

the L.A.S.S. Edition

December 2011

November Meeting

Reported by Allan Worrest

The November 1, 2011 LASS meeting convened at the Willard Center with Treasure Jim Baker presiding. Last month minutes were approved. Jim reported no there was no change in the treasury.

OLD BUSINESS:

Nothing new has taken place with the Event Center. Jim expects to meet with them next month. Discussion followed about next year field rental. No action was taken.

We still don't have a key for Willard. Fortunately the building was open to us this month.

I moved that we should elect this year's officers for another term by acclamation. There were no objections or alternate candidates for the posts. Motion passed.

NEW BUSINESS: - NONE

SHOW & TELL:

Jim Baker showed off his JR digital 285, a high speed, ultra micro servo. I brought my recently completed Mk II Chrysalis.

Chrysalis Mk II

D J Aerotech's Chrysalis comes in three varieties, hand launch, 2-meter sailplane and the 2-meter motor glider. I purchased the Mk II motor glider about five years ago but didn't get around to building it until early this fall. The plane is a simple polyhedral, 2-meter RES motor glider. It is sold as a kit consisting of a lot of laser-cut wooden parts. It can be purchased online from D J Aerotech at <http://www.djaerotech.com>

This plane is the subject of several threads on RCGroups. It's designer, Don Stackhouse, can often be found there to answer questions about it. In general the plane has received good comments.

Someone wrote that the plane was designed to introduce kit building to those who have never built one before. While the build was not difficult, it is not what I would recommend as the first kit.

The construction is somewhat unconventional. The plans are on four 34" x 44" sheets of paper.

Two sheets are plans and the other two sheets are instructions and drawings for the assembly. The instructions and drawings should be carefully studied. There are details that can be easily misunderstood with a casual reading.

One potential problem area for the new kit builder is the wing's leading edge. It is a 3/16 inch diameter birch dowel bent in a crescent shape. The instructions don't mention that the dowel should be wetted before bending. I suspect there have been a number of broken leading edges. A real problem exists with the shear webs at the dihedral breaks. They set

Chrysalis (Continued on page 2)



Season Greetings

**CLUB MEETING Tuesday
December 6, 2011
7:30 p.m.
Willard Community Center
Folsom & West B Street
Lincoln, NE**

the tilt of the ribs at those locations. These are precut pieces and their tilt is more than what is called for by the instructions. I didn't realize this discrepancy until after I had built the outer wing panels. Rather than tear apart the wing, I decided to live with the larger dihedral on the outer panels and decrease the dihedral at the center which had not yet been built.

The 3-piece wing option design is wanting. If the wing is built as one piece, the construction is straight forward. The 3-piece version needs some revision. The problem is that there are no tubes to guide the wing rods into their correct location. There are just hidden holes in the wing ribs that you find by feel. I made an alteration short of adding tubes. Where the holes are hidden, I added a small funnel entrance piece so they would be easier to find. Another change was to replace the balsa back stop pieces for the rods with light ply. If the rods were inserted too forcibly into the holes, the balsa pieces were likely to split.

The spoilers were a challenge. Each spoiler is driven by a separate servo that is glued to the wing spar. I normally don't like to glue servos in place but I gave it a try on this plane. I found that even after cleaning the servo case with alcohol, RTV does not stick well to the servo. I have read about roughing the servo case with sandpaper before gluing. I chose instead to wrap the servo with paper masking tape before re-gluing. So far that has worked. The most demanding aspect to installing the spoilers was bending the very small linkage wire between the servo and spoiler. I ended up using all the supplied wire before getting the linkage right. 0.032" diameter music wire is sufficiently stiff for the linkage and it bends almost as well as the supplied wire. Stackhouse doesn't recommend using separate channels for each spoiler. He thinks one should learn to bend the links for both spoilers so they are even. I'm glad my transmitter has separate settings for each spoiler so the links didn't have to be perfect.

The supplied horns for the spoilers are laser cut from 1/16th inch ply. Either the servo arm has to be removed from the spoiler servo or the spoiler has to be unattached from the wing to install the linkage. Trying to twist the linkage into place will likely break the spoiler horn. The servos are located where it is not easy to access the screw that holds the servo arm but it can be done with effort.

The plane is designed to be built either with a conventional or a V-tail. I made the V-tail version as it looked better. The sheet balsa stabilizers, by themselves, appeared to be a little weak to me. I strengthen it by vacuum bagging carbon fiber mat to the lower third of each stabilizer.

Regional Events

12/4, 18 LSK Indoor at Calvert Recreation Center, 4500 Stockwell Street. See flyer in last month newsletter.

Instead of locating the motor battery under the wing, I put in it in the front compartment to get the balance right. Stackhouse has written that the plane tends to be tail heavy with the lighter, current day motors and he recommends lengthening the nose an inch or so if the heavier motors that are shown on the plans aren't used. I had purchase one of the recommended motors; but, my reinforcing the tail added some extra weight to the rear. As it is, the plane balances rearward just inside the recommended range. It flies well with some down trim.

I've only flown the Chrysalis during evenings when the light is dead. The airfoil is not specified but it's thin. The wing area however is large for a 2-meter plane. So while the plane flies faster than a Gentle Lady, its glide time is comparable to a good 2-meter sailplane. Spoilers are effective and are necessary for precise landing. I am still trimming the plane. Right now the control surfaces deflect too much. With the rudder stick hard over, the plane will dive into a sudden tight spiral. With reasonable control inputs, the plane is well behaved. My choice of all transparent red covering on the wings was not the best. It is hard at times to tell which way the plane is turning.

I'm using a 2S-1P, 2200 mAh LiPo battery for the motor and the radio. The motor is a MP Jet 28/20-7 driving a Graupner CAM 14-9.5 folding prop. The plane's AUV is about 42 ounces. At wide-open throttle, it will climb at 70 to 80 degrees to about 400 feet in less than thirty seconds. The motor current draw is less than 50 amps. At present I'm using a Castle Creation ICE 50 ESC that records various parameters including temperature in the fuse. Climbing to altitude, the temperature rises more than thirty degrees F because the plane has inadequate provision for venting the airflow over the battery and motor. Come summer, I may have to add some extra exit vents. — A.W.



The Lincoln Area Soaring Society, chartered by the Academy of Model Aeronautics as club #1853, publishes this newsletter. Any material in it may be reprinted without permission provided credit is given to LASS and the article author. Submit articles to the editor at the E-mail AWorrest@aol.com

President: Loren Blinde
Secretary: Tom Wild

Treasurer: Jim Baker
Editor: Allan Worrest