The Flightline

Volume 35, Issue1 Newsletter of the Propstoppers RC Club AMA 1042 January 2005

President Steve Boyajian's Message

First and foremost, I would like to wish everyone Happy New Year and hope everyone had a wonderful Holiday Season. In addition, I would like to take a moment to thank Keith Watson for serving the club as President last year; especially challenging being that it was his first year with the club.

Well most of you know who I am, so I'll keep my introduction very brief. I've been in the hobby for the last 20 years flying both planes and helicopters. At this point in time, I spend most if not all of my time flying helicopters as it continues to prove to be a challenge and a thrill at the same time.

So far this past year has been a real disappointment in respect to our flying fields. I am hoping that it is a blessing in disguise and that we will find a top-notch field this upcoming year. To make this happen, we are going to need everyone's assistance with the field search. We cannot expect one or two people to make it happen, it will take everyone's effort. It is very important that everyone start coming to the meetings so that we get organized and communicate our efforts.

Agenda for January 4th Meeting
Marple Newtown Library, 7:30 pm

- ?? Approval of December meeting minutes
- ?? Membership Report
- ?? Finance Report
- ?? Plans for Club Auction
- ?? Flying Field Issues
- ?? Plans for Fun Events
- ?? Show and Tell

INSIDE THIS ISSUE

President Steve Boyajian at Sleighton.

You may be asking yourself, what kind of field are we looking for? Our goal should be to find a field that will server all of the club membership, including electrics and sound friendly glow power. You may be asking yourself, did he say sound friendly glow? Yes! This is one area we need to get very serious about if we are to keep a field. I believe that we need to address this issue and make our engines much quieter. Yes this means you may need to run an after muffler or only flying smaller models at the field, but isn't that better than not having a field at all?

If you have some big stuff you want to fly, there are other fields that are more suitable to accommodate those types of aircraft, including Valley Forge and Lums Pond. Of course no changes will be made without the membership's approval, so again please start coming to meetings.

The next hot topic in my mind is discipline in following club rules. Over the years I have seen way too many members, including myself violate club rules. This will need to come to a complete stop if we plan to keep a new field. We cannot afford to have any foolish accidents, crashes, and/or annoyed neighbors because someone did not follow a club rule. These rules are there to protect us, the property owner, and the safety of others. So expect to see some changes here are well. Again please start coming to the meeting to express your thoughts.

And lastly, the topic of fun should be addressed. We need to have much more fun as a club. We need do more things as a group, having fun together. Perhaps have some informal fun flies, a plane build-off competition, a buddy box day for new flyers, guests wanting to try flying, or even for those who just feel more comfortable with someone backing them up. I am sure that we can come up with a number of creative things to do to bring more fun into the membership. So once again, please come to the club meetings and express some of your ideas. I hope that membership likes me vision and support me in these efforts.

Want to talk? Call me on **610-399-6709**

Steve Boyajian, President

Calendar of Events

Club Meetings

Regular Meeting 7:30 pm
Tuesday 4th January 2005
Marple Newtown Library

Tuesday Breakfast Meeting
The Country Deli, Rt. 352 Glenn Mills
9 till 10 am. Just show up.
Flying afterwards, weather permitting

Flying Events

Indoor Flying at Tinicum School 7 – 9pm
Friday 7th January
Friday 4th February
Friday 4th March

Regular Club Flying

At Moore Field till year end

Daily	**10 am til Dusk**
Saturday	**10 am til Dusk**
Sunday	**12 p.m. till Dusk**

Christian Academy after the New Year
Weekdays after school; 3pm till dusk
Saturday 10 am till dusk
Sunday, after Church; 12 pm till dusk

Note; Flying must be done in accordance with the agreement forged by Vice President Dick Seiw ell Specifically, only electric powered airplanes. Beginners using due caution and respecting club rules may fly GWS Slow Stick without instructors.

Propstoppers RC Club of Delaware County, Pennsylvania. Club Officers

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Propstoppers Web Site; www.propstoppers.org
Check the web site for back issues of the newsletter, pictures of club events and the calendar of future events.

Minutes of the Club Meeting, 7th December 2004 at Marple Newtown Library

The meeting was called to order at 7:30 p.m. by President Keith Watson

Roll-call taken by Rusty Neithammer showed 27 members and no guests present.

The minutes of the November meeting as published in the newsletter were accepted by the membership.

Al Gurewicz presented the monthly treasurer's report.

Old Business:

President Keith Watson called for discussion and proposals on selecting a slower, light, electric and easy to handle model that new members could fly and practice their control without an instructor present. After discussion the club decided to approve the "Slow Stick" for this purpose. Approval of other models was left for the future.

