

MARCH-  
APRIL  
1954

# Soaring

THE PERL PENETRATOR  
THE SCHWEIZER 1-26  
OPTIMUM SPEED INDICATOR  
BATHTUB AERODYNAMICS



A Danish Rhönbuzzard.



Harry Perl in his Penetrator.

# SSA NEWS

## 21st U. S. National Contest

Reports from Pete Bonotaux, John Wolfe and Dr. Klemperer and others are of steady progress in preparations for the 21st National Competitions. Pete reports all committees on preparation, appointed and working. Bulletins from some are in the mails to clubs of the country. John reports, among other things, a prize consisting of a complete oxygen system from Zep Aero Company. Dr. Klemperer reports agreement with commanders of March Airforce Base, who had objected to the contest being held within 25 miles of the base. In fact, from what we hear now, these Air Force Officers are doing everything in their power to help. A complete list of committees and their tasks, and maybe something of their progress, may be expected soon, including a report from Hal Smith, chairman of the Elsinore California National Soaring Contest Committee. Make your plans now, to attend.



Official insignia of the 21st Nationals.

## SSA Committees

All SSA Committees are now for the first time, headed by chairmen who have expressed a keen interest in the committees' purposes, except the Membership Committee. We may expect definite improvement of SSA activities as a result, if the membership cooperates. The Committees and Chairmen are listed below:

- Contests and Championships—Wm. H. Coverdale.
- Gliding and Soaring Records—F. B. Compton.
- Gliding and Soaring Awards—Howard C. Burr.
- Membership—None.
- Public Relations—Peter M. Bowers.

Safe Flying Practices—Joseph M. Robertson.

Photographic Library—Walter B. Hausler.

Scientific—Dr. August Raspet.

Soaring Statistics—Don C. Ryan.

Technical—Lt. Col. Floyd J. Sweet.

Technical Review Board—Robert G. Joppa.

Youth Air Education—E. A. Kurzawa.

Committee members listed in the 1953 Directory and including a few who have been recently appointed, as a result of a request for suggestions from Club Presidents, will continue to serve. Those responding to the Chairman's correspondence and assisting with committee projects will constitute the committees. Volunteers will of course be welcome.

## New Soaring Clubs and Bulletins

SOARING is always glad to report new clubs and club bulletins, but it is particularly glad to announce formation of the SOUTH FLORIDA SOARING ASSOCIATION and their bulletin "Tradewinds." Address for this new organization and publication is: Route 4, Box 588, Miami 43, Florida. Organizers are: Marty Bennett, Fritz B. Compton, Matt Hoffman, Gene Miller and Dave White. They will fly at Mr. Compton's Flying 'C' Ranch, which he says is the "first front lawn gliderport in the country."

Other clubs in the making and their leaders are: Buffalo-Batavia, Stan Smith; Moultrie, Georgia, Bryand W. Denison; Oklahoma City, Robert N. Berry.

One active club that we have been listing erroneously is the DENVER SOARING CLUB, headed by Merv Hicks and Joe Greenbaum. Fred Ruble called our attention to this and informed us that he is in the process of reorganizing the WESTERN SOARING CLUB, also of Denver.

A new Club Bulletin comes from the South Jersey Soaring Society, whose address is RD No. 4, Vineland, New Jersey. Otto Zauner is the club's president and it is certain that he'd like your comments of his club's first effort and would like to receive your bulletin in exchange for his.

## Soaring Directory

We had hoped to print a revision or new version of the popular 1953 SOARING DIRECTORY. It has not been done because of the difficult task of assembling the material for it. Ma-

terial suitable for it has come in mingled with other things in bulletins, letters, etc., and we have found the problem of picking it out and assembling it too great. If the correct addresses, names of officers, meeting places, soaring sites, telephone numbers of contacts, etc., were sent to us on slips of paper exactly as shown in the Directory, except with proper corrections, a new Directory could be produced in short order. If you want a new one send the information in on a separate slip for each place that it occurs in the 1953 Directory. And don't omit anything.

