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MYSTIC	155	166	177
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ISSUE NO. 42 (3rd in 1985)

JUNE 1985 — \$2.50 (Can. \$3.25 / DM 6)



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THE MONARCH "E"
7th ANNIVERSARY ISSUE

STILL THE ONE TO CATCH



photo by Pork Stew Smith Rich Pfeiffer

We can say the proof is in the winning, but we believe the Sensors real success comes with its climb rate and glide in marginal conditions. The 160 VG Sensor flown by Rich Pfeiffer remained aloft at the US Nationals when other strong competitors who were tuned for speed went down. Pfeiffer's lead over the next place was 6%, the largest spacing in the top 13 places. A total asset, the VG allows instant adjustment of roll rate and handling to match changing conditions with the desired maneuverability. The Sensor's highly developed VG makes greater performance not only possible, but easier to handle.

"This glider performs the best and it's easy to fly! Bar pressures and roll rate are no problem. The VG lets you fly it any way you want. It's perfect."

—Jon Lindburg, San Diego, CA

"To win major competitions a pilot needs the best performance available, with the ability to execute in all conditions. The VG gives the 510 top L/D performance while allowing the glider to thermal efficiently, even when good handling is mandatory. Other gliders may be able to perform equally at their specialty, but in world class competition and a variety of conditions the Sensor proves to be superior."

—Rich Pfeiffer, Santa Ana

"I have flown with many excellent pilots on state of the art equipment. The certified Sensor 510 160 VG has the best climb rate especially in light conditions, and the best L/D and sink rate in the 30 mph range. With the VG system, I can select the best wing tension to launch, fly and land easily, which gives me the safety and confidence I need to maximize the existing conditions."

—Stu Smith, Grandfather Mt., N.C.

"It out sinks everything, has a wider speed range, and the sail stays clean going flat out."

—Bill Liscomb, Leucadia, CA

"On my second flight with the 510 I pulled off 45 miles. I especially want to commend you on building a glider with an ingenious design and real integrity. The quality of workmanship and the sail work is the finest I have ever seen. I feel very confident and safe flying the Sensor."

—Jerry Nielsen, Washington D.C.

"The sink rate is absolutely amazing; it simply can't be touched. As for glide, I swear it's at least what your figures indicate. The wing simply surpasses all of my wildest expectations. Heres to your insight, sweat and perseverance."

—Bob Hofer, Fort Smith, Ark.

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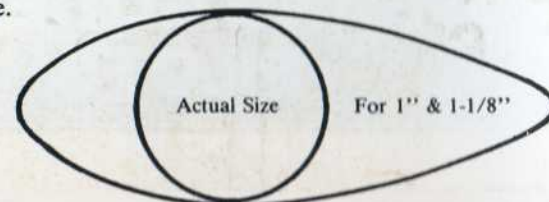
HGMA CERTIFIED* SPECIFICATIONS - SENSOR 510 — 160 V.G.

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Area	161 ft squ	14.96 m squ
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WHOLE AIR

ISSUE NO. 42, VOLUME NO. 8, NO. 3, 1985

PILOT'S PERSPECTIVE:

- 16 RADIOS FOR HANG GLIDING
Ham operator Chuck Jones details some useful information on radios for use in hang glider X-C flying.
- 34 NEW EAST COAST RECORD
Chattanooga pilot Gary Engelhardt is back with his second eastern record flight report in only eleven months. Plus, he offers some advice to newer pilots.

WHOLE AIR Magazine is published bi-monthly 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 Steelacoom Blvd. SW, Tacoma, WA 98498; telephone 206/588-1743. ©1985 by Whole Air Inc. All rights reserved. Nothing in whole or in part may be reproduced without written permission of the publisher. Publisher assumes no responsibility for unsolicited material. All photos, artwork, and manuscripts must be accompanied by a stamped, self-addressed return envelope. This publication is purchased with the understanding that information presented is from many sources for which there can be no warranty or responsibility by the publisher as to accuracy, originality, or completeness. It is sold with the understanding that the publisher is not engaged in rendering product endorsements or providing instruction as a substitute for appropriate training by qualified sources. 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 \$12.00; Mexico and Canada, one year \$16.00. All other countries, one year \$20.00; 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.

PILOT REPORT:

- 20 THE MONARCH
Here's another (almost) 20:1 ultralight sailplane, but one that's already flying. Designer Jim Marske gives you flight information and spec's on his tailless craft.

FEATURES:

- 22 SPECIAL SECTION: HANG GLIDING IN EUROPE
This special 12-page section delves into three areas of ultralight soaring in the Old Country. First, German Correspondent Gib Eggen, D.O. breaks down Alpine weather systems in detail. Then read where Europeans get their news as Editor Dan Johnson covers the nine magazines from Germany, France, England, Switzerland, and Italy. And last but not least, read Alasdair Duguid's flying report of the Hurst Safari Tour of some outstanding Swiss Alps (reprinted from Britain's Wings!).

- 37 FIFTH ANNUAL STEEPLECHASE
A little humor and a few facts take you racing down the dunes of Marina, as writer Jack McCornack saw it.

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Special 1985 Nationals Section



Cartoon by Bob Lalay



Volume No. 8, No. 3, 1985
ISSUE NO. 42

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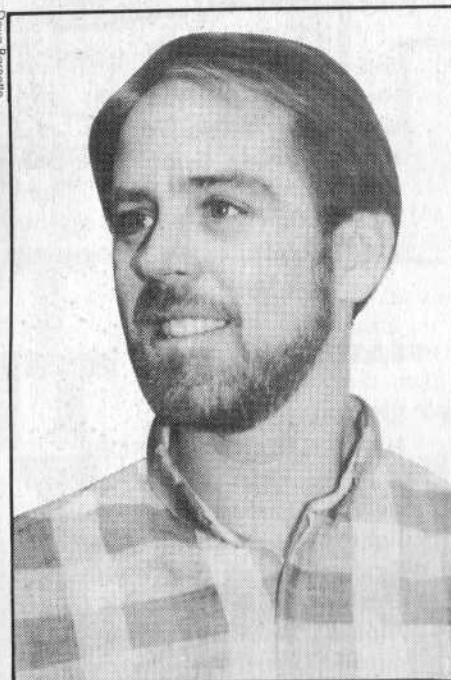
AERIAL FOCUS

On The Cover:

Tom Sanders flying at Yosemite with video camera on helmet. Sanders is a sky diving instructor and free-fall cameraman of 2,200 helmet-mounted jumps. He is also a Hang IV pilot who has done TV work and travelogue filming for a Japanese travel agency. *Whole Air* welcomes Sanders to our cover and to hang gliding photography.

Publisher's Column

Doug Barnette



THE NATIONALS ARE COMING

ONLY ABOUT FOUR weeks remain from the time most of you receive this issue till the 1985 U. S. Nationals competition begins in Washington state.

If you've been reading your *Whole Air* thoroughly you'll already know we're planning a special edition for this event. It will be part of our regular July 85 issue. (Also you careful readers will be aware that *Whole Air* has been monthly for the four premium hang gliding months of May thru August).

Why get so excited about "one more competition?"

Well frankly folks, it isn't the contest itself over which we're so thrilled. The meet itself is, in this lone case perhaps, a means to an end.

A NATIONAL FLY-IN?

At the 1985 Board of Directors meeting in Boise, Idaho, Dennis Pagen brought up an idea for, and argued persuasively in favor of a national fly-in. We think that idea has a tremendous amount of merit.

All of sport aviation thrives on fly-ins, get-togethers where the enthused participants can socialize in an atmosphere that enhances the love of their particular form of fun flight. Hang gliding has contests aplenty; many go a great distance towards satisfying that social need. Regional or local gatherings in fact may perform that function the best.

So why a national fly-in then, when the localized events work well enough?

Because for one reason that is so im-

portant to the continued health of the sport, that, in my opinion, it cannot be over-emphasized. The need to promote our sport on a grand, national scale.

LOOK AT OSHKOSH

The EAA Oshkosh event has become known as one of the largest aviation gatherings anywhere, and is certainly sport aviation's biggest event in the world. Oshkosh began as, and still works as the EAA's National Convention. While today it attracts literally hundreds of thousands of the so-called general public, it was not always planned to do so. The benefits, though, are of awesome proportions.

The media attends Oshkosh in huge herds, returning at the end of the week-long event to write many stories and print hundreds of pictures of sport aviation at its best. The public views a first-class air show (all volunteer by the way), and goes home excited about flying and aircraft. Companies in and out of sport aviation do excellent business at the show itself and build their customer bases for future sales. Pilots and builders get attentive audiences for their demonstrations or efforts. Everyone learns something. And sport aviation thrives!

WE NEED IT TOO

Hang gliding can, and in my opinion, should cash in on that sort of action. We can! Our sport is attractive, graceful, fun, and photogenic. It is mellow, yet thrilling.

I don't say our Nationals can become an Oshkosh overnight. Maybe not ever. But it can promote our sport as perhaps no other effort can. Major media exposure is one form of promotion that frequently accompanies national competitions in many sports, including hang gliding. Capitalizing on this and the other potentials of a nation-wide get-together may further extend the outreach. In addition I say, in response to Pagen's idea, that we already have a national fly-in, or at least the basis for one... the U. S. Nationals.

THIS YEAR

This year *Whole Air* will take one of many steps required to head toward the Oshkosh phenomenon. Our Nationals Supplement will be seen by thousands of pilots of various categories, and by the general public in the area of the 1985 Nationals. We will work hard to attract to our pages many restaurants, motels, gift shops, amusements, attractions, and more.

And folks... if we do it right, it can become a yearly event... to help build our sport.

We hope you enjoy it. We hope you support it.

Thanks,
Dan Johnson



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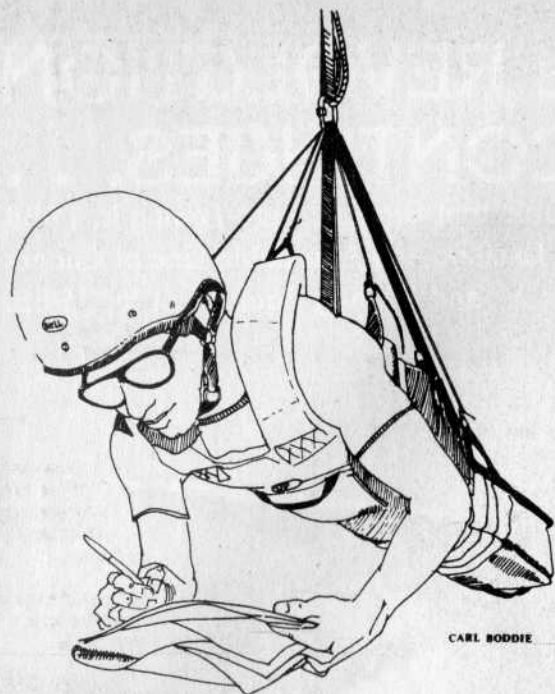
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CARL BODDIE

FORUM

On Enjoying WHOLE AIR

Dear Editor:

I would like to subscribe to your magazine. Currently I do not fly or own a hang glider, simply because now I cannot afford it.

I came to the United States almost four years ago as a refugee. I was a pioneer of hang gliding in Poland. I have been flying from 1973 till 1981, which was the year I left Poland. I've flown hang gliders which I designed and built by myself.

As Poland's representative, I attended the First World Championship in 1975 in Kossen, Austria, and also the First Official World Championship in 1976 in the same place.

I would like you to know that Poland was the first Eastern European country (behind the Iron Curtain) where hang gliding was begun.

I hope that some day I will fly again and that's the reason I want to read your magazine, which I think is a very good one. Thanks to *Whole Air*, I am able to observe progress in hang gliding.

JERZY LUTKOWSKI
Chicago, IL

Dear Editor:

I received my complimentary issue last week and really enjoyed

it, particularly the articles on towing and the rigid wings. Also, I was glad to hear there is going to be some articles about flying in Europe, since I am in the U. S. Army and will be assigned to Germany in September.

You can definitely count me in as a subscriber to your primo publication!

SGT. RONALD L. CLARK
Virginia Beach, VA

Dear Editor:

I like (your) new format, your new ideas and applaud your new direction.

Thank you for a terrific publication, and keep 'em coming!

Ken Willson
Stockton, CA

Nice to be Appreciated

Dear Editor:

I just read the account of your business adventures as documented in the "Publisher's Column" of *Whole Air* magazine for March, 1985.

My admiration goes to you for accomplishing such a big project. I hope you find increased success through your new situation.

JOHN BALLANTYNE,
President, U. S. U. F.
Mt. Airy, MD

How Could We... Twice?

Dear Editor:

How could you do it? How could you print such an opinion-biased letter such as Bill Liscomb's letter about his own glider!?!? We all hear the same BS all the time at the flying sites so why print it? Why also, I wonder, did Liscomb split for the south face after spending twenty minutes trying unsuccessfully to climb above two HPs in the "smooth ridge and small thermal lift" of Torrey's North Face two weeks ago? And what happened to that "definite advantage" in performance that his Sensor supposedly has?

Bill is right; everyone talks about performance. Chris Price is also right; everyone is a salesman for their own glider. And Bruce Case is right; if you want objectivity, go read a phone book. As far as the HP versus the Sensor in sink rate goes, I'll go against Liscomb and his Sensor with an HP any time he wants to, and if he can prove a performance advantage in sink rate, I'll be happy to acknowledge it. Until then, he's just blowing smoke.

MIKE MEIER
Tustin, CA

Just a Little Credit

Dear Editor:

I just read the USHGA Aero Standards in the latest *Whole Air*. Thanks for donating two pages of your magazine to publish them.

They looked very familiar to me; I wrote most of them. Compare them to the proposed guidelines I sent to USHGA before the Board meeting and you will see what I mean. I'd like to get a little credit for the work I did. It wouldn't hurt to mention the USHGA Directors that put them in the final form.

The new *Whole Air* format is great; the more stuff in it the better. I especially like all the aero towing and foreign news.

KARL ALLMENDINGER
Sunnyvale, CA

We are aware that you penned most of the basic guidelines used for the new Aero Towing Standards, as we participated on the committee which "revised" them. Credit probably should have been given, but at least no one was favored over another. We can say that the sub-committee which labored over the changes was glad to have had your fundamental work from which to proceed, Karl.

— Ed.

Apologies to Noel and La Mouette

In last issue (May 1985), credit for the story and photographs were inadvertently left off British Correspondent Noel Whittall's piece entitled, "Towing In The U. K." We wish to apologize publicly for this error to our steadfast, talented, and usually humorous correspondent and friend. We'll take this chance, however, to attempt sniveling out of all responsibility, as the pages taken to the printer *did indeed* have the correct by-lines and article titles. Somewhere after the camera-ready artwork was out of our hands, those famous little gremlins struck. OOPS! (Hope your reliable sense of humor was with you, Noel, as you read the well-written piece which had the wrong title and credit given.)

Apologies also to La Mouette, whose story had no title at all. Well, actually it did have a title, but it appeared on Noel Whittall's towing feature on the previous spread of pages. Gerard and Jean Marc Thevenot were so gracious on our visit to their factory last October, that we can only hope they are still mild mannered after finding a complimentary story on their company which carried no title whatsoever. We're still sniveling, though, blaming printing gremlins for the error.

(blush!) THE EDITOR
Timbuktu, NW (No Where)

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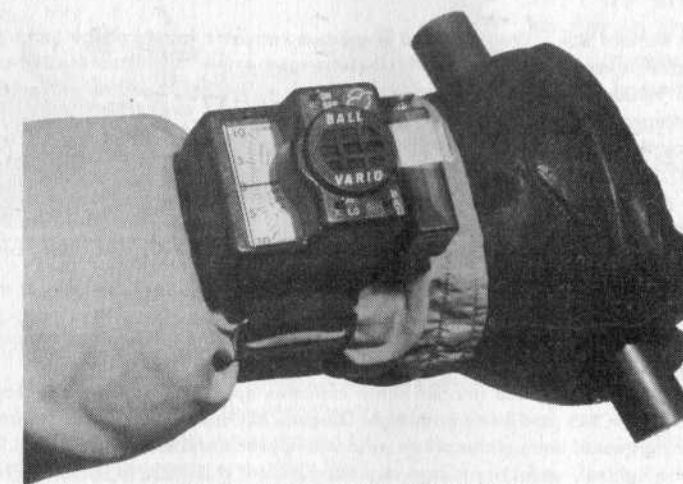
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INDUSTRY NEWS

Seedwings Certifies 510-B 160 VG

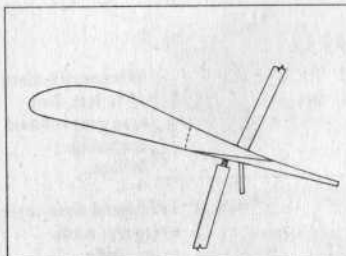
SANTA BARBARA, CA -- Owner Robert Trampenau has announced that Seedwings has just received HGMA's Certificate of Compliance for their newest design, the 510-B 160 VG. The alphabet-soup name represents one model beyond the highly-acclaimed 510VG, or as Trampenau puts it, "...the model A."

Formerly heralded as the 511 model (or to some, the 610), the newest design will look very much like its predecessor, model A. However, several rather subtle changes are present, and combine to make the popular Sensor 510 an even more desirable glider. The B model 510 VG 160 will be identified most easily by the low profile, tube-high keel pocket, which becomes enclosed in the double surface.

In addition to the change in keel pockets, the B model utilizes new hardware which aids in further reducing drag on the already very clean design. But a primary benefit -- in addition to results from the constant drive for greater performance -- is a noticeable improvement in handling, say company officials. This news will be welcome to many pilots who have admired the aesthetic qualities of the glider, its beautiful construction, and among the highest of performance figures... but who have not been as enthusiastic over the handling of the state-of-the-art design.

Trampenau claims the B model is a little faster, has an improved sink rate, an improved glide angle performance, but mainly, has better handling. He says this is due mostly to the pilot being suspended from a higher point on the glider (as the hook-up point on the keel is now several inches higher).

The newest B model 510 VG comes "with everything," says Trampenau. This includes streamlined downtubes and king post, the Variable Geometry (VG) option, extra ribs, the Kevlar trailing edge hem, and streamlined nose cone. Price for the deluxe package is \$100 more than the A model, at \$2,895.00. Interested pilots are invited to contact the factory regarding delivery by writing Seedwings at 5760 Thornwood Drive 3, Santa Barbara, CA 93117, or by calling 805/967-4848.



Fly The Grand Canyon In Comfort

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The tape has no narration, which Beeger says will permit maximum personal imaginative involvement in the trip. Included with the cassette is a route map which details events, landmarks, geological facts, figures, and theories. The price is \$49.95, and is available in VHS or BETA formats, and most recently Hi-Fi Stereo sound. A preview tape is available on request.

Contact Norman Beeger Productions, the distributor, by writing 3217 South Arville St., Las Vegas, NV 89102-7612, or by phoning 702/876-2328.



Ball Variometers Makes Earphone Jacks A Standard Option

Responding to several inquiries for earphone jacks on their line of high quality, Ball Variometers has announced the addition of an earphone option for their whole line of instruments being marketed to the hang gliding community.

Says company president Richard Ball, "We have had numerous requests for earphone jacks this year especially." Some of these requests are undoubtedly coming because of the need to respect the Bighorn Sheep in the Owens Valley. XCPA President Rick Masters has been championing the need to preserve the endangered species, and earphones on variometers are part of the effort.

Some difficulty, and delay therefore, came with the task of putting jacks on the new M-20 wrist vario model (see May '85 Whole Air). This tiny instrument uses a self-resonating, piezoelectric speaker inside, and a conventional speaker for the earphone jack. They've conquered the problems, however, and as soon as new circuit boards arrive, the option will be available on all Ball variometers.

For more information on the earphone jack option, or any of the fine Ball instrument line, contact the company at 5735 Arapahoe Av., Boulder, CO 80303, or call 303/449-2135.



Delta Wing Gliders Widens Dream Line

Responding to newly perceived needs in the flying community, Bill Bennett's Delta Wing Gliders has announced the addition of two new size models to their popular Light Dream category of soaring class gliders.