He and reminded us that Moore field is our exclusive field until December 31st at which time we move to the Christian Academy field. Dick Seiwell discussed his efforts at securing an alternative field. He investigated three sites without success.

Al Tamburro said he is looking for fields through two realtors.

New Business:

Keith Watson sought nominations for club president for 2005. Steve Boyajian was nominated and elected unanimously.

Show and Tell:

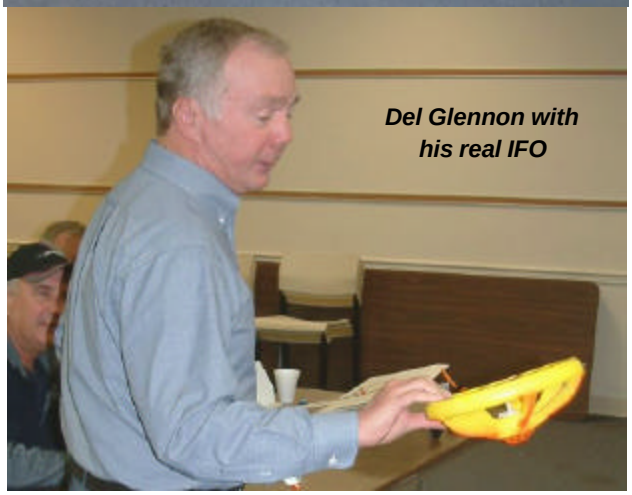
Rick Grothman showed a home built electric und-u that he built from sheet Depron and a stick following published plans. It is powered by a 2-cell lithium pack of 1500 mah capacity. He said it would fly vertical and easily go a half-hour on one charge.

Rick Grothman with 3D Foamy

Del Glennon showed an ARF hover vehicle he got for $12 at A.C. Moore. Point the "Ray Gun" and pull the trigger and that sucker just

leaps into the air and hovers to the ceiling with lights pulsing, just like the real Roswell IFO that is stored in Area 52.

Everyone wants to play, Rusty wins.

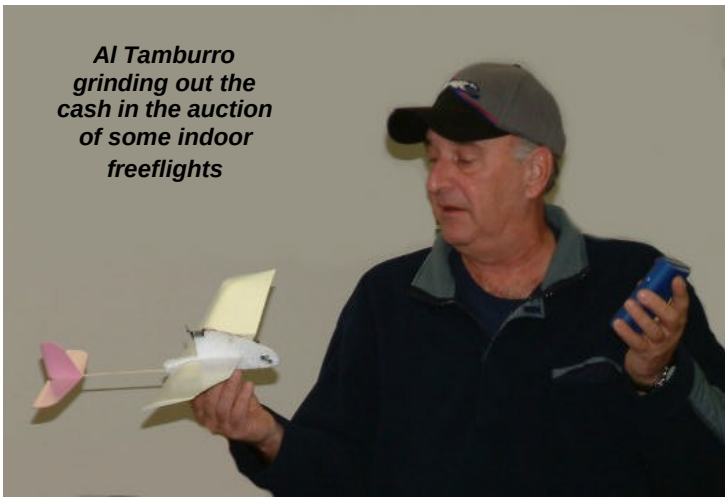


Del Glennon with his real IFO

Secretary Dick Bartkowski showing some of the indoor freeflights

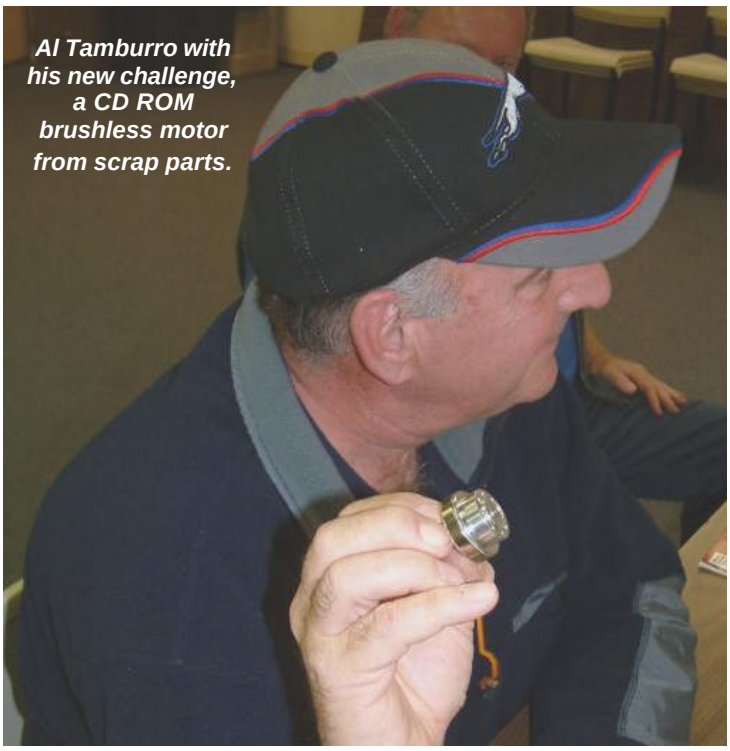
Dick Bartkowski showed two of the indoor "ARF's" that he and Dave Harding are providing to interested club members.

