abbildung 1 zeigt einen Hängegleiter und die resultierende Luftkraft, wie sie bei großen Anstellwinkeln als Auslöser zum Tuck wirken kann. Welches Moment die Luftkraft erzeugt, sagt ihr Hebel zum Bezugspunkt. Am Pilotaufhängepunkt beim HGMA-Test wird Schwanzlastigkeit gemessen. Auf den Gesamtschwerpunkt bezogen (Flugwirklichkeit) besteht jedoch Kopflastigkiet.

Die Abbildung 2 zeigt einen Hängegleiter und die resultierende Luftkraft, wie sie bei negativen Anstellwinkeln wirken kann, wenn die Entscheidung zwischen Tuck oder Abfangen fällt. Das Beispiel entspricht dem Fall, daß der Pilot sich an der Steuerbügelbasis festhält. Der 1-Komponenten-Test würde hier als lebensgefährlichen Irrtum Schwanzlastigkeit veraussagen, während das Gerät in Wirklichkeit kopflastig ist und zum Tuck neigt.

Der HGMA-1 Komponenten-Test ist nicht nur ungenau, problematischer noch, bei den angeführten Beispielen bietet die von der HGMA verlangte Pitch-up-Reserve nur scheinbare Sicherheit, denn: Je großer die Luftkraft, ein desto aufrichtenderes Pitch-up-Moment würde der HGMA-Test messen, während in Wirklichkeit eine desto größere Kopflastigkeit unt Tuckneigung besteht. Nur mit Hilfe eines 3-Komponenten-Tests, wie ihn der DHV vorshreibt, ist man in der Lage, die für die Flugstabilität relevanten Pitch-Momente um den Gesamtschwerpunkt zu ermitteln und dabei auch noch den kopflastigen Einfluß des Pilotenwiderstandes mit zu berücksichtigen, der bei der HGMA ganz unter den Tisch fällt. Momente um einen Pilotaufhängepunkt sind iregenwelche Momente, deren Bedeutung für die wirkliche Flugstabilität unvorhersehbar ist. Dies gilt insbesondere für Extremsituationen, die den Tuck auslösen. Es its deshalb nutzlos, wie Mike Meier es tut, über dem Verlauf der erforderlichen Pilotaufhängepunktsmomente zu diskutieren oder gar hieraus eine größere Sicherheit für HGMA-Geräte ableiten zu wollen.



Mike Meier präsentiert auch 2 Diagramme mit Steuerkraftverläufen. Das schlechtere Diagramm sei ein Beispiel für einen DHV-Drachen, der glatt bestehen würde. Es ist jedoch auch hierin der Irrtum enthalten, die am Pilotaufhängepunkt gemessenen Momente seien die wirklichen Steuerkräfte. Ein so gewonnenes Diagramm gibt es bei der DHV-Zulassung gar nicht, ein Vergleich der erforderlichen Verläufe ist damit nutzlos. Im übrigen müssen die DHV-Geräte die Grenzwerte

in 5 ganz unterschiedlichen Diagrammen zugleich erfüllen, um den Meßwagentest zu bestehen.

Die HGMA-Meßwagenrichtlinien basieren etwa auf dem Kenntnisstand von 1978, es wurden zwischenzeitlich lediglich Grenzwerte etwas angehoben. Die auf den sowieso fragwürdigen Pilotaufhängepunkt bezogenen HGMA-Anforderungen sind überdies teilweise gar nicht erfüllbar. Wie will man z.B. einen vorgeschriebenen Momentewert bei "Null-Auftrieb" erfüllen, wenn man nur die eine Komponente "Moment" mißt? Mehr als 50 Prozent der beim DHV nachgeprüften HGMA-Geräte haben den 3-Komponenten-Test zunächst nich bestehen können. Kein einziges der Geräte hat bis heute die eigene HGMA-Forderung erfüllt, nach welcher der (auf den Pilotaufhängepunkt bezogene) Momentenbeiwert zwischen Trimm-Anstellwinkel und Null-Auftrieb stets zunehmen müsse. Wahrscheinlich ist auch diese für flexible Geräte unerfüllbare (und unnötige) Forderung aus den viele Jahre zurückliegenden theoretischen Berechnungen Gary Vallees entstanden, auf den nach Mike Meier die HGMA-Richtlinien zurückgehen.

Die Basis der DHV-Richtlinien ist ungleich breiter. Denn anders als in den USA, wo die Hersteller nur Erfahrung bei wenigen eigenen Produkten sammeln können, werden beim DHV alle Geräte zentral getestet und erfaßt, ebenso werden die tödlichen Hängegleiterunfälle im Auftrag des Luftfahrtbundesamts von DHV-Sachverständigen untersucht. Seit 8 Jahren besteht ein ununterbrochenes Feedback zwischen Gütesiegelforderungen, Meßwagentests (bislang ca. 1.000!) und Unfällen. Es ist keine Instanz in der Welt bekannt, die in der Lage wäre, auf einen ähnlichen Erfahrungsschatz aurückzugreifen und wie der DHV theoretisch und praktisch erprobte Forderungen festzulegen.

Ich bedaure, daß die in der Hängegleitertechnik so kreativen amerikanischen Hersteller bei der Meßtechnik überholten Vorstellungen anhängen. Ich kann mir nicht vorstellen, daß einer von ihnen ernstlich glaubt, daß ein 1-Komponenten-HGMA-Test, bei welchem die 2 weiteren auf den Drachenflügel einwirkenden Komponenten unbekannt bleiben, mehr Sicherheit bi``eten soll, als der DHV-Test, bei dem alle Komponenten erfaßt werden und bei dem die Luft keine Chance hat, eine bestehende Heimtücke in einer nicht gemessenen Komponente zu verbergen.

