No. 263 MAY 2008

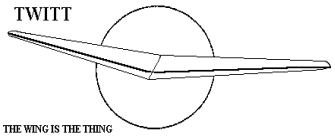
T.W.I.T.T. NEWSLETTER

The Short Brothers' decidedly different approach to the tailless concept was the Short S.B.4 Sherpa. The Sherpa featured a so-called "aero-isoclinic" a relatively flexible structure with movable wing tips. Although the rotating tips, were supposed to prove superior to conventional controls at transonic and would improve maneuverability at high altitudes, the idea apparently found no practical application.
Source: http://www.century-of-flight.net/Aviation history/flying wings/later flying wings.htm

T.W.I.T.T.
The Wing Is The Thing
P.O. Box 20430
El Cajon, CA 92021

The number after your name indicates the ending year and month of your current subscription, i.e., **0207** means this is your last issue unless renewed.

Next TWITT meeting: Saturday, May 17, 2008, beginning at 1:30 pm at hanger A-4, Gillespie Field, El Cajon, CA (first hanger row on Joe Crosson Drive - Southeast 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 tailless aircraft by providing a forum for the exchange of ideas and experiences on an international basis. T.W.I.T.T. is affiliated with The Hunsaker Foundation, which is dedicated to furthering education and research in a variety of disciplines.

T.W.I.T.T. Officers:

President: Andy Kecskes (619) 589-1898
Treasurer:
Editor: Andy Kecskes
Archivist: Gavin Slater

The **T.W.I.T.T.** office is located at:
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Mailing address: P.O. Box 20430
El Cajon, CA 92021

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Members only section: ID – **twitt2008**
Password – **08member08**

Subscription Rates: $20 per year (US)
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Information Packages: $3.00 ($4 foreign)
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Multiple Back Issues of the newsletter:
$1.00 ea + bulk postage

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Wt/#Issues	FRG	AUSTRALIA	AFRICA
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36oz/36	30.00	32.00	22.00
48oz/48	40.00	42.00	30.00
60oz/60	50.00	53.00	37.00

Meetings are held on the third Saturday of every other month (beginning with January), 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 (#1720), east side of Gillespie or Skid Row for those flying in).

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PRESIDENT'S CORNER

This month I have been doing a little catch up work with the TWITT archive material sitting around my house. So what you are seeing in this issue are items I have been meaning to publish but due to other interesting material coming have sort of put aside.

There is still a lot of material to go through, but unfortunately much of it is in foreign languages, primarily German, which makes it sort of limited in scope other than the pictures. I will try to get busy and scan in the various patents that have come in from Kevin Renshaw and Curzio Vivarelli and then get them published on the web site.

Just before putting this month's issue together my flat bed scanner decided it wasn't going to cooperate and produce the necessary images I needed. There were two upsides to this malfunction. First it happened far enough in advance that I could get another unit and get the newsletter done on time. Second, it forced me to do what I should have done a long time ago and that's go buy a multi-functional unit with more versatility. So for now all is well and I am learning the scanning capabilities of the my new toy.

Bruce Carmichael has suggested a contact for a potential program and I will be working on it for the July meeting in order to give him time to make plans and put something together for us. I hope to have more information before the next newsletter and will publish it on the web site if it materializes before then.

Andy

MAY 17, 2008 PROGRAM

As of our publication date we don't have a program lined up for May. We have a suggestion for a future program, but I have to allow time for making contact and the speaker to make appropriate plans if it works out.

We will be at the hanger since this is advertised as a public gathering in the local area and provides a tax exemption event for aircraft owners who are displaying their aircraft in the vicinity around the hanger. If your county has such a program and you need a display date, don't forget that the TWITT meeting is a qualifying event since Bob Fronius got the hanger designated as an official soaring museum.

LETTERS TO THE EDITOR

April 12, 2008

Would you please post the following to Mark Hills regarding his enquiry regarding wing geometry and airfoil dynamic interactions as stated in the April, 2008 number of our TWITT Newsletter. Saddened to read of Nickel's asking top\ be dropped from the mailing list.

Mark, regarding your quest for information regarding empirical workings on the subject of Swept and Unswept geometry and the interrelationship with various foil sections please peruse the following. Understand that we owe a debt of thanks to George Shairer, the Boeing engineer who headed over to Germany even before the shooting had stopped in order to collect data in the spring of 1945. Shairer collected tons of paper from various research institutes, most wing geometry data coming from the Volkenrode area of Braunsweig, Germany. Engineers who worked on various problems and programs volunteered information later on.

Hans Multhopp might be the fellow whose work might be of the greatest use to you. His papers on the topic you wish to research are on the NACA sites. Alexander Lippisch was one of the pioneers of swept wings. His papers are available through the Lippisch Collection of Parks Library, Iowa State University, Ames, Iowa. While little specific to foils is part of the "How the Hortens Design Their Aircraft" paper written by K.G. Wilkinson there is much of use in it. That paper is out there on the Internet. The three sources mentioned above should provide you with enough formulae to work the question empirically.

American sources of Data would be the papers of Max Munk, particularly his NACA paper No. 122 regarding Determination of the Angles of Attack of Zero Lift and Zero Moment (Munk's Integrals). This again through NACA archives, either NACA, its UK mirror site or the NASA site.

Regards,

Henry E. Whittle
<Gulfrose@Juno.com>

(ed. – Thank you for pointing these publications for Mark's research. Perhaps other members will also look them up and learn more on these subjects.)

April 13, 2008

Hi. Can you help identify this one.

Derek of Norwood
<derek62@bigpond.com>

(ed. – This came from an unknown book dated February 1949. The short caption was: "Sea Water" Metal Used to Make Plane. Sea and air combine in a five-seater British personal plane made of magnesium alloy, an element extracted from sea water. Though the metal weighs less than the lightest aluminum, the wings in bending tests have withstood deflection five times greater than is required. Expected to fly over 200 mph, the unorthodox craft was designed by an 'amateur' who had never before worked around airplanes."