Dick suggested that our auctioneer, Al Tamburro, auction them for the good of the club. Al did so raising $30.



Al Tamburro grinding out the cash in the auction of some indoor freeflights

Al Tamburro showed a CD-ROM motor that he salvaged which appears to be a small brushless. He is looking into using it for a flight motor. It seems that there is a craze for modifying these small motors for use in indoor 3D foamy airplanes. New companies are springing up to service the needs of these hobbyists. All kinds of mods are possible including new higher power rare earth magnets and rewinding with different gauge wire. The downside is that although these motors are almost free you do need a $50 brushless speed controller! Nevertheless, awesome performance is claimed for these re-worked motors. Way to go Al.



Al Tamburro with his new challenge, a CD ROM brushless motor from scrap parts.

Adjournment took place at 9:05 p.m.

Richard Bartkowski, Secretary

Indoor Flying at Tinicum School

The second Propstopper indoor fun fly on 3rd December was well attended and resulted in a variety of fun models performing well. The range included the usual IFO aerobats from Rusty Neithammer, Mike Black and John Drake as well as some interesting new models.

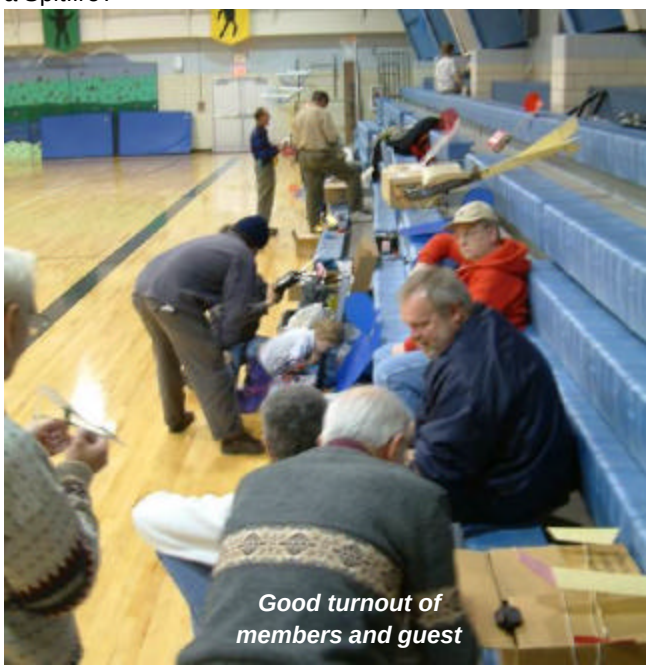
Bill Tomasco brought his new Wattage Micro RC flyer. These incredibly tiny foam ARF models have been advertised in the magazines for some months but this is the first one we have seen. Bill waited months to get it. He started on the end of a two thousand-customer queue before getting his. The model includes a Lithium Poly cell and the controller contains the charger. The controller has three buttons; power, right and left.

Bill Tomasco with his new Wattage Micro RC

All controls are "bang – bang" where the button push invokes either full power or full left or right rudder.

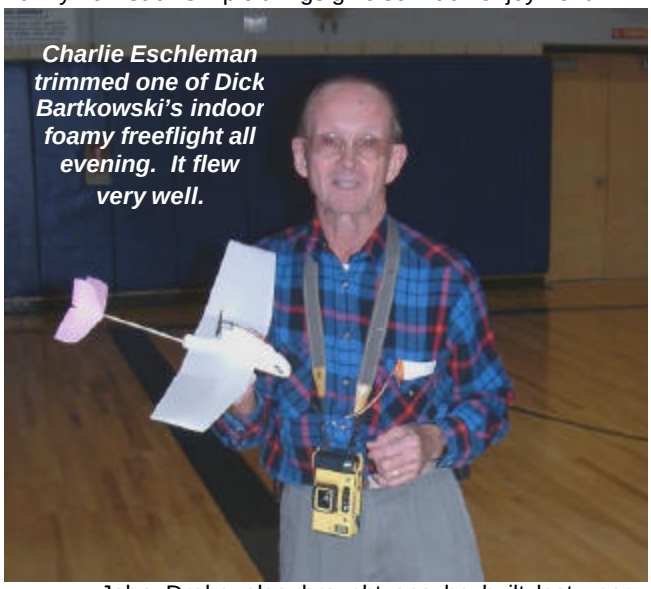
The model flew beautifully, with plenty of power it climbed briskly to the rafters. Switching the power off resulted in a steep dive so the better method of altitude control was using turns. Flight speed was kinda fast but with good control it was a pussycat to fly in the small Tinicum gym. Best of all, charging of the LiPoly battery was a synch using the controller with it's built-in battery.

