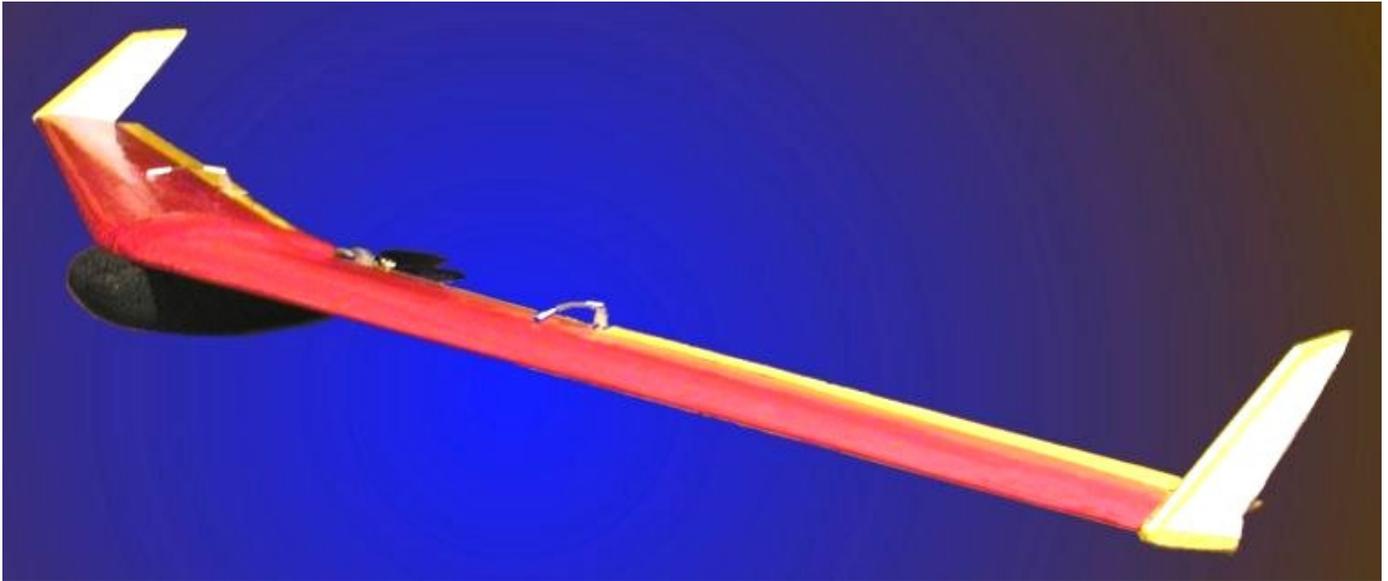


No. 339

SEPTEMBER 2014

# T.W.I.T.T. NEWSLETTER



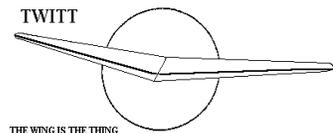
THE WALLY WING or "How to make a high performance flying wing for \$20!" (batteries & electronics not included). <http://www.acesim.com/rc/wallywing.html>

## **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.

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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**

**T**hose of you who like pictures should really enjoy this issue since there are lots of them showing the last part of Jim Loyd's LARA design prototyping. It will be interesting to see what kind of progress he can make going forward. But he does make the case for building simple structures to test theories, controls placement, etc., before moving onto the real thing. I wish him good luck with the project.

If you didn't attend the Experimental Soaring Association's Western Workshop in Tehachapi this past Labor Day weekend, you missed some very interesting technical presentations. In particular, you missed Al Bowers wowing the audience with his theory on minimum induced drag. I hope to have him write a short article explaining it all since it way above my head in terms of understanding it enough to present to you without him. Watch for this in a future issue.

Our Phil Barnes also made a presentation on regenerative electric flight Sunday morning. I am sure I can get him to provide us with a synopsis of his theories for a future issue.

There was a companion presentation on what is going on in the world of electric flight motors and other supporting equipment. I will also try to get that one for an issue since it is applicable to any type of aircraft. Mark your calendar for next year's event and be there in person.



**LETTERS TO THE EDITOR**

*(ed. – This is a continuation of Jim Loyd’s model experiments continuing from the July issue. I forgot to include some of this in the August issue but this should finish up the material he sent to us.)*

**P**age 6 shows a couple configurations I developed to increase wing area. I wanted the pod to be easy to build so I made it box shaped. The pod shape displayed neutral streamlining on the end of a 12-foot tube stuck out of the side of my van. But when I attached it to the wing it became very obvious that they didn’t like each other. The very narrow speed range at which it was controllable was a slow shallow glide. I realized that these configurations created a big new can of worms that I did not want to open so I abandoned them.