If anyone has the answer pass it along to Derek and be sure to include TWITT in your message so we can let other know in the next newsletter.)

April 23, 2008

I haven't seen this web site noted in TWITT newsletters, lots of interesting photos and drawings.

http://www.nuricom.de/

Al Backstrom
<albackstrom@austin.rr.com>

(ed. – This is the same site that was in last month's newsletter sent to us by Klaus Niegratschka. Apparently he has been re-organizing his Internet domain names. If you didn't check it out last month, make sure to do so this time around.)

(ed. – This is some information on the status of RC Soaring Digest that we have sort of overlooked over the past couple of years. This was the result of a letter I received on the ESA side about an error in the contact data included in Sailplane Builder. This came back for Bill and Bunny Kuhlman who are responsible for the publishing of this excellent magazine.)

RC Soaring Digest's main page can be found at: <http://www.rcsoaringdigest.com>. You will find a link to the latest magazine and by scrolling down to the "Back Issues Archive" topic find issues from 1984 forward. There's also an off-site search engine available through: <http://www.rcsoaringdigest.com/RCSDindex.html>

The issues available directly through the web site are of very high quality and therefore very large in size. If you don't have a high-speed Internet connection, there are lower resolution issues available by signing up for the RCSoaringDigest Yahoo! group.

Contact for B2Streamlines, the RCSD "parent" organization, is noted on the B2Streamlines web site <http://www.b2streamlines.com>. That contact information includes a postal address, P.O. Box 975, Olalla WA 98359-0975.

All of the On the 'Wing... columns are available through links on the B2Streamlines site. Those links refer to Andy MacDonald's site in Australia. Now that we have 5GB of space on the RCSD server, we're considering setting up an OTW mirror on the extra space available there.

(ed.- This was sent in by Syd Hall several months ago and I thought he was going to send the referenced material along for either publication in the newsletter, depending on it length, or on the web site for additional exposure and perhaps more public comment.

Unfortunately, the letter accidentally got mis-placed with some other documents and I just recently found it again. Hopefully, Syd will accept my apology for the late publication and send in his concept.)

AN ALTERNATIVE MEANS OF TRANSPORTATION

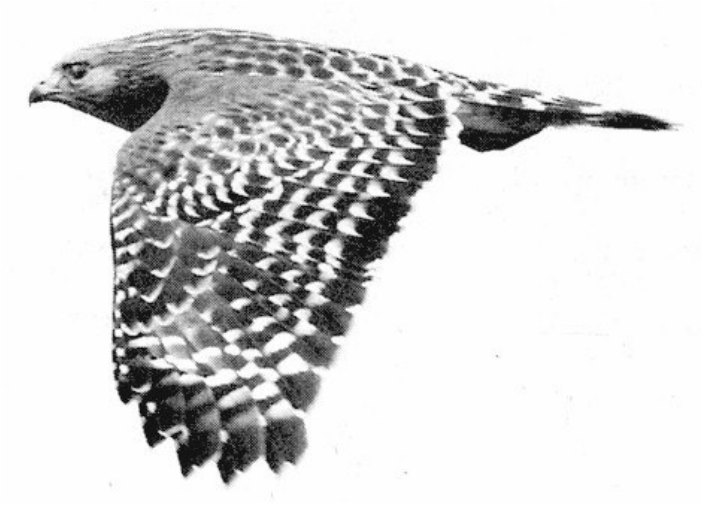
Two years ago, I had to commute to a town, north of here (Magalia) that forced me to go west, then North, then east to gain just a bit of nothing.

Were I to fly, I could reach the town in a third the time, but a low-priced plane might dump me in the woods, and a helicopter was not in my financial picture, but all my life I have studied sailplanes (not the modest performance hang-gliders, but the real performance machines) and realized that advanced aerodynamics made my objective possible. But the name of this nonexistent bird, "the ultralight-helicopter" suggested that for simplicity, I refer to it as a LOPTER, and I will do so, since I feel it is indeed a different breed of "cats".

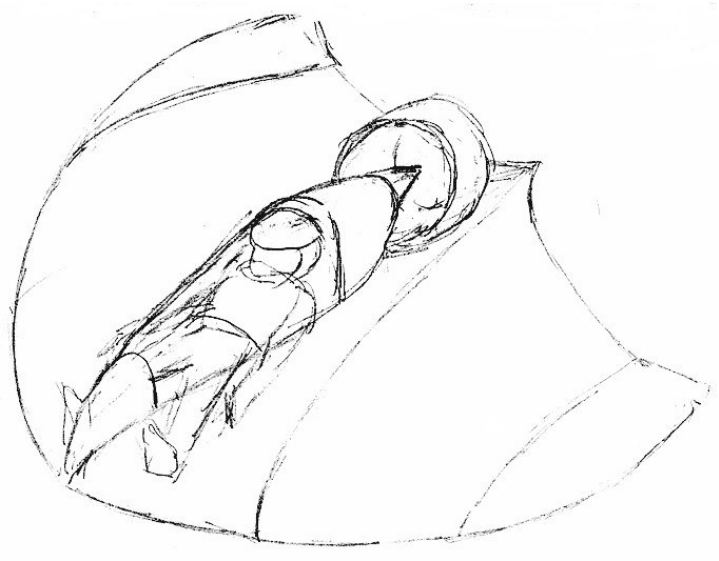
Had de la Cierva and Sikorski and the rest not been seduced by the attraction of military, or commercial applications, they'd have done this, for sure, but they ignored it, and left it for a half-baked, impoverished, worn-out builder to fill-in their oversight.