Photo compliments DHV-Info

Antwort an Herrn Schönherr von Mike Meier, Vorsitzender der HGMA

Sind "Gütesiegeldrachen" sicherer als Gleiter mit HGMA-Zertifikat?

"Hang Gliding" Magazin, das amerikanische Pendant des deutschen DHV-info, brachte im Juni-Heft 1985 ein Interview von Eric Fair mit Mike Meier, dem Vorsitzenden der amerikanischen Drachenherstellervereinigung HGMA. Hauptsächlich ging es dabei um Themen wie Lufttüchtigkeit und Testprogramme für Hängegleiter. Meier sprach im Verlauf des Interviews auch direkt Bezug auf das deutsche

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Mike Meier Replies to Germany's Professor Schönherr

Response to Professor Schönherr:
by Mike Meier, HGMA President

BEFORE READING MY response to Professor Schönherr of the DHV, I would recommend that the reader carefully re-read what I said in my original interview to which Schönherr's response is directed. I have had the pitch stability requirements of the DHV Standards translated, as I indicated in my interview. I never said the German manufacturers cheat. I said the DHV alters the gliders during testing, which they do, and which is perfectly all right so long as the manufacturer is producing the glider in the modified configuration in which it passed the vehicle tests.

Schönherr contents that the required HGMA pitch test is invalid because it measures only pitching moment, and aerodynamic lift and drag, and because the moment is measured about the pilot tether point rather than the assumed center of mass of the system. He gives two examples in an attempt to prove that the HGMA system cannot yield accurate results. But his examples themselves are seriously flawed. His two examples deal with very high positive and very high negative angles of attack. The first is at about plus thirty-three degrees (well above the stall angle) and the second is at about negative twenty-five degrees. The HGMA pitching moment requirements *begin* at trim angle of attack and *end* at negative twenty degrees. Each of the angles of attack of Schönherr's examples is *completely outside* the range of angles of attack for which the HGMA standards require ANY specific pitching moment. Schönherr's contention that the HGMA test would yield inaccurate pitching moment values at angles of attack above stall and 25 degrees below zero cannot therefore possibly be relevant to the question of the validity of the HGMA requirements. In addition, Schönherr's predictions of the specific nature of the inaccuracy to be expected of the HGMA pitch tests based on his examples are not supported by our testing experience. His arguments predict that at high positive angles of attack on the vehicle, we would measure nose-up tendencies when the true (in-flight) tendency would be nose down. But this doesn't happen. If it did, gliders in an HGMA pitch test would trim at a higher angle of attack on the vehicle than they do in flight. They in fact do not. There is a requirement in the HGMA standards (of which Schönherr is apparently unaware) that the trim angle of attack on the vehicle be correlated with the measured in-flight trim angle of attack. If Schönherr's predictions were valid these two independent measurements could not agree, but in our testing experience they do agree very accurately.

The most important aspect of the HGMA pitch test requirements is the minimum pitch-up forces required at, and near, the zero lift angle of attack. It is in this region that I claimed that the HGMA requirements are more stringent; requiring higher pitch-up forces than the DHV standards. My contention here is simply not disputable, unless I am misreading the DHV requirements. Schönherr's arguments about the invalidity of the HGMA method of measuring the moment about the pilot tether point cannot successfully by made in this range of angles of attack. If one tries, one finds that the pitch-up force measured about the pilot tether point will always be LESS than that measured about the assumed center of mass as located by Schönherr. The HGMA test is therefore conservative in this regard, and certainly will not yield a positive pitching moment when the true moment is negative as Schönherr contends.

Also seriously in error is Schönherr's contention that the HGMA test makes no measurement of aerodynamic lift and drag forces. The required trim correlation explained above represents one such measurement since the in-flight measurement of trim angle is taken at one "G" of loading. More importantly, compliance with the HGMA requirements for a minimum strength of the pitch-up moment in the vicinity of zero lift angle requires a very accurate determination of the angle of attack at which zero lift occurs. Contrary to what Schönherr claims, the HGMA-type test vehicle is very capable of making this determination of the zero lift angle of attack. It does so in the following manner:

Modern hang gliders typically have slight slack in the side wire loop. HGMA members typically mount the glider on the pitch test rig with a pivot at the pilot tether point which contains a "sloppy" junction; for example, a 5/16 inch bolt in a 1/2 inch hole. As the angle of attack is lowered towards zero lift, the following sequence of events takes place:

1) The bottom side wires are seen to transition from snug to slack. This occurs when the outboard section of the twisted wing (which loses lift first) is no longer lifting enough to support the weight of the wings. At this point the glider on the whole is still lifting more than its own weight, as can be proven by the fact that the center junction bolt is still being pulled to the top of the hole.

2) Within the next one to four degrees of nose-down rotation, the pivot bolt is seen to "roll over" as the glider's weight overcomes the diminishing lift and the glider settles against the bolt. The first

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Schönherr's Response to Meier

Continued from page 34

measurement of the lift component? More than 50% of the HGMA hang gliders subsequently tested by the DHV did not pass the 3-component test at first. Up to now, none of the hang gliders could meet the HGMA's own requirement, according to the moment coefficient (referred to the pilot's suspension point) between the trim angle of attack and zero lift must always increase. This requirement which cannot be met by flexible hang gliders because of physical reasons (and which is also necessary) is probably due to the demands which are based on the theoretical calculations which Gary Valle did many years ago, and which are, according to Mike Meier, the basis for the HGMA standards.

