

SOARING MARCH 1972 65 CENTS



ARE YOU READY?

The 1972 Soaring Season is about to start, and now is the time to make certain your sailplane and crew car are equipped and debugged so they won't let you down in time of need.

YOUR SAILPLANE

RAINCO carries a large inventory of spares. Need a wheel, tire, gear doors, canopy? Canopy scratched? — use Polysand; dirty? — use Mirroglaze.

YOUR INSTRUMENTS

We have a full line of PZL and WINTER Airspeeds and Variometers as well as Ball, Piep, Altimeters, Diaphragm and Venturi Compensators, Airpath and Cook compasses and many more.

YOUR LIFE

RAINCO stocks the ENDUROX oxygen system and all necessary fittings, hoses, masks, and cylinders. Every item tested before shipment.

YOUR SURVIVAL

Thin, steerable Security Parachutes, Signal Mirrors, Survival Blankets, Saws, Shirt Pocket Strobe Lights.

YOUR MIND

Learn from the experts by reading. RAINCO carries a complete line of books to help you in your home study and entertainment.

YOUR COMMUNICATIONS

Antennas, Coax, Fittings, Transceivers, Cabling, Speakers, Batteries, Chargers, Microphones and Test Meters are in stock at RAINCO. All popular types and manufacturers are represented. Each system tested by us before shipment to you.

YOUR CREW CAR

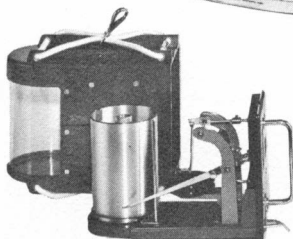
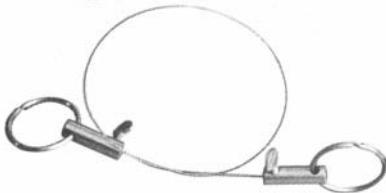
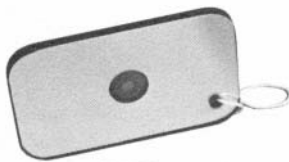
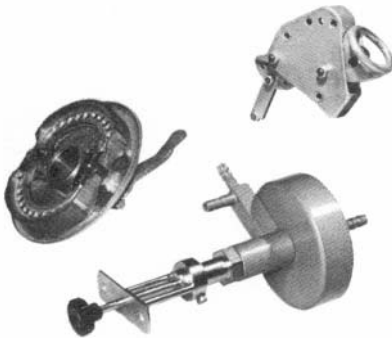
The flat radiation pattern of the famous RAINCO X-C Antenna improves your air to ground communications by more than doubling the ERP (Effective Radiated Power) of your system in both directions. It also greatly improves ground to ground range when you are trying to locate a sailplane down at the end of a flight.

Write now for our equipment and book listings. Don't forget to mention any specific items which interest you so that we can supply detailed information. Most items ordered receive same day shipment.

"GOOP-OFF" IS COMING!

RAINCO

SAILPLANES AND EQUIPMENT FOR
THE CRITICAL SOARING PILOT
2555 E. UNIVERSITY DRIVE
POST OFFICE BOX 20944
PHOENIX, ARIZONA 85036
TELEPHONE (602) 273-1428
AN S.S.A. BUSINESS MEMBER



SOARING

THE JOURNAL OF THE SOARING SOCIETY OF AMERICA



The Soaring Society of America is a division of the National Aeronautic Association (NAA), which is the official U.S. representative of the Federation Internationale Aeronautique (FAI, the world governing body for sport aviation). The NAA, which represents the U.S. at FAI meetings, has delegated to the SSA supervision of FAI-related soaring activities such as record attempts, competition sanctions, issuance of FAI Badges, and selection of a U.S. team for the World Soaring Championships. SOARING is the Society's official journal.

VOLUME 36

MARCH 1972

NUMBER 3

CONTENTS

- 18 HI-HO, KIMO SAVY
- 22 CONCEPT 70 REVISITED, Arthur E. Hurst
- 25 FLYING THE CAPRONI A-21, Ross N. Stevens, Jr.
- 27 THE NEW ERA IN SOARING, Richard Miller
- 30 WHY THE DINGUS? Dennis Harmon & Larry Linville
- 32 THINGS THAT GO BUMP, John Butler

FEATURES

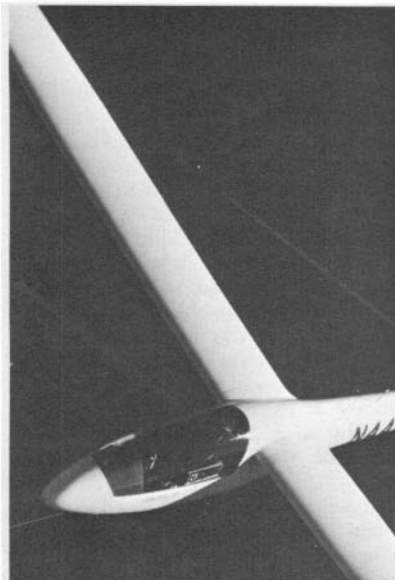
- 2 LETTERS TO THE EDITOR
- 8 CALENDAR OF EVENTS, Bill Allen
- 10 SSA IN ACTION
- 34 SSA DIRECTORS' MEETING, Lloyd Licher
- 37 SAFETY CORNER, St. Horvath
- 38 HEROLD'S HEARSAY, Carl Herold
- 39 USING THE WEATHER, John Aldrich
- 41 F.A.I. BADGES (U.S.), Delta Rathbone
- 41 RECORDS APPROVED, Bill Allen
- 41 FREE ITEMS FROM SSA
- 42 CLASSIFIED ADVERTISING

Staff: Doug Lamont, Editor; Vickie Clarke, Art Director; Lianna Lamont, Editorial Assistant; George Uveges, Contributing Photographer

Cover: In a northern California Coastal valley, Mike Dial's camera catches winter mists, long shadows, and a magic moment — the C-70 being readied for its first flight out of Calistoga.

Total paid circulation of the February 1972 issue was 13,600

MIKE DIAL





White Lightning is a highly resilient compound especially developed to provide lightning fast, permanent repairs to gouges, dents, tears or flaws in fiberglass, aluminum and wood products. Contains new Isophthalic Resin to provide maximum values of both elongation and tensile strength. • Dense pure white color eliminates costly and time consuming color matching, most repairs and "fill jobs" invisible. Easily drilled, filed, sanded, polished. Sets ready to sand in 5-10 minutes. • Kit contains 3.5-oz. cans White Lightning with hardener, 1 vial Cold Weather Promoter (use under 60°F.), extra vial hardener, complete instructions. \$9.95 prepaid

RAINCO
SAILPLANES AND EQUIPMENT FOR
THE CRITICAL SOARING PILOT
2555 E. UNIVERSITY DRIVE
POST OFFICE BOX 20944
PHOENIX, ARIZONA 85036
TELEPHONE (602) 273-1428
AN S.S.A. BUSINESS MEMBER

Material published in SOARING Magazine is contributed by individuals for the reading pleasure of soaring enthusiasts. Monetary payment (\$25) is only made for the photograph that is used on the front cover. Anyone is invited to contribute articles, reports, and photos concerning soaring activities. However, any material that is to be returned must be accompanied by a stamped self-addressed return envelope. Manuscripts accepted for publication are subject to whatever deletions, additions, or revisions are necessary to adapt the material to the space requirements and quality standards of the magazine. Reproduction of any of the enclosed material, unless specifically excluded, is encouraged. All reprints must credit the Soaring Society of America.

SOARING Magazine is the publication of the Soaring Society of America, Inc., editorial and business office: 3200 Airport Ave., Room 25, Santa Monica, Calif. 90405 (mailing address: P.O. Box 66071, Los Angeles, Calif. 90066). Telephone (213) 390-4449. SOARING is published monthly. Second-class postage paid at Santa Monica, California, and at additional mailing offices. Subscription to individuals in the United States available only as a part of SSA membership. Membership is open to anyone interested in the art, the science, or the sport of motorless flight. Annual dues: Membership, \$15; Family Member (Member status, less subscription, for any person in same family and household of a voting member), \$5; Associate, \$9; Student Member (must be enrolled full-time in an academic school during normal school year, give name of school, and be aged 22 or under), \$7; Business Member, \$35; Industrial Member, \$50; and Sponsoring Member, \$50. Life Member fee, \$200 (may be four \$50 consecutive quarterly payments). Subscription price, \$7 in U.S. and \$8 foreign (subscriptions are only available to anyone outside the U.S. and the price includes postage; in the U.S. only libraries and institutions may subscribe). SOARING Magazine is printed by Parker & Son, Inc., 6500 Flotilla St., Los Angeles, California 90022. (Please note, however, that changes of address should be sent to the SSA box number listed above.)



The 'Currency' Requirement

Dear Sir:

I suspect there is no FAR so consistently violated as the requirement for five flights as pilot-in-command of a specific glider type before carrying passengers. Most flying is done in organized clubs and many have two-place gliders for training or the express purpose of jumping rides to friends. It is the latter that creates the problem. To be sure, the problem is not readily apparent, as most clubs have an "understanding" that no one questions another's currency. And for good reason—the present rules, derived from sensible regulations designed for powered aircraft are not sensible when applied to gliders.

This is an old problem: a law consistently violated by those it purports to protect is a bad law. The present currency law is not just ineffective—it is downright dangerous!

A sensible FAR is not hard to define: currency should be met with five glider flights within the previous 90 days of which one must have been in type within the previous 30 days. That is sensible enough to justify asking questions at the field.

Can't we get the FAA to see the real world?

M. B. KASEN

Boulder, Colorado

★ *Mr. Kasen's letter has been forwarded to SSA's Government Liaison Chairman. Soaring is unaware of any clubs operating with this type of 'understanding,' but an SSA member, who is also a glider insurance broker, points out that any such would be well advised to consider its effect on their insurance coverage.* —Ed.

Take It Off!

Dear Sir:

Spring is drawing near in the Southland and with it the prospect of warmer days, so I thought something light and summery might be appropriate.

Actually it's an early picture of the Duster prototype, tape and all, and I confess being so excited about flying it



that it took me two years to paint the darn thing!

I am told the "get-up" is the unmistakable mark of an open-cockpit buff, and the grin automatically appears below 5000' where the temperature allows one to regain the feeling in one's extremities.

"HANK" THOR

Huntington Beach, California

Dear Sir:

Let's promote open-cockpit gliding. Let's have a break from those totally enclosed, hot, claustrophobic capsules. To hell with L/D! Let's have a bit of fresh air and wind!

JOSEPH ESSER

St. Petersburg, Florida

★ *The Schweizers dig you too, Joe. They manufacture a 1-26 open "sport" cockpit assembly that is easily interchangeable with the regular plexiglass canopy.* —Ed.

The Real Problem

Dear Sir:

Hey fellows, you got it wrong! The "Rogallo ski-flying entrepreneur" (p. 10, Jan. Soaring) doesn't get 50 dollars per hour, he gets 50 dollars per day—which sometimes means 16 hours or more! Now comparing that with the \$8.00 per hour that an FAA-Certified Flight Instructor gets, I, for one, know who's getting a bargain. And why should he offer his time at all when he could make as much as 500 dollars per day by making a few flights for some show business venture?

Anyhow, why cut anybody down on the flimsy basis of a magazine article written by a daffy female who didn't in the least understand what he was about?

What we need are enlightened people who can chronicle real problems—not make up imaginary ones.

DAVE KILBOURNE

San Jose, California

★ *I really don't know what the problem is with this reader . . . First of all, the quote which you picked up from the article I wrote in SKI magazine is entirely correct. As far as I know we did not misquote; he got \$50 an hour for teaching. I assume he supplies the kite as a part of his price.*

I don't really understand what your reader means in the last two paragraphs of his letter. It seems to me the danger referred to is a very real problem, and I can't think of a guy better qualified to make such a statement which is far from being imaginary.

Finally, who is the "daffy female who didn't in the least understand what he was about?"—John Fry, Editor-in-Chief, SKI Magazine.

Wally Scott Offer

Dear Doug:

I have received a few telephone calls recently from friends, acquaintances, and fellow glider pilots who desire to fly at Marfa. Yet they are apprehensive about Marfa and the surrounding area. If they have not yet flown at Marfa, and particularly if they have only seen it from the highway, the terrain scares them a mite. Or more than a mite.

This is easily understood. Marfa does have some peculiar offerings to make to us glider types. but it also seems to have many dependable features, areas, and, I guess you might say, quirks of nature (i.e., dependable lift areas and sink hole areas).

Heretofore I have always offered my ideas freely to any that asked; even going so far as to mark "good" areas on their maps, landing areas, etc. I particularly note what seem to be thermal producing areas of a dependable nature. Alex Aldott and his compatriots who flew for Hungary when the World Championships were held at Marfa, gave me a rather thorough brain picking. I was glad to contribute, but I never learned if the information helped. They never came back later. In fact, none have.

Another friend had a long talk with me, proceeded to Marfa to do some area testing, and came back with a busted glider. I was not able to mark his maps, but even if I had, there can be no assurances to a person seeking this type of information—good fishin' holes are not always good for everyone.

Anyway, the reason for this letter: I thought I might go to a little extra effort and make up a rather comprehensive booklet about "Flying at Marfa" that would include drawings and marked maps if enough people are interested to make the project worth the effort. It could be done with very little cost except publishing and mailing. The way I see it, it would take about a hundred guys to show interest, and if they do I could have the booklet to them, say, no later than June 1st. So, if enough of you are interested, let me know pronto and I'll get to work. Time is shorter than you think.

WALLY SCOTT

1304 Parker Drive
Odessa, Texas 79760

How About That?

Dear Sir:

We Europeans are waiting in eager anticipation for further details of your new American landing technique with strings attached. (George Moffat and *Nimbus*, SSA 1972 Calendar.) Have you considered doing a paper for OSTIV?

F/O GERARD MURTAGH
Irish Airlines

Baile Atha Cliath, Ireland

Dear Sir:

As a pilot who has never averaged better than 10 mph on any x-c (even when drifting with a 20-mph wind), I've been unable to understand how the pundits can flash around a course at 70

mph or better.

The 1972 SSA calendar may shed some light on this puzzle. The caption for June states that George Moffat is landing his *Nimbus* at Marfa. But after staring at the picture, these tired old eyes see a towrope leading out from the landing gear. Can it be that the secret to winning contests is simply to remain on tow for the entire task?

TOM ADAMCZYK

Arlington, Virginia

Dear Sir:

Just received our 1972 calendar. Great! I see the 12th World Championships must have really been exciting. George Moffat (June picture) is landing while on tow!

MORRY STILLWELL

Malibu, California

Things That Go Bump

Dear Sir:

Having witnessed a gear-up landing a few weeks ago, I wondered why there isn't a signal to warn the pilot. This could save quite a few injuries.

GERRY PETRIE

(SSA Student Member)

Essex Junction, Vermont

★ *It's not that people aren't trying, Gerry—there are problems. Read "Things That Go 'Bump' in the Night" elsewhere in this issue.—Ed.*

SSA Responsiveness

Dear Sir:

I should like to put the following two problems before you and the membership and board of the SSA through this column:

1. It is well over a year since the FAA, at the initiative of the SSA, announced it would consider the establishment of a special rating for glider flying in clouds. I believe a status report on this matter, in *Soaring*, is overdue.
2. In early summer of this year, reports reached me (in Europe) of the "unexplained" crash of an AS-W 15 in the U.S. I now have a little better information on the subject and wish to suggest, most urgently, that the following be made an ironclad rule for *Soaring*:

- Preliminary reports on all serious gliding accidents will be published in "Safety Corner" the month after their occurrence, with all details available at the time.

- Any significant item of additional information will be published the month after it comes to light, until the case is closed.

- Any significant observation or recommendation by the FAA, the National Transportation Safety Board, the manufacturer of an affected glider, etc. will be published the month after its issue.

- All interested parties and, in particular, the manufacturer of an affected glider and its pilot, will be invited to provide pertinent comments—which

KOLLSMAN C-12 SENSITIVE ALTIMETERS



The most sought-after altimeter ever made. These are recently released U.S. Air Force surplus and have been inspected, calibrated and certified airworthy by an FAA Approved Instrument Repair Station. Reads up to 50,000 feet.

Satisfaction guaranteed.

\$100.00

24' THIN STEERABLE BACKPACKS



Chutes are U.S. surplus and are inspected, reworked as required, assembled and packed in our FAA-certified parachute loft prior to shipment. Ripstop nylon, steerable canopy greatly improves stability and allows the user to avoid landing hazards. (FAA approved modification.) Harnesses are soft nylon and have quick-release (ejector) snaps on the chest and leg straps. Weight—23 lbs. NB-6 harness and pack is approximately 3" thick.

Satisfaction guaranteed.

\$114.50

26' EXTRA THIN STEERABLE BACKPACKS



Factory new and specifically designed for the sailplane pilot. Repack inspection period is 120 days. Ripstop nylon, steerable canopy greatly improves stability and allows the user to avoid landing hazards. So light and comfortable you will forget you have it on. Weighs less than 16 lbs. Pack is approximately 1½" thick. Conforms to TSO C23-B. Pack, harness, and carrying bag in solid blue. Price includes carrying bag.

Satisfaction guaranteed.

\$385.00

How to order: Include full purchase price with order, and we will ship collect for shipping and insurance charges. Foreign, A.P.O. and F.P.O. orders must include shipping and insurance charges with order. New Jersey residents add 5% sales tax.

THE CHUTE SHOP

Hwy. 202, Flemington, N.J. 08822

Phone (201) 782-5758

A division of North
American Aerodynamics, Inc.

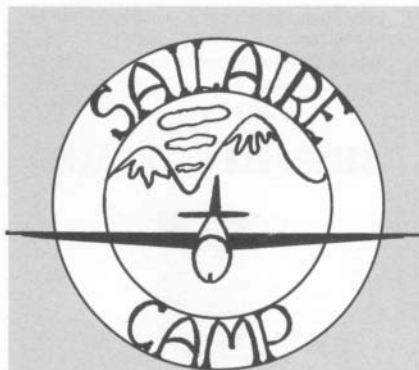


LUFFT
SPHERICAL
COMPASS
GOES
ANYWHERE
\$10 ppd.

(Calif. add 5% tax)

GRAHAM THOMSON LTD

3200 AIRPORT AVENUE
SANTA MONICA, CALIFORNIA 90405
(213) 398-4714



Summer camp for boys 14 and up. The camp focuses on soaring, the safest, most challenging and exciting form of flying. Three basic programs are offered and each is tailored to suit the individual's needs. All programs include comprehensive ground school and instruction in airframe maintenance as well as extensive flight experience. Also included is a variety of well-supervised athletics. Programs are three, six, or nine weeks in length, with the first session beginning July 1. Soaring will be conducted at the Harriman Airport, North Adams, Mass., in conjunction with Berkshire Sailflights. The field location—at the foot of Mount Greylock—is one of the best in New England. Campers will be housed at Williams College. For further details, write to Prof. George Angell, 101 Barton Drive, Sudbury, Mass. 01776.

will be published in a similar manner.

• Under no circumstances will any of the above information be delayed, altered, deleted or suppressed.

I believe that this will go a long way toward making the "Safety Corner" a primary means for enhancing safety in gliding—and I think that, given the nature of the AS-W 15 crash and the FAA's action, a full report on this item in next month's *Soaring* will be a valuable beginning.

On one more point, I enclose a Xerox copy of an FAI Sporting License/FAI Identity Card as supplied by the FAI issued by the National Aero Club of another country. I invite you to print its entire text in *Soaring* (see below), and to publish the explanation, by the SSA, why we in the U.S. do things differently and—apparently—not as much to the benefit of either our own members or our visitors from abroad. Where, indeed, are the FAI plaques at our many International Airports?

This card is valid for the year shown on FAI stamp above.

Holder is entitled to technical assistance and social facilities of FAI Member Organizations in Countries shown on back. These Organizations are required by FAI Statutes to display their local address and telephone on an FAI Plaque at all International Airports in their territory.

Holder is also entitled to all the privileges of the old Air Touring Card, plus special facilities for Gas, Oil, Insurance, and Car rental. Details available from FAI headquarters.

6 Rue Galilée Paris XVI (France)

Phone: 704-2425

Cables: FEDAERO

I am convinced that the gliding movement will be broadened and improved by increased responsiveness of the SSA to its responsibilities toward its membership at large.

Given the impracticality of an effective Annual General Meeting of the SSA, raising serious questions through Letters to the Editor—and requiring a prompt response from the SSA—is probably the most effective means toward augmenting this responsiveness.

J. BAER

Ramsey, N. J.

★ Joe, we try to be responsive, but it isn't easy. However, SSA President Miles

Coverdale agrees with you. He says, "When members come to me with a question or a point of view they want aired, I tell them to write to the editor of *Soaring*." So let's see what we can do to respond. In answer to your letter's first point: In the November issue, Gov't Liaison Chairman Marion Griffith made a brief mention that action on the special Glider Pilot Instrument Rating was still not concluded. Next, Safety Chairman Stephan Horvath's reply to your suggestions are chronicled hereafter. (Incidentally, you'll be interested in Steve du Pont's letter regarding his AS-W 15.) And finally, Executive Director Lloyd Licher's comments regarding Columbia's FAI Identity Card are included here, too.—Ed.

★ Soaring does not have a policy against reporting accidents. The reporting of all accidents, however, would not necessarily be in the interest of the readers of *Soaring*, as often the news of an accident does not reach the office until some time has passed. We now rely on voluntary information from the field. Even then, the information is often sketchy and inaccurate and, as you so properly stated, we do not need more rumors. The reporting of accidents with limited or inaccurate information could hardly be more than the passing on of a rumor. Often the investigation goes on for months and the details are "frozen" to all but civil authorities. Those accidents known to us with reasonably accurate facts will be reported as soon as possible. (Please note the February *Soaring*.)

Looking ahead, a future goal is the establishment of better communications between SSA and the civil authorities, where SSA will not only be better informed by them, but will also serve in an advisory capacity in the investigation of soaring accidents as recommended by Carl Herold, who has represented SSA in such a capacity.

We are also looking for ways to improve accident reporting procedures from the field, and are getting modest results. In all, you can look forward to general improvement in accident reporting.—Stephan Horvath, SSA Safety Chairman.

★ Regarding Mr. Baer's comments about the FAI Identity Card he was issued by the Aero Club of Columbia. The National Aeronautic Association is the FAI member Aero Club in this country which would be responsible for the issuance of FAI Identity Cards and the display of plaques at International Airports. (SSA cannot affirm that there are no plaques at such airports; there may be.) NAA has delegated to the SSA the responsibility of administering the soaring section of the FAI Code, and in this connection SSA issues FAI Sporting Licenses for soaring. Although Mr. Baer refers to his card as a Sporting License, it does not contain those words nor appear to fulfill the requirements of one, as specified in the Code.—Lloyd Licher, SSA Executive Director.

GEHRLEIN PRODUCTS 15-m. GP-1 Sailplane

RD #4 Hamot Road, Waterford, Pa. 16441

Phone (814) 866-1131



FOR COMPLETE DETAILS
VISIT OR WRITE

Complete material construction package available; \$2850

Starter package: stabilizer and elevator construction package; \$180

Full set (28) assembly drawings; \$50 (applicable to material construction package when purchased)

Information package, includes three-view drawing, sample drawing, sample instruction and photo; \$5

Pa. residents add sales tax to above prices

Accidents and Rumors

Dear Sir:

Why are fatal accidents no longer discussed in *Soaring*? Rumor and speculation are no substitute for factual analysis when individual flying techniques may be influenced by the results of such analysis. Three fatal accidents in California during the past several months have, without professional analysis, served to create apprehension in many newer pilots and may have frightened away potential pilots. A few inches of space in *Soaring* could save a life.

R. W. BAER

Redlands, California

Dear Sir:

In the wake of a fatal accident in an AS-W 15, owners like myself have been bombarded with warnings and requests to inspect the tail surfaces for separation of the bonds. Just as fast as these warnings came in, the FAA, which issued them in the first place, suggested we all inspect tail surfaces and all other areas of fiberglass sailplanes for hairline cracks that might point to more severe hidden damage below the surface.

After I had been instructed by the FAA to inspect the tail surfaces visually, it was suggested that sonic and hyper-sonic testing methods be used. I took my sailplane to the plant of Automation Industries, Sperry Division, and after an afternoon probing the surface with a high-frequency probe, we came to the conclusion the method was ineffective without a sample of proven excellency to compare with.

Then I took it to Berkshire Manufacturing Co., (the esteemed makers of Concept 70), and had the finish stripped off the leading edge four inches or so back so the joint where the upper and lower halves of the elevator bond together could be inspected.

Not the slightest suggestion of a bad bond was found. In replacing the finish we added and refinished two layers of glass cloth around the leading edge.

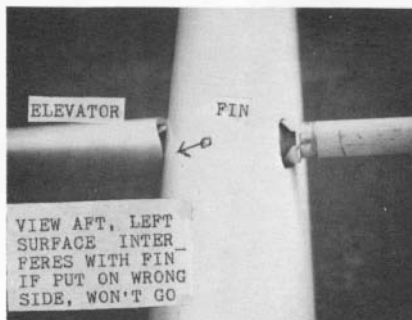
Needless to say I am happier, even though some \$200 poorer. Moral? So far as I know there isn't any.

STEVE DU PONT

Fairfield, Connecticut

P.S.

One of the more interesting rumors arising from these warnings would have us believe it is possible to put the AS-W 15 tail on upside down so that the camber was reversed. Though I have flown mine in the Nationals, I wasn't sure it couldn't be done, so I went out and tried it. I enclose two photos for doubters showing why it is not possible. The sweep back of the fin prevents the full-flying elevator from going far enough to mate the opposite surface to the extent it could be locked. The locking pin could not be inserted because the elevators would have hit the fin before they were far enough on.



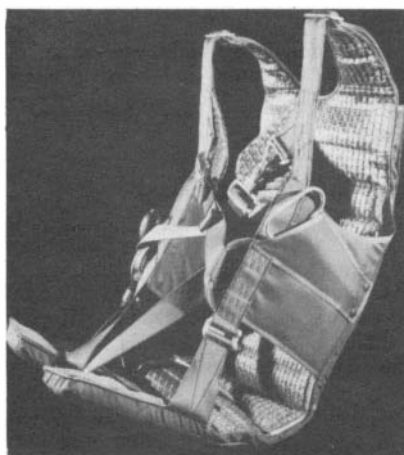
Batteries and Cold Weather

Dear Sir:

We have had several inquiries about cold weather battery problems with sailplane radios and other electrical equipment. Our answers may be of interest to some of your readers.

Especially in wave soaring during the winter, extended high-altitude flight plays havoc with batteries. At -30 to -50°F , batteries are, at best, not very good, and many are completely useless. The best types of battery for these temperatures are lead-sulphuric acid (including gelled types) and nickel-cadmium, with the first having a slight edge. Other types will not work. In addition, the following steps are helpful:

1. Use a larger battery than would be used for warm environments, to compensate for energy capacity loss and increased battery resistance at low temperatures. Larger batteries also stay warm longer.
2. Have battery fully charged before each low temperature flight.



PARACHUTES!



NEW SURPLUS EQUIPMENT

24' Back or Seat Packs — \$90.00
28' Back or Seat Packs — \$90.00

Send \$1.00 for our 130 page equipment catalog. Your \$1.00 refunded with first purchase of \$10.00 or more.

PARA-GEAR EQUIPMENT COMPANY

5138 N. Broadway, Dept. C,
Chicago, Ill. 60640

The "Cambridge"



A superb electric variometer, designed and manufactured in the U.S. Two-year warranty.

Knots or fpm...\$145.00

Audio 60.00

GRAHAM THOMSON LTD.

3200 AIRPORT AVENUE
SANTA MONICA, CALIFORNIA 90405
(213) 398-4714

A NEW KIND OF PARACHUTE . . .

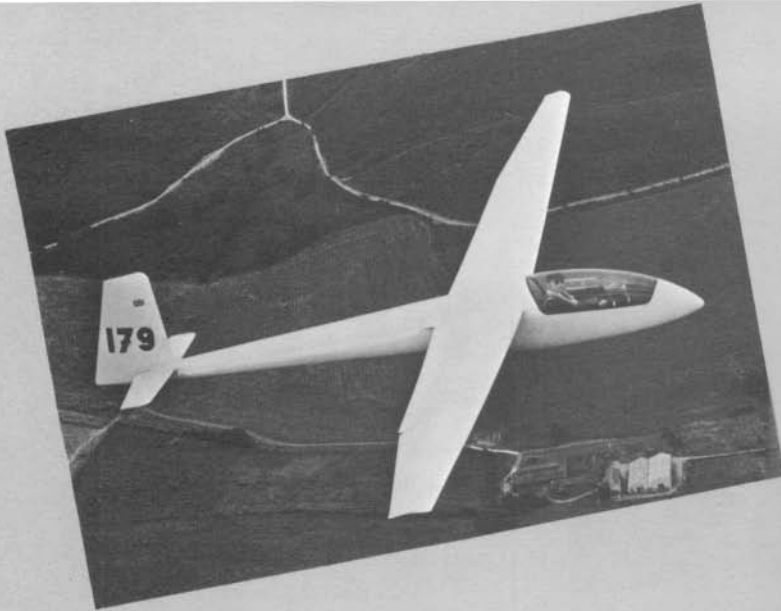
Developed for use in any sailplane.

