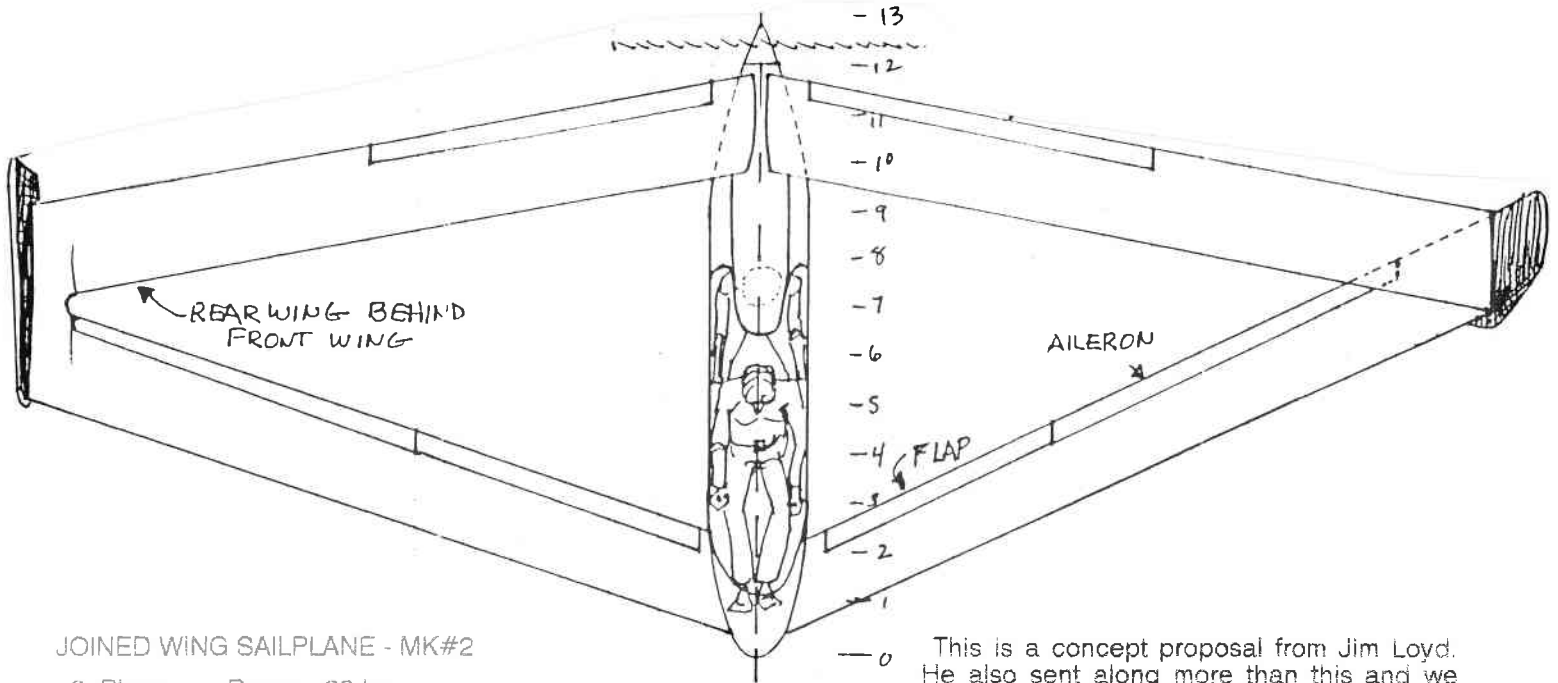


T.W.I.T.T. NEWSLETTER



JOINED WING SAILPLANE - MK#2

2 Place Power 30 hp

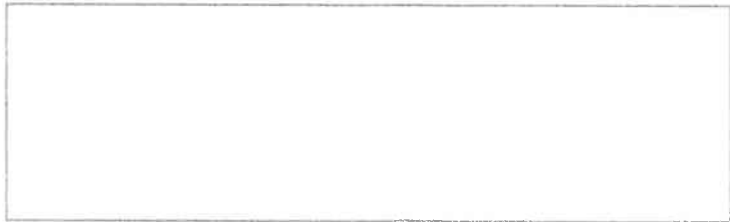
Span 30' Length 12' Height 6'

Area 120 sq' Wt 300# Gr Wt 700#

This is a concept proposal from Jim Loyd. He also sent along more than this and we will try to cover some of it in the April Newsletter. If you have any thoughts on joined wing configurations, put them in the mail to us for next month

T.W.I.T.T.

(The Wing is The Thing)
P. O. Box 20430
El Cajon, CA 92021



The number to the right of your name indicates the last issue of your current subscription, e.g., **9203** means this is your last issue unless renewed.

Next TWITT meeting: Saturday, March 21, 1992 beginning at 1330 hrs at hanger A-4, Gillespie Field, El Cajon, Calif. (First hanger row on Joe Crosson Drive - East side of Gillespie.)

**THE WING IS
THE THING
(T.W.I.T.T.)**

T.W.I.T.T. is a non-profit organization whose membership seeks to promote the research and development of flying wings and other types of tailless aircraft by providing a forum for the exchange of ideas and experiences on an international basis. T.W.I.T.T. is an affiliate of The Hunsaker Foundation which is dedicated to furthering education and research in a variety of disciplines.

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Meetings are held on the third Saturday of each month, at 1:30 PM, at Hanger A-4, Gillespie Field, El Cajon, California (first row of hangers on the south end of Joe Crosson Drive, east side of Gillespie).