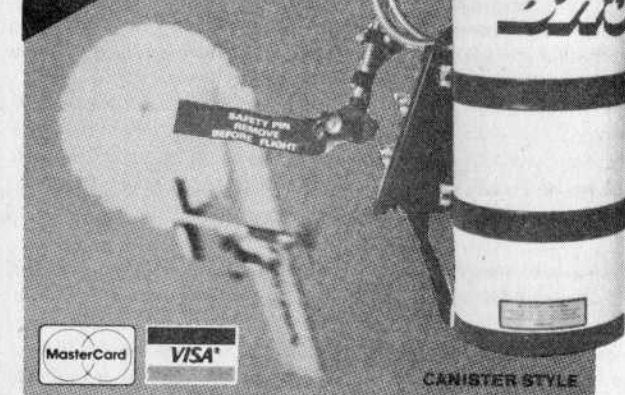
Joining the Light Dreams 165, 185, and 205 (model name indicates approximate square footage in the wing) are the new tiny Light Dream 145, and behemoth Light Dream 220. The smallest Light Dream will accommodate the smallest and lightest of hang glider pilots, who will appreciate the extremely light forty-four pound weight. This may be the lightest model of modern-day hang gliders available in the USA. The largest Light Dream -- which company officials say is still surprisingly light for its size and strength -- has been developed for the growing demand for tandem-capable gliders.

Company president Bill Bennett says, "The latest thing here in trend-setting Southern California is tandem flying and instruction. Our new Light Dream 220 is aimed directly at that need, and it accomplishes its goal with distinction."

For additional information, specifications, and delivery quotes on the two new Dreams, contact the factory at P. O. Box 483, Van Nuys, CA 91408, or call 818/787-6600.



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photo by Bettina Gray



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**Anemo Announces 1985
Line Of Anemometers**

SAN CLEMENTE, CA -- Anemo announces their line of anemometers for 1985. Anemo is an instrument for accurately determining wind strength and speed. The device comes with four scales: knots, Beaufort scale, meters per second, and kilometers per hour. All scales are easily-read white over black.

Anemo is made out of high-grade thermoplastic material and is available in four different versions: standard, with compass, with pointer stop, and with compass plus pointer stop. For further information, contact Kroeger Imports, P. O. Box 4178, San Clemente, CA 92672, or call 714/492-8676.

**Sylmar Group On
(L.A.) TV**



Los Angeles represents the second largest television market in the world, and the Sylmar Hang Gliding Association managed to get six precious minutes on the air in that city with a presentation of hang gliding that association members felt was very positive for the sport.

"A whole day's work turned out to be only six minutes of air time, but the time was packed full of good facts about hang gliding," says Craig Baker, author of a story about the effort for Sylmar HGA's publication *Hi Times*. The show aired in L.A. as well as other syndicated stations across the U. S. It was preceded by two days of occasional promotional spots announcing an upcoming report on "...the dangers of hang gliding."

The show explained clearly how very safe hang gliding has become in recent years, with interviews of Ken deRussy and others. Baker continues, "Great aerial footage was shown, along with a tandem takeoff, a pilot flying with his dog, students at a training hill, female pilots, old pilots, and lots of aerial-ballet by the Willis Wing team. Tim Cobb's voice was heard while a sequence of takeoffs was shown, saying 'I used to dream of running off into the sky like a bird. Now I CAN! Sometimes I feel like I don't need wings to fly!' An excellent show altogether."

Congratulations to the Southern California group for helping to assist in the overall effort of promotion for our sport.

In announcing their first new high performance glider since the *Streak*, Bill Bennett's Delta Wing Gliders reports the new model will supplement their Sprint design, which continues in development. The new model will be called the Mystic, and will be sold in addition to the Sprint, when that design is finally ready for the market.

Bearing great similarities to the highly successful Magic line from Airwave Gliders in the United Kingdom, Delta Wing officials felt this was a more direct manner to favorably access the high performance market in the USA. They note that establishing a totally new design like their Sprint -- however impressive its qualities -- can take upwards of one year for the market to understand and accept its new range of accomplishments. Thus, as work continues on the Sprint, a model very similar to those in the Magic line will begin with an excellent following, internationally, and will offer the market what it has previously indicated it will buy.

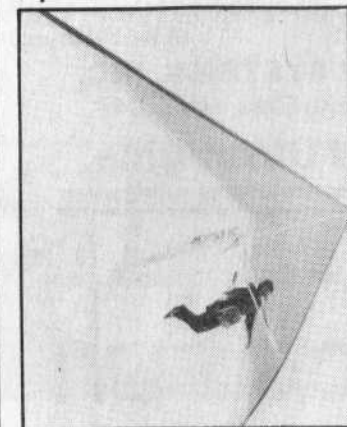
One primary difference will affect American customers: the Magic look-a-like model from Delta Wing will be given full American certification in accordance with the HGMA program. The process of meeting the HGMA requirements is underway at this time, and Bennett reported that all testing should be done before the middle of June 1985, with the package ready for presentation at the next HGMA meeting.

Some other differences that will be enjoyed by early buyers include a list of optional extras at no extra charge. Pilots ordering and paying for their new Mystic by June 30th, 1985 will receive Surf-kote sail cloth, the variable geometry option, streamlined downtubes and king post, special (normally optional) sail colors, in other words, "...everything you can order, except a speed bar, all for the bargain price of only \$2250," reported Bennett.

Dealers will be given their normal American discount structure, so no buyers need fear that their local dealer will be slighted in the exceptional offer. Plus, to top things off, Delta Wing will continue their unconditional guarantee from the Light Dream model line. "Satisfaction guaranteed or your money back within thirty days of purchase of a new Mystic," assures the company. They report that in their experience with this guarantee on the Light Dream, not a single consumer ever requested their purchase be returned. It nevertheless remains a quality offer that can ease the concerns of a potential buyer.

For more information on the new Mystic, write Delta Wing Gliders at P. O. Box 483, Van Nuys CA 91408, or phone 818/787-6600. Telex users may code 65-1425.

**Delta Wing To Release
New High Performance
Mystic**



MYSTIC

INTERNATIONAL NEWS

**Polaris And UP
Cancel Agreement**

Polaris S. R. L., the largest hang glider manufacturer in Italy, announced recently that they have elected not to finalize an agreement with UP of Temecula, California to begin a production in Europe of UP's GZ, Glidezilla design.

The company reports that "voices" have been speaking about the agreement. While they confirm that serious contacts were made last year for the common study and possible subsequent production of the GZ, company president Doi Malingri indicated in early May this year that Polaris decided not to go ahead with the arrangement.

Polaris now has in production the new Gamma Zero (GZ), which stems partly from the investigation, and resultant extensive testing. In support of the final version, Polaris identified their Epsilon Zero model flew in the summer of 1983 and the Gamma Zero prototype was flown for more than one year prior to the UP/Polaris meeting in Bassano, Italy in 1984. Further they refer to an ad in the November 1983 *L' Aquilone* (Italian hang gliding magazine -- see elsewhere in this issue), as well as in *Vol Libre* (French magazine -- also in this issue) in the summer of 1984. These mentions are evidently made to support Polaris research of their Gamma Zero independent of the GZ, Glidezilla. Polaris is well known for making gliders which "closely resemble designs from other companies."

In comparison to UP's GZ, Glidezilla, Polaris states that the "GZ, Polaris model has perhaps slightly less performance, but much better and more conventional handling."



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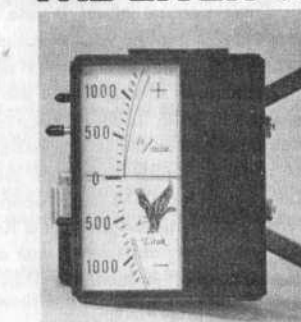
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Flying In Korea Has Its Differences

Danny Utinske, a hang glider pilot currently in the Army, reports that flying in Korea has extra hazards, specifically "anti-aircraft weapons, special military compounds that cannot be overflown, lots of loaded guns, and political red tape, not to mention that most flying sites do not have road access."

Utinske continues, "We have three American hang glider pilots here in Korea, two civilian and myself, the military member of the group. However, an enormous amount of Korean pilots fly. Each university has a team, and each little town has people who fly. Their equipment for the most part is adequate; most are copies of American and Japanese designs. However, what they lack in equipment, they more than supplement with pure guts and determination. For instance, here in Seoul, a student's first flight leaves the ground from a 300 foot elevation. They do not have smaller training hills."

Utinske will be returning in July this year to his home in Tacoma, Washington. But prior to that departure, he will attempt to put together an article on Flying in Korea.

Prone Trike Attracts Good American Attention



Flight Research, British developers of the world's only flying prone trike report getting a "great deal of inquiries about prone trikes from the United States, so we plan a marketing program for America." The prone trike first appeared in the USA in an article in the July 1984 issue of *Whole Air*.

The company's director, Rupert Sweet Escott, says models are now using the JPX 425 engine which gives craft an exceptional rate of climb, excellent reliability, and superb range.

They also are planning to schedule some flight demonstrations in the U. S., once they can organize locations where the machine can gain a good audience of interested American pilots. For further information on the latest version of prone trike, contact the factory by writing Flight Research at Rochester House, Ashfield Crescent, Ross-on-Wye, Herefordshire ENGLAND HR9-5PH. Callers may phone the United Kingdom, then dial 0989-67678.

PEOPLE IN THE NEWS

Alexander And Florida Group Actively Promoting Aero Towing



A group of Florida aero towing enthusiasts are moving ahead with several plans to continue their use of and promotion of aero towing as an activity. The group involves surface towing veteran, Roland Alexander (see cover story in the May '85 *Whole Air*) and several allies all keenly interested in furthering the development and use of aero towing, and in ultralight sailplane craft which can be aero towed.

In an effort that is very likely to be the first such trial, Alexander has been aero towed aloft from a water start behind an Advanced Aviation Cobra Aero Tug ultralight, which was equipped with floats. They report no difficulties. The glider used special floats which had been developed earlier for use in deep-water tow starts. They permit launches from the water while the pilot lies already prone.

Their second effort is one more likely to be of interest to enthusiasts of aero towing anywhere. Alexander's group, which includes tug flying expert Tony Nicorvo (also on that May '85 cover), has now successfully completed the first of several tandem aero tows.

Employing a land tow in the experimental phase, the Florida group used Alexander's 185 Comet 1 with reinforced keel, leading edge/crossbar junction, and with 1/8th inch cables. With this modified glider, Alexander launched with a ballast "passenger" which weighed one hundred pounds. Then they moved up to 150 pounds, which flight took place in "thermally active conditions, with no problems whatsoever." Each of these weight stations were repeated for added assurance before harnessing in live passengers.

The first passenger was a 105 pound woman, and the experience was also satisfactory, so a 150 pound lady was taken aloft next. Last a 145 pound male sky diving instructor was flown up, and the group seems pleased with all passengers. They feel this type of aero tow training can bring new persons into the sport, and can do so safely.

So satisfying has been their experience to date that they plan to create a thirty minute video tape on tow training. This effort will consume greater amounts of time, and progress will be reported as it occurs. Lastly, at the invitation of event coordinator (and *Glider Rider* editor), Michael Bradford, Alexander and Nicorvo were to have performed an aero towing exhibition at the Ultralight Sport Aircraft '85 show in Houston, Texas May 30 thru June 2nd. Flying was scheduled to take place right out of the Houston Astrodome's parking lot.

Seven Ultralight And Hang Glider Dealerships Join Forces



Alpha Aircraft, based in Indianapolis, is now the hub for a joint operation involving what was formerly seven individual ultralight and hang glider dealerships. According to spokesman, Dean Batman, the President of Alpha Aircraft, "This consolidation under Alpha Aircraft's banner will allow the former independent enterprises to better serve its customers."

Involved in this merging of sport aviation enthusiasts are Martin Fall in Indianapolis, Reeve Porter and Jim Nicely in Franklin, Indiana (all Maxair Drifter ultralight dealers), plus Mike Spisok in Danville, Illinois, and Larry Hinton in Bloomington, Illinois (both hang glider dealers). These five will join Dean Batman and his business partner. As the market matures, associations of this type may become commonplace.

Alpha Aircraft and its associates will deal in the Avion, Buccaneer, Challenger, Drifter, Falcon, FlightStar, N-2 Mouse, N-3 Pup, and Shadow ultralights, plus homebuilt aircraft kits, and all makes of hang gliders. They will offer parts, service, and training on all makes and models.

Persons in the mid-west who wish to avail themselves of this wide service, or those seeking additional information about services available at Alpha Aircraft may write 145 E. 14th St., Indianapolis, IN 46202, or call either 317/636-4891 or 291-6406.

COMPETITION NEWS

World Team Contributor Withdraws

In an effort to help raise funds for use by the 1985 World Team, a Houston Texas businessman was solicited. However, after Mr. Robinson's review of financial materials, he elected to withdraw his support. The information difficulties surrounded the reported fund raising goal and present level of contributions received. These figures were published in *Hang Gliding* magazine. After more recent figures were shown to him, Robinson reportedly began to suspect their accuracy, even when it was explained to him that the magazine has a delay for printing and distribution which might have accounted for the discrepancies. Contact has been made by Region 11 Director, Hardy Snyman.

Some good news did come from the contact in spite of the withdrawal of support. At the expense of Robinson, a Houston law firm was engaged to determine the tax deduction capability of any donation Robinson might make. Snyman reports, "The lawyer's synopsis was optimistic about getting the tax exemption as long as the World Team Fund was established as a separate organization and abided by the IRS codes." The legal investigation further mentions the chance of the USHGA becoming tax exempt, so all was not lost in Snyman's attempt to help out the World Team.

Litek's Chuck Kanavle Offers Contest Computer Program

Meet directors and organizers who are computer equipped and knowledgeable, but who do not have a program to use, may contact the producer of the popular Litek Variometers. On request, owner Chuck Kanavle will supply a program as a disk file to anyone who sends him a disk or has a phone modem.

The program has been used in the Starthistle meet in Oregon, and according to Kanavle, "All pilots came away mighty happy with the way it was run." He continued, explaining, "Pilots choose their own opponent and then choose their own task together. Also the launch time was set by the pilots (it was a pilot's meet). The winner of the task got a score that was calculated according to how many pilots his opponent beat in other tasks. To win the meet, it (thus) would pay a competitor to pick the toughest opponents since one gets more score for beating them."

For further information, contact Chuck Kanavle at Litek Variometers by writing 4326 Fish Hatchery Rd., Grants Pass OR 97526.

CALENDAR

Great Western Ultralight Air Race Scheduled

Sponsored by Wasatch Wings of Salt Lake City, and by the State Line Casino, the Great Western Ultralight Air Race is scheduled for September 21st, 1985.

With a considerable \$5,000 in prize monies, the race will involve a 100 mile route from Utah to Nevada. All craft must comply with F.A.R. Part 103. Classes will be formed for single and double surface machines. The entry fee is \$100 and the registration deadline is July 31st, 1985.

For further information, please contact Dave Rodriguez at Box 397, Cedar Valley, UT 84013, or phone 801/768-4500.

Cross Country Classic Reunion Planned

In order to celebrate ten years of Owens Valley XC flight, the Son of Owens Valley Hang Gliding Center and White Mtn Aire, Ltd., present the Cross Country Classic Reunion and Fourth of July Fly-in Benefit.

With proceeds to benefit the Don Partridge Family Rent Fund, the event will include flying (and rides to fly-in participants) from Paiute launch site for \$25 (though non-flyers are also welcome for the fee of \$15), if tickets are bought by mail. Fees will increase by \$5 if bought "at the door," organizers say.

Beverages, food, fireworks, a mountain bike rallye, plus music by Fiddlin' Pete Watercot and Charlie Broten and Band will all come with the gate fee. The party is scheduled for July 5th at the Partridge Ranch in Bishop. Flying is planned for July 4-7.

For further information, contact Owens Valley Hang Gliding at P. O. Box 1535, Bishop CA 93514.

Fairmont Hot Springs XC Contest Announced

The site of the 1984 Canadian Nationals will host the Fifth Annual Fairmont Hot Springs Cross Country Competition near Invermere, B.C. on August 3-5, 1985.

Located at Fairmont Hot Springs Resort, a four season recreational area, pilots will compete for trophies and enjoy the social amenities. "Pilots competing in or attending the U. S. Nationals and/or the Grouse Mtn meet will find the trip to Invermere will worth the extra time taken," states organizer Andrew Barber-Starkey. The entry fee is \$35 (Canadian).

For further information contact Starkey write P. O. Box 2167, Invermere BC, CANADA V0A-1K0, or call 604/342-3660.

8th Annual 94ROCK Festival Slated

The 8th Annual 94ROCK/Free Spirit Flight Hang Gliding Festival has been scheduled for August 31, September 1 & 2 this year. Held at Draht Hill near Elmira NY, the contest will feature a \$1,000 prize purse plus trophies.

Team and Open Class competitions will be offered for beginner to advanced pilots. Ultralight, towing, and aerobatic demonstrations will also be performed. Nearby camping is available.

Pre-registration is required. To do so, or to obtain more details, write Free Spirit Flight HGCI, P. O. Box 13WA, Elmira NY 14902.

Second Annual Silent Air Show Planned

Following the success of the 1984 event, organizers have slated the Second Annual Silent Air Show in the bay Area, California.

Sponsored by the Wings of Rogallo Hang Gliding Club and 7-Eleven stores, with proceeds benefitting the Muscular Dystrophy Association, organizers say three objectives top the list: (1) to raise money for the MDA charity, (2) to promote hang gliding, and (3) to have fun. They report these were last year's goals as well, and that they achieved them with resounding success.

Scheduled for September 22nd from 9:00 AM till 4:00 PM, the entrance charge is a modest \$5 per vehicle. It will take place at Ed Levin Flight Park located near the Mission Soaring Center hang gliding shop.

For more details on the event, contact Mission Soaring by phoning 415/656-6656.



**INFORMATION
YOU HANG GLIDER
PILOTS NEED
ABOUT
RADIOS,
BY CHUCK
JONES.
READ IT!**

AS THE DISTANCES achieved in cross country flights have increased, so has the importance of reliable, light-weight radio communication equipment. General dissatisfaction with the interference, jamming, and outright rudeness endemic to the Citizens Bands has provided additional impetus to what was already an active search for alternatives in portable communication. During research in preparation for a recent seminar on radios and hang gliding, I learned that the penalties for violation of Federal Regulatory statutes governing radio communication are singularly impressive. Before launching into a wild (and normally expensive) toy buying trip, careful consideration of the legal requirements for the radios under consideration may be appropriate. In the course of this article, I'll discuss current license requirements for the

two most commonly used handheld/portable units, and include comments on a third alternative, the aircraft frequency portables (e.g. TRS720). The Federal Agency controlling every aspect of radio communication in the United States is the Federal Communication Commission under authority granted by the Communications Act of 1934, as Amended.

CITIZENS BAND (CB)

CB radios are currently the most commonly used form of radio by hang glider pilots, and, unfortunately, just about everyone else. The units retail for somewhere between \$40 and \$150 new, operate on the 26.965 - 27.405 MHz frequency band, and are limited to 4 watts output power. Signal type can be either Amplitude Modulation (AM), just like regular broadcast commercial radio, or Single Side Band, a modified AM signal. Radios operating in this band must be Type accepted by the FCC according to Part 95, FCC regulations.

At one time there were requirements to apply to the FCC for a license to use CB radios.

This is no longer the case, although the literature accompanying a unit recommends the user read and be familiar with Part 95. However, virtually anyone can walk into a wide variety of stores, buy a radio, and be on the air in minutes with no training or knowledge of how the radio works. Apparently the lack of knowledge includes no consideration for people currently using a channel you want to use. Common complaints include the most crass behavior imaginable, all over the dial. While this is a problem, the wide distribution of this radio can be a literal lifesaver to a pilot in trouble.