Gotta have one of these. Wonder how long it will be before someone buys one for the mechanisms and install them into a Spitfire?



Good turnout of members and guest

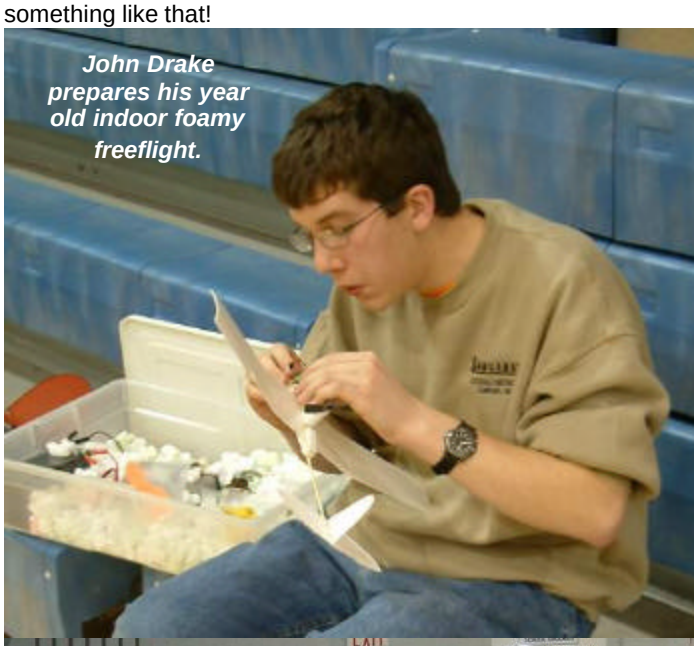
Dick Bartkowski brought two of our indoor foamy free flight models for members to try. Charlie Eshelman had a blast trimming and flying one until he made one outstanding flight that slowly flew to the ceiling then proceeded to just miss every obstacle in the gym including the ball nets, ceiling beams, lights and the walls – magic! Funny how such simple things give so much enjoyment.



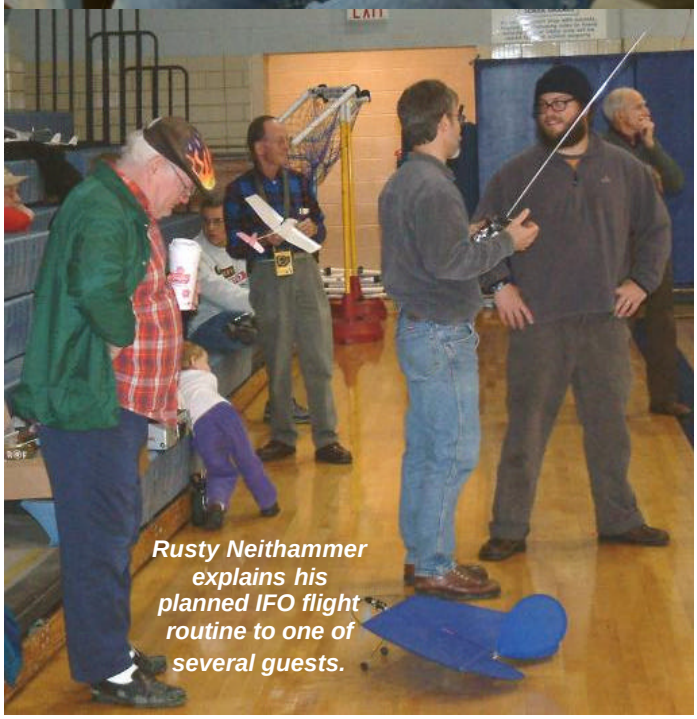
Charlie Eschleman trimmed one of Dick Bartkowski's indoor foamy freeflight all evening. It flew very well.

John Drake also brought one he built last year.

These models take a licking and come back ticking….or something like that!



