No. 245 NOVEMBER 2006

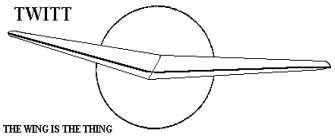
T.W.I.T.T. NEWSLETTER

"All of these photos are computer generated forensic composite illustrations. None of them are official USAF photos. Since the USAF seems very reluctant to de-classify these birds, I created these illustrations to give people an idea of what they looked like. Yes, they really did exist, but due to some stability problems, this particular model was scrapped." 2004-08-29 *(ed. – There were source photos included that would support this is a computer image and not a real photo.)*
Source: "USAF Flying Saucers" by Michael H. Schratt. www.laesieworks.com/ifo/lib/USDiscWing.html

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., **0611** means this is your last issue unless renewed.

Next TWITT meeting: Saturday, November 18, 2006, 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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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

Well, it is done and working like a charm. I have installed electronic payment capability at the bottom of the About Us page on the web site and it is having the desired effect. So far we have received two new foreign memberships, one each from Italy and Canada, and we have had several renewals posted. I think that as time passes and renewals come due we will see a lot more usage, but for foreign transactions it provides to most benefit.

The payment link it through PayPal and allows you to use your existing PayPal account to make the payment, if you have one, or use your credit card by selecting that link. It is relatively quick, painless and instant. For the new members joining I have e-mailed them a welcome message and passed along the members only ID and password so they can instantly begin enjoying the benefits of membership.

As you will see from the letters section this month there has been some pertinent discussion on the Horten designs. To that end I added Al Bowers most recent PowerPoint presentation slides to the web site with a link on the home page. I also added the 1998 meeting recap of his presentation so people could get a sense of what all the slides represented. PayPal has come in handy here also, since I was able to add a payment link to the videotape of his presentation so members of the Nurflugel group would have a easy method of obtaining it.

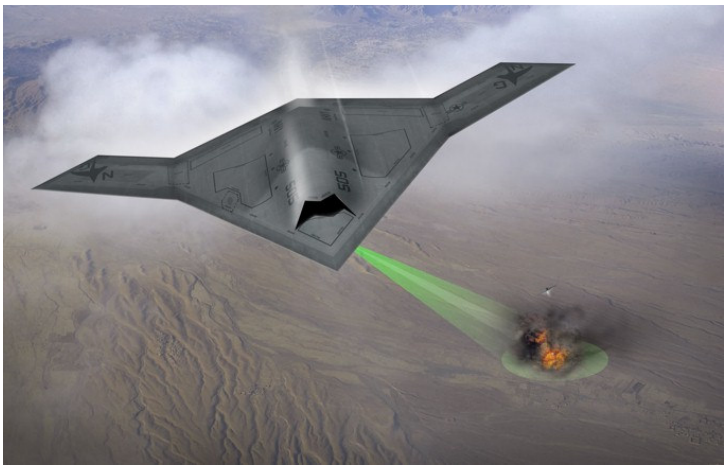
Our Peter Selinger asked about converting the video to either DVD or the European PAL format so he could also view it. To that end I am now researching the various options for both conversions, but thinking that the DVD route would be the most universal. Depending on the outcome, this may become the preferred method for providing other video offerings from our library to the membership and public interested in flying wings. More to come later.

Andy

NOVEMBER 18, 2006 PROGRAM

Doug Fronius will present a general update on the Unmanned Aircraft programs of Northrop Grumman in San Diego, followed by a more detailed brief on the X-47B Unmanned Combat Air Vehicle (UCAV) Northrop Grumman is developing. The X-47B is a >40,000 pound unmanned carrier based flying wing combat aircraft. The first prototype is under assembly. The aircraft will operate off existing aircraft carriers using the same catapults and arresting gear as current fighters, carrying imaging sensors and weapons.

