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T.W.I.T.T. NEWSLETTER

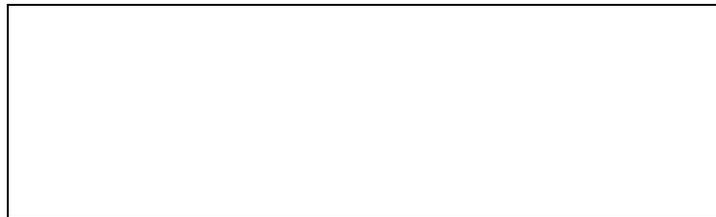


George Cornelius of Dayton, Ohio, was a staunch advocate of the swept-forward wing concept, which lent itself well to this experimental tailless aircraft of the 1940s. Cornelius claimed that the combination of variable incidence wing and forward sweep resulted in an aircraft that was virtually stall-and spin-proof.

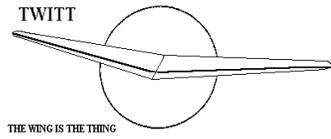
Source: <http://www.century-of-flight.net/Aviation%20history/flying%20wings/usa.htm>

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., **1612** means this is your last issue unless renewed.



**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

Well, as I noted in the October issue there might not be a November issue since it would be due right in the middle of my move to Austin and, there wasn't. I have updated the membership roster to advance everyone's renewal date by one month to reflect the missing issue.

The move did and did not go as planned so I am glad I didn't commit to trying to get an issue out. It took more work to get our San Diego home ready for sale but the effort was worth it since it sold in about 9 days from listing date. That put closing right at newsletter time and we had to move out of the house to meet escrow closure timing. I had to drive one car to Austin then fly back to San Diego to finalize preparing a condo for sale and drive my truck towing the 1-26 back to Texas. Fortunately both drives were in excellent weather and uneventful, which is more than be said for moving into the new house.

Complicating all this was the simultaneous move of our daughter and her twins to Austin and locating a new house for her to live. It took longer to find a home for them, but we have now closed escrow and will start moving their stuff out of our house, which will allow my wife and I to unpack the last of our boxes.

Because of all the clutter and boxes from two different homes I lost track of the box containing my computer for over a week and was starting to panic when it finally popped up behind some tall furniture. So I am working out of makeshift office of card tables and a wiring nightmare to get this issue in the mail. Also having difficulty finding a print shop that was as economical as my one in San Diego so I can continue to keep the dues low.



LETTERS TO THE EDITOR

Hi Bob: (Hoey)

I would like to build a Hoey Vulture. I live in Oregon and would like to put an electric motor on it. Can you tell if you know how to do that?

Do you have any drawings on the wing tips? Or hole bird that I could buy?

There are not any places to slope sore here without driving a 150 miles 1 way! So I fly in my back yard that has 4 acres with very few trees. Also flying at the club field this Hoey Vulture would be a real showstopper.

I'm looking foreword to hearing from you.

Thank you for your time

Albert Christel

Hi Albert,

I sent a paragraph in my first response that covered my experience with electric motors on birds;

"I have tried electric motors on the nose of some of my birds and have found that the prop is destabilizing resulting in loss of control. Some folks have mounted a motor on a pylon above the wing of the Turkey Vulture and that seems to work OK."

I have never tried that installation so can't comment any more about it.

The drawings will show a "dropable fin" scheme that allows the model to be launched from a "Hi-Start". That works well and should allow you to launch to an altitude where you can find thermals.

I'd be happy to answer any questions you have after you receive the drawings.

Good luck,

Hoey

(ed. - From Bob: "Hi Andy, Don't get many of these anymore, but its fun to see someone wanting to

experiment. I have added his original request message as well. Hoey

It is unfortunate that we don't often hear back from the various folks who have built and are flying Bob's designs or their own version of a design. I you have seen anyone flying a bird model please get pictures and let us know. Thanks.)

Dear Andy,

In the recent newsletter you had an article on the Ho 229 (original author Marton Szigetti), in which it was concluded that the airplane at the NASM is the Ho 229 V6 instead of the Ho 229 V3.

Mr. Szigettis article explains an interesting theory. However, his conclusions may have to be discussed.