The basis for the DHV standards is much wider. Other than in the USA, where manufacturers can gather experience only with their own products, the DHV tests and registers all hang gliders centrally. Further, all fatal hang glider accidents are investigated by a DHV expert commissioned by the Federal Air Traffic Department. There has been a continuous feed-back between Gütesiegel requirements, test vehicle results (about 1,000 gliders to-date), and accidents for the last eight years. There is no other organization known all over the world which would be able to fall back on such a multitude of experience and to lay down theoretically and practically proven requirements.

I regret that the American hang glider manufacturers who are so creative in the hang glider [building and designing] techniques still stick to outdated ideas in the field of measuring techniques. I cannot believe that any of them really thinks that a 1-component HGMA test in which two components acting on the hang glider wing remain unknown can give more security than the DHV test which takes all components into account and which dies not five any change for the air to conceal an existing treachery in a component that has not been measured.

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onset of this "rollover" occurs just above the zero lift angle, since at true zero lift the glider's weight would cause it to rest on the bolt at the bottom of the hole.

3) Within the next two degrees or so of nose-down rotation, the sail in the root is seen to blow down, with the bridles supporting the trailing edge and inducing large amounts of reflex. It can now be seen that the glider is "lifting" negatively, and is below zero lift angle. There is, therefore, a very narrow window of angles of attack between "bolt rollover" and root blowdown within which the zero lift angle can be very accurately located. Our system is not as sophisticated as an elaborate electronic system of strain gauges such as that on the DHV test vehicle, but it WORKS, it is very accurate, and its measurement methods are, if I may say so, quite elegant

Schönherr passes off my contention that the HGMA standards require higher pitching moment coefficients in the vicinity of zero lift by arguing that the HGMA test results are invalid and by making a vague reference to the DHV's five required vehicle test diagrams. He does not, however, state that the DHV requires any particular minimum strength of the pitch-up moment in the vicinity of zero lift angle of attack. If there is no such requirement, as I believe there is not, then my contention that the HGMA standards are more stringent than those of the DHV in this regard cannot be disputed. Schönherr never does dispute my contention, except to try to cast doubt on the accuracy and relevance of HGMA testing procedures. My conclusion—that a glider which had the minimum stability level required for certification according to the HGMA standards would be more resistant to tumbling than a glider with the minimum stability level required according to DHV standards—is verifiable by anyone with an understanding of the fact that the amount of physical work done by a tumbling glider to resist that tumble is represented by the area under the curve in the graph of resisting force versus displacement in angular rotation (the pitch curve).

I think the major problem between the DHV and the HGMA is a lack of communication which results in a lack of understanding. Schönherr's response shows that he is largely unfamiliar with how the HGMA program operates, and with what its actual requirements are. I have already admitted that I am not completely familiar with all the requirements of the DHV program. I have sent a copy of the current HGMA requirements to Schönherr. I invite him to send a copy of the current DHV requirements to me (my copy is several years old).

It is my impression that the DHV program is based almost entirely on their test vehicle. The DHV has a sophisticated test vehicle and a sophisticated mathematical model for how test results obtained on that vehicle may relate to the supposed behavior of the glider in flight. They may look at our simple test vehicle and say, "That simple apparatus can't possibly substitute for the complex situations in actual flight." They may have further concluded that because our measuring apparatus is simple, our lack of theoretical knowledge must be inferior. But we have a somewhat different approach that they may not understand. Our standards are based primarily on actual flight tests. We use the test vehicle only to examine the glider's behavior in a narrow range of angles of attack near zero lift that are not objectively and consistently accessible to flight testing. We require documented pitching moment tests of the glider in-flight throughout the normal in-flight range of angles of attack, and we require that these be correlated to the results on the vehicle. We require a high speed (usually about 60 MPH), 75 degree dive to be performed by the pilot, rather than requiring a 50 MPH pitch test on the vehicle. With respect to our vehicle test requirements, there is a great deal of very sophisticated modeling and analysis behind those requirements. Even so, we have never assumed not claimed that our vehicle tests can completely model or substitute for flight tests, and our claim of validity for our testing program is based on years of statistical correlation (accident review procedures that Schönherr claims we do not have) between our test results and the in-flight behavior of our gliders.

> ***"I think the major problem between the DHV and the HGMA is a lack of communication which results in a lack of understanding."***

There is essentially two points of contention between Schönherr and myself. The first is whether U. S. -certified or DHV-certified gliders are safer. This argument can only be answered by statistical accident data that neither one of us has with a sufficient degree of accuracy or completeness. My opinions on this subject are based only on the opinions of my contacts in Europe who feel U.S.-certified are safer, I can't prove they are right, nor can Professor Schönherr prove they are wrong.

The second point of contention is whether HGMA-certified gliders or DHV-certified gliders are tested to a more rigorous set of standards. I claim that HGMA pitch test requirements are more stringent. I believe the written requirements in each set of standards supports this claim. There is other evidence. Although dozens of U.S.-designed hang gliders have been tested by the DHV have been tested and found to pass the DHV standards, not one European-designed, DHV-certified glider has been tested and found to pass the current HGMA standards.

Recently, a U.S.-designed glider the Ultralite Products GZ, which was re-designed in Europe for European production (designated the GZE), was subsequently tested and certified by the DHV. It was sent to America for testing under the HGMA standards for possible distribution by UP. The UP GZ had already passed the HGMA standards. The same individual GZE aircraft which had passed the DHV tests failed the HGMA negative 30 degree load test by a wide margin, and failed the HGMA pitch test by a small margin. Ultralite Products then modified the GZE by installing crossbar innersleeves and re-adjusting the stability devices until it once again passed the HGMA tests, and UP Director Pete Brock states that it is in this configuration that the glider will be produced.

