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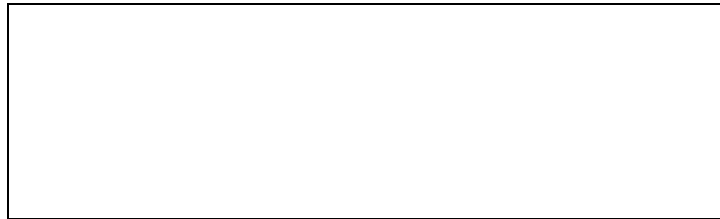
T.W.I.T.T. NEWSLETTER



Gregory Pinaud's Wihok 60 plank flying wing. See inside for more information.
Source: <http://www.rcsoaringdigest.com/pdfs/RCSD-2008/RCSD-2008-12.pdf>

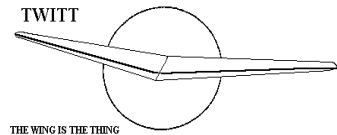
T.W.I.T.T.

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., 0902 means this is your last issue unless renewed.

Next TWITT meeting: Saturday, March 21, 2009, 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.

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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

As you read through this issue you will see a lot of sad news in the flying wing community. We have reports on the passing of Dr. Karl Nickel who is so well known on his own and for his relationship with the Horten brothers. We have also learned of the passing of Fred Bodek who was last "B" in the BKB-1 design. Then we heard that Richard Avalon who produces the Mitchell wing kits has been in the hospital again and is very ill awaiting a transplant. Some of this is to be expected since Karl and Fred were from the 1940's era and age just caught up with them.

I had an interesting time putting this issue together this month. I had it almost done with just a half page to fill in when I saved it and work on it later. Then the file wouldn't re-open when I went back to work on it. Talk about frustration since no matter what I tried wouldn't bring it back. I was finally able to at least get part of it to open in a text editor and extract the large portion of the letters section. After starting over and importing an e-mail file the document locked up again and wouldn't open. After a couple more false starts I finally figured out which message was causing the problem and got passed it to have a file that would re-open.

It is also time to get back to work on finishing up putting all the back issues onto the web site. I hope some of the newer members have taken the time to look at these past issues to get an idea of what TWITT has been about over the years. We have had some good information to pass along in our 22+ years of publishing the newsletter.

I will plan on changing the user ID and password to the members only section with the publication of the March newsletter. It will be included in the masthead and I will remind you in this column. Don't forget the issues on the web site are in full color versus the B&W of the hardcopy.



LETTERS TO THE EDITOR

January 4, 2009

Dear Nurflugel-friends,

I have very, very sad information for you:

Thursday January 1st 2009, Prof. Dr. Karl Nickel, (born 9th February 1924) passed away in peace at Freiburg, Germany, after a longer period of health issues, only few weeks before his 85th birthday. He left his wife and three daughters.

There will be no memorial nor any other official ceremony. He ordered the family to hold the ceremony in private.

With Karl Nickel I lost a very, very good friend. For decisions he followed only his conscious and the absolute truth, may it be in favor of himself or even strongly against his personal achievements, benefit or interests and merits.

The Nurflugel or Flying Wing Community owes him two books: his own book "Tailless Aircraft in Theory and Practice", he published together with Michael Wohlfahrt about 20 years ago in the German language and later in a revised English edition in the UK and the USA.

and

Dr. Reimar Horten's and my book "Nurfluegel", 25 years ago, because he convinced me to put all contradicting things (information, data and affairs a.s.o.) aside, to get Reimar Horten's testimony finally printed and therefore saved for all of us.

He never refused to help in flying wing developments or comments and piece of advices whenever he has been asked for. This includes donations for the German National Soaring Museum, the Deutsches Segelflugmuseum mit Modellflug Wasserkuppe honoring the achievements and merits of the Horten brothers Reimar and Walter, whose sister Gunilde he was married to for more than 60 years.

Here also should be mentioned his intensive work for the Flying Wing Developments of the Horten brothers, especially in Dr. Reimar Horten's design team. During the war and later for 6 years in Argentina he belonged to the most important contributors and co-workers, may it be the calculation of stress and lift distributions or saving money and time with model tests offering predictions for the future flight handling characteristics of e.g. the Horten Delta wing developed at Cordoba, Argentina.

Regarding Karl Nickel's professional career as PhD and Professor in Applied Mathematics first at Karlsruhe, then Freiburg, the German science scene owes him the very first IT department and branch at a German University, at Karlsruhe, long before other Universities followed. There he got founded a separate chair and institute and later branch for Information Technologies, originally a spin off of the Mathematics branch worldwide.