AMATEUR BAND (commonly referred to as FM for Frequency Modulated)

Radios operating on the two meter amateur band are gaining popularity in the Southern California area, and saw wide use in the Owens Valley Classic last summer. The small handheld portables retail for \$200 to \$300 new, operate on three frequency bands (144-

148, 220-225, 440-448 MHz), with output power typically between 300 milliwatts and 1 watt. While there are a number of emission classifications (signal types) authorized for this radio, the small handtalkies invariably operate in the Frequency Modulated (FM) mode, again like commercial broadcast radio. Larger "base station" units for mobile use are available with 45 watts of output power. Because of a variety of factors, high power signal strength is not needed to realize essentially noise- and interference-free communication over impressive distances.

The frequency bands noted above are all allocated to Amateur Radio (Ham) operators ONLY. In order to use this equipment, the operator must either have a license of the appropriate level, or be personally supervised by a licensed operator of the correct level. Unfortunately, personally supervised means "sitting beside," not "flying above." There are five Ham license levels; Novice (the least rigorous requirements), Technician, General, Advanced, and Extra (very demanding). The license requirements are separated into two areas; proficiency in International Morse Code, and the knowledge of radio theory.

In order to legally operate this equipment, you must be at least a Technician.

	Words per minute code speed	Theory level
Novice	5	Elementary
Technician	5	Moderate (same test as General)
General	13	Moderate
Advanced	13	Very intense
Extra	20	Comprehensive

Five words per minute in Morse Code (a word is five characters) amount to one character every two seconds, which is REALLY slow. The Technician/General theory test is only moderately challenging. With no previous experience in, and something of an aversion to, electric circuit theory, I passed the Technician/General license exam after 6 weeks of study at maybe a half hour per day.

As noted earlier, the penalties associated with operation on the Ham bands without a license can be severe. Fines can go up to \$10,000, and jail terms can go up to a year. Licensed amateurs who violate FCC regulations are also subject to penalties starting at \$500 per violation per day, ranging up to several thousand dollars per violation in the instance of a civil suit. In the Owens last summer, two pilots who were unlicensed for this equipment came within a whisker of arrest after FCC investigators had pinpointed their location. Given our reason for using a radio is to announce our precise location and exact landing spot, we aren't going to be very hard to find, should the FCC be investigating a complaint.

Obtaining a license is not particularly difficult, aside from the required knowledge.

By writing or calling the local branch of the FCC, you can obtain a form 610, which is used as the application to take an examination. At one time, these tests were administered by the FCC. Currently, various Volunteer Examination Committees (VEC) throughout the country take charge of this operation. The FCC, or better a Ham Radio club, will be able to tell you how to contact the VEC in your area. A number of books are out which will help you study for the theory exam. Almost all of them have the questions AND ANSWERS used on the current tests, although trying to memorize all the questions would be harder than learning the information. As a final note, it is not necessary to start at the Novice level and work on up. The first test applied for could be the Extra if you felt especially bold. In the Exam sequence, you would first have to pass the 20 WPM code, then take all the theory levels. The more usual course is to apply for the Technician general class. In any case, you must first pass the code (which you will probably never use again) for the license level of your application before you are allowed to take the theory exam.

AIRCRAFT RADIOS

These handheld transceivers operate on the frequencies allocated to aircraft communication and navigation. The units range from expensive (\$300) to very expensive (\$800), operate between 118 and 125 MHz, and produce an AM signal. Aside from the cost, this would appear to be an ideal option for a hang glider pilot, since we could monitor air activity most effectively, call for permission to enter controlled air space, and all that stuff. However, in order to use any of these frequencies, the operator (pilot) must have an "N" number to use as a call sign. These N numbers are issued by the FAA or FCC, and are actually issued to the radio/aircraft as a station, and not to the pilot as an operator.

The mechanism for obtaining an N number from the FCC involves submitting an application on Form 404. For U.S. Type Accepted Aircraft, Experimental Aircraft or Powered Ultralights with AOPA registration, this is no problem, as the FCC and FAA have a recognized and mutually accepted registration system for these aircraft. The situation with hang gliders is less clear, especially since hang gliding is trying to act as a self regulating air sport, and not involve the FAA. (Hang Gliders may also register with the U.S. Ultralight Foundation, which replaced the AOPAs program. Registration through USHGA will also work as this program is accepted by FAA. Contact the USHGA office for more information. --Ed.) At the same time, a hang glider pilot has applied for an N number from the FCC on form 404 using the glider serial number for identification and stating Hang Glider as the type of aircraft, and was successful. Another pilot had his hang glider classified as an Experimental Aircraft by the FAA, so he also has a vehicle for the application.

There are only a few frequencies available for air to air, or air to ground communication using this radio; multicom (122.9), unicom (varies according to the airport and is actually intended for use around airports which do not use towers to control traffic), and the sailplane frequencies. In view of the potential for improper operation using this radio, particular care should be exercised to obtain the necessary documentation before going on the air.

WHAT TO DO

If you decide to use Ham bank or Aircraft bank equipment, get the license. If you prefer to stick to CB equipment, all is not lost. In an article to follow, I'll discuss several things that can be done to extract improved performance from this setup.

Editor's Note: Chuck Jones presented a talk on this subject at one of the High Energy Sports seminars. In an effort to reach a wider audience with this important information -- to avoid the legal repercussions of improper equipment use -- Jones offered this article to Whole Air. He holds the Ham Advanced license (ICG6NP call sign), is a Hang IV pilot, and member of the XCPA.

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HANG GLIDING IN INDIA

OOTACUMUND, SOUTH INDIA

The view from takeoff was stunning -- the mountain dropped rapidly away to the steamy southern Jungle 3000 feet below and the sky, colored in a rich blue, was dotted with inviting snow white cumulus clouds. I hooked in, took a deep breath and was just about to go for it when I heard a shout.

One of the mountain tribesmen -- an old man with a white beard was running towards me waving his arms -- it seemed he was worried about the elephants.

"Elephants!?" I queried, thinking that there was nothing between me and a safe landing but the occasional gust of wind.

"Yes, Yes!" he said. "Jungle...wild elephants...attack!! Sit on car coming up mountain last week...people not happy!!"

I didn't take him seriously but I thanked him most profoundly and made a mental note to avoid the jungle if possible.

India is like that, full of surprises but in this



After two major contests, more is known about India than before; here Geoffrey Martyn gives us first-hand insight / photos by the author.

magic land of Gurus and Ganga, flying is alive and well. Today India can boast several active flying clubs, a dozen or so regularly flown sites, a national association, a hang glider factory, a national training program and of course the (hopefully) annual Himalayan Rally. In my few short weeks on the subcontinent I was only able to taste the magic of the southern mountains, but from those few wonderful days it is clear to me that the spirit is here, the sites are waiting, and one finds moments at once.

The driving force behind flying in India is a gentleman named Deepak Mahajan. Deepak runs the "Hang Gliders Club" from his home in Bombay and was the co-ordinator for the Himalayan Rally in which he also successfully participated. He also publishes the national

newsletter and has developed a first class training program utilizing expert foreign instructors, all for the benefit of the club. It was with Deepak's help that I was able to visit Ootacumund and get my first taste of Indian air. I learned from him that there are about 15 skilled pilots in India plus many many more enthusiasts and beginners. Many of the advanced pilots are Indian Navy and Air Force officers and, although they have formed their own club, flying time is limited by other duties.

With us on our trip to Ootacumund (the Indians call it Ooty) was the current foreign instructor, an English engineer and B.H.G.A.



observer, Mr. Andrew Buchan. He had just returned from his third training session north of Bombay where he had put 26 fledgling pilots through their paces. Andrew explained to me that the club uses trainers built by the only manufacturer in Indian -- a company based in Pondicherry, East India called "Raj Hamsa" -- and that Joel Koechlin, the owner and chief designer would be joining us later to demonstrate the latest model and do some flight testing of his new prototype.

I met with Joel the next day and together we assembled his new double surface Mirage IV.

I should explain at this point that manufacturing a modern, safe hang glider in

India is no easy task. There are severe import restrictions on most 20th Century hardware (dacron, AN-8 bolts, coated wire, etc.), and some things are just plain unavailable. Period. Even the tubing has to be specially made. Nevertheless Joel, who previously worked for La Mouette in France, and the Raj Hamsa team have done a remarkable job. They produce not only trainers but a very good intermediate glider and the 80% double surface, Mirage IV, not to mention trikes and powered craft. I was impressed by the good workmanship and structural integrity of the craft, I took a good look since I was to fly one the following day.

Ooty is an old British Hill Station high in the Nilgiri mountains about 1000 km south of Bombay in the extreme northwest corner of Tamil Nadu, a laid back southern province. It lies on a high plateau about 5000 feet above the southern plains. Its main connection with the outside world is a narrow gage, cog railway which runs from Caimbature -- the town below. The plateau is about 40 miles across and has takeoffs for all winds. It's a visually spectacular place with most takeoff points between three and five thousand feet above the valley floor. The area was first flown by Joel Koechlin two years ago and to this day only a handful of pilots have been there. The flights we had were really fine with light winds and good thermal conditions. I was particularly touched by the cup of tea I enjoyed with smiling villagers at the farm here we landed.

At present there are no laws relating to Hang Gliding in India. The government has been in considerable disarray since the assassination of Indira Gandhi but moves are currently being made to introduce some legislation for ultralight flight. There have been several accidents and incidents here, due as usual to pilot error and unsafe equipment, but in general things look pretty good. The sport receives a lot of support from local companies and some bright soul in the government has had the insight to consult with Deepak Mahajan and other notable pilots before legislation is enacted. Most significantly, it is generally felt in the flying community here that Rajiv Gandhi, the new premier who is an avid aircraft pilot and enthusiast will be a positive force for the sport.

I wish to thank Mr. Mahajan, Mr. Buchan and Mr. Koechlin for their kind assistance while I was in India. I have memories I will never forget.

One thing above all other sticks in my mind -- that large herd of huge, black shapes moving through the misty jungle 3000 feet below my glider. Was the old man right?



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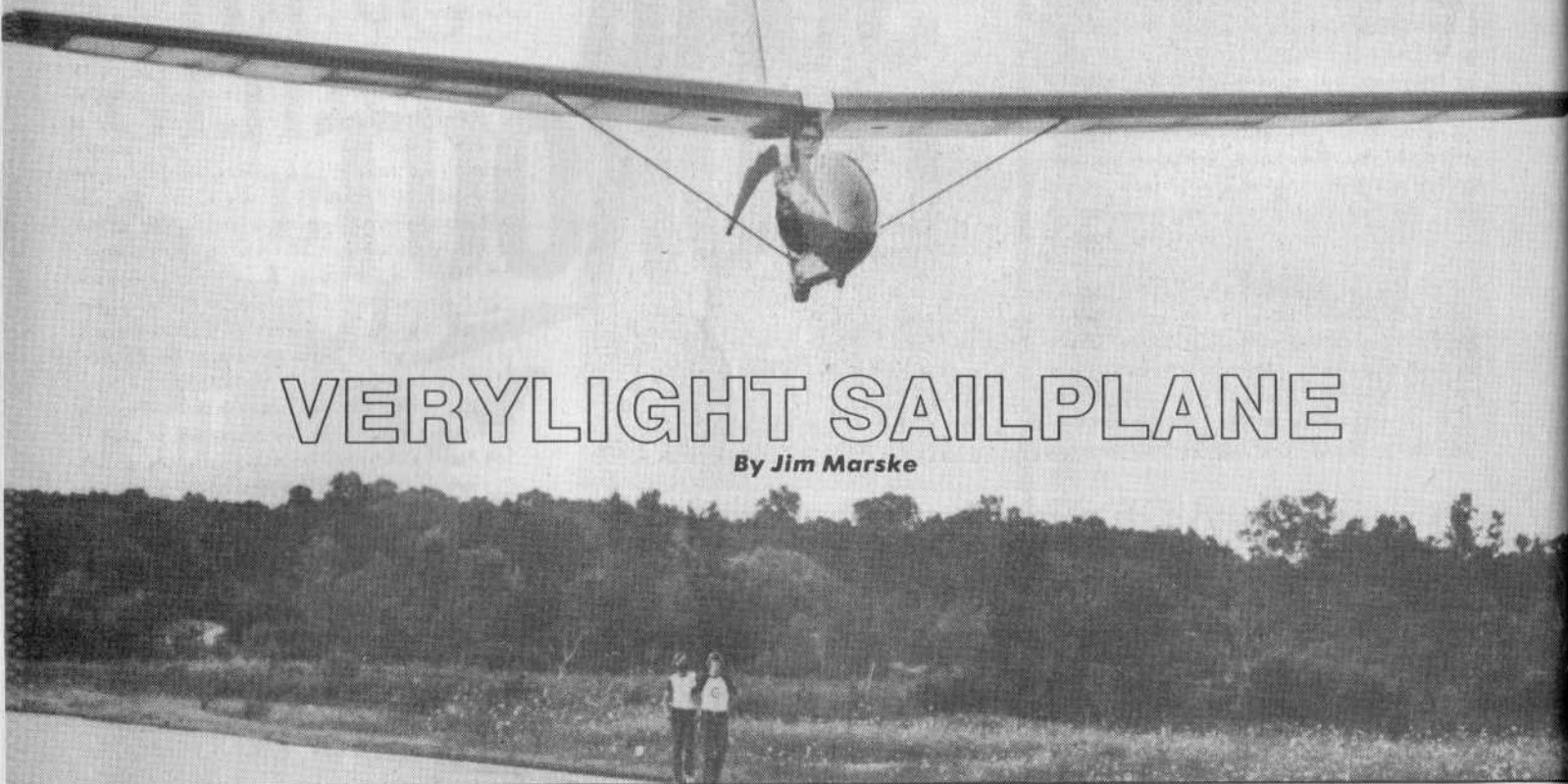
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MONARCH

VERYLIGHT SAILPLANE

By Jim Marske

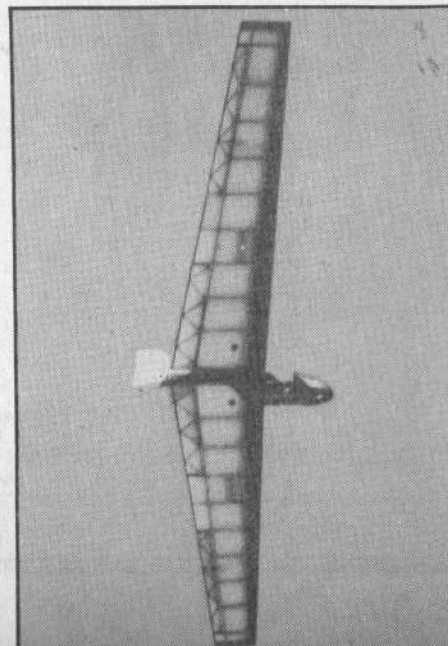


I FIRST WITNESSED the new sport of hang gliding back in the fall of 1972 at Warren Dunes State Park along the southern shores of Lake Michigan. As I drove into the park I counted eighteen colorful kites, which resembled giant moths clinging to the sides of the sand dune. One by one, inching their way to the top, they sailed freely from their perch and drifted about on the crisp autumn breeze. Now, the performance of these hang gliders was by no means impressive, but their maneuverability and slow flying characteristics was marvelous to behold. In all my 20 years of flying sailplanes I had never seen a man fly like that. It seemed as though they could fly and land almost anywhere.

Winter came and before I knew it I had dozens of hang glider sketches on my drawing board. A friend of mine became excited over one of them and within a month he had it ready to fly. In the spring of 1973 we made our first attempts to fly it. It was big, heavy and clumsy. The awkwardness of the launch was the principal drawback that made me feel very uncomfortable, particularly on the takeoff run. I just did not feel that I was in control and feared for my safety. The glider was set aside and never flown again.

A second rigid wing hang glider was designed and constructed in the spring of 1974. This glider was much improved and flew quite well. Its performance seemed quite good and

had acceptable launching characteristics. My only concern was keeping the wings level on the takeoff run - I felt lost without ailerons. Unfortunately, only three flights were made in it that summer due to unfavorable winds on the slope. Furthermore, dragging an 80 pound aircraft up a slippery sand dune was not my idea of fun. Towing it up would have been much easier and would have added greatly to my flight time. So we considered towing. Could I run fast enough without stumbling and could I keep the wings level throughout the takeoff



run? After a long deliberation there was just too much doubt to seriously consider it.

Finally, the concept of the Monarch enters the picture. A towable ultralight sailplane could release me from the dependence of the ridge and its fickle wind. With reasonable weather conditions we could fly almost any day, regardless of wind direction. And, by adding a landing wheel under the aircraft, I can fly, free from the danger of stumbling on hot wind-less days - even make downwind takeoffs with assured safety. To maintain roll control on takeoff, should I encounter a crosswind or wind gust, a set of ailerons should be incorporated into the wing. In fact, our sailplane should not only have 3-axis aerodynamic controls, but have lift spoilers as well for glide path control.

Realizing that the majority of our soaring would be via thermals from auto tow launches, we had to achieve a glide ratio of at least 16 to 1 to assure us of comfortably locating not only our first thermal off tow but successive thermals as well throughout the flight. Sink rate is also important and should not be more than 180 fpm to allow us to climb in small weak thermals close to the ground. To keep in the spirit of hang gliding, we kept the wing loading low, between 2 and 3 pounds per square foot. In addition, the pilot should remain exposed, as in a hang glider, but in a seated position.

