COLUMN SOARING

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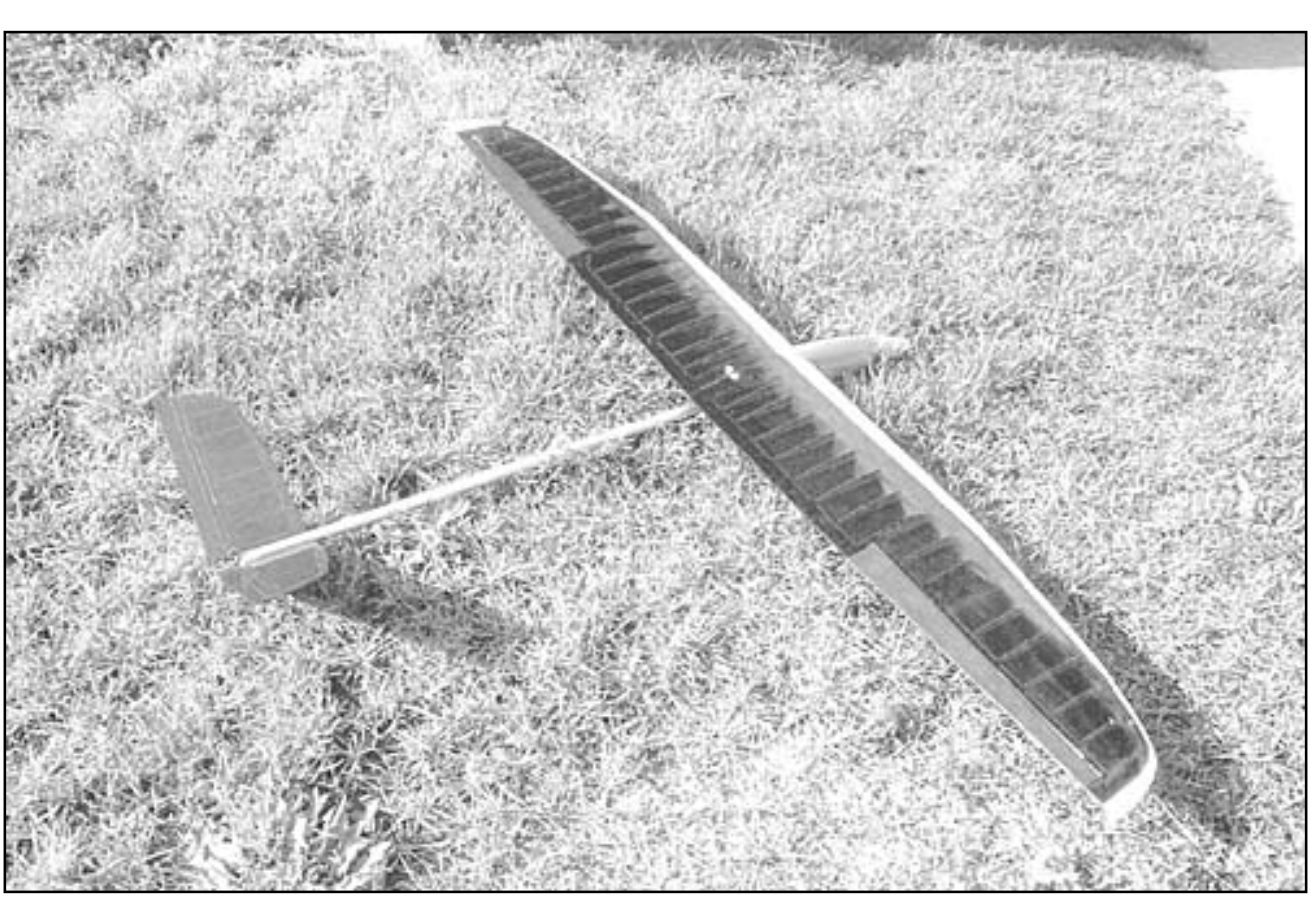
Column Article