As one of the tutors he delivered important information and pieces of advice for the first complete view on the development of cross country soaring strategies from the first beginning until now, compiled and improved by Helmut Reichmann, the first three-times world soaring champion at all. Reichmann's book "Cross Country Soaring" belongs to the most important publications in this field and is still printed today in several languages. Here is to remark, that Karl Nickel belongs to the very first pioneers at all in cross country soaring theory by laying the mathematical basis for that (Karl Nickel's PhD thesis at Tübingen University), almost within the same days in 1948 when Paul McCready published his theory and Späte's inventions became better known, independently from them!

Last but not least and not as sole acknowledge of his further aviation merits in 1988 he received the First Price of the "Berblinger Award" of the town ULM/Danube for "Optimal Wing Shape" for hang gliders together with Michael Wohlfahrt and Klaus Rostan.

Good-bye Karl, we'll keep you in our mind.

Peter F. Selinger
<Peter.F.Selinger@jocki.org>

(ed. - I apologize for not getting this in last month's issue. Somehow I missed it in my inbox when putting the newsletter together. Below are comments from the Nurflugel group and reflect how much Karl will be missed by the flying wing community. Our well wishes to out to the family.)

Sad news indeed--

I have appreciated and enjoyed his book and letters. One can only morn the fragility of life and carry on. I wish his family well

Norm Masters
<nmasters@acsol.net>

January 3, 2009

Not much more left to say. Such a great loss, no doubt about that. I would like to register my admiration and respect for his work, which, as a student, made me understand the Nurflugel problem so much better.

My condolences to the family.

Andre Martins
<kriptone@gmail.com>

Thank you, Peter, for sharing this unfortunate news. I am just one of many admirers of Dr. Nickel, but I appreciated his willingness to sit down for a while at Elmira to discuss wing theory and the Horten wings and to share some of his own adventures. He was so gracious and conscientious in helping with translational difficulties, and I surely hope that his classic text on tailless aircraft will be republished to the benefit of those who currently seek it as well as those who would benefit from it in the future. Such a thoughtful and kindly man, he will be missed by many, including friends whom he may never have known he had. And such a life...his memories would surely read like an adventure story, and not just adventures of the mind. I do hope he realized how well regarded he was among so many.

Serge Krauss
<skrauss@ameritech.net>

Karl's passing is indeed a profound loss. Few people could express such penetrating insights on all-wing technology and soaring, nor express a differing opinion with such gentlemanly grace. My sincere condolences to his wife and family.

Russell Lee
Smithsonian National Air and Space Museum
<russlee_99@yahoo.com>

Yesterday, Gustavo Lucero and I, dedicated the first flights of a my recently built lightweight H-Xb 1:8 scale, to Karl Nickel. We hope he's already met Reimar and they will keep on staying with us all Nurflugelers, supporting out investigations.

Greetings from Argentina

Fernando Walter Siarez
<fws669@yahoo.com>

AI: (Backstrom)

A few years back I built a 100" (2.5m) R/C Plank similar to your Easyplank. The elevator was in the center. It was a disaster on a winch tow. It would do the fastest snap roll you ever saw if you tried a steep climb on tow. I'll bet the Horten I would have the same results with its center elevator. The later H-1b had outboard elevons and was very successful.

My prototype Monarch with its high wing would not climb well on a winch tow even with cg hooks. The strong pendulum effect of the low fuselage and short elevator moment arm would not allow a steep climb. I got it to climb better on later models but it was still not what it should be. The best we could do was 950 ft (290m) on auto tow, which was enough to climb out on almost every tow. The mid wing XM-1D and Pioneers always got higher tows than any other glider off auto or winch tow. Bill Daniels was auto towed in the Pioneer 1A to 2,800 ft (855m).

If you want a strong but light spar you must use Graphlite carbon rod. Each main spar in our 13m Carbon Monarch weighed only 4.4 lbs (2 kg) and we proof loaded it to 6 g's. Each wing panel weighed 35 lbs (1.9 kg) painted. The fuselage was 58 lbs (26.4 kg) and wing struts and fairing 10 lbs (4.5 kg). Total weight 138 lbs (62.7 kg). It was very difficult trying to keep the fuselage light.

The German rules are still more generous than ours for gliders.

Empty Weight	Stall Speed	Maximum Speed
<u>USA</u> 155 lb (70kg)	26mph (42kph)	62 mph (100 kph)
<u>German</u> 176 lb (80 kph)	34 mph (55kph)	-----

However, we can still legally fly any glider without a medical. In fact, the Ultralight gliders need not be licensed. I think that's still true.