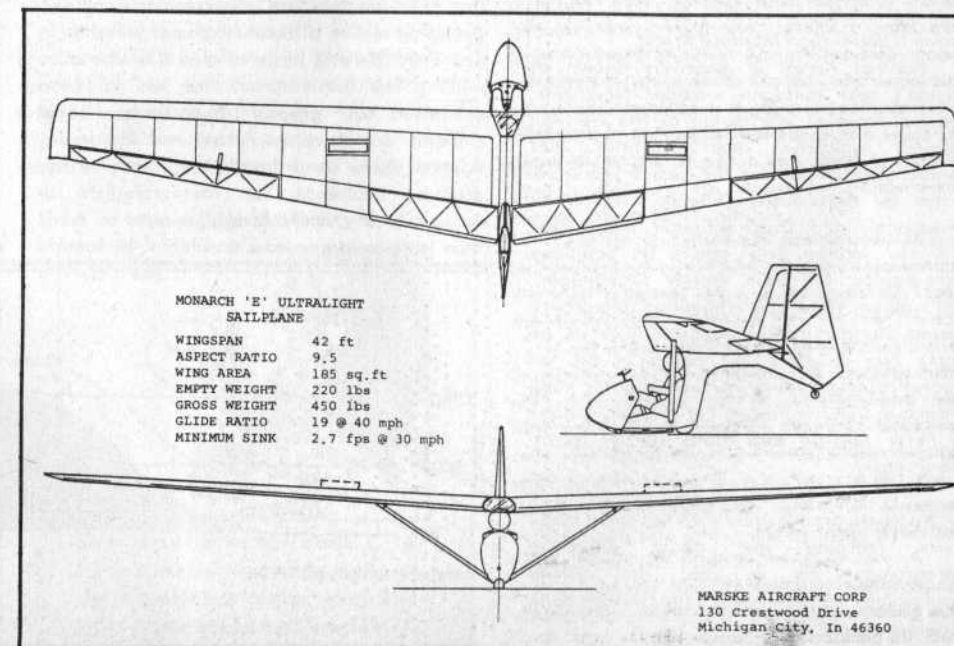
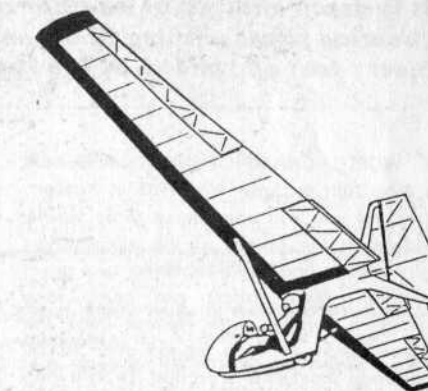
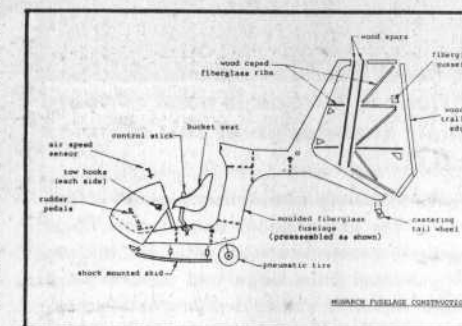
Our prototype Monarch sailplane weighed 260 pounds, had a wingspan of 37 feet and had



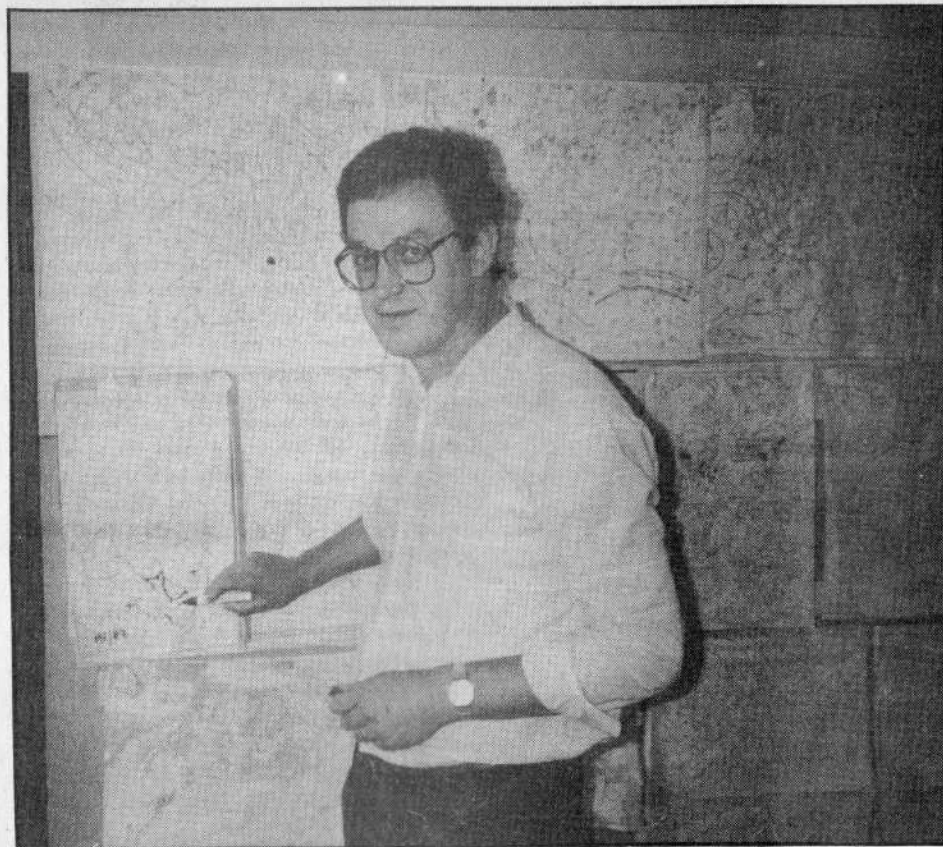
a wing loading of 2.8 pounds per square foot. She made her first flight on July 4, 1974 at the Frankfort Soaring Festival in Michigan. We did a lot of test flying that summer as well as performance measuring. We learned that its glide ratio was 18 to 1 at 45 mph and its minimum sink rate was 200 FPM at 35 MPH. Not too bad for the first go around, but the sink rate was too high. During the winter of '74 we extended the wing tips to give her a 40 foot span and made a few internal changes to remove several unnecessary pounds. The following spring our first flights showed us that we did right. Our sink rate was reduced to 180 FPM at 32 MPH and the glide ratio increased to 19 to 1 at 42 MPH.

We were still making additional modifications to the control system, however, to find the best and lightest arrangement. We tried all sorts of tow hook placements to find one that would work well on any type of tow, including airplane tow. We found that two hooks, similar to that used on conventional sailplanes, mounted on each side of the nose fairing and positioned near the aircraft's center of gravity allowed us to be launched by auto, winch, shock cord, and airplane.

Although the appearance of the Monarch is rather unique by conventional standards with its tailless, swept-forward wing, its stability is surprisingly firm and positive. I have flown "hands-off" for extended periods of time without need of attention even in turbulent air. The remarkable asset of this design concept is that the Monarch will not stall or spin. I have flown for 20 minutes, through various maneuvers, with stick full back and was able to maintain full aileron and rudder control at all times. Indicated airspeed with stick full back is 28 MPH with a measured sink rate of less than 200 FPM. This excellent and safe low speed performance allows me to get the most out of any thermal without the fear of falling into a spin. Once on top and on-course, the Monarch can really cover ground with little loss of altitude despite its semi-open cockpit. At 60 MPH the sink rate is only 390 FPM. There were



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This in-depth analysis of weather conditions in Europe is must reading for soaring pilots wishing to advance their knowledge of this complex subject / text and photos by Gib Eggen, D.O.

THE WORLD CHAMPIONSHIPS were held from May 20th to June 9th, 1985 in Kossen, Austria. As you will see, these three weeks should be at the height of the alpine cross country season and could make for one great competition. Many pilots are going long distances in Europe, with Helmut Denz the European leader — he's logged over 10,000 km! already, most of it in Europe. To fly a long distance in Europe, you've really got to know your meteorological "stuff", and no one here knows it better than Manfred Kreipl.

Manfred Kreipl is generally known as Europe's best sailplane weather forecaster, and has traveled worldwide as the German national sailplane team's official MET (meteorologist) man for the past 9 years. He writes for *Aerocourier*, *Flieger*, *Gliding International*, and *Drachenflieger* magazines, and has written two books on sailplane meteorology: *Mit Dem Wetter Segelfliegen*, and *Wolken, Wind Und Wellenflug* (Motorbuch Verlag, Stuttgart). More importantly for us, he wrote two chapters, 82 pages in all, on theoretical and applied meteorology for hang gliders, in *Drachenfliegen Fur Meister*, a book by Peter Janssen and Klaus Tanzler (Nymphenburger).

Fortunately for me, he lives and works in the Nurnberg area (as I do) and has spent many hours teaching me about European meteorology. He is also the official meteorology instructor for all the German hang gliding instructors.

EUROPEAN WEATHER SYSTEMS

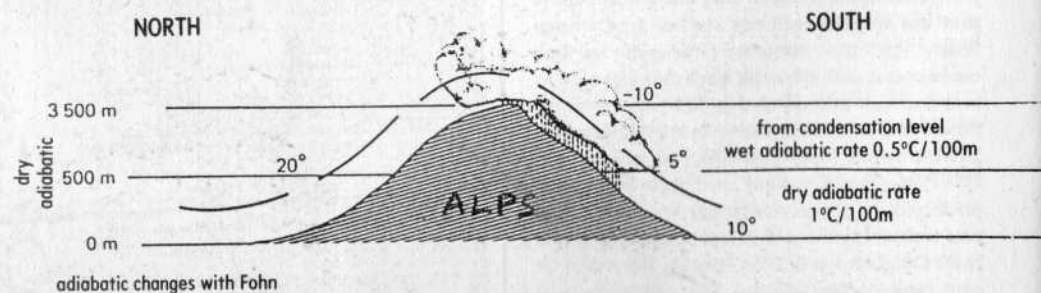
The following information is compiled from some of the above books and *Drachenflieger* magazine, interviews with Manfred, and my own personal knowledge and experience in Europe. Manfred is always willing to help hang gliding pilots and others alike, and I would like to give him special thanks for this.

WEATHER DIFFERENCES, EUROPE VS. USA

Europe is so much smaller than the USA that the weather can change more rapidly, giving up to five different types of weather in one day. There is more of a land/water mix, making the influence of the sea vs. land conditions of greater importance. Local climates are more important and strong influences here, and forecasting them is the greatest challenge for meteorologists in Europe. Local climates are influenced by more than just the larger lows and highs; by factors

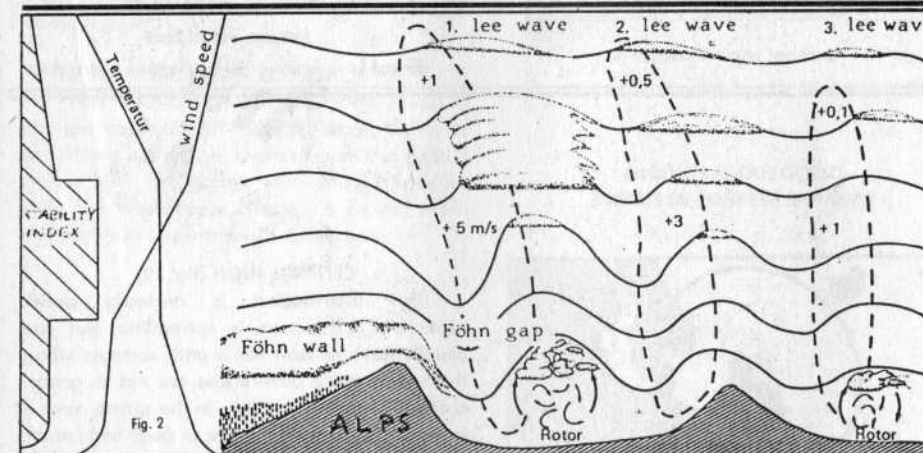
such as the 1) Mountain to plains area distribution, 2) Lee side (Fohn) effects, 3) Subsoil moisture content, 4) Agricultural crops and the stage they're in; trees, leafless or not, 5) Height of snow in the Alps, etc. Larger weather systems have profound effects also, of course, and no description of European weather systems would be complete without including the FOHN wind, similar to the Chinook wind with its Sierra waves in North America.

This weather condition (fig. 1, 2) occurs in mountain chains high and wide enough that the air must flow up and over it. The mountain range should be perpendicular (or within 30°) to the wind, and with peaks higher than the condensation point of the air flowing against it. Wind speeds at peak level must be at least 50 km/hr. (31 mph). Air layers should be stable up to 3-4 km (10,000 to 13,000 ft.) in altitude, with wind speeds increasing with altitude and airflows all in the same direction up into the



tropopause.

In the development of the Fohn wind on the front side you have moist air from the south hitting the Alps, expanding, cooling, and rising with a dry adiabatic lapse rate (1°C/100m, or 5½°F/1000 ft.) until it reaches cloudbase, after which it rises and condenses at a saturated adiabatic lapse rate (0.5°C/100m) to peak level, raining heavily on the southern side, as the moisture is too much for mere cloud formation. On the lee (north) side the air now sinks in saturated adiabatic



form until it reaches the evaporation point, and thereafter sinks dry adiabatically to the valley floor, warming 1°C/100m. Looking at figure 1 you can see rainy weather on the south side of the Alps, with the north side clear, sunny, and 10° warmer in the valleys (at 500 m altitude). Here it is too warm and dry for clouds to form below the mountain peaks. The cloud bank on top of the Alps, as seen from the North side, is called the Fohnmauer (Fohn wall).

Fohn from the north side is also possible, but Fohn from the south side is stronger because you have warmer moister air from the Mediterranean than is available from northern land masses. A South Fohn generally forms with a low pressure area with a midpoint over the Bay of Biscayne (fig. 7), perhaps as far north as the British Isles, with a high pressure area over the Balkans. It occurs mostly between September and December.

For wave formation (fig. 2) and Fohn formation you need a stable inversion layer at the right height above the Alps, compressing the wind to a high velocity. Waves and lenticular clouds then form as they do in the Sierras, with lee side rotors forming where the Fohn system air meets a normal valley air stream, generating roll-cumulus clouds above them.

The lenticulars form at an altitude five times that of the alpine peaks, and may be found 100 km away. The more stable the air layers, the longer the wave length and shorter its amplitude.

After all that explanation about the Fohn, it must create good flying conditions somewhere, right? Wrong! It's always a hazard for kites, but wave soarable for gliders. European pilots need to know about it to avoid it; every year pilots dare to fly in the Alps when these conditions prevail, and invariably someone gets badly mauled. The Fohn seems

to affect the lives of others besides pilots, too. Germans living in the Munich area feel that many medical conditions are influenced by the Fohn, suicide rates increase, and even dangerous elective operations are postponed if possible!

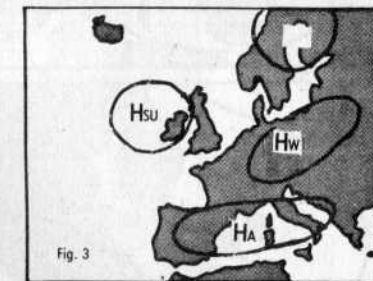
Following the weather systems by the season in Europe is interesting (fig. 3). Normally, Europe is influenced by Atlantic fronts traveling from west to east across the continent. In spring, Atlantic disturbances affect Europe down to southern sectors (the Alps and

northern Italy). In summer, these fronts affect northern Europe, and therefore northern Germany. In winter, you have a stationary high over Russia, bringing a cold east wind into Germany.

In spring (fig. 4), the winter Russian high moves northwest over Scandinavia, now the coldest area (Europe is warming up). This creates a northeast wind traveling over Russia, bringing cool dry air (it's traveling over a land mass) into Germany, which moves in and forms a subsidence inversion over Europe. The inversion limits overdevelopment, and the fresh air propagates excellent unstable conditions with good visibility, good potential for warming by the sun, and great cloudstreets. The best time of the year for X-C flying in Europe is from mid April to the end of June; good flights also occur, but less frequently, in July and August.

In spring you can have a ridge of high pressure from Russia down to Italy, where the air is clean and pure due to the cold Adriatic and Mediterranean seas on each side. The cold dry air from Russia can create nice unstable conditions in northern Italy where the air hasn't

Changing High With Seasons



Hw = winter high location, months 12 - 3
 Hsp = Spring high location, months 3 - 6
 Hsu = Summer high location, months 6 - 8
 Ha = Autumn high location, months 9 - 12



Spring

stabilized from warming under an inversion layer yet. This inversion layer is higher during this season, because the high is located far north of Italy; this allows for easier convection formation, and slower wind speeds because the pressure systems are far apart. This easterly wind brings clear air, allowing good land mass warming of the southern Alps and northern Italy from the sun, which is in the best position for this at this time of year. The large temperature differences between land and sea create strong thermals, with limited overdevelopment due to the inversion. In the early summer, great flying occurs over the Apennins (fig. 5), a mountain chain running from NW-SE down the spine of Italy. The land mass warms more than the seas on each side, creating sea breezes with great lift and convection flowing



Italy (Apennins)

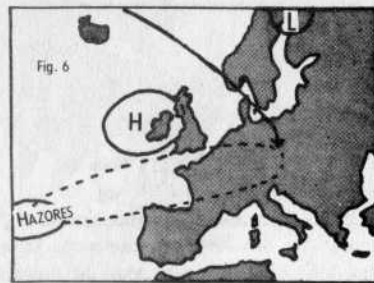
up both sides. Later in the summer, land and sea equalize.

In summer (fig. 6) the high goes west to England, over the British Isles. The wind direction over Europe and Germany now becomes more northerly, bringing moist air from the North sea over Europe, which by now is heated up pretty well; the cold and warm air mix producing sudden thundershowers and an intermittent European Monsoon. The wind is generally W-NW. The high over the British Isles (and sometimes the Azores) extends into Europe, above 50° N Latitude.

Cold air, usually from the regions about Iceland, is kept out of Europe in the summer by the high pressure ridge extending east from the Azores as far as Asia.

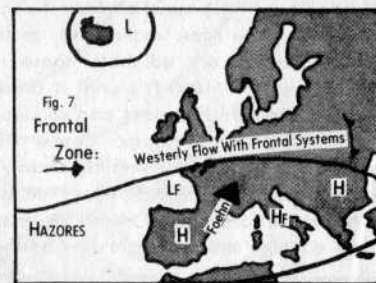
Concurrent with the high over Britain a low is usually over Scandinavia. The Icelandic cold air can sometimes push through between this high and low and reach the Alps (fig. 6) where rain may fall for two days, with Fohn occurring with wind travelling from north to south, rainy weather on the north side, and sunny weather on the south side (Italy), the opposite direction of the usual Fohn situation.

In autumn (fig. 7) there is generally a strong depression (low) over Iceland, and the



Summer

Azores high extends over most of Europe and perhaps all the way to Asia. Between this high and low you have weather systems travelling west to east in an area called the Frontal Zone. Eight of ten autumns in Europe have Indian (late) summers due to this Azores high.



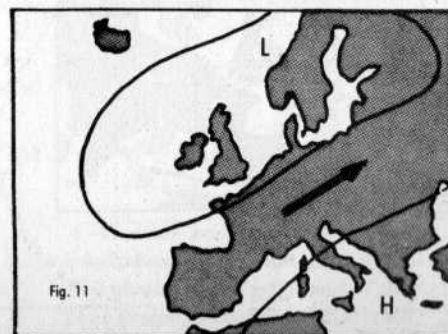
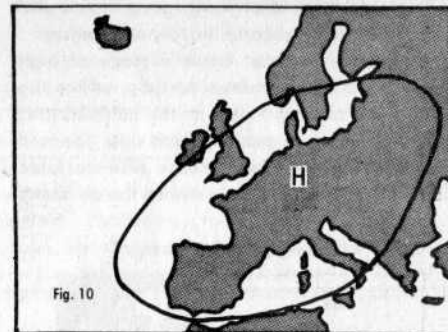
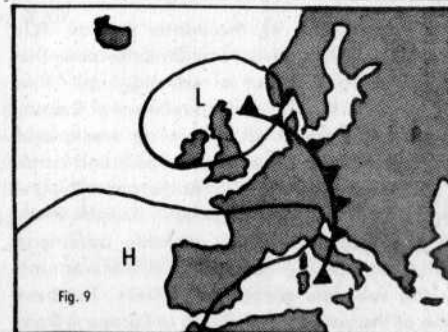
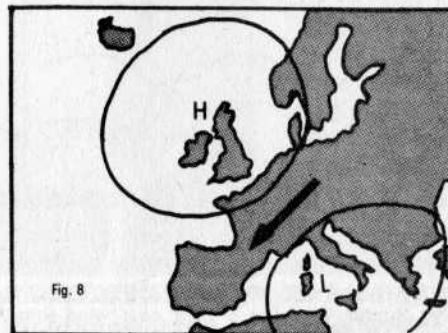
Autumn Frontal Zone
Hr and Lr = Foehn Creating Pressure Distribution

GOOD HANG GLIDING WEATHER SYSTEMS IN EUROPE

Nine weather patterns follow that are favorable for good X-C flights in Europe:

NORTHEAST AND EASTERLY FLOW (Fig. 8)

This is the best pressure distribution for good X-C in the spring. As early as the end of March, through the end of June, this distribution - a high over Great Britain to Scandinavia, and a low usually over the southern Adriatic sea - creates excellent flying conditions. The cold polar air from Northeast Europe previously described creates instability and great cloud streets. Although this means the Alps and southern Germany suffer from the lows in their area, the rest of the lowlands and intermediate hills are guaranteed good thermals. If this wind reaches as far down as Aviano, Italy, the conditions there will be extremely good.



CENTRAL HIGH (fig. 10)

This distribution is normally good, especially if it occurs in springtime, but you usually have to wait for it until summer when the temperature differences are not so great, creating weaker thermals. In the spring, such a system is good for triangle or goal and return flights because the wind speeds are low. Cloud cover decreases the longer the high lasts, thermals start later as summer progresses, and visibility decreases below the inversion layers.

SOUTHWEST FLOW (fig. 11)

This pressure system is great if you know it's occurring; unfortunately, it's rare in the summer. It's very difficult to identify using a normal weather map. The typical SW air flow will only show up on higher altitude weather maps, so you need to ask for higher altitude winds. Under typical conditions like this, because of increasing wind speed with height, you get thermal streets, especially in March over the flatlands. Conditions like this in the summer can create thunderstorms from the subtropical warm air being introduced into the area. If this system is finished by the arrival of a cold front, squall lines and thunderstorms occur. Usable thermal waves can form in these conditions as air is forced over strongly developing Cumulus clouds.