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PRESIDENT'S CORNER

First of all, I would like to thank all of you who have renewed your memberships over the past several months, many of which have included donations. I would also like to welcome all the new members we have acquired over the same period. We now have 133 members, up from about 120 at year-end. They reside in Italy, France, Germany, Austria, Switzerland, Australia, New Zealand, Canada, England, any many of the 48 contiguous states.

I would also like to thank all of you who have been sending it letters in the last few weeks. There are enough so far that we will have to spread them out over several newsletters in order to let everyone share the material. However, don't let this stop you from sending more, especially ones with diagrams, design drawings, etc. We will get them all published one way or the other.

Bob wanted me to remind someone out there that we have his 1992 membership dues but do not know who to give credit. If you paid \$15 in cash during the November meeting, please let us know.

I would like to ask a favor of Kevin Renshaw, since he lives in Fort Worth. The Feb. '92 "AMA News" included a photograph of an original design, 11' powered flying wing. Tom Blakeny, the designer, is a member of the Fort Worth Thunderbirds, so I thought maybe Kevin could try and contact him to see if there is some information we could get to pass on to the modelers in TWITT. Perhaps we could even get a new TWITT member. Thanks in advance Kevin, for trying to contact Tom.

That's all for now.
 Andy

MARCH PROGRAM

I know everyone will enjoy this month's program since it will feature **Don Mitchell** talking about a number of aviation subjects including, of course, flying wings. This is a must meeting for those of you who missed the Tehachapi gathering and haven't listened to the tapes.

Don has been around aviation his whole life, and designed many unique and very capable aircraft. He started in high school with a primary glider, worked his way through the development years with Hawley Bowlus, put in a stint with Timm Aircraft to help build CG-4A troop glider wings, and then moved on other projects like the Bumble Bee, Dragonfly, and Hummingbird. He designed, built and flew the Osprey flying wing, which unfortunately was destroyed in a building fire before further development work could be done. He moved on to the Nimbus I, II, III, and IV series of conventional gliders before getting back into flying wings with a new hang glider, then powered glider, and then ultra-lite wings like the U-2 and B-10. His latest designs are the Victory Wing and Stealth, both flying wings.

There isn't enough room in this newsletter to adequately cover all of Don's accomplishments over the years. We hope this will be just one of many times we will hear from Don at our meeting since he now lives in Tehachapi.

Time permitting, Bob has also arranged for a video of the Boeing aerospace museum with some commentary by Ernie Jones who knows some of how the tape originated.

With this meeting we also hope to reinstate our raffle. We have several good prizes stored up from the past meetings when attendance was somewhat low. So bring a couple of extra bucks with you and take a chance.

MINUTES OF THE FEBRUARY 15, 1992 MEETING



Andy opened the meeting by recognizing two guests for the day, Joe Fronius from Arizona and Jim Bennet a friend and old working buddy of Jerry Blumenthal's.

Since the group was small for the day, Andy went right into the

program by introducing Frankie Clemens, who was going to tell us about women's air racing in the Southern California area.

Frankie opened by saying where else could one go full-bore across an airport at 400' AGL and not get busted. In the context of the Pacific Air Races this was how you crossed the timing lines at some of the points on the designated route of flight.

She feels that anyone who has ever air raced is a 1000% better pilot because they have had to use every bit of aviation knowledge and skill to successfully accomplish the tasks. Her type of air racing involves purely VFR flight along a prescribed course trying to make the best time possible between check points. Since there are many different types of aircraft competing in the same race, there is a handicap system to effectively even out the performance factors.

Frankie described the amount of work that goes into putting an annual air race together. It is almost a year-long project covering routing, airplanes, pilot(s), race day, volunteering and hospitality. The work is all done by volunteers from the San Diego Ninety-Nine chapter. (This is an all women group and only very few males are used for non-technical jobs on race day.)

The race route varies from 450 to 600 statute miles. Routes usually are run to the east of San Diego due to the difficulties in going through so much restricted airspace to the north. This was part of the reason for the race being canceled after the 25th Anniversary race last year.

The turn points use both controlled and uncontrolled airfields. Some aircraft have to land for fuel, while others can proceed over the entire course without refueling. This is why there are timing crews at each field so that time can stop and start and ground time not count. You can imagine the amount of pre-race coordination that must go into getting the various airport managers to agree to the conditions needed for a stopover.

The routes are pre-flown by the race committee to make sure it is feasible for all types of aircraft. This is both for safety and for ease on the equipment.

Only stock aircraft are allowed to enter the race, and they go through an inspection prior to being accepted into the race. The top ten winners are also inspected.

The race rules are very specific and provide for a full range of safety items, both on the

aircraft and for the pilots in case an outlanding is necessary.

The race starts with a hospitality breakfast which is prepared by the group, so everyone can get the day going on a full stomach. This goes well with the aircraft which also must be full of fuel.

The object of the race is to make it around the course to the final destination in the shortest amount of flight time. This means going full throttle as much as possible, which is another reason for some of the fuel stops.

The mandatory pilot's meeting provides each crew with a complete package covering the course and airports. Again this is for everyone's safety.

A morning weather briefing is conducted and flight plans filed with flight service.

The starter is responsible for making sure the aircraft are properly separated by type so there won't be an airborne conflict. Frankie commented that usually you don't see too many of the other contestants while on the route. Each plane is basically racing itself and those aircraft in its class.