I will add another tid-bit. Struts were used on the Monarch not for reducing weight but to aid in ground handling. In reality, we would have saved weight by going to a cantilever wing. The struts weighed 7 lbs and all the end fittings and hard points another 4 lbs, which equals 11 lbs. For a cantilever wing we would add 50 feet of Graphlite at a weight of 0.7 lbs plus 6 lbs for fittings and fuselage reinforcing. So, we come out 4 lbs lighter. What I really did not like about the struts was the noise and drag they produced at speeds above 60 mph. We took a consensus among the local Monarch flyers and we all voted on keeping the struts in favor of its great aid when ground handling.

In order to get the Monarch to qualify for the Ultralight category the stall speed had to be under 26 mph and that required a wing loading of 2.0 psf. The open cockpit was mandated to keep the fuselage light. What we did not know is the slow flying plus the wind in your face made for a great fun flyer. On top of that, it stayed up on almost nothing. You didn't climb into this glider, you simply sat on it. It was the most fun aircraft I ever flew.

Jim Marske

Thanks for adding your comments Jim. I am forwarding them on to Andy Kecskes at TWITT for use in the newsletter. Your model and Monarch winch-auto comments were very interesting. The prototype plank with wing mounted CG hooks did quite well on winch tows. We never had room enough for serious auto tows. Your weight data on the carbon Monarch is interesting, Klaus should keep in mind that the Monarch is strut braced and a much more basic AC than he is proposing.

Al Backstrom
<albackstrom@austin.rr.com>

(ed. - Al send us this string of correspondence with Jim Marske after I had already sent the issue to the printers. That's what I get for trying to get ahead on it so I wasn't up until midnight trying to finish it.)

January 7, 2009

Iwould like to advertise in your classified, my book on the B-35/B36 competition. See www.redhandpublications.com Please advise procedure. My e-mail address is troneill@charter.net.

Thank you.

Terrence O'Neill
<troneill@charter.net>

(ed. - I replied with: "First of all, thank you for joining TWITT. You will receive your first hardcopy newsletter beginning in February since the January issues have already been mailed. However, as a member you have access to issues dating back to January 1991 through the Members Only section on the home page. Use an ID of twitt2008 and a password of 08member08 all in lower case. There is also an article on a Boeing concept wing.

Secondly, I have placed a link to your book page at the link: <http://www.twitt.org/subindex.htm#library>.

I also included a short description of its contents since it is not obvious from the title. Let me know if you think this needs to be changed. I will also include your e-mail and the link to the web page when I publish the February issue so everyone knows it's out there. If you would like to provide me a short synopsis of the contents from all that you have on your page, I can include that as part of the notice.

I hope you enjoy reading through the newsletters and have good luck with sales of your book."

Since we have not seen or read the book, we are not endorsing it, but simply providing our members with the information.)

The abstract:

An early Air Force Mission Statement charged it with being capable of destroying an enemy's war making potential. This was justification for the Air Force to receive by far the largest part of the defense budget. In 1947 and through the Cold War that meant being able to reach and destroy the USSR's secret war plants in the Ural Mountains, 4000 miles from the continental US, where the atomic bombs were kept. This necessitated our attacking bombers to go unescorted over the USSR for 3000 miles, each way, at about 215 mph, against 19,000 USSR interceptors guided by defensive nine radar rings.

In 1946 the US had only two designs flying with that range capability... the Convair six-prop B-36B and the Northrop 4-prop-Wing B-35. A year later modifications to add jets produced the YB-49 8-jet flying wing and the 6-prop/4-jet B-36D. Both these variants were 2000-mile-target machines incapable of the needed range. There were no ICBMs and no in-flight refueling. The AF needed a B-35 or a B-36B to achieve the necessary ranges.

In comparing the two designs the flying wing advantages were actually greater if one includes the 5 to 7% higher prop efficiency of its counter rotating props. More important, the flying wing had demonstrated in 1948 that it was invisible to CGI radar. It could fly most of the 3000 miles undetected, and over fly the USSR prop interceptors, and turn inside the MiGs at 49,000 ft.

Finally, Jack Northrop had proposed a bomb bay mod in 1946 moving a rib on each side, to carry two Mk 3s, but the AF refused.