Firstly, to be successful, such a bird must be efficient, aerodynamically, and that is the common denominator of all birds and sailplanes, so that is a must, here. Out goes the wasteful anti-torque tail rotor, to be replaced by counter-rotating rotors, and I'd prefer them to be coaxial, as the Russian designer, Camov, (who holds more world records than any other designer.) does in all his designs. It, further, must be well streamlined, not because it is expected to be fast, but rather, because to work at all, it must be efficient (as is the case in birds). There are many other variables that better designers may see fit to propose, but, herewith, I wish to submit my design of a LOPTER (or ultralight helicopter).

(ed. – This appeared in the San Diego Union-Tribune newspaper's Sunday, December 30, 2007, in an article on bird watching. It is a red-shouldered hawk. Talk about streamlined!! Not a feather out of place and positioned for speed.)



(ed. –This was sent to us by Eldon Runkel a couple of months ago, but I never seemed to have room for it. Interesting concept drawing, but the pilot position and that fact that is has a ducted fan makes it somewhat like the Ligeti-Stratos without the joined wings.)



(ed, - This came in from H.F. Blanton who found it in Ultralight & Microlight Aircraft of the World, by Berger-Burr, 2nd Edition, 1985-86. There was a description of the Ligeti-Stratos that basically conveyed what we heard from Chris Alan at the March meeting. However, it has a much better specifications table that will be easier to read that the one I included in the April issue. The magazine also had some information about the Trident T-3 that was also a joined wing design.)

LIGETI-STATOS SPECS

EXTERNAL DIMENSIONS & AREAS - Length overall 7.9 ft, 2.42 m. Height overall 3.1 ft, 0.93 m. Wing span 16.6 ft, 5.06 m (forward wing); 17.4 ft, 5.31 m (rear wing). Chord at root NC (forward wing); 2.5 ft, 0.75 m (rear wing). Chord at tip NC (forward wing); 2.1 ft, 0.65 m (rear wing). Dihedral NC (forward wing); 3.5° (rear wing). Sweepback 30° (forward wing); NC (rear wing). Fin height 2.2 ft, 0.66 m. Forward wing area 36.6 ft^2, 3.4 m^2. Rear wing area 39.9 ft^2, 3.7 m^2. Total wing area 76.4 ft^2, 7.1 m^2. Total aileron area 4.8 ft^2, 0.45 m^2. Fin area 8.6 ft^2, 0.80 m^2. Rudder area 2.2 ft^2, 0.20 m^2. Total elevator area 3.1 ft^2, 0.29 m^2. Aspect ratio 7.5/1 (forward wing); 7.6/1 (rear wing). Wheelbase 4.9 ft, 1.50 m. Tailwheel diameter overall 8 inch, 21 cm. Main wheel diameter overall 10 inch, 26 cm.

POWER PLANT - Konig SC430 engine. Max power 26 hp at 4200 rpm. Ducted fan diameter and pitch 24x* inch, 0.61x* m. No reduction. Max static thrust NC. Power per unit area 0.34 hp/ft^2, 3.7 hp/m^2. Fuel capacity 5.8 US gal, 4.8 Imp gal, 22.0 litre.

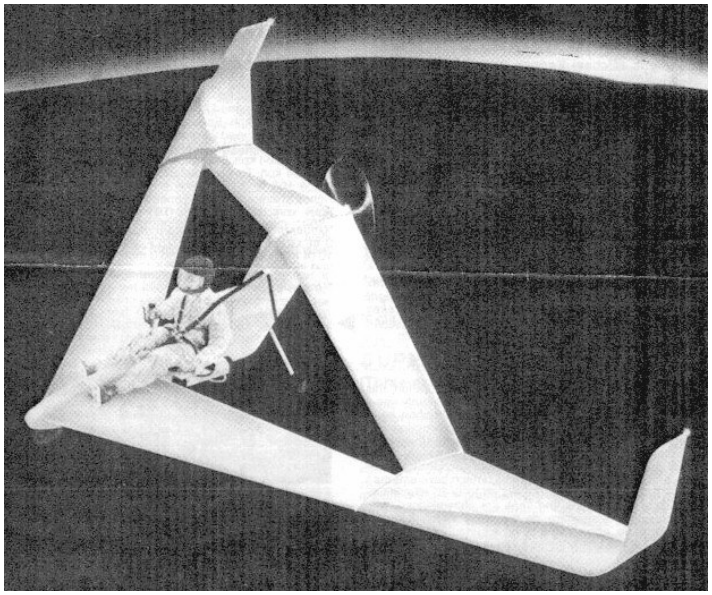
WEIGHTS & LOADINGS - Empty weight 172 lb, 78 kg. Max take-off weight 379 lb, 172 kg. Payload 207 lb, 94 kg. Max wing loading 4.96 lb/ft^2, 24.2 kg/m^2. Max power loading 14.6 lb/hp, 6.6 kg/hp. Load factors +6.0, -4.0 recommended; +9.0, -6.0 ultimate.

PERFORMANCE** - Max level speed 137 mph, 220 kph. Never exceed speed 168 mph, 270 kph. Max cruising speed 115 mph, 185 kph. Economic cruising speed 106 mph, 170 kph. Stalling speed (with power on) 32 mph, 52 kph. Max climb rate at sea level 830 ft/min, 4.2 m/s. Best glide ratio with power off 19/1 at NC speed. Service ceiling 14,800 ft, 4500 m. Range at average cruising speed 423 mile, 680 km. Other data NC.