The turn point fly-bys are all well documented in the contest package. There are a number of required radio calls to make upon approaching each airport to let the ground crews and other aircraft know your intentions. The race usually ends at an airport other than the one from which they started.

After the scores are computed and the winners determined, there is a big banquet for everyone to relax, enjoy the camaraderie, and receive their awards. The next morning the crews can then have a nice "leisurely" flight back to their home airports.

Andy thanked Frankie for a most interesting presentation that gave us all an appreciation of the hard work that goes into putting something like this together. He then introduced Bob Chase who wanted to tell us about his latest acquisition.

Bob has been looking for a Fledge III powered flying wing ultra-lite. He was finally able to locate one in Texas and bought it sight unseen. Shortly after buying it, another person with the same ideas as Bob tried to convince the owner to sell it to him and back out of Bob's deal.

Bob talked a little about the origin of tri-cycle geared hang gliders and how they developed here in the U.S. "Trikes" are very popular in Europe, and are comprised of a small vehicle with three wheels, an engine, a pilot's

compartment, all placed under a hang glider wing. The amount of drag produced by the trike configuration usually makes them poor soaring machines, but an economical ultra-lite.

He related some interesting world class type things trikes have done over the years, including: trans-Atlantic flight east to west, support for mountain climbing expeditions up to levels of 17,000'; and providing navigation support for a river expedition in Iceland.

Bob's Fledge has a 35 hp Kawasaki engine with electric starter. His aircraft has been sufficiently modified so that its performance is somewhat improved over earlier models, and he feels it is about right for his needs.

The wing was designed by Klaus Hill of Salt Lake, Utah, who went through two other versions before finding a suitable performer in wing number three. He then sold the production rights to a San Francisco area company called Manta. Manta then made some more modifications to come up with the Fledge III, before they exited the business due to product liability.

Bob ended up with an ET model which has about two feet more wing span than the standard model. He hasn't flown it yet since he wants to use a dry lake bed. Unfortunately, right now those are hard to find in Southern California.

One difference with this model hang-glider is that weight shift is only needed for pitch control. There are very effective rudders on the wing tips for directional control, alleviating the need for side to side weight shifting.

The wing has a front and rear tubular span system, with two compression struts in each wing panel. The whole aircraft can be collapsed and placed in a tubular bag like a hang glider which makes it much easier to transport. Bob is also making a rack for his van so he can take it to Oshkosh this year.

Since there were no questions for Bob, other than to ask if he would bring the Fledge down to a meeting sometime, Andy closed the meeting by putting on the radio control quarter scale pylon racing tape on for the more hardy of the group to watch. This was due to the extremely hard downpour that continued throughout most of the day, sometimes making it hard for our guest speaker to be heard over the roar of rain on the metal hanger roof. We thank Frankie for carrying on in the face of such adversity.

LETTERS TO THE EDITOR

TWITT

French Flying Wings

- but this time not from Fauvel!

On November 30, 1991, the Historical Commission of the French Gliding

Association (PFVV) organized a symposium at Paris Le Bourget with lectures concerning the French Soaring history of the early thirties. In France well known and honored specialists presented a live image of what happened there. As a TWITT-fan I recognized with great interests, that George Abrial designed a flying wing sailplane with the designation A12 "Bogoas." With the help of Pierre Vayesse, one of these famous French historians, now you can read some details of this early tailless sailplane.

You see a rectangular straight wing with a relatively large dihedral and winglets (with rudders to command the direction). The ailerons serve for banking and height control. The wings are strutted to a primary-like center section. A conventional main spar - equal the French primary Avia A XI A - bear the loads. The S-form-airfoil had a thickness of 10%. Abrial designed it himself and gave it the number 17. It took less than 3 minutes to rig or derig this family-friendly light glider with 8.70 m span and an empty weight of 105.6 kg.

The A12 "Bogoas" was built by the Societe Frangaise de Vol a Voile and the group L'Air, a private club of members of the French Ministry for Civil Aviation. Abrial himself made the first flights June 25, 1932 in Saint Cyr by auto tow. The first three straight flights he did only for 4-5 meters, the landing seeming to be slightly hard, perhaps due to the short fuselage. The next two flights he glided for 200-400 meters to improve the landing. With the last start on that day, Captain Remy confirmed the observations from the earlier flights.

The stick forces proved to be large, because they moved the rudders with only one rope against a rubber-spring. It was easy to dive down the "Bogoas", but difficult to stall it.

The result of these first test flights is a perfect machine, except the controls kinematics and some improvements of the skid. There was assistance by Mr. Toussaint, Peyret, Appert, Levy and Girod, all well-known and

experienced soaring pilots in France in those days.

Sunday, Sept. 11, 1932, they continued test flying after they had improved the controls, center section and the skid, with great success they found after the first winch launch and a straight low-level flight. During the second flight in this session, Abrial again flying himself took 6-8 m height, in the third he gained 30 m, and then he made the first soft curve.

Now Captain Remy performed two beautiful flights again in heights between 20-30 m. Finally, Mr. Champelauvier took the controls of this new plane of group L'Air and also completed two perfect flights without any damage.

Many members of the CAU (Club Aeronautique Universitaire, the first French Akaflieg and 1929 co-founded by Charles Fauvel) helped for the flight operations. These flights seemed to show that opposite to common opinion, a tailless sailplane could be flown easily; the sensitivity in elevation could be in the same order as it is with a normal configured glider.

L'Air further hopes to improve the characteristics of this flying wing glider and then to distribute it in France as a simple and fast riggable sailplane.