ANTICYCLONES FROM THE WEST (fig. 12)

Normally this occurs in summer and brings long heavy rainfalls as cold air from the north and warm air from the south meet and mix. If the high over the Mediterranean spreads northward or if the influence of the low over the North Sea decreases, then there's hope for good flying. The southern part of Germany and Europe will be better for flying than the north. The unstable subtropical warm air allows good flying, but not without the threat of overdevelopment. These conditions and those in the Southwesterly systems previously described are responsible for thermal wave flights in the middle sized mountains (Mittelgebirge) north of the Alps, such as the Schwabische Alb.

RUCKSEITENWETTER (POST FRONTAL, fig. 9)

This weather situation, a retreating cold front, can be used through the whole of the flying season. Post frontally you have unstable cold air, followed by an increase in pressure and then a trough of high cold air. The first post frontal day has high visibility with frequent showers and strong wind. The relatively good thermals may be disappointing because of the overdevelopment and gusty winds that can tear the thermals apart.

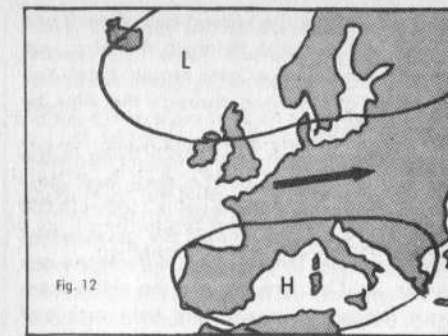
After the passage of the cold front - trough line, a subsidence inversion builds, which prevents showers from forming. High pressure influence increases, decreasing the previously excessive instability and high wind speeds. This is called a Zwischenhocheinfluss (intermediate high influence) and occurs between several passing fronts such as cold - warm - cold front etc. At its beginning, the wind is strong; most often the Alpine peaks are in the clouds, so it's better to try goal flights in the flatlands. As the pressure increases, (stability increases), the wind decreases and goal and return flights or triangle flights are possible. You must preplan your triangle flights well, remembering that thermals start earlier in the mountains than in the flatlands. A Zwischenhocheinfluss is usually (99%) good for only one day.

THE ALPENHOCH - (Alpine High) (fig. 13)

This is a high pressure system over the whole Alps, and occurs rarely, but most often in January, February, March. It's great if it occurs in April or May if the snow level is high enough (over 1500 meters).

THE FLAT PRESSURE DISTRIBUTION (fig. 14)

This weather system shows no pressure change over all of Europe. Good flying is possible if it is a high, chances aren't so good if it is a low. This occurs with equal frequency over the whole year. There's a risk of thunderstorms in late afternoon or evening.



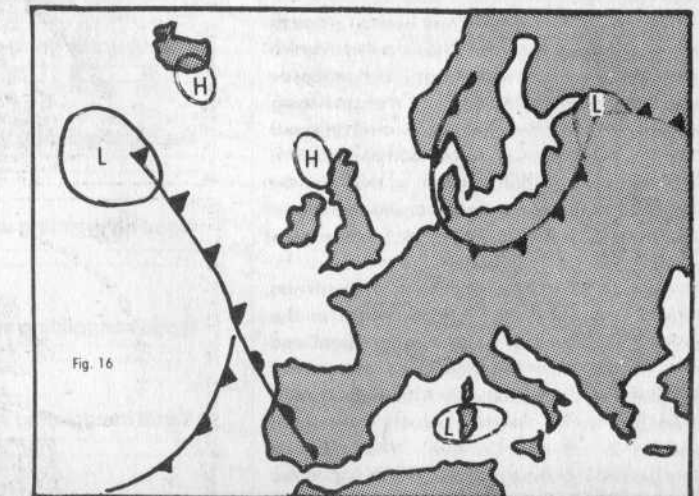
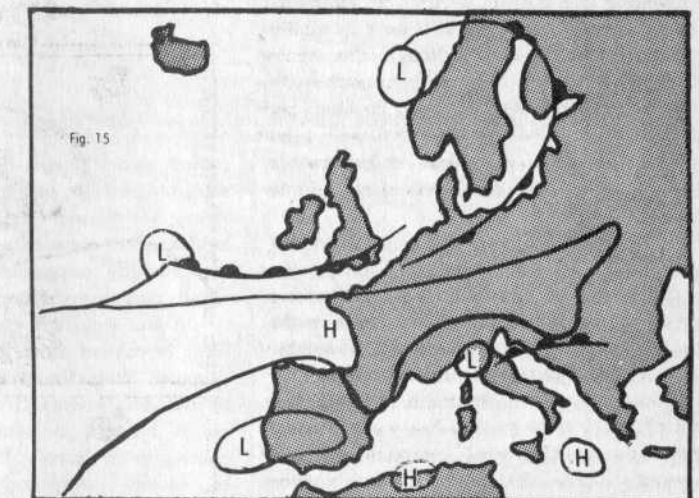
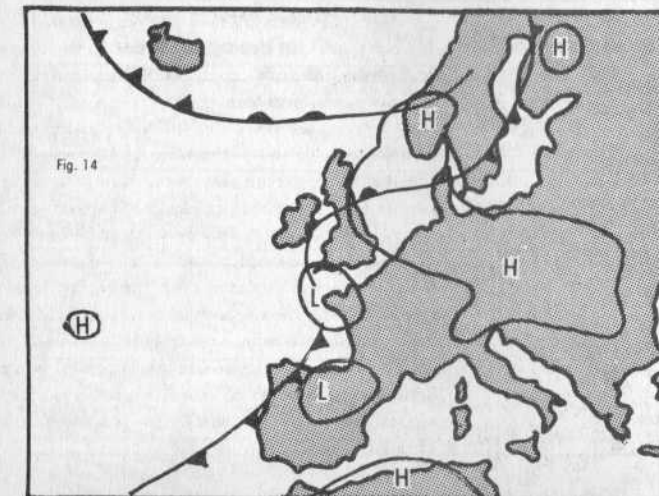
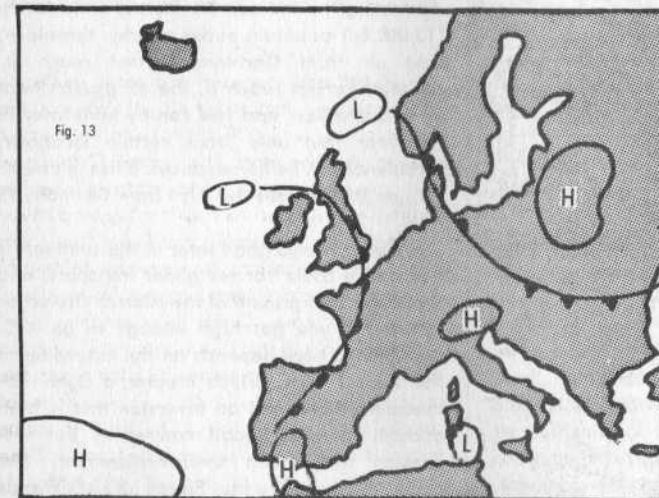
Anticyclones From The West

HIGH BRIDGE BETWEEN THE AZORES AND ASIA (fig. 15)

This is an extension of the Azores High all the way into Asia. It occurs between May and September, but is best in May, as conditions become too stable later on. Dry continental air produces good blue thermals.

NORTHWEST FLOW (fig. 16)

This is a high centered over the English Channel giving northwest air flow to Germany, moister air in northern Germany and dryer air with better conditions further south. It occurs most often in June and July. In July and August, this system creates good flying in France, but no one knows why - it should normally be too hot for this.



**HAMMERTAGE (HAMMER DAYS)
FROM THE CALENDAR**

Manfred Kreipl has compared the last four X-C seasons in West Germany, Austria and Switzerland with a statistical "Normal Year", and finds that there are usable correlations for planning your next cross-country season (fig. 17). Of note in Europe is the fact that the statistical "Normal Year" predicts you can begin X-C by the middle of March in the flatlands (or middle sized mountains), when the Alps still have snow down into their valleys. Most decent flights have started at the end of March, perhaps because pilots are more reluctant to brave the cold, or aren't ready for the season yet.

Most of the good X-C days in the Alps occurred one day after good conditions in the flat lands, whether in Austria or Switzerland. This is easy to explain as there is a

become better by the second half of April and in May, and if you're flying in the Alps, you move over to the Lake Como region (Italy). You are essentially moving through the Alps by following the high.

In general, how good April flying in the Alps will be depends on the snow level (percent of coverage). If the level is 1500 m (5,000 ft.) or higher, flying should be good, when valley to peak temperature differences are greater, cold air sinking into the valley from above triggers thermals, and bare rock and other snow free patches above the snow line also create thermals. You now have 6-7 hrs. of usable thermal time. The earliest X-C dates have been April 7-12, but days 17-24 are consistently better.

After the high moves from over Russia to Scandinavia, you move north out of Italy into the Western Alps and the Pinzgau Spoziergang

especially in northern Germany; there is a fine line between the developments of a super X-C day or complete cloud cover. If the former occurs, relatively low cloud bases induce short distances between thermals and the development of cloud streets, which actually make May the best month for flying the flatlands.

In the last third of May, with an 80% probability, you can expect a long high pressure system that may last until June. Flatland flying is no longer so prominent, and June is the best month for Alpine X-C. Flying is good everywhere but in the southern Alps, for example, Aviano and Belluno. From mid to late June good flying days occur with interruptions and without a definite frequency. Most often these are weather situations formed by a high pressure system which is weakening, especially one with a flat distribution as described earlier (it becomes more unstable as it breaks up).

In July, Europe is stabilized from its heated land mass. The high is west of Great Britain, bringing cold air flow from the northwest, which creates overdevelopment and showers, then stabilization as the cool air cools the land mass. Good flights may occur anywhere except in the southern Alps, but are more likely in the central and higher Alpine regions such as the Fiesch (Rhône) valley and Engadin valley. The Engadin valley floor lies at 2500 m (8,200 ft.), containing the famous St. Moritz, with 400 m (13,000 ft.) mountain peaks nearby; therefore, cold air from Germany cannot reach it, pollution cannot reach it, the air doesn't heat up and stabilize, and you can fly here later in the year (but only from certain locations, turbulence can be horrendous). It lies in one X-C route that crosses the Alps from Germany to Italy.

Fiesch is also good later in the summer. It has a nice cable car for glider transport, and the scenic background of the Aletsch Gletscher (glacier) if you get high enough to go X-C. Good flying here depends on the extension of the Azores high, which creates a light northeasterly flow, and an inversion that is high enough to allow good convection but low enough to prevent overdevelopment. The (river) Rhône valley that Fiesch lays in extends

northeasterly from Martigny to Chur, Switzerland, where it meets the Rhine valley, which travels north from the Oberalp pass. The Rhône valley has ridges branching off it perpendicular to the Rhone, similar to the Pinzgau valley in Austria, which are good sources for thermals. These mountains are also very high, with clear air filtered by surrounding neighbors. The pollution outside this valley is strong, from Bern (NW of the Rhone) and Milano (SE). The conditions will remain good so long as the high pressure extension remains, usually up to 4

days. Each day of the extension brings more stable air, with thermal triggering temperatures starting perhaps an hour later per day.

In general, July 6-13, 18-25, and 29-31 seems to be statistically more promising. Most long flights end after this month.

In August, only in the highest areas is it possible for X-C. All of Europe is very warm, with warm air extending to higher altitudes. Definite good periods are hard to pinpoint, and usually they last only a single day, no longer.

With the lower sun, the better days cease. In September, beginning and end, you have extended high pressure systems, killing X-C.

In Europe, you can use the "Normal Year" statistical chart as a guide for planning X-C trips and other vacations. Good days by the chart won't necessarily be right on the money, but they'll be close! A nice little "cheat sheet" follows, that should be useful for those of you fortunate enough to fly here in Europe.

AREAS OF X-C POTENTIAL IN THE ALPS AND ITALY, BY THE SEASON

Location	Open Season	Best Conditions	Closing Season
Apennins	Early April	Late April, May	Late June
Flatlands	April	May	Early July
Mittelgebirge	Mid March	Mid May	July
Aviano (southern Alps)	Late March	April	Mid May
Pinzgau (central Alps)	May	June	Late July
Fiesch (Rhône valley) and St. Moritz (Engadin valley)	May	July	Late August

Seasons in the Alpine regions depend on the snow level — best when it's at 1500 m or higher.

southeasterly movement of the weather determining high pressure systems during this season.

With the availability of winches in the flatlands now, good flights are no longer limited to the Alps. The future of X-C hang gliding will be in the flatlands, where larger triangular course flights are definitely possible. Choosing the right launch site (with a winch) is not so important in the flatlands as it is in the Alps — if you miss the thermal, you can try again; whereas turn around times in the Alps may prevent that.

The Northeast-Easterly systems, the best of the year, occur in spring. After this come the Southwesterly systems from warm tropical airflow, that also have thermal streets like the Northeast or Easterly systems, with cloudbases up to 4500 m ASL (15,000 ft.). With winches, we'll be able to start earlier in the day and catch the Northeast systems, whereas before you could not start before noon in the Alps. By the end of March, you should easily be able to fly from 11:30 am to 5:00 pm, 5.5 hrs. usable thermal time.

Starting in mid-March, the Northeast and Easterly systems are usable by winch in the flatlands of Germany, and in its Mittelgebirge north of the Alps (middle sized mountains; Schwabische Alb, Frankische Alb, Black Forest, Schweizer Jura, Berner Alpen, Mittelland between Zurich and Geneva). Within a few more weeks you should be able to fly X-C in the southern Alps in Italy between Verona and Aviano. The flatlands and Mittelgebirge should

(which means Pinzgau Valley "Leisurely Walk", so noted because with good conditions it's easy flying and the main X-C route in Austria). The best weather systems in the Alps now will have dry easterly components, preventing heavy cloud cover from melting snow.

About May 10th, cold air comes in, which later is calmed down by a high pressure influence. With the shift of the high from Scandinavia towards Great Britain, moist cold air is brought in, with dry continental air coming in very rarely. This moist cold air tends to cause widespread cloud development,

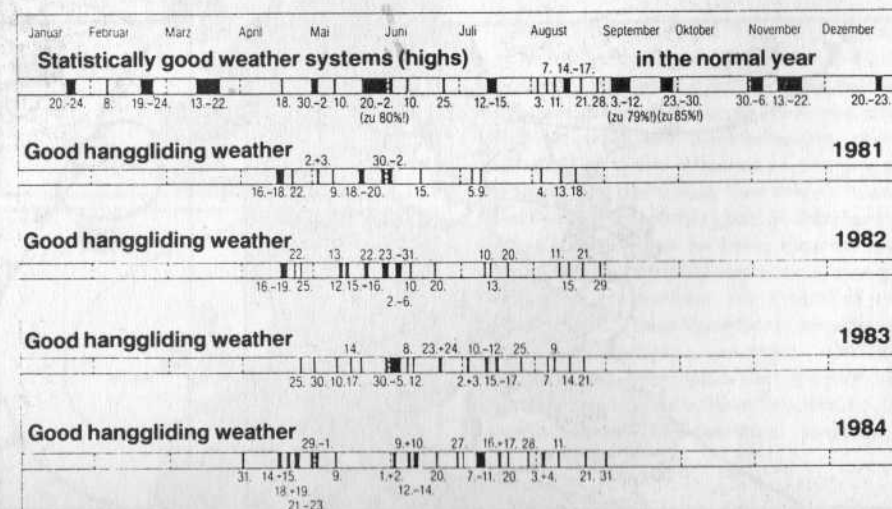


Fig. 17



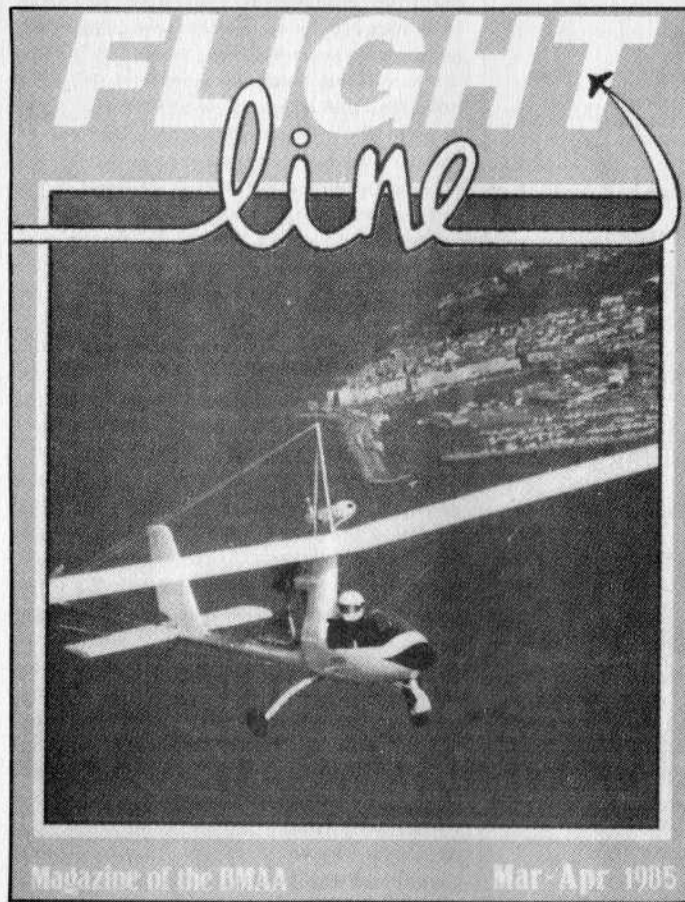


ONE CHRISTMAS, A GRANDMOTHER gave her little granddaughter a large, expensive book about penguins. In elaborate pictures and prose, it covered every aspect of the curious black and white birds of the antarctic. After the holidays, the little girl wrote to thank her grandmother for the book. "Dear Grandma," she exclaimed, "Thank you so much for the nice book about Penguins. It told me more than I ever wanted to know about them!"

I didn't receive a book about penguins for Christmas. But last October and November I took a tour of Europe that almost showed me "more than I ever wanted to know" about hang gliding and ultralight flying in the Old World. After a five-week, whirlwind tour of eight countries, my mind was so crammed with new information that I needed a month to assimilate it.

To begin organizing that information for you, we should determine which European countries are the prime movers in hang gliding and ultralight flying.

Cautious worldwide estimates illustrate 60,000 to 75,000 ultralight glider and/or aircraft pilots. Nearly half of these are located in five European nations alone (Germany, France, England, Switzerland, and Italy), so it is these countries on which this article will concentrate. Incidentally, by best guesstimate, about one third of the world ultralight community dwell in the United States, leaving the remaining one sixth spread thinly among some forty other countries. These statistics roughly parallel those of general aviation.



ESTABLISHING A RANK

If ranked by number of (aeroclub) registered pilots, Germany leads the European list with between 10,000 and 11,000. France, however, is right on Germany's heels and actually may be ahead. England, Switzerland, and Italy are next on the list, with Austria, Holland, Belgium and Spain well back in the pack. Norway, Sweden, Denmark and Finland have fair-sized pilot populations, but they were not part of my Euro-Tour '84; a report on those places will follow in a later issue perhaps.

THE PUBLICATIONS OF EUROPE

The number and scope of aviation periodicals published in each country give another indication of how active sport flyers are. Although Germany has the most active pilots of any European country, the lone, commanding voice of *Drachenflieger* magazine is the only periodical that covers both hang gliding and ultralights. *Drachenflieger* is thought by many to be the highest-quality ultralight magazine in the world, and its paid circulation is to some 13,000 readers in Europe. Another 200 copies go free-of-charge to Eastern Bloc countries, where pilots have

difficulty affording something as simple as a magazine.

Drachenflieger, now in its eleventh year, is published by Switzerland's Ringier-Verlag, which puts out several German magazines. The editor, Werner Pfandler, is an extremely well-informed and articulate pilot whose credentials include an American commercial pilot certificate with CFI and instrument ratings. He also writes for *Flieger*, Ringier's general-aviation magazine.

DULV, a magazine-styled newsletter for Germany's powered ultralight association, goes only to about 1,000 members, and does not begin to match *Drachenflieger* magazine.

The second power of Europe may in fact be its leader... if all the facts could be known. However the figures are presented, France is a major participant in the pursuit of ultralight flight. France has three ultralight magazines (a number second only to the total for the USA).