**Ground adjustable for pitch.*

***Under unspecified test conditions.*

TRIDENT T-3 & SPECS



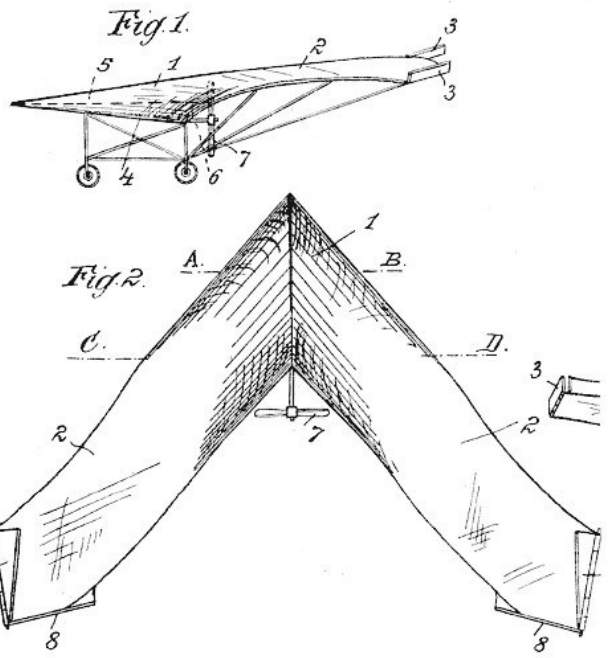
EXTERNAL DIMENSIONS & AREAS - Length overall 16.7 ft, 5.08 m. Height overall 6.3 ft, 1.91 m. Wing span (tip to tip) 33.0 ft, 10.06 m. Chord at root 4.0 ft, 1.22 m. Chord at tip 3.0 ft, 0.91 m. Dihedral 7°. Sweepback 36°. Total wing area 158 ft², 14.7 m². Total aileron area 8.0 ft², 0.74 m². Total rudder area 10.0 ft², 0.93 m². Total elevator area 12.0 ft², 1.11 m². Aspect ratio 6.9/1. Wheel track 5.0 ft, 1.52 m. Wheelbase 8.3 ft, 2.51 m. Nosewheel diameter overall 10 inch, 25 cm. Main wheels diameter overall 12 inch, 30 cm. Other data NC.

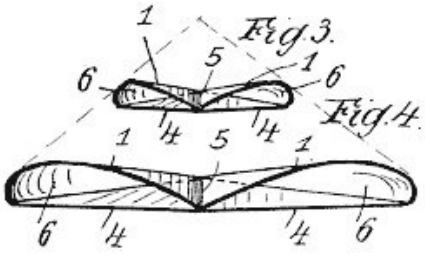
POWER PLANT - KFM 107ER engine. Max power 28 hp at 6300 rpm. Propeller diameter and pitch 54x27 inch, 1.37x0.69 m. V-belt reduction, ratio 2.1/1. Max static thrust NC. Power per unit area 0.18 hp/ft², 1.9 hp/m². Fuel capacity 5.0 US gal, 4.2 Imp gal, 18.9 litre.

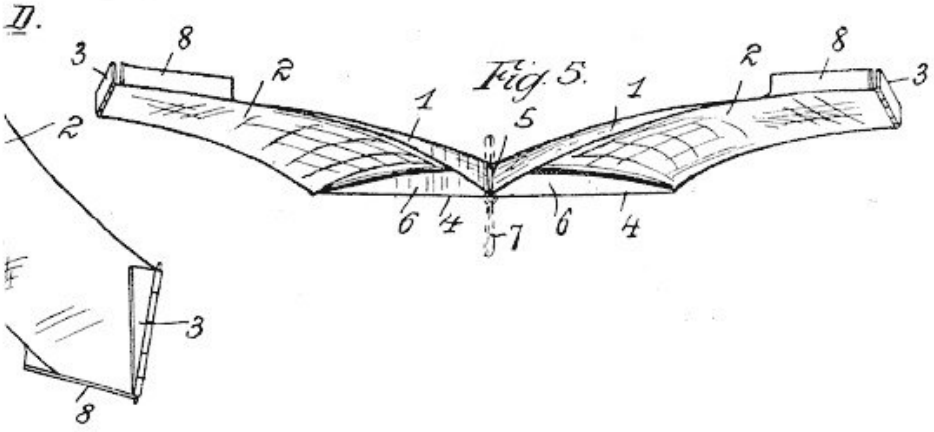
WEIGHTS & LOADINGS - Empty weight 260 lb, 118 kg. Max take-off weight 510 lb, 231 kg. Payload 250 lb, 113 kg. Max wing loading 3.23 lb/ft², 15.7 kg/m². Max power loading 18.2 lb/hp, 8.3 kg/hp. Load factors +4.7, -2.3 recommended; +7.0, -3.5 ultimate.

PERFORMANCE* - Max level speed 63 mph, 101 kph. Never exceed speed 82 mph, 132 kph. Max cruising speed 55 mph, 88 kph. Economic cruising speed 45 mph, 72 kph. Stalling speed 24 mph, 39 kph. Max climb rate at sea level 500 ft/min, 2.5 m/s. Min sink rate 190 ft/min at 32 mph, 1.0 m/s at 51 kph. Best glide ratio with power off 14/1 at 39 mph, 63 kph. Take-off distance 100 ft, 30 m. Landing distance 60 ft, 18 m. Service ceiling 11,000 ft, 3350 m. Range at average cruising speed 135 mile, 217 km. Noise level NC.

(ed. – Here is some follow-on stuff from the package we received from Curzio Vivarelli that I listed in the March newsletter. The first two images are the Alexander Soldenhoff drawings.)







AVAILABLE PLANS & REFERENCE MATERIAL

Coming Soon: Tailless Aircraft Bibliography Edition 1-g

Edition 1-f, which is sold out, contained over 5600 annotated tailless aircraft and related listings: reports, papers, books, articles, patents, etc. of 1867 - present, listed chronologically and supported by introductory material, 3 Appendices, and other helpful information. Historical overview. Information on sources, location and acquisition of material. Alphabetical listing of 370 creators of tailless and related aircraft, including dates and configurations. More. Only a limited number printed. Not cross referenced: 342 pages. It was spiral bound in plain black vinyl. By far the largest ever of its kind - a unique source of hardcore information.