This information we complement with the flight report of Mr. Champelauvier, a C-license pilot, which appeared in a French magazine from Sept. 15, 1932.

"For the first, a perfect safe impression, added by the well-agreed feeling of a machine following clear the commands, not hard but also prompt. On the other hand, an impression of a light plane, as the German Zogling or the French Avia X or XIA, although the prototype isn't still ready, from the design-constructive view and in the weights."

"I you want to compare the two sailplanes, you have to say that elevation control is slightly less efficient, as you can find it with the Avia, and a little bit better than the Zogling. In opposite the efficiency during the landing phase is better, due to the small distance of the wing and the rudders to the ground."

The response of the other controls, bank and direction, is not to weigh exactly enough to this hour. After one day flying you can't know all about all about a new plane. The first careful straight flights from yesterday in dead air don't allow the pilot to test all the flight handling characteristics, i.e.,

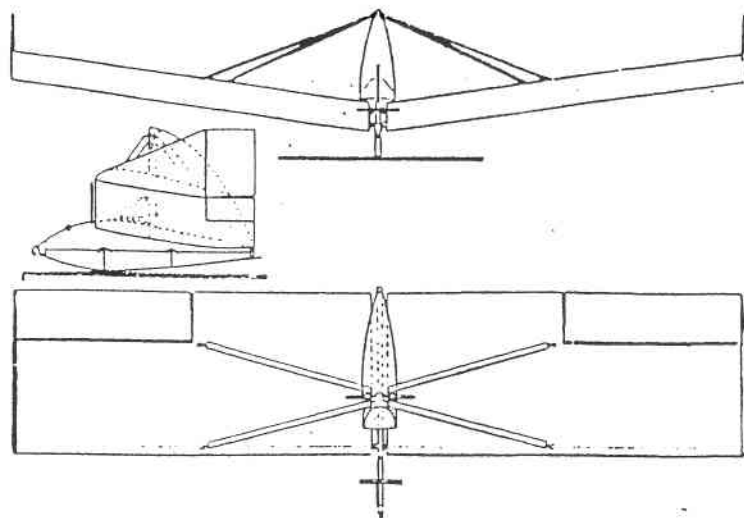
longitudinal stability. Especially this is one of the most important points of a tailless aircraft. The first aim has to be a direct, neither to hard nor to weak longitudinal control; the results for today are round-about satisfactory."

"In sum, this flying wing in its first example shows us real qualities: stability, low forces and good response in the controls, and also practicability: simple construction, light weight, strong structure, fixed wing, low manufacturing costs and exceptional rig-characteristics."

As paradox it may seem, this flying wing offers the advantage of low service costs, because its little weight allows to use a less powered winch with more economical fuel consumption, and this is also worthful for the crew to reduce the efforts in ground handling: the small sized Abrial A12 "Bogoas" will be trailed easy."

General Data:

Span	8.70 meters
Area	16.00 sq. meters
A/R	4.73
Chord	1.84 meters
Airfoil	Abrial #17
Thickness	10%
Empty Wt.	105.6 kilograms



PROFIL ABRIAL N°17

After WWII, Abrial designed again a flying wing sailplane, but this never flew. The Abrial A13 "Buse" should replace the French training gliders C 301, SA 103 "Emouchet" and Nord N 1300. The flying wing he planned with a 10.5 m span, a wing area of 10.5 sq. m, and an empty weight of 120 kg. The flight handling characteristics and performances should have been tested in the "Eiffel" wind tunnel with a 1/10th scale model. Shortly before this should have started all work stopped. The Merville factory, they should produce it, had other, obviously more important obligations. The general view gives an impression of the design, similar to the 20 years older A12, except the now closed cockpit.

Peter F. Selinger
Stuttgart, Germany

(Ed. Note: We would like to thank Peter for this interesting look into the past history of a European flying wing. We have included the 3-views of both the A12 and A13 that were part of the articles (published in French) that Peter sent with his letter. Either one looks like it could be a simple scale RC model if enough pictures or drawings could be obtained.)

TWITT

2/25/92

I recently received a copy of the TWITT Newsletter and found a hand written note from June Wiberg. This was not the first issue that I have received, however, I found the newsletter to be quite fascinating. As a result, I am enclosing my check in the amount of \$15 for membership in your association.

I lived in So. Calif. for a number of years back in the 50s. At that time, no one was interested in building airplanes. Hughes Aircraft Company, my employer at the time, shipped me off to Oscoda, MI as a tech rep with the Air Force. There, I found much interest in sport aviation and building aircraft. The central part of MI is mostly national forest parted in the middle by the Ausable River. We purchased our home some 20 miles from town at the end of a dirt road, overlooking the Ausable. The nearest phone was 5 miles away as was our nearest neighbor during the winter. My first aircraft was a Benson Gyro on floats with a 72 hp aircooled ex-drone engine. Although it flew marginally, I had many experiences flying from the river behind my

home. In 1965 we moved to Kingston, NY, where I went to work for IBM. The gyro was sold a short time later to a group of 3 people from Poughkeepsie, who all obtained their Gyroplane Ratings on it.

The activity in So. Calif. today is what I wished it had been back in the 50s. At the time we lived in Lancaster and both my wife and I worked at Edwards AFB. I sometimes wonder why I don't return. The winters here in New Hampshire really try one's patience when trying to build aircraft. I am currently building a T.E.A.M. Hi-Max, however, much of the time that I should be building I am out cutting and splitting wood for the wood stove in my shop. Additionally, my mornings are generally taken up with writing duties for SHAP Talk and acting as a counsellor to a shop class at the local high school where the students are building ultralight canoes. So much for the life of a retiree.