The intention of my original article was

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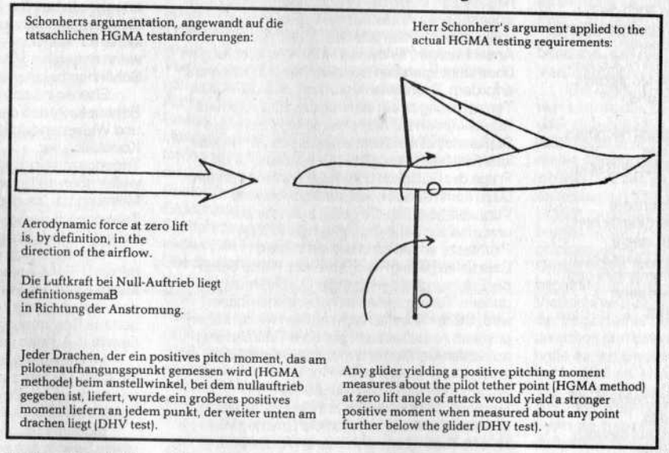

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not to attack the DHV program, nor to claim that DHV-certified gliders are unsafe. It is not my intent to do either of those things now. I am glad the DHV has chosen, finally, to address a response directly to the HGMA. In the past, I have written to the DHV requesting negotiations about the differences between our two programs, and have not received a response. Perhaps this exchange in WHOLE AIR will be the start of increased communication between the two organizations. I hope so. I'm sure we can learn from each other. My opinions, however, about the relative levels of rigor and validity of the two systems have not changed. I believe that they are accurate, that they are supported by the written requirements of each system, and that they were accurately expressed in my original interview article with Eric Fair.

Pivot bolt "rolls over" as it goes from resting against the top of the hole, to being pushed against the back of the hole, to finally resting on the bottom of the hole.

Der Achsenbolzen "rollt heruber", wobei er zuerst oben an der Bohrung anliegt, dann an deren Ruckseite, und schlieBlich am unteren Rand der Bohrung aufliegt.

Antwort von Mike Meier

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Gütesiegeltestprogramm. Eine Übersetzung dieses Interviews, sowie Prof. Michael Schönherrs Antwort darauf, war im DHV-info Nr. 32 zu lesen. Diese Antwort erweckte bei Meier das Gefühl, daß man unter den deutschen Drachenfliegern sein Interview vielleicht als einen Angriff auf die Gütesiegeltestverfahren mißverstanden hätte.

WHOLE AIR erscheint mit diesem Heft erstmals in Europa und vor allem auch in Deutschland. Und gerade weil dieses Thema auf großes Interesse bei den Drachenfliegern beiderseits des Atlantik stößt, bemüht sich WHOLE AIR darum mit umfassender Information zu besserem gegenseitigen Verständnis beizutragen.

Das DHV-Gütesiegel is den meisten Ländern Europas anerkannt, ebenso wie der DHV selbst als führende Organisation auf dem Gebiet des Testens von Hängegleitern. Aber auch die HGMA (Hang Glider Manufacturers Association) hat über lange Jahre bemerkenswerte Erfahrungen gesammelt. Wir von WHOLE AIR wollen beiden Organisationen die Möglichkeit geben sich selbst, ihre Methoden und Erkenntsnisse darzustellen.

Im Folgenden bringen wir zuerst nochmals Michael Schönhers Antwort auf das ursprüngliche Interview und im Anschluß Mike Meiers Entgegnunen dazu. Dieser Erfahrungsaustausch kam durch unsere Anregungen zustande und wir veröffentlichen die Artikel im Original, damit sich unsere amerikanishen und europäischen Leser selbst ihre Meinung bilden können. Kommentare und Leserbriefe zu diesen Artikeln sind sehr willkommen. Bitte schreiben sie an:

WHOLE AIR
Behringstr. 6
D-8500
Nürnberg

Ich empfehle vor dem Lesen meiner Antwort auf Herrn Schönherr nochmals das ursprüngliche Interview zu lesen, auf das sich Schönherrs Entgegnungen bezogen. Zwischenzeitlich ließ ich die Gütesiegelanforderungen, soweit sie die Flugmechaniktests für Hängegleiter betreffen, übersetzen wie ich das bereits in meinem Interview andeutete. Ich habe nie behauptet, daß die deutschen Drachenhersteller schummeln. Ich sagte der DHV verändert die Drachen beim Testen, was sie ja tatsächlich tun, und was natürlich vollkommen in Ordnung ist, wenn der Hersteller den Drachen dann auch in der veränderten Einstellung mit der er den Pitch-Up Test bestand, produziert.