**Above and below are Jim’s single strut configuration connecting the pod fuselage and wing.**



After 15 months, 22 days, 5 hours and 26 minutes during which I suffered many, many hours sitting in the rear seat of a B-47, I have a strong revulsion to tandem seating. So I started to build a full size mockup of the Mk 9. It’s remarkable how a structure that looks quite simple on a piece of paper gets

remarkably complicated and different when dragged into the 3 dimensional world.



**Here are shots of the 3-strut configuration.**



Pages 8 & 9 photos show the front section of the side-by-side pod. Anchoring the stick to the wing simplifies the elevon system neatly. Engine controls and instruments are in the wing too. THEN !!!!! I placed the mockup of the center section of the wing on the pod and as shown in the photos the blasted engine ended 7 plus feet above the ground. I had figured out some satisfactory ways of storing and pumping the fuel to the engine but the vision of doing major engine repair from the top of a ladder gave me vertigo. After considering 33 places to stick the engine, I decided it had to be stuck on the front of the pod. SOOO it was back to the drawing board and pile of model airplane parts. Below are a series of pictures showing what is described above.



**Above - Elevon mixer.**



**Above – Pilot testing control placement. Below – Appropriate switches on the control stick ‘T’ bar.**



**Above – Testing control placement from front.**

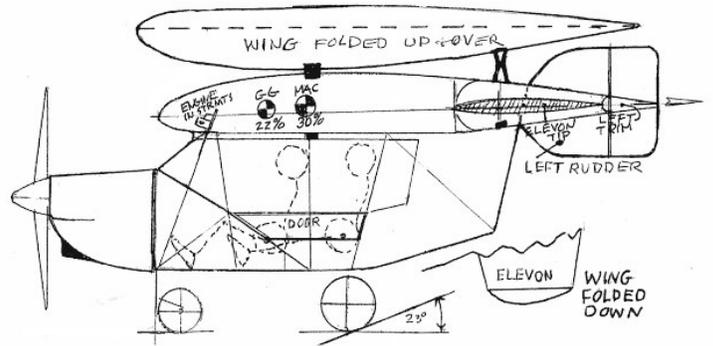


Above – Instrument panels and overhead controls. Below – Throttle-fuel mixture controls on left and elevon mixer on the right.