Am looking forward to my next issue of TWITT.

Sincerely,
Dick Harrington

(Ed. Note: We would like to welcome Dick as a new member, and hope that he will find time for completing his building project as the summer approaches. For our SHA members, Dick has taken over the duties of SHAP Talk editor, in addition to "writing duties." I personally wish him well in putting out a monthly newsletter, since I know it is no light undertaking.)

TWITT 2/18/92

Sorry to be so late with my renewal. Thanks for carrying me.

The article and views of the Northrop N1M issue #59 took me back to 1941 and the back row of Mrs. McLaughlin's 5th grade - where Bobby Larkin and I stealthily developed the enclosed origami version of the Northrop wing. We had read about it in Air Trails, I think. We never expected ours to fly, but it proved to be stable and ended up teaching us a lot about trim.

Congratulations on your publication and organization. It's diversity is marvelous and it is wonderful that a paper airplane folder can be in the same club as a Don Mitchell.

I am enclosing, in addition to the renewal, \$8 for copies of the Danny Howell and Don Mitchell tapes, if they are still available.

Sincerely,
Claude De Bogdan

(Ed. Note: Thanks for the nice letter and the sample of what you can do with a simple piece of paper. We will demonstrate it at the March meeting for the benefit of the group. If you happen to have a copy of the article, could you send us a copy so others could try it. If you don't have it, perhaps one of our members has access to a copy of Air Trails from that time period and could get a copy. Hopefully, by the time you receive the newsletter you will be getting your copy of the tapes. We have not destroyed either of these presentations since there seems to be a constant request for them, especially as we gain new members and they read about them in back issues.)

TWITT 2/17/92

Enclosed is my check for renewal for another year. I certainly look forward to the newsletter each month and have found lots of useful information - enough for me to revise the preface and introductions to my tailless aircraft bibliography. With a couple of orders in hand and no remaining copies, the much expanded Version 1-c is nearing completion and will probably be printed in quite limited quantity, unless I decide to advertise nationally again. Response from purchasers has been gratifying and generous; the new edition benefits from informative contributions from B² Kuhlmanns, Bill Foshag, Chris Bryant, Ed Sharratt, Siegfried Glockner, Bill Hannan, Ken Weyand, Kevin Renshaw, Jason Wentworth, Mike Lachowski, and others. The encouragement and generosity of such folks keeps the project afloat. And of course I thank you for your kind words and space! Keep up the good work. NOW...IF ANY MEMBER HAS ACCESS TO PUBLICATION OR GRANT DATES OF BRITISH PATENTS and would be willing to look some up for me, please get in touch (call collect, if you'd like!). Thanks all!

Sincerely,
Serge Krauss

(Ed. Note: Your list of contributors includes a number of TWITT members and it is gratifying to know they have helped your project. We will continue to run your advertisement in the

newsletter as a service to the members, and hopefully as the membership grows you will find others who are interested in obtaining copies. Keep up the good work in compiling a comprehensive list of tailless literature.)

TWITT

2/13/92

I recently joined the ranks of Soaring Digest subscribers as sailplane are one of my passions (note this month's photos of me in the mag!).

As the Midwest Simitar Squadron Cmdr., I talk or communicate with Simitar enthusiasts around the world. I've enclosed some info for your files which you may reprint as you wish.

While you probably already know a lot about Bill Evan's Simitar Series of tailless aircraft, I thought I'd just touch on a few interesting facts.

The Simitar Series is the single largest selling plan in Model Aviation's catalog. There have been more Simitar variations published in RC magazines than any other type of model aircraft. Simitars are flown today all over the world (note RCM pg 8). Simitars have been the topic of enthusiastic "letters to the editor" or other columns often in most magazines. The first in the series was the Saracen tailless slope/thermal glider. Many

variations were developed and published. Power was added to the design and continued to date. While approximately 40 variations have been published (including electrics) literally hundreds more modeler-designed variations are flying.

My own fleet includes gliders, electric and plow power, even a 100" 35 lb. 14 hp 25th century GEE BEE extrapolation which I often am told that at IMAA events is supposed to be landed when the engine kills, as thermalling is not allowed! Top speed is approximately 120 mph and it carries 1/2 gal of smoke oil. 36" span variations powered by 60's or 75's known as Top Gun or EPO have achieved roll rates of nearly 100 times in 100'!

The Simitar is more of a concept or a medium than a model; Bill's invention has allowed tailless aspirants to successfully achieve their dreams. Bill will tell you that the Simitar was never intended to be the most efficient, or the highest tech tailless design, only the most versatile and the most fun.

It's own unmatched success speaks for itself. The Simitar has achieved a status beyond "tailless" to a genre as unique as heli, biplane, auto, or hover.

I started like most in CL as a kid, was wooed away by hormones, then reclaimed by RC after a long wait. I've done some writing for MAN and MA, and I do local promotional work

for select RC manufacturers; Airtronics, Midwest, ACE, JADE, and of course Simitars.

I own lots of Simitars and Sailplanes. I can sand, pin, glue, cut cores and vacuum bag. I'm president of the Milw. Simitar Squadron and VP of Wisconsin's only all electric club.

I'm a sales, management, and communications kind of guy and at present hold a job with a construction equipment sales and rental dealer in charge of market development for a Toyota product.

