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T.W.I.T.T. NEWSLETTER

:

World PREMIERE AT AERO 2019! - Horten Aircraft

See inside for more information.

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

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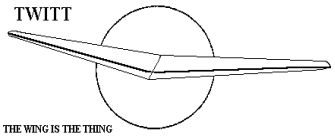

THE WING IS THE THING (T.W.I.T.T.)

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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Gatherings are held on the third Saturday of every odd numbered month, at 1:30 PM, at Hanger A-4, Gillespie Field, El Cajon, California (first row of hangers on the south end of Joe Crosson Drive (#1720), east side of Gillespie or Skid Row for those flying in).

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PRESIDENT'S CORNER

This month's issue is all Nurflugel bulletin board threads that came in since the July newsletter.

Nothing came in from our members and I didn't have any suitable fill material so there is also a lot of blank space to make the number of pages come out for printing.

LETTERS TO THE EDITOR

I am unsure if anyone here went to Oshkosh, but this year Horten Aircraft was there.

Home - Horten Aircraft

Unfortunately they did not bring their prototype. I was surprised to learn that the owner (?) went to Argentina and worked with Reimar to construct the PUL9 and PUL10 flying wings.

I was surprised to see the wing fences at the elevons on the prototype, the winglets, and the sharp leading edge at the root. I think all are efforts to prevent unrecoverable spins.

Thought I would share, I hope they succeed.

Nick Sturm

Judging from how well I can see the head of the pilot, the visibility seems poor. Also I do not understand, why they provide so much cabin space top and in front of the instrument panel. It only adds to the lateral area in front of the cg, destabilizing yaw and the keeping the canopy clean and clear will be a nightmare. All that just to have a streamlined look? Why not a shorter canopy?

But it is a beautiful aircraft and they deserve a big kudos for their achievement of building _and_ flying it!

Andre Kubasik

Two good points from Andre and Nick.
That all might happen if you maybe put a gyrocopter on a heavily modified old design.

Which now fly kinda bad.

Greetings from Bonn-Hangelar

Jörg Schaden

PS: For me it's just a regular flying wing and not Horten

Andre,

Judging from their presentation at Oshkosh, a couple of concerns they had with the PUL10 was that the cabin was not blended well with the center section leading to higher than expected loss of lift here and it was very sensitive to CG changes due to pilot weight. So much so that they had a movable weight to adjust. The CG sensitivity ultimately lead to their decision not to market the PUL10.

Just a guess...but I am assuming the idea here was to make it more of a blended wing cabin to address the above point. Pilot position within that cabin, I assume, is determined by putting him as close to the optimal CG location as possible. T hat being said, I would love if they could consider shrinking the dash panel and pushing a lot of it to the overhead and towards the passenger side and wrapping the front plexiglass over the leading edge. I have always been attracted to what it must have been like to fly the HE111 and it would match the Horten styling also. I almost want to keep that idea to myself.

The winglets were added, they said, because the test pilot would not fly without them.

Nick

All that black dashboard will make a great heater for the cabin! Whether you want it or not...

Nice analysis Nick - thanks.

Mark Nankivil

Jörg,

I guess you are referring to this?
https://www.rotorvox.com/

I am unsure what the link is, but I noticed it here:
World PREMIERE AT AERO 2019! - Horten Aircraft

Nick

Diego Horten (Reimar's son) and his son supposedly ventured up from Argentina to attend Oshkosh and Diego did some sort of presentation there (??) Then they went to the NASM Udvar-Hazy museum at Dulles Airport in VA, where Diego supposedly saw the Go-229 V.3 jet fighter for the first time, as well as his Dad's Ho-VI and Ho-III sailplanes hanging below the balcony catwalk.

I wasn't able to make either jaunt, but I hope they had a great visit.

The Horten build team might well benefit from linking up with Albion Bowers, who's just retired from NASA's facility at Edwards AFB, to get input on design issues that would mitigate adverse yaw. Al's series of instrumented flying wings expanded Reimar's R&D into tailless flying wings and proved Ludwig Prandtl's theory that proverse yaw is both real and possible. There is a published scientific paper about the testing and results. The flying wings are gorgeous. I hope Al got to keep one of them!