Vol Libre, in its tenth year, clearly is the leader of the three, and runs a close second to *Drachenflieger* in finished appearance, size, and circulation (about 12,000).

Yet the styles of *Vol Libre* and *Drachenflieger* mirror the differences between Frenchmen and Germans. *Vol Libre* has a jaunty layout compared to the straight lines and highly organized pages of *Drachenflieger*. It uses humorous cartoons or drawings heavily, and its editorial thrust frequently concentrates on shaping French attitudes. The French, by comparison, take themselves less seriously, and *Vol Libre* reveals this cultural difference

yet covers the technical details with great thoroughness.

Vol Libre's policy of helping to make the news, not just report it, pushes the magazine to devise original, and sometimes controversial, tests of equipment. No doubt this helps to account for its great success. *Vol Libre* is edited by Rene Coulon, a deeply experienced pilot who also owns France's largest retail shop. Coulon's quality efforts have worked so well that he actually welcomes his competition.

The French hang gliding federation, FFVL, does not produce its own magazine. Instead, it buys space in *Vol Libre* and often gets coverage in *Finesse Dix*.

Finesse Dix (or "Glide Angle 10") appeared about four years ago. It also covers both hang gliding and ultralights, but is sufficiently different from *Vol Libre* to have found its own niche. *Finesse Dix* is not as comprehensive or as lavish as *Vol Libre*, but Editor Patrice Bosvot offers space to the FFVL.

ULM is the last of the French periodicals. It covers only ultralights and does not have as wide a distribution or impact as the other two.

Two journals tell the United Kingdom what's news. They do have readers on the continent, but primarily are aimed at England, Scotland, Wales, and Ireland. Both publications differ from those in the other European nations as they have no overlap of hang gliders and ultralight aircraft, much like their American counterparts.

Wings! magazine is the official organ of the BHGA -- British Hang Gliding Association.

Not nearly as sumptuous as *Drachenflieger* or *Vol Libre*, *Wings!* uses limited color and contains fewer pages. But among American readers its thorough coverage of hang gliding is viewed as "possibly the best anywhere."

In 1984, past editor Stan Abbott stepped down and was replaced by Tim Williams. This has changed the style somewhat, but in typically even-keeled English fashion, *Wings!* continues to have a wealth of good reading for the 4,500 ultralight soaring pilots who receive it each month.

Flight Line, the voice of the British Microlight Aircraft Association, is half the size of *Wings!*, but it contains twice as many pages. Norman Burr edits the bi-monthly magazine, which goes to BMAA members and outside subscribers.

Flight Line is quite like *Wings!* in basic appearance, and is rich with information, presented in that same straightforward British style. *Flight Line* seems especially strong on technical subjects, and, like *Wings!*, reports the association's business as well.

In beautiful Switzerland, ultralight flying today is concentrated in hang gliding only. The BZL, Switzerland's FAA, has made powered ultralight flight illegal while authorities examine designs and techniques. The cool-headed Swiss are used to this thorough approach, and indeed, the BZL eventually is expected to permit powered ultralight flight.

So at present, *Delta Info*, official publication of the SHV/FSVL — the Swiss hang gliding federation — limits coverage to developments in the above-mentioned

examination and to the country's extensive hang gliding. Switzerland has the highest ratio of pilots to population of any country in the world.

Delta Info once sported a full-color cover and was sold on newsstands. But that wide distribution did not generate sufficient membership, so circulation now is limited to members. *Delta Info* distinguishes itself by being the only ultralight publication in the world that prints its articles in both German and French (spoken, with Italian, in Switzerland). Many Swiss pilots also subscribe to *Drachenflieger*.

Italy has its rules, as do all European countries, but perhaps like Americans, Italians are likely to follow the "spirit" of the law much more than the "letter" of the law. They also are less likely to join organizations such as their FIVL, whose 1,500-pilot roster accounts for only 40 percent of the estimated ultralight pilot population.

Enzo Boschi's *L'Aquilone* magazine is now independently produced and marketed. Born in 1977, *L'Aquilone* was the FIVL's magazine until 1980, and it has grown from circulation of about 500 copies to a projected circulation of 3,000 for 1985. Boschi — a five-year veteran of daily newspapers — does *L'Aquilone* in a professional style, with full color covers and centerspread photography, and the magazine covers both hang gliding and powered ultralights.

SUMMARY

The above-mentioned nine magazines,

representing five major countries in Europe could be considered as from a single nation. This might help us make some interesting comparisons with the United States.

In general aviation, as with many other fields, the USA is indeed a significant economic force. This is especially clear when one is aware that America generates one third of the *World's Gross Product!* When you add in the fact that all of the U. S. can deal in a single currency and in a single language, you can see the simplicity in American business, as opposed to money and tongues changing every few hundred miles in Europe.

But in the ultralight arena, the U. S. takes a back seat. Here is Europe with nine magazines, roughly the same as currently published in the United States. General population in the U. S. is 232,000,000 (1980 census). In those five European nations, the general population is 235,000,000... very similar. The total estimated number of hang glider and ultralight pilots in the U. S. has been guesstimated at 24,500; while in our five nations, the total comes to 35,000. Figures are more easily compared in the number of ultralight pilots per thousand general population. The figures look this way: 10.6 pilots per 100,000 in America; 14.9 in Europe. Taken nation by nation: 6.1 in Italy, 12.5 in England, 17.7 in Germany, 19.4 in France, and a staggering 63.6 per 100,000 in Switzerland.

In all, looking at their magazines or calculating the pilot density in the general population, Europe is into hang gliding and ultralight flying... and into it BIG!



Come fly Switzerland's magnificent Alps. Alasdair Duguid gives us his experience / photos from Ron Hurst.

Reprinted with permission from the BHGA's *WINGS!* magazine, January 1985.

I TOOK UP Hang-Gliding about three years ago, and from the very start looked forward to the day when I would fly the Alps with their breathtaking scenery and long descents. I went on a package skiing holiday in April 1983 and had looked at the possibility of slotting in some flying while I was there, but for a variety of reasons, this idea was a non-starter for an inexperienced pilot like myself. But it did lead me to get in touch with the Swiss Hang Gliding Association who sent me a list of clubs and schools, along with some useful advice on flying in Switzerland. The paragraph which caught my attention, however, pointed me in the direction of an American, Ron Hurst, who ran a service offering weekly tours for pilots desiring high Alpine flight experience. This seemed to be what I was looking for, so I wrote for more details and the arrangements progressed from there. I had considered postponing the trip to allow time to build up more experience, but decided I would never go anywhere with that outlook, and I was desperately keen to fly the Alps.

And so it was that on a rainy Monday morning in September, Ron and I set off from Zurich with his Fun 3 and my Gyr on the roof of his car. He usually won't go with less than five participants, but had decided to make an exception this time and go with only 1. I wanted to get some in-flight photographs, so I took along a Miranda 35 S.F., Universal Clamp with extra socket, home-made extension bracket, and long bulb release. I had bought the equipment 2 months previously for an outlay of about \$75.00, and had a few experimental runs in Britain, finally sitting the camera on the wingtip. It was my experience, however, that while not doing anything particularly dangerous, the photography took all my concentration. In other words, I would miss opportunities for height gains while trying to line up shots.

We drove through the rain and fog, past sites on the North Side of the Alps which were soaked in. However, we emerged from the St. Gottard Tunnel into brilliant sunshine and clear blue sky. Things were looking up! Our site for the day would be Monte Generoso near Lugano which Ron had checked out by phone before we left Zurich. It was also necessary to arrange in advance for a flat car to be put in front of the Mountain Railway Train to carry our gliders from the village of Capolago some 1400 meters (4600 ft.) vertical up to the summit. From the top station we had about another 200 meters up a steep rocky path to carry our gear and as we were now 1700 meters (5600 ft.) above sea level, I began to feel the effect of the rarefied

air. This effect of altitude is to be treated with respect, and I was glad to go to the restaurant to get my breath back.

We had made a slow getaway from Zurich and it was now mid-afternoon. The weather was still good but a local condition was starting to develop. The rainfall of the preceding days which had accumulated in the trees covering the sides of the mountain was being heated by the sun and beginning to evaporate. Large clouds of condensation were forming about half-way up and then starting to rise up the mountain to gather on the ridge. I had never flown in clouds before, and did not intend to make a start on it here. What it would mean was to wait for a clear patch and fly round the edges or to wait until later in the evening when the sun would lose its heat and the condensation would cease.

We decided to rig the gliders, get ourselves ready, and wait it out. A few times it looked as if a window would present itself, but then the clouds would close in again. Eventually a definite break occurred so that we could see all the way down to the valley on both sides of the lake.

I had been closely questioned on my flying ability during the drive down, and had reassured Ron that any serious faults had been corrected, and specifically I had no problems with a no-wind launch, although what I had in mind was a good long run down a grassy slope. Here the situation was different, with no slope to run down, but a flat space big enough to take two or three steps before going over the



edge of a deep gorge. There was also the hint of a tailwind, but I was told that it shouldn't cause any problem, as I would be in the updraught from the valley as soon as I went over the edge. Ron also chose this moment to explain why he had paid particular attention to launch abilities. There had been 6 hang gliding fatalities in Switzerland so far in 1984, the most recent at Monte Generoso, and they had all gone wrong on launch.

Irrespective of the site, I usually get fairly tense as I wait to launch, but the adrenalin was really pumping now. However; I picked up the Gyr, leaned forward and gave a couple of long powerful strides straight over the edge and into the updraught. Everything felt as it should, and I was flying completely relaxed. I had lost no height on take off so had plenty of room to turn away from the restaurant and start flying down the ridge on the opposite side of the gorge. This was a totally new experience for me, flying along a mountain ridge, poking one wingtip into the billowing cloud, with the valley barely discernible far below. In keeping out of the thick cloud, I got too far out from the ridge, and despite the no-wind conditions on top found myself flying into a strong headwind. I had to get nearer the ridge, below the cloud and use the wind gradient. With our late start,



(Above) Corvatsch Middle Station, 2700 m MSL. (Top Right) Santa Maria site. (Bottom) Jakobs Horn launch. All photos from Ron Hurst.

the best lift conditions were past, and although isolated patches existed, I was on my way down, but still with lots of height to spare.

I had flown along the ridge for about 3 kms, and down below was the landing field. There are emergency landing areas before this, but a lot of the route is over the edge of the lake, built-up areas, roads and railways, so it is preferable to try and make the designated landing field. The approach to the landing field was over the main road and railway with its overhead wires, then a sharp turn round the

factory and into an L-shaped field bounded on one side by electricity pylons. The size of the field makes it a fairly easy affair, and I did a good stand-up landing, still overawed by the exhilaration of the flight. Ron followed me down and after de-rigging took me to a nearby bar for the beer he had promised for a successful flight. I retired exhausted as big banks of cloud rolled in from the West.

I awoke on Tuesday to find low cloud hanging over the valley, having been awakened by a thunderstorm during the night. However, we decided it was worth going to Locarno Airport to check the weather, as it was always a possibility that some of the valleys higher up might be above the cloud. The Meteorological Office was well appointed, with up to date satellite pictures on screen, synoptic charts and diagrams, the latest telex reports, and a Volmet Service available by telephone. It made not the slightest difference. It was going to pour with rain everywhere that day, due to a complex low sitting over Switzerland and associated fronts sweeping all over Europe. Sure enough, the downpour started while we were at the airport and continued unabated for the rest of the day.

I had decided to come in September as I thought there was a good chance of a calm spell of weather around the Autumn Equinox, but the logic of that looked shaky now. There was nothing else to do but to send some postcards and have a few beers. Ron picked up the tab for my dinner as a consolation and after watching an unpromising TV weather forecast, I went to bed hoping for a miracle.

It was brighter but still raining the next morning as we made our way over to the airport, and it seemed that my pessimism would be justified, but it wasn't. On the way over, the clouds started to break up and the sun shone through.

As Ron studied the data at the airport, I was glad I hadn't tried to do this on my own. I find picking a flying site in the South of England a bit of a hit and miss affair at times, but in the Alps with each valley having its own weather system, it's a job for an expert, and a bit beyond me. It was decided that Monte Generoso would be good that day, and I looked forward to another amazing flight there.

Arriving in Capolago, we saw white-caps on the lake. It was only mid-morning but the Northerly Foehn, a powerful Alpine wind with characteristics of its own, was beginning to blow. We phoned the top and were told they still had southerly winds and rain up there. Although it would probably become flyable later we stood a chance of being blown out, but as this local feature does not appear on the general forecast we would have to wait and see. Rather than do this, we decided on an alternative site about an hour's drive away to the north, which would not be affected by the Foehn.

The village of Santa Maria sits half way up the mountain side, and a bit further up, but well short of the top was where I would launch from for a 900 meter (3000 ft.) vertical descent to the village of Grono in the valley.

I rigged quickly and launched quite easily into the gentle breeze blowing up the grassy



slope. The vario indicated small patches of lift which I turned into, but couldn't use effectively. I decided instead to fly over the medieval castle and church of Santa Maria before going out into the valley. I still had most of my height so I took the chance to practice stringing together a few 360's as I encountered weak thermals. Eventually I flew over to the other side and lined up my approach to a rifle range, which we had checked was out of use for the day. I tried to take a photograph of landing, and the next thing I knew the glider mushed and nosed in - a sharp reminder.

As it was still early, we quickly drove back up the hill and I got ready, but this time there was no wind blowing up the slope. Clouds had blotted out the sun and started the process of katabatic cooling so that we now had a downhill wind. It meant waiting for the sun to reappear and get the wind going the right way again. In the event, a dead spell arrived, and as I couldn't see any immediate prospect of sunshine, I picked up the glider and went for it with a long powerful run, gliding off the slope for a flight similar to the first. After a late lunch, I went back up for another launch, again in no-wind, and found the air lighter and more buoyant over the valley, allowing a long cruise round the area to finish off the day.

In the evening we returned to Lugano and found another complicated set of meteorological conditions predicted. Ron thought our best bet would be higher up in the Alps and St. Moritz looked attractive with a launch of about 300 meters above sea level, above the snow line then.



We set off the next morning after rechecking the weather, and telephoned ahead to arrange for a special rack to be fitted below the cable car to take the gliders up the mountain. This must be done in advance as the cable car staff won't run around at a moment's notice to accommodate visiting flyers! The drive was impressive taking us along Lake Como and part of the Lariano Triangle course before climbing steeply up into the mountains.

We would launch from near the middle cable car station on the Corvatsch, just outside St. Moritz, giving a vertical descent of 1000 meters to the valley. Not only would special care be needed to cope with altitude, both at launch and landing, but the Maloja winds and the turbulence they created would be an additional hazard. After carrying the gliders from the cable car, our first task was to tread down a wide launch track in the deep snow which had fallen about a fortnight previously.

Waiting to launch, we noticed a tail wind starting to get up. This was getting to be a regular happening, however, we sat it out and soon an updraught started to blow.

"Let's get the hell out of here before it gets rough!" shouted Ron and off I went, after launch, the plan was a sharp right hand turn along the ridge, making sure that I had plenty of height to clear the cables which had just brought us up, and over to some high cliffs above a forest which was at times a good thermal generator. I worked the lift successfully for a time, but it was hard work. The sailplanes above me seemed to be finding it the same.

I went to circle the village down below, and in leaving the ridge, found myself in a strong headwind. At that time of year, all the crops have been harvested, and there are plenty of available fields for landing. I was losing height, and rather than try to hedgehop to our pre-designated field, I selected an alternative landing spot. Although I landed directly into wind and a good 200 meters behind some stacks of timber no more than 3 meters high, I hit the most pronounced wind shear I have yet experienced as I got out of prone, about 7 meters off the ground. I pulled in and did my best but ended up being dumped, fortunately without any damage.

After packing up and checking the weather, we decided that we would fly the Gotschnagrat at Klosters on our final day, and made our way over in time to book in for the night at the Alpenrosli, a hotel on the mountainside with dormitory style accommodation, which is packed with skiers in the season.

We awoke the next morning to low cloud and no-wind conditions, but eventually the flags in front of the hotel started to flutter. A call to the Volmet service showed that the forecast northwesterly had actually turned out to be a southwesterly. As we breakfasted the morning sun started to burn off the low cloud, apart from the big bank sitting on top of the Gotschnagrat. Although this would eventually go, the change in wind direction meant that we might get better conditions a short drive away in Davos. When we arrived we met some of the local flyers who confirmed this and added that a few of them would also be flying.

Our launch site was the Jakobshorn, 2600 meters (8500 ft.) above sea level with a vertical descent of 1100 meters (3600 ft.) to the golf course in Davos-Platz and took 2 cable cars to reach the summit, just on the edge of the snow line. We had time for a snack at the restaurant before rigging slowly so that we could see how the locals got on. They both had sled runs, although the second to launch encountered lift, but flew straight on.

The launch itself was down an almost vertical slope, and although there was wind blowing up it, it was imperative to run down the slope, as stepping off the rim expecting to go straight into ridge lift would not work here. I had trouble balancing the Glider and should have asked for a wireman, but as it would have meant using a spectator I thought I might be adding to my problems and didn't, seconds later wishing I had. During my struggle to level the wings, the bottom of the cocoon had slipped from its resting place on the base bar, and on my first step I stepped on the bottom loop. There is no possibility of aborting a take off, once started in these conditions, so after a slight stumble I managed to pick up my run again, but still did a heart stopping dive towards the rocks. Fortunately I soon had enough airspeed to pull out and clear the hill. I found it surprisingly easy to put the incident behind me and concentrate on the rest of the flight, only thinking about it again after landing.

There were thermals just in front of take off and I found I could use these to get back up again. I thoroughly enjoyed doing this, but as

there seemed to be a limit on how high I could get, I decided to go off and explore. Ron told me later that he couldn't understand why I had done all the hard work only to give up just when I had got it licked. He proved his point by launching into my thermal, and getting up over the peak of the Jakobshorn.

I went up and down the valley looking for likely spots on the treeline or above the gullies and had about half an hour working the lift there. I then thought I'd try above Davos to look for a town thermal, but although there were small patches of lift, I couldn't find anything big enough to use. So I did a few 360's and lined up my approach. After the previous day's mistake I picked the longest stretch of fairway, even though it was a good walk from where we had parked the car, raced in with excess speed, bled this off as I came closer, put my hands almost at the top of the uprights and flared up hard. It worked great and I found myself gently floating down to land on my tiptoes. A more than satisfying end to the week's flying.

So that was it, time to pack up, say goodbye and make my way home with the memories of exciting flying to look back on for a long time, and photographs to bring it all to life again. Although the conditions were challenging, I had found that with expert local knowledge, and a good assessment of the prevailing conditions, I could enjoy exhilarating flying safely, although with more experience I could have improved on my flight performance, but this will give me a greater incentive to return to that memorable country, which I intend to do at the earliest opportunity.

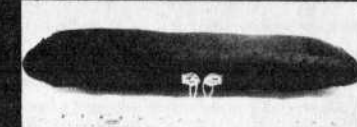
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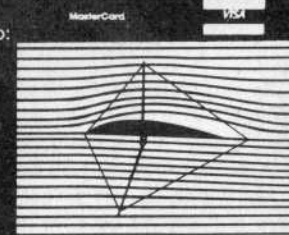


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Chasin' Curly

A COUPLE OF years ago this guy called Curly started flying Lookout Mountain on a regular basis. He was flying a Demon then, while he became proficient at thermalling and X-C. One day he jumped on a Flight Designs prototype and flew about 85 miles down to Powder Spring, Georgia. It was a great flight for our eastern flying sites and Curly blitzed everyone for the year as far as other X-C flights go.

He was amazing! He would get up in the lightest lift while others sink out. He scares me when he dives at the ramp. But honest work scares me too! Anyhow, he's good!

Finally April 2, 1985 got here and Curly and I were real excited because it was like cummies at 9:30 and a bright sky with 10 to 15 mph out of the northwest.

"Oh man it's gonna be good, I hope!"