Thin, light, and comfortable with a four-month repack period.

Certified under TSO-C-23B, available from dealers or order from factory. Information from:

SECURITY PARACHUTE COMPANY

P.O. Box 3096, San Leandro, Calif. 94578
Parachutes since 1927



Compare Torva! – with Standard Cirrus

Compare their beauty. Who is to say which is the fairest of all?

Compare their performance. Put them all up together, with Ben, Dick, Andrew, and George flying them . . . and who can say who will win the day?

Compare wingspans, weights, quietness, thermaling ability, sink rates . . . the similarities far outweigh the differ-

ences. You could choose blindfolded and couldn't go wrong.

How about cockpit roominess, visibility, human comfort? All we ask here is that before you decide, you'd better check Torva!

Now, down to the nitty-gritty. The four most beautiful European fiberglass birds, almost as alike as peas in a pod,

3. Keep battery and radio warm until just before flight, and insulate them with styrofoam, wool, etc. so they'll stay warm longer.
4. If possible, have radio and battery in physical contact with each other, and provide insulation around them. The heat capacity of the battery will keep the radio warm longer. The small power dissipation of the radio (typically 1 watt), will provide a little heat for both.
5. Use earphones, or speakers with 8-16 ohms impedance (instead of 3.2-4 ohms). Keep volume control as low as practical, to minimize battery drain. Use transmitter as little as possible. Sometimes mike clicks may be used as codes to save battery power.

J. W. STREATER,
Chief Engineer,
Mentor Radio Company

Willoughby, Ohio

Reverse Rotor

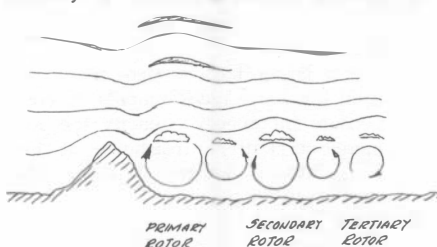
Dear Sir:

Al Santilli did a great job on the wave feature in the January issue of *Soaring*. I have one small detail to add.

In the Colorado area, and probably elsewhere, we occasionally see (or feel) rotor circulation contrary to that shown in the article. These reverse rotations occur at half-wave positions downwind from the primary. A tow into one of these circulations puts one into lift, but the pilot is stranded unless he has enough

altitude to penetrate to a more favorable area.

Walt Hausler has the original of my time-lapse wave film in the SSA Film Library at the Museum in Elmira. A



couple of shots show this "contra-rotation" quite well. Walt indicated it would be available from the library in the near future.

Incidentally, we should have more of Armitage's fine prints published in *Soaring*.

LOU FEIERABEND

Boulder, Colorado

More On Safe Seat Ballast

Dear Sir:

I am glad to see other organizations are doing something about the hazard of "junk ballast" being so frequently used by otherwise safety-conscious pilots. (Murrell Wald letter, *Soaring* Dec. '71.) In Germany a few years ago there was a fatality when a metal plate used for ballast slipped out from under the seat cushion of a young pilot on his first solo and jammed the stick full forward.

Here in our newly-formed club in Venezuela we recently made a weight cushion similar to Wald's using flattened lead conduit sewn into a heavy canvas bag. As an added precaution we riveted two harness snaps to the back edge of the bag which can be quickly attached to the seatback by snapping onto a cable secured there for the purpose. Let's hope all readers see their organizations use safe and secured ballast before one of our featherweight associates learns a lesson the hard way.

R. O. "BUD" CRANOR

Bolivar, Venezuela

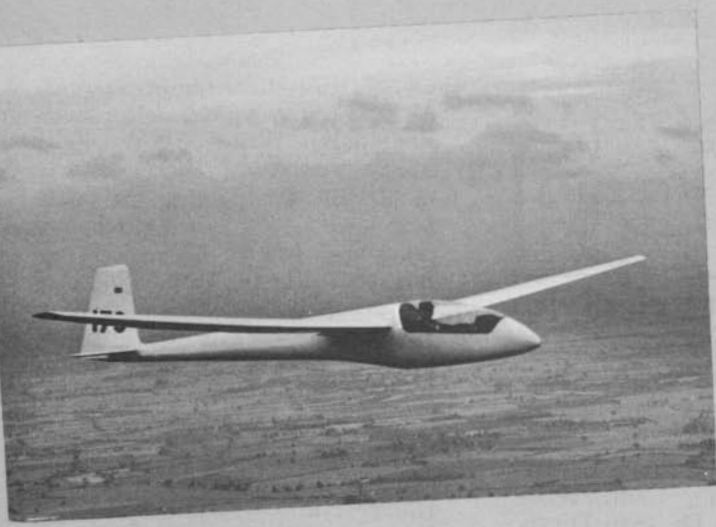
Want to Fly the Flycycle?

Dear Doug:

Thanks for the publicity on man-powered flight projects and prospects in the February *Soaring*. I have been asked why, with all the glider pilots and SSA members, Erik Larson of La Jolla and Steve Slaughter of Los Angeles, who qualify and are working out on the Northrop training rig. The project would like to have at least three teams trained for the Flycycle. Is anyone else interested in trying out?

ROSE MARIE LICHER

Santa Monica, California



Libelle, and AS-W 15

almost. Now compare price, and *that's* where you'll find the difference. Winner hands down is the brilliant new entry from England—Torval!

Send today for the full story before you get on somebody else's waiting list; we may be able to get you the same ship, sooner, and for less money! Torval!

Western Soaring

EXCLUSIVE NORTH AMERICAN DISTRIBUTOR
1812 Delaware St., Berkeley, CA 94703

Pilot's Choice

By GREN SEIBELS

"Witty"

"Gutsy"

"Great"

For all pilots and
soaring buffs

\$6.95

SOARING SYMPOSIA

408 Washington St.
Cumberland, Md. 21502

The new Rainco Mk. IV venturi total energy system



- For sailplanes from Baby Bowlus to Nimbus
- Immediate response to airspeed changes
- Quickly installed
- Only system which is not altitude sensitive
- Eliminates errors from poorly designed static systems
- Ruggedly constructed
- Not affected by yaw or pitch
- Low drag
- Manufactured by RAINCO
- Requires no connection to pitot
- 15 ft. Tygon, water trap, instructions included

The Mk. IV is installed on the static side of the vario system and thus may be used with both variometer and rate-of-climb type instruments. Compatible with Memphis, Badin, Kollsman, PZL, Winter, Ludolph, Friebe, Crossfell, Ball, BSW, Moore, etc., regardless of flask size.

The venturi system of Total Energy Compensation is the one used so successfully by the German & Austrian teams at Marfa and also by Ross Briegleb in winning the 1970 Nationals at El Mirage. Complete kit \$39.50. Prepaid in U.S. (Foreign distributor inquiries invited.)



RAINCO

SAILPLANES AND EQUIPMENT FOR THE CRITICAL SOARING PILOT
2555 E. UNIVERSITY DRIVE
POST OFFICE BOX 20944
PHOENIX, ARIZONA 85036
TELEPHONE (602) 273-1428
AN S.S.A. BUSINESS MEMBER

SAXTON SKY-SPY VHF RECEIVER 108 to 140 mHz

Stop flying around in the "dark." Fly with a Sky-Spy. Know what's going on around you! Know where the lift is—Where to stay away from, by listening to others—

Listen to Unicom towers—123.3

Comes complete with pre-tuned antenna, high-quality magnetic earphone & batteries that are easily obtainable anywhere.

SHOWN
IN
ACTUAL
SIZE

WEIGHS
1½ oz.

Only
\$18.95
ppd.

Makes a
great gift

*Thermal
Radio*

P.O. Box 96
Ridgefield Park
New Jersey 07660
(N.J. residents
add 5% tax)

SOLE DISTRIBUTOR
TO THE SOARING
MARKET. DEALER &
FBO INQUIRIES
WELCOME.



Items listed in bold-face type
are sanctioned by SSA.

Feb. 26-27, 26th Annual Pacific Coast Midwinter Soaring Championships, Torrey Pines Gliderport, San Diego, Calif. Write 3490 Lockwood Dr., San Diego, Calif. 92123.

March 20-25, Wave Flights Wave Camp, Black Forest Gliderport. Write 9990 Gliderport Rd., Colorado Springs, Colo. 80908.

March 25-April 2, 6th Annual PASCO Wave Camp, Minden, Nevada. Write 966 Astoria Dr., Sunnyvale, Calif. 94087.

March 28-April 2, Great Western Easter Boys Camp, Pearblossom, Calif. Write Box 148, Pearblossom, Calif. 93553.

March 29-April 2, Region 5 North Regional Soaring Championships, Chester, S.C. Write 2400 Heyward St., Columbia, S.C. 29205.

April 3-8, Wave Flights Wave Camp, Black Forest Gliderport. Write 9990 Gliderport Rd., Colorado Springs, Colo. 80908.

May 10, SSA's 40th Anniversary. Everyone take the day off and go soaring!

May 20-21, 26-29, Region 11 Regional Soaring Championships, Reno or Minden, Nevada (bid, subject to further approval). Write 1450 Wildrose Way, Mountain View, Calif. 94040.

May 24-28, Region 1 Regional Soaring Championships, Warren, Vt. Write Sugarbush Soaring, Warren, Vt. 05674.

June 5-9, 1972 Mid-Atlantic Soaring Meet, Frederick, Md. (proposed Regionals). Write 531 W. 40th St., Baltimore, Md. 21211.

June 27-July 6, 3rd U.S. National Standard Class Soaring Championships, Marfa, Texas. Write Box 1047, Marfa, Texas 79843.

July 1-4, Kearsarge Soaring Assn. 4th Annual Soaring Meet, New London, New Hampshire. Write H. Smith, Morgan Ridge Rd., New London, N.H. 03257.

July 1-8, 8th Annual North American 1-26 Soaring Championships, Harris Hill Gliderport, Elmira, N.Y. (sanction applied for). Write HHSC, RD 1 Harris Hill, Elmira, N.Y. 14903.

July 9-23, 13th World Soaring Championships. Vrsac, Yugoslavia.

July 18-27, 39th U.S. National Soaring Championships, Reno or Minden, Nevada. Write Box 273, Tiburon, Calif. 94920.

July 22-23, 29-31, Region 10 Regional Soaring Championships, Strother Field, Winfield, Kans. (bid, subject to further approval). Write 2827 S. Osage, Wichita, Kans. 67217.

July 25-Aug. 3, XXIV Canadian National Soaring Championships, Rockton, Ontario. Write 11 Donwoods Dr., Toronto 12, Ontario, Canada.

July 29-30, 3rd Annual Bluegrass Soaring Contest, Harrison County Airport, Cynthiana, Ky. Write RR #3 Box 250-A, Paris, Ky. 40361.

Aug. 23-27, Region 5 South Regional Soaring Championships, Cordele, Ga. (bid, subject to further approval). Write P.O. Box 372, Longwood, Fla. 32750.

Aug. 27-Sept. 3, Region 4 South Regional Soaring Championships, New Castle Gliderport, New Castle, Va. (bid, subject to further approval). Write 775 Virginia Ave., Salem, Va. 24153.

Sept. 2-4, Circle X Soaring Soc. Fall Round Up, Circle X Airport, Mulberry, Fla. Write Rt. 1 Box 170L, Mulberry, Fla. 33860.

Sponsors of all soaring events are requested to submit details so they may be included in the Calendar of Events of future issues.

Prospective participants and visitors should write to activity contacts for information on entry applications, rain dates and practice days.

KIW

FLYING BOOTS
from
NEW ZEALAND



Soft Black Leather • Sheepskin Lined
Whole and Half Sizes 5½ to 13

\$25.00 p.p. from GRAHAM THOMSON LTD,
3200 Airport Ave., Santa Monica, Calif.

SOARING CENTER DIRECTORY



2-33 Most Popular with Clubs — Schools
For Training and Two-Place Fun Soaring

Sugarbush Soaring @*■▲◆●○★x
Warren (Arpt) Vt. 05673
Ph: 802 496-2290

Northeastern Light Aircraft @*▲◆●○
Box 425, Methuen, Mass. 01844
Ph: 617-688-6019

Wurtsboro School of Aviation ▲◆●○★■
Wurtsboro (Arpt) N.Y. 12790
Ph: 914 888-2791

Hudson Valley Aircraft, Box 296 @*▲◆
Randall Fld., Middletown, N.Y. 10940
Ph: 914-343-8883

Kutztown Aviation Services @*▲◆●○★■
Kutztown (Arpt), Pa. 19530
Ph: 215 683-3821

Capital Area Soaring School @*▲◆●○
Warrenton (Airpark), Va. 22186
Ph: 301 559-5140

Berkshire Sailflights, Inc. @*■▲◆●★x
Box 1022, Harriman Airport,
North Adams, Mass. 01247 Ph: 413-664-6188

Bermuda High Soaring School @*▲◆●○
Box 134, Chester (Arpt) S.C. 29706
Ph: 803 385-6061; 385-5764

Franconia Soaring Center @*▲◆●★■
Franconia Inn Airport, N.H. 03580
Ph: 603 823-7705

Lenox Flight School @*▲◆●○★■
Rt. 1, Box 170, Mulberry, Fla. 33860
Ph: 813 425-1352

General Avia. Service @*■▲◆●★x
Reading (Mun. Arpt), RD 2, Pa. 19605
Ph: 215 376-0611

Cardinal Aviation @*▲◆●○★■
Columbiana Arpt., E. Liverpool,
Ohio 43920; Ph: 216 386-3761

Erwinna Aviation @*■▲◆●○★x
VanSant Arpt, Erwinna, Pa. 18920
Ph: 215 847-5230

Northern Ohio Soaring @*▲◆●○■
Jefferson (Arpt), Ohio 44047
Ph: 216 576-4896

Soaring Society of Dayton @*■▲◆●○
Box 581, Dayton, Ohio 45419
Ph: 513 299-1943

West Bend Flying Service @*■▲◆●○★
Box 409, West Bend (Arpt), Wisc. 53095
Ph: 414 334-5603

Southwest Soaring Enterprises ◆●○
Box 665, Rockwall, Texas 75087
Ph: 214 722-8819

J. W. Benz Soaring @*◆●○x
County Arpt., Ionia, Mich. 48846
Ph: 616 795-9767

Texas Soaring Center @*▲◆●○★x
Box 1271, San Marcos, Tex. 78666
Ph: 512 392-9293; 392-7730

Waverly West Soaring Ranch @*■▲◆●
Box 1017, Ft. Collins, Colorado 80521
Ph: 303 568-3374 or 484-5606

Arizona Soaring, Inc. @*■▲◆●○★
Box 27427, Tempe, Ariz. 85282
Ph: 602 568-2318

Wave Flights, Inc. ▲@*◆●○★x
9990 Gliderport Rd., Colo. Springs
Colo. 80908. Ph: 303 495-4144

Great Western Soaring School @*▲◆●○
P. O. Box 148, Pear Blossom, Cal. 93533
Ph: 805 944-2920

Sky Sailing Airport @*▲◆●○★■
44999 Christy, Fremont, Cal. 94538
Ph: 415 656-9900

Eagle Flight Center @*▲◆●○★
Portland-Hillsboro Arpt., Hillsboro,
Ore. 97123. Ph: 503 648-7151

Soaring Unlimited, Inc. @*▲◆●○★
12422 68th Ave. NE, Kirkland, Wa. 98033
Ph: 206 454-2514

Schweizer Aircraft, Corp. @*▲◆●○
1 Airport Rd., Elmira, N. Y. 14902
Ph: 607 739-3821

Key to Symbols

Rides and Instructions Daily @ Weekends and by Appointment @
Sailplane Rentals *Repair Services ■ Airplanes welcome ◆ Restricted
Flight Examiner at Field ▲ By Appointment ▲ Ground Launch for Ratings ○
Sailplane and Equipment Sales ● Food at Field ★ Accommodations x



SCHWEIZER AIRCRAFT CORP.
1 Airport Rd., Elmira, N.Y. 14902

SSA IN ACTION

"I guess you can call me 'Deputy Dog,'" responds **Howard Ebersole** (pronounced EE-burr-saul) when queried as to his duties on the U.S. World Championship Team. Assistant Captain Ebersole is not one of the pilots—**A. J. Smith, George Moffat, Ben Greene, and Dick Johnson** are taking care of that chore, as everyone knows. They have chosen **Paul Bikle** for their captain, and Paul has chosen "Ebe." Once the contest is under way in Vrsac, Yugoslavia, next summer, *Soaring* will report the triumphs of the team and its captain, but observing the comings and goings of Deputy Dog at SSA headquarters this winter made it clear that for him the contest was on *now*.

NEW FROM MENTOR 5x5

Mentor TR-12 is your answer for loud and clear communications. Bring pleasure, efficiency, sharp competitive advantage, and peace of mind to your soaring. Big in value and performance—small in size and current consumption.



Optional
1 to 10 Channel

1 Channel
\$309.00

See your dealer or contact:



RADIO COMPANY
1561 LOST NATION ROAD
WILLOUGHBY, OHIO 44094
Phone (216) - 942 - 2025

"There's no point in having Paul Bikle for team captain," observes Howard Ebersole, "if we wear him out with administrative tasks like arranging car rentals, making out insurance forms, negotiating transportation through NAA, and saddling him with all the other time-consuming details that would keep him from the main job he'll be doing. We've never had a better team, and we've never had a better captain. My assignment is to see that both—the team and the captain—are given the opportunity to concentrate on the things that will win the Championship."

The undertaking is not without precedent for him. In 1963 as a USAF pilot he occupied a similar spot with the Alaska Air Command F-102 interceptor team when it competed with 16 others in Operation "William Tell," a military-type contest designed to establish its own champion.

"There was a similar situation then, too—logistics, maintenance, scheduling, well-meaning people from all over wanting to rub elbows. But we kept our pilot on the targets, and he won."

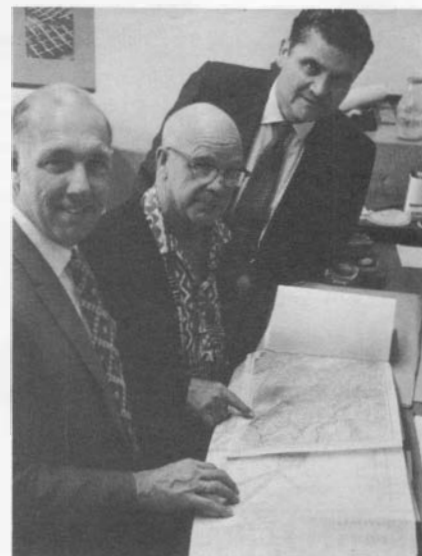
Ebersole sees a parallel at Vrsac.

"We want a cheering section. We need support as much as any team carrying its country's banner in a World Championship contest, so we will welcome visitors in Yugoslavia. At the same time we are counting on them to realize the contest doesn't stop when the ships are on the ground. We'll be competing 24 hours a day and won't have the time, energy, or facilities to help friends find a hotel, locate a doctor, or solve other personal problems."

For the last four months Ebersole has been arranging transportation, establishing crews, writing a team newsletter, communicating with the Yugoslav organizers, securing uniforms, insurance, contest numbers, radio frequencies, and tackling the numberless other tasks required to move his men, machines, and crews to Vrsac. These preparations are coming along, he says, but he worries over a responsibility that is technically not his:

"When we send a man to a World Soaring Championship I don't think we should expect him to dig deeply into his own pocket to finance the trip, as has sometimes been the case. There

are enough of us in SSA now that it shouldn't be a big deal to raise the \$25,000 I budgeted for the trip. Actually, we're in pretty good shape, thanks to the surplus from the Marfa deficit drive and a donation from the corporation sponsoring the Transcontinental Sailplane Race. Maybe we ought to call on Red Wright again, but I think any member who sizes up our team ought to be turned on enough by our chance to win that he'll want to chip in a few bucks toward the \$9,000 we still need. How can we lose? Moffat is current



Howard Ebersole (left) discusses the Vrsac area with Paul Bikle and Ed Butts.

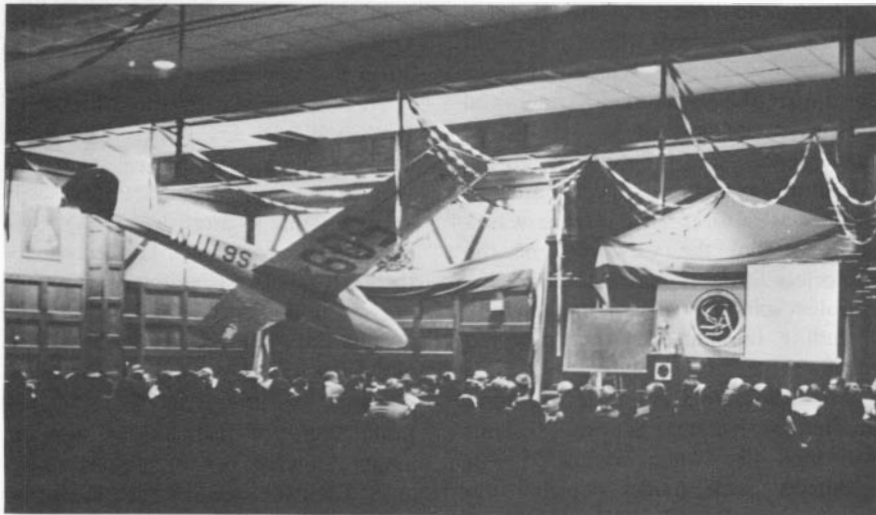
World Open Class Champion, A. J. has held the World Standard Class Championship, Ben Greene is a current World Distance Record holder and a competitive pilot and former U.S. Champion. Dick Johnson has won more Championships than most pilots ever fly, and with Paul Bikle presiding at strategy meetings and representing us before the Contest Jury—well, we're loaded for bear! Just tell it like it is, and ask everyone to pitch in a little!"

Contributions should be marked "U.S. Team Fund," and sent to SSA at P.O. Box 66071, Los Angeles, CA 90066.

1ST SOARING CONVENTION

"He'll never bring it off!" So spake the dubious. 'He' was **Marion Griffith**, and 'it' was the First National Soaring Convention, Marion's brain child.

In times past, the Society's twenty-



A. C. Williams' 1-26 floats above conventioners

six officers and directors had taken care of SSA business at the midwinter meeting with reasonable alacrity and dispatch and scattered forthwith to their respective homes. Unlike the summer Board meeting, which is customarily held in conjunction with the National Championships, there was no reason to stay around. Then Marion, a Braniff Airlines Captain and Texas soaring pilot, as well as an SSA Regional Director, took on the job of hosting the 1972 midwinter meeting, ordered a two-page ad, and came up with this extravaganza idea. In summer, folks go to Texas to soar, but he hoped to attract at least 200 in winter just to *talk* soaring, well . . .

It's over now, and the nay-sayers have had their comeuppance. Three hundred and fifty-two people registered at the three-day affair at Dallas, January 21-23. Judging from the crowds watching the films, looking at exhibits, listening to the meetings, and speaking their piece at the gathering of the general membership, there appeared to be considerably more.

Any doubts aroused by the moribund London double-deck omnibus that ferried members between the airport and a labyrinthian motel masquerading as an English castle were soon dispelled. It was obvious the facilities behind its crenelated battlements provided an ideal setup for the Convention. A spurious but enormous baronial hall was designed to be ingeniously divided into four smaller halls. One of these was left undisturbed for static displays, while the others were used singly or in com-

bination as required by the program.

Throughout the meeting, a large, comfortably-appointed foyer buzzed with the ebb and flow of "flock talk." Here members buttonholed their Directors to express a view, ask a question, give a pat on the back, or simply exercise that most sacrosanct of privileges—hangar flying.

All this as Marion Griffith had announced. Meticulous planning and thoughtful organization succeeded in transforming a routine business meeting into the kind of resonant gathering its originator intended. It was a happy and auspicious innovation, and bodes well for the Society's future.

Soaring Symposia's Ed Byars, who with partner Bill Holbrook planned and staged the program, estimates that a literal transcript of the formal proceedings would run to a minimum of half a million words. If *Soaring* were to devote its pages entirely—without ads or pictures—to this Niagara of words, reprinting would require every issue until next year's Convention. Nevertheless, Executive Director Lloyd Licher's Convention Report essays this formidable task in digest form elsewhere in this issue.

One wishes it were possible for the entire SSA membership to have somehow been present to watch the deliberations of their Board. On most agenda items there was a fair consensus, and business was transacted with an ease and skill that bespeaks the caliber of men who serve soaring. The Directors are not always of one mind; such things as single-place train-

ing flaps, and Standard Class definitions have precipitated controversy in the past. In this meeting there were disagreements again, and an observer, noting the degree of involvement, has to remind himself these men are *volunteers* who attend and serve at considerable personal expense. If you have an ear for such things, it's drama, real theater. At times emotional tightness underlies advocacy and debate; the Board acquires the aura of a national deliberative body wrestling with problems of state rather than water ballast or wing loading. There is the skillful thrust and parry of the parliamentarians, the crossing of sectional lines, the grouping and regrouping of common interest groups—and the *impasse*.

On the second day, the proceedings had ground to a halt on a policy matter dealing with the relationship of SSA vis-a-vis the ultralight movement. Time was slipping away despite the prodding of President Miles Coverdale; SSA's decision-making apparatus was stalled on dead center. After a series of convoluted motions and amended motions, the Board was on the point of an accommodation repudiating an established position, waiting a six-month period, and then settling upon a new policy based on studies during the interim.

A sense of uneasiness pervaded the room. Something seemed wrong, but despite their skill none was able to articulate the vague misgivings. Texas humor clarified the problem.

"Say, wait a minute, fellers," barked the gravelly voice of E. J. Reeves. "You're tryin' to leap a chasm in two jumps, and it *cain't* be done!" Within moments the matter was resolved with a decision to continue the existing policy until the next meeting when study committees would report to the Board with recommendations.

If interest flagged watching the Board struggle with its problems and decisions, there were other things to see. Film projectors were busy with frequent showings of outstanding gliding movies. Two of these attracted particular attention in view of the ultralight controversy. Director Harry Higgins reported later to his Region Eight constituents via *Towline*, newsletter of the Seattle Glider Council.

Commenting on the first film, a clip of an early meet, he wrote, "Except for a competent series of flights by a Rogallo para-glider, this was a debacle with a series of prangs involving 'Hang-Loose' biplane gliders. No serious injuries were reported, due only to the very low altitudes achieved by these marvelously inefficient contraptions.

"The second film was a completely different matter. In it **Taras Kiceniuk** flew his *Icarus* swept-wing tailless biplane hang glider . . . with flawless perfection. Taras is a very competent and articulate 17-year old . . . (who) steps off bluffs in the 65-pound *Icarus* and slope soars with great precision. The standard hang glider crash involving a gust upset into a spiral dive is just not a problem in this glider. Taras can initiate steep turns and pick up a wing with no hesitation . . . I am convinced that he will succeed in escaping from ridge soaring and conduct normal soaring flights in his hang glider. His sink rate is reasonably low and he should be able to turn in a 100-ft. circle."

For wives and other distaffers, a trip to Dallas' Neiman-Marcus emporium proved an adventure when one of the ailing double-deckers expired en route. Nevertheless the visit appeared a success, though one shopper expressed minor reservations to a friend: "Gee," she complained, "I was hoping to see the solid gold Cadillac or a pile of diamonds on display." "Me too," replied the other, "They could have had an A-21J, at least."

As a matter of fact, the Caproni A-21 did come close to making an American debut, though it was not the jet version, and its appearance was scheduled for the Convention, not Neiman-Marcus. The Italian super-sailplane had completed a difficult airlift from Milan to Boston as the Convention opened. "Where is it now?" became a standard greeting of those who were following a stint of marathon trailering by an AviAmerica crew racing to beat the Convention's close. (Unfortunately they didn't make it and the unveiling was rescheduled for the Torrey Pines Meet.)

For those of a mind to try their swapping skill, the Convention operated a Trading Post—for gliders, of course.

Peripatetic types could stroll through the static display hall where they could observe operating instrument panels, scrutinize the jewel-like Sermel and Eclair jet engines, sit in a full-sized "land sailer," and browse through the literature of clubs, operators, and dealers at leisure. This feature was a success from the viewpoint of the motorless business man, too. One distributor sold every item he brought, including the batteries that powered his booth!

Most spectators got their first look at what the National Soaring Museum will look like when completed. An architects' scale model depicted the distribution of land and buildings on historic Harris Hill.

Some conventioners were attending special meetings held concurrently with the SSA Board. These included the 1-26 Association, SSA Business Members, and Fixed Base Operators.



JAMES ELLIOTT

Like the general membership, they are interested in seeing the sport grow and thrive, and some report promotional efforts of their own. For instance, several operators have purchased large quantities of *Soaring* which they place on newsstands through distributors, or on airliners for passenger reading. Flyers are inserted in the magazine calling attention to the location of the operator's gliderport. Another, recalling the upswing in SSA growth that followed the showing of Walt Disney's "Boy That Flew with the Condors" on TV, contacted the studio. "Could it be shown again?" he asked. "Certainly," was the reply, "if enough people write in requesting it." The address: **Mr.**

Ron Miller, Executive Producer, Walt Disney Productions, 500 South Buena Vista St., Burbank, CA 91503.