Schönherr bestreitet, daß der Pitch Test, wie ihn die HGMA fordert, aussagekräftig ist, da er nur das aufrichtende Moment des Gleiters und nicht aerodynamischen Auftrieb und Widerstand mißt. Ebenso werde das Moment am Pilotenaufhängungspunkt und nicht um den angenommenen Gesamtschwerpunkt des Systems gemessen. Er gibt zwei Beispiele und versucht dadurch zu beweisen, daß das HGMA System keine korrekten Ergebnisse liefern kann. Siene Beispiele selbst jedoch sind stark fehlerhaft. Sie beinhalten einmal einen sehr hohen positiven und zum anderen einen sehr hohen negativen Anstellwinkel. Der erstere liegt bei ungefähr 33° positiv (also weit jenseits des Anstellwinkels, bei dem der Stall eintritt) und der letztere bei ungefähr 25° negativ. Die HGMA Anforderungen für die Messungen des Ptich Moments beginnen beim Anstellwinkel der Trimmgeschwindigkeit und enden bei negativ 20°. Beide der in Schönherrs Beispielen angegebenen Anstellwinkel liegen also vollkommen außerhalb des Bereichs von Anstellwinkeln, für die die HGMA Anforderungen überhaupt *irgendein* spezifisches Pitch Moment erfordern. Scönherrs Argument, daß die HGMA Testmessungen ein inakkurates Pitch Moment liefern würden bei Anstellwinkeln jenseits des Stallanstellwinkels und jenseits von 25° negativ, kann deshalb unmöglich relevant sein für die Frage der Gültigkeit der HGMA Anforderungen. Dazu kommt auch noch, daß Schönherrs Voraussagen über die genaue Art der zu erwartenden Fehlerhaftigkeit der HGMA Pitchtests, so wie es in seinen beiden Beispielen gezeigt wird, in keiner Weise durch die Erfahrung, die wir bei der Durchführung unserer Tests gewonnen haben, untermauert wird. Seiner Ansicht nach müßten wir bei hohen postiven Anstellwinkeln auf dem Testfahrzeug aufrichtendes Moment messen, wogegen die tatsächliche Tendenz (im Flug) entgegengesetzt wäre (negatives Pitch Moment). Dies ist aber nicht der Fall. Wenn es so wäre, dann müßten sich die Drachen in einem HGMA Test mit einem höheren Anstellwinkel einstellen bei Trimmgeschwindigkeit, als sie das im Flug tun. Tatsächlich tun sie das aber nicht. Es gibt eine Anforderung unter den Anforderungen für das HGMA-Zertifikat (Schönherr ist sich dieser Anforderung offensichtlich nicht bewußt), daß der Anstellwinkel bei Trimmgeschwindigkeit auf dem Test-Anstellwinkel bei Trimmgeschwindigkeit verglichen wird. Wenn Schönherrs Vorassagen gültig wären, dann Könnten diese zwei unabhängigen Messungen nich übereinstimmen. Nach unserer Erfahrung beim Durchführen der Tests, tun sie das aber sehr genau.

Die wichtigste Anforderung beim HGMA Pitchtest besteht in der Festlegung der minimal erforderlichen Pitch-Up Kräfte in der Nähe und direkt bei dem Anstellwinkel, bei dem Null-Auftrieb gegeben ist. Genau in diesem Bereich ist es, wo ich behauptete, daß die HGMA Anforderungen strenger sind, da sie höhere Pitch-Up Kräfte verlangen als die DHV Gütesiegelanforderungen. Meine Behauptung in diesem Punkt ist einfach unstrittig, es sei denn ich habe die DHV Anforderungen falsch verstanden. Scönherrs Argumentation über die Ungültigkeit der HGMA Methode das Moment am Pilotenaufhängunspunkt zu messen, ist nicht erfolgheraus, daß die Pitch-Up Kraft, die am Pilotenaufhängungspunkt gemessen wird, immer *geringer* ist, als die, die am angenommenen Gesamtschwerpunkt gemessen wird, so wie ihn Schönherr angegeben hat. Der HGMA Test ist deshalb diesbezüglich sehr konservativ und wird sicherlich kein postives Pitch Moment liefern, wenn das wahre Moment negativ ist, wie Schönherr behauptet.

Ebenso irrt sich Schönherr stark mit seiner Behauptung, daß der HGMA Test die Auftriebs- und Widerstandskräfte nich mißt. Die geforderte Korrelation der Trimmgeschwindigkeitanstellwinkel, wie sie weiter oben erklärt wurde, stellt eine solche Messung dar, da die Messung des Trimmgeschwindigkeitsanstellwinkels im Flug bei ein "G" Belastung erfolgt.

Wichtiger noch ist, daß die Übereinstimmung mit den HGMA Anforderungen für einen Minimalwert des Pitch-Up Moments in der Nähe des Anstellwinkels bei Null-Auftrieb, eine sehr genaue Bestimmung des Anstellwinkels, bei dem Null-Auftrieb erfolgt, erfordert.

Im Gegensatz zu Schönherrs Behauptung kann ein Testfahrzeug nach HGMA Art sehr genau den Anstellwinkel bei Null-Auftrieb bestimmen. Es tut das folgendermaßen:

Moderne Drachen haben typischerweise etwas Spiel in den seitlichen Verspannungen. Die HGMA Mitglieder befestigen den Gleiter auf dem "lockere Verbindung" darstellt. Dieser sitzt am Punkt der Pilotenaufhängung. Das Kann z.B. ein 8mm Bolzen in einter 13mm Bohrung sein. Wenn der Anstellwinkel nun allmählich bis zu dem Anstellwinkel verringert wird, bei dem Null-Auftrieb eintritt, dann geschehen der Reihe nach folgende Dinge:

1) Man sieht, wie die seitliche Unterverspannung allmählich von "gespannt" nach "locker" übergeht. Dies passiert dann, wenn die äußeren Anteile des geschänkten Flügels (diese verlieren zuerst den Auftrieb)

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nicht mehr genügend Auftrieb produzieren, um ihr Eigengewicht zu tragen. An diesem Punkt produziert der Gleiter insgesamt noch mehr Auftrieb, als nötig ist um sein eigenes Gewicht zu heben. Dies beweist die Tatsache, daß am zentralen Befestigungspunkt der Bolzen immer noch an der Oberseite der Bohrung anliegt.

2) Innerhalb der nächsten ein bis vier Grad Abwärtsbewegung der Gleiternase kann man beobachten wie der Achsenbolzen "herüberrollt" während das Gewicht des Gleiters langsam die geringer werdenden Auftriebskräfte übersteigt und der Gleiter auf dem Bolzen aufliegt. Der erste Ansatz dieses "Herüberrollens" zeigt sich gerade oberhalb des Null-Aufstriebsantellwinkels, da bei genauem Null-Auftrieb das Eigengewicht des Gleiters diesen auf dem Achsenbolzen am unteren Rand der Bohrung aufliegen lassen würde.