SOARING

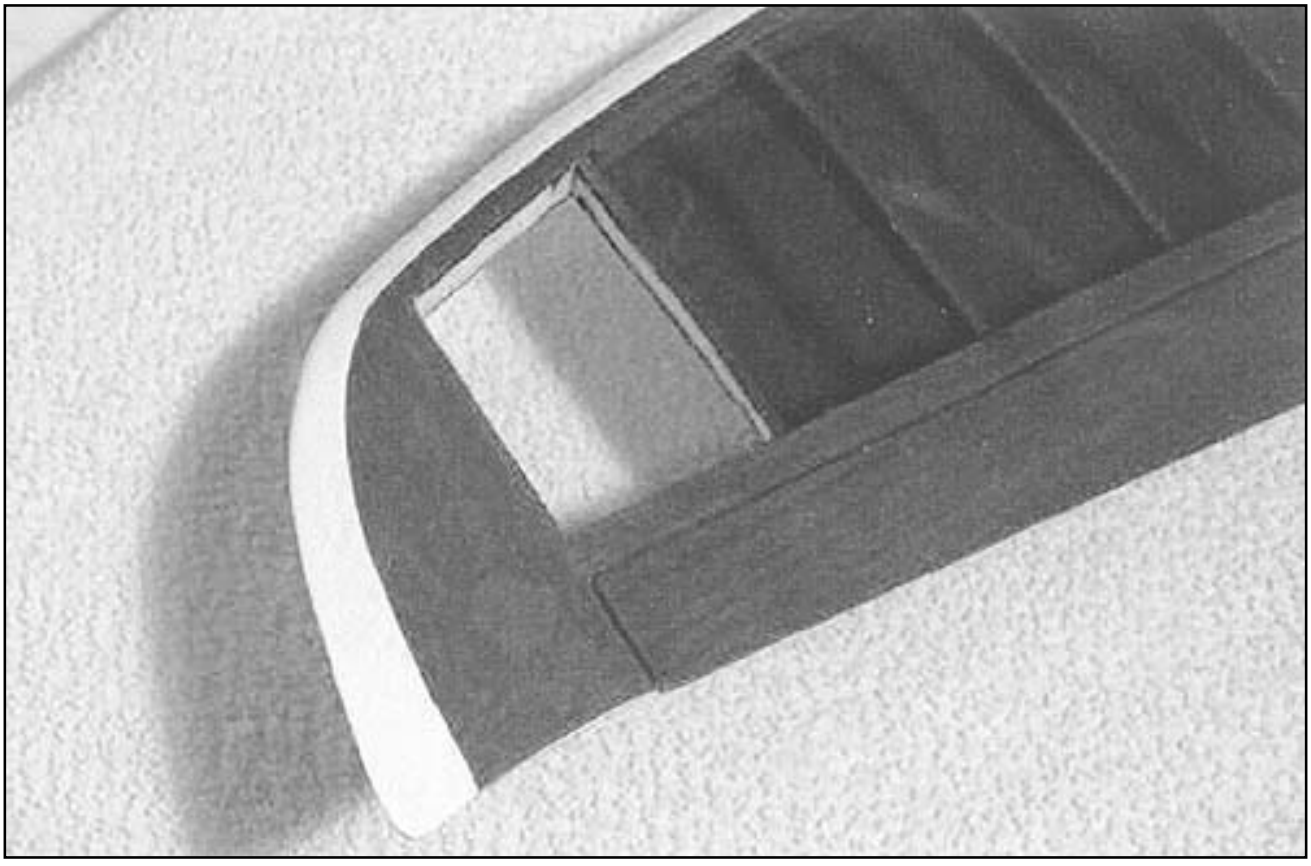
By
Mike Lee



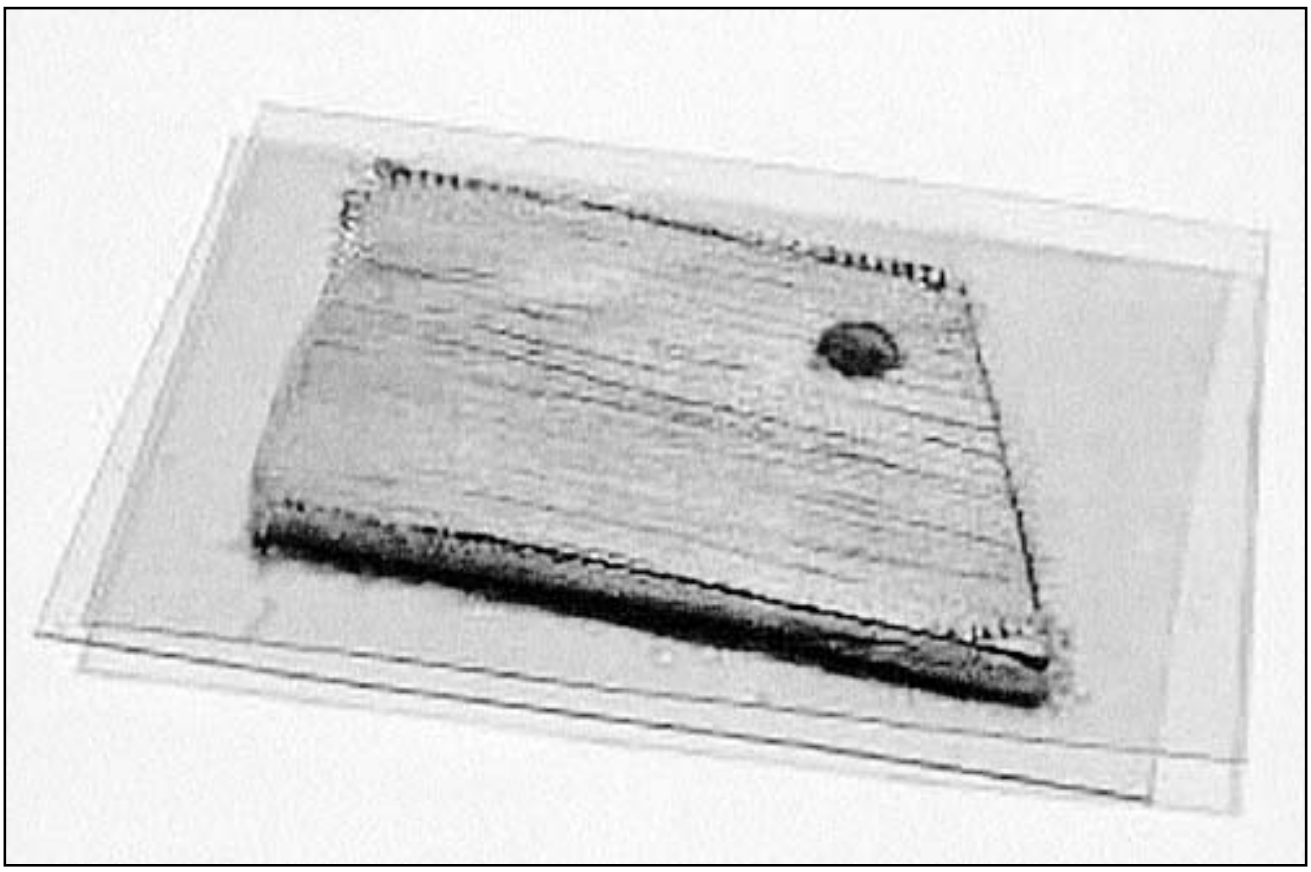
I received an interesting letter from Daniel McCrae, who describes in some great detail the method by which he converts a javelin tossed hand-launch glider into a discus-launch model. Now, I'll first qualify this conversion as one that does not work all the time, as the stress loads from javelin to discus-launch are completely different. However, I thought that the article was of enough to interest or at least give some of our readers a little food for thought about making such a conversion. Here's what Daniel has to tell us.