Doug has been an employee of first Ryan Aeronautical and then Northrop Grumman Unmanned Systems for more than 20 years. He is currently the Program Director for the U S Navy VTUAV Fire Scout program. (Photos from: http://www.northropgrumman.com/unmanned/)



LETTERS TO THE EDITOR

TWITT Web Site Guest Book Entry:

I am interested in some WINGS to make 1/3 scale, and looking for some plans!

SB-13
GENESIS II

Thanks in advance

Emil Hristov
Sofia, BULGARIA
<vreditel4eto@abv.bg>

(ed. - Thank you for leaving a message on our guestbook page. We don't have any plans for the SB-13 or Genesis II and I am not sure that any exist. You might want to contact the German flying club that sponsored theSB-13 and see if they have any sort of plans that might help with a model.

I doubt you will be able to get much on the Genesis since it is commercially produced. However, you might eventually be able to produce a close version using the Pioneer III plans when Jim Marske gets them completed and available for kit builders. It has similar characteristics to the Genesis so could be adaptable.

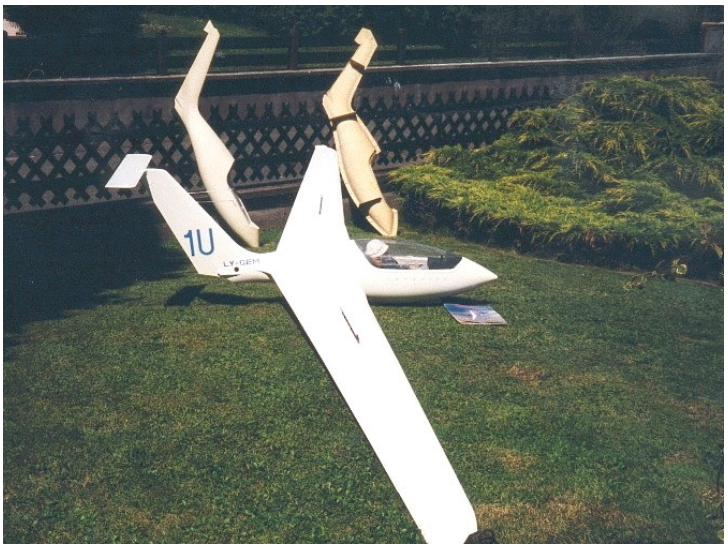
Let us know if you find out anything interesting about model plans for either aircraft, since we have a lot of modelers in our group.)

Thanks for quick replay,

I sending you little info that I have but some is in French! Sorry!

http://66.249.93.104/translate_c?hl=fr&ie=UTF-8&oe=UTF-8&langpair=fr%7Cen&u =http://mplaneur.free.fr/genesis.html&prev=/language_tools

Best regards,
emil hristov ;-)



(ed. – Sorry that the link is so long and probably hard to type in, but I have included one of the pictures to give you an idea of what the Genesis model looks like. It is nice to know that there are some kits and/or model plans out there for the more familiar flying wings.

I have looked at some of the material he sent along, but I think I need to get some publisher's

permissions before putting any of it in the newsletter or perhaps posting it to the web site. Stay tuned.

I continue to be amazed at how far flung the interest in flying wings reaches, in this case Bulgaria.)

October 17, 2006

Renewal Confirmation (Electronic)

Hi Andy:

Yes it is much easier. More to the point the payment does not get lost or delayed in the mail. I am glad you added this feature to the web site.

I have learned quite a bit by reading things on the web site and in the newsletters. I hope that you get as much pleasure out of the things you do for TWITT as I do being a member. Please keep up the good work.

I really wish I could make it to one of the meetings, but 1500 miles is a little far for me. Maybe I will get lucky and just happen to pass through on a weekend when a meeting is happening. I think that would be the coolest thing to actually seat down and talk with you and the others that make this organization so much fun to belong to.

I would love to brose library. I bet that there is much that is one of a kind in the collection. Is there any catalog of the items maintained within the library?