3) Innerhalb der nächsten etwa zwei Grad Abwärtsbewegung der Gleiternase sieht man, wie das Segel im Bereich der Flügelwurzel plötzlich durchschlägt und die Pitch-Up Leinen sich spannen und das Achterliek hoch halten, wodurch ein starker S-Schlag im Segel bewirkt wird. Man sieht jetzt, daß der Gleiter Abtreib erzeugt und unterhalb des Null-Auftriebsanstellwinkels sich befindet. Es gibt deshalb einer sehr engen Bereich von Anstellwinkeln zwischen dem "Herüberrollen" des Bolzens bis zum Durchschlagen des Segels und innerhalb dieses Bereichs kann der Null-Aufstreibsanstellwinkel sehr sehr genau bestimmt werden. Unser System mit Druckaufnehmern, wie das des DHV Testfahrzeugs, aber es FUNKTIONIERT. Es ist sehr genau und seine Messmethoden sind, wenn ich so sagen darf, recht elegant.

Schönherr übergeht meine Behauptung, daß die HGMA Anforderungen einen höheren Pitch Moment Beiwert im Bereich des Null-Aufstriebs ungültig seien und er macht einen wagen Bezug auf die fünf Testdiagramme, die der DHV Flugmechaniktest erfordert. Er gibt jedenfalls nicht an, daß der DHV irgendeine minimale Anforderung an die Stärke des Pitch-Up Moments in der Nähe des Null-Aufstriebsanstellwinkels stellt. Wenn es eine solche Andorderung nicht gibt, und meiner Erkenntnis nach ist das so, dann ist meine Behauptung, dieser Beziehung unstrittig. Schönherr geht nie auf meine Behauptung ein außer, daß er versucht die Genauigkeit und Relevanz der HGMA Tests in Zweifel zu ziehen.

Meine Folgerung, daß ein Gleiter der die Minimalanforderungen der HGMA an aerodynamische Stabilität erfüllt, kann von jedem als wahr erkannt werden, der versteht, daß der physikalische Kraftaufwand, der von einem Gleiter erbracht wird, der im Begriffe ist sich zu überschlagen und dabei dieser Überschlagstendenz widersteht, von dem Gebiet unterhalb der Kurve in der Graphik dargestellt wird, in der die Widerstandskraft gegen den Überschlag gegen die Verschiebung des Anstellwinkels aufgetragen ist (das ist die Pitch Kurve).

Ich denke, daß das Hauptproblem zwischen der HGMA und dem DHV die mangelnde Kommunikation ist, aus der sich ein Mangel and gegenseitigem Verständnis ergibt. Schönherrs Antwort zeigt, daß er mit der Art und Weise wie das HGMA Programm arbeitet weitgehend unvertraut ist, und die eigentlichen Anforderungen nicht kennt. Ich habe bereits eingeräumt, daß ich nicht vollständig vertraut bin mit allen Anforderungen des DHV Programms. Ich habe eine Kopie der gegenwärtigen HGMA Testanforderungen an Schönherr geschikt. Ich würde es begrüßen, wenn er mir eine Kopie der gegenwärtigen DHV Gütesiegelanforderungen schicken würde (meine Kopie, dich ich habe, ist schon einige Jahre alt). (Wie sieht es aus damit, Freunde, für weiteres gegenseitiges Verständnis zu sorgen? - der Herausgeber.)

«Ich bedaure, daß die in der Hängegleitertechnik so kreativen amerikanischen Hersteller bei der Meßtechnik überholten Vorstellungen anhängen.»

Es ist mein Eindruck, daß das DHV Programm sich fast vollständig auf den Flugmechaniktest stützt. Der DHV hat ein ausgeklügeltes Testfahrzeug und ein ebenso ausgeklügeltes mathematisches Modell dafür, wie die Testergebnisse, die mit diesem Testfahrzeug gewonnen werden, in Bezug stehen zum angenommenen Verhalten des Gleiters im Flug. Sie schauen möglicherweise auf unser einfaches Testfahrzeug und sagen, "daß dieser simple Appart kaum komplexen Situationen im tatsächlichen Flug als Ersatz dienen kann." Sie mögen ferner geschlossen haben, daß weil unser Meßappart simpel ist, unser theoretisches Wissen ziemlich mangelhaft sein muß. Aber wir gehen einen etwas anderen Weg, den sie vielleicht nicht verstehen. Unser Anforderungen sind in erster Linie auf eigentliche Flugtests gegründet. Wir verwenden das Testfahrzeug nur um das Verhalten des Gleiters in einem engen Bereich von Anstellwinkeln in der Nähe des Null-Auftreibsanstellwinkels zu überprüfen. Dieser Bereich ist keiner objektiven und konsequenten Überprüfen bei Flugtests zugänglich. Wir fordern dokumentierte Tests des Pitch Moments des Gleiters *im Flug* im gesamten Anstellfordern, daß diese Tests zu den Ergebnissen der Flugmechaniktests auf dem Testfahrzeug in Bezug gesetzt werden. Wir fordern, daß ein Stechflug mit hoher Geschwindigkeit (gewöhnlich etwa 100 km/h), etwa mit 75 Grad Neigungswinkel vom Testpiloten durchgeführt wird, anstatt einen Pitch Test auf dem Testfahrzeug bei 80 km/h zu verlangen. Im Hinblick auf die Flugmechanikstests gibt es eine ganze Menge von sehr ausgefeilten Vorstellungen und kritischen Untersuchungen, auf denen die Anforderungen für diese Tests basieren. Trotzdem haben wir niemals angenommen oder die Forderung erhoben, daß die Testfahrten ein vollständiges Modell oder Ersatz für Flugtests sein können, und der Anspruch auf Gültigkiet unseres Testprogramms, den wir erheben, basiert auf Jahren von statistischer Korrelation (Flugunfalluntersuchungen, von denen Schönherr behauptet, daß wir die nicht haben) unserer Testergebnisse mit dem tatsächlichen Flugverhalten unserer Gleiter.