A few weeks ago, I was in the market to buy an ARF DLG at an affordable price and was disappointed to realize that such a plane would be quite difficult to find. I was attracted by the carbon "D-box" type of wing design like the Koleos from ICARE, but knew this was originally designed for javelin type launch and not discus. The owner at ICARE, Etienne Dorig, told me this conversion was feasible and that it had been done successfully several times already. The fully carbon sheet leading edge of the wing was so strong that it could withstand the added stress associated with discus launches without any problems. The good news was that the plane was selling for only $179.00. Here are the steps I took to make the conversion.

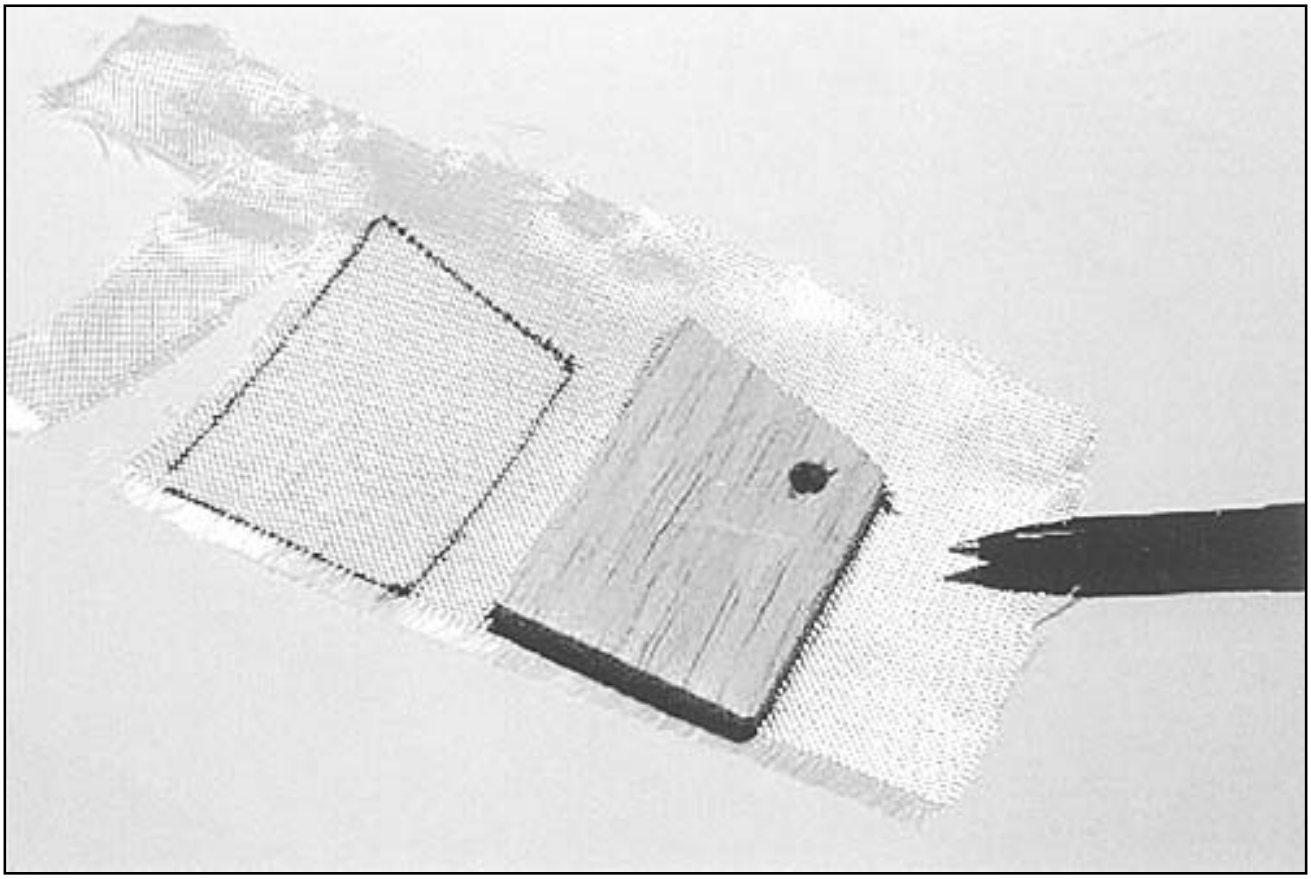
1. Cut the film covering off the outer wingtip and first bay to open the rib bay. Photo #1.