At Marion Griffith's behest, Bill Holbrook and Ed Byars drew upon their symposia experience to present various personalities identified with specific fields in motorless flying. **Bennett Rogers** foresaw a larger role for the self-launched sailplane growing out of many problems intrinsic to present-day soaring. **A. J. Smith** reviewed progress on the Design Competition, clarifying its purpose and tantalizing listeners with new developments growing out of NASA assistance. **Dick Johnson** retraced the evolution and development of modern contest rules from their inauspicious beginnings at the first Nationals in Elmira. **Joe Faust**, editor of *Low & Slow*, presented his viewpoint on the basic similarities and differences between conventional and ultralight self-launched gliding. He feels the similarities are more important than the differences and urges SSA to keep its doors open. **Lloyd Licher** and **Doug Lamont** outlined specifics of how the Society and its journal operate, and **Bill Ivans** completed the afternoon series with his recounting of efforts over the years to develop simple, reliable, and cheat-proof turnpoint identification techniques.

The evening banquet was highlighted by **Gren Seibels'** witty after-dinner speech and announcements of the Society's annual non-competition awards. "I'd like to offer a syllogism,"



Gren Seibels

JAMES ELLIOTT

Gren began. He held up one finger. "First, I am a soaring pilot." A second finger went up: "I am also a happily married man. Therefore," he raised a third finger, "I am an expert diplomat!" The popular writer went on to laud and lampoon his audience with a polished humor that won enthusiastic plaudits from his listeners. There is no doubt he is equally adept with the pen or at the podium.

Master of Ceremonies, Bill Holbrook, called upon **Floyd Sweet**, Chairman of the SSA Awards Committee, for an assist at another Convention "first"—the presentation of Gold Medallions to past SSA Presidents. Sweet, who served as an SSA President himself in 1954-1957, enlivened the ceremonies by virtue of his personal acquaintance with nearly all of the succession beginning with Warren Eaton in 1932.

The Eaton Memorial Trophy is SSA's highest award. The recipients this year were **Walter and Florence Hausler** who also received a \$325 check in recognition of 18 years of service spent building and administering the SSA Film Library—a 100-film lending service now housed in the interim National Soaring Museum on Harris Hill. **Wally Scott's** 578-mile September flight won him the Barringer Memorial Trophy (awarded for the greatest straight-line distance flight during the previous season) for another year. His still-standing World Distance Record with **Ben Greene** made him co-holder in 1970.

To his already impressive list of laurels, **Paul Bikle** added the 1971 Tuntland Award (for his "Polars of Eight" in *Soaring*). He is the only three-time honoree—something of a record in itself. The record flights of **Karl Striedieck** and **Joe Lincoln** earned SSA Exceptional Achievement Awards, while **Red Wright's** clarion appeal for the membership to wipe out the World Championship deficit won him the SSA Exceptional Service Award.

In a way, the end of the Convention—the General Meeting—underscored Marion Griffith's goal. The session was an open forum that made up in verve what it lacked in numbers. Coverdale's solicitation of expression encouraged a give-and-take-quality to the final meeting that was summarized

by an exchange overheard between two members as they stood awaiting transportation to the airport.

"How do you feel about the convention now?"

"Soaring, man, soaring!"

FAA AIRWORTHINESS DIRECTIVE

The December 28th issue of the *Federal Register* contains an FAA Airworthiness Directive which states that a number of Piper Model PA-18 aircraft with 150-hp. Lycoming engines have engine-mount assemblies installed which are not designed to stand the loads imposed by that engine. The Directive specifies replacement within 25 hours service time of the date of the AD announcement. Compliance is mandatory for the legal operation of these aircraft. Further information should be obtained from the FAA, Box 25082, Oklahoma City, Oklahoma 73125.

IS YOUR NUMBER UP?

Everyone on record with SSA as having an official contest number assigned to his sailplane has been informed by mail recently of a shortage of such numbers. A questionnaire enclosed asked what SSA-sanctioned contest the sailplane was last flown in, whether the owner intends to fly it in future contests, who presently owns the ship, whether the number is actually on the sailplane, etc.

Please note that contest numbers are assigned to sailplanes, not to people, and that unless prior arrangements are made, the number goes with the sailplane when sold. Additionally, numbers are assigned solely for use in contest procedures associated with SSA-sanctioned contests. Yet almost all of the some 900 contest numbers have been issued while less than 250 sailplanes compete yearly. Rather than impose a "user fee" to encourage the return of dormant numbers, the SSA Board of Directors decided at its recent winter meeting to release the alpha-numeric series with about 250 additional numbers (A1, A2, etc.). However, the return of contest numbers not in use is requested still.

If you own a sailplane with a contest number, you should have received a copy of this questionnaire mailing by the time you read this issue of *Soaring*. SSA member Al Thomas has worked with some very old (and sometimes

confused) records to make the mailing, so you may not receive a copy, or you may have received a copy with outdated or incorrect information. If you did not receive a copy, please let SSA (Box 66071, Los Angeles, Calif. 90066) know. All contest numbers not claimed by March 21, 1972, will be considered open for reassignment, even if only recently assigned.

W.A.A.

TIE DOWN

A chartered aircraft carrying a state legislator made a forced landing when its fuel ran out. All would have been well if the plane had not run into a slow moving car during roll-out. Next day the law maker introduced a bill requiring loud horns on airplanes and gliders using his state's airspace . . .

BOOK REVIEW

The Art and Technique of Soaring, by **Richard W. Wolters**, 197 pages, McGraw-Hill Book Company, New York, 1971, \$14.95.

This text by "Old Dog" Wolters, a two-Diamond pilot whose articles have appeared in *Soaring* during the past couple of years, is a welcome third book of this type written and published in the United States. The others are *The American Soaring Handbook*, by various authors, and *The Joy of Soaring*, by Carle Conway. All three have slightly different points of view, but in the opinion of this reviewer there are no significant differences over-all. Anyone who digs into the problems of instructing soaring flight soon finds that there are different opinions among many good instructors as to details of technique, and, as might be expected, there frequently is more than one way of instruction which will give equally good results.

A book of instructional techniques should be examined closely not so much to find out if it agrees with others, but to see if it proposes any ideas which might be dangerous to some students. While *The Art and Technique of Soaring* does not agree exactly with other texts, it passes the acid test by espousing no questionable or dangerous techniques, and thus is recommended as a sound addition to any soaring library.

The first step one should take on

getting the book in hand is to read the inside flaps of the jacket and then throw the jacket in the trash. There is a beautiful binding underneath the unnecessarily garish jacket and the design of the inside is very good. As might be expected from an author who is an art director for the publisher, the quality of the photographs and drawings is superb.

Many of the maneuvers are illustrated by synchronized pairs of photographs, one showing the instrument panel and the pilot's view of the horizon, and the other, a view looking back at the fuselage from a camera mounted at the wing tip. The photos are great, particularly those from the pilot's seat. Unfortunately, the wingtip shots are printed with the wing underside always horizontal on the page so their value in showing attitude changes is not great, except in one shot showing a spin (on page 89) when the print is oriented so the horizon is in its normal place. The result is a very spectacular feeling of the attitude in a spin.

The introductory chapter, "You Should Know," is extremely good and answers clearly and frankly the usual questions raised by beginners.

On the critical side, there are few points of importance. On pages five and six, the "Sea Breeze" effect is

properly described but without identifying it as a special case of the more generalized phenomenon of convergence, which is touched on briefly on page 130. In several places while discussing aero tow, the old myth of "prop wash" is perpetuated. We have known for some years that the major cause of turbulence behind the towplane is downwash from the wings and wingtip vortices, not "prop wash." There are a few typos as is usually the case in first editions, and one major mix-up in captions of two photos on page 98 where "2" is captioned a slip when it is a skid, and "3" is captioned a skid in a left turn but is a slip in a right turn. In discussing cross-country altitude requirements on page 181, it states that "Even in poor conditions you would still have a half hour of flying left . . ." (from 3,000 feet). This might give a false sense of security because if "poor conditions" means zero sink, your sink rate would have to be 1.7 fps to stay up 30 minutes, and there aren't many sailplanes with that low a sink rate.

The last paragraph of the book says "Whether it's high performance or low, the mechanics of soaring are only one aspect. The big job is acquiring a soaring sense. It's almost magical, and the only way it's acquired is by experience." It couldn't be better said.

components. Harmonized controls simplify handling for club-type pilots, and the ships' ability to land slowly in small English fields is a welcome bonus, whatever the country."

Deliveries will start in the U.S. next month.

WAIKERIE, AUSTRALIA, 1972

When the FAI Gliding Committee met last year to select a host country for the next World Gliding Competition, Yugoslavia was chosen for 1972 and Australia for 1974. The Gliding Federation of Australia has named Waikerie airdrome as the site of the 1974 World Championships. Preparations for this event were already evident at Waikerie when nearly 100 pilots, some 50 sailplanes, and 5 towplanes gathered for the Twelfth Australian National Gliding Championships held from December 27th to January 9th.

Waikerie airdrome is a large grass field with adequate room for contests of any size. It is the home base for the Waikerie Gliding Club which conducts flight operations there 360 days a year. Facilities include a large hangar, shops, administration building, clubhouse, swimming pool, and bunkhouse. A new clubhouse and a new irrigation system (both with government support) were already under construction to provide improved conditions in the future.

The town of Waikerie, population about 2500, is 125 miles northeast of Adelaide and 700 miles west of Sydney. This part of the state of South Australia is generally flat with an elevation only several hundred feet above sea level. Most flying takes place in a region west and south of the Murray River, an area which runs about 60 miles south, 100 miles east, and 30 miles west of the airdrome. The airdrome itself is two miles east of Waikerie. Sailplanes can land nearly anywhere in this area in the numerous paddocks (fields) which are large enough for easy air tow retrieves. This method of retrieve is the rule rather than the exception.

Both the 1972 and the 1973 Australian National Contests were scheduled for Waikerie to provide the best possible shakedown for the operation and facilities for the World Contest in 1974. This year was a year of transition with many aspects dictated

THE FOREIGN SCENE

TORVAS DUE IN U.S.

German domination of the lucrative fiberglass sailplane market may be facing a challenge from England's new Torva sailplanes, the *Sprite* and *Sprint*. Quantity production is underway at Torva Sailplanes, Ltd. in Scarborough, England, according to Western Soaring's Duane Sprague, U.S. distributor for the new craft. "The Torvas will be competitive not only in the air, but in cost as well," Sprague says. "These 15-meter sailplanes are scheduled to sell for about 14% less than their German counterparts. This can mean savings in the neighborhood of about \$1000 ex works."

The two versions are basically the same aircraft with such niceties as water ballast, ancillary wing devices, and a retractable sprung gear being featured on the *Sprint*. The Torvas are creatures of the English weather and have been designed for good climb in weak thermals through the use of a modified Wortmann high-lift section. The performance figures list a maximum glide slope ratio of 38:1, and a min. sink of 1.85 ft./sec. Sprague says penetration suffers little, if any, from this emphasis, and the sailplanes should be contenders to reckon with in serious Standard Class competitions. "However, the Torvas are intended as practical club ships as well," he says. "For instance, the fuselage is computer-lofted to accommodate a large pilot comfortably, not with the smallest possible frontal area in mind. Maintenance is facilitated by interchangeable parts on the major



Waikerie and airport (beyond first bend in Murray River).

by local custom, the trial use of the Wallington scoring method, and the first use of new startline and turnpoint photographic procedures which were adopted from those used at the Marfa World Contest in 1970. It appeared there was a great deal of interest and adequate personnel available to iron out the problem areas before the Competition.

In this year's Nationals, almost all sailplanes were flown by two pilots so that, with fourteen possible contest days, the most any one pilot could fly was seven days. An effort was made to rotate pilots through a scramble system that permitted competition on a fairly equitable basis, but limitations of the system resulted in only partial achievement of this objective.

Contestants flew in three classes: Standard, Open, and Sports. Scoring was for individual pilots in each class and also for teams in each class. Tasks were the same for the Open and Standard Class, but separate tasks were used for the Sports Class.

Standard Class was the most popular with about 22 sailplanes and nearly 40 pilots. All but three sailplanes in this class were glass ships. Five were Open Libelles flying with fixed flaps. There were 8 Standard Libelles, 2 AS-W 15's, 2 Standard Cirrus, 2 Foka V's, and one each of Salto, Phoebus B, and SH-1. Some 17 sailplanes including 9 Boomerangs, a K-6, a Blanik, a Tern, a Foka V, an L Spatz, an HP-10, a Vasama, and a Skylark IV were flown in the Sports Class by 35 pilots. There were only

21 pilots and 12 sailplanes in the Open Class. Open sailplanes were, 1 Kestrel-19, 2 Kestrel-17's, 2 Open Cirrus, 2 Open Libelles, 1 Phoebus C, 1 Diamant 17.2, and 3 HP 14's.

As is often the case, "very unusual" weather prevailed for most of the contest. Three days were no-contest days, and two contest days resulted in few pilots completing the task. The weather on the other nine days was reasonably good with thermals from 4 to 5 knots up to altitudes of 5 to 6000 feet. Altitudes as high as 10,000 feet were possible for brief periods on two of the days.

Dinner in the hangar on the evening of the final contest day, January 9th, ended with awards made to the winning pilots by Sir Donald Anderson, Director General of the Department of Civil Aviation. Malcolm Jinks, flying an Open Libelle with fixed flaps was the Standard Class Champion. The Open Class was won by Ingo Renner in the 19-meter Kestrel. Announcement was also made of the Australian World Team pilots

who would fly at Yugoslavia in July, 1972. These were Renner (1) and Jinks (3) along with Tony Tabart (2) who had placed third in the Open Class and, M. Bradney (4) who had placed fifth in the Standard Class.

It was my good fortune to be able to fly an HP-14T in this contest. My teammate was Jan Coolhaas, one of the owners of the sailplane. For reasons not yet determined by the end of the contest, Jan had to parachute out of the sailplane on the last leg of the task on the ninth contest day. Up to that time I had flown the sailplane for about 35 hours during the contest and practice period at Waikerie as well as some flying at Bathurst about 500 miles farther east.

PAUL BIKLE

Pilot "A", HP-14T, Contest #70

SOARING THE ALPS FOR FORTY CENTS PER HOUR

Many a U.S. enthusiast who dreams of mountain soaring in the Alps never gets off the ground because of his assessment of economic realities. SSA'er J.W. Gotcher, a professor in the Business and Economic School of a California State College, has written an article titled "The Economics of Soaring in the Alps," which may revive hopes. The following is excerpted from his manuscript.

The small storybook village of Kufstein, Austria is complete with a castle and a beautiful ridge for soaring. It is almost like stepping out of a fairy tale with seven league boots onto the top of a puffy white cloud. After an almost straight-up climb on a 2000 ft. winch line, and the quick release of the tow cable, one is hardly prepared for the breath-taking view and the proximity of sheer rock walls. The best lift comes very close to the cliff face. The appropriate distance for the wing tip is three feet away from the cliff, that is, except in case of a big outcropping of rock, when one simply lifts the wing momentarily. After seven traverses examining the small crevices in the escarpment, one bursts out on top of the mountain at an altitude of about 2500 feet and soars on upwards on continuing ridge lift. The beautiful snow-capped Alps are in the background and they beckon anyone who wishes to try for altitude, distance, or for sheer enjoyment of

TRANS-U.S. RACE

Paul Bikle will be an entrant in an invitational transcontinental sailplane race scheduled for the beginning of May. Ed Butts will serve as Competition Director for the first-of-its-kind event. The race is sponsored by the Smirnoff Division of the Hublein Company. The firm is making a substantial contribution to the World Championships Team Fund.

ULTRALIGHT, HAWAIIAN STYLE



Dear Reader . . . On the way back from Dillingham we wound up the windward side of Oahu to the top of the Pali and got out of the car to look at the view. The trade winds slammed us against the car. We crawled on hands and knees to the railing and peered over.

"Impossible to end it all here by jumping over," our trusty guide told us. "The wind blows you back up over the railing. It blows eighty miles an hour."

I thought about that all the way down the Pali and into the land of the High Rise and Tourist Trap. Maybe I could fly! Next morning at dawn I donned a voluminous muumuu and, giving my traveling companion the slip, drove up the mountain to the Lookout. I parked in the shade of a tree fern. Clutching the muumuu tightly around me I tottered windward to the railing. Not a tourist in sight. The commuter crowd zoomed into the tunnel below. Cautiously I released the folds of the muumuu, spread my arms like wings and leaned into the wind. My feet flew out from under me and I landed flat in the volcanic dust of the parking lot. Fortunately I had left my glasses in my purse in the car. I lay there a moment thinking things out. Lacking a Rogallo wing, how could I increase my lift area? I crawled back to the car and scanned the interior. Beach towels? No. The mats! Those reed mats we sit on at the beach. I rolled them firmly and held them at my sides against the ballooning muumuu. Back at the railing I cleverly unfurled the mats, simultaneously releasing the gathered folds of my billowing skirt. The updraft upflung the mats (and my arms) and filled the skirts of my colorful Hawaiian muumuu and turned it inside-out right over my head. I hovered there like a parachutist till the flutter of the mats wrenched them out of my hands and the muumuu sailed over my head after them. Stripped, as it were, of everything but my bikini and tossing like an autumn leaf in a dust devil, I made a hard landing on the hood of the car and rolled to a stop on the volcanic rock of the parking lot in the shade of that tree fern. So much for scientific research. Next time I'm taking a Rogallo wing. —Aloha!

Elena Klein's account of her astounding, fuel-less, self-launched, ultra-ultralight flight appeared in WESTWIND, which she edits for the Pacific Soaring Council.—Ed.)

flying among such natural beauty.

What does this cost? Is it for the Jet Set only?—No! Presently the Kufsteiner Fleiger Club consists of seventy people, nine gliders and no towplane. Only about fifty of the flyers are active, which allocates approximately five persons per glider. Among the gliders, the popular ones are the Bergfalke II and III from Germany and the Planikl 13 from Czechoslovakia, which is an excellent aerobatic plane. The club initiation fee is \$70.00 with an additional yearly \$11.40 maintenance charge to remain in good standing. Members may receive all of their pilot instruction in the club; many of the instructors started flying originally with the club and have flown only in the nearby area. If a person is flying solo in a single seat aircraft, the cost is \$.40 per hour and for a two-place aircraft, *including the instructor*, the cost is \$.57 per hour. Needless to say, although the instructor is paid by the club, he is available free to the members. How can one fly for this cost? There is an additional factor. Each club member contributes thirty hours per year or pays a penalty of \$.46 per hour for each hour he doesn't work. An introduction to flying is certainly simple in Kufstein. An instructor is on duty every day to carry passengers or to instruct club members. For his services he is paid \$38.00 per month and his food. There is a lovely restaurant right on the grounds which is an excellent place to sit and watch the gliders while awaiting your turn to climb in and go soaring in the Alps. A commercial license and a minimum of 100 hours glider time are required to fly passengers. For a passenger the cost is \$8.00 per hour including all expenses, tow, sailplane and instructor. Fifty percent of the income of the club is earned in this manner; if you are fortunate enough to bring your own glider, you pay \$1.96 for a start. *(For those considering a trip it is recommended they correspond with the Österreichischer Aero-Club, at Prinz Eugen Strasse, 12, Vienna IV, AUSTRIA.)*

After the day is over and the sun is setting and the birds are in the hangar for a rest, one will hear "Glück ab, gut land." Good luck, happy landings.



WAVE FLIGHTS
A PIONEER IN ITS FIELD
OFFERS ANOTHER FIRST

A low-cost package Vacation plan for as little as \$258.-*

Take advantage of low package rates and treat yourself to the romance of Soaring in Colorado at America's most outstanding Soaring Center. Get a head start on your summer soaring while you enjoy Colorado's year-around thermal and wave conditions. If you are a Skier, combine a week of soaring at Black Forest with a second week of fun and recreation in the heart of Ski Country U.S.A., only a 2½-hour drive away. Our low-cost package plans include 7 nights in the men's dorm and up to 6 days of unlimited flying time. If you prefer a private room with bath at the Lennie Inn, just add \$40.- to package price. The evenings are yours to sample the variety of cuisine in the many international restaurants of Colorado Springs, a famous year-around resort community. Or you may prefer to relax at the club house and join in the tales and adventures of yester-year with pilots from all around the world.

*PRICES DO NOT INCLUDE MEALS, TRANSPORTATION OR OFF FIELD LANDING RETRIEVES

PLAN # 1 (Beginner to Solo) \$268.00*

Fly Monday through Saturday (6 days) — 7 nights in men's dorm at Black Forest Glider Port.

Minimum of 24 flights including tows and instruction

Maximum of 32 flights including tows and instruction

For reasons of non-flying weather only, which may prevent a person from using his minimum 24 tows, a credit of \$7.00 per tow for tows less than 24 will be refunded.

*We are unable to guarantee you will solo.

PLAN # 3 \$348.00*

(For glider pilots with private glider rating or better) .

Fly Monday through Saturday (6 days) — 7 nights in men's dorm at Black Forest Glider Port.

Unlimited flying time in 2-33, 1-26, 1-34 or 2-32. Up to 72,000 feet of local tows for the six-day period. No instruction charge for required proficiency check rides.

During the six-day period, should weather prohibit flying for any given full day, you have the option of being refunded \$48.00 for that day and 12,000 feet of tows subtracted from the balance of your unused tows to date.

PLAN # 2 \$258.00*

(For glider pilots with a private glider rating or better) .

Fly Monday through Saturday (6 days) — 7 nights in men's dorm at Black Forest Glider Port.

18 hours of total flight time in Schweizer 2-33 or 1-26.

Up to 48,000 feet of local tows for the six-day period. No instruction charge for required proficiency check ride.

During the six-day period, should weather prohibit flying for any given full day, you have the option of being refunded \$32.00 for that day and 8,000 feet of tows subtracted from the balance of your unused tows to date.

*Includes oxygen, barograph, parachute and B.E.I. radio.

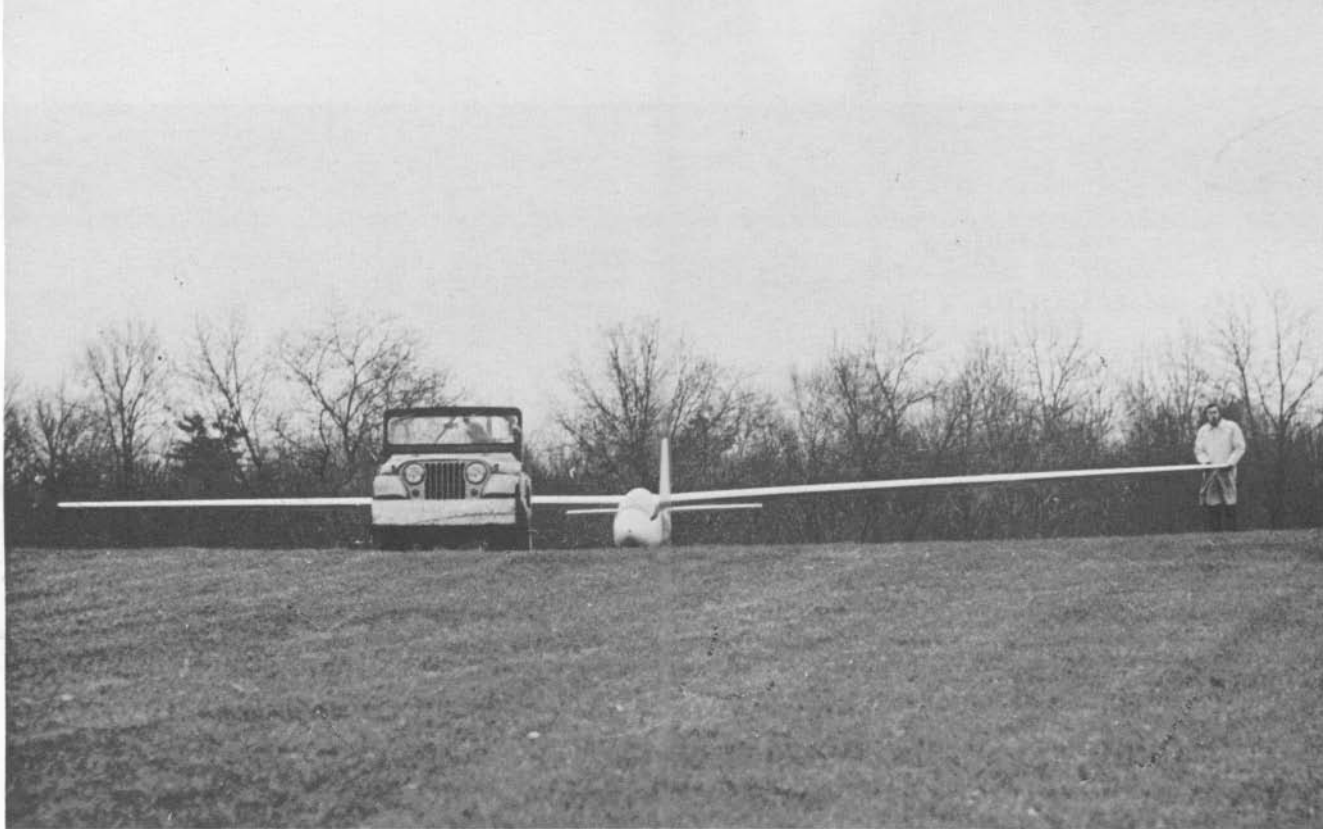
Your soaring vacation calendar for 1971

| | |
|-----------------------|----------------------|
| September 20th - 25th | December 13th - 18th |
| October 4th - 9th | February 14th - 19th |
| October 18th - 23rd | March 6th - 11th |
| Nov. 22nd - Dec. 2nd | April 10th - 15th |
| April 17th - 22nd | |

Please make your reservations early!

Enclose \$25.- deposit with reservation — Refundable with 2 week notice

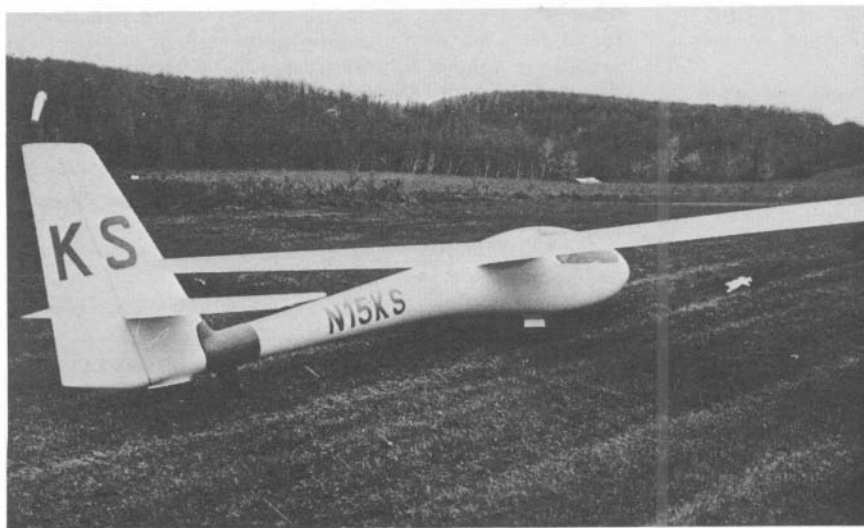
WAVE FLIGHTS, INC. 9990 GLIDERPORT RD., COLORADO SPRINGS
PHONE (303) 495-4144 COLORADO 80908



Hi-Ho, Kimo Savy!

The story of a Pennsylvania Ridge Runner's ride
to a 569-mile World Out & Return Distance Record.

Kimo Savy — Karl Striedieck's AS-W 15



In soaring, no less than in other fields, old ideas die hard. *Example:* Winter is a period of hibernation when one's sailplane should be immobilized for the duration. *Example:* Nobody uses ridge lift any more for serious record attempts in cross-country flying. *Example:* The only places where the odds are good for breaking distance records are in Texas.

Six years ago, from the cockpit of a jet above Pennsylvania, Karl Striedieck pondered these soaring shibboleths while he studied the Alleghenies' wrinkled pleats on the earth's crust 45,000 feet below. From his vantage point he let his eyes range along the parallel ridges that arose on the continent's northeastern seaboard, passed underneath him, and continued beyond the limit of vision in the southeast. He suddenly realized there were acres of diamonds right in his own back yard.

"I had already soared 40 or 50 miles along Bald Eagle Ridge near Penn State where I went to school. We used to auto-tow a 2-22 in the Nitanny Club there, and we'd talk about making records along the ridges, but actually seeing the possible routes

from that altitude made me decide to give it a real try."