Warren Bean
199 Pine Hill Dr
Bastrop, TX 78602
<warrenbean@cebridge.net>

(ed. – Warren was the first to take advantage of the new electronic payment option added to the web site. I have also passed his e-mail address to Al Backstrom who lives not too far from Bastrop so perhaps the two of them can get together and talk about all things flying wing.)

October 19, 2006

Marske Site Update

I was looking through your fine TWITT website and looking at "Related Web sites" under, Marske Workshops. It takes me to Mat Redsel's old 'continuo' site. Would you please update this site address relating to " Marske Workshops" with my current address of www.marskeaircraft.com

Thanks,

Jim Marske
<marske@marion.net>

(ed. – I have made the necessary change to the web site links associated with Jim's work, but wanted to make sure the general membership knows of the link and can visit it.)

October 27, 2006

Please find enclosed the sum of $30 for the renewal of my subscription of the TWITT Newsletter for the next year. Thank you in advance.

I would like to tell you that my very good friend Heinz Scheidhauer died on October 10, 2006, some days ago. Heinz has been the test pilot of the Horten airplanes from 1937 in Germany to the sixtieth in Argentina. Just 50 years ago on October 30, 1957 he was the first pilot to cross the Andes from Argentina to Chile in a sailplane, namely with the tailless Horten H XVc "Urubu". It is a pity that he did not live just for a few days later to celebrate this date together with his friends.

Sincerely yours,

Karl Nickel
Freiburg, Germany

(ed. – It is always sad to lose one of the great aviation pioneers. Someone said to me when my mother passed away several years ago that we are just reaching that time in our and our friends/families lives where this is going to be a more common event. My father is now 97 and has outlived most of his friends from the old glider days, which I know makes him feel bad due his longevity.)

From Nurflugel:

(ed. – The following was an interesting thread on the Horten designs and led to me adding Al Bowers 1998 presentation to the web site along with his current PowerPoint presentation slides.)

October 24, 2006

A question about Horten wings

I just receive my copy of the "Horten Ho 229 Spirit Of Thuringia" book and figuring through it raises a

question in my mind. How many of the Horten designs actually used the Bell shape lift distribution so much talked about? Looking back even at the Horten IV I do not seeing the twist that is suppose to generate this distribution. Was this on just a limited number of designs? Even so we do we not see this on the later designs including those done in Argentina?

Warren Bean
<warrenbean@cebridge.net>

I am only sure that four Horten designs did NOT use the bell shaped lift distribution. The original H I, the H XIII, the H X (the first one in Germany), and the H Xa (the second one in Argentina). All others, in so far as I know, used the bell shaped lift distribution.

However, it was not until the Argentine aircraft that Horten solved the control mixing and adverse yaw problem. I have a document from Argentina (by Reimar in Spanish) talking about the H Xa and H Xb difference where he explains the solution. This is the first instance I can find where Reimar explains the control surface mixing and adverse yaw solution.

The reason it is not very evident in many of the aircraft are two fold. First, you can vary the twist by changing the airfoil (this has the effect of changing the angle of attack at which zero lift occurs, as all airfoils produce the same lift-curve slope). Second, the trim lift coefficient affects the amount of twist required, a low trim Cl and the required twist is small.

In Mike Allen's Klingberg-Horten, the twist is REALLY evident because the airfoil is the same across the whole wing; so ALL the twist has to be done geometrically by twisting the wing. In addition, Mike used a twist to trim at a Cl of 0.6, which is pretty high. So the twist is really evident on Mike's glider. I have some photos I just scanned that show the twist really well.

The twist in the Horten aircraft is subtle but is visible in many photos of the Horten aircraft. I can cite examples if it would help.
I hope that explains some.

Al Bowers
<al.bowers@dfrc.nasa.gov>

Well darn! I should have read the introduction from Al Bowers First. Al introduction states that the Hortens did use The Bell shape spanload fairly early in their efforts. However they did not get good performance until much
later. Shame on me for asking before reading :-(

Anyway the book does read fairly well. I will properly stay up late just to get into it more. (Warren Bean)

October 25, 2006

Hi Al:

Thanks for the info. I forgot about the achieving twist by changing airfoils I wonder if that can be done as easy as twisting a constant airfoil? (That is not to say it is really easy to actually get the actual twist.) I guess I am referring to the graphical approach were one maps the twist needed at each station by using geometry.