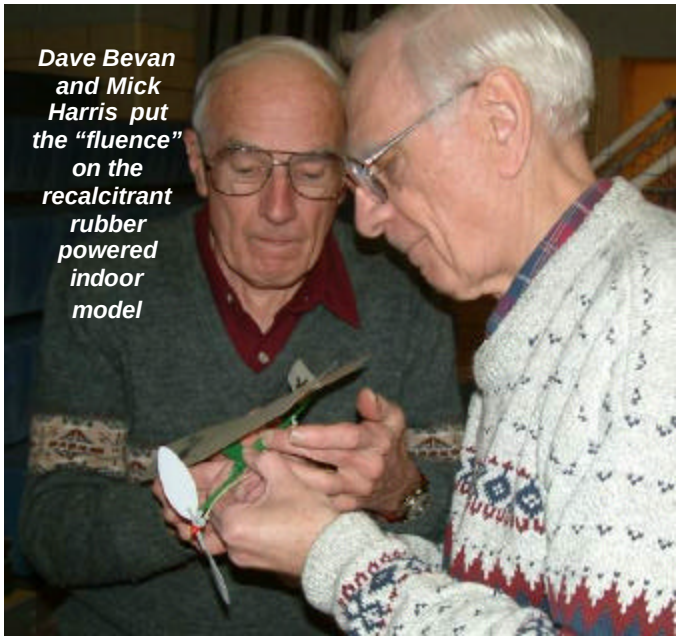
John Drake prepares his year old indoor foamy freeflight.



Rusty Neithammer explains his planned IFO flight routine to one of several guests.

President Steve Boyajian flew Dave Harding's Kyosho Conquest electric helicopter

Dave Harding brought his Kyosho Conquest electric helicopter that had been hiding on a shelf for many years. New President brought his tools and spent all evening tuning it. In the event it was just underpowered with the old tired batteries, must put together a new pack or two for the next meet as this model shows promise and looks good in the gym.



Dave Bevan and Mick Harris put the "fluence" on the recalcitrant rubber powered indoor model

Well over a hundred years of model flying experience was brought to bear on Mick Harris's tiny ARF indoor rubber model.

Mick Harris contemplates the next fix in trying to tame his rubber powered ARF

Despite both Dave Bevan and Mick being former rubber freeflight competitors they couldn't handle the awesome initial power burst. It will be a cute flyer when some more wisdom is brought in.

Meanwhile, get building and prepare for the next indoor meet on Friday the 7th January, two more Tinicum meets after that and probably some Salvation Army Saturdays too. If you have no other ideas, ask Dick Bartkowski for a kit of the indoor foamy freeflight and join the crowd having fun.

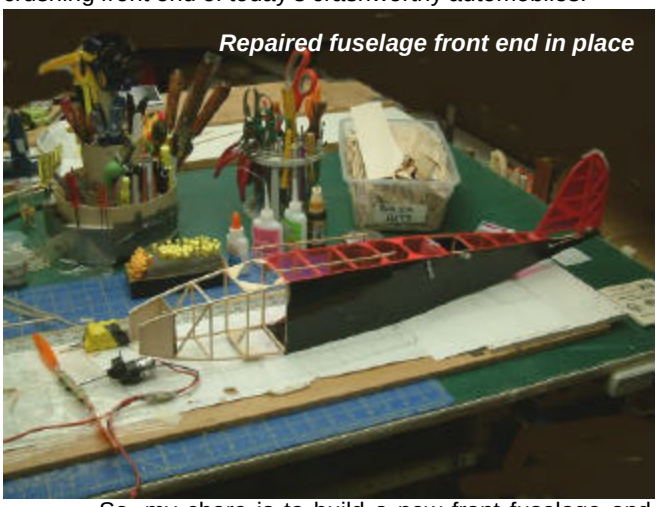
Dave Harding

Workshops and Other Matters

Following the SAM Champs I was faced with a bunch of broken models. Now with the next contest only a few weeks away I am busy fixing some to pack in my luggage. I have decided to take two models that I can use for four events. The primary reason is that they fit in the same box that I used last year. I can check them as luggage and carry the rest of the equipment and tools in my other bag.

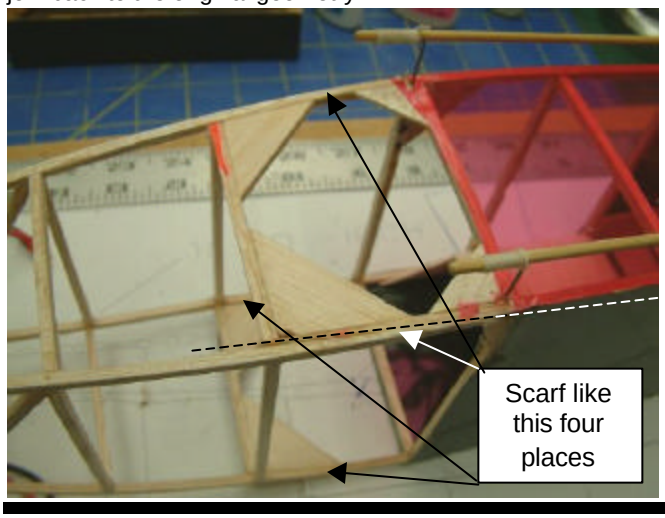
The first model to fix is my Electric Wakefield, a very lightweight model of a 1939 Jack North Wakefield rubber model. I have "flown" this model at our fields and in contests at the last two SAM Champs. In Claremore OK, it took a second place in Wakefield and then I folded the wing and dived vertically into the macadam runway in the next event. I fixed it for this year's Champs and repeated the deed when the radio hiccupped and the wing folded again, with the same result!