But don't despair, Edition 1-g is in the works and will be bigger and better than ever. It will also include a very extensive listing of the relevant U.S. patents, which may be the most comprehensive one ever put together. A publication date has not been set yet, so check back here once in a while.

Prices: To Be Announced

Serge Krauss, Jr.
skrauss@earthlink.net
3114 Edgehill Road
Cleveland Hts., OH 44118 (216) 321-5743

Books by Bruce Carmichael:
Personal Aircraft Drag Reduction: $30 pp + $17 postage outside USA: Low drag R&D history, laminar aircraft design, 300 mph on 100 hp.
Ultralight & Light Self Launching Sailplanes: $20 pp: 23 ultralights, 16 lights, 18 sustainer

engines, 56 self launch engines, history, safety, prop drag reduction, performance.
Collected Sailplane Articles & Soaring Mishaps: $30 pp: 72 articles incl. 6 misadventures, future predictions, ULSP, dynamic soaring, 20 years SHA workshop.
Collected Aircraft Performance Improvements: $30 pp: 14 articles, 7 lectures, Oshkosh Appraisal, AR-5 and VMAX Probe Drag Analysis, fuselage drag & propeller location studies.

Bruce Carmichael brucehcarmichael@aol.com
34795 Camino Capistrano
Capistrano Beach, CA 92624 (949) 496-5191

VIDEOS AND AUDIO TAPES

(ed. – These videos are also now available on DVD, at the buyer's choice.)

VHS tape containing First Flights "Flying Wings," Discovery Channel's The Wing Will Fly, and ME-163, SWIFT flight footage, Paragliding, and other miscellaneous items (approximately 3½+ hours of material).
Cost: $8.00 postage paid
Add: $2.00 for foreign postage

VHS tape of Al Bowers' September 19, 1998 presentation on "The Horten H X Series: Ultra Light Flying Wing Sailplanes." The package includes Al's 20 pages of slides so you won't have to squint at the TV screen trying to read what he is explaining. This was an excellent presentation covering Horten history and an analysis of bell and elliptical lift distributions.
Cost: $10.00 postage paid
Add: $ 2.00 for foreign postage

VHS tape of July 15, 2000 presentation by Stefanie Brochocki on the design history of the BKB-1 (Brochocki,Kasper,Bodek) as related by her father Stefan. The second part of this program was conducted by Henry Jex on the design and flights of the radio controlled Quetzalcoatlus northropi (pterodactyl) used in the Smithsonian IMAX film. This was an Aerovironment project led by Dr. Paul MacCready.
Cost: $8.00 postage paid
Add: $2.00 for foreign postage

An Overview of Composite Design Properties, by Alex Kozloff, as presented at the TWITT Meeting 3/19/94. Includes pamphlet of charts and graphs on composite characteristics, and audio cassette tape of Alex's presentation explaining the material.
Cost: $5.00 postage paid
Add: $1.50 for foreign postage

VHS of Paul MacCready's presentation on March 21,1998, covering his experiences with flying wings and how flying wings occur in nature. Tape includes Aerovironment's "Doing More With Much Less", and the presentations by Rudy Opitz, Dez George-Falvy and Jim Marske at the 1997 Flying Wing Symposiums at Harris Hill, plus some other miscellaneous "stuff".
Cost: $8.00 postage paid in US
Add: $2.00 for foreign postage

VHS of Robert Hoey's presentation on November 20, 1999, covering his group's experimentation with radio controlled bird models being used to explore the control and performance parameters of birds. Tape comes with a complete set of the overhead slides used in the presentation.
Cost : $10.00 postage paid in US
$15.00 foreign orders

FLYING WING SALES

BLUEPRINTS – Available for the Mitchell Wing Model U-2 Superwing Experimental motor glider and the B-10 Ultralight motor glider. These two aircraft were designed by Don Mitchell and are considered by many to be the finest flying wing airplanes available. The complete drawings, which include instructions, constructions photos and a flight manual cost $140, postage paid. Add $15 for foreign shipping.

U.S. Pacific (650) 583-3665
892 Jenevein Avenue mitchellwing@earthlink.net
San Bruno, CA 94066 http://home.earthlink.net/~mitchellwing/

COMPANION AVIATION PUBLICATIONS

EXPERIMENTAL SOARING ASSOCIATION

The purpose of ESA is to foster progress in sailplane design and construction,which will produce the highest return in performance and safety for a given investment by the builder. They encourage innovation and builder cooperation as a means of achieving their goal. Membership Dues: (payable in U.S. currency)

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Pacific Rim	$50 /yr	U.S. Students	$18 /yr

(includes 4 issues of SAILPLANE BUILDER)

Make checks payable to: Sailplane Homebuilders Association, & mail to Murry Rozansky, Treasurer, 23165 Smith Road, Chatsworth, CA 91311.

(ed. – The newsletter is a little out of order this month, but it was easier to get all the images and patent sheets into some type of logical order. I am also using the U-2 threads to fill in the leftover space this month since the Nurflugel bulletin board was full of comments and theories on the Horten 1b videos.)

Mitchell U-2 Bulletin Board Threads

In response to your request for plans, I have 2 sets of plans, 1 new 1 used - Make an offer. I also have a parts U2 complete with a new never installed canopy. This could save you 100+ hrs in building as I could provide all the metal parts incl all controls. If i have to strip the parts off of the donar ac then I would charge for my time. If you do it you can have all the metal bits for 500.00. I also have an engine with only ground run time on it. You can see the ac in the pics folder under len's u2. This engine includes the tuned exhaust and gear reduction. The prop is also available but has hangar rash. One tip has a split from something hitting it. Repairable.

(continued on page 11)

This is from the Wolfmuller Patent 13,331, A.D. 1910. I have only included the first page from the patent document since it is 6 pages long, but you should be able to get the general idea.