As most *Soaring* readers know, he was eminently successful when the opportunity finally came in March of 1968. (See "Confessions of a Pennsylvania Ridge Runner," *Soaring*, May 1968.) Establishing a 476-mile World Out & Return Distance Record in a Ka-8 in winter by slope soaring mountain ranges was received by the motorless community in what might be called a slow "double take." Apparently none of this deterred Striedieck, but in case anyone missed the significance of what happened the

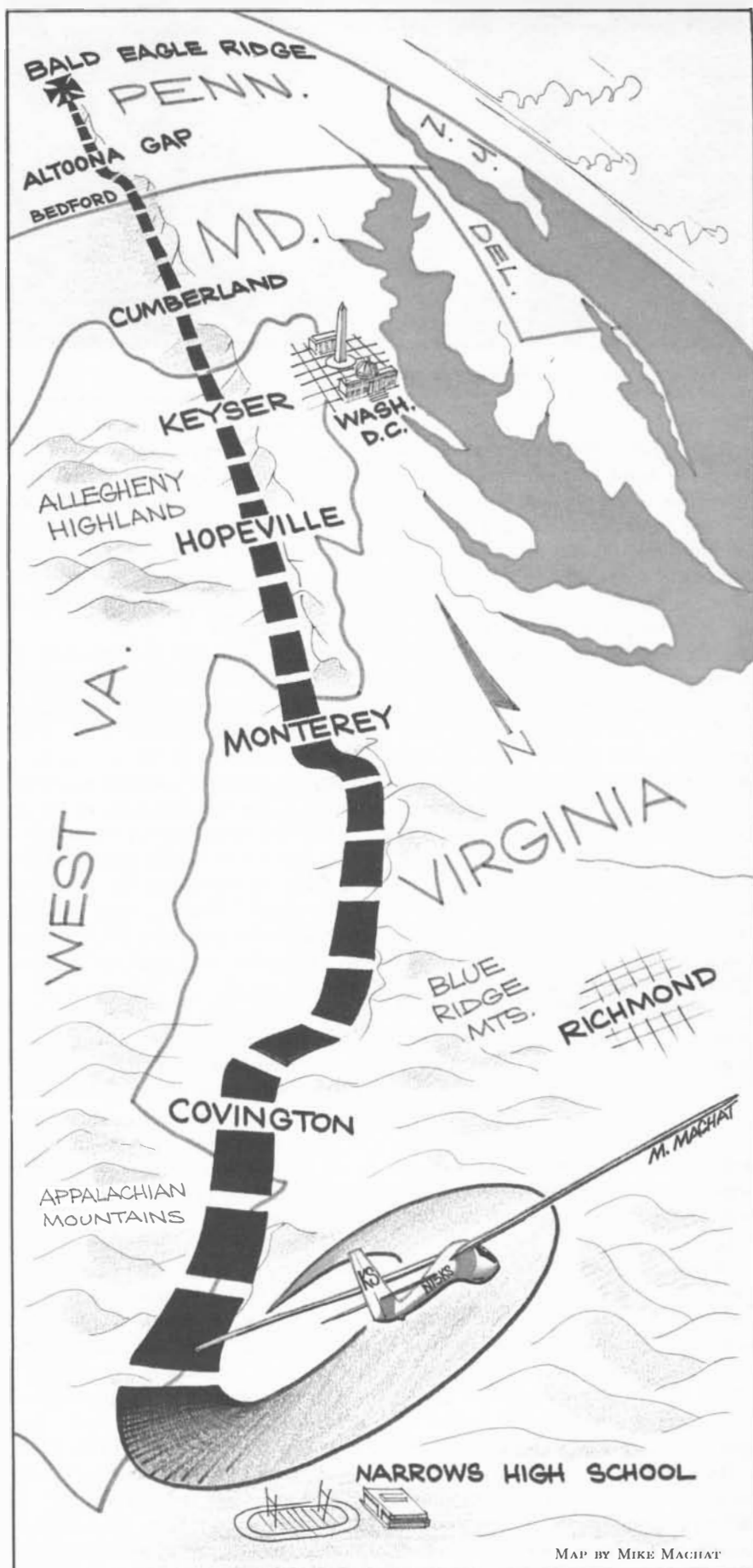


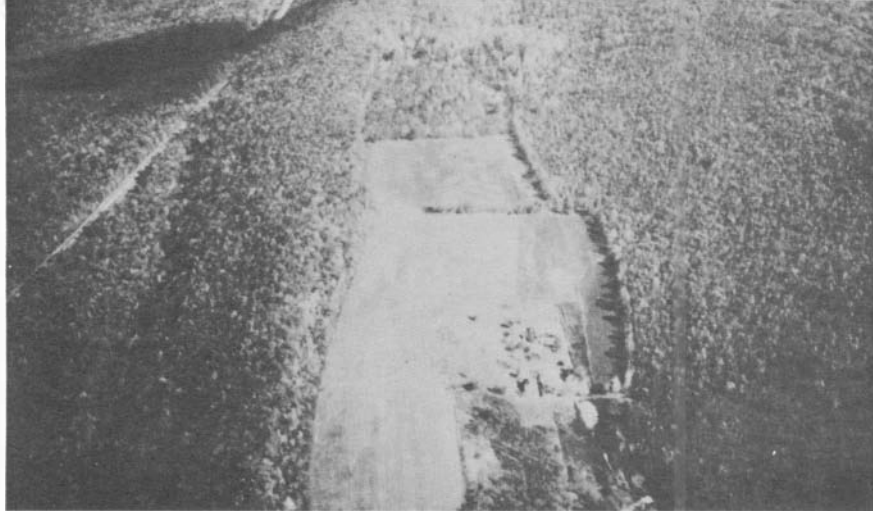
first time, he made a second flight early this winter to establish another new World Out & Return Distance Record of 569.36 miles.

Except for piloting a new AS-W 15 ("I wanted to lay fiberglass on that ridge"), much of the flight was similar to the first. At the start, for instance, his wife, Sue, again auto-towed him from his private gliderport hewn out of the forest atop Bald Eagle Ridge in Pennsylvania. In launching a sail-



plane directly into a slope current, standard practice is to tow at ninety degrees to the ridge to minimize time in the turbulent region just behind the lip or crest. However, Sue pulls





Kimo Savy's corral—Striedieck's strip on Bald Eagle Ridge, Pennsylvania

her husband in the wind shadow behind the band of trees that parallel the ridge. (See photo.)

"The wind can be blasting away at 40 mph just 100 feet away where the mountain drops off," Karl observes, "but for the first 100 feet up you are in dead air." The critical point was the moment of transition just before turning out over the edge, and on his earlier flight he described his joy stick's "butter churn" action while penetrating the rough air. Evidently there was no problem on this second record flight; in the early light of dawn he banked in the icy wind and turned *Kimo Savy* down the ridge.

"Just after release at 7:10 a.m., I saw my first bird. After I dropped the towrope, I swooped down to tree-top height and panicked a goshawk. These non-soaring birds are among the strangest and most feared birds of prey, but I'll bet a 50-foot fiberglass eagle must have looked pretty deadly to him.

"The red-tailed hawk migration was in full swing with many of these fellows heading my way south toward warmer weather. Throughout the day I saw dozens of them as well as a few ravens."

Striedieck's interest in birds goes deep. He recalled a first meeting 16 years ago at Hawk Mountain Sanctuary in eastern Pennsylvania:

"The sight of hundreds of hawks sailing on the invisible cushion of air captured my fancy, and *I longed to join them.*"

This wish had come true the previous winter. Now, studying the whip-lashing crowns of the trees just below him he recalled how a golden eagle had appeared just above them and risen to

join him in flight. Eagles were rare now—the bird was the first of its kind he had seen in ten years—but for thirty minutes they flew in close formation. It was the ultimate accolade. One might fantasize that the majestic creature, far from regarding Karl as an intruder, was sizing him up as an ally capable of codefending its shrinking territory.

Striedieck turned his attention to the task ahead. On his first record flight he had been in the air nearly 11 hours. That was in March. This was November, and despite his early start, the hours of daylight would be short. There was no time to waste.

To boost his speed he pressed *Kimo Savy* down into the lift and noted the blurring of details on the mountain flanks with satisfaction. Nine hundred feet below on the valley floor, Tyrone and Bellwood, two small towns, were quickly passed.

But time could be lost in trying to cross the open stretches where watershed rivers breached the mountain barrier with gaps of varying lengths. Soon the ridge bent gently toward the left and humped its back another 500 feet. Striedieck knew it signalled the approach of the first break, a relatively minor one.

"The AS-W 15's performance was demonstrated at the first obstacle, the three-mile wide Altoona gap. I executed an 'A. J. Smith climb' (i.e., straight ahead) and had enough altitude to zap across with no circling."

On the other side he pressed on at speeds averaging 100 mph. The ridge provided good lift, but he knew when it ran out he would be facing a nine-mile gap at Bedford. In his first flight it had been touch-and-go at this point. A heavy wind funneled through the opening, preventing him

from circling lest he be drifted too far downwind to reach the ridge on the other side. He had slowed up passing through lift. It had enabled him to barely reach the other side. With only 600 feet of altitude he had slid over a turnpike that rounded the far end of the next ridge. A memory triggered a smile. While figure-eighting up the mountain's side he had been passed by a speeding flock of migrating ducks. They seemed to be honking their disdain for the slow-moving type, even if it did have a huge wing span. But how would it go now?

"It took ten to fifteen minutes to get sufficient height to start across. However, the Bedford gap was not a photo finish this time. I had more than enough altitude on the other side and dove it off as I headed down the next ridge for Cumberland."

With the Bedford gap behind, *Kimo Savy* slipped across the Pennsylvania border. The next 30 miles or so of the ridge carried Striedieck across western Maryland to the border of West Virginia. At this point he could see a small watercourse winding through Cumberland on the other side of the ridge. The Potomac has its source in the Appalachian highlands to the west, and this mountainous plateau provided help on the next section of the flight.

"For my money," Striedieck wrote, "the hairiest part of the flight was between Cumberland and Hopeville, a little village two-thirds of the way across Maryland. Since the ridge is broken somewhat and only 100 to 200 feet high in places, I try to stay 1000 feet or more above the ground. This is possible by using the wind's rebound as it pours off the 1000/2000-ft. Allegheny front just to the west.

"It was touch and go again here, and my lowest point was 300 feet over the ridge at Keyser.

"Eventually the ridge rose again to a respectable height, the trim went forward, the airspeed wound up, and the wings began flapping—enough that I could occasionally see them bending in the ground shadow!"

Running into gusts and slope turbulence at high speeds had taught him a lesson on the previous flight. Then he had been thrown up against the canopy so hard that he heard his neck crack and "saw spots" momentarily.

"Although the flex of fiberglass wings seem to absorb more of a gust, the airspeed was higher this time, and the flight was very rough. To soften the head vs canopy demolition derby, I brought along an inch-thick piece of foam rubber which I fastened to the top of my head. It made things relatively bearable until repeated impacts loosened it and it fell out of reach in the baggage compartment towards the end of the flight.

"The plastic baby bottle I use for holding drinking water also served as a g-meter of sorts. On one hard 'down' the water squirted up through the nipple and wet the canopy. Later in the flight I discovered another application for this device: In a fast climb it produced visual as well as audio signals by bubbling and gurgling to me."

Even though he was still pummeled, he didn't have to contend with a loose tiedown kit as before, and, thanks to the larger canopy, the cockpit temperature, though cold, must have been higher.

"The cold temperature didn't cause discomfort—perhaps because of the greenhouse effect—and it wasn't necessary to wear gloves after 11 o'clock. The water in the baby bottle remained liquid, although water ballast in the wings might have frozen, which was one reason I didn't carry any."

Below Hopeville Karl streaked forty miles along his mountain-top skyway before he crossed into Virginia. Keeping the pressure on, he sped south until he came to a main highway wending its way across the ridge to a small cluster of buildings in a valley on the other side of the range. He recognized them as Monterey and realized he was not far from where he had made an outlanding during an earlier record try in 1967. He also knew that the ridge would run out thirty miles farther at Mountain Grove, the turnpoint of his 1968 record flight. He had foreseen this and had planned an alternate route.

"I had decided to leave the ridge at Monterey, turn downwind, cross the valley and pick up the next parallel ridge heading south. This ran nearly fifty miles until the James River cut through it at Covington, Virginia. Its sides are steep and over 4000 feet in places, so you can just go like blue blazes.

"Where the river cuts through, the valley is about five miles wide, and the ridge jogs and picks up again to the west. This makes it necessary to jump back again into the wind, but this obstacle seems easy both ways. You see, you have the advantage of flying from a 4000-ft. ridge to a 3000-ft. one when you have to penetrate into the wind. Going the other way you merely work the lower ridge until you find a thermal that drifts you back to a higher ridge."

The geologic morphology of the last ridge to the turnpoint was smooth and even, greatly reducing turbulence in the layers of wind that flowed over it. As a result Striedieck was able to spur *Kimo Savy* to redline speeds.

"If I had to pick the most exhilarating part of the flight," Striedieck wrote later, "I would choose those 80 miles out and back along that ridge. With the exception of a few minutes dilly-dallying to get pictures of the turnpoint (Narrows H.S. athletic field),



I bored along that 600-fpm, 80-mile long thermal at speeds that were rarely out of the 110-130 mph range."

His flight down had taken four hours and five minutes at an average speed of 71 mph. If he could maintain that rate, he would easily make it back to the start point before dark. He remembers yelling a few yahoos, and to indicate his pleasure with his mount's performance, he sang a verse of *Deutschland Über Alles* in lieu of anything more appropriate he could think of at the moment.

Striedieck's spirits were also raised by the thought that his "cheering section" was able to follow the progress of the flight all the way to the turnpoint. Thanks to various airport uni-com calls, he was able to have his

position relayed to Sue via the telephone.

The return flight followed the identical route, and as the miles rolled on there were omens that the flight was to be successful: Over Virginia he saw another golden eagle like his companion of the year before. (Could it have been the same?) Half way back, over the difficult Hopeville segment, convection seemed to strengthen and deepen; he timed one thermal at 1300 fpm during the first minute of climb and 1100 fpm during the second. Near Bedford, his radio picked up Quentin Berg, who was soaring 'his Kestrel seventy miles to the east. With Berg's encouragement and an 800 fpm thermal at the end of the ridge, he dolphined across the Bedford gap and dove off 1000 feet along the ridge to Altoona, the last void before Bald Eagle Ridge and home.

"Here things went a little slower, but it wasn't even three o'clock, so I played it super cautious getting across this one. But Sue was talking to me now, and after 25 minutes I made it across the final obstacle.

"Twenty minutes later, the clearing on the ridge top slipped below me. I dropped *Kimo Savy* into the quiet air behind the trees and rolled to a stop in front of Sue. It was 3:35; the flight had taken eight and a half hours."

It may be that developing a taste for ridge records is like eating potato chips—it's hard to stop with one. At any rate, Karl has some thought about the whole bag:

"In my crystal ball I see some delicious food for thought. A 900-mile Out & Return record is feasible. As a matter of fact, my next goal, a 720-mile O & R could have been made on this flight. It's rather foolish to talk of ultimate distance records with the likes of Scott and Greene around, but a 900-mile O & R would be tough to beat—even in Texas.

"Another stimulant to winter map checking and day dreaming is a straight distance record. An early bird could reach Knoxville, Tennessee, and have 470 miles on the meter by the time thermals are picking up. These ridge winds go hand in hand with good convection, so a 750 miler isn't impossible.

"Anyone for Birmingham or Montgomery, Alabama?"





MIKE DIAL

CONCEPT 70 revisited

The new American glass sailplane must be good.
A taped post-flight rap session of top competition
pilots records their enthusiasm.
One is even switching brands. . . .

By ARTHUR E. HURST



Cold . . . every time I think of the C-70 I can feel it. It was just about a year ago when Gordon Lamb, Carl Walston, and I flew down to Blairstown, New Jersey, in Gordie's 195 to be on hand for the maiden flight of the prototype Concept 70 (March '71 *Soaring*). As I recall, it was 16 degrees below with a robust northwest wind. Now we were making a very respectable ground speed in Carl's 911S Porsche heading for the same place—Blairstown, New Jersey, to see another maiden flight . . . this time the first production C-70 with flaps. Again is was cold.

When we arrived there were quite a few familiar faces about. George Moffat and Gleb Derujinsky were busy figuring out how to keep warm. Their aides-de-camp were sitting in a car with the heater going. Lamb was just landing the big Cessna with passengers including Miles Coverdale. Bill Nockles looked like he needed some hot soup. Dent Brome and Bob Neumann had a lot of help assembling their LS-1 which would be used to make comparison flights with the C-70. Some very important faces were missing—Arthur Zimmerman and Wolfgang Schaer, owners of Berkshire Manufacturing Corp., and the new C-70 were nowhere to be seen.

Soon the familiar rumble of a sailplane trailer coming across the field announced the arrival of the C-70 and its two proud builders. Arthur and Wolfgang were the only ones that didn't look cold. The plan was for Wolfgang to make the test flight and then turn the ship over to Tom Rucker and Jim Indrebo, partners in Concept West. Moffat, Derujinsky, and I would be lucky enough to fly the new bird before it started its long cross-country in a trailer to sunny California.

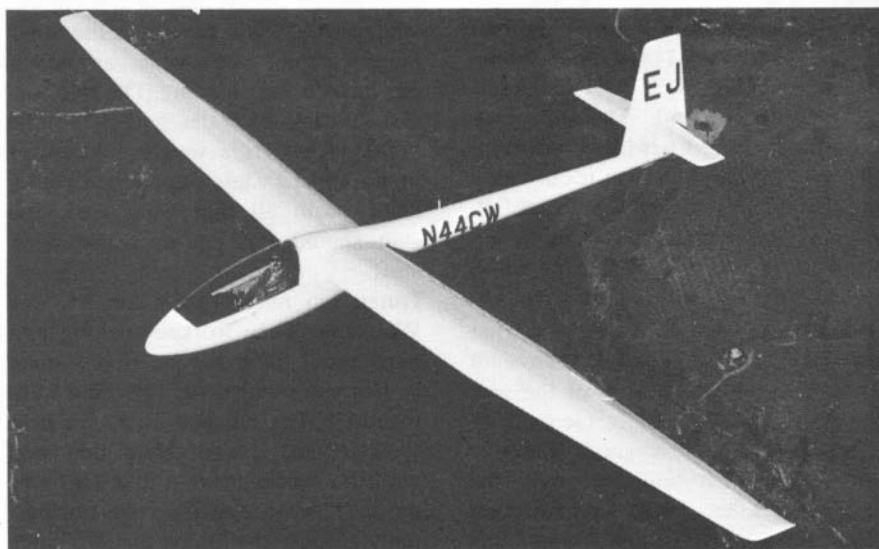
The ship went together quickly and looked sensational. It also looked very different from the prototype that flew in the Nationals at Bryan, Ohio. For instance, a conventional elevator stabilizer had replaced the all-flying stabilizers. The flaps now extended all the way to the ailerons. The tailwheel was now a tail skid exactly like the one used on the Standard Cirrus. The cockpit had added such features as a fully adjustable seatback similar to the Libelle. A clever but simple flap crank was on the left side as was the new trim handle. Tow release and the tee

handle for in-flight adjustable rudder pedals were just in front of the stick. On the right was the landing-gear handle and the seatback adjustment. The black instrument panel was in sharp contrast to the gray spatter paint finish of the huge cockpit. The instrument panel cowling was now attached to the fuselage similar to the AS-W15 but is quickly removable. The hand brake on the stick and side hinged canopy were unchanged.

The finish looked perfect. As in the prototype, all control surfaces were activated by push-pull rods with the exception of the rudder which has direct cable linkage. Flaps hook up automatically when assembling and the only fittings needed for assembly are two spar pins (similar to the LS-1) and two aileron connecting pins. The ship has bladder-type ballast tanks that can carry up to 200 lbs. of water to bring the C-70 up to its 875-lb. gross. Wing area, at 124 sq. ft., was unchanged as were all other dimensions of this first production U.S. Standard Class fiberglass ship. Weighing in at about 500 lbs. the ship is 30 lbs. heavier than planned.

hanging by a rope from the tail. When Wolfgang turned onto final, he cranked the flap up a little and the glide flattened out somewhat . . . then 90 degrees of flaps once more and again that weird attitude. The ship was dropping down like an eagle to its aerie. Coming toward us into a medium headwind, the C-70 seemed to be slowly lowered by its tail by some giant invisible crane. If my Standard Cirrus had its nose down like that on final approach, I'd be at redline—Wolfgang was at 45 knots. He flared out right in front of us, touched down, and stopped in a very short distance. Moffat then took up the C-70 to comparison fly with the LS-1 with American Airlines Capt. Denton Brome at its controls. After George landed, Derujinsky and I had our turns. Later, sitting in a warm place with a hot drink and the likelihood of toe amputation due to frostbite waning with each sip, we had a chance to discuss our flights. We were . . . but wait, why not pull up a chair and listen in? I taped the conversation.

Moffat: Competitive, I think the ship will be very competitive. It should per-



Mike Dial

It was time to fly! Les Wolfe fired up the Super Cub and Wolfgang climbed in C-70, serial #1. Canopy closed, hooked up, slack out of the towrope, and off went the C-70 into a cold 10-knot wind. It looked like a thousand other takeoffs I've watched. But in 30 minutes when the ship was on a high base leg, it looked like no other ship I have ever seen. When the flaps were dropped 90 degrees, the C-70 started to come down like a slow-falling stone. It was as if the ship were

form on average with any of the other Standard ships.

Hurst: Right . . . and its big advantage is going to be in landing . . . I'll bet you could put it into a tennis court if you had to.

Derujinsky: Believe me, running the flaps out to the ailerons makes all the difference in the world. At Bryan, I couldn't get the damn thing down. I felt I needed a minimum of 1000 feet to land when flying out there. There just wasn't enough flap area in the

prototype, and it's amazing how those few extra feet on each flap make such a difference. Before I went into my landing pattern today I held 55 knots and cranked in 90 degrees of flap and hit the stop watch. In 15 seconds the ship had dropped 500 feet. When I went into downwind at 1800 feet above the field I dropped 90 degrees of flap, again holding 55 knots, and realized I was not going to make the field. What an angle of descent! The prototype didn't have half that sink rate. I touched down right on the threshold and rolled to a full stop in less than 300 feet. I feel that 45 knots would have been a much better speed for approach in the light headwind I had on landing. That wheelbrake is terrific.

Moffat: Right, Gleb. Landing is really good. Most of the modern glass ships have a flat, fast glide. In this ship, you come down steep . . . at 45 mph with total control. I think the flaps are beautiful. Did you notice that only light pressure was needed on the handle? And the approach can be controlled so easily. You can land the C-70 in half the field needed for the other glass ships.

Hurst: I've never flown a sailplane with 90-degree flaps before. My first reaction was that I had done something wrong when I cranked the handle all the way around. The nose was down so sharply; I felt like I was coming out of a loop; and yet it only took me 30 seconds to get the feel of it. I found no problem on final in adjusting my approach so that the wheel touched down within two feet of where I wanted it to. I see now what they mean when they say flaps are a lot safer. What did you think of the way the ship handled generally, George?

Moffat: Handling is good. Elevator control is much improved over the prototype. Rate of roll seems around four and a half seconds. I would say the general feel is very much like the Standard Libelle but a little more sedate.

Hurst: To me, because of its additional weight, it felt more like the Kestrel.

Derujinsky: I think the handling is as good as any ship flying. One thing I was interested in was the sensitivity of the elevator. After trying a few stalls which came in at about 36 knots, I tightened the shoulder straps and pulled back hard on the stick to induce a

P.I.O. and the ship stabilized to trim speed in two oscillations. I tried it a couple of times between 50 and 80 knots, both with forward and back stick, and I would say that the ship stabilizes just about the same as my Standard Cirrus.

Hurst: I weigh 150 lbs. and the flap-up stall for me came in at about 32 knots; I was still flying at 22 knots indicated with full flaps, and I had plenty of aileron control. The ship just wouldn't stall with full flaps.

Derujinsky: Right. I couldn't get it to stall with full flaps down. It just kind of mushed.

Hurst: George, you were the only one up while the LS-1 was in the air. How did you climb against Dent?

Moffat: The LS-1 is a good climbing ship, and I flew against it for the better part of an hour in the weak conditions we had today. I felt it was even with the LS-1 in climb. And remember, the C-70 didn't have total energy when I flew it. At runs of up to 100 mph, I felt the C-70 was slightly superior. The performance really looks good, and it has plenty of wing area to carry ballast.

Derujinsky: I think one of the big advantages C-70 will have over the other Standard ships is the wide variation it can have in wing loading. The ship carries 200 lbs. of water and it has the highest legal gross weight I know of in a Standard Class ship. When you're empty with all that wing area, the ship should stay up in really weak stuff.

Hurst: I'm really happy for Art and Wolfgang! They worked so long and hard and I think they've finally done it. Did you see the way the thing went together? The tail just clicks on in a few seconds. The problem they had with the rudder being a little stiff was partially because of the cold and partially because the tubing that the cable runs in hasn't worn in yet. Wolfgang said they probably will increase the inside diameter of tubing by a few thousandths so that it won't be affected by cold weather.

Derujinsky: Yeah, but that's something that will break in during the first 5 or 10 hours.

Moffat: The cockpit, being as big as it is, is good for making it a club ship. It can handle any size pilot.

Hurst: I felt like I was in a B-29—there was so much room. Well, what

do you think Gleb—are you going to buy one?

Derujinsky: Yeah, I think so. I'm going to try and get one so I can fly it at the Sugarbush Regionals and then take it out to Marfa, Texas, for the Standard Nationals.

A few days later, I talked to Wolfgang and he told me that the few minor adjustments that we recommended had been made the next day, and Jim Indrebo and Tom Rucker were on their way to California. We talked about costs and deliveries—two very important items. Berkshire Manufacturing is going to stand by the \$7800 price for the original 10 orders it had. Orders now stand at 22, but, unfortunately, the price will have to be higher for ships numbered 11 on. The cost of the aluminum flaps is more than anticipated, as is the extra work necessary on the wing because of the flaps. Component metal parts and fittings, which are imported from Germany, are also costing more. The conventional elevator stabilizer takes three times as long to build as did the previous all-flying tail. Price increases for epoxy and glass fiber also help bring the price up to \$8850, including basic instruments. It is pointed out there is no overseas shipping or import duty on top of this price. The devalued U.S. dollar gives the C-70 a further price advantage.

As for delivery, all depends on how the orders start to come in. The problem is this: until orders are written at a rate where a fair production run can be assured, then it is economically unfeasible to staff up for high quantity production. Berkshire feels it could produce five ships a month once they put on a larger staff. Right now they will be building one and a half per month.

The FAA has been very helpful and is working closely with Berkshire. Until the ship is ATC'd, the FAA is licensing all ships in the Experimental Category.

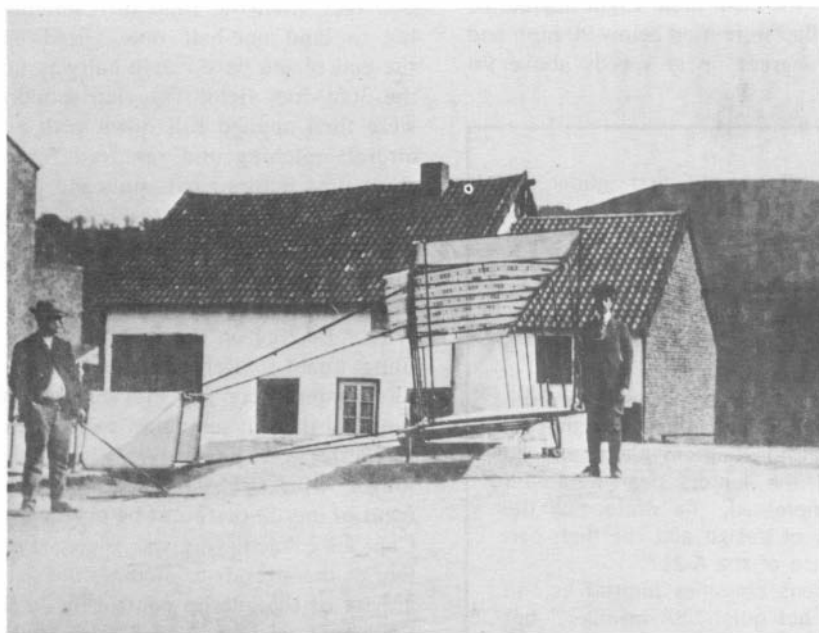
In June when we're lining up on the start grid for the Third Annual Standard Class Nationals at Marfa, Texas, it's going to be very hot. About the time I think I'm going to die from the heat, I'll look down the line and see a number of C-70's and I should cool off just thinking back to last December and Blairstown, New Jersey.





Flying the Caproni A-21

A first report from an American pilot who flew the big bird from its nest near Milan . . . By ROSS N. STEVENS, JR.



Caproni is no Johnny-come-lately to motorless flying. His first glider was built in 1907.

As a sequel to Marty and John Hart's visit to the Caproni Vizzola factory in Vizzola Ticino, Italy (just west of the Milan Malpensa International Airport, *Soaring*, Jan. '71), it was the author's pleasure to review the status of the Caproni Calif A-21 and A-21J sailplane/motorglider on a recent trip to Italy. Through friends from Costruzioni Aeronautiche Giovanni Agusta, we met Count Giovanni Caproni and his engineers, Livio Sonzio and Carlo Ferrarin, who have been responsible for the Calif program.