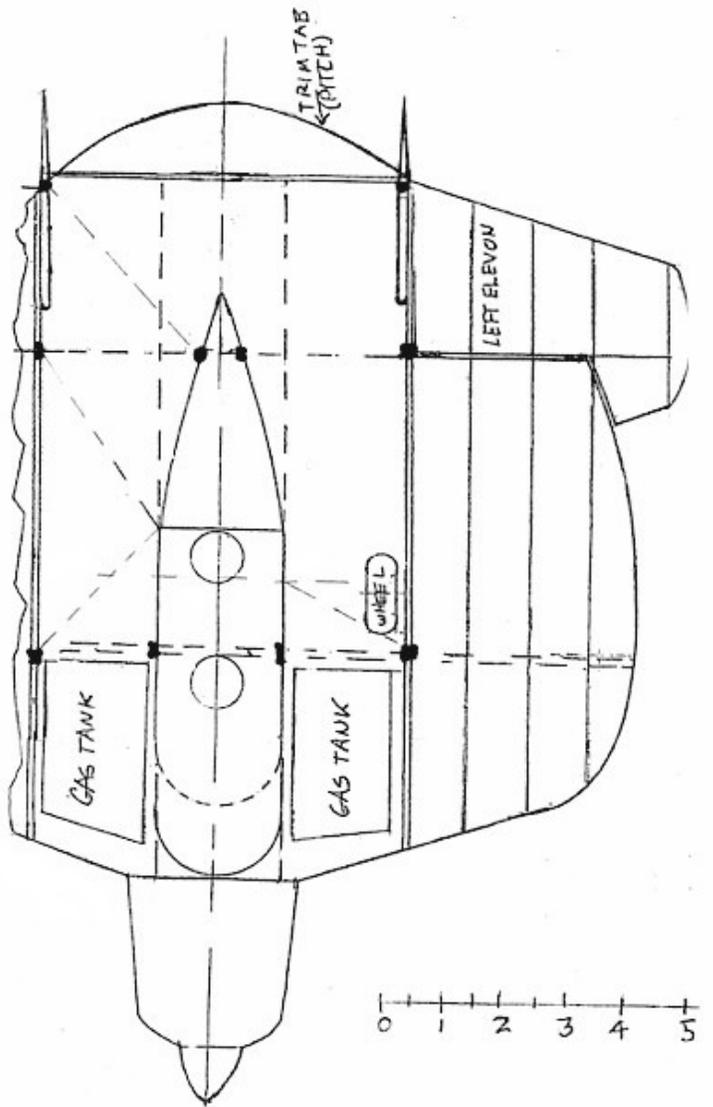


Pages 10 & 11. I have a tandem fuselage attached to a wing already. The rather crude drawings show a couple of configurations of the engine on the front of the fuselage of the next test model. See the configuration drawings starting at the top of the page.

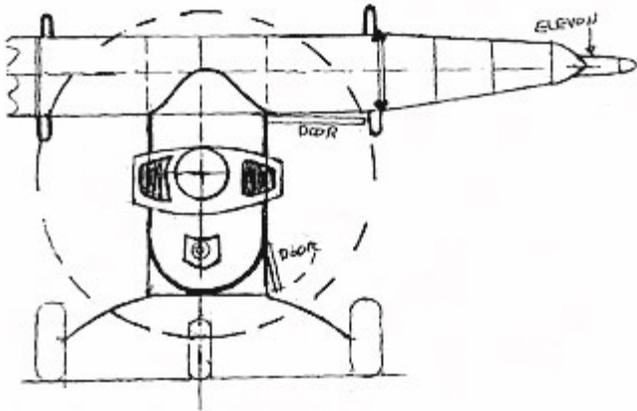
That's it for now. I welcome any comments, advice, prayers, etc. Jim Loyd, 303280-3271



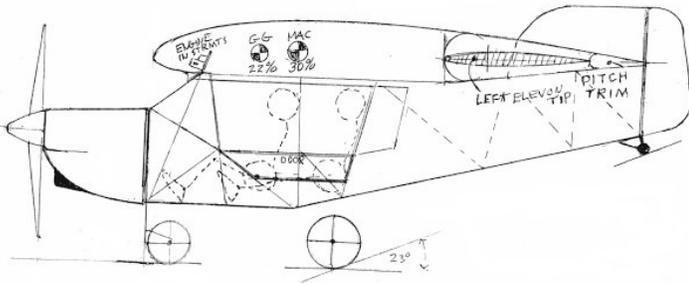
This starts the series showing the Mk 12B wing with end plates and a folding wing for easier transport.



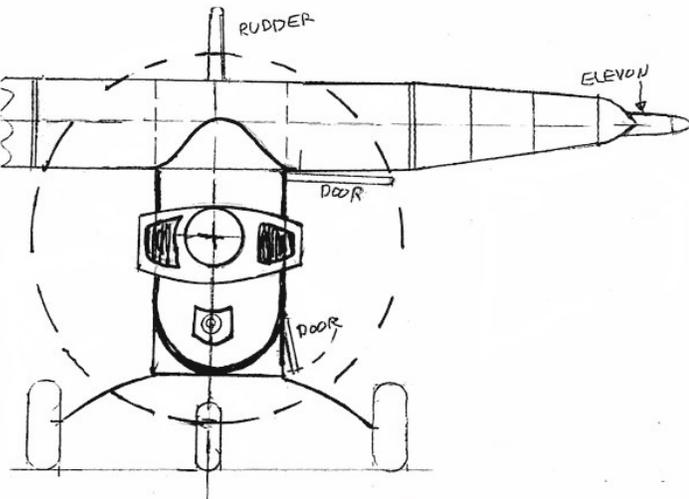
Top view with unfolded wing.



Front view with the wing in place.