N° 13,331 A.D. 1910

Date of Application, 1st June, 1910—Accepted, 1st June, 1911

COMPLETE SPECIFICATION.

An Improved Flying-machine.

I, Alois Wolfmüller, Engineer, of Humbold Str., 40/1, Munich, in the German Empire, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention consists in a dirigible motor-driven flying machine, the bearing or wing surfaces of which are fashioned according to novel principles.

Figures 1 to 10 of the annexed drawings are plan and front views of several forms of construction. Figure 11 shows the shape of the body; Figures 12 to 14 diagrammatically illustrate the special construction of the planes; Figures 15 and 16 are a side and plan view showing means for varying part of the bearing or wing surface; Figure 17 shows the manner of folding the planes; Figures 18 and 19 are an elevation and plan view of part of the folding device. Figure 20 shows a safety hook for the guy ropes of the bearing planes. Figure 21 shows the manner in which the machine is steered. Figures 22 and 23 are a side and front view of a propeller, and Figure 24 shows one half of the folding device or joint illustrated in Figures 18 and 19.

The bearing or wing planes of the flying machine must be constructed according to the following principles.

The middle part 1 of each wing (Figures 1 to 10) is placed higher, farther advanced and with greater angle to the horizon than the lateral parts 2 and 3. Owing to the larger angle at the central part, the cross-sectional profile is thicker at this part than at the lateral parts. The latter even have a negative inclination with regard to the middle parts of the wings, but the parts 2 and 3 are always so fashioned that the surface is horizontal near the rear edge.

In Figure 4 it is shown in the section of the right wing bearing plane, that the middle part 1 of the plane is arched so that the lower surface of the arch forms with the horizontal plane 4, an angle α open towards the front, whereas the lateral parts 2, 3 are inclined in the contrary sense, that is to say, so that they form with the horizontal plane an angle β open towards the rear. Therefore, the angle α represents the positive angle of inclination to the wind (arrow 5) and the angle β the negative angle. Viewed from the front, each wing presents, not a uniform upward curve, but a central flat or slightly arched part and two lateral portions which thence bend down at a sharper angle. The central part is thickest at or near the front edge, whereas the lateral parts taper off as sharply as possible towards the front edge and have their thickest part farther back. Owing to the fact that there are negatively inclined parts at the right and left of the central part, and that the lateral parts are set back, the front edge is upwardly and forwardly curved. Even if additional plane edges are present in front, the effective shape of the front edge is always arched, the difference being only apparent, owing to the presence of "blind" wing-surfaces, which may be requisite for strength or for simplification of the construction.

In order that the air can pass through the upwardly inclined part 2 of the wing, this part has a thin section as indicated by the dotted ellipse 86 on the left wing in Figure 3. At this part the fabric of the wings is made very thin. To prevent undue weakening, the ribs 9 fixed to the arm 10 near the joint 6,

[*Price 8d.*]

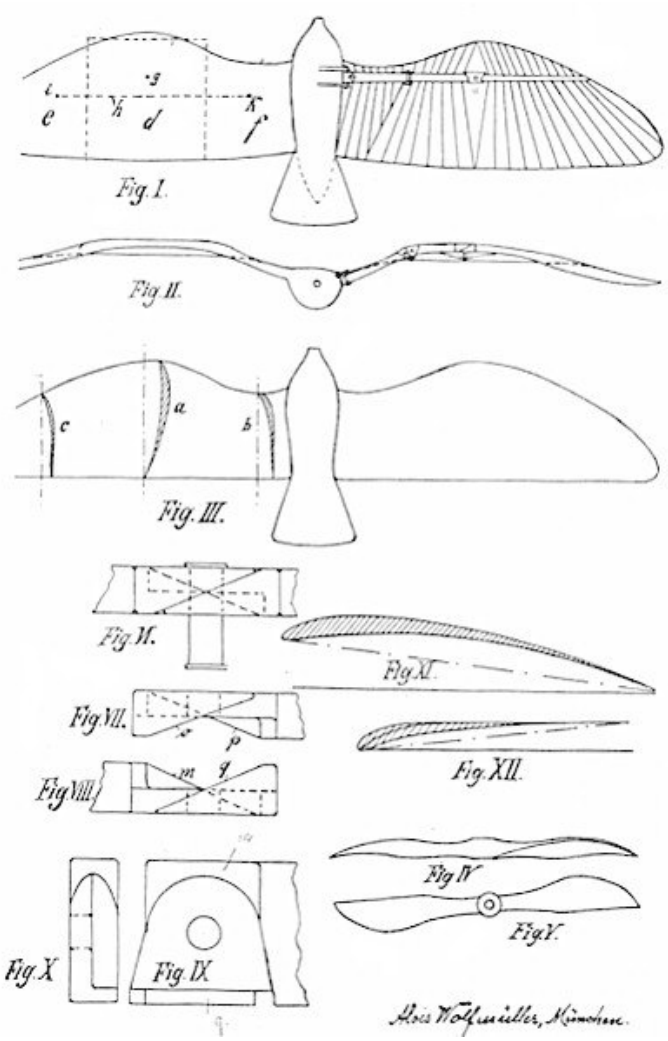


Fig. I.
Fig. II.
Fig. III.
Fig. VI.
Fig. XI.
Fig. VII.
Fig. XII.
Fig. VIII.
Fig. X
Fig. IX.
Fig. IV
Fig. V.
Alois Wolfmüller, München.