January 15, 2009

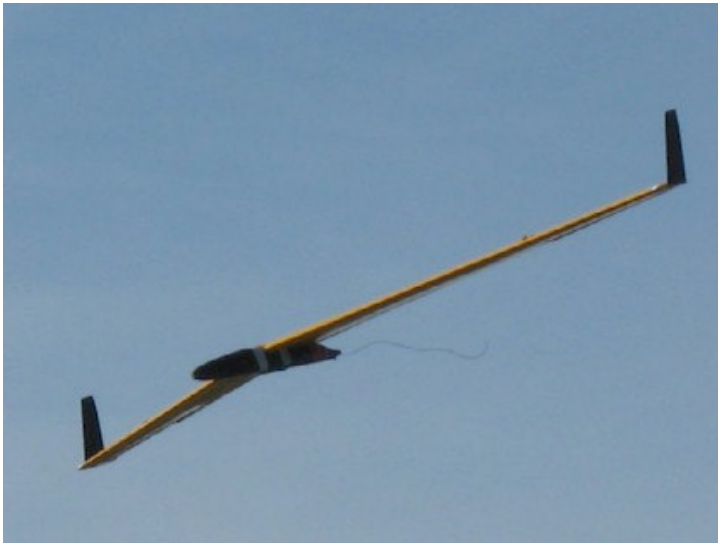
Renewal time again. Must not miss my fix of things wings. Hopefully Klaus is successful with his Easy Plank. Nice control stick.

H. Pat Gates
Ava, MO.

(ed. – Thanks for the renewal. It is always a great to get them since it reaffirms that you all like what I put in the newsletter each month. I do know that some of your also monitor the Nurflugel bulletin board so sometimes the material is duplicative to you so thanks for hanging on.

Pat wrote his note on the back of a printout from the December 2008 issue of R/C Soaring Digest. It is an article by Gregory Pinaud on his Wihok 60 plank flying wing, which is rather timely considering Al Backstrom and Jim Marke's discussion above. I have included a couple of photos to go along with the one on the cover, but the article is worth reading. If you don't have an Internet connection I suggest you use your local library and go to the link below to bring up the December 2008 issue. Just click down several pages and enjoy.

<http://www.rcsoaringdigest.com/pdfs/RCSD-2008/RCSD-2008-12.pdf>.)



Greg's swept wing model in flight.

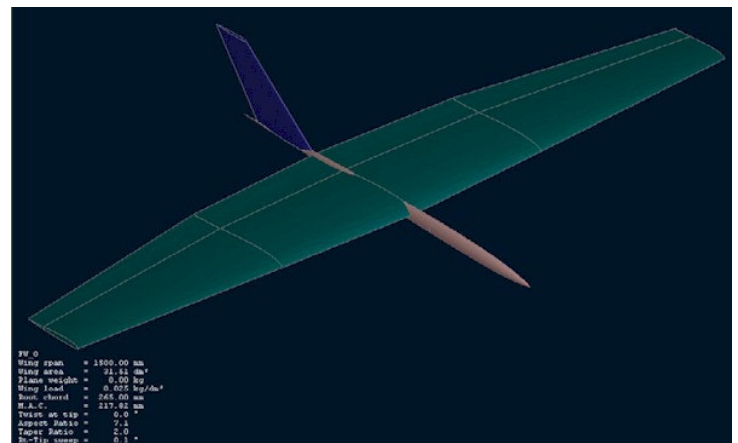


Looks like an easy model to build without many curves.

Wing Data:
Wing Name: FW_0_Wing
Wing Span: 1500.00 mm
Area: 31.51 dm²
Volume: 1.54e+007 mm³
Mean Geom. Chord: 210.10 mm
Mean Aero. Chord: 217.82 mm
Total VLM Panels: 900 (Max is 1000)

M.A.C. Span Pos: 781.46 mm
Aspect Ratio: 7.14
Taper Ratio: 2.01
Root to Tip Sweep: 0.13 °
Number of Flaps: 2

Pos. (mm)	Chord (mm)	Offset (mm)	Dihedral (°)	Twist (°)	FoilName	X-Panels	X-Dist	Y-Panels	Y-Dist
0	0.00	265.00	0.00	1.00	gppfw_r_0	15	Cosine	10	Uniform
1	300.00	235.00	8.00	0.00	gppfw_l_0	15	Cosine	1	Uniform
2	300.00	235.00	8.00	0.00	gppfw_l_0	15	Cosine	20	Sine
3	750.00	132.00	35.00	0.00	gppfw_l_0				



Wing layout and CAD image of model.

January 18, 2009

Jeffrey Bell's treatise about the X-20 Dyna Soar program deserves a detailed rebuttal. I don't have the time to do it right, but here are a few grossly biased and incorrect views presented in his article.

