



# *The R/C Flyer*

Volume 36, Issue 2

February 2011

Next Meeting – February 10, 2011, Clear Lake Park Building– 7:00 PM



## **IN THE PITS**

*by Michael Laible*

The first meeting of the 2011 is in the history books. Once again, the members came out in full force and showed their new models. Please look in the MEETING NOTICE section for a write up.

Also making history is the new paved runway. At the January meeting the club announced the construction of a new runway. I do not know how it happened, but it did. We had a couple of shaker and movers that pushed this project over the top.

The contractor decided the old pavement should be removed and at least 2" of new asphalt was required for repaving. The project started and has been on hold since all the rain and cool temperatures.

Before the rain they did get the old asphalt removed. They also will need at least a 70 deg day to repave. So please everyone be patient and the job will get done. Below find a few pics of the field scraped and ready for the first annual float fly. (joke)



As can be noted below, we finally got our port-a-can!! Ahh, just joking, this is the construction crew port-a-can. Maybe with some persuasion we can ask them to forget it and leave it in place!!! I would want to move it behind us – you know – sorta don't like being down wind.



Please look at the Special Event section for the February meeting. Several of our members know Mr. Jones and coordinated a special event for us. Tom agreed to give our club a special showing. It should be entertaining.

I will keep my section short because we need the pages for all the great articles I received. Remember this is your news letter and you can submit tips, building tips, etc. Thanks for helping this month. Enjoy.

This is all for this month.

Until next month,  
Safe Landings,  
Mike

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## **FEBRUARY SPECIAL EVENT**

The next JSCRCC club meeting on February 10<sup>th</sup> will have a featured speaker, Tom Jones, a scientist, author, pilot and former astronaut. Tom has done it all from flying B-52Ds to flying on four Space Shuttle missions. Tom will talk about his research and resulting book he co-authored titled "Hell hawks" about a band of young American P-47 pilots in the 365<sup>th</sup> Fighter Group during WWII. Many pilots and ground crew members were interviewed, a total of 183 interviews over a four year period, to tell the real life story of these courageous young men.

Come join us for an interesting program, guests welcome, and if you have a model of the P-47 bring it to the meeting to help commemorate the brave men of the 365<sup>th</sup>.

The meeting will start at 7:00pm as usual.



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## **OUTREACH OPURTUNITY**

*by Ron Madsen*

One of my church friends works somewhere in the Galveston Medical Center and has access to an indoor arena (14,000 sq ft). He has offered to get me into that arena so I could do some indoor EP flying, which is an attractive offer. Also, he thinks that he could make it available for an EP flying event particularly if it could be done in such a way that the children from the several medical facilities could watch.

I thought that this might be a great way to get in some EP air time during the colder

Ron Madsen

*(Editors note: OK guys, what do you think? Anybody up for leading this event?)*

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## THE NEW DAVIS AIRFOIL

*by Herman Burton*

The B-24 Liberator was the most produced bomber of World War II, eventually culminating with over 18,000 aircraft being built. The success of the plane was due, in large part, to a never attempted radical wing design. The Boeing B-17, and other bomber designs of the day, had a traditional wing design, with what was considered at the time an appropriate "aspect ratio", which was the ratio between wing chord and wing span.

But in 1938, a young engineer with some radical ideas about airfoils and wing design began working at the San Diego, California, manufacturing plant of Consolidated Aircraft Corporation. His name was David R. Davis, and his idea was to design an airfoil roughly the shape of a falling drop of water. It sounded simple in design, but in fact had never been tried before.

After Consolidated's Chief Engineer, Mac Laddon, checked the design, the wing was tested at Cal Tech's wind tunnel. The results were so astounding that the engineers at Cal Tech thought the tunnel had malfunctioned, since they were measuring 102% efficiency – two per cent more than theoretically possible!