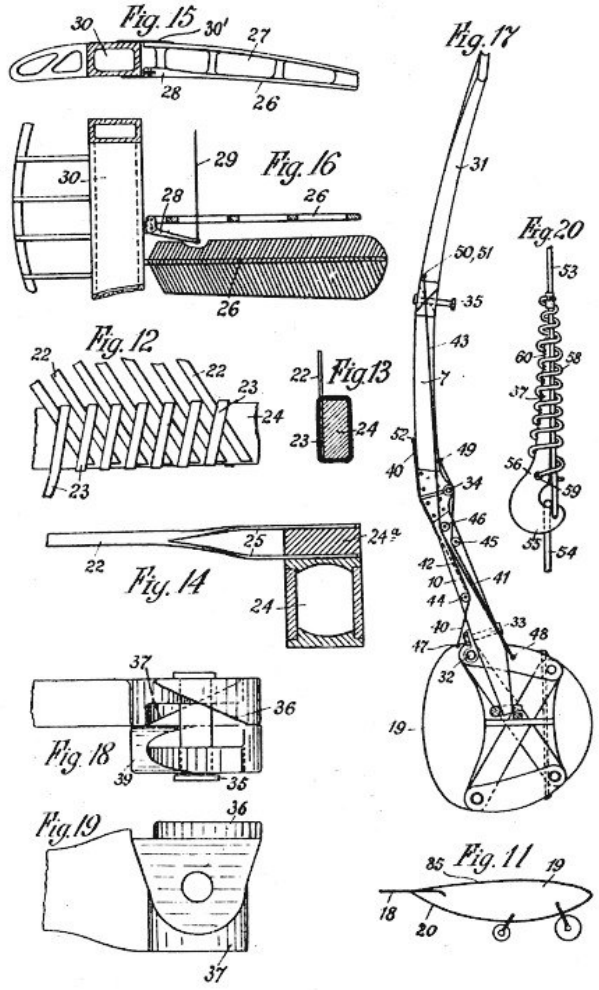


Fig. 15
Fig. 16
Fig. 17
Fig. 20
Fig. 12
Fig. 13
Fig. 14
Fig. 18
Fig. 19
Fig. 11

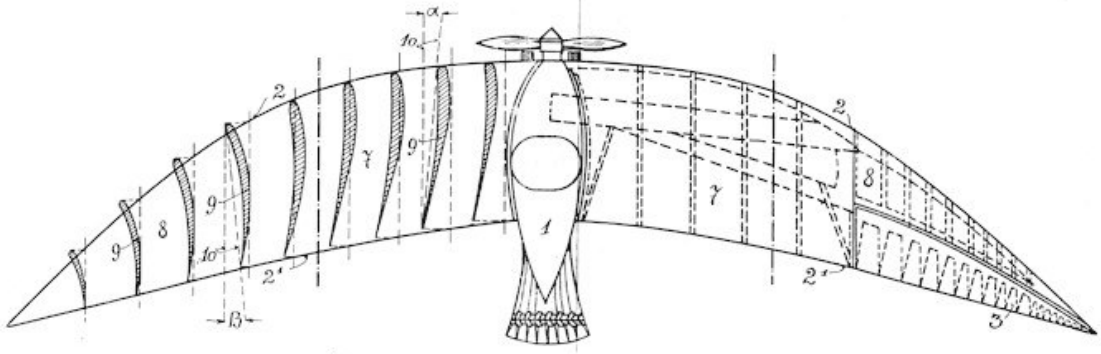
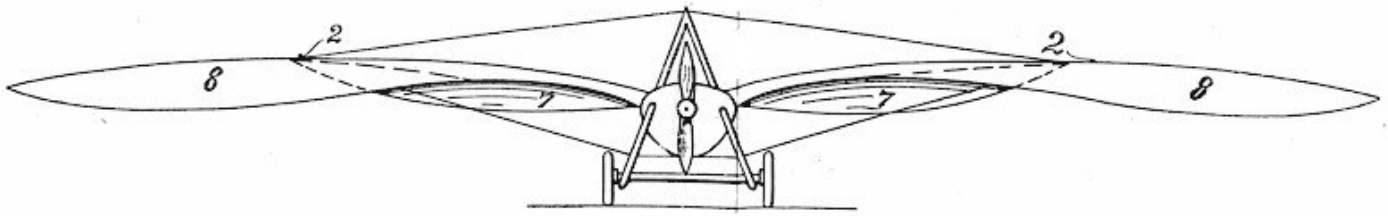


Fig. 3



This is the two pages from Alois Wolfmuller's Patent No. 24,179, A.D. 1911, Improvements in Aeroplanes.

This goes with the two drawings at the bottom of the prior page.

NOTE.—*The application for a Patent has become void.*
This print shows the Specification as it became open to public inspection.

N° 24,179 **A.D. 1911**

(Under International Convention.)

Date claimed under Patents and Designs Act, 1907, being date of first Foreign Application (in Germany), } 12th Nov., 1910

Date of Application (in the United Kingdom), 31st Oct., 1911

At the expiration of twelve months from the date of the first Foreign Application, the provision of Section 91 (3) (a) of the Patents and Designs Act, 1907, as to inspection of Specification, became operative

Complete Specification not accepted

COMPLETE SPECIFICATION.

Improvements in Aeroplanes.

I, ALOIS WOLFMÜLLER, of Grafstrasse 17, Pasing, near Munich, Germany, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The object of this invention is to provide an aeroplane, with planes of the bird wing type, which is less sensitive than previously proposed aeroplanes of this type in regard to longitudinal displacement of the centre of gravity, and in regard to changes in the velocity of flight. With previously designed machines it has been found that at decreasing velocity a rapid lowering immediately occurs, and at increasing velocity a comparatively steep rise. This high sensitiveness in regard to longitudinal displacement of the centre of gravity necessitates that the aviator must always sit almost motionless in the machine, and must not lean forwards or backwards except for the purpose of predetermined control or steering movements. This naturally greatly interferes with the convenience of flight. If the control of the angle of incidence is not performed by forward and backward inclination of the body, but automatically by a sliding weight or by the weight of the aviator himself an important improvement in the machine is afforded if the aviator is no longer so greatly restricted in regard to freedom of his movements.