Also I wonder about achieving a bell-shape distribution on a plank design. Is that possible or even useful? It seems that if this is indeed optimal in some way, then it should still be optimal when applied to non-sweep designs. (Warren Bean)

It is not as easy by using a constant airfoil and twisting the wing. Mike and I found this out when we built his Klingberg-Horten. The big problem is complex. First, to get a hinge line for the control surfaces that does not bind, and is clean across the wing, you have to pick the hinge line of the wing as being the only straight edge. This means the leading edge, the spars, and the trailing edge are all bent (Mike made a small MatLab routine to do this, but we decided to make the trailing edge of the wing straight, it wasn't much of a compromise for his model). By using a constant airfoil and a fairly high trim lift coefficient, the main spar and the D-tube has a pretty dramatic amount of twist and curvature imposed on them. In composites this isn't much of an issue. But in wood, it was a bit of a struggle. Mike resorted to using ammonia solutions to soften the wood to sheet the D-tubes. Varying the airfoil would have helped this quite a bit.

The bell shaped lift distribution does help unswept designs too. In fact, Prandtl, Jones, Klein and Viswanathan were all thinking in terms of unswept in their original derivations. However, to apply the idea to flying wings, some measure of sweep and/or dihedral is highly desirable for directional stability (dihedral and sweep couple together for directional, roll, and spiral stability). Sweep is a part of the optimization. (Al Bowers)

So what are the differences between the German 'wings and the Argentinean 'wings that made the latter much more stable?

Doug Holverson
<dholverson@cox.net>

It is how the controls are allocated. Dr Edward Udens was the one to really explain it well. Udens

showed that, for roll control, the surfaces need to be as FAR out at the wingtips as possible. In pitch the control needs to be distributed (to maintain the bell shaped lift distribution). Udens was the one to show this at the design point.

I got that message to Dr John Anderson (now curator at SI NASM) and he finally accepted that control of adverse might be possible. But ONLY at the design point!

I didn't have an answer. Nobody did. So that was when I decided to pick on the H Xc as an example and do analysis at OFF DESIGN conditions. And I found that it works way off-design point. It can be very benign and have a large envelope of applicability.

I should point out when I had that data, I still didn't believe it. And so Mike Allen proved it to me with his Klingberg-Horten.

Al

October 26, 2006

So howza 'bout a look? Any chance we can see your work?

"AL-n-PALMER"
<arobins1@midsouth.rr.com>

Andy Kecskes has asked for the charts for a presentation I made at TWITT a few years ago with all the data. As soon as I can dig it out and send it to Andy, it should be available through the TWITT website.

Philippe kindly uploaded three images (five photos) of Mike Allen's Klingberg-Horten to the nurflugel yahoo site. Three of the images are notable: one image taken from above and behind the wing shows how dramatic the twist is when using constant airfoil. In this image it is hard to imagine the wing has a straight taper. Some of you may recall I used the word "organic" to describe the wing viewed from this aspect. Yet from another image, which is a top view as Mike is holding it you can clearly see the wing is indeed simply a straight taper. Finally, there is an image lined up with the trailing edge of the wing. You can see the trailing edge is a straight line. Giving a hinge line, which is straight enough to not bind when the control surface is deflected. Thanks again to Philippe for taking the time & effort to upload those for me.