Mr. Szigetti mentions a new set of documents, that change the view on to the H IX history. However, with one exception, all documents directly referred to in the article are long known and do not show any new information. That Gotha was very critical with the Ho design and completely reworked it, is a well known fact. That Horten and GWF worked in parallel is also shown by the fact, that the Horten Flugzeugbau presented a project description of a H IX V6 two seat "Zerstörer" (dated 1945-03-01), while GWF still worked on the Ho 229 V6 single seat mockup.

Mr. Szigetti concludes, that the airplane currently restored at NASM is not the Ho 229 V3 but in fact the mockup of the Ho 229 V6. However, if you look into the extensive drawing set, still available at the Deutsches Museum in Munich and other sources, the story looks different. As an example, there are drawings available, showing details of the Ho 229 V3 prototypes still from 1945 (eg. 8-229.00-5128 Steuerleitung i Mittelstück und Fläche V3-V5, dated 1945-03-01), which match the features available in the airplane at NASM and the frames seen on pictures from the Ortlebb factory. Why would a multiple set of frames being built, if it was only for a mockup? Why should in 1945 the design office still prepare drawings for the V3 – V5 airplanes (even referring to changes on the real hardware!), which to Mr Szigetti's theory did not exist?

A detailed view onto the surviving airplane at NASM clearly shows, that the manufacturing quality is typical for a fly worthy example at the end of the war.

Furthermore, the surviving drawings of the Ho 229 V6 layout of GWF clearly show significant differences to the V3 – V5 airplanes (eg 8-229.100 Bl2 Rohrgerüst, with comment "Nur für Attrappe V6", dated 1945-01-22). This airplane had a different structure, different center section shape, different cockpit layout and can not be confused with the V3 – V5 examples. Why, if Mr Szigetti's theory is correct, at early 1945 GWF should do drawings with different geometry to the real mockup?

All this available data only fits to a situation, where the Ho 229 V3 to V5 (called "Göttinger Ausführung" to show that the layout was based on the Horten-principles) were finished as flight test airplanes in parallel to the preparation of the serial relevant mockup for the Ho 229 V6 (with GWF redesign design). As this is also in line with the explanations given by the involved people (both shortly after the war and in later memories), the most probable assumption seems to me still to be that the airplane at NASM is the Ho 229 V3.

With kind regards,

Reinhold Stadler

(ed. – My thanks to Reinhold for an insightful analysis of the available documentation to surface questions about which 229 is really at NASM. We welcome any further discussion in this area based on sound research and logical concussions.)

Mitchell U-2 Threads

Herb,

Do you still have the b-10 and U-2 kit for sale?

Alex Goodwin

Alex

I thought I would have them by now...not so...They are listed on Barnstormers by the current owner..Check it out...if not..then I can provide the phone number privately..Sparta Tenn. area...

Herb

Hi Guys,

Can the U2 or B10 be safely stalled. Or do I stay away at all cost. In any flight test protocol you need to know the speed that it will stall.

Thanks for your help,

Dave Hill

There has been a lot of information on flying MWs posted in the past on this group. My recollection is that all contained warnings against stalling the wing. I would advise anyone seriously considering the design to take the time to research this area thoroughly before proceeding. Actual flying reports should have priority!

Dave G.

I have flown 150 hours in a B10 and 20 hours in a U2 (first test flights after restoration).

The B10 stall was a non-event. I did it a couple of times. It just lowered the nose a little and lost some altitude, wings level. Then it gained airspeed again.

The U2, stalled only once by an inexperienced pilot (the owner), dropped one wing and came into at steep dive. This happened at an airspeed of 65-70 km/hour and was a very dangerous event because he did it against my advice and at only 1000 ft. He lost 500 ft before it started flying again ("I don't how how", the pilot told me).

Both airplanes were set up with a C G at bit to the forward end (and thus a bit nose-heavy) for added security.

Stall tests should be done at minimum 3000 ft and equipped with a rescue chute.

Carl in Stockholm, Sweden

Jim Gordon here from Mitchell Wing. Here is one of our A10's what its like to stall and flies with just the rudders! If link doesn't work go to our web site.