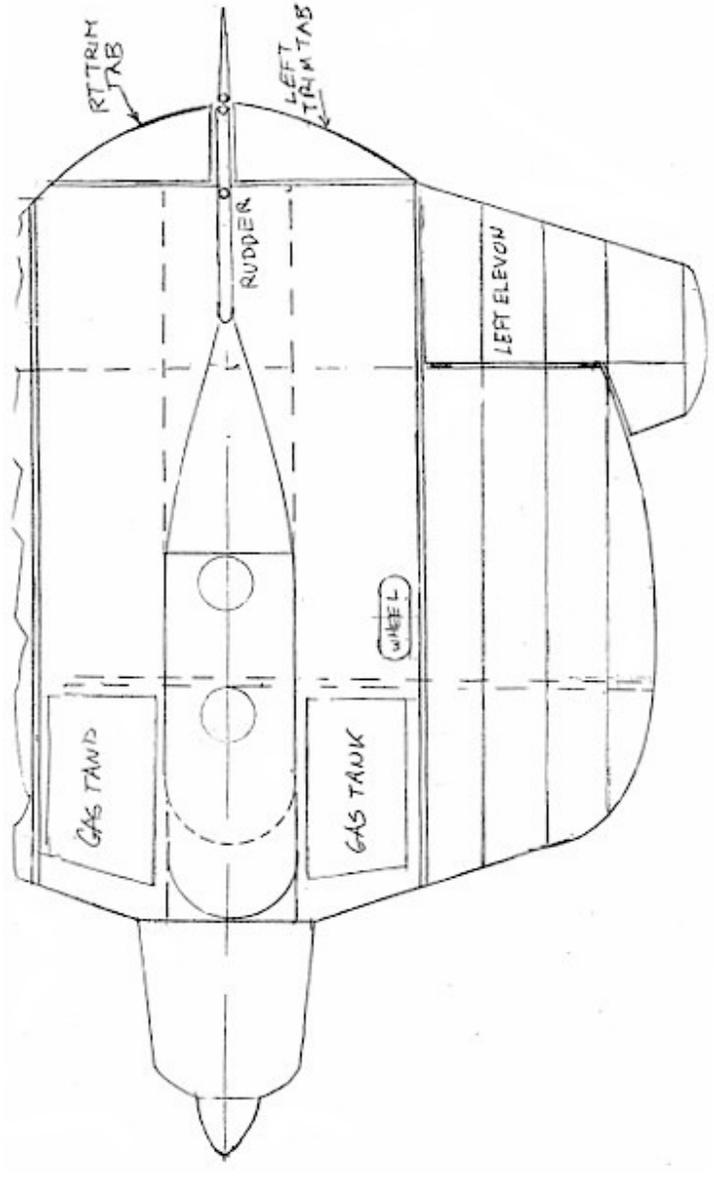
This Mk 12A version has a centerline fin and rudder.



**Loyd LARA Mk 12A/B Specifications**

Wing Span	14'
Wing Chord	14'
Wing Area	161 sq ft
Total Length	17'
Empty Weight	450 lbs
Gross Weight	850 lbs
Wing Loading	5.3 lbs/sq ft
Power Loading	8.5 lbs/HP

Stall Speed	20 mph
Cruise Speed	130 mph
Max Speed	160+ mph
Landing Speed	23-35 mph



**Nurflugel Bulletin Board Threads (Miscellaneous)**

I am thinking about visiting Washington DC over the labor day weekend and I am wondering if anyone knows if the Garber restoration facility is still open??

Hakan Langebro

Dear Hakan: I think that the Garber facility is closed to the public...you cannot even get a

"special" pass to see it like we used to be able to...However, many of the restoration shops are supposed to be now in the Udvar-Hazy building and many of the aircraft that were in the Garber are now back in the Hazy building also. Garber has been taken over for storage of the Smithsonian overflow so that facility can get some breathing room...At least this was where everything was about 1-2 years ago when I went there. It could have changed since then though...Thanks,

Rich Nunn

-----

**A**nyone seen this video before? I have just come across it and was intrigued by the Horten style model shown near the start, anyone know anything about it?

Model airplanes in 1928

<http://youtu.be/M0-QZzJPGcl>

This is the oldest film I have found showing model airplanes. One or two interesting rubber powered models here like the blended wing model.

John Newton

-----

**I** made two video reports of the flying models. Later I will make one of the DragonWing presentation. The wooden models by Andrés Chavarria:

<http://www.youtube.com/watch?v=std5RakKbCQ>

The first prototype of the DragonWing flew again after two years of storage:

<http://www.youtube.com/watch?v=V-WRZT9yB6o>

All the previous videos of the DragonWing can now also be seen. I made them visible to everybody now. No longer a secret. The presentation at the meeting will show one special thing about the DragonWing. Just give me time to edit the videos I will receive this week. DragonWing playlist:

<http://www.youtube.com/playlist?list=PLDCA8C7528404A497>

Keep that brain spawning wings,

Koen Van de Kerckhove

**H**ello everyone. My name is Dewey and I'm new to the group. I wonder if anyone knows whether the technical drawings for the H1b still exist and if it would be possible to obtain a set. This group has more photos of the H1b (in varying states) than anywhere else on the web. It appears to be a structurally simple design and based upon the videos, it seems to be a very stable aircraft.