Es sind im Grunde genommen zwei Punkte strittig zwischen Schönherr und mir. Der erste ist, ob US-Gleiter mit HGMA-Zertifikat oder DHV-Gütesiegel Drachen sicherer sind. Dieser Streitpunkt kann nur durch eine Unfallstatistik beantwortet werden, die keiner von uns in ausreichender Genauigkeit oder Vollständigkeit hat. Meine Meinung zu diesem Thema gründet sich ausschließlich auf die Meinungen meiner Kontaktpersonen in Europa, die das Gefühl haben, daß das US-Zertifikat sicherer ist. Ich kann nicht beweisen, daß sie recht haben und genausowenig kann Schönherr beweisen, daß sie sich irren.

Der zweite strittige Punkt ist, ob Gleiter mit HGMA-Zertifikat oder solche mit DHV-Gütesiegel nach strengeren Anforderungen gestet werden. Ich behaupte, daß die Anforderungen der HGMA für den Pitch Test strenger sind. Ich glaube, daß die schriftliche Formulierung der jeweiligen Anforderungen diese Behauptung unterstützt. Hierfür gibt es andere Beweismittel. Obwohl dutzende von Hängegleitern, die in den USA konstruiert wurden vom DHV getestet wurden und dabei den Anforderungen genügten, gab es nicht einen einzigen Fall eines in Europa konstruierten Gleiters, der das DHV-Gütesiegel erhielt und der dann nach den gegenwärtig gültigen HGMA-Richtlinien getestet wurde, und diesen genügte.

Kürzlich wurde ein in den USA konstruierter Gleiter, der GZ von Ultralight Products, der dann in Europa für den europäischen Markt überarbeitet wurde (und als GZe bezeichnet wird), vom DHV getestet und zugelassen. Er wurde dann nach Amerika geschickt, um nach den HGMA-Richtlinien getestet zu werden, damit er möglicherweise dort durch UP vertrieben werden kann. Der UP GZ hatte die HGMA Tests bereits bestanden. Dasselbe GZe Gerät, das die DHV Tests bestanden hatte, fiel beim negativen HGMA Belastungstest mit 30 Grad Anstellwinkel mit weitem Abstand durch. Der Pitch Test der HGMA wurde knapp nicht bestanden. Ultralight Products hat dann den GZe verändert und das Quertuhr mit einer Innenmuffe verstärkt. Nach Neueinstellung der Pitch-Up Leinen und Swiveltips wurde der HGMA Test dann bestanden, und UP Chef Pete Brock beschloß, daß der Drachen nur mit diesen Veränderungen produziert werden wird.

Die Absicht meines ursprünglichen Artikels war es nicht das DHV Programm anzugreifen, oder zu behaupten, daß Drachen mit DHV-Gütesiegel unsicher sind. Es ist ebensowenig meine Absicht dies jetzt zu tun. Schließlich bin ich froh darüber, daß der DHV sich dazu entschlossen hat eine Antwort direkt an die HGMA zu richten. Ich habe in der Vergangenheit bereits an den DHV geschrieben und darum gebeten vermittelnde Gespräche über die Unterschiede der beiden Testprogramme zu beginnen, und habe keine Antwort erhalten. Vielleicht wird dieser Austausch in WHOLE AIR der Beginn einer besseren Kommunikation zwischen den beiden Organisationen sein. Ich hoffe es. Ich bin sicher, daß wir voneinander lernen können. Meine Meinung jedoch, über den relativen Grad der Strenge der jeweiligen Anforderungen und über die Gültigkeit der zwei Systeme, habe ich nicht geändert. Ich glaube, daß meine Auffassung richtig ist, daß sie duch die schriftlichen Formulierungen der Anforderungen der beiden Systeme bestätigt wird, und daß ich sie korrekt ausgedrückt wurde in dem ursprünglichen Artikel mit dem Interview, das Eric Fair durchführte.

(Anmerkung des Übersetzers: Die HGMA Tests werden in den USA von den Herstellern selbst in einer Art "freiwilligen Selbstkontrolle" durchgeführt. Jeder ist der großen Hersteller besitzt eigene Testfahrzeuge. Es gibt in den USA keine Vorschrift, die besagt, daß nur HGMA zugelassene Drachen geflogen werden dürfen. Piloten, die mit einem europäischen Gerät ohne HGMA-Zulassung in den USA fliegen wollen, haben deshalb keine Probleme.)

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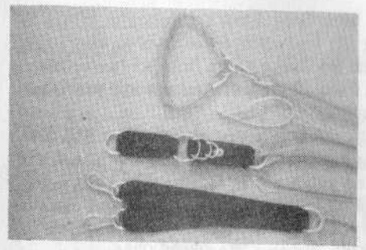

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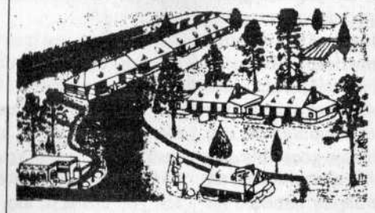

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PRODUCT LINES

TACOMA, WA — Here we are again, one month from the last issue. It's finally beginning to become obvious to all our steady readers that **WHOLE AIR** is monthly-for-the-summer. We started this last summer, however, in the resultant "news gap" of the 85/86 winter, many forgot our publishing schedule.But with year No. 9 now underway, here's some more poop from one of the best-read sources in hang gliding, good ole "Product Lines."