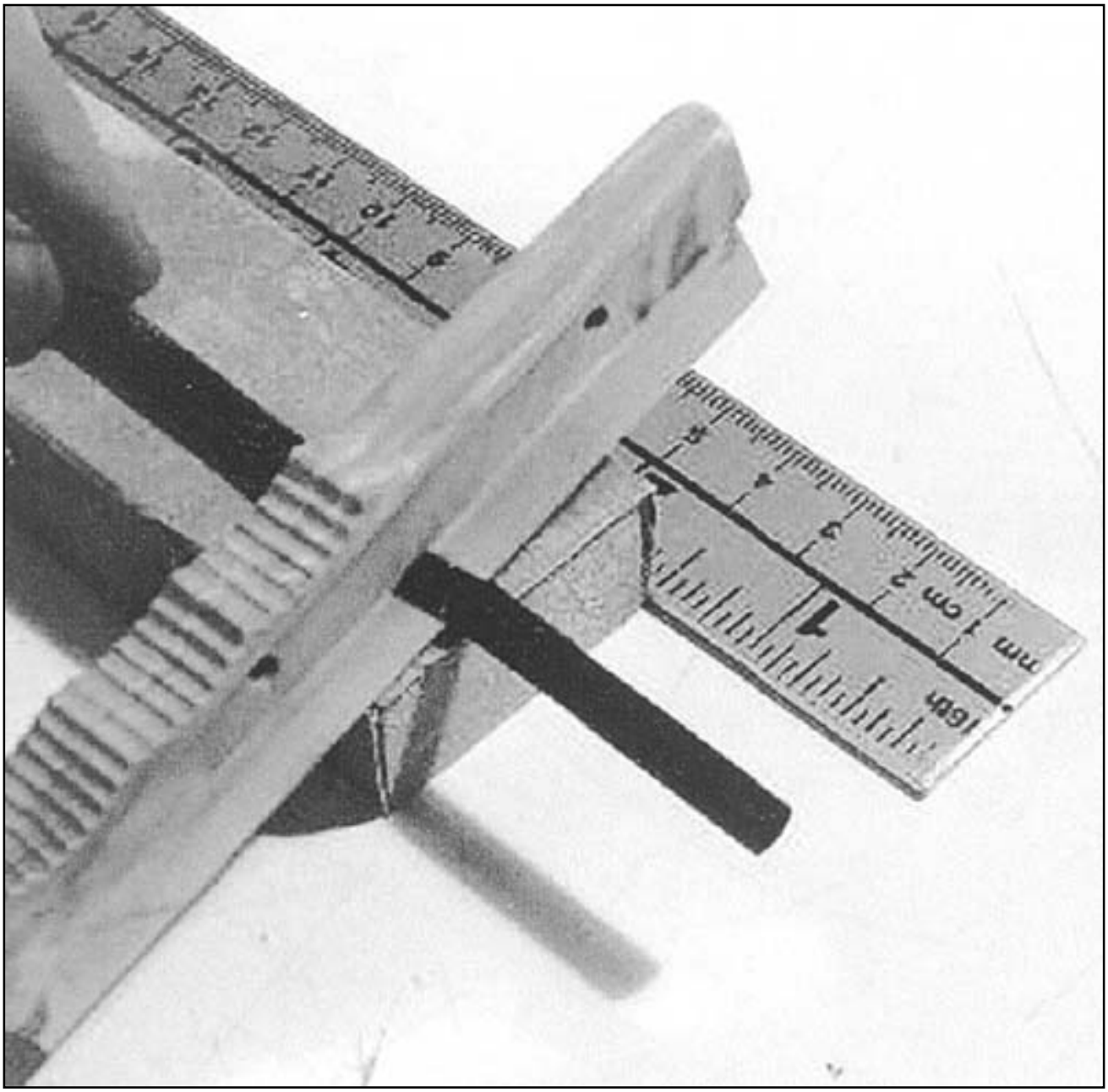
2. Using the rib bay as a template, cut out a balsa filling block. I used 3/16" balsa plank that closely matched the wing trailing edge. Set the wing aside. Photo #2.