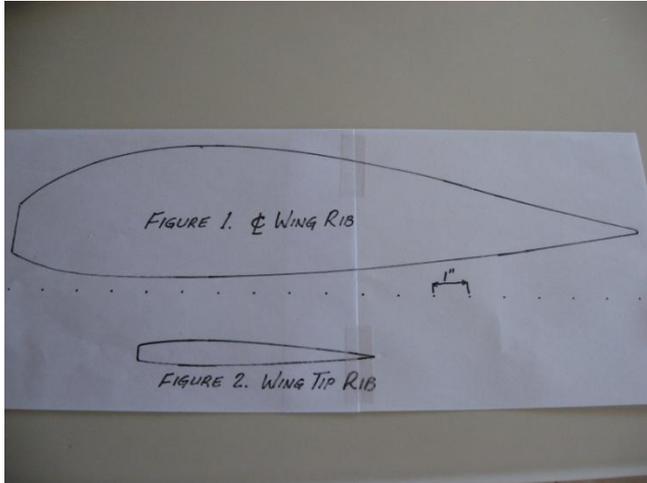
The first aircraft to use the new Davis wing was a new flying boat, the Consolidated Model 31. The wing measured 110 feet in span, but was narrow in its chord dimension. Part of the reason why the wing could be built so narrow was the Fowler flaps that were an integral part of the design. These retractable flaps substantially improved low speed takeoffs and landings. [NOTE: the B-24 model presently under construction also uses fully retractable Fowler flaps.] But the major reason for the improved performance of the aircraft was the Davis airfoil with its very high "aspect ratio" wing.

The Model 31 proved beyond any doubt the efficiency of the Davis airfoil. With war looming on the horizon, the Army Air Corps issued a specification for a new four-engine heavy bomber in the summer of 1935, calling for a 300 mph top speed, a 3,000 mile range, a service ceiling of 35,000 feet, and a bomb payload of 8,000 pounds. Consolidated answered the specification with their Model 32, later to be designated the XB-24 by the Army Air Corps.

The XB-24 with its Davis airfoil not only allowed this new plane to carry the same bomb load as its rival, the Boeing B-17 Flying Fortress, but with a greater speed and a longer range. In the spring of 1939, with events in Europe certainly pushing the world into war, Congress voted to expand the Army Air Corps to a total of 6,000 aircraft. The B-24 design came along at just the right time, with just the right capabilities, to eventually become the most produced bomber of World War II. And the most important reason for the planes stunning success was the new Davis airfoil. And after some 18,000 airplanes constructed in five different manufacturing plants scattered across the United States, the B-24 Liberator production came to an official end in June of 1945.

The 1/9<sup>th</sup> scale Don Smith B-24 with a 146" wingspan presently under construction incorporates the Davis airfoil plus the retractable Fowler flaps. Mike Laible is building the tail feathers and fuselage, and I am building the wing. Figure 1 in the following photograph shows rib #1 of this giant plane at the centerline of the wing. The rib is slightly more than 17" long. It is easy to see the "falling water drop" shape of the rib that David Davis theorized would be a better airfoil configuration.

Figure 2 in the same photo shows the last rib of the wing, rib #24, some 70" outboard of the root rib.\* Quite a drastic change of shape, which accounts for the very high "aspect ratio" of the Davis airfoil. But with four OS 110 four stroke engines, and 15% flaps on takeoff, this big baby should lift off the ground with very little elevator input from the transmitter. The plans are to have this beautiful bird in the air this summer.



\*As is quite common in big bird construction, a solid balsa block makes up the last 3 inches of the model's wing, which, when added to 70" from the root to the wingtip, makes 70" + 3" = 73", which is exactly half of the advertised 146" wingspan.

## **BUILD A BETTER AIRPLANE**

by David Bacque

Good flying starts with a good airplane. Whether you build the plane yourself or fly an ARF, there are things you can do before you ever take the plane to the field that will make it a better flier. Things like make it straight and balanced. Pretty basic stuff. But some of the basics are frequently missed. Here are some tips to make your plane perform as well as it can and they all apply to either kit builds or ARFs.