Mitchell Wing Aircraft, Home of the Mitchell Wing, Light Sport Aircraft, ultralight Jet, Mitchell Wing
<http://www.mitchellwings.com/>

Mitchell video4 https://www.youtube.com/watch?v=8-v9vjUPNE&feature=em-upload_owner

Jim Gordon

Picking up two crates today...Sparta Tenn... It is a Mitchell U-2 that came from Ernie Carlson's estate way back when...Not sure everything is there..but the price was right!

All of the wood looks good...No mold or mildew... Not sure what I am going to do with it at present?

Building the second wing for a J3 Kitten currently and that project will take up the rest of my fall here in Kentucky. Wish I had an inventory list. does one exist?

Herb

What might you ask for the u2 if you do not plan to finish the build?

Fred

Man...that tall crate was murder to load...! 16 feet long..there bouts.. I opened both crates and found all of the wood to be in good shape..An old kit and I was surprised at that...the crates were not in good shape but held together...Late when I got home to south cent Ky...so I parked it and the trailer in the barn...

Not sure what I will do with it...stay tuned! :-). Swapping and trading is in my genetic make up...:-)

I will try to do an inventory tomorrow...I have a set of plans and that should assist...I will create an album here and take some pics... by the way...is there a U-2 build manual available on the web? Herb

By the way...the M10 looks really good...one of a kind?

I created an album and posted some very preliminary photos...Two crates on my trailer..

Looks as if it was kitted in 1980? Surprisingly just about all that I have inspected is ok...The resin leaked and damaged a bunch of gussets and the mice chewed a hole in one of the d cell foam ribs...still usable however..just a large lightning hole! :-). Ply sheets are good..

Amazing to think about the man-hours to make a kit like this! and the cost.!!

Cromolly tubing looks good..well wrapped...Canopy ? The spray on protectant has hardened.. Aluminum looks good.. sheet of cromolly has rusted a bit.. Opening the long crate tomorrow...Stay tuned...

Herb



Herb's U-2 spars

I didn't even know the M 10 even existed till we bought the company and evidently a lot of people didn't either.

The M 10 was started by Don Mitchell one was flying later someone put it into the trees. We have four complete undercarriages we have the molds for the body and the wings are based off the A-10s. Sometime in the future we may build one have to see if there's any real interest in it.

Jim Leland

I would like to see some information on it and the others sent to Aerofiles.com to update the info they have on Mitchell aircraft right now all they have is on the U-2.

Bill Higdon

Thanks will work on getting this updated!

Jim

I have decided to turn this kit loose on some one younger than I...Too much on my plate at present.. Would need to be picked up in south cent Ky...Allen Co. Shipping would be very expensive I suspect.. Best offer...reply off list..

I brought it home on a tandem 16 foot trailer..

In the mean time...looking for a build manual .. for if I get some spare time...would like to start on the reflexed ailerons..(whatever they are called??) Looks like a good starting point.. or rudders? T-88 good enough?

Some of the parts in the U2 kit boxes do not make sense to me...Here is a photo of an example...also , most of the leading edge d cell foam is cut at an angle on the spar side. not seeing that in the planes or in construction picture on this site

Herb

The le edge ribs are perpendicular to the le, but the section is tapered, so the spar is at an angle to the ribs. That is so the ply skin can flat-wrap on the d-cell. The top and bottom of the ribs are sanded to final shape after gluing in place and leading edge strip installed. Also the spar in the center section is curved! I had no problems with that part of the project. The other ribs are from something else.

Dave



Herb's rib stack

Dave

Thanks for the info...Looking at builder photo's, I can see that some of my kit is correct...I will get some pics of the foam d cell ribs to show what I mean...

Another photo in my album of the assortment of ribs that came in the U2 kit...Anyone know what they are? Certainly looks like sailplane parts?

I posted more photos of the U-2 kit...showing the tapered foam d cell ribs...some showing the std ribs...and several showing the mystery kit spars ...too many spars!! What are they? Help...

Herb

I believe this will sound like a silly question. Are there plan drawings to check your inventory against.

Curt

I wish!! This mystery wing kit came with the U-2 kit ..no documentation...just trying to discover what I have...The spars are only 3.5 inches wide...main and 2 and 5.8th for the rear...