Ultralite Products in some ways is history now. 'Course there's the GZ-E European venture to build the **Glidezilla.** The company building the GZ-E, though, has different management. Yep, if you call UP today, their phone system will refer you to Pacific Windcraft... so reports Jean-Michel Bernasconi (see "Industry News" up front for additional details). For an upstart company back in August of 1982, Pacific Windcraft has done well during a very tough time for the sport. They've continued to make steady progress that forces even the skeptical to keep their eyes on the Salinas outfit. Speaking of them, our "We Wuz Wrong" department—yes, folks, we did have one error in our last edition—received some correction we'd like to pass along. Last issue we reported that **Pacific Windcraft** "called back" some employees after the winter. That implies they had lay-offs. Fact is, they didn't. For more than the last two years, Pacific Windcraft has managed a steady trade through the winter. The item we mentioned actually referred to the "calling back" of their veteran sailmaker, **John LaTorre**. Seems he took a hiatus to see if he could be a free lance writer. But he chose to return and help out the busy manufacturer, generating the tale we told. Regrets to PWC for making it seem they had a slow winter when they did not. A couple other points about Pacific Windcraft are of interest. One is that as of last August—some 12 days after their anniversary—they delivered their **1,000th Vision,** for a yearly average of 330 gliders. Not too shabby for a new name during a sluggish hang gliding period. Second is a new under-license contract they signed with **Freddy Keller**, builder of the Keller Integral harness, and catalyst for the most dramatic harness beakthru in years (many copies are now on the market). Once exchange rates are more favorable to the effort, and when the company is fully ready to begin production, Pacific Windcraft will begin manufacturing the Keller line here in the U.S. of A.

While you still remember the "We Wuz Wrong" department, we've another correction. **Hans Frings'** imported Saphir glider offers three packed sizes possible on *any* particular glider. We thought—silly us—that this meant you could have the Saphir built to accommodate any of three sizes.Yet the popular glider from **Bautek** of West Germany allows this packdown versatility on any Saphir. This business of breakdown size is quite important to European builders. By comparison, American builders seemed only to consider this need as air freight shipment demanded it. Classically, the glider broke down aft of the crossbar junction, just so it cold be stuffed into a glider shipping tube that the airlines would accept. The Saphir evidently goes this one better. We'll soon know more about that breakdown and air shipment, as we've just been notified that the Saphir intended for our **WHOLE AIR** "Pilot Report" will be shipped about as you read this. We are pleased to say that an evaluation of the very successful bowsprit performer should appear in our June issue. So also will appear our **2nd U.S. Nationals Program** in that issue. Look for both of them. Lessee... in other news, **Delta Wing** will be trying a slight variation on the old travelling manufacturer's representative plan. These guys help with tuning, meet pilots, answer questions, boast of new company developments, work with dealers on sales tips and the like. This expensive travelling is justified because it is a very proven system of promoting business. This year, Uncle Bill has developed several "dealer support teams for the various areas of the country." Instead of having just one rep trying to cover our enormous country with lots of exhausting travel, Delta Wing has appointed a support team for the East Coast, Mid West, and the West Coast. They advise, "Any club wishing the Delta Wing support team to visit them should contact the Delta Wing factory by calling 818/787-6600." Call 'em. It's a great way to provide some informative entertainment for a club meeting, a good way to see their newest and hottest, and to get some free tips on getting the most out of your Mystic or Lite Dream. We heard from **Larry Haney**. He's the guy behind the I (heart) Hang Gliding T-Shirts. He says response has been good, selling them all over the U.S. and Canada. Besides making a few bucks at it, Haney's main intent was to do something that could provide a conversation starter, so enthusiasts could help promote our super sport. On that thought alone—more students— it seems to have merit. Plus they're trendy and a neat idea. Check 'em out. Call Larry at 501/224-2186. We also talked to Bob Trampenau. He brought us up to date on things at **Seedwings**. Seems they've whittled down the 60-glider backlog they had back in March (it was about 50 in mid-April). Their build rate is about one a day using six regular employees. This success is due to growing familiarity with their "B" model—the one that now sports kingpost suspension and tail fin. Bob feels the added control from these features allows even a Hang 3 to fly a Sensor, yet still have that performance for which the virtually custom-built glider is known. Seedwings has also been marketing a variation called the "Sport B Model," which does not have the half ribs, and weighs just two pounds more than Wills' new sport , nor a couple other features used on the hottest Sensor models. Trampenau says his company continues to develop; they now make nearly all their own hardware, including items like tangs and various mounts which they used to buy from other manufacturers. He is proud of the fact that Seedwings specializes in high performance only. As to dealers, an area in which Trampenau has sometimes been faulted, he claims "most of the eastern seaboard is 100% dealer supported."

In other last news bits, Greg Black's **Mountain Wings** is seeking, but not finding (!!) instructors for what is looking to be their busiest season ever. Bookings are up from 85 (we've heard this kind of enthusiasm from all parts of America this year), and Greg's having a tough time finding qualified, available instructors. So, if you fit the bill, give them a call at 914/626-5555. They've got a big event coming up this July 4th. Let 'em tell you about it, too, and you'll get an idea how much is going on up there in New York. Well, fellow flying folks, t-t-that's it for another issue. So, if you've got news or opinions, send 'em to "Product Lines," Box 98786, Tacoma WA 98498-0786.