Mostly, I'm really looking forward to your newsletter!



With no (more) "tail" to tell,

Gordy Stahl
 6623 W. Chambers Street
 Milw. WI 53210
 (414) 873-5842 (home)

P.S. - About Dave Jones - I was fortunate to have contacted Dave prior to his final flight and purchased some of his plans. I didn't get his Blackbird plan but would like to add it to my plan collection. If you know who'd share one with me, I have access to blue print



"Gee there Bee no tail!"

duplication a block from my house and would return the plan the same day. I am really sorry to have lost a very nice, brilliant and friendly modeler so soon after talking to him. There are too few of his metal and too many of "Tower Groupies."

(Ed. Note: Welcome to TWITT, Gordy. We hope you enjoy your membership and find new ways to modify Simitars to get even better performance or more unusual appearances than those you included in the photographs. We have published the one showing your GEE BEE and the one with a giant scale Simitar, which might interest our other modelling members. I hope that one of them might be able to solve your

problem in trying to find plans for the Blackbird. What do you say guys!)

TWITT

2/14/92

Thanks for carrying me past the end of my membership term; appreciate.

Enclosed are 2 photos of my "C-Hawk" project, an ultra-lite Marske redesign. The wing section and rudder are temporary.

Fred Blanton

"C-Hawk" Specifications

Span	42'
Mean Chord	40"
Wing Area	133 ft ²
Length	12'
Aspect Ratio	12/1
Empty Weight	150#
Gross Weight	250#
Wing Loading	2.6#/ft ²
Straight Leading Edge	

(Ed. Note: As you can see, we try to oblige our members by giving them a little leeway on their expiration dates. The red border around your address label is meant as a "subtle" reminder that it's time to renew.

Thanks for the pictures. I hope they print out okay in the newsletter. Please keep us



informed on how the project is going. If you have a 3-view that could be reduced down to newsletter size, it would be appreciated.

The cartoon you sent probably would not reproduce very well so we didn't include it. If anyone has a copy of the July 1991 AIR FORCE Magazine and would part with an original of the cartoon, it would also be appreciated.)

INFORMATION NEEDED

Bob Fronius, TWITT's founder, along with some other early aviation pioneers in the San Diego area, are trying to get a National Monument established on the soaring sites at Point Loma. He is looking for information and/or pictures of flight activity from the Point Loma area during the period of 1929-30, including any flights of Hawley Bowlus. If you don't have pictures, but were an eye witness and could provide some detailed accounts of the soaring, that would be great. If you can help, contact Bob at home in the evenings, the hanger during the day, or through the TWITT post office box. Thanks for your help.

AVAILABLE PLANS & REFERENCE MATERIAL



Tailless Aircraft Bibliography
 by Serge Krauss
 Cost: \$20
 Order from: Serge Krauss
 3114 Edgehill Road
 Cleveland Hts., OH 44118

FLYING WING SAILPLANE PLANS AND KITS:

Two time-proven, 13m homebuilt designs suitable for the novice pilot. Build either the MONARCH "F" ULTRALIGHT (19 to 1), or the PIONEER II-D (35 to 1) sailplane.

Info packs \$8 each, or \$15 for both.

Marske Aircraft Corp.
 130 Crestwood Drive
 Michigan City, IN 46360

Al Backstrom is looking for Davis DA-5 scale drawings. If you can help, write to: 1220 Yacht Club Drive, Little Elm TX 75068

MODEL WINGS

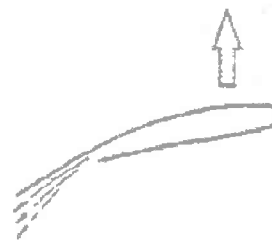


The cover of the July 1991 issue of RModeler features a flying wing called the "Stealthbat" offered by Wing Manufacturer. There

was no price listed, but they can be contacted at: 306 E. Simmons
 Galesburg IL 61401
 (309) 342-3009
 Catalog: \$4.00

Omni Models carries the Future Flight Klingberg Wing kit for \$39.99 (item #FTF4000). They can be contacted at:

P.O. Box 1601
 Bloomington IL 61702
 1-800-747-6664 or (309) 663-5798
 Shipping: \$5.00



THE HIAM AIRPLANE NEEDS YOUR HELP

For those of you who would be interested in assisting Budd Love with some aspect of his High Internal Air Mass (HIAM) project, he would be glad to hear from you. This concept has great potential for the future of air transportation.