The beautifully detailed aircraft had completed most of its certification test flights, and a United States application for certification has been filed.

The structural tests have been completed to ultimate failure equal to 1650 lbs. max gross weight. The glider configuration has a 1420 lb. max gross weight at 7.5-g ultimate load factor. With 130 lbs. of water installed in rubber tanks inside the main wing spars, the load factor is 8-g ultimate. The useful load is 520 lbs. The sailplane has a cg range accommodating single-

pilot weight as low as 132 pounds and up to two 200-pound pilots.

The maximum test airspeed was 174 mph and the redline on the production aircraft will be 158 mph.

Flight test performance has been evaluated using the first series-production aircraft. The results have been 5% better than the theoretical predictions. A minimum sinking speed of 120 fpm was achieved at 51 mph, and at 394 ft./min. sink, the Calif A-21 has an airspeed of 102 mph. Roll rate at 53 mph is between 4.2 and 4.8 seconds. The design goal of meeting the performance of an 18-meter single-place aircraft has been surpassed handsomely.

The A-21 flown in the Italian Nationals placed eleventh and was completed only a few days before the meet. It was flown dual and accumulated 56 hours during the contest. When flying alongside the 22-meter Glasflugel 604 Kestrel and the Nimbus II at the same wing loading over a 25 to 30 km. straight distance at 100 km./hr., the A-21 finished 150 feet below the fiberglass aircraft.

Count Caproni arranged a flight demonstration for me on a Saturday afternoon in mid-October. The Calif A-21 sailplane flight tests were being conducted using the excellent glider club facilities at Calcinate Del Pesce on Lake Varese in northern Italy. This location is spectacular because of the Campo Dei Fiori mountain ridge which is five miles northeast of the

field. The ridge is about five miles long and 3000 feet above the field. Prevailing winds provide excellent ridge lift and trigger thermals even on a hazy fall day such as was found on this Saturday. After a fine Italian lunch, the ship was moved out of the hangar by its designers Sonzio and Ferrarin and the chief test pilot, Zanetti. Following pre-flight review of the systems and operating procedures, Zanetti and I put on our chutes and strapped ourselves into the big bird with Zanetti in the left seat.

One of the beautiful Stinson L-5's belonging to the club pulled into position for the tow on the 1500-foot paved strip. The tow to 3000 feet along the slopes was routine with fairly turbulent conditions encountered near the ridge. We released in 200 fpm lift and made a few steep turns at 57 mph with the lift building until we came to cloudbase at 4000 feet. Spiraling was smooth and, except for requiring more lateral stick displacement than I am used to, was without much effort. The lift areas were small and steep banks were required.

We then worked the ridge area for about one-half hour maintaining 3200 to 4000 feet of altitude. By this time, soft cumulus clouds were forming out in the valley away from the ridge, so we flew straight out into the valley at 95 mph with only 1.5 feet per second sink in the clear area. Eight degrees of down flap were used below 90 mph and eight degrees up at speeds above 90

mph. Transition from one flap condition to another is activated by a lever between the seats. The aircraft was smooth, stable, and had no surprises. Stalls were docile with the inboard wing stalling first with adequate control to keep the wings level. Without aileron movement, the right wing dropped slowly and a spiral started without tending to spin. The stall recovery was normal with forward stick input.

The Calif performance was obviously outstanding. We flew eight to ten miles out over Lake Maggiore and back to the ridge losing only 1500 feet even though the thermals and clouds along the way were dissipating, and circling only resulted in zero sink. After working weak lift on the ridge with a 604 Glasflugel and several other club aircraft, we received a radio call reminding us that a test flight was scheduled yet that afternoon so we proceeded out into the valley to make our approach. The roll rate was found to be less than five seconds at 55 miles an hour airspeed. The aircraft could be trimmed hands off in forward flight or in turns.

Now it was time for the demonstration of one of the outstanding handling features of the Calif, the combined 90-degree flaps and spoilers (p. 11, June '71 *Soaring*). We approached with the sailplane clean at 68 mph at 600 feet after the final turn, intending to land one-half mile ahead on the end of the paved strip halfway up the 3000-foot field! The flap spoilers were then applied full down with no aircraft pitching and removed for a short time before final application for landing. A gentle touchdown was made on the paved strip rolling to a stop at the starting point ready for continuation of the flight testing.

In reflecting on the flight, the handling qualities were excellent except more lateral control movement was required than in sailplanes such as the Schweizer 2-32. However, the much longer wing adds considerable moment of inertia that must be overcome. Caproni is modifying the aileron system of the aircraft to increase the sensitivity of the aileron control by 30% (reducing cockpit stick lateral trail) and to reduce control system friction. Complete certification is expected before the end of 1971.



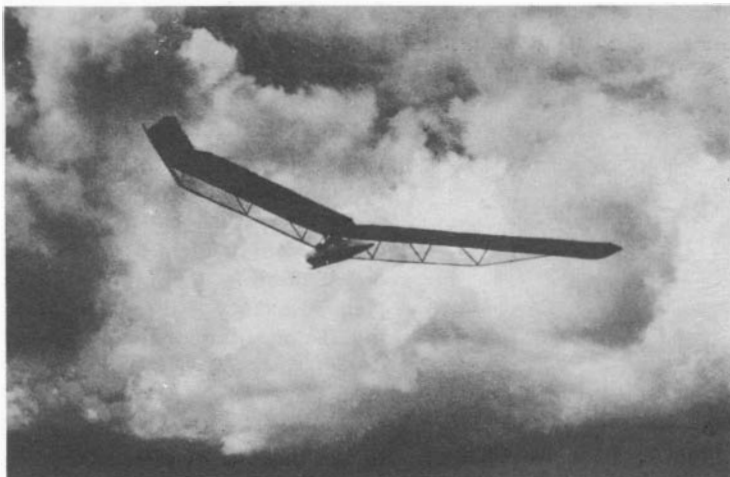
Ross N. Stevens, Jr., (l.) is a project engineer for Boeing Vertol's **Chinook** helicopter. Recently his work has taken him to Italy where the 'copter is being manufactured under license by an Italian firm.

Stevens, who grew up within Silver C distance of historic Harris Hill, also carries Silver C card #209,

having flown his first glider (a Franklin Utility) in 1938 at the University of Michigan. At last count he had amassed approximately 600 hours in 29 different glider types. During the past two years he has been crewing for Stan Smith, a former U.S. Champion.

Thus, it was inevitable his curiosity would be aroused by the activity at the Caproni plant, and he visited the factory near Milan. "I was impressed," he wrote, "by the quality of design and the high performance of the A-21."

Stevens classifies himself as "an active but quiet SSA member," but his flight was impressive enough to goad him into making the accompanying report.



Weltensegler

THE NEW ERA IN SOARING

By RICHARD MILLER

Very early in the history of aviation it became obvious that the lift-drag equation was central to the problem of bettering aircraft performance. This fundamental equation could be attacked from either its heavy or its light side: one could attempt to get the better of D by raising L to its highest possible value, or alternately, work at trying to diminish D, thus giving a higher relative value to L. It was the first of these approaches, implemented by the thrust of an engine, that received by far the greater share of attention during the earliest decades of practical flight. Not until the early 1920's in Germany, when the glider was exploited for its own sake, was really serious and concerted attention given to the problem of drag reduction as a means of raising the value of the lift-drag equation.

It was the demand for greater utility and versatility, coupled with the inclination of man always to demand more of his machines, if not of himself, that resulted in the attention given to the

was to turn, then to climb higher, then to go farther, then to carry a passenger. At each stage it was the improved



reliability and performance of the engine and power train that made further exploitation possible. Today we expect our aircraft to operate night and day in all sorts of weather, to be equally at home at sea level and at extreme altitude, to trim through a wide range of C.G. positions, and have a high ratio of cruise to stalling speed. The tractor monoplane ultimately emerged as the type best suited to these difficult and frequently contradictory demands, and it was the constant availability of more power that made its realization possible.

Those who turned their attention to the light side of the equation (D-emphasis), the pioneers of soaring flight, were forced to resign themselves to wholesale sacrifices of these qualities of utility and versatility. They understood that the conditions of so-called powerless flight were bound to be a great deal more restricted in all respects than those of powered flight; but they saw as compensations the economy and simplicity of the glider, that it was possible to obtain a higher *absolute* value for the fundamental equation, and that they were dealing with a purer form of flight, one in

which the individual relied more on himself than on his machine. Quantitative considerations gave way in a measure to qualitative ones.

The Principle of Tao

There is something more profound, if less tangible, involved in the genesis of historically significant aircraft and the solutions to the equations of flight, however. Certain aircraft, and certain epochs or movements in aviation have a special something which we feel, either by its presence or its absence, but which may be beyond our ability to define. We might, for want of a better alternative, designate this by the Chinese term *Tao*, or think of it



as a Unitary Principle linking all aspects of the creation and life of an entity or organization. We recognize it as a particular kind of vitality, as charisma, mission, cause, *esprit de corps*, or that vision without which the people die. It is what politicians are continually trying to infuse into the body politic with such slogans as 'New Deal' and 'Great Society.' It is particular to flowering things and to youth, to the time when the spiritual aspect dominates the formal. In the popular shibboleth of the times, "it is where the action is."

Tao appears to manifest itself so



heavy side of the L/D equation and which gave rise to the main line of aeronautical development. This progressed from one achievement to another. Once it was possible to take off and land under control, the next step

long as there is a problem to be solved or a victory to be won. With victory comes entrenchment, with success, security. It is the epic of the frontier. The pioneer, who had to dig for water, fell trees, and hunt game to provide for his wants, gives way to the settler who finds his surveyed section lot ready equipped with access road, sewage pipes, and utility poles. The material gain is not without its price in higher values:

*Truly, once Tao declines,
There follows virtue;
Virtue lost, there comes compassion;
After that, morality;
When that's lost, etiquette remains,
The husk of faith,
The onset of dissolution.*

—*Tao Te Ching*

In aviation, Tao (or the Unitary Principle) may be said to operate in those instances in which a single individual has control over all aspects—conception, design, financing, construction and flight—of a historically significant aircraft. We could take Bleriot and his cross-Channel machine of 1909 as an excellent example. The principle may be extended to include two individuals, if they are close enough, as was the case with the frères Montgolfier and the Wright brothers. It may even be extended to a larger group, such as the diverse individuals responsible for *The Spirit of St. Louis* provided there is some strong point on which the whole enterprise turns.

From the time of the inception of the powered airplane by the Wrights



until the period of the first World War, the Unitary Principle ruled in the field of aviation. One aircraft of significance followed another. The names of Santos-Dumont, Farman, Bleriot, Curtiss, and Fokker evoke the flavor of those days. The war forced the development of the airplane to such an extent, however, that the necessary condition of overall control gradually slipped beyond the financial and technical scope of a single person. This control was still possible in exceptional cases, and

a considerable list of such instances could be drawn up but it was no longer the rule. The exceptions, further-



more, are mainly to be found in special-purpose aircraft, offshoots of the main branch, such as racing, transport, or aerobatic craft. In the main, the process of fragmentation which leaves each individual a smaller and smaller part of the whole had begun. Now one person conceived, another designed, others financed, and still others built. The pilot might not even know those responsible for his ship. Thus *Tao* was diminished and discontent was felt in the hearts of men.

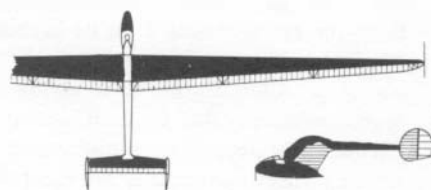
But the law of conservation of energy works as well in spiritual principles as in material. What appears lost is not, but is simply transformed in the mechanics of the dialectical triad. The new synthesis was the glider, and it was not by chance that its development began just when the conditions of the operation of the Unitary Principle ceased to operate in the main line of aeronautical development, or that the L/D equation, once solved right side up, should be attacked upside down. The glider, of course, was not new, but it was an unsolved problem with much greater promise than many realized, and one to which a single person, mastering all its elements, could make a worthwhile contribution. The Unitary Principle asserted itself once again.

The history of the glider is well known. The fifty years of its evolution which began in Germany following the first World War has brought us to the 50:1 sailplane, or at least within a shade of it. During this half century a recapitulation of the earlier history of aviation has taken place in the domain of soaring flight. It incorporates a startling number of significant parallels which, like the initial instance, culminate in another settled frontier, another inverted equation, and yet another line of aeronautical development.

By a telescoping process we can put this half century of sailplane development in a position analogous to that of the power plane during the first two decades of flight and examine these parallels.

Recapitulation

As there is an equation central to the problem of flight itself, so there is one central to the problem of sailplane efficiency. This is the span-loading factor, traditionally expressed as weight/span squared. And, just as the primary equation could be approached from either its heavy or its light side, so can this one. It is possible to work towards the longest possible span (squared) and pay whatever penalties in weight are necessary, or, alternatively, to strive for the lightest possible gross weight, letting this factor limit span. As was the case with the power plane, and notwithstanding such examples as *Windspiel*, *Weltensegler* and



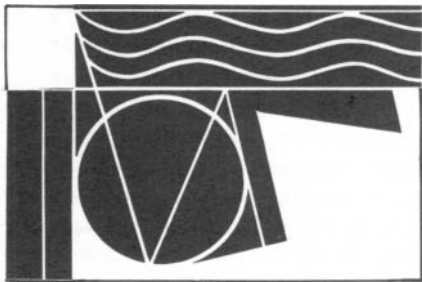
the dynamic soaring gliders of Harth, the main line of sailplane development was determined by the attention given to the heavy side of the span-loading equation.

To follow our parallel we must next trace the decline of the Unitary Principle in the history of the sailplane and see its final dissolution in a period of intensive advance comparable to that which the power plane underwent during the 1914-18 war. There can be little doubt but that *Tao* was alive and well during most of the period in question. We can readily trace its influence from *Schwarzer Teufel* through *Vampyr*, *Konsul*, *Wien*, *Musterle*, *Moazagotl*, *RJ-5*, *Phoenix*, the Beatty-Johl designs and the HP series of Schreder. But in time, and as the commercial market grew to support it, the factory-produced sailplane became more and more a factor to be reckoned with.

Then came the application of advanced fiberglass techniques to the series-production sailplane. Overnight a revolution in structures took place that had consequences in all aspects of the sport. The key to success, the high

aspect-ratio wing of long span, could now be fabricated with the requisite torsional rigidity, flutter characteristics and surface smoothness, and at a weight and cost within reason. Never before had such a happy product of the spanloading equation been available. In fact, it now became possible to make wings so long that they were neither convenient nor economical from the point of view of general soaring. Not only had the fundamental equation of soaring flight been solved, but it had overfulfilled its production quota.

If we designate the years 1965-1970, roughly a half century after World War I, as the period of this revolution, we have our condition for a period of rapid technological advance which, in a manner of speaking, closes the circle. In these few years soaring was transformed. The 40:1 sailplane, yesterday's dream, became an off-the-shelf item. The 50:1 sailplane, which only a few visionaries had thought much about, suddenly emerged as a realistic possibility. Wood and metal ships disappeared from the start lines at national and international competitions and were replaced by row after row of new glass machines. By 1970 the contributions of non-fiberglass sailplanes to competition and



record flying had fallen to an insignificant percentage. What had begun with a few primitive structures on a German hillside fifty years before now traced itself in clouds of glory across the nethermost reaches of the expanding sky.

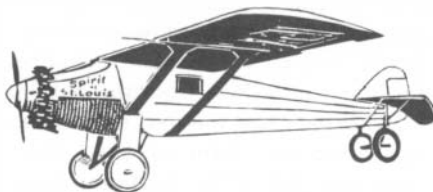
But what of *Tao* and the Unitary Principle? For, indisputable as the benefits of the fiberglass wing were, they had only been achieved at the cost of a fragmentation in the total process of sailplane creation identical to that which had occurred earlier in the case of the power plane. The historically significant sailplane now required more than was ordinarily within the scope of

a single individual, such as:

- Airfoil research based on computer methods,
- Advanced knowledge of aerodynamic and structural design.
- Exceptional ability in fiberglass production and lay-up techniques.
- Large, accurate, and expensive molds.

Put another way, each numerical advance on the L/D plot required an investment in knowledge, ability, and resources governed by an exponent. When, during the period 1965-1970, there was roughly a 10-point advance in deliverable L/D, the investment curve moved off the graph.

This is not to deny that it was still possible, under extraordinary circumstances, for one person to bring all these elements under control, as Lindbergh had done with *The Spirit of St.*



Louis. Klaus Holighaus has done this with the *Nimbus* and Nick Goodhart with *Sigma*. Such cases are exceptions, however, and will probably tend to become even more marked as maximum L/D climbs past 50 and the investment exponent takes its further toll.

Long Wing or Light Weight?

If we continue our recapitulation in detail the spanloading equation now becomes the pivot point for a new reversal of emphasis. It leads us back, as it did the Wasserkuppe pioneers, to an earlier, abandoned line of development, that of the light-wind soarer. This approach to the equation, as noted earlier, tends to limit wingspan by its demand for the lightest possible airframe weight.

When we contrast the light-wind soarer to the modern sailplane in the same manner that the primitive glider was earlier contrasted to the power plane, we find that our set of parallels continue to align themselves in a singular manner. For one thing, the two approaches, that of long wing and that of light weight, lead to two essentially non-competitive types of flying



machines, although the distinction is obviously not so sharp as that between the power plane and the sailplane. For another, a number of sacrifices have to be made. These too are on a somewhat reduced scale.

Considering the sacrifices made in the first round, there might not seem much left to give away. Such additional paring down as is possible results in large measure from the versatility the sailplane has acquired on its march to maturity. These include, among others, the ability to carry a substantial payload, including water ballast, a constant stretching of the gap between stall and red-line speed, and, of course, higher top speeds and increased range.

These are all areas to which the light-wind soarer must obviously renounce claims. The compensations for these losses are practically identical to those in the earlier instance: greater economy and simplicity, a higher absolute value for the product of the working equation (lower minimum sink rate), and a more intimate and purer form of flight. Finally, and far from least, the Unitary Principle is restored. A new line of development is opened in which it once again becomes possible for a single individual to master all the phases of the creation of an historically significant flying machine.



Next month: Having introduced us to the principle of *Tao*, author Richard Miller reveals its application in "super-soarability"—an aerodynamic concept that is shaping the new ultralights.



WHY 'THE DING

Picture this: You arrive at the flight line in the family station wagon for a day of soaring. You park, pull your fuselage from the rear of the wagon, set it in a stand, then remove your two fourteen-foot wing panels from off the top of the wagon and attach them to the sides of your fuselage. Done. You're now ready to go soaring! No expensive and cumbersome trailer, no tailfeathers to rig, fourteen-foot wing panels that can be built in nearly any home, and quite soarable performance! A dream? Perhaps not.

The *Dingus* is a small, all-wood, tailless sailplane in an advanced design stage. Its purposes are two-fold. For us, its primary purpose is that of an experimental research vehicle to be used in determining just how good the tailless configuration is compared to conventional sailplanes. It will also be used as a flying test bed to conduct various tailless-oriented aerodynamic experiments. The other, non-experimental consideration is, of course, providing a small, inexpensive, fun machine.

This is a joint design effort between the two of us conducted entirely through the U.S. mail! An interesting and very fruitful experience, and far superior to working alone. Progress has been very rapid.

We reasoned that it was not necessary to have a large sailplane to obtain some of the experimental information we seek. In fact, a small sailplane seemed more advantageous as it would be quicker, cheaper, easier to build and modify whenever the need or impulse arose. An obvious added benefit would be minimal ground handling effort.

Starting with the EPB-1C *Flying Plank* (July/August *Soaring*, 1954) as a point of departure, we began the project as a series of simple modifications that would give us what we wanted. Namely, an increase in directional stability, an increase in span/area/AR, and detachable wings. However, as the project progressed, *Dingus* be-

gan to take shape out of the EPB-1C's remains as it were, so that now it is a whole new ship. The only vestiges of the *Flying Plank* that remain are a vague similarity in pod formers and, to a degree, the control mixer. Earlier on, we had designed and experimented with various other control mixers of the rod-and-lever variety, but returned to the cable mixer, as it afforded a minimum-depth fuselage profile and corresponding minimal frontal area. Otherwise, we have a new fuselage, rudder, airfoil, spar, elevons, etc.

The airfoil is what Dennis calls the 8-H-15. The 8-H-15 is a laminar airfoil, and this is how it was created: Dennis extracted the basic thickness form and mean line from the NACA 8-H-12, increased the thickness of the basic thickness form to 15%, then combined the 15% thickness form with the 8-H-12 mean line—a new airfoil. This new profile gives us greater spar depth, therefore a lighter spar, and other aerodynamic improvements such as laminar flow. Other performance improvements hoped for will be discussed at a later date. Obviously, other laminar airfoils could have been used, such as the 15-H-15 or one of the Eppler profiles, however, the 8-H-15 appears to be the best profile available at the moment for our purposes, and we are quite hopeful.

Why a laminar profile for homebuilders? From the Standard Roughness Chart we see that even a poor laminar surface is often better than non-laminar sections, so, what do you actually lose? In a rather sadistic manner we also believe that by using such a section, homebuilders will tend to be more careful constructionwise which in turn fosters better homebuilding, sounder construction techniques, and safer flying for all, as well as the best performance possible for the careful builder.

The airfoil does have a peculiarity, as its drag coefficient increases sharply above 75 mph, where the profile leaves its low drag bucket. For in-

stance, the sink rate at 75 mph is only 4.74 fps compared to 6 fps at 80 mph. However, considering the size of the *Dingus*, together with its projected performance below 75 mph, we feel this sudden increase in sink to be of little importance.

The performance projection shown is based on conventional prediction methods. The stall speed is based on an expected $C_{l, \max}$ of 1.0, which seems reasonable.

As for maneuvering ability, we look for the minimum turn radius to be smaller than one would normally expect. The minimum sink speed for the *Dingus* is about the same as the minimum sink speed of many other sailplanes, therefore, one would expect it to have the same turn radius at minimum sink. However, because of its short span, we anticipate a more uniform spanwise load distribution, allowing a smaller turn radius, thus bringing the sailplane closer to a thermal's core. This should permit the *Dingus* to climb at roughly the same rate as longer span sailplanes although it has a higher minimum sink rate.

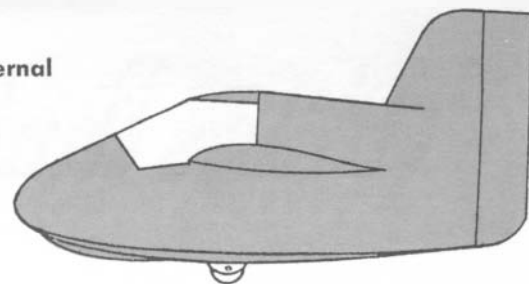
At the moment, a set of complete drawings are being made before actual construction begins on the prototype. Fuselage details are drawn, and are not expected to change appreciably. Wing details have been agreed upon fairly well (with the exception of air brakes) and some rough draft layouts done. Final wing details appear to be the only item of consequence left to be done before the complete final drawings are made and construction of the prototype begun. Later drawing modifications will occur during construction and flight testing.

As many people have already expressed an interest in building a *Dingus*, and as it will hopefully lend itself to modestly filling the requirements of various segments of the soaring fraternity, we intend to provide a comprehensive and detailed set of plans and construction notes, but only after the initial flight tests are satis-

US?

New hopes for an Everyman's glider spring eternal from old desires unrequited. . . . How about a soarable homebuilt you can carry on your station wagon?

By DENNIS HARMON & LARRY LINVILLE



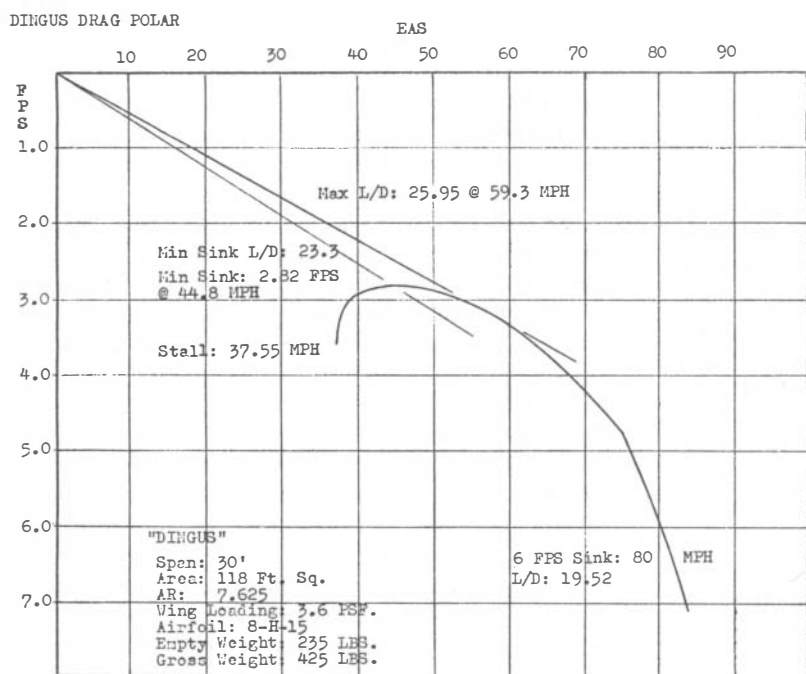
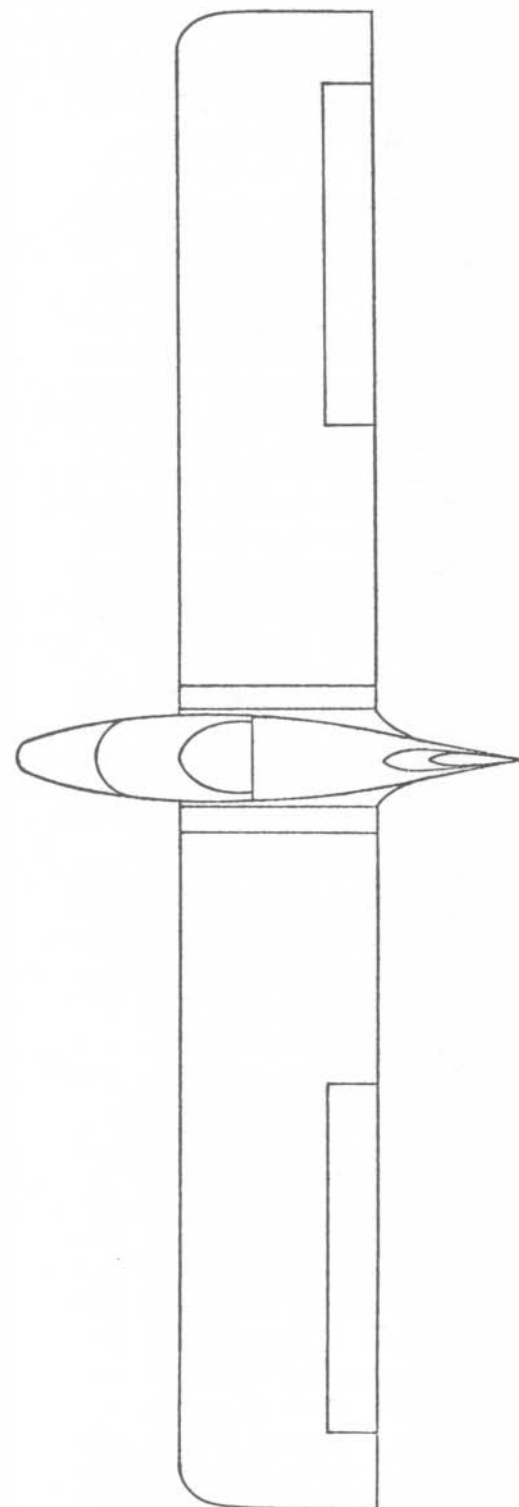
factorily completed.

A constant chord wing was selected for the basic design primarily for ease of construction. However, this planform should be considered the "A" model as we have every intention at the moment to follow this planform with other configurations sometime in the future. In fact, we have toyed with the idea of interesting prospective and technically qualified *Dingus* builders in building variants. For instance, one might try the Wortmann FX 05-H-126 airfoil, another the Eppler 620 series, yet another the 15-H-15, etc. Then again, we have tapered wings, tapered outer panels, swept forward wings, swept rearward wings, and for

one very brave soul, in-flight variable sweep wings. The basic variations are nearly limitless. The basic fuselage drawn will accept most of the aforementioned variations with only minor modifications. Additional performance and stability data would be provided to those who might wish to try one of these variations. In this way, several individuals could contribute considerably to tailless technology.

However, all this still lies in the future. At the moment, the early completion of the design work and prototype construction is our primary concern.

Why the *Dingus*? . . . Indeed, why not?



GENERAL CHARACTERISTICS

Specific Use: Research, Sport.

Fuselage:

Type of construction: Stressed skin.

Basic structural material: Wood.

Skin material: Plywood.

Nose tip: GRP, balsa, or foam.

Wing:

Construction: Cantilever, 2 piece with carry-through.

Planform: Rectangular.

Location: Shoulder height.

Airfoil: 8-H-15

Aspect Ratio: 7.625

Area: 118 ft. sq.

High lift devices: None.

Wing loading: 3.6 lbs./ft.²

Spar material: Spruce, box-type, laminated caps.