Al Bowers

Great pictures! Till now the only picture I'd seen of Mike Allen's wing was the one on his student web page at Embry-Riddle. That page suffered the fate of all student web pages and was taken down in 2005. I didn't know about the Wayback machine then so I saved a copy. The newer members can view the Wayback machine copy here:

<http://web.archive.org/web/*/http://pr.erau.edu/%7Eallenm/wing.html>

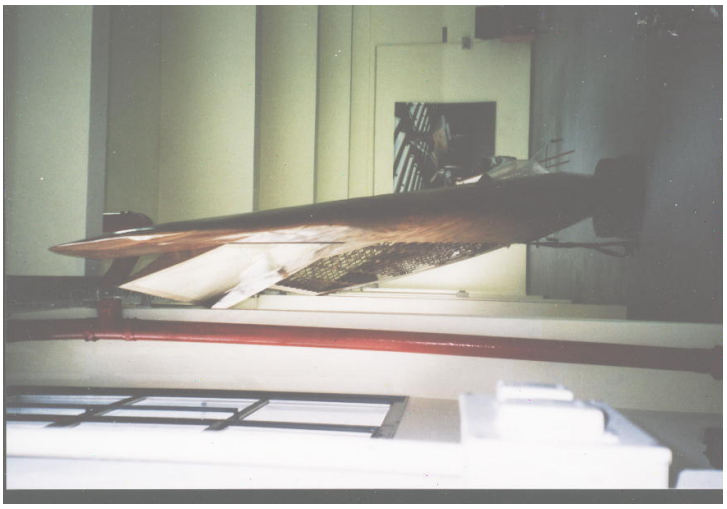
Norman Masters
<nmasters@acsol.net>

October 30, 2006

So as to add some material to Al's explanation on washout I'm adding a file (HXb_lat.jpg) where the big washout of this airplane is evident. I took the picture as parallel to the longitudinal of the aircraft as I could. The airfoils start with a cambered airfoil in the center and ends with symmetrical at the tip.

Greetings from Argentina,

Fernando Walter Siarez
<fws669@yahoo.com>



November 2, 2006

"Flying Wing" to Fly

I believe now with limited acceptance of the A380 Super Jumbo, airlines would be more receptive if as was supposed to be the case; Blended Wing Body (BWB) could carry as many passengers in a smaller footprint aircraft so that terminal modifications would be unnecessary, and more fuel efficient BWB resulted in lower operating costs compared to Super Jumbo. I think the operating costs are the answer....make the thing smaller, and offer it as the next generation Dreamliner, flying point to point with even greater efficiency and savings.

That's probably about 20 years out, but with Air Force use and maybe air freight use, could be closer

From Orange County Register in California 11/1/06

Blog: "Flying Wing" to Fly

UP, UP AND AWAY - Boeing Phantom Works long, spotty effort to develop a revolutionary "flying wing" style plane known as the blended wing body (BWB) is headed back to the runway. The company says the plane -- which underwent some design work in Huntington Beach under legendary aerospace engineer Robert Liebeck of Irvine -- will perform a series of flight tests early next year at NASA's Dryden Flight Research Center in the Mojave Desert.

A British company built two prototypes of the the BWB, which is formally known as the X-48B. The experimental craft are only 8.5 percent as large as the concept plane, which Boeing would like to develop for the Air Force as a fuel-efficient transport. But the company says the prototype has been designed to replicate the larger version as closely as possible. The X-48B will be guided by remote control when testing begins, possibly as early as January or February.

The BWB has been in development, at various levels, for more than a decade. Boeing once thought they could make the BWB into a luxury passenger liner. But historians say the idea got negative reviews. And Boeing has gone through various design and test periods with the Air Force and NASA in trying to develop the technology.