Another item in the mystery kit is threaded rod...varying in length from 45 inches to 37.. Likely drag and anti drag . Anyone?

Herb

I think you may have parts from another kit mixed in with your U-2. The D-tube provides the drag/anti-drag structure, there are no metal parts in the wing other than the torque tube, rudder cables, and assorted attachment brackets. I also haven't seen any solid wood ribs although we haven't taken the skin off of the rudders.

Norm Masters

Yep. I know that it is not U-2 related...Just a second crate that came with my U-2 kit trade... Just hoping someone on the list would be able to identify it...

Herb

There is no threaded rod in the U2 kit. There is also nothing that you would identify as a spar. There are tapered wood capstrips and laminated curved capstrips with which to build the spars. The first

big construction item is to fabricate the capstrips, and then the curved spars. The elevons and tip rudders have 1/4" solid ribs, and the ribs of the wing are built up kind of freehand. It would be impossible to build without the plans. The manual is a hodgepodge, but probably indispensable as well. I think you can still get plans from Carol.

DF Engineering

Have the plans...all 11 or 12 pages....and I have pretty much identified the contents of the U-2 container ..definitely a U-2...it is the other container that I was asking about...I found the parts list on this site...for the U-2.

Herb

I should send you pics of my U2.

I built it but never flew her, a school bought it from me and was going to hang it in a clubhouse as they said it was too dangerous to fly. They then lied and ended up doing nothing and she is now just sitting in a hangar gathering dust. Was going to look at buying her back and just storing her as I spent 4 yrs building her.



Here are videos of her.

<https://youtu.be/EyrQ2VevkUA>

<https://youtu.be/h2RW18RcPJ8>

<https://youtu.be/WhnuuSCoBMo>

Ryan Derot

Mighty purty!! Good job...:-)

Herb

Hi Ryan

You have built a beautiful U2. -why didn't you fly it?

Carl Hyllander

Long long story, in short form:

- Field was not long enough.

- Flight school at field refused to let me finish flight training if I was going to fly her

- Was told I am a dead man if I fly u2

- Was told I needed test pilot to do first flight or no pilots license - could not find a test pilot

Was so much drama in the end my wife and I decided to sell and get a different plane. They promised she would go to a good place and not be scrapped but now she sits in hangar just being forgotten.

So when I have money I am going to see if I can buy her back and put in my hangar to savor my hard work. They took engine, prop and all avionics out and sold but everything else is fine.

Kinda sad odd time I fly there seeing her all dusty.

Ryan

Hell I'd put her back together give her a good going over and fly it! Our Field here is 3000' @820 if you would like to see her fly would be more than happy to make it happen!

Jim

I am sorry to hear. Very sad. I hope someone will get her in the air. It looks beautiful and if the CG is correct I'm sure it will fly fine, just like the one I flew for 20 hours here in Stockholm.

Carl Hyllander

Hi:

I am a member of this group and have been for a long time. When I "visit my group" from my yahoo email I cannot access files, photos, or anything else. When I try to "join group" I am told that the yahoo account that I am visiting the page from and where I received the email from the group.....is not linked with any yahoo account. Now that's just dumb. How does this get fixed?

I am needing some special brackets and fittings used on the Mitchell Wing B-10. I'm building from a set of plans and need the four large brackets that attach to the landing gear and connect to the side rails and the seat back uprights. Also, need the two end fittings that go into the seat back and attach to the hangers. I don't think I can machine out anything like these. Maybe they are available for sale someplace but I'm don't know what they are even called.

D. Gingerich

To all that didn't know Carol Avalon passed last week. She will be missed! Keep up to date on our web- Light Sport Aircraft, Mitchell Wing Ultralight, Home Built Aircraft <http://www.mitchellwings.com>

Leland Gordon - Light Sport Aircraft, Mitchell Wing Ultr... <http://www.mitchellwings.com> Mitchell Wing Aircraft B10j Jet Jet Mitchell home Built aircraft light sport aircraft Mitchell A10 Mitchell T10 Mitchell U2 Mitchell Wing

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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VIDEOS AND AUDIO TAPES



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

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 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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