In past weeks, the conditions had begun the same and scared me too much for launching, after noon or one o'clock. We needed to be up early to get into launchable air. Curly was ready and soaring the ridge as I finally reached the mountain. He radioed conditions to me while enroute to pick up my glider. I was psyched! After coercing Nancy McAnnally to drive for me, we headed for launch and last heard Curly at 4000 feet AGL over Pidgeon Mountain, nearly 15 miles away.

Arriving at launch I found Chris Starbuck and I told him he was going to miss it, and look at those clouds, and where'd everyone go? I set up and pre-flighted in 20 minutes and tried to get Curly on the radio. No contact. He must be out there at least 30 miles by now. Launching into winds of 15 to 20, I was looking to go quickly and get in some miles. I couldn't find

good lift for 30 minutes. I needed air that would get me across the plateau of Lookout Mountain. Frustration was approaching as a blast came through and took me high enough to cross over with a couple thousand feet. I tried Curly on the radio again as Nancy headed in a southeast direction toward LaFayette, Georgia.

"Where the hell is he?"

Cloudbase was at about 9000' MSL and thermal lift was so powerful as to induce involuntary aerobatics. A little north of LaFayette I entered an 800 to 1000 FPM thermal that popped my ears and snapped my Attack Duck up to 8500' MSL. Turning downwind and stuffing the bar as the thermal died to 500 FPM I roared to the next cloud with varying lift of zero sink to 500 up. Considering the high speed of the wind at altitude I guessed my ground speed to be near 60+ MPH.



Cruising downwind and crossing John's Mountain, I was abruptly pitched 60 degrees nose up and rising when I rolled right to complete a mild wingover. Wow, that was a good one! Upon completing the high bank and re-entering the lift, my vario pegged over 1500 feet up. Once rolled into this, the vario read steady 1200 feet up. Yow! What lift!

Meanwhile Nancy was heading from LaFayette towards Cartersville, Georgia on the backroads in northeast Georgia. Communications were garbled due to lots of 'skip' and dying batteries in my radio. Figuring Nancy could hear me better, I was yelling into the microphone, but too loudly. It didn't help much. Ahead was Pine Log Mountain and Lake Allatoona.

Arriving high at the mountain I could see a couple of landable fields about eight miles away near Suttalee, Georgia and I continued toward them with gobs of altitude. Some time earlier this day Curly had been scratching to stay up, flying below the ridge. Curly was now about 60 miles out and in 1st place in the TTT '85 X-C Classic. Nick Whitlock landed just below Pine Log, Georgia on Great Race Day '84.

Upon reaching the fields near Suttalee, I saw they were really just clear cut forests with trees lying everywhere. I was down to about 2500 feet AGL, and drifting in weak lift across Lake Allatoona. "Packer potential" was a constant source of energy drain until I was back in good lift. Crossing the narrow lake wasn't much in the way of landing areas either. Finally I got back to 8000 feet MSL just in time to reach the suburbs of Atlanta near Roswell and yell to Nancy to head for Stone Mountain.

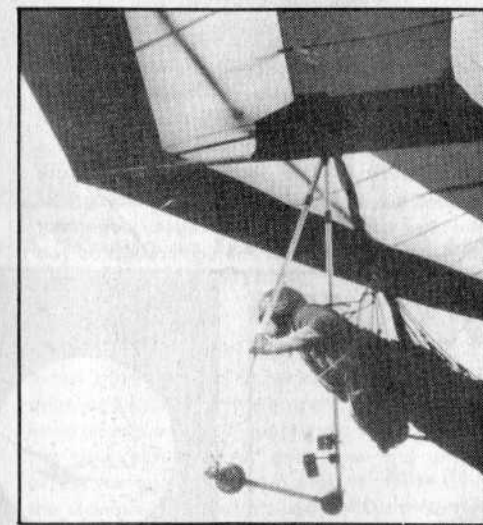
I have glided through all but 2500 feet of my altitude and began grabbing for any bit of lift present. I didn't like looking down at housing areas with no football or baseball fields, but the tops of the large warehouses or construction sites offered pleasant memories of standup landings. Getting back to 6000 feet MSL felt great as Stone Mountain faced me, and I-85 slipped below my wing. I tried raising Nancy again but my batteries were beat. I hoped she would figure out to call back to Lookout. I should have discussed where to call but had not.

Poor Nancy had a rough time in the Stone Mountain area. Seems that my license plates

were two days overdue when she got stopped without her driver's license while blocking an intersection. In baseball you get three strikes but in hang gliding, strikes do not apply. Apparently law officers in Stone Mountain bought her story of chasing a hang glider from Lookout Mountain that was last heard of from here, but was lost now. Lucky, she could have gone to the slammer or perhaps even a psychiatric unit with a story like that, eh?

Be that as it may I really wondered where Curly was now? Did I pass him or is he still 30 miles ahead of me going strong? Oh, I hope not. We'd never hear the end of it! It was now about 5 pm and the sun was getting lower. How much longer will the lift hold out? Altitude was the best mileage late in the day.

Lift was getting lighter and more distant between areas. My last gain was to about 5000 feet AGL after working smaller 200-500 FPM lift. The cummies were gone, only small wisps of condensation remained. I grabbed at anything going up while drifting with zero sink and 200 up areas. Loganville drew below me as

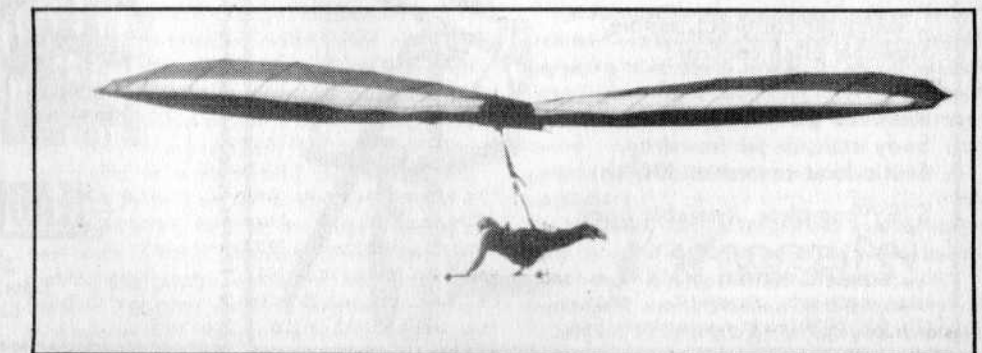


Pro-photographer Chris Voith chronicles another Engelhardt achievement.

I again turned downwind on my final glide.

Curly had been on the ground about an hour relishing the new Eastern United States X-C record of 115.4 miles - a tremendous effort indeed. "Excellent flight Curly!"

Gliding about eight miles without turning I reached a chosen field with 200 feet and an easy approach. The wind was still blowing hard on the ground, and the 50 feet drop through the gradient made it seem as if I'd make a crater on landing. I flared early and buried the nose in



some plowed earth for another uncontrolled X-C landing. My average of quality X-C landings is pretty poor. I landed in Social Circle, Georgia behind the Morton family's home at 5:59 pm. They didn't quite know what to think as I fought the wind carrying the glider up to the house.

After establishing rapport with the folks I got on their phone to make at least six third party calls back to the Lookout site with directions for Nancy. She must have been worried, I thought, since we lost radio contact two hours before. One call went to Chris Voith in Atlanta and he responded to the occasion, arriving minutes later. While I waited Dr Howard Barton lead me to his home for dinner and flying stories. It felt great to relax a little after 4 hours and 45 minutes of kicking air for approximately 130 miles. Great circle calculation show 130.097 miles according to the co-ordinates.

After an hour at the doctors' home I was transported to the traffic light in Social Circle where Chris Voith had just arrived. While transferring the glider to Chris' car we questioned what to do to find Nancy. Seconds later my beat-up old blue Mazda GLC (gliderear) pulled up to the light in town. She made it!! What a diver driver!!

Chris set up his tripod and camera and took an evening photo of this misplaced trio reunited in Social Circle, Georgia. What a setting. What a day-nite-day-nite for the next few daynites. But something was still bothering me. Where was Curly?

We all headed back to Chris' house to stay for the night as the phone lines started smoking. At Chris' were messages of awesome proportion. One mentioned Matt Wagner had flown to Columbus, Georgia some 170 miles from Lookout. My jaw dropped. How'd he do that with a NW wind? What scuttlebutt did to me was disheartening. The next message from Dennis Van Dam was that Curly had done about 110 and I was near 130. We all cheered and toasted to the day! Nancy and I were too wound up to sleep and ended up watching MTV all night. No quantities of alcohol could settle the excitement of our day.

So finally I found out where Curly was, ran into my driver and my buddy in Social Circle, got a hot meal, a new record, and writer's cramp from all this scribbling. What's left is pushing those X-C flights out past 150 miles.

Thank you to super friends: Nancy McAnnally, Chris Voith and Dennis Van Dam's perfection and quality sailwork on my "Attacked Duck". And last but not least, Mark Dunn for urging me to go CHASIN' CURLY.

HANDLING IT... Advice from Gary Engelhardt

THROUGH THE COURSE of years of flying the same sites you get a feel for the flyers. By this I'm referring to their individual attitudes and in particular, their "Ego". I write on the ego pertaining to the individual's perception or awareness of his-her own self.

As we all know "ego" can be very humble in nature, in as much as a person may be low key, unassuming, or quiet. This description could identify someone in a social environment as acting conservative, soft spoken, or perhaps shy. The other side of an Ego, let's say the other extreme, could be a person of absolute authority, pomposity, and void of defecation vapors. Perhaps you've encountered some individuals of this nature. The spectrum of Egos spans a wide range of personalities. The correlation between Ego and flying skills, however, is indistinct and variable. A closer correlation would be of experience and flying skills.

Today's rapid development of good performing, handling, and landing intermediate gliders has yielded a larger percentage of soaring novices. Not long ago a novice pilot would be sled riding months before being given

the go-ahead for a wire-launched soaring flight. The new gliders allow soaring in considerably mellow wind conditions, opening the door for airtime with limited launch, approach, and landing experience. Also those first soaring flights can have an ego-boosting effect that would lead one to feel that he-she were pretty hot stuff. A few compliments from other pilots will probably confirm what your ego and that "high," proud sensation are telling you.

"I'm a hot pilot!" thought the 20 hour novice.

This "hot" feeling is not limited to any specific skill level and more than likely the advanced sky god will be the one to tell anyone within earshot just how great he-she is. I've found that it is easier not saying too many bragging words since you may not be hungry when it is your turn to eat them. Besides that, it is not economical to need several sizes of helmets.

Back to the point of this article. In this dynamic and exciting sport, nothing is really cut and dried, or definite. All variables of flying a hang glider are interdependent upon each other. Equipment, conditions, skills, mental attitudes and feelings all relate and interrelate toward the success of a flight. The strength of the Ego can overcome the basic judgement instilled as a beginner. The Ego could prod you

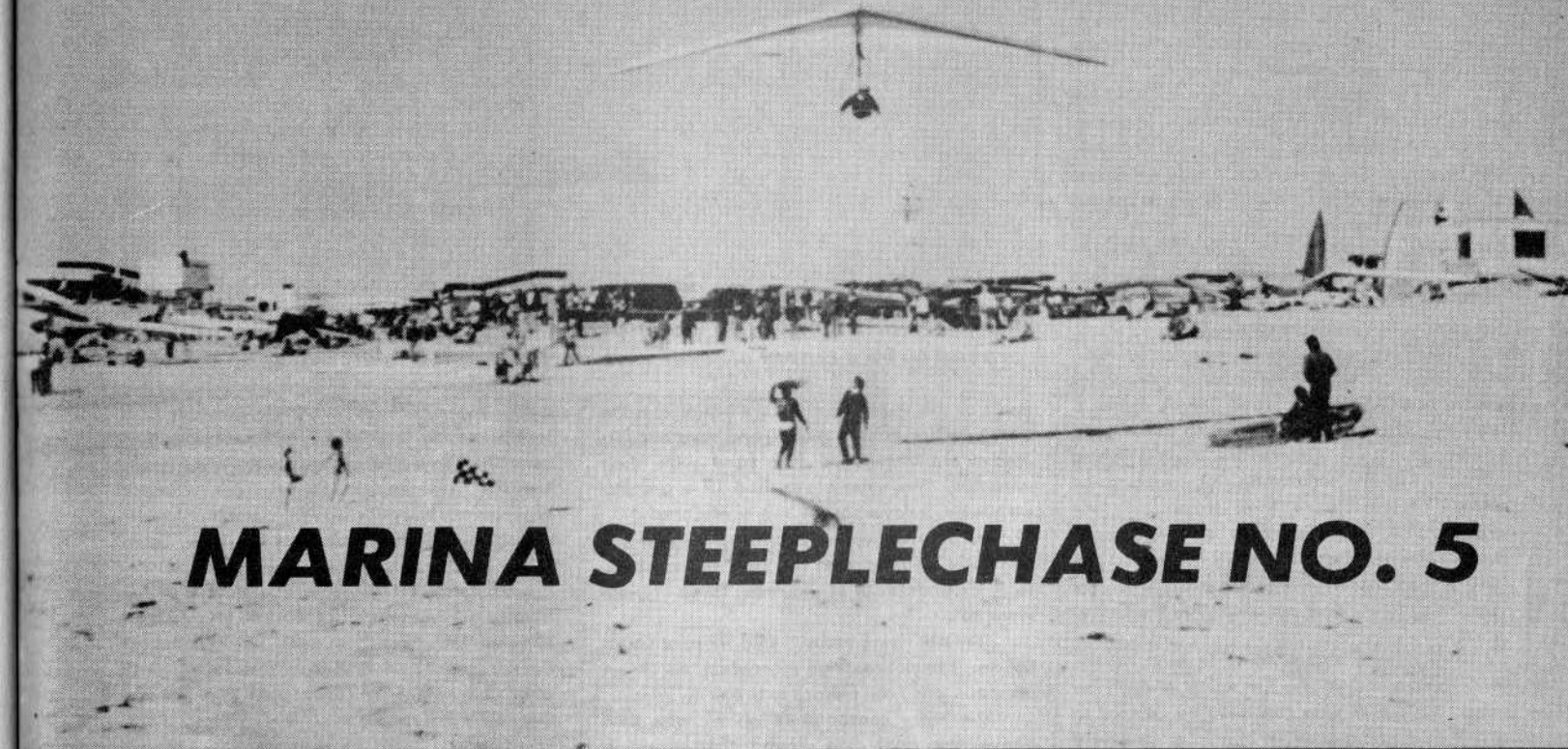
to launch in conditions for which you may not be ready. Have you ever heard your Ego say, "Well if he-she can do it, I can do it?" I'll bet you have. The tough part is not listening to that Ego. The Ego doesn't know how to fly. All it knows is that you're "hot!?" Whatever that is...

One way to beat this Ego drive would be to ask your instructor or a more experienced pilot for his-her opinion of you flying in certain conditions. Don't let that Ego rush you into being the first one in the air. You may be the first one down if you're not careful.

Finally I'd like to relate an experience where I was approached to allow a pilot to launch in soarable air as a novice. He told me he had many hours in sailplanes and was sure he could "handle it." I'd seen him fly perhaps ten times and he had been in the sport at least two years. His flights were acceptable and I felt satisfied about his capabilities in the present conditions. Again the guy repeated that he could "Handle it." The launch went fine and he began soaring in the ridge lift. I suppose he felt like 'real hot' so he attempted a 360 and got pushed behind the ridge by a thermal. Well I didn't feel so satisfied about his capabilities after that one.

By the way, he made it safely, I saw him "handling it" down from a tree.

There goes my credibility!



MARINA STEEPLECHASE NO. 5

Sand dune racers never had it so good. Winners on Team Magic took home the green, and the crowd enjoyed the "entertainment" / photos and story by Jack McCornack.

MARINA BEACH HAS gentle sand dunes on one side, and Monterey Bay on the other. In the spring, the prevailing winds are from the ocean. Since the early '70's, it has been a popular site with hang glider pilots, who would skim down the faces of the dunes, or when winds were strong enough, even soar in one place for a few minutes. The beach and dunes are a west-coast version of Nags Head, where the Wright Brothers did their first glider flying, and this is where Kitty Hawk Kites has their west-coast training headquarters.

The Fifth Annual Marina Beach Steeple Chase showed just how far the hang gliding sport has come. The object of the race is to fly

down a six mile chain of dunes, turn around a pylon, and fly back. Of course, the dunes have gaps and no lift in those gaps. With modern hang gliders and good conditions, skilled pilots can gain altitude over one dune and glide across the gap to the next one. Within limits, the stronger the wind, the easier it is to catch the lift at the next dune. If the pilot is too low to stay airborne, he lands, carries the glider up the next dune, and relaunched.

In the late '70's, an athletic pilot could fly the course in a couple of hours, requiring upwards of a dozen relaunched. A few informal races were held, and eventually it became an annual event.

Now it is big time, with a \$300 cash award for third, \$600 for second, and an all-expense paid week for two in Hawaii (including \$300 in pocket money) for the winner.

This year's winner set a blistering new record of 19 minutes and 18 seconds. The new record is particularly impressive in light of a last-minute course change. In previous years, the pylon has been on a sand dune near the Lone Star Industries sand processing factory. It turns out this dune is owned by the company, though it is public property up to the high-tide line. This year the company declared their dune "off limits to unauthorized personnel," and since the pylon is easier to identify on top of a dune than on the bottom, the judges needed a new place to stand. Forced to choose between making the course easier or harder, Meet Director Jim Johns opted to lengthen the race by a quarter mile. He put the Turn Marshalls on an abandoned dump, just south of the sand



plant. While the scenery left a lot to be desired, the judges could tromp around on it without worrying about damage.

In fairness to the sand plant owners, they probably weren't worried about the judges damaging their sand, either. In this litigious society, they were probably more concerned that someone would trip and sue them for having an attractive nuisance, or an inadequately maintained sand dune with no handrails.

The really serious racer came a day or two early, to get in some practice. The men to beat were the Airwave Team from Seattle, Washington, Ken Brown and Chris Bulger.

Brown, 22, and Bulger, 20, have dominated this event since its inception. Last year they

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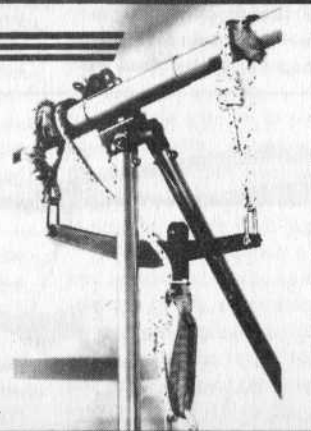
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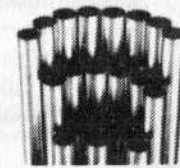
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finished 1st and 2nd, flying the British-built Magic 3. This year they had the improved Magic 4, and had added Dan Raccanelli to the team. Raccanelli, 28, has been flying for eleven years, and flying hang glider competition since Brown and Bulger were in knee pants.

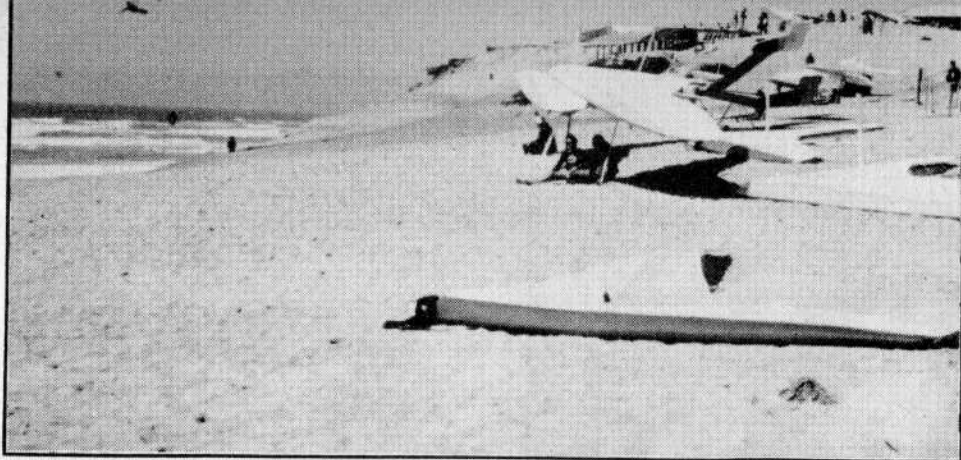
"He's probably the best there is," said last year's winner (and Airwave Magic importer) Brown. "If Dan's flying a Magic, I don't think I can beat him. But really, I don't care which one of us wins, as long as we all finish in the top three." His teammates agreed. Those were pretty strong words, but no doubt they thought they could back them up with actions. The race goes not always to the swift, nor the battle to the strong, but that's the way to bet.