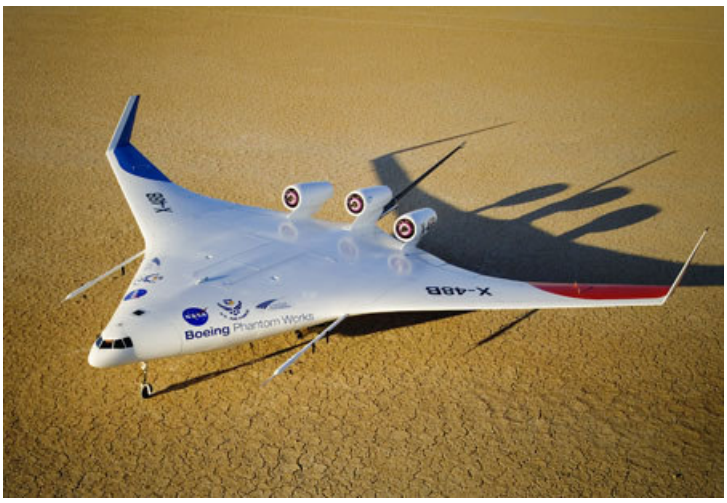
In a news release, Boeing says, "The X-48B's three turbojet engines will allow the 500-pound, composite-skinned, 21-foot wingspan prototype to fly up to 120 knots and 10,000 feet in altitude during flight testing."

We'll let you know when the testing gets underway."

Larry Witherspoon
<ssspoon@aol.com>

(ed. – From the Boeing web site:

http://www.boeing.com/news/releases/2006/q4/061027b_nr.html



"EDWARDS, Calif., Oct. 27, 2006 -- In cooperation with NASA and the U.S. Air Force Research Laboratory, Boeing [NYSE: BA] Phantom Works soon will begin ground testing of its X-48B Blended Wing Body (BWB) concept in preparation for flight testing early next year.

The X-48B ground and flight-testing will take place at NASA's Dryden Flight Research Center at Edwards Air Force Base in California, where two high-fidelity 21-foot wingspan prototypes have been delivered.
The prototypes were produced to explore and validate the structural, aerodynamic and operational advantages of the BWB concept. They were designated the "X-48B" by the U.S. Air Force based on its interest in the design's potential as a future military aircraft.

"Earlier wind-tunnel testing and the upcoming flight testing are focused on learning more about the BWB's low-speed flight-control characteristics, especially during takeoffs and landings," said Norm Princen, Boeing Phantom Works chief engineer for the X-48B program. "Knowing how accurately our models predict these characteristics is an important step in the further development of this concept."
X-48B Ship 1 completed extensive wind tunnel testing at the Old Dominion University NASA Langley Full-Scale Tunnel this summer before being shipped to NASA Dryden as a backup to Ship 2, which will be used for flight testing early next year.

In preparation for first flight, the X-48B Ship 2 will undergo ground testing to validate its engine- and fuel-system integrity, battery endurance, telemetry link communication, flight-control software, and low- and high-speed taxiing characteristics.
The X-48B's three turbojet engines will allow the 500-pound, composite-skinned, 21-foot wingspan prototype to fly up to 120 knots and 10,000 feet in altitude during flight testing.

The X-48B research project is led by Phantom Works, Boeing's advanced R&D unit chartered to provide innovative technology and system solutions to meet future aerospace needs. Cranfield Aerospace, Ltd., in the United Kingdom built the two X-48B prototypes for Phantom Works in accordance with Boeing requirements and specifications. NASA's participation in the project is focused on fundamental, edge-of-the-envelope flight dynamics and structural concepts of the BWB, while AFRL is focused on the BWB's potential as a flexible, long-range, high-capacity military aircraft.")

Totally agreed!

As I expressed here before, flying wing fanaticism apart, the A380 looks like it's begging to be something else... It's like it feels uncomfortable in its configuration. Yet, somebody still has to come up with a way to get 600 people out of a BWB in 2 minutes.

Andre Martins
<kriptone@gmail.com>

(ed. – This is some of the material that has appeared on the Mitchell Wind/U-2 discussion group over the past couple of months that I thought might be of interest.)

October 31, 2006

Posted by: "atlantica92647" <timepilot@earthlink.net>

My B-10 for sale!

Okay fellow Mitchell wing listers ...Giving you all the first shot at my B-10. If I don't get a call from someone on this list before Thursday, I am going to put it up on eBay and will take whatever I can get.

Deal is "As is, where is" ... You pick up the aircraft.