In 1962 I was assigned as the AF stability and control flight test engineer for the upcoming X-20 air launch and orbital test program. We had a complete 6 degree of freedom simulation of the entry operating at Edwards and I made many simulated entries, using the Boeing display that Bell described. The difference between lifting entry and a ballistic entry is similar to the task of stopping your car exactly at a stop sign. In one case (lifting entry) you have a brake, which can be used continuously, as needed, to slowly bring your car to a stop as you approach the white line. For the other case (ballistic entry) you have no brake, but must calculate precisely the exact moment, and distance from the stop sign, to shut off your engine so that you will coast to a stop at the white line.

January 18, 2009

The X-20 entry display, although crude by today's standards, was adequate to allow the pilot to not only arrive over the landing site with the proper speed and altitude, but also to accomplish off-nominal test maneuvers by alternately over-flying, then under-flying the guidance display (a research vehicle, remember?).

The piloted booster concept (we called it PIBOL-PIlot in the BOoster Loop) was shown to be quite effective in backing up the single-string Titan III guidance autopilot. (Incidentally, the T-III booster fins were eliminated quite early. The fluid-injection thrust vector system for the solids was enhanced to provide controllability. ALL boosters are unstable. A lifting vehicle up front causes them to be a little MORE unstable.) The PIBOL concept was demonstrated successfully at the Johnsville centrifuge where pilots "flew" the booster successfully into a very tight shutdown window while experiencing the "crushing g forces and intense vibration of a rocket launch" (I flew one piloted ascent on "the wheel" and had no problems at all). If you remember, booster guidance systems were not all that reliable in the late 50's and early 60's! The PIBOL concept was, in fact, incorporated as a backup into the Saturn V boost phase for the Apollo program, but was never needed.

I was also involved in the Space Shuttle test program and feel that the program has been quite successful. The calculated survivability odds for a shuttle flight have always been on the order of 350- to 1. The major contributors to the low reliability were the solid boosters and the delicate thermal protection scheme; both of which have contributed to the 2 major accidents.

I believe that the best reentry concept has not yet been flown - a high L/D lifting body similar to the X-24B. It has good volumetric efficiency, a very capable cross range that will allow landings almost anywhere, anytime, ON LAND! Bell mentioned that the only capsule to be re-flown was the Gemini 2 capsule. I'm sure the cost and time of that refurbishment was far more than the cost to refurbish the Shuttle Orbiter between flights.

I could go on, but most of the "man-in-the-can" advocates have their minds made up. Talk about a cult!!

Robert G. Hoey
<bobh@antelecom.net>

(ed. - Thanks for the personal insight on this and the shuttle projects.)

That last time I wrote to you I promised to contact Fred about possible pictures of the BKB instrument panel. I could not reach him by telephone and got very worried because I realized I had not had a Christmas card from him. I finally reached a neighbor who told me Fred had passed away of a heart attack while gardening in November.

I knew that sooner or later I would phone and he wouldn't be there but it was still a terrible shock. I'd talked to him only a few days before his death. He mentioned that the angina pains were increasing. (He'd had heart surgery a couple of years ago). I should have called him again back then to check on him.

Because he had no family, I decided to write a eulogy of sorts for him. I am sending it to his friends and former places of employment. I am attaching it in hopes that someone from TWITT would know the right office to send it to at Northrop. Also I thought you might like to read it.

Freddie was very dear to me and a last link to my dad. Now all three BKB people are gone as well as so many others from those glory days of aviation. An era has past.

I contacted his lawyer just in the nick of time around Christmas. He was at Fred's house expecting the dumpster to arrive within two hours. I asked for any papers, personal items, photos, aviation-related stuff to be sent to me. I'm expecting that any day. I would have thought they would have arrived by now. I really don't know what might be forwarded.

Fred and I often talked about what would happen to his things when he passed on. We both knew that one day I would call and there would be no answer. I asked him if I could have things that he would like to be remembered for. He seemed to think no one would want anything. He worried about where to send his books, but I believe one of his close friends found a library that was delighted to have his collection. He had some lovely automobile and aviation books.

Fred lived comfortably in a very nice little house, but he would have nothing to do with luxuries except his cars. He wanted very much to leave as much as he could to the Cousteau Society. He considered that a fine legacy. I'm very proud of him.

Thanks for honoring Fred in the newsletter.

Stefanie Brochocki

ALFRED BODEK, 1918 - 2008
A Eulogy

Fred was born in Liberec, in what is now the Czech Republic. His family was influential in Czech society and active in the cultural world. His father, Zigmund, was involved with Czech intelligence. His mother, Ernestine, had been educated at the Sorbonne. Her father was a lyricist, and the family owned a theatre in Vienna. He had one brother, Egon.

Zigmund's work in the intelligence field gave him an understanding of what was happening in Germany in the 30s. Fearing the worst, he had the foresight to send young Fred out of the country to be educated. He attended Cambridge University, acquiring his degree in aeronautical engineering prior to the war. At some point he returned home to Czechoslovakia to find his whole family had "disappeared" at the hands of the Nazis.