Dewey

**S**o it happens I have a set of the H1c drawings. And Jan Scott (the copyright holder) is no longer enforcing the copyright (in essence making them public domain).

I have a PDF of the drawings. They are NOT plans, more like assembly drawings.

Al Bowers

**T**hank you very much Mr. Bowers. I was unaware of a "C" model. Can you tell me what the differences were between the B and C? A cursory look at the drawings gives me the impression that the wings were demountable and the skid was retractable but the wing planform appears to be the same.

Dewey

*(ed. – There was no further reply through the bulletin board to this query.)*

-----

**M**aybe you recall my BirdGlider proposal on my website.

<http://www.nestofdragons.net/weird-airplanes/few-of-my-thoughts/the-bird-glider.aspx>

Well, I made the decision to see with some engineers if it is possible to make it ... for real ...full size ...manned. Is it flying wing enough to be discussed here?

Keep that brain spawning wings,

Koen

---

**AVAILABLE PLANS & REFERENCE MATERIAL**

**Tailless Aircraft Bibliography**

My book containing several thousand annotated entries and appendices listing well over three hundred tailless designers/creators and their aircraft is no longer in print. I expect *eventually* to make available on disc a fairly comprehensive annotated and perhaps illustrated listing of pre-21st century tailless and related-interest aircraft documents in PDF format. Meanwhile, I will continue to provide information from my files to serious researchers. I'm sorry for the continuing delay, but life happens.

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

**Books by Bruce Carmichael:**

**Personal Aircraft Drag Reduction:** \$30 pp + \$17 postage outside USA: Low drag R&D history, laminar aircraft design, 300 mph on 100 hp.

**Ultralight & Light Self Launching Sailplanes:** \$20 pp: 23 ultralights, 16 lights, 18 sustainer engines, 56 self launch engines, history, safety, prop drag reduction, performance.

**Collected Sailplane Articles & Soaring Mishaps:** \$30 pp: 72 articles incl. 6 misadventures, future predictions, ULSP, dynamic soaring, 20 years SHA workshop.

**Collected Aircraft Performance Improvements:** \$30 pp: 14 articles, 7 lectures, Oshkosh Appraisal, AR-5 and VMAX Probe Drag Analysis, fuselage drag & propeller location studies.

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

**VIDEOS AND AUDIO TAPES**



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

**VHS** tape containing First Flights "Flying Wings," Discovery Channel's The Wing Will Fly, and ME-163, SWIFT flight footage, Paragliding, and other miscellaneous items (approximately 3½+ hours of material).

Cost: \$8.00 postage paid  
 Add: \$2.00 for foreign postage

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

Cost: \$10.00 postage paid  
 Add: \$ 2.00 for foreign postage

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

Cost: \$8.00 postage paid  
 Add: \$2.00 for foreign postage

**An Overview of Composite Design Properties**, by Alex Kozloff, as presented at the TWITT Meeting 3/19/94. Includes pamphlet of charts and graphs on composite characteristics, and audio cassette tape of Alex's presentation explaining the material.

Cost: \$5.00 postage paid  
 Add: \$1.50 for foreign postage

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

Cost: \$8.00 postage paid in US  
 Add: \$2.00 for foreign postage

**VHS** of Robert Hoey's presentation on November 20, 1999, covering his group's experimentation with radio controlled bird models being used to explore the control and performance parameters of birds. Tape comes with a complete set of the overhead slides used in the presentation.

Cost : \$10.00 postage paid in US  
 \$15.00 foreign orders

**FLYING WING SALES**

**BLUEPRINTS** – Available for the Mitchell Wing Model U-2 Superwing Experimental motor glider and the B-10 Ultralight motor glider. These two aircraft were designed by Don Mitchell and are considered by many to be the finest flying wing airplanes available. The complete drawings, which include instructions, constructions photos and a flight manual cost \$250 US delivery, \$280 foreign delivery, postage paid.

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