3. Using a 3/16" OD arrow shaft or kite tube, cut out a piece 1-1/2" long. Photo #3.



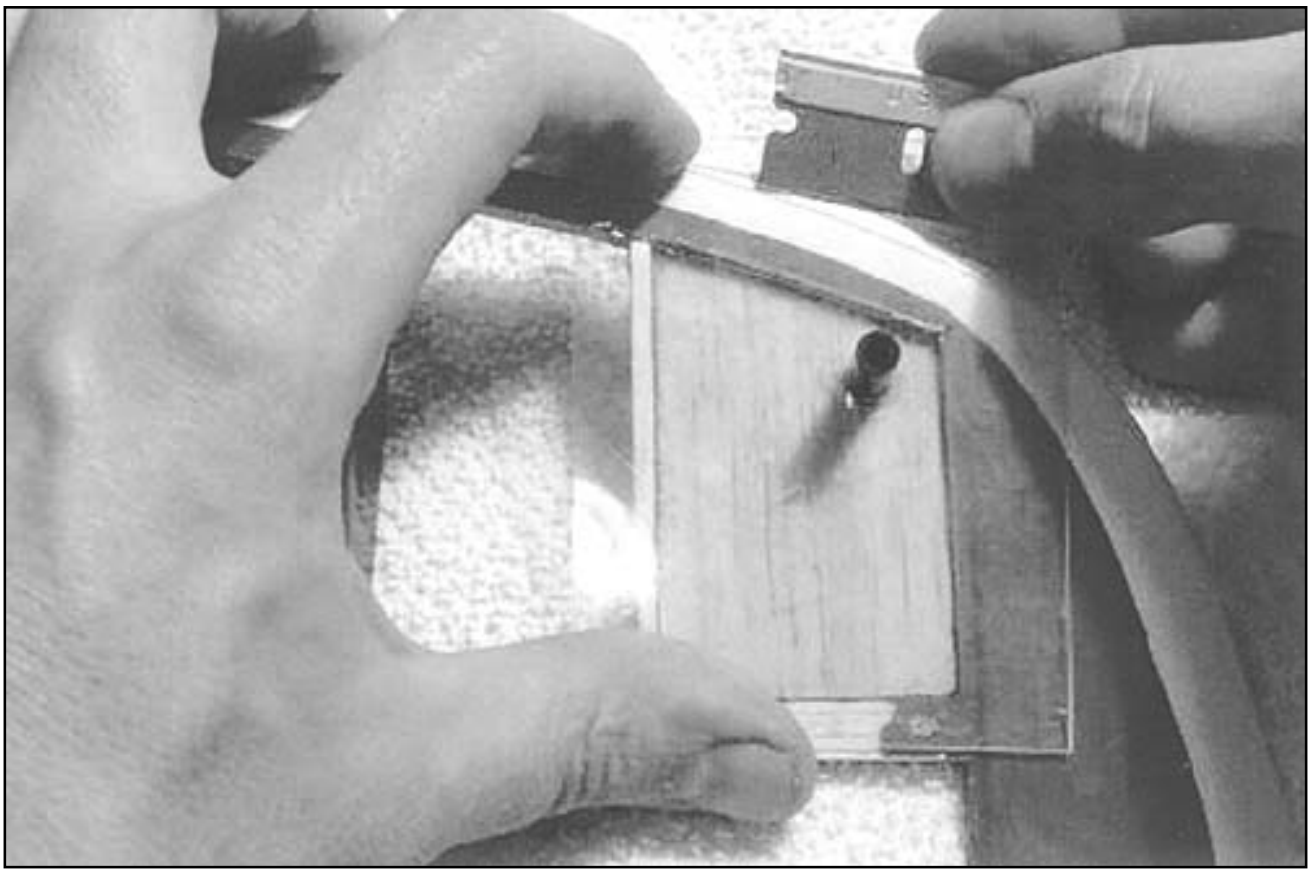
4. Drill a 3/16" hole in the top corner of the balsa filling block, approximately 1/2" away from the corner. Photo #4.