Fred joined the British Army and saw combat with a tank unit in northern Africa. After the war he immigrated to Canada where he was employed by Canadair Ltd, Montreal, as a design engineer. His specialties were control systems and flaps. He worked on a number of Canadair aircraft during the 50s and into the very early 60s.

I'm not sure how Fred became involved in flying, but he certainly loved it, particularly gliding. In the 50s he was involved with the Montreal Soaring Council and the Gatineau Gliding Club. It was during this time at Canadair that Fred became a close friend of my father. He helped my father to build the BKB-1 tailless sailplane. He collaborated with Stefan in engineering the mechanical controls of the BKB, and was present for much of the test-flying program. He actually even flew it himself (on the sly) despite its experimental rating.

Fred was an extremely competent pilot. An incident that happened during some recreational gliding in Montreal speaks to his skill. I lack many of the details including the type of glider he was flying, but can recall the important part. In tow he had not reached 1000 feet when the towline disconnected from the tow plane for some reason, leaving Fred to deal with the full length of the towrope dangling from the nose of his glider. The rope became entangled around the wing rendering one aileron useless. Faced with the distinct possibility of a fatal crash Fred had to think fast. Using his elevators and rudder he was able to perform a maneuver that untangled the rope from the wing, allowing him to land safely. He was very proud of that feat.

Fred left for Boeing in Seattle in the early 60s. He was a fine engineer. He worked on controls and landing gear for several major Boeing aircraft including

the 747. He later worked for the Brace Institute of McGill University designing and testing wind turbines in Barbados. (Performance Test of an 8 m. Diameter Andreau Windmill, Bodek A, Brace Institute, Feb 1964) The work involved research into the use of windmills to power water wells in third world countries.

In his spare time he did a lot of flying as well. He loved the life in Barbados but quickly got tired of flying around the small island. He finished up his professional career at Northrop in California, living in Lomita until his passing.

Fred was most charming and lovable! He always had a soft spot for children. My brother, Jan and I adored him. My father had coined the expression, "Are you ready for Freddie?", something Jan and I repeated with delight every time a visit from Fred was anticipated. It did not surprise me that his most recent neighbors in California, from whom I learned about his passing, remarked how Fred loved chatting with their children. He was also a great favorite with the ladies. My mother's friends were very fond of his jovial personality and genteel accent. They also liked his cars.

He had a passion for nice cars. He (and everyone else) loved his yellow Citroen. He was generous in giving rides and devastated when, years later, the car was destroyed in a snowy crash while he was driving across North America. He later took to driving Mazdas, winning awards for some of them. In his 80s he acquired a little convertible Toyota sports car. He drove his Mazda and his Toyota on alternate days right up to death.

He had an orange and a lemon tree in his back yard. Each year he made a large batch of marmalade, which he enjoyed for breakfast every morning. Having tasted it I can say with confidence it was the best I've ever had. He loved Mexican food. Friends who visited were often treated to dinner at his favorite Mexican restaurant not far from his home.

To his last moments Fred remained very active in his garden and in his small machine shop in his garage. While in his 80s he volunteered his time machining fittings for two large wooden sailing ships that were being built not far from Lomita. The ships were to offer extended sailing adventures for youth. Fred thought that was a great idea.

I think Fred had an unspoken love for the sea. He lived not far from it for many years of his life. He frequently visited the harbor near Torrance to watch the ships and often went to the hillside to view the coast. He spent time almost every day watching the progress in the building of the wooden ships. He chose to leave his estate to the Jacques Cousteau Society and to have his ashes scattered over the Pacific by the Neptune Society.

I was very grateful that I had the chance to travel to California from Kingston, Canada, to visit with Fred on two occasions in the last few years. Our family had lost touch with him for more than three decades, and it was with great joy that I was able to rekindle a childhood friendship. I will cherish the memories of those visits. In my mind I have a lovely vision of him finally being reunited with his family and old friends. Perhaps he and my dad are once again taking to the skies in their gliders. I wish them some great thermals!

- Stefanie Brochocki

January 29, 2009

Today I visited your Site and was surprised that I am a TWITT reader. (I am still a Yahoo reader) But at first I would like to thank you for answering my question about Richard Keller.

The reason for the question was I saved two Keller Horten Pencil Drawings for thrown away. But last year when I started my research for the IG-Horten, in Horten Nurflügel, I got them back into my mind.

When I had a chat with Mike Swoboda (also user of the Yahoo group) he said to me that he found some more in the Books about the Horten IX from David Myhra.