## Information Regarding SSA

There is an effort to create printed pamphlets regarding the Soaring Society, Local Clubs, methods of organizing clubs, gliding and soaring techniques, etc., for use by members and anyone who would promote soaring. To date the only new thing available is a statement describing the activities of the Society. It is available at no cost from the Society. One or two older items, including "SOARING IN AMERICA" are still available in very limited quantities.

## U. S. Flying Statistics

SSA Statistician, Don Ryon, 25 Hartsen Street, Rochester, N. Y., requests cooperation from all clubs and from individuals not connected with clubs in preparing complete U.S. flying records. If records of your flights are not kept by a club, send for blank forms on which to report yours.

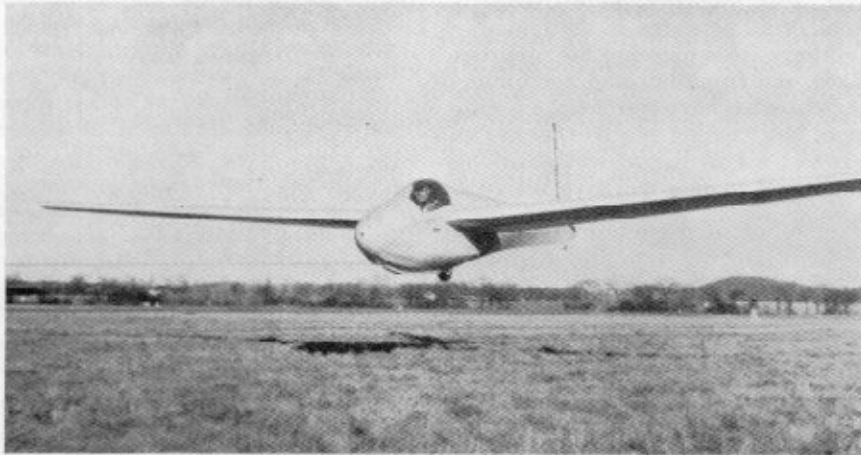
## Your Membership or Subscription Status

We continue to receive questions regarding membership and subscriptions. You can check your own by simply looking at the address on the envelope in which you receive SOARING. It gives your expiration date as J54 or D54 or which ever is correct.

## Civil Air Patrol

Many CAP people are interested and anxious to provide gliding and soaring training for CAP Cadets. Some few have been able to institute a program of training. The most recent one to come to our attention is at Albuquerque, New Mexico, under the direction of Mr. Frederick S. Adams. We'd like to hear of others and would like to be of assistance to all.

# A REPORT ON THE SCHWEIZER 1-26



The Prototype 1-26 taking off on its maiden flight at Chemung County Airport with the author at the controls.

The 1-26 has aroused so much interest and so many comments and questions that it seemed that an article was in order to help explain this project. This is the story of how the 1-26 came to be, and it brings you up-to-date, with the prototype actively flying. We have used portions of our 1-26 Report since this is an important part of our program.

Those who know us at SAC well, realize that we should like nothing better than to build gliders and sailplanes on a real production basis. However, the economics of the glider situation since the war has not made it possible for us to do this, mainly because of the great number of low cost surplus ships which are available. So while these ships were being put into use, our production has been limited, although our experimental and development work has continued at an aggressive pace, and we have designed, developed and put into production three CAA approved designs in the 1-19, 2-22 and the 1-23 series; besides developing experimental models, the 1-20, 1-21 and 1-24.

In our many contacts with glider enthusiasts throughout the country, it has become evident to us that there is a demand for a good all-around high performance sailplane, but that

the deterrent is the matter of cost. We often have been asked why we do not make a very small sailplane so the original cost will be low, as well as the cost of storage and handling. However, cost is not directly proportional to size and, also, we feel that there is a minimum practical size determined by considerations of safety, performance, and ease of handling and flying. Unfortunately, the cost of the smallest high performance sailplane built on a production basis, that we consider

Paul Schweizer,  
Robert Smith,  
Jack Perine  
and Don Ryon,  
inspecting  
calibrated  
airspeed.



by PAUL A. SCHWEIZER

practical, would be in the \$2,500 to \$3,000 range, which is more than most enthusiasts are able to pay. Consequently, the only alternative seemed to be to develop this sailplane into a kit where the purchaser would do the less critical work himself and thereby save appreciably on costs.