To start with, make the plane straight. The wing and tail surfaces must all be square to

the fuselage and true. The place to start is attaching the wing. To square the wing to the fuselage, measure from each wing tip to the aft tip of the fuselage. When the measurements match, the wing is square to the fuse, attach it right there.

When you attach the stab to the fuse it absolutely must be parallel to the wing. This is a very important adjustment and can only be made when assembling the plane. Pin the stab on the fuse and sight across the stab to the wing, making sure that the stab is not tipped to one side or the other. This adjustment is crucial for the plane to loop straight. If necessary, trim one side of the stab saddle until everything lines up, just be careful not to change the incidence of the stab. You also need to square the stab to the fuse, you can either measure from each stab tip to a point on the fuselage like you did for the wing or you can measure from stab forward to the wing. Only when everything is lined up with the wing and square to the fuse should you glue the stab on.

The fin is a little easier. Use a square to set it 90 degrees from the stab and sight down the fuse to make sure it's straight. With all the flying surfaces square to the fuselage and properly aligned, you're well on your way to a better flying plane.

If you're building the plane, balance the wing before you cover it. If it's an ARF, balance it too. You can use stick on lead on the underside of a wing tip or get more creative by inseting the weights and covering them. Lateral balance is important for straight loops and good inverted flight performance.

If your wing is of typical built up construction and has a film covering, you can correct for any slight twist built into the wing. This will reduce the amount of aileron trim required and will help prevent the tendency to drop

one wing in a stall. To do this step you will need an incidence meter. The incidence meter's primary use is setting wing and stab incidence but it can also measure wing twist.

To check the wing for twist, attach the incidence meter to the root of the wing and block the plane up so that the meter reads zero. Then move the meter to the wing tip. If the reading changes, there is twist in the wing. To correct the twist, twist the wing the other direction until the covering wrinkles. While holding the wing twisted, use your heat gun to shrink the covering on both sides of the wing. The covering will hold the twist in the wing. Now check again for twist. It may take several attempts but you can get a lot of twist out of a wing with this technique. Check both sides of the wing and get everything as close to zero as you can. This will help eliminate tip stalls and excessive aileron trim.

Once you've done all of this, be sure to check the CG of your new plane before taking it out to the field. Balance it according to the plans. You're now off to a good start in having a good flying airplane.

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## **LAUNCH CONTROL**

*By Mike Laible*

*Thought you guys would like this. The first US Mission Control Center*

NASA Great Images in NASA Collection

Dr. Robert H. Goddard observes the launch site from his launch control shack while standing by the firing control panel. From here he can fire, release, or stop testing if firing was unsatisfactory. The sandbags on the roof provide protection against possible accident. Date: 03/16/1963



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## **Model of the Month (MOM)**

Mike Laible won with his Skyshark P-40 Warhawk. The Warhawk is powered with a Fuji 50 and has CJM retracts. Weighs in at 20 lbs. and fly's like it is on rails.



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## **MEETING NOTES**

*by Kent Stromberg*

New members/visitors

David Angle  
Jon McFather  
Joe Campopiano

Model of the year Plaque was presented to Charlie Teixeira.

Mike announced new paving of runways  
Flight line closed for about 3 weeks or so

Jerry made a suggestion to cover building techniques at each meeting. Vice President will coordinate

Below you will find some pics of the JSCRCC January meeting. The models and show in tell were outstanding



Larry Baily with his Bell Ranger. This is outfitted with a control system that allows flight without a fly-bar



Mike McGraw with his first electric plane. He is as lost as I am with mine!!!!



This is a new member, Jon McFather and his scratch built plane. I didn't remember the make, but I believe it is an SE-5



How did these guys get in. Anyway, a couple of rocket show and tells. Really impressive.