On 24th January we had a small meeting over a whole day with several discussions like new RC-Projects. In the middle I showed them to the public (about 10 Members of the IG-Horten).

The Following planes were shown Horten IV and Horten Vc. Some words about drawings: The drawings were both drawn 1943 and show the great Horten IV and Vc in flight. They are very detailed so that you can see the cockpit structures and the pilot. On one drawing you see a house, which I think is the Horten house. The drawings got in my archive after I saved them from being thrown away and lost.

If there is somebody who can provide more information feel free to contact me.

Regards

Jörg Schaden

<Joergs-doppelraab@gmx.de>

Administrator

www.ig-horten.de

(ed. – Thank you for the information and the pictures. I have included them on the next pages and added them to the web page on Keller.

Our members might enjoy visiting your web site for more information in this developing project.)

February 5, 2009

I am very interested to learn more about Richard Keller. Can you tell me more about the book from Giorgio Evangelisti. I cannot find anything regarding this book on your page, although you wrote "See bottom of page.". I would like to contact Giorgio or even Richard Keller himself. So I would be happy if you could give me some contact details (Email or postal address).

Nurflügel forever !

Maik Swoboda

erzwod2@hotmail.com

(ed. – I have sent Maik the piece that was at the bottom of Ferdi's article, which will help him locate how to buy a copy of the book. I have also added it to the web page. I apologize for not including it in the first place.)

February 4, 2009

Dear Family and Friends,

Richard Avalon was flown to Stanford hospital from Fresno, CA. He is in ICU, however cannot talk right now as he is on a respirator. He is doing much, much better but has an infection to clear up before he can be listed again for a liver and kidney transplant. Hopefully that will be coming soon. He is alert and understands what people are saying and even smiles at jokes. However, this is a very difficult situation for him. His doctors are hopeful. All tests are being done to get him ready for his transplant.

I encourage you to sign up as organ donors and keep your card in your wallet. Please note, I am not requesting a "living donor." As you can imagine it is a great gift for a loved one in need. Please tell your friends and family this important message. The more organ donors there are, the easier it will be for others in need. Some day you or a loved one may need this precious gift. If your religious beliefs do not allow this than please disregard this email. I respect all beliefs.

To be an organ donor is to be a TRUE friend and may save the lives of many you will never meet and affect the lives of thousands of their friends, family and loved ones.

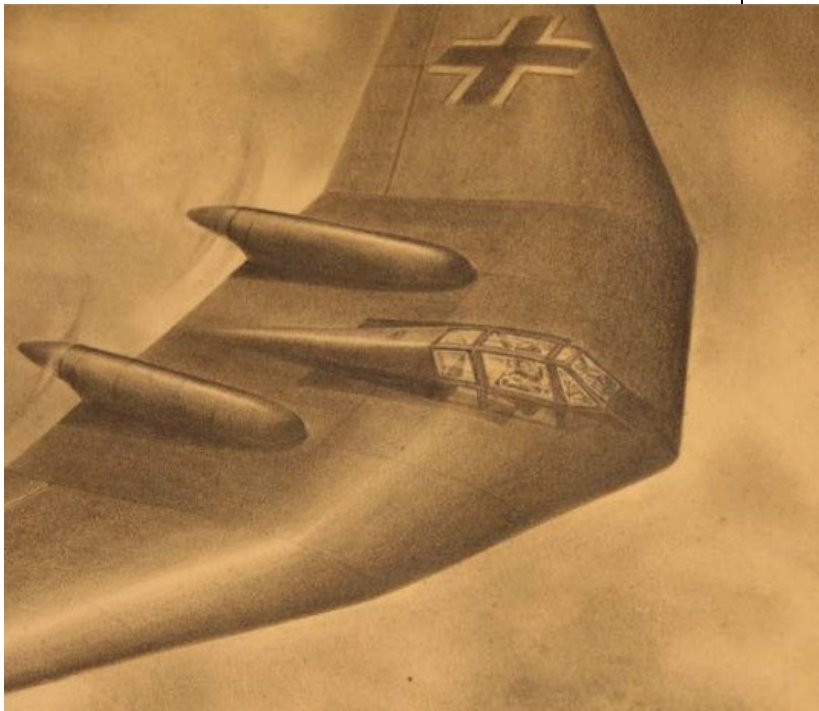
I hope this doesn't offend anyone. It's difficult to face one's own mortality; however seeing my husband going through this a second time, I can only say it is the hardest thing I have had to go through and the most excruciating wait. I pray that in years to come this wait is minimal for others in need.