Contact: AIRLOVE, LTD.
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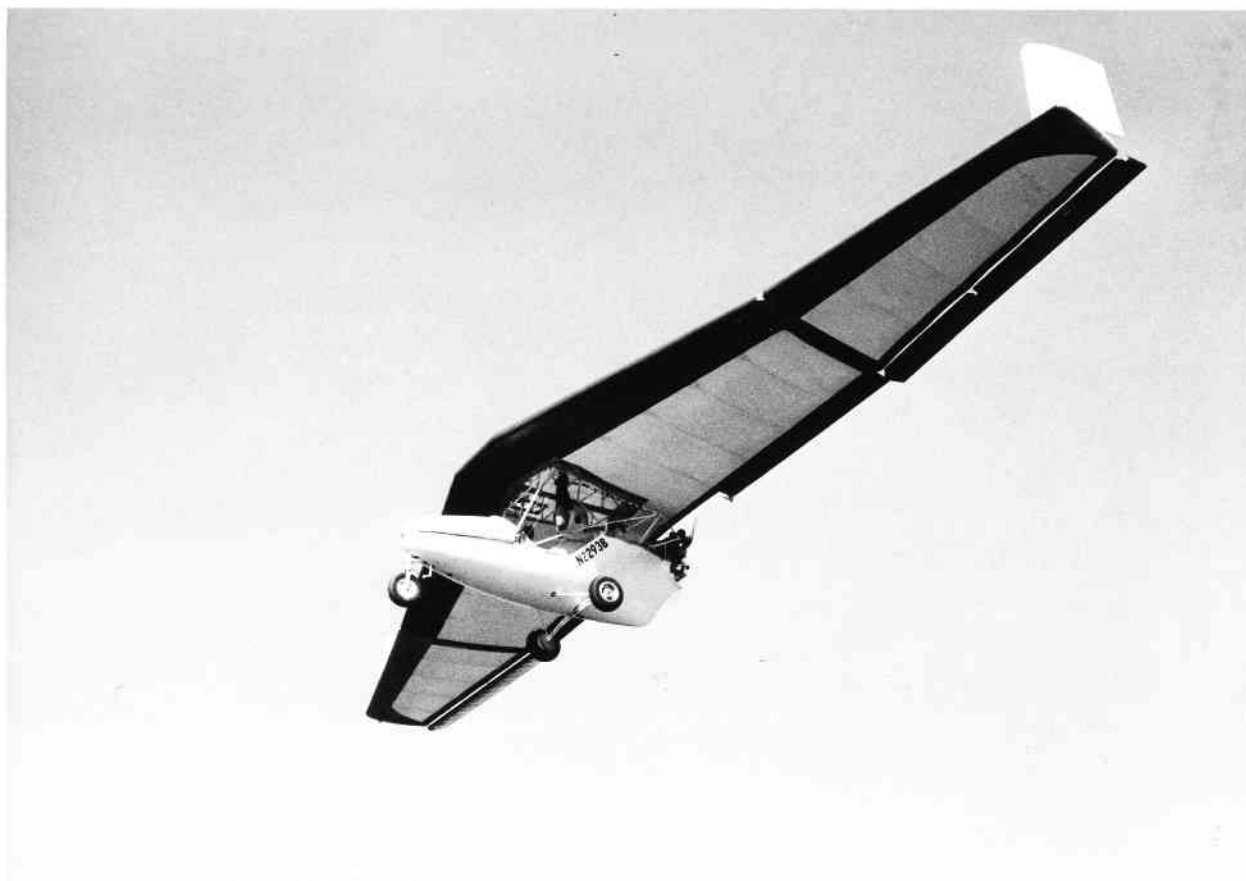
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B-10

PHOTOS

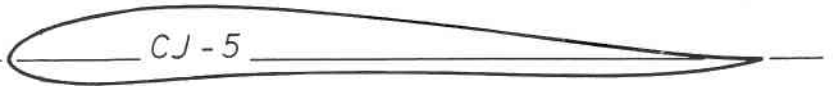
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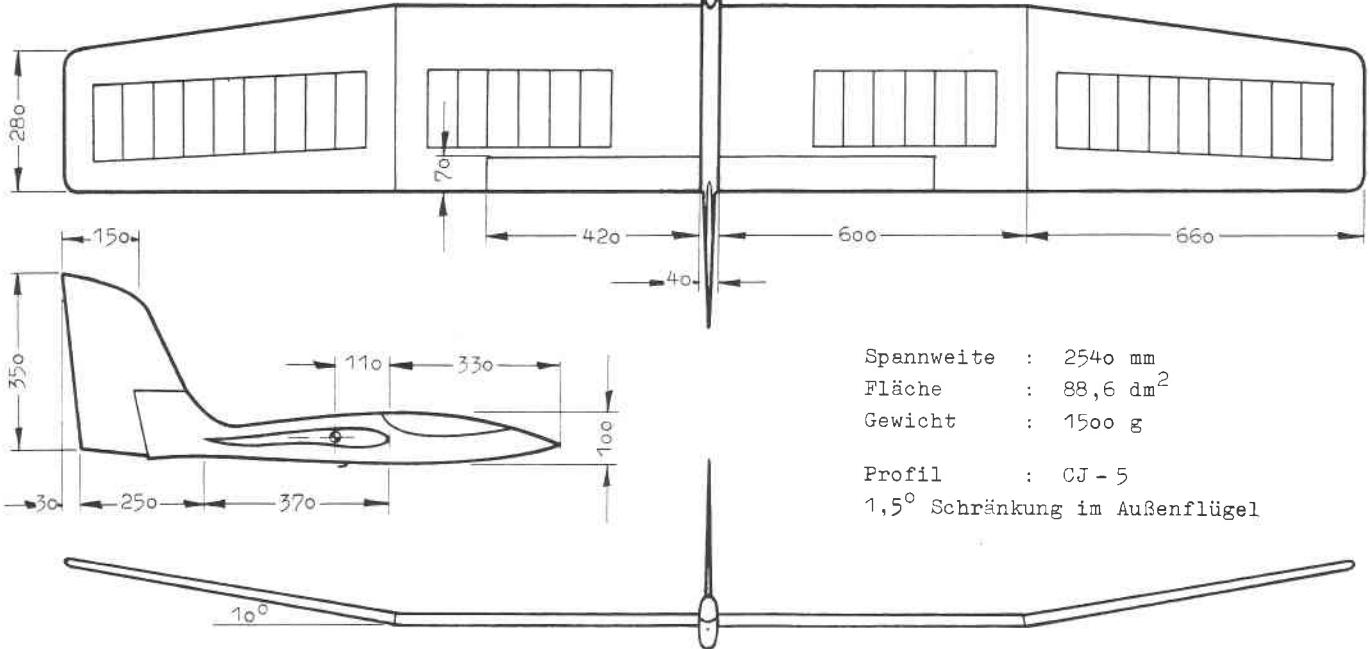
x	0	1.25	2.5	5.0	7.5	10.0	15.0	20.0	30.0
y _o	0	1.9	2.7	3.8	4.7	5.4	6.3	6.7	6.9
y _u	0	-1.4	-1.9	-2.5	-2.7	-2.9	-2.8	-2.6	-2.1