Skin material: Plywood—no fabric.

Dihedral: None.

Cockpit:

Controls: Stick.

Instruments: Nominal.

Canopy: Blown or flat wrapped plexiglas.

Visibility: Good.

Landing gear:

Type: Single wheel, fixed, with skid.

Weight:

Empty: 235 lbs.

Gross: 425 lbs. (Pilot @ 170 lbs. + 20 lbs. for parachute.)

Things that go bump in the night

... being John Butler's account of his mortification by, and triumph over, The Device, as printed in TOWLINE, newsletter of the Seattle Glider Council.

About a year ago, four or five of us decided to order a Libelle and build our own trailer. After receiving our bird, we discovered certain flying maneuvers are no-no's. Like applying the hand brake during high speed landings. (The Libelle has a retractable wheel and no skid.) It soon became evident that it tended to land with this wheel in the "up" position. This caused blemishes on its smooth white underside and blushes on the pilot's beery red topside.

Thus, we decided to fix an Electronic Warning Device to alert the pilot that his wheel is still retracted when he opens his air brakes. Naturally we wanted the best. Our reasoning went something like this: If we looked around for the biggest and best aircraft company in the world and then selected their biggest and best electronics ace to design and install the apparatus, regardless of expense, we couldn't go wrong. Dear reader, how lucky we all are to have the famous Boeing Aircraft Company on our doorstep. Here we found the very man we were seeking, trapped within the system and too kind to resist our pleading. He designed and installed The Device—the most sophisticated, sensitive, and shrill-sounding device ever installed in a glider—and we relaxed and looked forward to years of wheel-down landings. However, a slight hint of the trouble that might be in store for us arose in an incident at Fancher Field which followed soon after the Device was installed.

Imagine the scene: It is 2:00 a.m. Gliders and trailers lie bathed in an eerie moonlight. No sound comes from the tents and campers where glider pilots lie dreaming. Suddenly, shattering the stillness, a banshee wailing awful to hear screams across the field. People start from their beds. Children cling to their terrified mothers. Can such a sound,

at such a time, come from anywhere but Beyond the Grave?

People investigated. It became obvious that the Device had gone off spontaneously inside our glider. In our pride and joy at having a Libelle—particularly with a Device—we had naturally locked and barred the trailer doors, and of course, our man with the keys was in Seattle, miles away. No one could get in. Pajama-clad figures hammered on the white aluminum with their bare fists in rage and frustration. But the noise continued. Finally it became obvious that there was only one method of escape. A mass evacuation started. Everyone who could, hitched up his wagon, camper, or trailer and moved to the very farthest end of the flying field where the noise was still audible but less disturbing. Apparently our battery was still bouncing it out at 11:00 a.m. that morning.

Obviously something had to be done. So the trailer was towed back for a 'modification' of the Device. It fell to my lot to tow the trailer back to Wenatchee that weekend. I remember it seemed a particularly busy Friday evening as I set off through the downtown area. . . . I suppose I had covered about a mile when the Device went off again. I was in a line of slow-moving traffic with shops and parked cars lining the side of the road. It was character-forming, to say the least. I couldn't stop with a 30-foot trailer on behind. Two well-meaning automobile operators alerted me to the fact that I had a 'nasty noise coming out of the back.' Several wretched little children began following and shouting from the sidewalk. We reached an intersection and stop light where, horror of horrors, a police patrol car drew alongside. I stared fixedly at the lights, pretending not to have noticed anything amiss. Out of the corner of my eye I saw the cops staring at me. They began to wind their window down. Then the lights changed. Since they were in the left-turn lane they had to veer off and I got away into lighter traffic and then the freeway. There I could have stopped. However, I doubted my ability (because of age and obesity) to squeeze inside the trailer into the 4-inch clearance between wings and fuselage, get the canopy cover off, and find the vital part. So I tried the subterfuge of disguise. Making like a tourist, I turned on the radio as loud as possible, opened the car windows and hurtled



the screaming monster the ten or so freeway miles to my home. Once there, neighbors seemed to flock from miles around to help. I got the glider out, turned off the sonic boom, and had a double brandy to quiet down my own system.

A less intrepid group than ours might have given up at this point. Not us. We made another simple and rapid modification. The next weekend saw some happy hours of trouble-free flying with the Device operating superbly. The following weekend it was my turn again. I had screwed up my courage for a Gold C out-and-return run. On tow at 600 feet I retracted the wheel. Dear reader, have you ever had a blow on the back of the head with a blunt instrument? That was what seemed to happen. Noise exploded. The steady hand on the controls shook until the tug pilot thought I was signaling for more speed. He responded gamely. I tried everything to stop that noise. Turning off the electrics did nothing since it was on a special circuit. The only way to gain relief was to pull the wheel out again. Which I did. At the regulation height I released.

A Gold C required the best of pilot and aircraft. Gritting my teeth I retracted the wheel. The noise started again. Out with the wheel quick. A bundle of nerves, I could make nothing of the local thermals and naturally attributed my incompetence to the drag of the wheel. So I decided to grin and bear it. Up with the wheel and on with the wailing.

After an heroic 90 seconds I had had enough. I recalled a famous murder story where the victim succumbed to the noise in a bell tower. Then I saw two little wires attached to a switch in front of the airbrake lever. A great moral issue arose. Should I risk permanently damaging the Device by pulling off these wires—a maneuver which might not be successful anyway and which would sorely upset my colleagues—or should I land and risk losing a Gold C chance? It took me a fraction of a second to decide. I pulled the wires. The noise stopped. Magically, the glider started soaring upward. Silence was never so golden. I turned toward Coulee City and was on my way. . . .

There is a postscript. I didn't get back. But this had nothing to do with the Device; just poor judgment. Mercifully, the Device could be repaired by our electronics ace, so I had not robbed our team of their most precious heritage. One thing occurs to me, though. When I landed out in the wilds on that trip, I remembered to pull the wheel down, in spite of the lack of the Device. Can it be that devices, like children in Victorian times, should be seen but not heard?





SSA DIRECTORS' MEETING

By LLOYD M. LICHER
SSA Executive Secretary

Once more near-perfect attendance was realized for an SSA Board meeting when 25 of the 26 SSA Directors met at Dallas, Texas, on the weekend of January 22-23rd, in conjunction with the First Annual National Soaring Convention. The two sessions were shortened to mesh with the Convention schedule, but allowed discussion of all agenda subjects, thanks to many reports that had been published and distributed earlier in the month. A review of major subjects covered and actions taken follows:

TREASURY: The Treasurer reported that the Society was in a sound fiscal position with a nearly balanced operation and reserves of some 15% of the 1971 annual budget of nearly \$250,000.

MEMBERSHIP: It was reported that the membership had reached another new high of 10,866 at the end of 1971, composed of 8,718 voters, 962 Associates, and 1,186 Students, and was increasing at a new rate of about 575 per year, mostly in the voting member category.

CONTEST NUMBERS: A proposal to institute an annual fee for nonuse (in SSA-sanctioned contests) of SSA contest numbers for sailplanes in order to obtain the release of some numbers to meet the increasing demand was not approved. Instead it was decided to make available the alpha-numeric series of two-digit figures.

DISNEY MOVIE: When it was learned that the Disney Studio would likely rerun on TV their movie about "The Boy Who Soared With the Condors" if enough requests to do so were received, a resolution was passed to have the Society make such a request and urge its members to do likewise. Address requests to Mr. Ron Miller,

Executive Producer, Walt Disney Productions, 500 S. Buena Vista St., Burbank, Calif. 91503.

YOUTH ACTIVITY: Authorization was given to conduct an inventory of youth activity in soaring in the U.S. during 1971. Questionnaires will be mailed to all soaring clubs and schools in the near future. Anyone else who participated in such activity is hereby requested to ask SSA for a copy of the questionnaire, also.

SSA MOVIE: At the suggestion of the SSA Business Members it was agreed to investigate the various aspects of producing an introductory/promotional movie. President Miles Coverdale will coordinate the investigation.

1973 CALENDAR: In view of the good reception of SSA's full-color calendar for 1972 it was voted to do likewise for 1973. Members are urged to submit suitable color slides for this purpose.

SOARING MAGAZINE: New rates for advertising in *Soaring* were approved, including the establishment of cover rates for full color and duotone, effective with the April 1972 issue, except that previous contracts will be honored through the October 1972 issue. The partial-page rates remain essentially the same; however, the full-page rate was increased from \$171.60 to \$190.00, to be more in line with industry practice. The Directors voted unanimous thanks to editor Doug Lamont for the excellent work he has done on the magazine—by acclamation.

POLICY MANUAL: Secretary Lewis Hull reported nearing completion on the compilation of a summary of all past policies adopted by the SSA Directors. The result will be a policy manual, to be published later in 1972.

MUSEUM: Approval was given to

conduct a fund drive for the purpose of erecting a building to house sailplanes at the National Soaring Museum on Harris Hill at Elmira, N.Y. It was also agreed that the Museum should be incorporated under the education laws of New York State.

SAILPLANE DESIGN COMPETITION: A. J. Smith reported that 21 entries had been declared and that the judging criteria had been published as SSA Item #48 and distributed to all entrants (copies available upon request to SSA). The prize fund contained only about \$500 so additional efforts will be made to secure a larger amount. Contributions to SSA for this purpose are needed.

NATIONAL SOARING SITES: The possibilities of SSA acquiring various properties, to be designated as National Soaring Sites, were discussed. The owner of one in particular, near Fort Collins, Colo., was present to explore the possible transfer of title to SSA if a suitable plan of development was offered. SSA's Development Board will pursue the matter and evolve a proposal for the acquisition and development of such sites.

STANDARD CLASS NATIONALS ENTRY: The Contest Board announced a set of rules for entry priority for the Standard Class Nationals to which there was no objection so it was implemented. Essentially it is the same as that for the Open Nationals, with the addition to categories 1 and 3 of similar placings in Standard Class Nationals, and substituting Standard Class Regionals for Nationals in category 2. The principal basis for this selection procedure is to admit all pilots who stand a chance to win. It should also help promote the orderly growth of Standard Class by encouraging a high standard of competition. The new priority rules have been published as SSA Item #73-S (copies available upon request to SSA). Discussion continued on the desirability of scoring Standard Class separately in Regional Soaring Championships. In view of the support for this change Contest Board Chairman Ivans said he would study the matter and rule on it in the near future.

U.S. TEAM: Preparations for sending the U.S. team to the 1972 World Championships in Yugoslavia were reported to be on schedule. The Team

Fund had grown to \$12,000, thanks to the good response of the members to a fund solicitation letter sent out late in December. More will be needed, however, so members who have not yet responded to the letter are urged to do so.

1972 BUDGET: A budget for fiscal year 1972 (ending Oct. 31st) was adopted which authorized expenditures totaling \$270,000, including \$104,000 for *Soaring*, \$142,000 for the office, and \$24,000 for Society expenses. Income was expected to exceed this by a small amount.

ULTRALIGHTS: By far the most controversial and time-consuming subject on the agenda was ultralight gliders. Up for consideration was a proposal that SSA petition FAA to issue an Advisory Circular (suggested wording to be provided by SSA) that would define ultralights (no engine, wing loading less than 3 lbs./ft.²), specify limitations for them (solo, no aero tows, not exceed 100 feet above terrain, keep 300 feet away from structures and people, not for hire, etc.), and exempt those so limited from pilot and airframe licensing requirements. There was opposition to getting so involved, and some support. The Society's position paper on hang gliders, as printed in the November *Soaring*, was reconsidered and there was a move to withdraw it for further study, but in the end it was decided to retain it as an interim policy. It was felt that the Directors did not have enough information about the activity to act on the Advisory Circular proposal, so a committee under the Development Board will be established to fill that need. Some concern was expressed over the amount of coverage ultralights had received in *Soaring* but the editor pointed out that it had been only seven pages out of some 500 in 1971.

BALLAST: Another controversial subject was how best to deal with the water ballast issue. It was proposed that a mild exemption for over-gross ballasting be requested of FAA; however, it did not receive much support in view of the possibility that such ballasting could be legalized by converting to experimental airworthiness certificates. It was reaffirmed that SSA could not act as an enforcement agency for FAR's and in the end a motion was



The Board listening to SSA Safety Chairman, Stephan Horvath.

passed to table the discussion.

AIRSPACE: Soaring in the Air Traffic Control environment was discussed to try and determine if the Society should alter its policy and efforts in this regard. Some thought the present policy was the most effective while others believed that Congress should be approached. The consensus was that members ought to be encouraged to write thoughtful, constructive (not crank) letters to Congress and FAA concerning provisions for sailplanes sharing the airspace.

TRANSPO/72: Plans were reviewed for SSA participation in TRANSPO/72, the national air show/transportation exhibition scheduled for May 27-June 4th at Dulles Airport in Virginia. Floyd Sweet will coordinate the sailplane flying/static displays and the sharing of an information booth with the National Sport Aviation Council. Volunteer SSA members are needed to help. One million visitors and numerous FAA employees are expected to attend, all of whom could learn more about soaring from this display.

REGION BOUNDARIES: An in-depth study of SSA Region boundaries is now underway by new Director Robert Semans and others. Members with comments on this subject should transmit them to Semans at 1970 Sacramento St., #101, San Francisco, Calif. 94109.

SSA BRANCHES: A proposal to amend the bylaws to provide for SSA

Branches, national soaring organizations devoted to a special field of soaring activity, was tabled to allow more time for study of the matter.

SAFETY: Under other business, a proposal by Fred Robinson (Great Western Soaring School) to establish a Council of Safety Advisors, was discussed. SSA Safety Committee Chairman Stephan Horvath had some comments to make, also, and said he would be making some recommendations for action by the Directors.

STUDENTS' VOTE: A recommendation from the SSA Youth Education Committee that SSA Student Members be allowed to vote for SSA Directors was referred to the Elections and Allocations Committee (Robert Semans) for consideration with the Region boundaries issue.

EXECUTIVE COMMITTEE: The President and two Vice-Presidents (Coverdale, Griffith, and Williams) were designated to serve as an Executive Committee, with the power of the Board, until the next meeting.

NEXT MEETING: The date of the next meeting was set as July 28th, at either Reno or Minden, Nevada, whichever is used as the Nationals site.

RESOLUTION: The meeting concluded with a resolution of commendation for Marion Griffith and those who assisted him in staging a most successful First Annual National Soaring Convention and associated meetings.





Some of the hundreds of diners who gathered to pay tribute to SSA Award winners.

A lens'-eye sampling
of the midwinter

AWARD BANQUET

by James Elliott

The Eaton and Barringer Memorial Trophies are SSA's two highest non-competitive awards. Florence Hausler seems to be saying "Not me?" as she learns that she will share the Eaton Trophy with her husband Walter. For the fifth consecutive time Wally Scott claims the Barringer Trophy awarded for the year's greatest straight-line distance flight.



A new Presidents' Gold Medal was awarded for the first time this year. Among the ex-presidents present to be recognized were Bernald Smith (left), Bill Ivans (center), and Paul Schweizer (below).



Some other recipients and awards:
Paul Bikle, Tuntland Award



Joe Lincoln,
SSA Exceptional Achievement

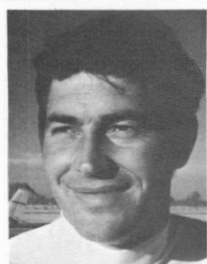


Ben Greene (proxy for Red
Wright), SSA Exceptional Service



Ed Byars (proxy for
Karl Striedieck), SSA
Exceptional Achievement





SAFETY CORNER

ST. HORVATH

SAFETY—IN BITS AND PIECES

The following contributions to soaring safety are much appreciated.

George Kern: "After a careful cockpit-check I took off with the divebrakes open. My face is still red . . ." **Lyle Hoag:** (*West Wind*) "The rate of sink was much greater than expected and the pattern quickly became sub-marginal. During the last-minute 180, the wind gradient reduced the already marginal speed to a stall; contact of the left wingtip, then the forward fuselage, was almost instantaneous. I had superficial injuries and later X-rays revealed a crushed vertebra. The damage I suffered is exactly the outcome predicted in every textbook discussion of inadequate patterns and low and slow turns . . ." **Pete Bice:** (*West Wind*)

"Don't move. Feel anything broken? There is no hurry now. Look at those wings—really ripped up. Walking along the parking lot—no wonder! I landed downhill! If only I had made my approach the way I had originally intended. If only, if only, if only." (Pete drifted from good landing position while trying for a last-minute "save") . . .

John Armitage: (John's *Diamant* was damaged on takeoff from a farmer's field. He feels that improper "casing-the-joint" was at least partially responsible for the damage.)

"Perhaps some of you cautious readers can read yourselves into my nice *Diamant* recliner and ask, 'Have I really done all that I can to avoid the next lurking accident, or do I just call myself cautious and safe and let that lull me?' . . ."

A Glass Ship Owner: "I believe in cockpit-checks . . . especially since the release-knob came off in my hand . . ."

John Firth: "I was locally regarded as being rather over-enthusiastic about stall and spin practices. The comments ceased after a fatal spin accident of a low-time pilot." (John also relates a spin-in of a "high-time" pilot who almost became a statistic.)

Thank you all for sharing your experiences. Perhaps this will prompt others to do the same and give the rest of us a second chance. Let's hear it for the boys!

HANG-GLIDER SAFETY—A MYTH EXPOSED

Hundreds of people, not realizing the inherent dangers, are jumping on the hang glider band wagon. They are attracted by the apparent simplicity, low cost, and suggested safety of these ultralight flying machines that depend on the athletic ability of the pilot for control. Since there is no regulating body to offer safety guidelines, these primitive contraptions can be built and flown by anyone, anywhere.

While the current hang glider craze traces its origins to water skiers who learned to fly them with relative safety (water being more forgiving than land), the sport has now moved over land. Here the smallest of errors can result in

serious injury, even death, for the pilot.

John D. Cavanaugh and Patric Ball, two California men, were killed while car towing manned kites. Investigation leaves but little doubt that a try at self teaching in one and inadequate construction methods in the other were responsible for their tragedies. Some other near disasters while car towing were reported as being mostly due to poor structural integrity.

No one suggests that there is no room for hang gliding in SSA, but it seems obvious to me that some sort of policing will be necessary before hang gliding can take its place as a safe sport. Right now the "low and slow" fans are learning the hard way that if you can fly it, it can also kill you.



OLD DOG'S TESTAMENT . . . YOUR SUPER BIBLE



The Gospel of soaring by new convert, Richard A. Wolters, will make you a disciple. You'll be smitten by 200 pages of beauty and revelations, Nikon motor drive photos and the clearest drawings on flying since the Sistine Chapel.

Autographed copy—\$14.95 add tax

Send particulars for an Old Dog personalized inscription and blessing over his signature.

LEISURE BOOKS, BOX 67, OSSINING N.Y. 10562



Share a little . . .

The Blanik combines the best of all worlds; two seats, 28:1 performance, docile flight characteristics, robust, superbly handcrafted all-aluminum structure.

To share a little, contact Yankee Aviation, 5 Goodman Lane, Wayland, Mass. 01778. (617) 358-4968. We also build open and enclosed trailers for the Blanik or the glider of your choice, and supply you with the finest in avionics and instruments.



HEROLD'S HEARSAY

CARL HEROLD

Saint Louis Soaring Association Thinks Big: The December issue of *Cu Bird*, SLSA's newsletter, printed the following note of interest: "The combined reading public of the *Cu Bird* and the *Readers' Digest* is now over 31 million strong."

Sailplane Tie Downs: "Many sailplanes are damaged on the ground by the wind. It is usually due to leaving the ship unsecured or using inadequate tie downs. In the normal tail-down position, the wing has a high angle of attack. A 2-22 or a 2-33 (empty weight of about 500 pounds) facing into the wind will be subjected to approximate lift forces as shown below:"

| Wind Speed | Lift Force | Net Lift Force |
|------------|------------|----------------|
| 30 mph | 750 lbs. | 250 lbs. |
| 40 | 1300 | 800 |
| 50 | 2000 | 1500 |
| 60 | 2900 | 2400 |
| 70 | 3950 | 3450 |
| 80 | 5200 | 4700 |

The above calculations were printed in the August/September issue of *Free Flight*, the official publication of the Soaring Association of Canada (SAC). From the foregoing it is obvious that many of us tie our sailplanes with inadequate ropes to inadequate (or unknown) anchors. Bear in mind that a knot can weaken rope strength by 50%. Thus a 1500-lb. towrope should be considered as marginal in winds of 50 mph. In strong winds, the tow-hitch should be chained to, and directly over, a well-installed ground anchor with the tail elevated and securely fastened to an elevated stand. This will keep the glider from bouncing in high winds which can buckle struts, bend wings and axles. Many glider pilots also don't seem to realize that the wing tie-down points on most sailplanes will not take 1000-lb. plus loads. How about you?

Wave Alert System: Weatherman and glider pilot Chuck Lindsay is providing a wave alert for members of the Mid-Atlantic Soaring Association in Maryland. Club member Billy Thomas acts as coordinator, notifying members

who have asked to be forewarned of wave-flight possibility when forecasts appear favorable. This is a good idea, whether wave or thermal forecasting, as it means the meteorologist has an opportunity to correlate his forecasts with pilot reports. Good soaring meteorologists need your resulting flight experience to help them correlate with the general circulation and sounding data at the NWS stations. It also helps if in your soaring locale, you are able to get a meteorologist interested in becoming a soaring pilot. In this manner, your own ability to make forecasts will mature through the exchange of information with a meteorologist who understands and is sympathetic to your needs. You will also get a better insight of the limitations of the NWS data which is more concerned with general circulation of the atmosphere than with micro-meteorology. It takes the experience of many soaring flights over a long period of time before reliable insights are developed by the glider pilot who wants to do his own forecasting, whether for record, badge, fun cross-country, or local soaring.

Sailplane Census: Raymond Shamblen, our Society's diligent Sailplane Census Committee Chairman since 1965, submitted his annual report to the SSA Directors, dated December 15, 1971. He wrote, "The census file currently lists 2313 aircraft, of which 55 are powered. How many of these are active and licensed is not known, but all have been registered with the FAA by their owners."

For your interest, I have summarized the reference list in several ways below.

Rank Order by Manufacturer

| Order | Manufacturer | U.S. Totals | |
|-------|-------------------|-------------|----------------|
| | | Dec. '69 | Dec. '71 |
| 1 | Schweizer | 968 | 1053 |
| 2 | Homebuilt* | 259 | 304 |
| 3 | Schleicher | 175 | 212 |
| 4 | Glasflugel | 81 | 140 |
| 5 | Schempp | 52 | 100 |
| 6 | Laister-Kauffmann | 78 | 79 (156 built) |
| 7 | Bolkow | 42 | 51 |
| 8 | FFA (Diamant) | 22 | 36 |
| 9 | Pratt-Read | 36 | 34 (75 built) |
| 10 | Blanik | 12 | 33 |
| 11 | Slingsby | 21 | 31 |
| 12 | Fournier | 6 | 18 |
| 13 | Prue | 13 | 13 |

*This estimate does not include LP-49, 1-26, and Ka-8 kits.

In December of 1969, Ray submitted a count of 1,971 gliders. Thus there has been a growth of 18% in two years. Analysis of this updated list shows that 33% of all gliders are multiplace, and that imports constitute 29% of the 2313 gliders. It is interesting to note that a breakdown by spar material is approximately 54% metal, 32% wood, and 14% fiberglass. Since 1969, the percentage of fiberglass ships has climbed from 9% to 14%. At least 27% of the ships meet the Standard Class requirements.





USING THE WEATHER

JOHN A. DRICH

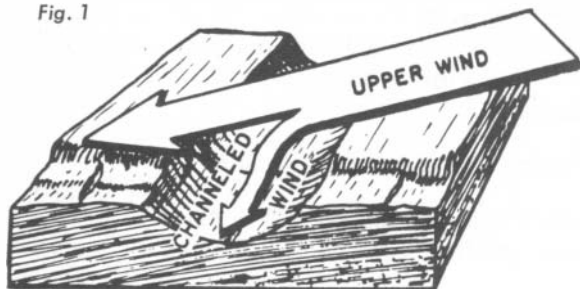
More About Terrain Effects

My last column, which dealt with valley and slope conditions, considered only the heating effects under a "no-wind" assumption. There are many rules and many exceptions about terrain effects, as the number of combinations approaches infinity.

The role of stability is important. If prevailing winds are strong under *unstable* conditions, like those which favor good thermals, the terrain effects are helter-skelter—anything can happen, including break-up of thermals. Under such conditions (meaning lapse rates on the order of 5½ degrees F. per thousand feet), don't look for shelter or lift over lee slopes of ridges that many pilots will tell you are there; they usually are (because wind and stability most often go together), but beware of the exceptions. Such instability is most likely following passage of a cold front, and may be noted by cumulus-type clouds, exceptional visibility, or thermals—combined with windy conditions.

Airflow follows the rules much better under *stable* conditions, which favor slope and wave-type soaring. Channeling of upper winds deflected by a valley (Fig. 1) is self-explanatory and can be applied to your favorite

Fig. 1



From THE APPROACH.

soaring site if there is a valley nearby. Also shown (Fig. 2) is airflow through a mountain pass. Such a wind flow requires higher pressure on the light wind side, being forced through the pass toward lower pressure on the downwind side. Air being funneled in this manner may well be stronger than winds in the free air above the ridge level. Eddies on both sides of the stronger winds below the pass (not illustrated) will fan out and often produce a reverse flow nearby. This is largely academic,

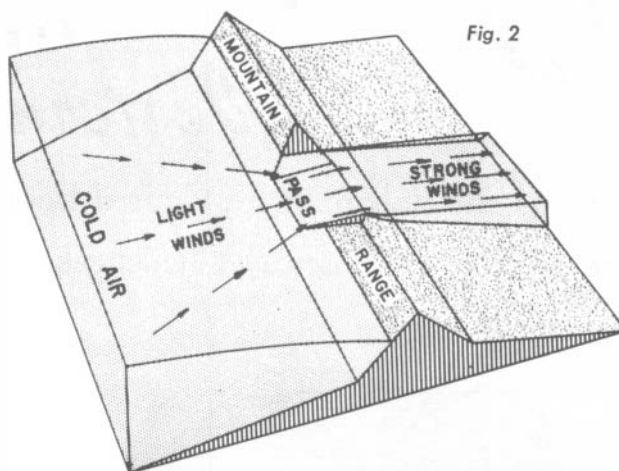


Fig. 2

From THE APPROACH.

though, because it's probably an area of sink and you won't be flying there for long. Instead, look for a slope on either side of the pass exposed to direct rays of the sun, preferably facing slightly in an upwind direction.



The new, improved "PIEP" audio unit for non-electric variometers



- ☐ Improved configuration permits installation in panel space only 3-inches wide x 1½ inches high, or may be mounted on any 3-inch x 5-inch area.
- ☐ Operates equally well with all types of variometers, standard or total-energy: just connect the PIEP in the tubing between the variometer and flask, and attach the cable to a 12-volt battery.
- ☐ The new PIEP may also be used as an independent audio system if connected to a separate half-liter flask.

PIEP audio unit, with cable and connector, \$84.50 ppd.

Optional kit for independent operation; includes flask, total-energy compensator, tubing, tee, and battery: \$27.50 ppd.

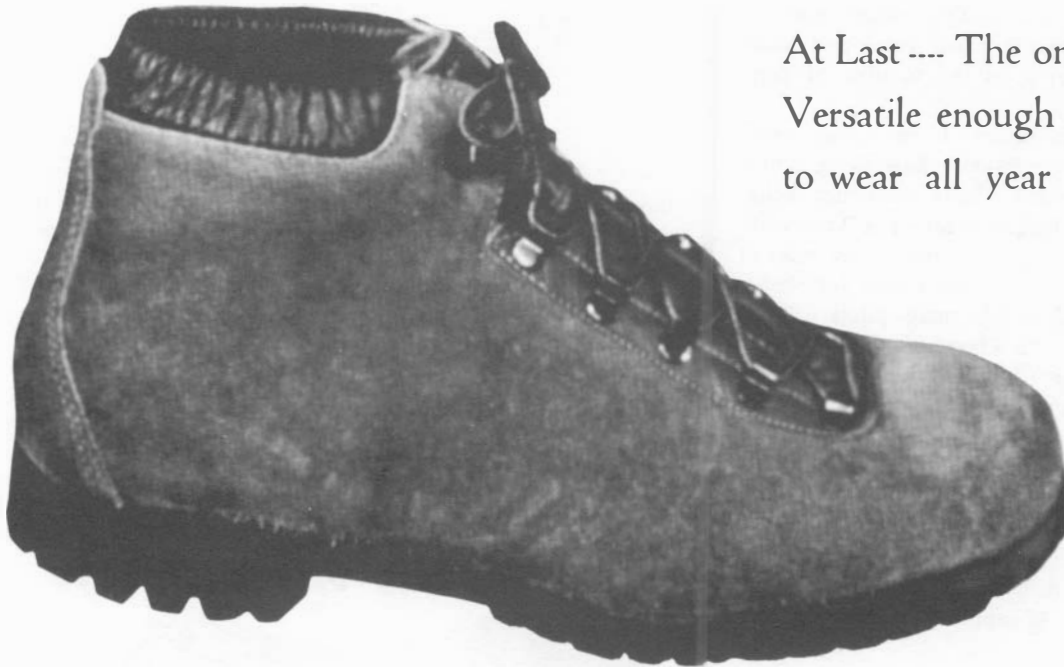
GRAHAM THOMSON LTD.