The truck I formerly used to transport it with is no longer in the family ... gone in an accident, but not missed much at 8 to 10 mpg.

You can view the quality of workmanship and see it in flight by exploring the links at:

http://home.earthlink.net/~mitchellbuilder/B-10 and http://home.earthlink.net/~mitchellflyer

Ship was slightly damaged on last landing .. i.e. an aluminum axle was bent a little. Previously the opposite side axle had also seen this and had been replaced, steel for aluminum ... but this side was still the soft aluminum and bent maybe 7 or 8 degrees. also, when the wing was replaced into its' storage cradle, it was dropped slightly and there will be some minor damage to the leading edge to repair. Lastly, a brand new propeller (less than 1/2 hr of flight time on it) picked up a rock and slightly damaged it's leading edge also. It will have to have to be repaired or replaced (no guarantee as to serviceability), but someone who knew what they were doing could probably save it as the strike was right on the leading edge protecting tape.

The Zenoah GB-25 engine is perfect. So much compression that it is near impossible to start by hand. The electric start option for the Zenoah is (was) priced near a grand, all by itself ... but makes this craft a true motorglider as you can shut down and restart in the air with confidence ... the restart is greatly assisted by the separate priming system.

Sweet ship. Flies very nice. I would not sell except that I have moved into a community with airport access from my back yard! :-) ... however ... it is a private field and restricted by the owner to "N numbered" aircraft only :-(So, I am moving up, probably going "sport pilot" and my much beloved and pampered Mitchell will soon have a new home.

Price? $ 2500 ... OBO ... the parts alone are worth much more than that. Check what an electric start engine with a well engineered re-drive goes for today. The wing is practically free. Liability signoff required.

Aircraft is located in Huntington Beach, CA just a few miles from Disneyland ... although I have relocated to the Santa Cruz (831) area in northern California ... please call NOW if interested! Otherwise, like I said, it goes to eBay prior to this weekend.

Dale Smith
(831) 471-9701

(ed. – By the time you read this he has either sold it or has it listed on eBay, which would still make it available. Here's the URL for it. http://cgi.ebay.com/ebaymotors/ws/eBayISAPI.dll?ViewItem&item=290047045620

I have included a couple of shots taken from the group's photos file.)

November 1, 2006

Posted by: "explorer3333" <explorer3333@yahoo.com>

(Another) New Member

I am from California and interested in flying wings generally and Mitchell Wing specifically, although not from the soaring rather the efficient airplane perspective (with a lot of load carrying potential).

One of my question relates to the final product. Are the B-10, U-2 belong to the experimental category (if it is over 254 lbs) or can it be licensed in the new US Sportplane category?

The other question: Although I understand that the little 20 hp Zenoah was used for long time on the B-10 and a little bigger 2-cycle engine was used on the U-2, is there a 4-CYCLE engine in the 20-50 hp range that can be used (of course after addressing the weight and balance issues) with these wings? (The smallest 4-CYCLE that I found is the HKS-700 rated at 60hp) I would prefer 4-cycle from reliability as well as fuel consumption viewpoint.

I don't have the plans yet, because I would like to get the answers before I order them.

Posted by: "Raymond Landa" RaymondLanda@hotmail.com

Explorer3333, Do a search for "alternative engines" in this group and you'll find some 2 strokes that put out 32hp and weigh about 16lbs. They are used for RC; very reliable and state of the art! Off hand I can't think of any turn key four strokes. If you want to go the experimental route, try a Honda CRF450 dirt bike motor. They are very light weight, state of the art and have tons of low end torque. You could try using the transmission to turn the prop but you will probably have to make an output shaft to go to the prop so the prop is not too close to the engine and is better supported. Or cut off the trany and go to a belt reduction. And in the end, who knows how much fuel it will burn per hour or how long between teardowns. Also, as far as reliability, another way of looking at it is; the more moving parts, the more that can go wrong.