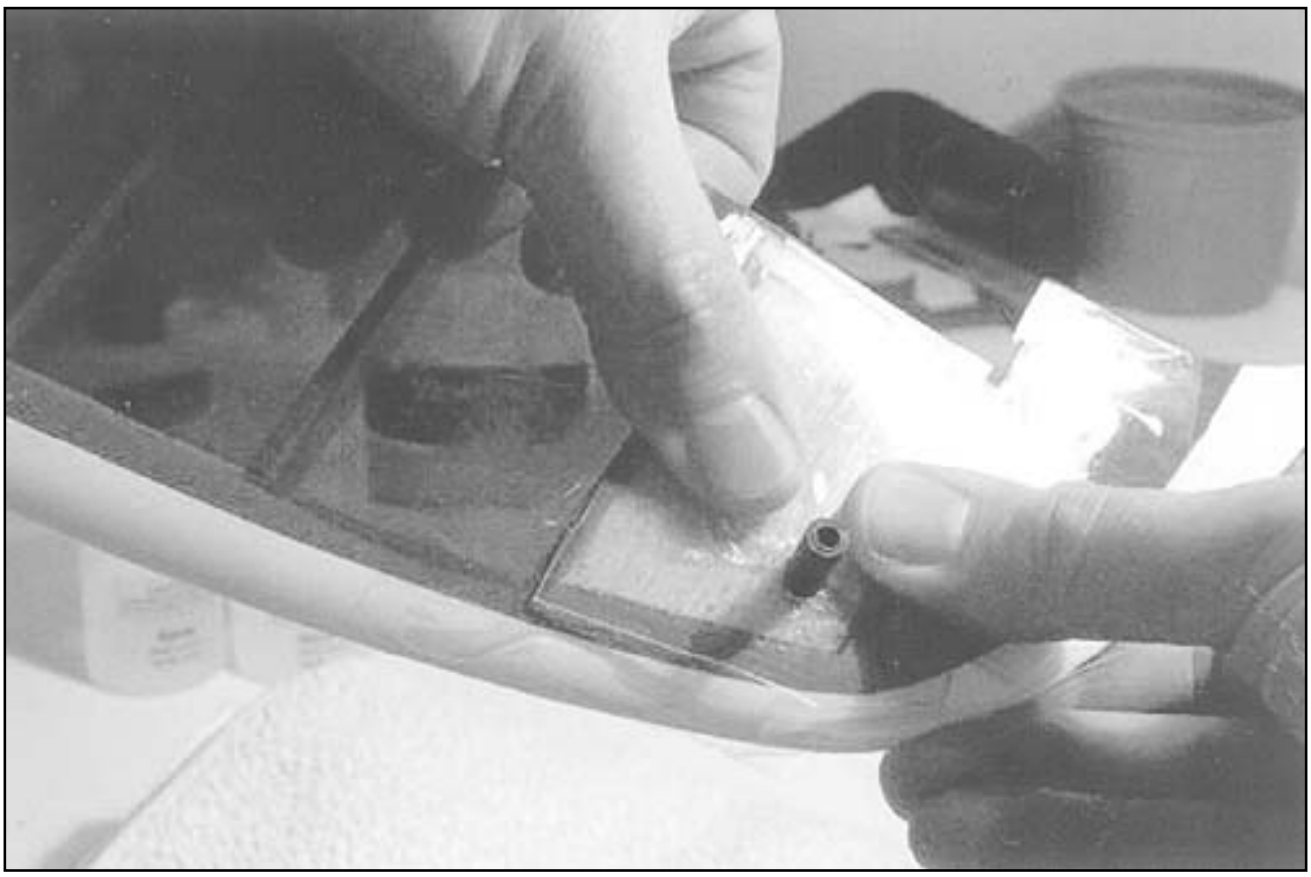
5. Wrap the balsa block in 2 oz. fiberglass cloth, top and bottom, and glass it using 6-minute epoxy. I placed Mylar strips, top and bottom, and then weighted the assembly to get a good bond, and squeezed out the excess epoxy. Photos #4 and #5.

6. Once the epoxy is set, remove the Mylar strips and clean out the peg hole with a hobby knife. Test-fit your throwing peg into the hole and make sure it is perpendicular to the wing and balsa block. Once satisfied, CA glue the peg in place.