Anyway when these models go vertically into a hard surface the whole front end crushes, but in so doing it minimizes the loads on the rest of the structure, just like the crushing front end of today's crashworthy automobiles.



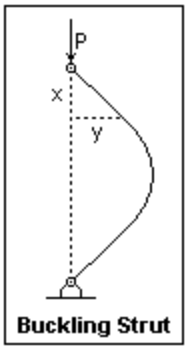
Repaired fuselage front end in place

So, my chore is to build a new front fuselage and attach it to the remains of the old one. I built a new front fuselage to include one more bay to overlap the existing good structure. Then, being careful to align the two parts I scarfed the longerons of both overlapping parts so that they join back to the original geometry.



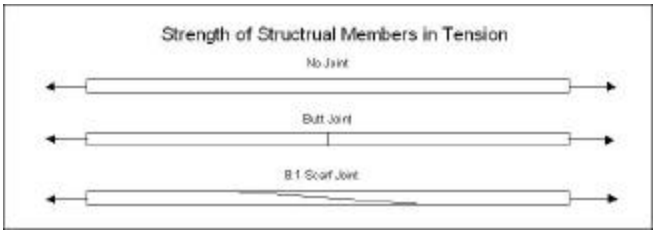
I first fit each scarf to its mate then clamp them in place at all four longerons. Then I adjust the fit up so that I get the alignment right. Then, with these medium 1/8-inch balsa longerons I can use thin CA to join them. Finishing the fix is just the same as finishing the original build from this point and the joint is almost invisible and just as strong as new. I believe the FAA allows these kinds of scarf joints in full-size wood airplanes where the slope must be at least 8:1. Why is this you ask? Well let me explain.

First let's lay down a few basics on the subject of the strength of the materials we use, specifically Balsa and glue. The strength and stiffness of balsa, and indeed all woods, vary with the density. Second factor is that wood is nature's composite. It consists of very strong fibers held together with a material called lignum. Wood is strong when the load is tension applied along the fibers; it is much weaker when this load is compression. In short compression members the material crushes internally and a close examination will show that the fibers have buckled. In long slender members, or struts, there is a phenomenon called Euler buckling, named for the great mathematician Leonhard Euler who developed the equations we use to calculate the strength of long members in compression. The strength of such members is not a function of the basic material strength; rather it is dependent on the material's stiffness and the square of the length. But I will get to that later. First let's examine the tension case where you are joining two elements.



Since we are using glue to join our structure we have to start with the strength of the glue. It turns out that all our glues have about the same strength when properly applied; good fit, thin glue line, no contaminations and proper curing process. They all have tensile and shear strengths of 3000 to 5000 pounds per square inch.

So now let's see what happens to the strength of the structure with no joint, a butt joint and an 8:1 scarf.



Wood	*Density*	*Strength of 1/4 square ~ in Pounds*		
	Pounds per cubic foot	*Un-joined*	*Butt Joint*	*8:1 Scarf Joint*
Balsa	6	100	200	1600
Balsa	11	200	200	1600
Spruce	25	500	200	1600
Hickory	60	1000	200	1600

The table shows the strength of an unjoined ¼ square, the strength of a butt joint and that of an 8:1 scarf joint. By comparing these data you can see that a butt joint may be good for low-density balsa but is the weak point for most of the balsa we use as well as the stronger woods. And remember, that is with a perfect joint. On the other hand, the

scarf joint is stronger than the basic material all the way up to the strongest woods.

The other major fix I am working on is the two-piece wing for my Stardust Special model. This model was designed originally to fit in this shipping box and the wing is a two-piece design. I have folded this wing too; three times! Trouble is, these models are designed to be as light as possible and while they have the strength necessary for the normal flight envelope they are not tolerant of much outside-the-envelope maneuvering. These conditions are sometimes encountered in high winds; we don't get to choose when to fly! Also, these airplanes have high performance and they are hard to see at the top of their climb, so sometimes it is difficult to control them so as to avoid high loads. That's my excuse anyway.

So, the problem here is similar to the fuselage repair except the wing structure is much more highly loaded and needs to be torsionally stiff to inhibit flutter. Interestingly enough, the film covering we use causes these structures to hold together on their way to earth, sort of like a bag of parts in a plastic bag. The result is a high drag "parachute" which partly protects the model from achieving really high descent velocities!