Love and thanks to all,

Carol Avalon

(ed. – We all pass along our best wishes for Richard's recovery and that a donor will be found for him soon. He was at the ESA Western Workshop in August 2008 at Tehachapi and seemed to be doing okay although he did appear a little weak.

I have a donor dot on my driver's license and my father contributed his eyes for research on his passing last year. Although they couldn't be used to help restore someone's eye sight, the research may help prevent diseases or enable better surgical techniques.)



in the construction of a full-scale wooden model of a 64-year-old German flying wing. Northrop Grumman is participating in a TV documentary for the National Geographic Channel that will feature the sector's expertise in stealth technology and rapid proto- typing. Northrop Grumman's role is to build a 55-foot-wingspan model of the Horten 229 fighter and measure its radar signature. The Ho 229, which resembled some of Jack Northrop's flying wings, was designed in the early 1940s by the Horten brothers, two German aviation enthusiasts whose ideas caught the attention of Germany's Third Reich. However, for a variety of reasons the Ho 229 was never produced. Had Germany been able to build this jet-powered flying wing before the end of World War II, how would it have performed against Allied aircraft? Did the Germans

incorporate rudimentary low-observable elements into the Ho 229? Could it have eluded British radar long enough to make Germany's London bombing campaign succeed? These are some of the tantalizing questions the documentary will try to answer. However, the real stars of this show will be the people of Northrop Grumman. Most of the time, details of their work are closely held inside the company, but this is an opportunity to show the world how Northrop Grumman people excel at what they do. The employees who volunteered at the model shop were put to work measuring and marking lines on the model that indicate flight-control surfaces and the leading edge. Their efforts saved hours of extra work by the regular members of the RCS model shop team. The documentary is expected to air in the second or third quarter of 2009.

Jim Hart
<milartjj@aol.com>

Nurflugel Bulletin Board Threads

January 14, 2009

I read that National Geographic channel and Canadian Discovery Channel are working on a Documentary on the Ho 229 and the Ho 18. Northrop model shop is making a full size ho 229 to test on there radar range. They are looking a fall showing. To cool.

John Breitenbach
<johnbr@rogers.com>

More than a dozen employees showed up at El Segundo's Radar Cross Section model shop on a recent Saturday morning to volunteer their services

I strongly doubt that it was the Horten's intention to build a stealth aircraft. I believe it is a myth. A lot of documents about the Ho 229 are preserved, including stress analysis of aircraft, catapult seat tests etc., but none of the preserved documents refers to the radar detection or measures to prevent recognition by radar. It was long after the war, when Reimar Horten first mentioned that the charcoal layers in the plywood have been applied as a stealth measure. But it seems that this was a common practice in wooden constructions to save resources, not to make it stealthy. Nonetheless the shape of these aircraft might result smaller radar cross section than conventional aircraft. I am not an expert on radar, but I wonder if the radar would not penetrate the wooden skin, even with those charcoal/glue layers and

be reflected by the extensive tubular framework of the Ho 229s center section, its engines and fuel tanks.

Maik Swoboda
<ErzwoD2@hotmail.com>

(ed. – Doug Fronius has indicated he would do a short program on this Northrop project later this year, especially when the hanger is a little warmer. I will keep you posted.)



(ed. – Here is a picture (below) from the Lego's web site that shows what this model looks like. It is priced at about \$50 depending on where you buy it.)

February 4, 2009

New Book: RCAdvisor's Model Airplane Design Made Easy

Hello. I just wanted to get the word out that the book I've been working on these past few months is finally done. I'm autographing and throwing in free shipping for books ordered before March 1st from my website:

RCAdvisor's Model Airplane Design Made Easy
<http://www.rcadvisor.com/book>

Everybody that got a review copy loved it. In fact, most reviewers read the rough drafts cover to cover!

Carlos Reyes

www.RCAdvisor.com
founder
Brainy
calculator, so you
don't have to
be.

(ed. – We don't know anything about this book or the author, but since so many of you are modelers it seemed like an appropriate piece of news.)

Hi Gruppe,
January 24, 2009

While shopping tonight I stopped by the toy store with my daughter and checked out the Lego sets (like I always do).

Lego has an Indiana Jones theme and to my amazement I noticed box 7683: "Fight on the Flying Wing" after the well known scene from "Indiana Jones and the Raiders of the Lost Ark".

Although my birthday is only in August, I know what I want for a present. It is a nice looking model and it also includes the leaking full truck and the four figures from the scene (including the large and bold German mechanic).

A perfect way to combine two hobbies: Flying Wings and Lego!

Huib Ottens
<huib.ottens@bookwing.nl>



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

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Bruce Carmichael brucecarmichael@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

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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.

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