We set up the following aims for this sailplane kit:

1. Small size and light weight for ease of construction, handling and storage, with a maximum of 40-foot span so it would fit into a standard T hangar or 20-foot garage.
2. Good auto and winch tow characteristics and ability to be towed by light aircraft.
3. Performance to feature operation under marginal conditions. It is expected that the 1-26 will

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be suitable for Golden "C" flights.

4. The design will meet the usual Schweizer requirements for ruggedness, safety and pilot's protection.
5. Since many of these kits will be built by people who have little experience in flying, the ship must be very stable, safe and practical for flying, for a relatively inexperienced person.
6. The kit should be so designed that no critical parts or important line-up work need be done by the builder, to assure reliability and minimize the jigs required, as well as to speed up the job.
7. Sufficient work be done by the manufacturer so that the kit can be completed in a 4-to-6 month period in a person's spare time.

These factors were taken into account and considerable preliminary design work was done and discussions were held with many pilots and clubs during 1952 and the early part of 1953, and at the Nationals at Elmira last July. From this we developed the 1-26 design and in view of the general interest shown, we decided to go ahead with the prototype in September. Design work and construction work proceeded, and during the Snow Bird Meet various components were displayed to the pilots and enthusiasts present at that time.

It must be realized that to put a sailplane kit into production at present day costs is an expensive venture which requires full engineering and CAA approval, a large investment in tools, jigs and fixtures, the writing of a complete kit instruction manual and the setting up of a complete produc-

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to determine how to get it in so short a time. An airmail special to Millard brought the most welcome reply, "can do." Little did we know that his wife was an extremely kind person who could, and would, perform miracles on very short notice, even if it did require one of her new percale sheets and three days and nights of hard work.

The letter was mailed on Monday at Dallas, Millard's reply was received on Tuesday, the flag arrived by airmail in Washington on Saturday evening and left early Sunday for Kitty Hawk and fame.

The Soaring Society is indeed indebted to Jeanne Wells for this service, that enabled it to fly its flag over aviation's hallowed ground.

tion program. Also, it takes considerable time to work this through. Consequently, before we could decide to go ahead, we had to be sure that the product is what the glider enthusiast wants and that there are enough persons who are willing to place orders for the sailplane. So we decided to keep the soaring people informed of this project use by a series of ads.

In the November-December issue of SOARING, was announced the proposed ship, and as a result of this ad over 100 inquiries were received. Another ad appeared in the January-February issue showing the progress made, and from this ad a good number of replies have been received with more still coming in. To this group was sent a 1-26 Report and questionnaire and to-date we have received over 85 replies with over 50% definitely interested in ordering a kit.



Clarence See, Ernie Schweizer and Jack Wilkins "advise" Paul prior to take-off.

Some of these have even sent deposit money along, although none was required. We are waiting for the balance of the questionnaires to come in so we can get the complete picture.

The 1-26 prototype is of composite construction with the basic fuselage constructed of welded chrome-moly steel tubing and the wings and tail surfaces of sheet metal construction with some fabric covering.

The cockpit section is of novel design with welded tubing for the basic structure and a strong sheet metal for the skin. This gives maximum room in the cockpit by eliminating the diagonal tubes and at the same time gives a very strong and crash-resistant fuselage.

The wings are of all-metal construction with the main spar at approximately 25% and auxiliary spar at 70% of the chord. The D tube is completely metal covered and a portion of the top and bottom surfaces

between the two spars is also covered with metal. The rest is covered with fabric.

The ailerons and tail surfaces are built up of sheet metal construction with fabric covering. Simple large type spoilers are incorporated. The landing gear is composed of 400 x 4 wheel and tire combination with peripheral brake, and with a solid rubber tail wheel.

The pilot's cockpit will have plexiglas canopy, large instrument panel, and incorporates a new shock absorbing type of seat design.

#### General Data

Wing Area . . . . .	160 sq. ft.
Wing Span . . . . .	40 ft.
Dihedral . . . . .	3½°
Aspect Ratio . . . . .	10
Spoiler Area . . . . .	1.39 sq. ft. each
Overall length . . . . .	21' 3"

#### Estimated Weights

Empty Weight . . . . .	320 lbs.
Maximum Gross Weight . . . . .	540 lbs.
Normal Wing Loading . . . . .	3.1 lbs. per sq. ft.
Maximum Wing Loading . . . . .	3.4 lbs. per sq. ft.