Repaired wing with Mylar covering

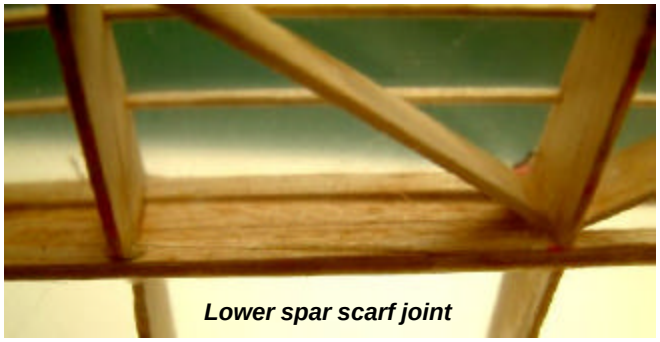
Both spars and the leading and trailing edges were broken in a location adjacent to a prior failure, which had been fixed with a field repair. I decided to scarf in new spar and leading edge sections that just spanned the area of the failure, but I replaced the entire trailing edge so that the joint would be far out on the wing where the loads are much lower than in the center section.

Trailing edge repair scarf joint

The trailing edge scarf is shown here and if you look closely you will see an additional strengthening "trick" where I have added a unidirectional fiberglass (rotor blade material!) reinforcement tape to upper and lower surface.

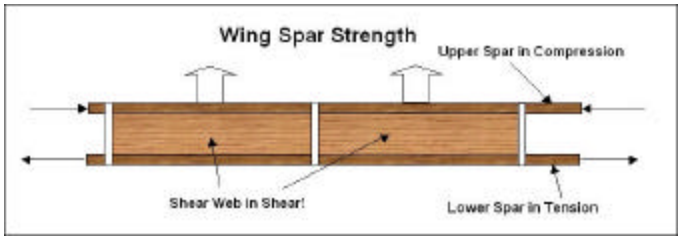
The spar scarfs are like the fuselage longerons, except they are reinforced with fiberglass tape over the whole lower spanwise run. The upper spar is reinforced by additional chordwise padding with balsa. The lower spar is loaded in tension, so the fiberglass works well as a reinforcing member.

Wood	***Density***	***Strength of Fiberglass or Graphite Reinforced 1/4 square ~ in Pounds***		
	Pounds per cubic foot	***Unreinforced Wood***	***One layer of fiber (.007 in)***	***Combined Strength***
Balsa	6	100	350	450
Balsa	11	200	350	550
Spruce	25	500	350	850
Hickory	60	1000	350	1350



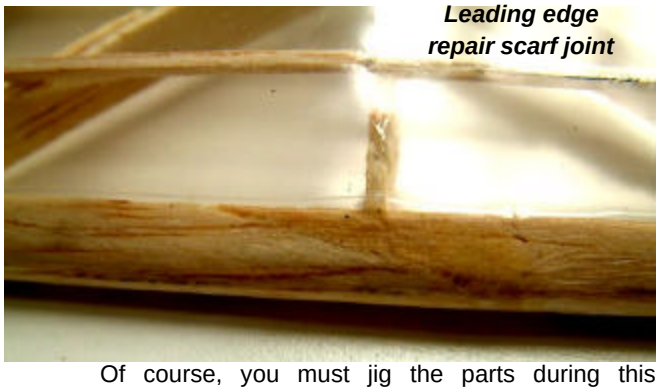
Lower spar scarf joint

The upper spar is loaded in compression and a thin fiberglass tape will simply fold away from the balsa member under load. A crease will develop in the fiberglass whereupon it will provide absolutely no stiffness or strength.



The shear webs will support the upper spar in the vertical direction so the weakest mode is bending in the chordwise direction. The balsa padding simply increases the stiffness in this direction and thereby increasing the crippling load.

The leading edge scarf is straightforward as it does not carry high loads and it has enough area for there to be a good joint. Sometimes I reinforce such members with a covering paper strip soaked in CA; works great.



Leading edge repair scarf joint

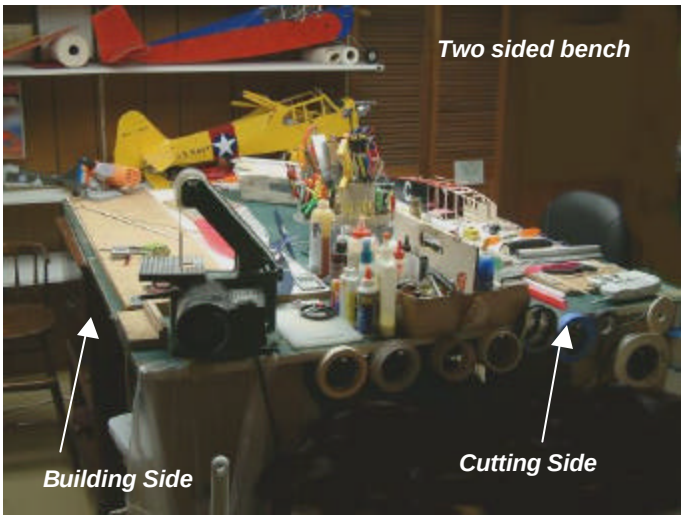
Of course, you must jig the parts during this assembly to ensure that the resulting repair is straight and true.