Posted by: "explorer3333"

Thanks Raymond,

I am aware of the many alternative 2-cycle engines, but if I use 2-cycle, the 20hp Zenoah is good enough. The reason I was looking here for 4-cycle to see if I missed one during my search.

In any case, probably first I just build a stock U2 or B-10 (have not decided yet, but leaning toward the U-2), then when I am familiar with the construction, figure out how to strengthen up and modify for a 60hp 4-cycle HKS engine.

Thanks your help,
Explorer

Posted by: "Ed Pettit" <edsupusa@msn.com>

Explorer,

I have a set of plans if you need some. I'll sell them for $100. That will save you about $50. They are brand new. I don't have time to build, or the place to do it in anymore. Retiring and going to do a lot of traveling. Let me know. Thanks...

Ed - Jacksonville, Florida

October 11, 2006

Posted by: "johnlehman3101" <john@johnlehman.com>

New Builder Question About Rib Construction

I am just starting the process of building a U-2 and, per the instructions, have been making practice versions of rib #12. My question concerns what happens when the 0.25 x 0.25 inch top and bottom capstrips meet at the rib trailing edge. It appears that, in order to fit the two capstrips together properly, I need to do some creative beveling on one or both of the cap strip ends. Is this the accepted practice, or am I completely missing the point?

Thanks in advance for your replies.

Posted by: "Jamie" <jcranegt90@tds.net>

Look close at your plans, you will see a line were the top and bottom cap strips come together, trim them to fit at that point. I found that a belt sander makes this a simple task. Jamie

---

October 15, 2006

Posted by: "glidernut29" <kavoth@psctelcom.net>

New Member

I may be the newest member. I bought my plans more than 5 years ago and never started building. Now I have trouble getting my third class medical and want to either fly an ultralight or glider. The postmark on my plans package is Feb. 2001. I need to fine out if there any changes in the plans. Sheet 3 of my plans gives an empty weight of 240 pounds while the latest web site gives way over 300 pounds. Also latest stall speed is too high to qualify as an ultralight. I think I want to stick with the part 103 limitations. Do I have to build it like a B-10 to make it ultralight? If Mr. Avalon could comment on this, I would appreciate it.

Kenneth A. Voth

Posted by: "mitchellwing@earthlink.net"

Hello Kenneth,

You have a set of the Mitchell Wing U-2 plans. This is not an ultralight, it fits in the Sport catergary. You would need a set of the B-10 plans, an ultralight and a different airplane.

The B-10 is easier to build and the plans are similar to the ones you have. I do have these in stock and can send them out right away.

Hope this helps.

Richard Avalon

Posted by: "Norman Masters" <libratiger62@yahoo.com>

At 650 pounds Gross the U-2's span squared loading is 0.56, just slightly under the 0.60 required to be licensed as a motor glider. A motor glider certificate is much less restrictive to both the plane and pilot than either sport plane or part 103. Look into it. If you and a full gas tank weigh less than 280 you may be able to fly a U-2 with just a glider rating

Posted by: "Joe Cook" <JoeCook1@thegrid.net>

Norm,

It is my understanding that the "span squared loading" requirement is only applicable to manufactured gliders with a standard AW cert. For Amateur Built Experimental AW cert, there is no such requirement. So it is just a matter of the builder choosing to register it as a Ex-AB Glider. The pilot will need a self launch sign off on his glider rating to fly it (U-2) legally.

Here is a discussion on that subject that came up when I Googled it:

<http://www.glidingmagazine.com/CommDetail.asp?ParentId=563&RootId=0> .

Joe

Posted by: "Norman Masters"

Thanks, Jo--

I didn't know that about amateur built experimental certification. So it's a glider if the builder says it is? koooool :) Even so the U-2 would just barely qualify as a motor glider. Here's a paper from the Auxiliary-powered Sailplane Association explaining the legal definition of a motor-glider:

<http://mysite.verizon.net/engreenwell/ASA/Motorglider_criteria_2004.pdf>

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