3200 AIRPORT AVENUE
SANTA MONICA, CALIFORNIA 90405
(213) 398-4714

The Original

WAFFLE STOMPERS from *Western Soaring*

Here are the Italian Hand-Crafted Boots
that take on all Soaring Challenges.



At Last ---- The only Boots which are
Versatile enough for Soaring People
to wear all year long.

These boots are a fantastic combination of stylishness, ruggedness, warmth in winter, coolness in summer, yet very lightweight and extremely comfortable. Brown suede, full leather lined, padded, elasticized top binding, padded tongue, cushioned insole with lightweight flexible Vibram soles and heels. Exclusive metal eyes which require only one pull for complete lacing and unlacing.

The comfort you want and the footing you require while handling that precious sailplane!

IMMEDIATE DELIVERY FROM STOCK . . . Ladies' whole and half sizes: 5½ — 9½
Mens' whole and half sizes: 6 — 13

WE GUARANTEE A PROPER FIT.

Just \$20.95

(Compare in better shoe stores at \$26.00)

Include: \$1.50 for handling and shipping.
State sales tax (California residence).

When ordering, please follow these steps carefully:

- 1) Put on the socks you intend to wear. Stand up on a piece of paper, having the weight of your body equally distributed on both feet. Holding a pencil vertically, clearly define the outline of each foot.
- 2) State your usual dress shoe size. Give both length and width; for example - 9 C.
- 3) Enclose the foot outline and your dress shoe size with your order.

SEND YOUR
ORDER TO

Western Soaring
1812 Delaware Street, Berkeley, California 94703
415-841-8750



INTERNATIONAL F.A.I. BADGES FOR SOARING Earned in the United States Approvals for Applications Received During Dec. 1971

DIAMOND BADGES

214. Bernard Paiewonsky (Intl.
1059)

International Number Assigned
1053. Kenneth S. Hendrickson
(U.S. 213)

GOLD BADGES

691. Theodore E. Grabowsky
692. Karl W. Kretschmer
693. Allan B. Krosner
694. William J. Betts
695. Theodore A. Clausing
696. Bernard Paiewonsky

SILVER BADGES

2184. Paul Leverkuehn
2185. Leila I. Claxton
2186. Frank Daley
2187. David Rohn
2188. Roger S. Doak
2189. Frank G. Cain III
2190. William J. Wells

ALTITUDE DIAMONDS

16,404-ft. gain (All Wave Flights)

Galt Bowen; 10,230' gain
to 27,850'; 1-23; Pendaries, NM
Theodore Clausing; 18,200' gain;
to 31,000'; 1-34; Colorado
Springs, CO
Roger Doak; 18,100' gain to
31,200'; AS-W 15; Colorado
Springs, CO
Eugene Hamm; 19,900' gain to
25,100'; 1-26; Mojave, CA
Allan Krosner; 17,850' gain to
23,650'; LK-10A; Rosamond, CA
Bernard Paiewonsky; 17,000' gain to
31,000'; 2-32; Colorado
Springs, CO
David Weaver; 17,000' gain to
31,000'; 1-34; Colorado
Springs, CO

DISTANCE DIAMONDS

310.7 miles

Marvin Davis; 315.5 mi. from 10
mi. SW of San Marcos, TX to
Ardmore, OK; SHK-1; 5:58 hr.
(July)
Theodore Grabowsky; 356 mi. from
Colorado Springs, CO to Beloit,
KS; Diamant; 6:40 hr. (July)

GOAL DIAMONDS

186.4 miles O&R or Triangle

David Andrews; Libelle; Eagleville, TN
Hugh Bivens; Libelle; Moriarty, NM
Karl Kretschmer; Ka-8B; Blairtown,
NJ

GOLD ALTITUDE LEGS

9842-ft. gain

Christopher Barker; 18,600' gain;
1-34; Pearblossom, CA (Wave)

William Betts; 12,280' gain to
15,410'; Siren, Frederick, MD
(Wave)
Theodore Clausing (see Dia. alt.)
Leila Claxton; 1-26; Elsinore, CA
Nancy Crews; 13,200' gain to
20,100'; 1-34; Pearblossom,
CA (Wave)
Helmut Dette; 10,200' gain to
24,000'; 1-34; Colorado Springs,
CO (Wave) certified to Germany.
Paul Deutsch; 10,200' gain to
17,700'; 1-34; Pearblossom, CA
Roger Doak; 11,500' gain to
21,200'; AS-W 15; Waverly West,
CO (Wave)
Theodore Fiedler; 14,500' gain to
27,500'; 2-32; Colorado Springs,
CO
Manfred Fritz; 11,100' gain to
26,000'; 1-26; Colorado Springs,
CO (Wave) certified to Germany.
Allan Krosner (see Dia. alt.)
Paul Leverkuehn; 12,400' gain to
27,200'; 1-26; Colorado Springs,
CO (Wave)
Michael Moore; 13,000' gain to
28,000'; 1-26; Colorado Springs,
CO (Wave)
Leon Morris; 11,200' to 16,900';
1-26; Pearblossom, CA (Wave)
Bernard Paiewonsky (see Dia. alt.)
Wayne Schmitt; 12,000' gain to
25,050'; 1-26; Rociada, NM
(Wave)
Wilmar Sick; 10,900' gain to
14,500'; Cirrus; Frederick, MD
(Wave)
Kenneth Slavens; 11,500' gain to
13,100'; 1-26; Calistoga, CA
(Wave)
Billy Thomas; 14,700' gain to
28,500'; 1-26; Colorado Springs,
CO (Wave)
David Weaver (see Dia. alt.)
Charles Weed; 10,600' gain to
14,000'; 1-26; Elsinore,
CA (Wave)
Patrick Wybrow; 12,500' gain to
26,800'; 1-34; Colorado Springs,
CO (Wave) certified to Britain.

GOLD DISTANCE LEGS

186.4 miles

David Andrews (see Dia. goal)
Marvin Davis (see Dia. goal)
Karl Kretschmer (see Dia. goal)

SILVER BADGE LEGS

Altitude: 3281-ft. gain

Jerry Auerbach; 1-34; Pearblossom,
CA
Christopher Barker (see Gold alt.)
John Carver; 2-33; Colorado Springs,
CO
Roger Doak (see Gold alt.)
Paul Deutsch (see Gold alt.)
Theodore Fiedler (see Gold alt.)
Albert Holman; 1-26; Rockwall, TX
Bernard Hudgens; 1-26; Lafayette, IN
Guy Maugein; 1-26; Pearblossom, CA
Paul Scesniak; 2-33; Colorado
Springs, CO
Benjamin Wade; AS-K 14; Germany
Charles Weed (see Gold alt.)
Distance: 31.1 miles
Frank Cain; BG-12; Oviedo, FL
Frank Daley; Ka-6; Blairtown, NJ
David Rohn; A-60; France
William Wells; Ka-6; Germany
Duration: 5 hours
Leila Claxton (see Gold alt.)

Kevin Connelly; 1-26;
Mokuleia, HI
Albert Holman; 1-26; Rockwall, TX
Paul Leverkuehn; Ka-7; Germany
John Lewis; 1-26; Estrella, AZ
Daniel Murphy; 1-26; Elsinore, CA
Robert Terry; 1-26; Elsinore, CA
Altitude/Duration
David Rohn; A-60; France
William Wells; Ka-8; Germany
Richard Williams; Ka-8;
Cumberland, MD

C BADGES

30-minute flight

5634. Christopher L. Barker
5635. Ronald E. Bishop
5636. David A. Cole
5637. Mark A. Conner
5638. John W. Dunn
5639. Dale A. Fletcher
5640. Gerald R. Johnson
5641. Guy P. Maugein
5642. James F. Munn
5643. Mark Norris IV
5644. Everett E. Rankin
5645. Rodney R. Rubert
5646. David F. Shaw
5647. Scott P. Tilton
5648. Murrell E. Wald
5649. Sheffield M. Worboys

B BADGES

5-minute flight

Ronald E. Bishop
David A. Cole
Mark A. Conner
Henry P. Erwin, Jr.
Paul Fox, Jr.
David V. Gorky
R. F. "Casey" Holm
Gerald R. Johnson
Robert M. McNelis
Mark Norris IV
Gill Paszek
Everett E. Rankin
Rodney R. Rubert
David F. Shaw
James M. Shultzman
Scott P. Tilton
Sheffield M. Worboys

RECORDS APPROVED

World, U.S. National and Pennsylvania;
Single-place; Open; Out & Return;
569.36 mi. (916.30 km.); Karl H.
Striedieck; AS-W 15; Nov. 7; Port
Matilda.
Florida; Single-place; Sr.; Speed for
100-km. Triangle:
48.1 mph; J. S. Trowbridge;

Std. Libelle; Dec. 12; Oviedo.
50.5 mph; J. S. Trowbridge; Std.
Libelle; Dec. 31; Indiantown.
Michigan; Single-place; Open; Goal;
396 mi.; Fred Huenl; Std.
Cirrus; July 14; Ionia.
Michigan; Single-place; Jr.; Dist.;
196 mi.; Herbert Mozer; AS-W
15; April 25; Adrian.
Michigan; Single-place; Jr.; Goal; 37
mi.; Thomas O. Geyer; Ka-8; Aug.
25; Oxford.
Minnesota; Multiplace; Open/Sr.;
Dist.; 60 mi.; Walter Hardie;
Ka-7; Oct. 8; Stanton.

FREE ITEMS FROM SSA

The Soaring Society of America has
a variety of items available on a
free distribution basis, including
the following (request by item
number or name from SSA, Box
66071, Los Angeles, Calif. 90066):

- SSA Membership Application
Form.
- "SOARING" . . . The S.S.A. . . .
and YOU" pamphlet. Tells
about the activity, glider pilot
certificates, how soaring is
organized, SSA, and how to
get started in soaring.
- List of Soaring Clubs.
- List of Soaring Schools.
- List of Books on Soaring.
- SSA Merchandise Order Form.
- Incorporation Procedures —
Calif. non-profit clubs.
- Suggested Bylaws for Soaring
Clubs. For clubs being formed
only.
- List of Soaring Films Available.
- Annual and 100-hour Glider
Inspection Report Form.
- How to Start a Soaring Club.
- State Soaring Records Rules
and Application Form.
- SSA Chapters. Lists benefits
and policies and tells how a
club may apply for SSA Chap-
ter status.
- Poster to Promote Soaring,
11.5" x 15". Includes pad of
tear-off forms for information
kits. Has space for local
information.
- SSA Membership Benefits.
- Contents of OSTIV Publica-
tions.
- SSA's Traveling Photo Display.
Describes the display, rules,
and fees for its use.

1st National Soaring Convention Commemorative Shirts

Cloth patches for hat or coat.....\$2.00
Sweat shirts, blue with white letters
and sailplane design, sizes L & XL.....\$5.00
T-shirts, blue with white letters
and sailplane design, sizes M & L.....\$3.00

Prices include tax and shipping.

Dallas Gliding Assn., Inc.
4031 Fawnhollow, Dallas, Texas 75234

Classified Advertising

The rate for classified advertising is 25¢ per word (or per group of characters). A fee of \$8.00 is charged for each photograph (subsequent insertions of the same illustration—\$5.00). The closing date for accepting ads is the 20th of the month preceding publication (the magazine is published and ready for mailing to subscribers on the 15th of the month preceding the cover date). Thus the deadline for receiving a classified ad for, say, the May issue would be March 20th. Send ad, photo (color or b&w print but no slides, transparencies, or negatives), and check (payable to SSA) to:

Classified Advertising Department
SOARING Magazine
Box 66071, Los Angeles, Calif. 90066

SAILPLANES FOR SALE

SCHREDER'S ORIGINAL HP-10, now Standard Class, excellent condition. Fully instrumented plus T&B and vertical speed. Quick-load enclosed trailer and many extras. Sell or trade down to 1-26. Jim Foreman (806) 352-8546.

HP-13H, with trailer. \$3950. 200-plus hours, several thousand contest and x-c miles. Bill Holbrook, 408 Washington St., Cumberland, Md. 21502. (301) 722-5535.

Sailplanes for Sale

| | | |
|--------------|-----------------|------------|
| 1-26B #176 | Trailer | \$3300 |
| 1-26B #193 | Trailer | \$3500 |
| 1-26A #396 | Lightweight | \$4500 |
| BG-12B | Some Work | \$2500 |
| Diamant 16.5 | Complete System | \$8300 |
| Phoebus C | Trailer | \$8200 |
| 2-32 | Trailer | Negotiable |
| 2-33 | Two | Negotiable |

Call collect any evening for details.

Listings needed, small commission. No fees.

National Sailplanes, (301) 460-3080
14221 Arctic Ave., Rockville, Md. 20853

DIAMANT 16.5 Trailer, no instruments. \$6500. 831 Fairlane, Northbrook, Ill. 60062. (312) 498-3684.

DIAMANT 16.5, EXTENDED TIPS, large rudder, water, instruments. Sailplane Associates trailer, Baysides, electric vario. Oxygen optional. Make offer. Tom Finch, 16102 Springdale, Apt. 10, Huntington Beach, Calif. 92647. (714) 896-4645 (days), or 846-3979 (eves.).

DIAMANT 16.5, TRAILER, no instruments. \$5900. W. Talalas, 2324 Spring Lake Rd., Uniontown, Ohio 44685.

15-METER DIAMANT (Open Libelle wings). Lock flaps and fly Standard Class. Sailplane Associates trailer. \$5900. Al Hume, 548 W. Wagonwheel Drive, Phoenix, Arizona. (602) 944-2742.

1-23HM, laminar, 23.5 AR, retractable gear. Much improved performance and control. See July '67 *Soaring*. \$5950. S. Starr, 32 Huntleigh Downs, St. Louis, Mo. (314) 567-6743.

1-26A, good condition, with instruments. Like-new oxygen system. Equipped for radio. \$2600 (trailer \$400 extra). Lee Morris (805) 482-3693.

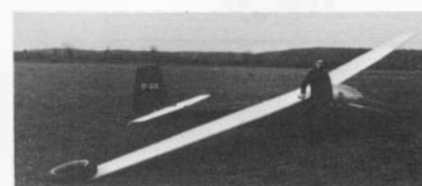
SGS 1-26D, YOUR CHOICE: #N7709S, new fabric and paint, basic instruments, total energy venturi, \$4000; #N7729S, basic instruments, total energy venturi, Bayside 2-channel radio, \$4500. Calistoga Soaring Center, 1522 Lincoln Ave., Calistoga, Calif. 94515. (707) 942-5592.

1-26E, #507. All metal. Beautiful factory all-over paint in international orange with black trim and racing stripes. Manufactured 5/25/71. Demonstrator \$4500. (404) 227-8282.

SCHWEIZER 1-34 with oxygen, radio, barograph and Crown trailer. Licensed to June '72. Richard Williams, 4404 Vandalen Ave., Tarzana, Calif. 91356. (213) 343-6347.

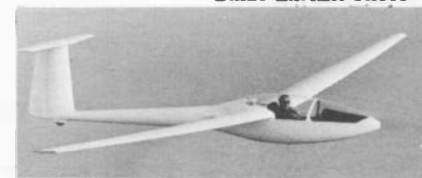
BG-12B. Enclosed trailer, oxygen, instruments parachute, Winter barograph. \$2500. P.O. Box 15452, San Diego, Calif. 92115.

BG-12BD fuselage and tail section 70% complete. Contact Mac Kilpatrick, 129 Bumble Bee Cir., Shrewsbury, Mass. 01545. (617) 844-6332.



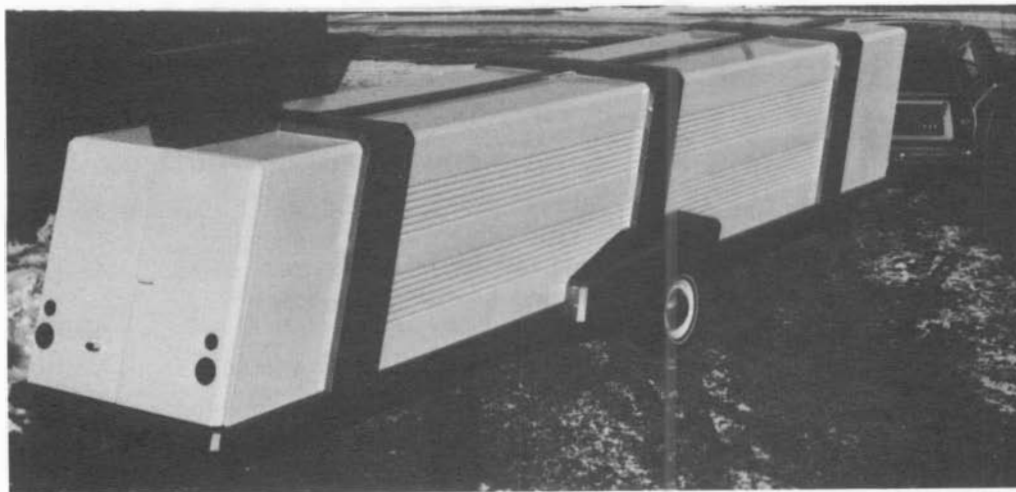
SKYLARK 2. MUST SELL or suffer a diet treatment. Ready to fly. Licensed until Oct. 1972. Basic instruments, chute, new fabric. Color; dark red, choose own color for wings. Reiche, Montreal Soaring Council. (514) 453-6810 (days), or (514) 453-6884 (eves. Call collect).

DAILY EXPRESS PHOTO



SLINGSBY SAILPLANES: 19-meter Kestrel now in production. Conforms to CIVV World Cup Class. Many unique features include coupled ailerons and flaps for variable camber and fast roll rate, plus separate flap position for landing, dive brakes, drogue chute, water ballast, retractable gear. Fall 1972 deliveries available. Graham Thomson Ltd., 3200 Airport Avenue, Santa Monica, Calif. 90405. (213) 398-4714.

SLINGSBY T-45 SWALLOW: Made in England, certified by FAA (U.S. ATC). Two units available, one 48 hrs. T.T. and one zero time, both new condition. L/D 26 to 30 to 1. List price \$5200 bare, \$6500 with trailer and instruments. Our price \$2995 bare, \$3650 with trailer and instruments. 2 trailers available, one with electric brakes. Dave Blanton, Javelin Aircraft Co., Wichita, Kan. MU2-0111, MU6-8500.



Sailplane transportation with style

Fabritech trailers look right and are easy to load. Write for particulars.

Fabritech, Inc.
150 Eleventh Street
Piscataway, New Jersey 08854



GLASFLUGEL: Order your Standard Libelle now for fall 1972 delivery. We can also offer a few 1972 deliveries of the fabulous 22-meter "604": 49 to 1 @ 61 mph, 20 to 1 @ 131 mph, redline 155 mph. Graham Thomson Ltd., 3200 Airport Avenue, Santa Monica Calif. 90405. (213) 398-4714.



SCHLEICHER SAILPLANES DELIVERY PROGRAM

Ka-6E, 15-meter Standard Class classic, wood construction, L/D 33. Ka-8B, 15-meter training favorite, steel fuselage, L/D 28. AS-K 13, two-place for instruction and performance, steel fuselage, L/D 28. AS-K 14, self-launching 15-meter performance sailplane, wood construction, L/D 29. AS-W 15, 15-meter Standard Class high-performance, fiberglass, L/D 38. AS-K 16, two-place side-by-side self-launching sailplane for instruction and performance, steel fuselage, fiberglass covered, L/D 26. AS-W 17, 20-meter super high-performance, fiberglass, L/D over 48. Transport trailers for all Schleicher models. VW 5 KB Electric variometers with computerized total-energy compensation. Schleicher Sailplanes Inc., P.O. Box 218, Bloomfield Hills, Mich. 48013. Phone 800-1700 hrs. Detroit time: (313) 779-4810; (313) 647-3246.

Ka-8B, 1969. Like new. 132 hours total time. Swiss canopy. Basic instruments. No trailer. Asking \$3600. Marietta, Georgia. (404) 424-2427.

SHK-1. Wings beautifully filled and faired. Outstanding epoxy finish. Complete with instruments, oxygen, covers, and unique enclosed trailer. \$5000. H. Palmer, Rt. 2, Box 65 C, Burton, Wash. 98013. (206) 463-2247 (evenings).



STANDARD CIRRUS, NIMBUS II. Write now for literature and delivery information for the U.S. ATC Standard Cirrus. Its top performance is shown by Bikle article. (See Page 30, Fig. 1, June '71 *Soaring*.) Nimbus II now in production with many more orders than expected. 8 are scheduled to fly in '73 World Championships! '72 production completely sold out, '73 positions still available. Rainco, P.O. Box 20944, Phoenix, Arizona 85036. (602) 273-1428.

Group Insurance for California Glider Pilots

(Motorglider, Club, and Towplane rates on request)

| Accident-Free Solo Glider Hours | \$300,000 Liability | | Per \$100 of Valuation | |
|------------------------------------|---------------------|--|---------------------------|--------|
| | Single-place | Two-place (incl. \$100,000 Passgr.) | * | * * |
| 0-25 hrs. | \$79.00 | \$149.00 | \$2.00 | \$6.80 |
| 26-100 hrs. | 65.00 | 125.00 | 2.00 | 5.20 |
| 101-200 hrs. | 61.00 | 111.00 | 2.00 | 4.40 |
| Over 200 hrs. | 58.00 | 98.00 | 2.00 | 4.00 |

*All risks of physical damage while not in motion subject to \$100 deductible.

**All risks of physical damage in flight or not in flight, including crash, subject to \$250 ded. in motion and \$100 ded. not in motion.

Trailers: All risk of physical damage, \$25 ded.; \$2.50 per \$100 valuation.

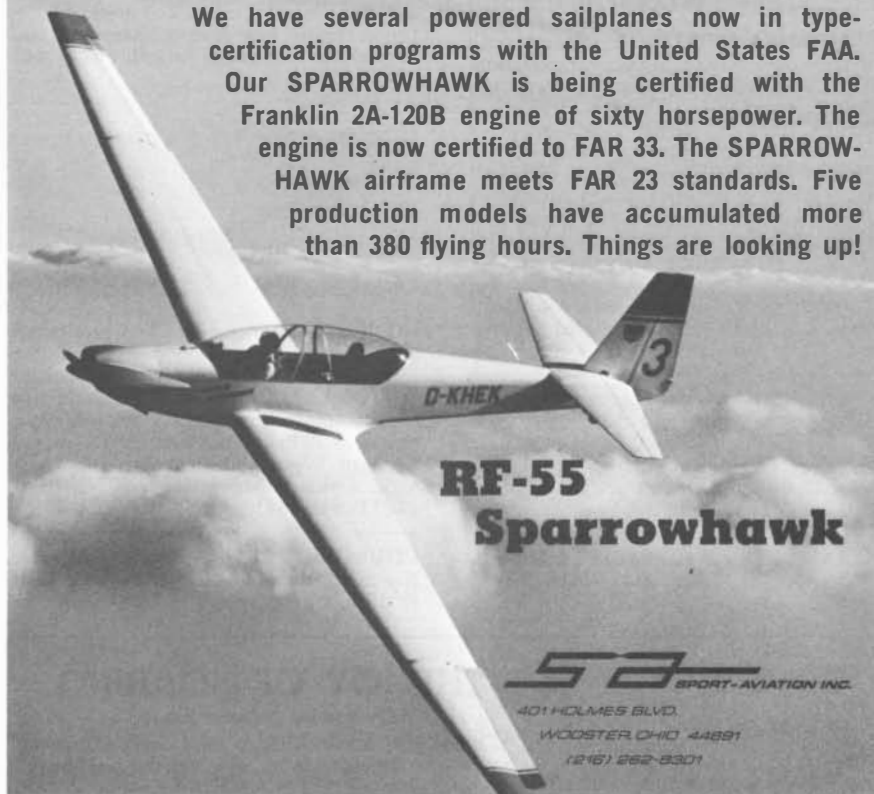
A. M. GILLESPIE INSURANCE AGENCY

322 San Anselmo Ave., San Anselmo, Ca. 94960

Dial (415) 457-0622, or 456-4151

Things are looking up!

We have several powered sailplanes now in type-certification programs with the United States FAA. Our SPARROWHAWK is being certified with the Franklin 2A-120B engine of sixty horsepower. The engine is now certified to FAR 33. The SPARROWHAWK airframe meets FAR 23 standards. Five production models have accumulated more than 380 flying hours. Things are looking up!



Fiberglass Sailplane Owners

For your convenience FRED JIRAN GLIDER REPAIRS is now established in California. A permanent location will save you time and money. However, if you need our services and are not able to transport your sailplane to us, we offer a pick-up and delivery service on a non-profit basis.

We are a factory authorized service facility for all fiberglass sailplanes.

FRED JIRAN GLIDER REPAIRS

Building 6, Mojave Airport

Mojave, California 93501

Phone (805) 824-2800. 24-hour service number.



The Dusters are coming!

Two flying, over 50
under construction



- 13-meter span
- Low cost
- All wood
- Amateur construction
- Garage storage

For plans: Calif. Sailplanes
Box 679, Huntington Beach,
Ca. 92648. \$1, info pack; \$75, plans & instructions.

For kits: Duster Sailplane Kits
Box 1261, San Pedro, Ca. 90733. Complete kit less liquids, \$1925

STANDARD CIRRUS, enclosed trailer, Althaus installation, 110-lb. water ballast. Best offer. Instruments and radio available. Cleb Derujinsky, (212) 861-1921, 765-4640.

STANDARD CIRRUS (Trade-in) with trailer, water ballast, Althaus installation. \$7900. Arthur Zimmerman, Berkshire Manufacturing Co., Lake Swanaona, New Jersey. (201) 697-2020.

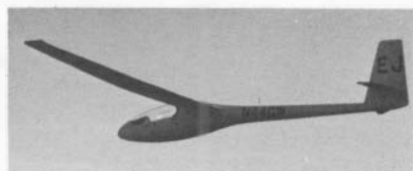
OPEN CIRRUS, licensed, legal with ballast. Trailer, drag chute, dolly, parachute, airspeed, Winter airspeed and vario, and other spare parts. Licensed until Jan. '73. \$10,500. Will deliver anywhere in U.S. Will consider trades of \$3000 or less, power or glider, even damaged aircraft. Joe Conn, 1823 Highbridge Rd., Cuyahoga Falls, Ohio 44223.

OPEN CIRRUS with factory enclosed trailer, instruments, and demand oxygen system, \$8500. Licensed 'til Oct. 1972. Motorless Flight Enterprises, 125 Farmstead Lane, Glastonbury, Connecticut 06033. (203) 633-6802.

4-DIAMOND LP-49. Shepherd/Perkins, 3465 Giles, St. Louis, Mo. 63116. (314) 664-7852.

LP-49 N49LP. See Nov. '71 *Soaring*. Will reduce price \$200/month until sold. (616) 796-9042.

LP-49. Factory-built 1970 with factory trailer. Some instruments. Excellent condition. \$6500. George Angell, (617) 443-2337.



CONCEPT 70, America's first production fiberglass sailplane. Many outstanding features including flaps and water ballast. L/D 39 to 1. Our C-70 is available now for demonstration flights. For information and delivery positions write or call Concept West, Calistoga Airpark, Calistoga, Calif. 94515. (415) 897-1270 or (707) 942-4541.

CHEROKEE II plus trailer for sale. Needs repair. \$600. Cleon Folkins, 2910 E. 12th, Cheyenne, Wyo. 82001.

CHEROKEE II, aluminum leading edge, steel trailer, Eonex cover, electric vario-meter. Low time. Construction by A&P mechanic. \$2600. H. Hepperlen, 6823 Hillside, Crystal Lake, Illinois.



SALTO: Mrs. Hänle's 13.6 meter fiberglass mini-sailplane is now in production. 35 to 1 @ 54 mph. 1972 deliveries available. Graham Thomson Ltd., 3200 Airport Avenue, Santa Monica, California 90405. (213) 398-4714.

SINGLE-PLACE soaring stationery. See ad page 12, Nov. *Soaring*.

PHOEBUS A, enclosed trailer, instruments, oxygen. Licensed Standard category. Bob Tepel, 15431 Toulouse Circle, Santa Ana, Calif. 92705. (714) 540-5905 (days), (714) 832-6877 (eves.).

PHOEBUS B-1 with Bertea ML-200, oxygen, PZL, 50 thousand ft. altimeter, etc. Sailplane Associates Trailer, parachute. All ready to go to Standard Class Nationals. Available now. Jack Savage, 1885 Myrtle, Las Cruces, New Mexico 88001.

PHOEBUS C, N9213. Instruments, radio, oxygen, drag chute, water ballast. Aluminum enclosed trailer. All excellent condition. Tom Smith, Deansboro Road, Clinton, New York 13323.

PHOEBUS C. \$6500. Trailer, drag chute, water ballast. Robertson, (602) 997-4348.