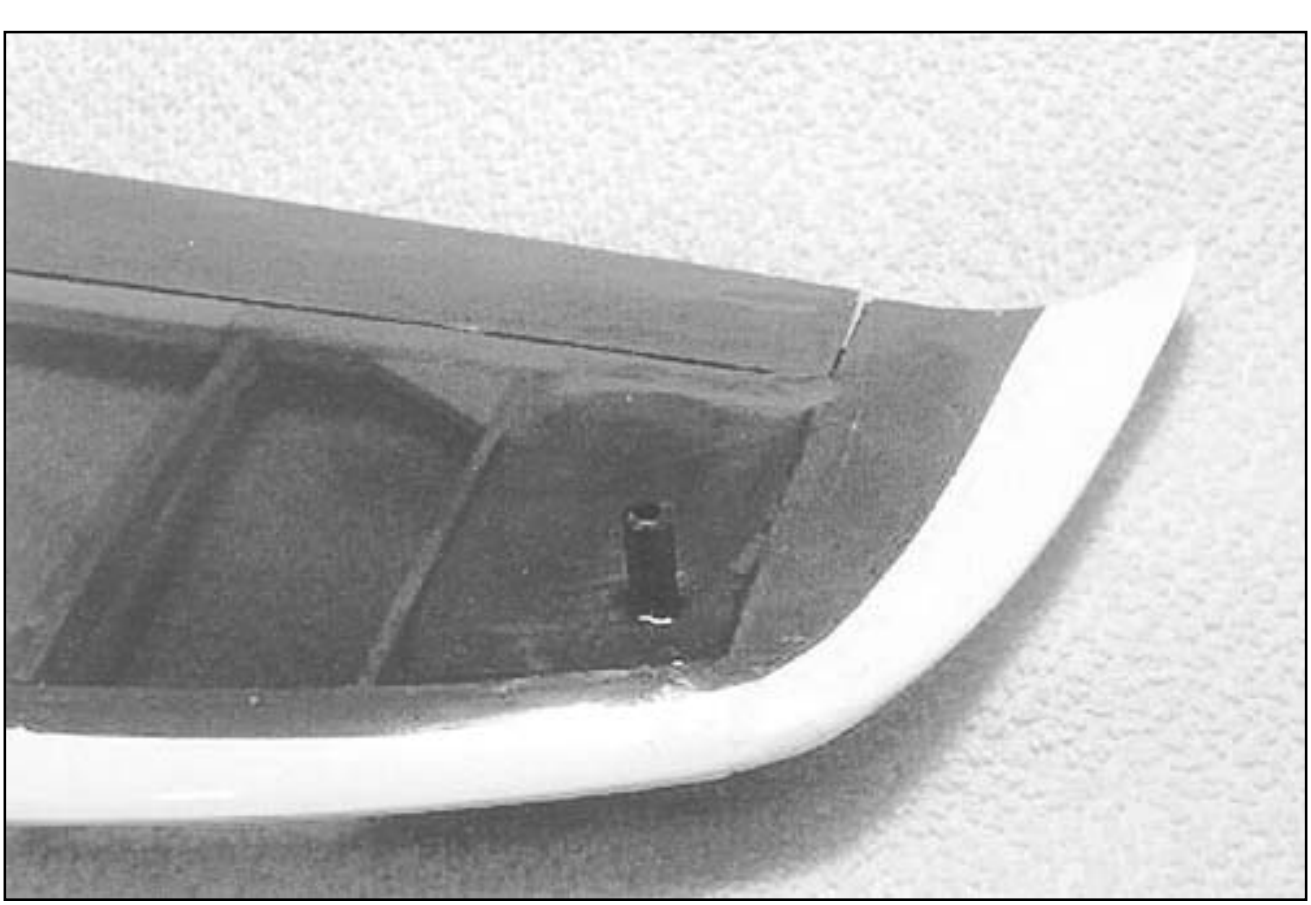
7. Now, test-fit the balsa block back into the rib bay and sand or cut as necessary to make a good fit into the bay. Photo #6.



8. Cut two small Mylar pieces that will closely match the wingtip shape over the open rib bay, top and bottom. You will need to drill a hole into the Mylar to allow the peg to poke through. Photo #7.



9. Using 6-minute epoxy, and working one side at a time, fill the remaining spaces not occupied by the balsa block with epoxy glue. Cover the glue mix with the Mylar strip and work the glue evenly from the trailing edge to the leading edge and around the peg. Do the bottom side first to get the feel of it if you have not used this technique, then do the top side. Photos #8 and #9. (You may notice I cut the film out of the adjacent wing rib bay to give me more working space. This is your choice.)



10. Once the epoxy is set, remove the Mylar and cover the rib bays with film to match the rest of the wing. The job is complete.

I have flown my DLG converted Koleos several times now. It goes up like an arrow with 20 degrees of offset rudder on launch, and like all of those very successful carbon D-box HLG's this has a very competitive pedigree. Have fun!

Thanks to Daniel for all that info. If you want to look up the people at ICARE, you may hit them on the Web at:

www.icare-rc.com

and they have a physical address: 381 Joseph-Huet, Boucherville, Quebec, Canada J4B 2C5. Obviously, this lends itself to converting other models as well, but do take the time to check out the overall structure. As I mentioned earlier, discus launching puts a different type of stress on your model than javelin.