The first day of the event was Friday, April 26th. The wind was strong, a bit too strong for record-breaking times. High winds make it easy to stay aloft, but difficult to make good speed. Since the gliders are always facing partially into the wind when ridge soaring, an excess of wind slows their travel over the ground. Still, a race is a race, and no one can predict the weather. This could have been the best conditions all weekend, so most of the registered pilots went out and made the best of it.

The Marina launch ramp is built on the dune which marks the far north end of the ridge. An eighth mile gap must be crossed to arrive at the next dune, so in mild or moderate wind, the best strategy is to make an immediate left turn after takeoff. Since the clock starts the moment the pilot leaves the ramp, the pilot should not waste time gaining unneeded altitude. This gets the glider to the next dune at a very low altitude, which is a benefit in high winds, since the proximity of the ground slows the wind a bit.

One problem with this strategy is it calls for a very aggressive launch, and the high winds call for some assistance on the launch ramp. Due to miscommunication with a wingman, one competitor aggressed himself right into the beach, perhaps a half a second after takeoff. He was unhurt, but the glider was badly damaged.

The other problem with this strategy is that skimming along low puts one wingtip awfully close to the dunes. The hard chargers crossed the second dune with only a foot or two of ground clearance. The best performing gliders



Marina No. 5 attracted good attendance, had decent weather, and proved to be a crowd pleaser with various non-race diversions.

(such as the Wills Wing HP) are not always the best handling in tight places, and several pilots inadvertently touched the sand with their wingtips. This usually resulted in a graceful pirouette, followed by an ungraceful crash.

No injuries happened but the rough winds of Friday, coupled with the competitive spirit, took six gliders out of the race. Three of them were HPs.

"I'm not flying today," said HP pilot Grant Loban. "I think I could go pretty fast, but I'm an amateur, and I can't afford to break my wing."

The more conservative pilots, who flew above the ridge line, found themselves in fantastic lift. A couple of them rounded the pylon with 2,000 feet of altitude; not bad for ridge soaring on 100 foot dunes. Robert Cartier won the day with a very presentable time of just under 25 minutes. He was hotly pursued by an aggressive Dan Raccanelli and by 1975 World Champion, Brian Porter. Ten years ago Porter won his championship in an Easy Riser. This year he was flying a rigid wing of his own design, the Voyager. The Voyager looks like a Manta Fledge III with an early Pterodactyl hang cage. The pilot sits supine and controls the tip rudders with twist grips. It handled the high winds very nicely, but spectators could see Porter was awfully busy with those rudder controls.

Saturday's wind was nearly perfect, though slightly from the south. The fast guys who hadn't busted their gliders the day before, put in their fastest times on Saturday. Since the wind was milder, most pilots made a pass in front of the ramp, to gain enough altitude to clear the first gap. Porter tried the straightforward approach, hoping his superior penetration would carry him to the next dune. He never quite got it dialed in. He would be a foot or so too low, have to land and walk back to the end of the line for another attempt. Porter is a serious competitor, and would rather try hard and fail, while going for the gold, that take it easy and finish in the middle of the pack.

The Magic boys also take their competition seriously. While it is clear they enjoy their work, it is also clear they were involved to race. They pushed hard from the moment of takeoff to the moment they crossed the finish line. They used the high wind takeoff strategy, and cleared the first gap with literally inches to spare for the few seconds gained. They gained

a few more seconds every chance they got, took an early lead and kept it. Other pilots used the same strategy but without the same success. Whether it came from superior equipment, superior skills, superior determination or a combination of all three, Team Magic had the only times in the 'teens.

While the Pro-Class was dominated by the Magics, an amateur class worked in a parallel competition. First day fast finisher Robert Cartier organized and sponsored this class after gaining approval from Meet Director and Organizer Jim Johns.

Cartier wished to preserve his amateur status, so when Johns said he had no plans except for "professionals," they agreed to offer the second level of contest. Robert's idea apparently was valid as he ultimately was awarded both Rookie of the Year and Third Place/Amateur Class awards.

One problem with a race of this sort is that the spectators can only see the start and the finish. To keep the crowd entertained, various fly-bys and other acts performed, including an aerobatic display by Ted Best. When his employer had a conflict with a charter job, flight instructor Steve Brockman was pressed into a flight display of the boss' Fournier motorglider. Brockman had wanted to fly it for a long time, but had never found a good enough excuse. It's a tough job, but somebody has to do it...

For further variety, a trans-bay windsurfing race was scheduled, which finished right in front of the spectator area in the early afternoon. And if anyone got thirsty, race sponsors Miller Beer and Pepsi had booths in the parking lot.

At mid-day the drawing was held for the free tandem ride; though some disappointment was expressed by a few spectators. While the rumor of this drawing had been running through the crowd, no one had found where to sign up for it, and many felt that had not had a fair chance. When "Father Bernasconi from Salinas" was announced as the winner, most of the local pilots realized that they were having their legs pulled. Indeed, the priest who came out of the crowd looked a lot like Jean-Michel Bernasconi, president of Pacific Windcraft. He was hooked into a Vision 18 (a Bernasconi-designed and Pacific Windcraft manufactured hang glider). While his instructor fiddled around with his own harness, he "accidentally" got launched solo.



(Above) Mike "Pelican" Helms amuses the kids. (Below) Winners Raccanelli, Bulger, and Brown.

This was a variation on the "flying farmer" routine that has been an airshow tradition for at least fifty years. The rest of the act involved "talking down" this panic-stricken novice. Bernasconi is a very skilled pilot, and very familiar with local conditions. He made soaring look so easy that an observer could believe he was really "stuck up there" and could not get down. Every time he started getting low, the lift pulled him back like a magnet. Once he nearly escaped, but stalled and did a half-spin. Wouldn't you know it, he recovered right in the center of the lift zone and shot back into the air. Another time he got so twisted up in his harness that he was facing backwards, and sure enough, the glider went out of control and ended up in the lift again. Eventually, he got it down to the beach, to much laughter and applause.

Another bizarre performance was a demonstration of aerodynamic principles by Pelican Helms (also known as Mike). Announcer Jim Schumacher asked Helms to explain the theories behind the advanced equipment he wore (the garbage bag harness,

the rubber gloves on his feet, and, "Pelican, I couldn't help but notice the cone on your nose.") Helms' answers entertained the grownups, and his getup entertained the kids. For some reason, most children find adults with funny noses to be absolutely hilarious. An informal poll of kids under twelve found Pelican Helms to be the high point of the weekend, although (fortunately) they didn't get many of his jokes.

Saturday night was Party Time. With hopes of reducing his competitive edge, too many drinks were offered to race leader Bulger, apparently without asking for proper I.D. It worked, and Bulger did not seem as keenly honed on Sunday morning as he had the day before.

Sunday the wind was too low to cross the gaps, so really fast times were not possible. Still, the show must go on, so Meet Director Johns took a break and flew the course. He landed and relaunched several times. He came back looking physically tired but emotionally refreshed. "I needed that," he said with a grin, "I've been working too hard." To encourage others to do the same, advertising and promotion manager Tom Scoggin offered a \$50 prize for top time of the day. Half a dozen pilots gave it a go, the remainder stayed nearby and concentrated on the spotlanding contest. The risk of flying the course in light winds is that the wind might stop altogether, turning the pilots into pedestrians. A five-mile hike, carrying a seventy pound glider, is no one's idea of a good time.

Many of the spectators enjoyed Sunday more than Saturday. The wind was not blowing sand into their picnic baskets, and the activity was right where they could see it. As with most forms of racing, the majority of the crowd did not care much who won, they had come to be entertained. The comedy routines, the flybys, the windsurfer races, and the spotlanding contest were as satisfying to watch as the gung-ho steeplechase competition of the day before.

The spotlanding contest was particularly

entertaining. The rules were simple as could be. A frisbee was put on the beach as a target, and pilots were awarded five dollars every time they landed on it. After each attempt, the pilot could get in line for another try. Whomever hit the target the most times was awarded a trophy. No credit was given for being close, so judging was fast and easy, and viewers and participants had up-to-the-minute information on the results.

The contest ended at 4:00, and in the hour before the awards ceremony, the wind started coming up, and the air filled with gliders, flying just for fun. The "Magic 3" (Bulger, Raccanelli, and Brown) took home the first three trophies, most of the money, and the trip to Hawaii. Despite the lengthened course, all three broke the twenty-minute barrier on Saturday. Top amateur was Grant Loban, who flew his Wills HP to 4th overall (1st in the Amateur Class) in 22 minutes. Fifth went to newcomer John Erickson, flying a Magic IV. The Marty Alameda Memorial Award for Sportsmanship went to John Wright (see listing of all awards at end of article).

Bringing home the last-place honors was Mark Lillendahl, at one hour and 37 minutes. His Breez glider was better suited to the spotlanding contest where he took home 1st place, \$110, and a Wills Wing custom harness. Lillendahl earned this by accomplishing an incredible 22 landings on target. And with considerable laughter, the \$50 prize for Sunday's Top Time of the Day went to... Jim Johns. As he handed over the check, Scoggin said he would "find some way of including it in his bill." All in all, the meet was a great success, with no injuries (save an occasional bruised ego), good weather, fair judging, and six to eight thousand satisfied spectators. It seems that hang glider races can draw a good crowd; the sponsors were pleased with the attendance, and many have already offered support for next year. Many of the participants consider this the most fun contest of the season, and they will be back next spring for the 6th Annual Marina Steeplechase.

OVERALL RESULTS

- 1st — Chris Bulger (Magic 4) 19:18
- 2nd — Dan Raccanelli (Magic 4) 19:39
- 3rd — Ken Brown (Magic 4) 19:54
- 4th — Grant Loban (Wills HP) 22:00
- 5th — John Erickson (Magic 4)
- 1st (Amateur) — Grant Loban
- Last Place — Mark Lillendahl
- Rookie of the Year — Robert Cartier
- Spot Landing — Mark Lillendahl
- Windsurfing — Bard Christman



DIRECTORY

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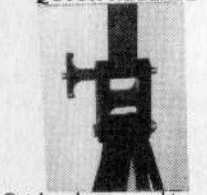
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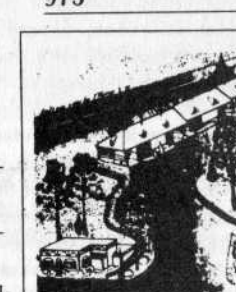
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PRODUCT LINES

STOP THE PRESS (literally in this case — the magazine was already in pre-production phase) **FLASH** — Results from the 1985 World Meet are here.... First Place: John Pendry (Britain/Magic IV); 2nd: Steve Moyes (Australia/Missile GTR); 3rd: Randy Haney (Canada/Magic IV); 4th: Bob Calvert (Britain/Magic IV); 5th: Rick Duncan (Australia); 6th: Graham Slater (Britain); 7th: Gerard Thevenot (France); 8th: Michel Carnet (Britain). American finishers were: Mark Bennett (10th); Rick Rawlings (14th); Chris Bulger (20th); Larry Tudor (23rd), and Rob Kells (38th). Team Placings were: 1st: Britain, 2nd: Australia; 3rd: Canada; 4th: America. Congratulations to John Pendry and Team Britain are in order!

TACOMA, WASH. -- Early bird news from the **World Meet in Austria** has begun to flow back across the big pond. Our boys "over there" aren't having the best of luck. After a good flight by Rich Pfeiffer early in the contest, he landed only to discover that he had traveled into Germany. The rules apparently stipulate that this is a no-no, and a proper hub-bub ensued. The judges decided initially that this error was not unacceptable and planned to credit Rich with the flight. Doing so would've put Rich well up in the standings and things were lookin' pretty good for Team USA. The **English Team protested** the acceptance ruling (as one might expect), but the judges evidently saw no reason to change their earlier ruling. This did not sit well with the Brits, though, to the point where they protested louder and longer. The story goes on... Team U.K. said they were real upset with the judges decision, that they would not sit still for it, and if those bloody judges wouldn't undo the action, that they, (the Brits) and other sympathetic teams would walk. Yep, faced with a threat by the English and others to split on the prestigious biennial competition, the judges reconsidered and DQ'd Pfeiffer. Rules are rules, we'd guess, but the action had a demoralizing effect on the Americans. This was especially so when **Pfeiffer did not make the cut** to the top 40 pilots. But the Team USA "Great White Hope" lay in their estimate that one sure shoe-in was **Stew Smith**. If yer readin' between the lines, you may already be uh-oh-ing the next part... Stew didn't make the cut either! Nor did Steve Pearson. Yipes! Fortunately the other five guys did, and as of June 6th, Mark Bennett was top of the Yankee heap in a respectable, but not-high-enough eighth place. As of the 6th, only two days remained in the contest, with awards due on Sunday the 9th of June. So things don't look good for our guys to fair too well. Right now, the report indicated Team USA was in 3rd or 4th, with little chance for any spectacular movement upwards. If the words came correctly over the 10,000 miles of phone cable, the **Aussies were hanging in at 2nd**, with the tough **British Team leading the pack**. No wonder they protested a bunch, eh? Those British are a really hot competition gang, having done well in international competitions for many years. A couple more days will tell, and **if any chance exists** for us to cram in the last results, you'll see it at the bottom of this page and column (so look!). A few other notes about the Weltmeisterschafts... the contest was said to be "very gruelling." **Flying occurred on every day of the meet**, which must rank as one of more unusual contest happenings. Expected days-off for poor weather never materialized. And considering the teams had been practicing for a couple weeks regularly prior to the contest beginning, the toll was taking effect on all competitors. The tasks were long, making retrieval a late-in-the-day proposition, followed by early starts the next day to maximize conditions. Sounds like a great time, eh? The really good news is (or was thru 6/6, anyway -- we've got our fingers crossed for the last two days) **no accidents or serious injuries** have marred the meet. Bet yer wonderin' what else we know, huh? Contests aren't everything, but the World Meet is a rarer animal than "regular old competitions," so we wanted you to know what's happenin'. Hangin' on to the contest theme for just a few more words... we wanna tell ya that work progresses on the upcoming 1985 Chelan Nat's. A **big-time sponsor** has not yet raised its corporate hand to fork over some bucks. But organizers in the Cloudbase Country Club remain hopeful, as several large companies with prior sponsorship participation have indicated an interest. Trouble is with these guys, the corporate mind works rather slowly, and since USHGA did not approve the Chelan bid till February, the CBCCers may just plain run out of time trying to obtain the funds. Not for lack of trying, mind you, as Prime Mover in the organizational effort, **Mark Kenworthy of Seattle**, has enlisted the aid of the McConnell Company. This public relations counsel has been sending out news releases, but more importantly, is the main

connection between us hang glider types and that corporate money. A decision time has been set at June 13th, one month prior to the Nat's commencement, so in only another week (from the date this got keyed in to our typesetter) the National sponsor will either be "on-board," or it'll wait till another effort in another year. Our request for calls on developments involving RSWs (Rigid Superwings) brought in a few calls we're enthused to report. As stated in last issue's "Product Lines," we won't be telling you specifics on craft that are still in early developmental stages. But it's encouraging to be gettin' those calls -- KEEP 'EM COMIN' -- and we'll be planning some further reports. Calls and letters were most satisfying as folks called to say they were all pumped up about the ULF-1 and the Hang Plane. One group in Florida is **already underway to build a first U.S. ULF-1**, with an eye to production! This issue's coverage includes the Monarch. We hope you'll like it, too. We did, and wanna go fly one should the opportunity arise. How 'bout you? Word around the flying sites from several of our field sources say interest is extremely keen on ultralight sailplanes, so as best we can, we'll keep tellin' ya about 'em. Now here's some new poop from another caller to our "Product Lines" news desk: A new cloth has arrived on the market that may be of interest to glider builders. It's called **Spectre 900**, and is touted to be one and a half times as strong as Kevlar. It is apparently being used for racing sailboat sails in the Southern Ocean Racing Conference. We chatted with the marketing rep' in New York, and it wasn't obvious to either of us (who don't know diddle about sail building) if this would indeed work for hang glider sails, but it sounded as though it were worth investigation but one of our industry's sail-making experts. Anyone interested? Call 206/588-1743 and we'll pass on the information. Within the industry, top news involves a couple new offerings, glider-wise, with **Bennett's new Mystic/magic** and Bob Trampenau's recently certified (just in the nick of time for the World Meet) **Sensor 510-B 160 VG**. Both these new designs are mentioned in our "Industry News" section (see pages 12 and 10 respectively). Bob wished to pass along the info that he'll bend over backwards to try to get Nationals-bound pilots into one of these new screamers, if they'll let him know... quick. Plus, Seedwings will be building more inventory gliders than in the past, so stock colors will carry much faster delivery than in years past. **Wills Wing** reports sales for March, April, and May have been quite good, but they've gotten around the big backlog, and things are running quite smoothly, even while they've got Rob and Steve flyin' their brains out in Europe. We're glad to hear that as all is not rosy everywhere else in the industry. Specifically, we have heard of the closures of a couple major shops this year. On each coast, one is the long-established **Sport Flight** shop of Bob Deffenbaugh and Margo Daniels. The other, out here in the Pacific Northwest is **Aerosails**, owned by Steve Hollister, a highly-regarded instructor in the Seattle area. But on the good side, Wills reported that Eric "Air-wreck Fear" Fair has done real well with their Skyhawk, and that means **new pilots coming into the sport**. Flipping back again, though, to the less-than-hot side, a March letter from UP tells many wonderful things about their Glidezilla GZ-155. The really interesting wrinkle in the letter is the method of sales for the \$2,850 glider. **It is being sold on a factory-direct basis!** Surprised? Don't be. UP is undoubtedly trying to get the most bucks per unit to solve their financial crisis, and who knows, maybe it'll work. I'm sure they'd be happy if something did. Times have been trying indeed for the Temecula outfit. If yer interested, give 'em a jingle. If yer a Yoo-shga Hang IV, it'll save ya 10%, or a substantial \$285 (though the letter indicated they'll sell the Glidezilla to Hang Ills as well). Well, 'bout outta room... so, got news or opinion? Send 'em to "Product Lines," Box 98786, Tacoma, WA 98498-0786.

DAWN

A Picture of Things to Come



Glider: Dawn Comp. Photo by R. Grigaby

THE DAWN represents an important new innovation in hang gliding technology. **STRUTS.** The most exciting of the Dawn's new features is lower side struts. This eliminates the need for top rigging and bridle lines. **RIGID WING.** The Dawn can best be described in terms of a rigid wing. Like a rigid wing, flight loads are located around a central structural spar — in the Dawn's case the "cross-spar" (located farther aft than a conventional cross bar). With fixed battens supporting both the upper and lower surfaces, the trailing edge becomes fixed, eliminating mid-span twist and providing center section stability.

HANDLING. Since high trailing edge tension is no longer necessary to prevent mid-span twist, the Dawn retains excellent handling and landing characteristics. (See Dec-Jan '85 issue of **Whole Air** magazine for pilot evaluation of the Dawn.)

HGMA CERTIFIED. The Dawn 155 and 175 are certified to 1984 specifications. **COMPETITION.** Soon to be released, the Dawn Comp will be 85's hot new glider for the serious competition pilot. Details and specs coming soon.

DAWN SPECIFICATIONS

Size	135	155	175
Area (ft. ²)	128	148	168
Span (ft.)	31.3	33.3	35.3
Root (ft.)	6.5	7.0	7.5
Tip (ft.)	2.5	2.5	2.5
A/R	7.65	7.49	7.42
Weight (lbs.)	55	62	73
Pilot (lbs.)	110-170	150-220	170-250
Rating	Hang 3-5	Hang 3-5	Hang 3-5

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