In flying through gusty air the object is not to keep the longitudinal axis of the machine as nearly as possible horizontal, but to fly through the gusty air as nearly as possible without rising or falling of the machine, which is only possible if the axis is able to adjust itself to the wind so that increase or reduction of pressure on the planes and consequent rising or falling of the machine, is avoided.

It has therefore been my object to discover a design for aeroplanes affording a structure which is not so sensitive in regard to forward and backward movements of the aviator.

[*Price 8d.*]

Wolfmüller's Improvements in Aeroplanes.

The results of previous experiments led me to revert to the plane form resembling the Japanese kite, and I find that with a warped plane, substantially sickle shaped in plan view, there is indeed a greater tendency to yawing than with the narrow double reaction planes, previously proposed, and the gliding angle does not appear quite so favourable, but the reduced sensitiveness in regard to displacement of the centre of gravity in the axial direction, and the slighter vertical movement at changes of speed, are such valuable advantages, that the general utility of such sickle shaped planes will be found at least equal to that of the double reaction plane.

The invention is illustrated in the annexed drawing.

As shown in Figure 1, both the front edge 2 and the rear edge 2^1 of the aeroplane are simply curved in sickle shape, the curvature being even more simple than in the case of the Japanese kite shown in the work of Lilienthal. There is no gap in the outline, either at front or rear. It is not essential that the front edge is curved throughout: there may be a straight edged piece 7 in front (Figure 2), and the lateral portions 8, lying farther back, may also have more or less straight front edges 11. The rear edges 12 of the parts 8 may also curve outwards towards the tips, as shown in Figure 2, though this form has not proved quite so good as that shown in Figure 1.

Figure 3 is a front view of the machine.

It will be seen that in front those parts of the two planes, which are near the body, are slightly upwardly arched, whereas the outer parts of the planes are downwardly arched.

In Figure 1 the plane profiles are diagrammatically indicated on one side of the machine. Near the body the concavity of the undersurface is very slight, but the concavity increases towards the outer parts of the planes, as indicated by the angles α and B between the dotted lines 9 and 10 in Figure 1. It is essential that the aggregate arching of the forward parts 7 of the planes (these being also the inner parts) is less than the aggregate arching of the parts 8 lying farther to the rear and outwards. The static stability of the aeroplane appears to depend on this feature, together with the warped shape.

The tips of the plane are hinged, to serve as flaps for the purpose of steering.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

An aeroplane having sustaining planes which are sickle shaped in plan view, with under-surfaces whereof the concavity increases in the direction from the centre of the machine towards the tips.

Dated this 31st day of October, 1911.

HERBERT HADDAN & Co.,
Agents for Applicant,
31 and 32, Bedford Street, Strand, W.C., London.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1913

My U2 will be parted out but I have the Canadaian Registration and logs for anyone wanting to get an undocumented ac into the air.

Make an offer. I am going to post this on the list so this offer will be open to all.

Len Gaultois
<len@gcgs.ca >

Richard, good to see you back online!! Has the move to Fresno been completed?

Ted

Hello Ted and thanks again for the heads up. Not quite in Fresno yet, still have to sell my place here in San Bruno.

I'll be moving onto a nice 32 acre ranch. Finally, plenty of room to set up the Mitchell Wing business. Now if I can just get my health up to snuff, everything will work out fine.

Richard Avalon
<mitchellwing@earthlink.net>

Storing Raw Materials

I would like to thank you guys once again for pointing me in the right direction after my "Finally looked at the plans" post. The EAA's woodworking book and video and tape are great, but I wish the video had a DVD option. I'll have to see if it can be copied to DVD somehow without getting the EAA copyright people ticked off.

It took a while, but I finally got a copy of "Building & Flying the Mitchell Wing" by Larry Collier. Lot's of good info there.

At some point in time I want to get this thing started. I've pretty much dismissed the idea of shipping wood to Africa and then shipping the parts back. Logistics, cost and building space make it pretty much impossible.

Now I'm wondering if I might be able to get this done in my hangar. Currently, I keep my Tango in there, but it can be moved if necessary. The big problem that I see is the lack of environmental control. Although it's enclosed and lockable, there's no way to control temperature or humidity. When it rains, there's a river that runs through it and puddles in the back. There are some dry spots though. Also, there's no power but I've gotten around that by hooking an inverter to my car and using it as a high priced generator.

My normal work schedule has me working for two months out of the country and then I get a month off back in the States. With a schedule like that, I should be able to dedicate at least 100 hours each time I make it back to the States. This is how I got my Tango built (except that I had a good place to build it).

All that being said, what do you guys suggest for keeping the raw materials in good shape until I need them? Right now I'm leaning towards buying the kits from Richard. It seems like it would be the easiest way to get all the raw materials that I need. I'm just concerned about how well they'll keep while I'm away.

As always, any suggestions will be appreciated!

Andy Gamache
<andyomigosh@juno.com >

(ed. – Does his tale of trying to get started with building an aircraft sound familiar to many of you?)

Andy, keep the wood dry and out of the water and covered but not tightly, and a little ventilation in to your shop so it dries when it gets wet and you should have no problems. If it's a swamp everyday of the year? forget it!

Grant
<grantlobnitz@yahoo.com>

Make all the aluminum fittings first, then the mixer box and stick assembly. Then do the tip rudders. You can take all the wood for them as carry-on luggage. If you keep wood in a closed chest or bookcase with a 60 watt bulb burning inside, it will stay dry enough not to mildew. (old trick from Amazonia) If you are still in Africa by then, maybe you could do all the ribs.

D & J Gingerich
<dgingerich@cox.net>

This movie was shot yesterday. Tibor has now learned to fly (and also to land) his U2.

For the first time in many years (in Sweden probably not happened before), a B10 and U2 fly together. Watch the movie at

http://www.youtube.com/watch?v=9wuBIB5PUuE

Calle Hyllander
<carl.hyllander@bredband.net>