Since price is the paramount factor, we have made every effort to permit the purchaser to do as much of the construction as he possibly can. However, we feel very strongly that we should do all the welding, the critical line-up and the construction of important assemblies, where alignment and specialized tools and equipment are most important. We also feel that a kit should be capable of being completed by one person in his spare time during the winter season. If there is too much to do in a kit, interest lags and the project may never be completed.

In general, it is proposed to supply the completely welded fuselage in oiled, but unprimed condition. The wing carry-through member will have been attached and drilled for the wings. All lugs will be attached to the fuselage so no welding is required.

Control details will be supplied as parts, but will require cleaning and priming and assembling. Cables will be pre-rigged and will have to be installed. The formed aluminum nose and front bulkhead will be supplied as will the belly-skin, release parts, wheel parts and tail skid. Raw material will be supplied for making the fairing, the instrument panel, floor, and seat back, as well as the turtle deck behind the cabin. The molded plexiglas will be supplied together with canopy parts for assembly.

The wing spar, D-Tube and root section will be completely lined-up

and rigged to fuselage carry-through. Only fill-in riveting is required to finish this portion.

All other wing parts will be supplied ready for assembly and it will be the purchaser's job to add the tail ribs, complete skinning of inboard section, install spoiler and aileron controls and cover rear section of wing. Tail surfaces and aileron parts to be supplied and purchaser to assemble and cover.

We would estimate that a person who has average mechanical ability and some knowledge of aircraft, can complete the sailplane in a 4-to-5 month period in his spare time. We propose to have available on rental basis, production tools, such as squeezers and pneumatic rivet hammers, although the kit has been designed so it can be done by hand tools. The only exception to this may be in the need of some blind rivets and in this case the tools would be available on a rental basis.

The kit is small enough so it should fit in any workshop and a very important factor is that since there is no structural gluing involved, temperature control is no problem. The all-metal construction eliminates the other usual problems of temperature and humidity and storage.

In order to help people to purchase the kit, we have been asked by many about buying the kit in installments.

If there is enough interest in this, we think we will be ready to make the kit available on the basis of five sections, each one to be paid for on delivery. The total cost of this, of course, would be more than the complete kit purchased at one time, since there would be extra handling and paper work necessary, as well as the crating and shipping involved. At the present time, we estimate that it would run approximately 10% to 15% more. It probably will be cheaper to finance the kit locally and get it all at once. However, this will be left up to the purchaser to decide.

The 1-26 performance curves and preliminary performance flight testing indicate that the expected sinking speed will be  $2\frac{1}{2}$  feet per second and the glide around 1 to 23, which definitely puts it into the high performance category. The low minimum flying speed makes it ideal for operating from smaller fields by auto tow, as well as for landing in restricted areas on cross country flights.

The thing that may not be immediately apparent, is that the 1-26, due to its light wing loading and high-

lift wing is capable of making very small radius turns effectively and enables the pilot to make use of small thermals, as well as getting the maximum climb out of the large ones. We feel that this feature is one of the most important ones of the 1-26 and should not be underestimated in evaluating the potentials of this sailplane.

We feel that another important factor often overlooked in analyzing the possibilities of sailplanes is the matter of ease of flying, comfort and confidence in a sailplane. A sacrifice of these factors can produce an overall loss of performance. We feel that these features have been important ones in Schweizer sailplanes and they certainly are being given every consideration in the 1-26.



Ample space is provided for instruments.

In order to make this ship easier for beginners to fly, we plan to have a special drag flap to add to the wings to make it "tame." This device is under development at the present time and further information will be available later.