TWO-PLACE FOR SALE

NEWLY REFINISHED Ka-7 with trailer and some instruments. Want AS-K 13. Bud Brown, Rt. #2, Lawrenceville, Ill. 62439. (618) 943-2076.

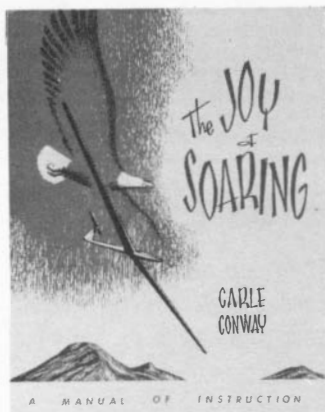


CAPRONI A-21. Performance equals best single-seaters; certificated useful load over 700 lbs! AviAmerica, Box 3007, Palo Alto, Calif. 94305.

2-22. New fabric. \$2000. Baker, 4342 Walnut, Chino, Calif. 91710.

2-22, GOOD CONDITION, ceconite wings, 2 years old. \$2000. (606) 299-7670.

SCHWEIZER 2-22E, 1965. \$3000. Stafford. (502) 733-4536.



THE JOY OF SOARING

SSA's SOARING TRAINING MANUAL

Written by Diamond-badge pilot Carle Conway under the sponsorship of SSA and the guidance of a review board of top instructor-pilots.

- Large format (8½ x 11 in.), 168 pgs., weighs 2 lbs.
- Hard cover with 4-color jacket
- Profusely illustrated by Gil Parcell
- 12 of the best full-page photos of sailplanes in flight
- Adopted as a required text by numerous soaring schools and clubs
- Intended for all levels of pilots—beginner to expert

OVER 12,000 COPIES SOLD!

Price: \$5.75, postpaid from SSA or your local soaring operator.

California orders add 5% sales tax.

SOARING SOCIETY OF AMERICA, Box 66071, Los Angeles, Calif. 90066

SCHWEIZER 2-32. Good condition. Oxygen. \$9300. 353 Avenida Atezada, Redondo Beach, Calif. (213) 375-1138.

SCHWEIZER 2-33. Trade for single-place equipped for x-country or sell outright. Will consider lease also. Eric Molinari, 7500 Sunset Blvd., Los Angeles, Calif. 90046.

SGS 2-33A, NEW PAINT, basic instruments, total energy venturi. \$4800. Calistoga Soaring Center, 1522 Lincoln Ave., Calistoga, Calif. 94515. (707) 942-5592.

LIKE-NEW 2-33A, blue and white. Less than 100 hours. T.T. Bayside 90 channel, extra batteries, \$90 timed charger, sensitive altimeter, Winter vario, clock, Ball bank, wheels, air vent, metal skid shoe, Schweizer trailer. Prepare for spring. \$5600 firm. Greenbrier Airport, White Sulphur Springs, West Virginia 24986.

POWERED SAILPLANES



SCHEIBE POWERED SAILPLANES, SF-25B, SF-27M. Graham Thomson Ltd., 3200 Airport Ave., Santa Monica, Calif. 90405. (213) 398-4714.

WANTED

I WANT NEW OR near new Libelle or AS-W 15. Trade in 1967 Ka-6CR. Marion Keith, Sherman, N.Y. 14781.

WANTED: Top-performance ship to compete in Standard Class. J. Robertson, 1306 E. Desert Park Ln., Phoenix, Ariz. 85020. (602) 997-4348.

WANTED: 1-26 fuselage (little or no damage) and right wing. J. Benz, Middleville, Mich. 49333. (616) 795-9767.

SCHWEIZER, open trailer. Zauner, 489 Weymouth, Vineland, N.J.

WANTED: SOMEONE INTERESTED in excellent wood sailplane. Kirby Gull, instruments, enclosed trailer. \$2500. Tom Smith, Deansboro Road, Clinton, New York 13323.

TOW PILOTS. Send experience and when available information to Wave Flights, Inc., 9990 Cliderport Road, Colorado Springs, Colo. 80908.

SAILAIRE CAMP needs several glider instructors. July 1 to September 1. Salary plus room and board. Send vita and picture to George Angell, 101 Barton Drive, Sudbury, Mass., 01776.

WANTED: Sailplane, car radios, Peravia barograph, turnpoint cameras and mount. Write R. Dee, 4067 Sherwood Forest Manor, Toledo, Ohio 43623. (419) 882-5676.

SKY SAILING AIRPORT

44999 Christy St., Fremont, Calif. (415) 656-9900

Complete line of Schweizer gliders

Trailers, parachutes, barographs, books, supplies

11 sailplanes, 5 towplanes

Rental and instruction 7 days a week

Soaring the year 'round

Open every day

Announcing the new Ball Electric Mini-Variometer



The new Model 200 miniature variometer to fit standard 2 1/4-inch panel hole will be available for shipments March 1st.

Available from most sailplane dealers or direct postpaid from the BALL ENGINEERING COMPANY, a Colorado Corporation, 2140 Kohler Drive, Boulder, Colo., 80303 Phone (303) 494-9763



Instruction, Rentals, Examiner on Field

* Schweizer 2-33's & 1-26's

* Blanik Dealership

* Open Every Day

* Private Owners Welcome

* Active Student Silver Badge Program

* Excellent Motels, Restaurants, Swimming & Hot Springs

Call (707) 942-5592

GLIDER aero and avionics co.

**Your dealer for Blanik, two-place,
all-metal sailplane. Now ATC'd!**

We also carry radios for sailplane & crew car, instruments,
& complete oxygen systems for the soaring pilot.

Send for sale catalog.

Flight operation at Hemet-Ryan Airport.
Call us to arrange a flight demonstration.



All service & installation performed by Glider Electronics Co., a division of G.A.A. Co., 3038 Teranimar Dr., Anaheim, California 92804. (714) 828-6126.

Custom Wing Stands



Eliminate one helper. Stow compactly in trailer.

Order from your dealer or send check for prepaid U.S. delivery. **\$57.50.**

Motorless Flight Enterprises

125 Farmstead Lane, Glastonbury, Conn. 06033



LIGHT & VARIABLE



... there he was, high ol' Silver ... flying lone and slow.

PHOTO AND CAPTION BY W.A.A.

SOARING SCHOOLS

LEARN TO SOAR at Waverly West at the foot of the Colorado Rockies. Thermals and wave soaring. Open year 'round. We train in Schweizer 2-33A's and rent 1-26, 2-33, and 2-32 to qualified pilots. Beginner courses and power transition courses. FAA examiner on staff. Skiing and summer recreation nearby. Private ships are welcome. Waverly West Soaring Ranch, Inc., P.O. Box 1017 Fort Collins, Colorado 80521. (303) 568-3374 (field), or (303) 484-5606 (eve.).

GLIDER FLIGHT TRAINING. All glider ratings. Examiner on field. Power planes welcome. Good soaring weather year 'round. 20 Schweizer sailplanes for rent. All models. Large inventory Schweizer parts. Great Western Soaring School, Box 148, Pearblossom, Calif. 93553. Crystalline Airport is your Schweizer Soaring Center nearest Los Angeles. Open every day except Mon. & Tue. Airport phone: (805) 944-2920.

Come to ESTRELLA SAILPORT, a place dedicated to soaring. Just minutes from Phoenix, Estrella Sailport is a most complete soaring center, with something for everyone to do. While you chase dust devils, the family can enjoy our playgrounds or fine swimming pool. Ridge and wave soaring on the sailport's 16-mile Sierra Estrella range. X-C rentals (1-26D's, 1-34's) for qualified pilots. FAA-approved flight school, examiner on staff. Schweizer dealers. Arizona Soaring, Inc., Box 27427, Tempe, Ariz. 85282. (602) 568-2318.

SOAR IN FLORIDA. Sailplane instruction and rental. Private gliders welcome. Open everyday. Near Orlando and the Space Center. Soaring Seminoles, Inc. Flying Seminole Ranch, Rt. 1, Box 475, Oviedo, Fla. 32765. Ph. 365-3201.

RADIO

WESTERN SOARING stocks Bendix, Berteau, Dynair, Genave, Mentor, Radair, and Baysides as well as a complete line of accessories such as mikes, batteries, antennas ($\frac{1}{4}$ wave length—\$45.00 and $\frac{1}{2}$ wave length \$12.00). Western Soaring, 1812 Delaware Street, Berkeley, Calif. 94703. (415) 841-8750.

NEED A BUDGET-PRICED portable transceiver? Steal our Radair 10s portable demo for \$545 ppd. Includes AC-DC power supply, rechargeable batteries, microphone, speaker, antenna. Factory warranty. Graham Thomson Ltd., 3200 Airport Avenue, Santa Monica, California 90405. (213) 398-4714.

RAINCO stocks Bendix, Berteau, Comco, Dynair, Genave, Mentor, Radair, as well as a complete line of accessories, batteries, chargers. Give your communications system a shot in the arm by using Rainco's cross-country antenna on your retrieve vehicle. Complete with spring mount \$49.50 postpaid. Rainco, P.O. Box 20944, Phoenix, Arizona 85036. (602) 273-1428.

RADAIR-MENTOR are best buys. 1-360 channel, panel, portable, new, demo, used. Marine Associates, 311 Main Street, Worcester, Mass., (617) 753-1462.

CLOSE-OUT SALE: Brand new Berteau ML 200s. While they last, \$395 (no warranty). Graham Thomson Ltd., 3200 Airport Avenue, Santa Monica, California 90405. (213) 398-4714.

TWO RADAIR 10s. Used one season. Excellent condition. \$300 ea. Ed Sessions, 3530 Towanda, College Park, Ga. 30337. (404) 766-3164.

PARACHUTES

CERTIFIED PARACHUTES. Complete line of emergency parachutes. Write for brochure. The Chute Shop, Dept. E-7, Flemington, N.J. 08822. (201) 782-5758.

PARACHUTES: Special offer to fellow "Glider Guiders." New government surplus. Soft, nylon, all-weather, quick-fit harness that is adjustable in two seconds, and you can get out of it with one hand. Soft flexible pack, too. Only 19 lbs., 25-in. long, 15-in. wide. Call, write, or wire McElfish. Member SSA and TSA for 22 years. McElfish Parachute Service, 2615 Love Field Dr., Dallas, Texas 75235. (214) 351-5343.

WESTERN SOARING stocks the Security Model 150 Safety Chute which is the chute designed for sailplane pilots. Write for demonstrator and used chute prices. Western Soaring, 1812 Delaware Street, Berkeley, Calif. 94703. (415) 841-8750.

RAINCO stocks the Security Model 150 Safety Chute, the first parachute specifically designed for the sailplane pilot. Weight under 16 lbs., 120-day repack. All nylon steerable canopy, descent rate comparable to 28 ft. With zipper case \$385, with built in adjustable air bladder and case \$415. Rainco, P.O. Box 20944, Phoenix, Arizona 85036.

PARACHUTES—SPECIAL for gliders. FAA approved N-B 26' extra thin; lightweight N-B thin backs. Special chutes for Ka-6. 33 years experience. Brochure prices on request. Exporting. Midwest Parachute, Novi, Mich. 48050.

INSTRUMENTS

RAINCO carries the largest selection of instruments, oxygen, radio equipment and accessories for the sailplane owner and pilot. Every item tested and checked in our shop prior to shipment. Rainco, Box 20944, Phoenix, Ariz. 85036. (602) 273-1428.

KOLLSMAN ALTIMETERS, 80,000 ft., \$125; 50,000 ft., \$85. J-8 gyro horizon (electric), \$125. 12-volt inverter for J-8 gyro, \$95. 8-day clock, \$27.50. Compass, \$27.50. Electric turn & bank (sensitive for sailplanes), \$125. Also available: Oxygen systems, full complements of power-airplane instruments, new and used avionics equipment. Write for catalog. Note: All instruments FAA Repair Station certified! Glider Aero & Avionics Co., 3038 Teranimator Dr., Anaheim, Calif. 92804. (714) 828-6126.

WESTERN SOARING carries all sailplane instruments, oxygen systems, radio equipment and accessories. All equipment is tested and guaranteed. Western Soaring, 1812 Delaware Street, Berkeley, Calif. 94703. (415) 841-8750.

PERAVIA BAROGRAPH, used twice; \$310. Dynair 90 channel; Rolls-Royce quality & reliability, outstanding performance. \$485. 1559 Willard St., San Francisco 94117. (415) 566-8757.

PLANS & PUBLICATIONS

DANNY'S GLIDER RIDE. Children's book, third-grade level and up. A child's first glider ride. \$1.35, postpaid. Order from Don E. Snyder, Dunn Valley Rd., R.D. #3, Erie, Pa. 16509.

LOW & SLOW, 59 Dudley Ave., Venice, Calif. 90291. \$6 for issues #13 through 24.

EXPERIMENTS IN Flying Wing Sailplanes, highly informative 56 pages, \$2.50. **PIONEER II FLYING WING**, 13-meter high-performance sailplane; plans, \$95; brochure, \$1.50. Jim Marske, 130 Crestwood Dr., Michigan City, Ind. 46360.



SAILPLANE MODELS

Remarkably accurate
Exquisitely crafted

You'll see why, when you get your first look at an Aero-Crafters model, everybody says they're the world's most beautiful models. All the details are there, from the sexy little flare on the wingtip of a Libelle to the tail-wheel of a Schweizer 1-26.

And now, because the Libelle and the 1-26 turned out so well and have been so well received, we've decided to take the plunge and order the master molds for the Kestrel 17, the Standard Cirrus, and the Open Cirrus. On all but the latter, scheduled for June, we expect to begin deliveries in April. Libelle and 1-26 available now.

If you want a model painted and marked exactly like yours, send us color photos and an extra \$10. Prices below do not include any markings but do include a full kit of marking letters and instructions for easy application.

Money-back guarantee

| | |
|-------------------------|---------|
| Libelle | \$24.95 |
| Swept-tail 1-26 | " |
| Round-tail 1-26 | " |
| Standard Cirrus | " |
| Kestrel 17 | \$29.95 |
| Open Cirrus | " |
| Motorglider RF-4 | \$29.95 |
| with standard markings | \$34.95 |
| Powered aircraft | |

| Model | Scale | |
|---------|-------|-------|
| Zero | 1/48 | 34.50 |
| C-141 | 1/120 | 37.50 |
| YS-11 | 1/100 | 29.50 |
| MU-2F | 1/48 | 28.50 |
| MU-2G | 1/48 | 30.50 |
| 707 | 1/120 | 37.50 |
| 727-100 | 1/100 | 37.50 |
| 727-200 | 1/100 | 39.50 |
| 737 | 1/80 | 38.50 |
| 747 | 1/172 | 39.50 |
| DC8-55 | 1/120 | 37.50 |
| DC8-61 | 1/120 | 39.50 |
| DC8-62 | 1/120 | 39.50 |
| DC8-63 | 1/120 | 39.50 |

All sailplanes are 1/35 scale. All prices are postpaid.

In California add 5% tax. Send check or money-order to

AERO-CRAFTERS

1812 Delaware St., Berkeley, CA 94703
(415) 841-8750

Sailplane Instruments from Germany

| | | |
|------------|----------|-------|
| Westerboer | VW 3 C 1 | \$190 |
| Westerboer | VW 5 K B | \$447 |
| Pirol | 17 | \$715 |

Price: Including packing and postage to destination.

Immediate delivery from Gwinner GmbH

P.O. Box 4021, Hamburg 34, Germany

AUSTRALIAN GLIDING, monthly publication of the Gliding Federation of Australia. \$7.50/yr. Box 1650 M, G.P.O. Adelaide 5001, South Australia.

AMERICAN SOARING HANDBOOK Chapters, Titles and Prices

| | |
|---------------------------------|------|
| 1 History of American Soaring | 1.00 |
| 2 Training | 1.00 |
| 3 Ground Launch | 1.00 |
| 4 Airplane Tow | 1.00 |
| 5 Meteorology | 1.00 |
| 6 Cross Country & Wave Soaring | 1.00 |
| 7 Equip I, Instruments & Oxygen | 1.00 |
| 8 Equip II, Radio, Rope & Wire | 1.00 |
| 9 Sailplane Aerodynamics | 1.70 |
| 10 Maintenance & Repair | 1.00 |
| ASH Binder | 3.00 |

SSA members deduct 25 cents/chapter from above prices. Californians please add 5% state sales tax. Order from SSA, Box 66071M, Los Angeles, Calif. 90066.

THE GLIDING KIWI The official journal of the New Zealand Gliding Assoc. Edited by John Roake. \$4 (six issues). Box 545, Tauranga, N.Z.

THE SAFETY CORNER: \$2.00 for booklet of reprints of the monthly column on safety in *Soaring* over the past several years. Good advice for all, and especially useful to students and instructors. SSA, Box 66071M, Los Angeles, Calif. 90066.

SAILPLANE & GLIDING, the only British magazine devoted solely to the sport of gliding and soaring. 88 pages of fascinating material and pictures. Published every other month. Send \$1 for current copy, or \$6 for a year's subscription to British Gliding Association, Artillery Mansions, 75 Victoria St., London, S.W. 1, England.

BACK ISSUES of *Soaring* Magazine: The following past issues of *Soaring* are available at 50¢ each from SSA, Box 66071M, Los Angeles, Calif. 90066; M-J 47, N-D 47, S-O 48, N-D 51, 10-60, 1-61, 2-61, 7-61, 8-61, 9-61, 11-61, 12-61, 3-62, 7-62, and all of 1963 through 1972 to date except 1-63, 4-63, 6-63, 7-63, 9-63, 10-63, 5-64, 8-64, 4-65, 7-65, 8-65, 12-65, 1-66, 2-66, 4-66, 5-66, 7-66, 8-66, 9-66, 10-66, 11-66, 12-66, 1-67, 2-67, 7-67, 11-67, 8-70, 6-71, and 9-71.

BOOKS ON SOARING and powered flight. The Zweng training manuals. Pilots' logbooks. Free catalog. Pan American Navigation Service, 12021 Ventura Blvd., North Hollywood, Calif. 91604.

MOTORGLIDING, monthly publication all about self-launched sailplanes. Jack Park, Editor. 1972 Subs. only \$5.00 (\$6.00 foreign). Order subscriptions from SSA, Box 66071, Los Angeles, Calif. 90066.

RAINCO stocks a most complete selection of U.S. and imported books for the soaring pilot. *The Art and Technique of Soaring* by Dick Wolters, \$14.95 postpaid and *On Quiet Wings* by Joe Lincoln, \$30 postpaid are two titles we highly recommend for any soaring library. Commercial operators write for our quantity discount schedule. Rainco, P.O. Box 20944, Phoenix, Arizona 85036. (602) 273-1428.

TECHNICAL SOARING. Second issue recently published. A quarterly journal of technical papers on soaring, published by SSA's Technical Board. \$6.00/yr. *Technical Soaring*, c/o B. Paiewonsky, 9309 Burning Tree Rd., Bethesda, Md. 20034.

INTERESTED in home-built aircraft? Read *Sport Aviation*, monthly magazine of the Experimental Aircraft Assn. Receive it as a member (\$15/yr.) or Jr. Member (age 18 and under, \$8/yr.). EAA, 9711 W. Forest Park Dr., Hales Corners, Wis.

CHOICE BOOKS from Soaring Symposia: *Pilot's Choice*, by Gren Seibels; \$6.95. *Soaring Cross Country*, Second Edition, by Ed Byars and Bill Holbrook; \$4.95. *The Proceedings of the 1970 Symposium*; \$5.25. *The Proceedings of the 1971 Symposium*; \$5.25. Discounts on quantity orders. Soaring Symposia, 408 Washington Street, Cumberland, Md. 21502.

SOARING IN AMERICA illustrated booklet 25¢ (10 or more, 12¢ ea.); "Southland (So. Calif.) Weather Handbook," by John Aldrich, \$2.50; "Soaring Year Book—1965," pub. by Soaring Int'l, \$2.50; "FAI Soaring Awards Rules & Procedures," 25¢; "Theory of Wing Sections" (NACA airfoil ordinates and data), \$5.00; "Without Visible Means of Support," by Richard Miller, \$3.00; *Soaring* indexes for 1966 through 1971, 25¢/yr.; 1969 or 1971 calendars only 50¢ ea.; "The Theory of Modern Cross-Country Soaring," \$3.00; "Proceedings of the 1970 Symposium on Competitive Soaring," and "Proceedings of the 1971 Symposium on Competitive Soaring," \$5.25 ea.; "Soaring Cross Country," by Byars & Holbrook, \$4.95; "Pilot's Choice," by Gren Seibels, \$6.95; "National Aeronautics," Spring, 1971, 50¢; "Written Test Guide For Glider Pilots," \$2.00; "Oral Test Guide For Glider Pilots," \$1.65; Californians add 5% tax. Order from SSA, Box 66071M, Los Angeles, Calif. 90066.

MISCELLANEOUS

SOARING MERCHANDISE: SSA lapel buttons, 75¢; SSA decals, 3-in. 25¢, 5-in. 45¢, 10-in. \$1.50; sew-on emblems (SSA, A badge, B badge, 70¢; C badge, Silver badge, or Gold badge, 85¢); glider-pilot log books, \$1.25; sailplane log books, \$1.25; barograph seals, 5¢ ea. (min. order is 10); aircraft safety pins, 10¢ ea. (min. order is 10); SSA Zippo cigarette lighters, \$4.90; 7" x 7" SSA glass tray, \$2.60; Diamond crown pieces for Gold badges (spinel stones), 1 stone \$4.00, 2—\$6.60, 3—\$9.25; coordinates for 9 Wortmann airfoils (see p. 16 of 1-64 *Soaring*), 25¢; Californians add 5% tax. Order from SSA, Box 66071M, Los Angeles, Calif. 90066.

GLASS (not plastic) **MICROSPHERES**, mix with epoxy to form white, lightweight filler. \$5.00 a pound delivered (nearly a gallon). National Sailplanes, 14221 Arctic Avenue, Rockville, Maryland 20853.

YOUR OWN SOARING STATIONERY. See ad page 12, Nov. *Soaring*.

SAILPLANE plastic checklist/flight-data card, 65¢; post cards (color photos of HP-14, Foka, 2-32, Phoebus C, BG-12B, 1-26/Colo., Std. Cirrus, 1-26/Torrey, Ka-6/Marfa, BS-1 & Sisu 1A, AS-W 15), 10¢ ea. (min. order is 3); giant post card (HP-11A), 25¢ ea.; binders to hold 12 issues of *Soaring*, \$3.70; SSA tie clasp, \$1.75; "Federal Aviation Regulations for Pilots" (pilot exam study guide), \$1.75. Order from SSA, Box 66071M, Los Angeles, Calif. 90066.

FRED JIRAN GLIDER REPAIRS does not only repair fiberglass gliders. We can take care of almost any problem concerning your glider, including yearly inspection and relicensing. Now is also the time to think about a new shiny finish on your wings and maybe some performance-increasing mods. Free pickup and delivery from any of the high desert soaring sites. Call us for quotes. (805) 824-2800.

SMALL TURBINE JET engine. \$300. Baker, 4342 Walnut, Chino, Calif. 91710.

TRAILER. Sailplane Associates-type, custom-made for Open Class Cirrus. M. Sczesny, 12940 Harding, Sylmar, Calif. 91342. (213) 361-2189.

WATER BALLAST. Rubberized nylon tanks 1½ lbs. ea. Set \$75 or complete installation system \$125. P.O. Box 1, Clover, Va. 24534.

MENTOS from the 1970 World Championships: sew-on emblems, 50¢; commemorative medals, 1½" bronze—\$1.50, mounting ring—\$2, key-ring—50¢, necklace chain—\$1.75. Californians add 5% tax. SSA, Box 66071, Los Angeles, California 90066.

NAGEL AIRCRAFT carries large stock of parts & supplies, new & used. Poly-fibre coverings, dacron, grade A, linen. Also large stock of pilot supplies and books. Closed Sundays. Torrance Airport, Torrance, Calif.

SAILPLANE TIE TACKS or tie clips; Libelle or 1-26; gold or rhodium-plated; specify one of 8 options, \$2.95. SSA, Box 66071M, Los Angeles, Calif. 90066.

1972 SSA CALENDARS, featuring 12 natural full-color photos of sailplanes. Only \$1.25 each. SSA, Box 66071, Los Angeles, Calif. 90066.

WINCH FOR SALE. Buick V-8 and Dyna-Flo transmission (just overhauled). Truck rear end and brake. Cage. Guillotine. Mounted on trailer. 5000-ft cable. Excellent condition. \$1000 or trade for 1-26 parts. J. Benz, Middleville, Michigan 49333. (616) 795-9767.

MEMBERSHIPS NOW OPEN, Atlas Fyers Soaring Club, So. Calif. TG-3A, 1-23 (loaded for x-c), instruction available. 633 Norumbega Drive, Monrovia, Calif. 91016. (213) 359-5027.

Join **THE 1-26 ASSOCIATION**. \$4.00/year. Secretary 1-26 Association, 5911 Fox St., Harrisburg, Pa. 17112.



Kestrel 19

DAILY EXPRESS

Congratulations to Renner and Jinks!
Glasflügel and Slingsby sailplanes win both classes
at the 12th Australian National Gliding Championships.

OPEN CLASS

| | | |
|----|-------------|------------|
| 1 | I. Renner | Kestrel 19 |
| 2 | J. Moore | Kestrel 19 |
| 3 | A. Tabart | Kestrel |
| 4 | P. Hanneman | Cirrus |
| 5 | D. Jones | Kestrel |
| 6 | A. Yeomans | Libelle |
| 7 | B. Wrenford | Libelle |
| 8 | P. Bikle | HP-14 |
| 9 | D. Ferguson | Phoebus C |
| 10 | D. Reid | Libelle |

STANDARD CLASS

| | | |
|----|--------------|---------|
| 1 | M. Jinks | Libelle |
| 2 | J. Rowe | Libelle |
| 3 | D. Pietsch | Libelle |
| 4 | J. Blackwell | Cirrus |
| 5 | M. Bradney | Cirrus |
| 6 | B. Persson | Libelle |
| 7 | D. Curry | AS-W 15 |
| 8 | J. Buchanan | Libelle |
| 9 | S. Martin | Libelle |
| 10 | A. Thompson | Libelle |

With 14 of the top 20 places taken by Glasflügel and Slingsby sailplanes, the recently completed Australian Nationals showed once again that there is no substitute for quality and experience. If you would like to know more about the Standard Libelle and Kestrel 19, our descriptive brochures are yours for the asking.

GRAHAM THOMSON LTD

3200 AIRPORT AVENUE

SANTA MONICA, CALIFORNIA 90405

(213) 398-4714

Sole distributors of Glasflügel and Slingsby sailplanes
 throughout the United States, Canada, and Mexico

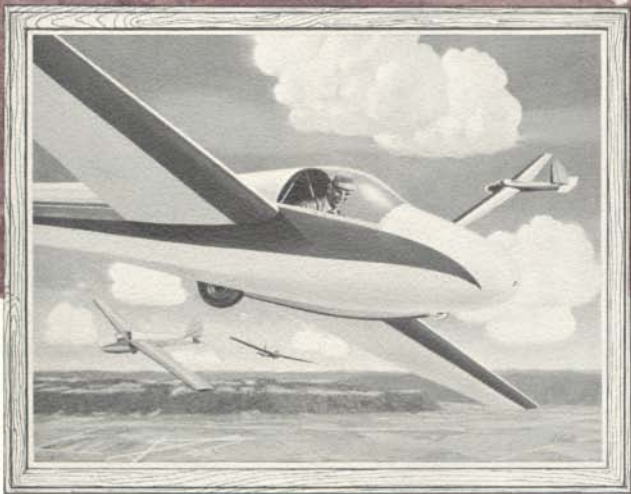


Illustration from Perpetual 1-26 Regatta Trophy

1972 SCHEDULE MAJOR 1-26 EVENTS

4th Annual
**1-26 North American
Sweepstakes**
April 1 thru Oct. 31

8th Annual
**1-26 North American
Championships**
Harris Hill, N.Y.
July 1 - 8

18th Annual
1-26 Regatta
Harris Hill, N.Y.
Sept. 2 - 4

1-26 A-B-C-D-E *Call Sign for Fun*

What is your soaring pleasure — competition, local fun flying, cross country or award legs? The choice is yours with a 1-26.

At the top, **the 1-26 North American Championships** — nationally recognized — with official start gate, photo turn-points, speed and cat's cradle tasks.

Lower key? Then how about a fun fly together like the annual **Harris Hill Regatta**? Tasks set for maximum interest and enjoyment.

For a season-long, personal challenge and fun enjoyment, the **North American Sweepstakes** offers open cross country soaring for FAI Awards and prizes.

Why is the 1-26 so much fun? Because the sailplane factor is minimized. Regardless of which model 1-26 you fly, it's pilot ability that determines the winner. But there is real enjoyment at all levels of proficiency.

Confused by the performance scramble — class controversy? Discover the 1-26 one design concept. It can fit almost any budget. Ideal for individual, family or club ownership.

Contact your Schweizer Dealer for information on new or top contention used 1-26's. See him also about joining the 1-26 Association, for national news and 1-26 events.



SCHWEIZER AIRCRAFT CORP.
1 Airport Road, Elmira, N.Y. 14902