Geoff Steele

There's also a plan view of a huge "D5" liner, ~90 meters span

http://www.nederlandseluchtvaart.nl/forums/forum.php?s=58079bc53f771b31b13b89f9dbc1667c

The Driessen design was the winning contender (of 3) in a late 1939 competition for a possible K.L.M. long range passenger/mail aircraft.

The plane must be able to fly non-stop from Amsterdan in The Netherlands to Batavia in the Dutch East Indies, now Djakarta in Indonesia.

The contest was organised by the 'Comité Vliegtocht Nederlands Indie'
(Committee Flight to Dutch India). Several designs were judged by the Royal Dutch Institute for Engineers.

3rd design by Cremer. A conventional 4 engined aircraft with Diesel engines.
2nd design by Van Lammeren. This was an aircraft with two cockpits. One in the nose for take-off and landing and a second cockpit within the pressurized main cabin for long distance flights above the weather.

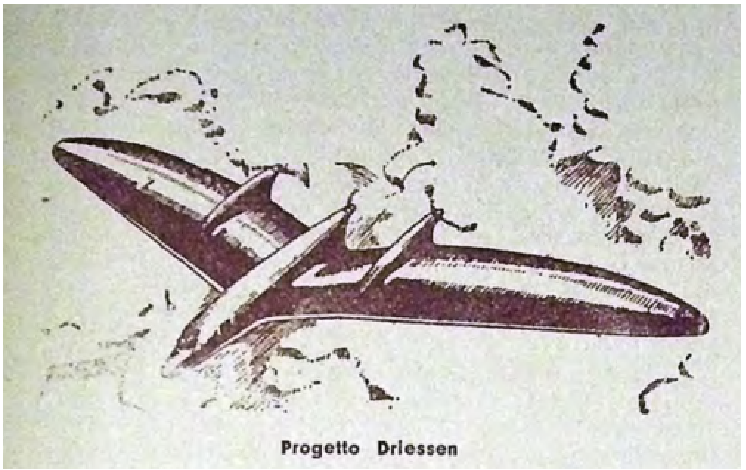
1st and winning design, the Driessen Flying Wing. E.A.Driessen was chief engineer of the research department of the K.L.M.

Unfortunately , Europe was at the eve of WWII and the flying wing design
never came to the hardware stadium.

Some specs:

length: 11.50m
span : 34m
height : 3.70m
wing surface : 175m2
total weight : 17,500kg
cruising speed: 328km/h
max .range : 20,000km
powered by 3 Junkers JUMO diesels. type and performance not known.
(source : summary from an article in the Dutch magazine 'Vliegwereld 1939')

https://www.secretprojects.co.uk/threads/dutch-flying-wing.4106/#post-275501



John F.

libratiger62 wrote:
> old prop planes continued to be used for ground support
>and airborne radar up to the '70s but all new

fighter
>designs after 1945 were jets and planform of the V-173 just
>isn't suitable for flight near or above the speed of sound.

Again, the vortex drag did not exist at cruise, and the exaggerated props of the V-173 hampered the top speed, not helped it. A normal set of twin 80 horsepower props would be nothing like the plane-changing slow turning things Zimmerman was experimenting with, and would be much more efficient at cruise, and as th e Arup demonstrated have all of the low-speed characteristics which are mistakenly attributed to the Vought props.

1) this says nothing about why the demonstrably superior Arup planform wasn't used for these other logistics and low-speed planes, and

2) see the Eschelman "Spirit of National Defense" (commonly called a "flatfish") which had a sharply swept leading edge. PROposed as a naval fighter also, it was ignored and derided as were the Arup. Canova in the '30s demonstrated this also in aerobatic gliders.

Ways to adapt area rule could also be applied. Sergei Sikorsky planned jet planes of similar sort, and the Avro Canada/USAF VTOL discoid was also proposed to be supersonic.

libratiger62 wrote:
>... planform of the V-173 just
>isn't suitable for flight near or
> above the speed of sound.
> Mach effects on an un-swept
>leading edge that far forward
>cause a huge drag increase
>starting as low as Mach 0.6,

The S.Sikorsky designs used very nearly the same planform as the 173 which he worked on, and he intended it as Mach+.

See the Eshelman "Spirit of National Defense" or "flounder", or the very low aspect ratio P.Canova planes from before the war or the Facetmobile. Any without that forward sweep effect of the Arup would have done well.

John F.

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AVAILABLE PLANS & REFERENCE MATERIAL

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

FLYING WING SALES

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

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