Different Stuff Department

Here's something you might look into. For a couple of years, I have been using a solar panel to do some field charging to my smaller battery packs. I recently purchased another panel that was rated at 1.8 watts power at 25 volts. Now, I realize that 15 volts is way above our normal voltage range for a flight pack. But, if my memory serves me right, you can take watts divided by volts and find out the amp hour

output. Accordingly, this panel was calculated to put out some 125 mAh of power. This was confirmed by the package label on the solar cell. Okay, so if we use that formula to calculate the mAh rating for 9.6 volts, then we should have 188 mAh output. And for a 4-cell pack at 4.8 volts, we should get 375 mAh. (You electrical wizards should feel free to jump in here and correct me if I'm wrong ... and I might very well be.)

But at any rate, I did also take the precaution of hooking up my VOM meter to the solar cell while it was connected to a battery pack, and it appears the amp input is quite close to the calculations. What is also nice about the panel I purchased is that this panel has an LED indicator to show you have power flowing as well as having the correct polarity. Now, I don't leave my packs hooked to this thing all day or even for more than 30 minutes. I use this to add a little juice while I socialize at the field, and I don't need anything else like a 12-volt battery to make it work. I also check my flight pack battery quite often before a flight, which seems to bear out that the panel is doing its job. Anyhow, this is a neat little gadget to have around and it's cheap.

Tech Tip Time

Let's talk about tape. A lot of us use plastic tape to hold the wing panels to the fuselage, or the tip panels to the center panel. So, let's do some tech tip stuff with tape to get the best results from it.

My first recommendation is to use only high quality vinyl tape. Over the years in which I have messed with this stuff, I have found that vinyl tape gives me the best results in terms of flexibility, adhesion, and tear resistance. The tape has to be flexible to get around the leading edge, or where the wings meet the fuselage. The adhesion of a vinyl tape is very consistent, even when stretched a bit, making the joint strong. And for tear resistance, a vinyl tape will stretch rather than break apart when subjected to sudden shock (read that as a dorked landing). A poly type tape won't flex real well without wrinkling. I have found the poly tapes are also not good when it gets a bit warm outside, meaning the adhesive tend to loosen up. For the most part, the adhesive is pretty good. In fact, too good in some cases. If you apply it over a film-covered surface, the tape tends to pull up the covering easily. And then the tape itself tends to shatter on sudden shock.

For anyone using cellophane tape ... good luck! Although the adhesion is pretty good, the film is so thin that you have to use sharp fingernails to pry it up on one corner so that you can remove it. Hopefully, you won't dent the wood underneath. It doesn't stretch at all, meaning it simply shatters, and heaven help you for the mess it leaves on your plane after about three months. In my opinion, don't even bother using cellophane tape except when there is nothing else left in the equipment box.

Now, I mentioned that the tape can sometimes pull up the wing covering film when removing the tape. Vinyl tapes have a bit lower adhesion level, but it will pull up the covering just the same, given time. My solution has been to lay down a very high quality tape on the wing to be left there permanently. This would be placed right along the edge of where the wing joining tape would be placed, and on both mating surfaces. That way, when you join the wings and place a length of tape on top to hold the joint, the tape will be on the wing tape, not on the wing covering. When you remove the joiner tape, it will be pulling up on the protective tape, not the wing covering, thus saving the covering.

Vinyl tape is available in a variety of colors, making it possible to color coordinate the joints for you. I

personally like the 3-M brand of tape, found in the electrical department of most hardware stores. And for the wing protective tape, I like using the clear polypropylene tape found also in the hardware stores.

What else can you do with tape? I tape the skeg of my big bird in place; that way, if the skeg hits something really solid, like a rock, the tape will break away and save the fuselage from damage. I also hold the nose cone of my model in place with a dab of tape. When you do contest work, most pilots know that if anything falls off the plane on landing, it's a zero point landing. And I have seen some nose cones slide off on landing. Same goes for a canopy. Why risk it? How about the antenna routed down the inside of your fuselage? I hold it in place at the tail with a piece of tape to prevent it from sliding back inside. And last, I place a length of tape around the crystal in the receivers of my HLG models, because I have had more than a couple of occasions when the crystal has backed out from the stress of discus launching. It's not an item you think of all the time, but tape plays an important part in our hobby. Make sure you use the best you can for the best results.

That's my column for the month. I have just received a couple of new receivers that are worth looking at for small aircraft, like HLG, or anything that needs to be on a diet. The first is the Berg 5 DSP, using digital signal processing on an FM carrier. This digital signal processing apparently does a similar job as does a dual conversion type receiver by clipping off adjacent noise with the signal. The other receiver I have is the new FMA Direct M5. This is a dual conversion micro receiver that weighs in at 9 grams without crystal (but hey, just how much does a crystal weigh?). I will bring you a close examination on these two jewels next month. Things just keep getting better with R/C electronics. Ya gotta love it! Drop me a line or hit me on the e-mail at:

mlee8249@aol.com

If you're not living on the edge, then you're just taking up space! So, go fly.

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