The 1-26 was first flown on January 16, a little more than three months from the time actual construction work got started on the project. It was test flown by Emil Lehecka, Clarence See and the writer and the immediate reaction was very favorable. It has the smooth and light handling characteristics of the 1-23 and its general performance seems to be very good. Since that time, it has been flown by about 12 other pilots, of various experience, including Bill

Ivans of San Diego; Jack Perine from Washington, D. C.; Ben Cohen and Art Millay from the Philadelphia Glider Council; as well as most of the local pilots. One of the outstanding characteristics of the ship is its ability to make small diameter turns. Bill Ivans was doing a series of nine second turns at something over 40 miles, which is under a 200-foot diameter circle. It has been flown against the 1-23 standard and the 1-23D, and the results indicate that we are getting close to the expected performance and that it certainly is a full fledged sailplane.

There still are, of course, some people who hope for a glide ratio of 1 to 30, and super performance from the 1-26. Obviously, the only way that this can be achieved is with greater span, aspect ratio and refinement, all of which would end up in a ship like the 1-23D and a cost of \$3,750.00. We think that the majority of people would rather have a ship of good performance that they can afford, than to have us build a high performance ship that only a few can afford.

We think that the answer to this situation is the "One Design Competition," where all pilots can fly the same ship. This would make it very competitive and we think that this will eventually be the way most future competitions will be held, with the possible exception of the larger meets, such as the Nationals and International. It seems that too often soaring enthusiasts think that all the performance is in the sailplane, and anyone who has attended the larger meets and also has watched different pilots fly the same ship, can see the tremendous difference in results that can be obtained in the same sailplane.

Cost is of maximum interest to everyone and unfortunately this is the most difficult part to determine at this stage of the project. However, it is estimated that this kit will be in the \$1,250 to \$1,500 range. Just where the final cost will fall, will depend on just how much is to be supplied, and the final detailed estimate and tooling to be carried out on this project.

We are sure that anyone familiar with aircraft realizes the high cost of material and production to make aircraft to government specifications. Possibly, many have lost sight of the true cost of sailplanes in buying used surplus gliders. For example: The TG-3A which cost approximately \$4,000 for glider and trailer to build during the war could cost over \$9,000 if we were to produce these ships at a rate of one per day. Consequently, you

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# Soaring Readers Write

## New South Wales

"Throughout America — indeed, throughout the world — many gliding clubs produce their own newsletter or club magazine. 'Australian Gliding' receives a number of these from clubs in many countries, but would be pleased to get more of them. Although these newsletters are mostly of local interest, dealing mainly with things affecting the club and which are of only passing interest to outsiders, they also contain occasional items of 'hot news' which make interesting reading to people overseas. For example, some months ago 'Texas Spirals' mentioned a high performance two seater being designed by Schweizer (the 2-25). No other magazine has given any information on this machine.

Allan Ash  
Editor of "Australian Gliding"  
3 Bowden Street  
North Parramatta

## Tampa 5, Florida

"I am greatly disappointed! The readers of your magazine, SOARING, could subscribe to it for 100 years and not know much more than they do this minute! Also, it costs much too much for only 6 issues per year. I'd like very much to cancel my subscription. Your magazine does not come up to my expectations. All I can think of is that it is cheap! The editors of poor quality and that it is nothing more than a means of getting money in a cheap and easy way. Tics: \$3.50 etc. You have my sincere wish that you fail — soon!

Charles H. Alder

*Ed's Note: We can please some of the people all of the time, and all of the people some of the time, but here is the exception.*

## Westover Air Force Base, Massachusetts

"I wish to take this means to tell you how much I enjoyed the November-December issue. It was most informative. I was particularly interested in the schools that have opened up in Austria and W. Germany since I was there last year with the Army. It is too bad that the people here in this country couldn't put themselves out to back as whole heartedly as the Germans, a solid glider training program which would train pilots not only for the AF, but prepare them for a better understanding of the airplane."

Walter L. Street

## San Rafael, California

"This letter, I suppose could be filed under 'Crying the Blues.'"

In any event, I wish to comment on what I think is a poor date for the coming Nationals.

Most vacations for the average man usually begin on the 1st of each month or the 15th. This eliminates a lot of little guys such as myself who have robbed piggy banks in order to even have a sailplane.

Now that a National Meet is planned even in my neighborhood I am left like a starving man unable to eat in the midst of plenty. Such meets are dreamed of but are never seen by such as I.