x	40.0	50.0	60.0	70.0	80.0	90.0	95.0	100
y _o	6.3	5.3	4.2	2.9	1.4	0.5	0.2	0
y _u	-2.0	-1.8	-1.8	-2.0	-1.8	-1.2	-0.9	0



'Fit Fit'

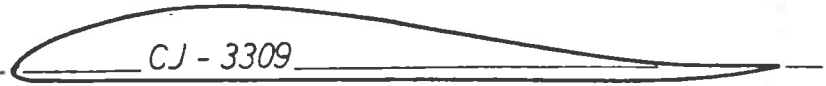
RC - Nurflügelsegler von Frank Dimmeler



Spannweite : 2540 mm
 Fläche : 88,6 dm²
 Gewicht : 1500 g
 Profil : CJ-5
 1,5° Schränkung im Außenflügel

x	0	1.25	2.5	5.0	7.5	10.0	15.0	20.0	30.0
y _o	0	1.5	2.4	3.6	4.7	5.6	6.9	7.8	8.0
y _u	0	-1.0	-1.2	-1.2	-----	-----	-----	-----	-----

x	40.0	50.0	60.0	70.0	80.0	90.0	95.0	100
y _o	7.2	5.7	4.0	2.5	1.1	0.3	0.1	0.1
y _u	-----	-----	-----	-1.7	-1.7	-1.4	-0.9	-0.1

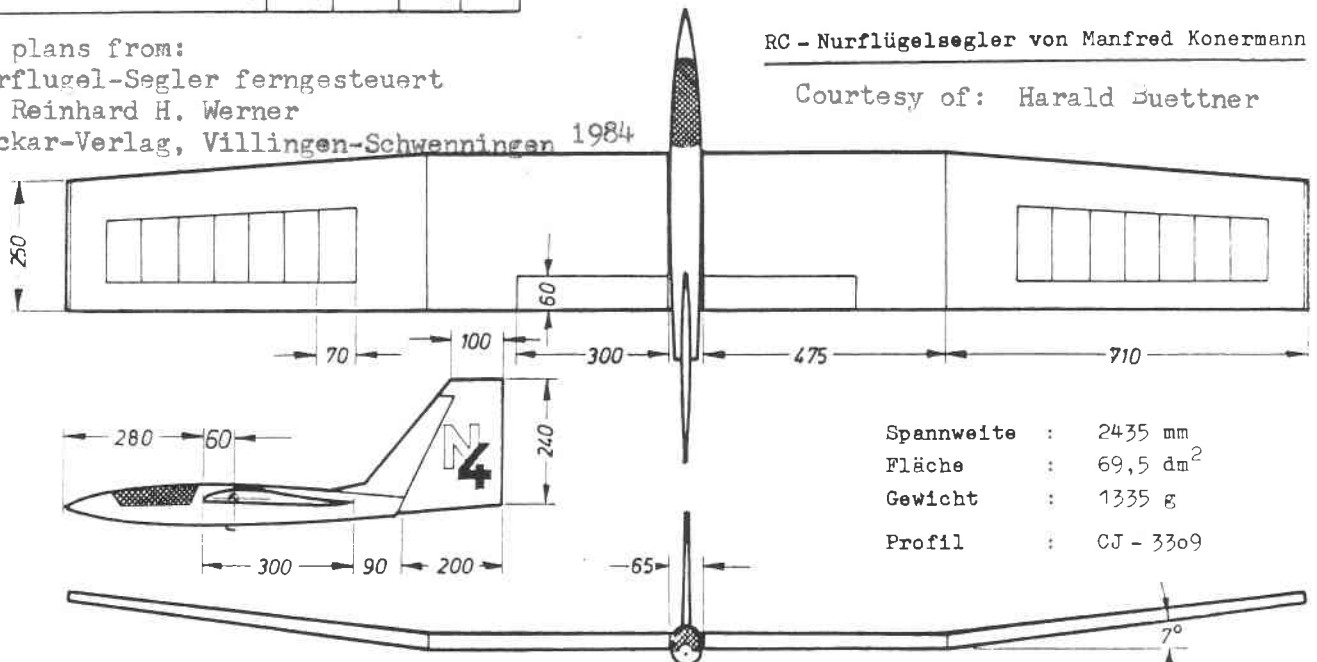


'M. K. N-4'

RC - Nurflügelsegler von Manfred Konermann

Courtesy of: Harald Duettner

Both plans from:
 Nurflügel-Segler ferngesteuert
 by Reinhard H. Werner
 Neckar-Verlag, Villingen-Schwenningen 1984



Spannweite : 2435 mm
 Fläche : 69,5 dm²
 Gewicht : 1335 g
 Profil : CJ-3309

Manfred Konermann
 Rosengarten 68
 4400 Münster/W.