It is my only hope that other Soaring enthusiasts won't find their employers so rigid in doling out their vacations. Even he has his problems too of considering his other employees at that time."

George E. Congdon

## Elmira, New York

"As you know, we are most anxious to build the 2-25 and we have the engineering and a mock-up underway. However, the high cost of doing this and the limited immediate sales potential and our heavy engineering load on our G.G., 1-26 and other projects, make it questionable as to having a 2-25 in time for the International."

Paul A. Schweizer

## Jerusalem, Israel.

"I was surprised to find an L-K in Tel-Aviv. This is a government sponsored club which, like most government undertakings, is not too active, although I managed to fly a couple of times. At present they only have an L-K, a home-made Grunau and a British Olympia. However, they seem to have decided to build several AV-36's. Their local engineer, an Austrian old timer Mr. Pohonille, who designed the "Wien" for Kronfeld is very enthusiastic about them. The only difficulty is to find building material since everything is scarce here and with a terrible amount of red tape around. The soaring season here is in winter. I shall send you the information and photos you want about activity here."

Andre Dumestre

## Frankfort, Germany

"I would appreciate it if you could send me the addresses of the clubs in the N. Y. vicinity because I would like to write to one of them and perhaps trade a little information on gliding in Germany and the U.S.A. I would really like to correspond with any glider pilots in the States because I have a lot of time on my hands and am a total stranger to glider flying there.

We really have a wonderful club here and despite my being a member of the occupation forces everyone is very friendly and nice. We have good equipment, one school glider, which is never used, one two seater Doppelraab which is in constant use and is favored for solo flying, and one Mu two seater which is extremely good for dual instruction and thermic flights."

Col. Paul H. Babcock  
RA 14 290 791  
USAREUR FILM AND EQUIP  
SUB EXCII APO 757  
c/o PM New York, N. Y.

## New Mexico

Dear Sir:

The July-August issue of "SOARING" you sent me was most interesting and I am enclosing my check to cover membership in the Soaring Society. I was particularly interested in the article on M. Fauvel's AV-36, since I spent two weeks in Challes Les Eaux, France where this glider is kept. I had several interesting discussions with M. Fauvel and witnessed many flights of the AV-36. It is a fine glider.

I have a number of photographs of the AV-36 and glider activities of the CAP cadets in France. The five cadets that I escorted all soloed in gliders and one of the cadets qualified for his "C."

Fred S. Adams  
1616 Silver Ave., S.E.  
Albuquerque.

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can see that in order to get out a sailplane kit at the above price, it does require simple, straightforward design, big investment in tools and production planning, as well as efficient production of the final kit.

The 1-26 raw bill of material is about \$350 based on quantity purchases, and when freight and handling charges are added, it brings our raw material allowances to about \$400. It is quite possible that we can take \$75 a unit from the cost by permitting the purchaser to buy his own dope, fabric, tape, wood and plywood, where he has sources close by him.

The above cost does not include crating or shipping charges. Many, no doubt will pick up kits at the plant by borrowing a glider trailer. We can assure you that the above price estimate is quite sound, but it can be realized only by volume production.

To sum up this report, we would say that we think that 1-26 can fill an important place in the American gliding and soaring picture.

Schweizer Aircraft is ready to produce this sailplane in kit form if there is real interest in large enough quantity. We feel that most people can appreciate the problems of producing aircraft under present labor and material costs.

We feel that the 1-26 will hasten the coming of the one design competition and with this, greater fun and satisfaction for the average soaring pilot. This can be developed to the point where various inter-club competitions, section regattas, and even a National One-Design Championship are held. By banding together in a group and co-operating in building kits, much time can be saved and a lot more enjoyment realized by pilots in individual areas.

Because of this one-design idea, we do not plan to make any basic modification of this sailplane once the design is set. We do, however, feel that refinements in fairings, smoothness of wing and similar minor modifications which do not affect the structure or stability of the craft can be permitted within the limits set forth by the Company and the CAA. We believe that this is in keeping with the successful practice in sailboats and will result in better competition, more fun and greater sport.

It is planned to make a decision by March 15, about going ahead on this project. If it is to go ahead, then it is hoped that the project will be carried along so kits will start to be available in the Fall.