Since you have already had a glimpse of my workshop I would like to show you where I work.

My primary building work bench is made from half of a table tennis table top sitting on one very old mahogany TV and four cardboard boxes, the residue of our move back from California. This is a temporary arrangement, you understand, but it seems to be growing roots.

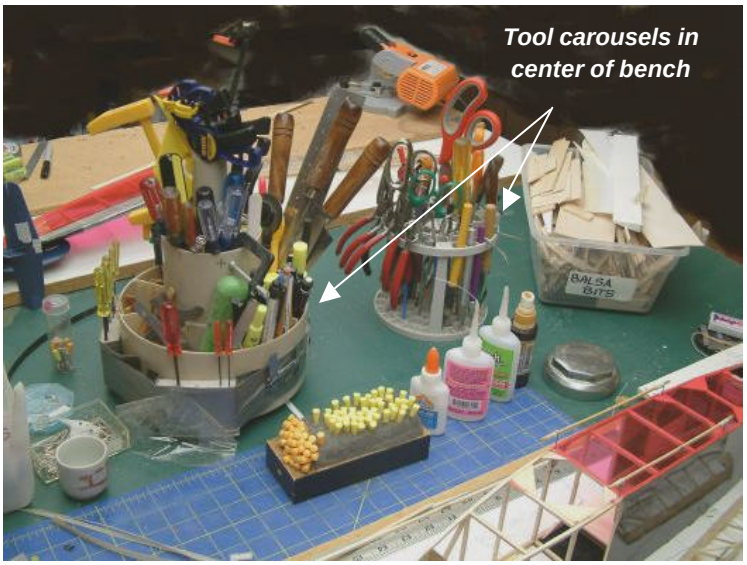
The arrangement is such that I can work from either side. I usually use one side for building the assembly and the other for cutting parts etc. This side is covered with a cutting board.

I build on sheets of Homasoat or ceiling tiles and have several of them so I can leave an in-progress part pinned to one and start on another using another sheet. I can store these in-progress boards on an adjacent shelf. In the center, between and within reach of both working stations I have two carousels loaded with tools and my field "box", another temporary cardboard item from my California days. The field box contains the essential tools I use at the field; I transfer the glues into it when I take it to the field.



On the building side of the bench I have recently installed two fine tools from Harbor Freight. They are a 2-inch cutoff saw and a one-inch belt sander. These $20/$30 tools work just fine with delicate balsa sticks as well as larger hardwood and even metal. They have allowed me to work faster with more precision. . A homemade miter box sits on the bench top. Hanging from one end are rolls of various tapes and from the other end tools like rulers, squares and sanding bars. Power strips are fitted each side and I have two comfortable stools. I tape plastic bags each side as handy garbage collectors. A small shopvac is also to hand.

The tool carousels contain all the frequently used tools organized by type and size. They include knives, files, clamps, rulers, pens and pencils, pliers, razor saws, screwdrivers, Allen wrenches and scissors. On the bench top I group the glues, pins and razor blades. A shelf under one side holds the razor plane, stripper and sandpaper.
Another shelf holds the covering tools.
When I upgraded my basement shop on return from California I wanted to ensure adequate light both for both illuminating my work as well as to give it that bright daylight feel. I have eight double tube shop lights behind diffusers above the bench. That is 640 watts of efficient fluorescent power! So far, I am very pleased with my arrangement, come and see it



Dave Harding

Members Comments

I'm presently building a .60 size Great Planes Extra powered by a .91 OS 4c. In the spring my fleet will range from a Telemaster with .56 Saito 4c to a SIG Extra w/ Saito 1.80 4c.

I said to myself, Myself why re-up at Proppstoppers? They have no flying site where I can fly any of my planes.

After attending the December meeting I decided to stay on for 2005 and here is why. The dues are relatively inexpensive compared to other hobbies. Each month I get a great newsletter. The club has some expert builders and flyers and are a pretty good bunch of guys.

Del Glennon

Dell Glennon with his Telemaster
Note the flaps, this one lands steep!

Propstopper Conducts AMA Egg Crate Program at School

My grandson, Ben, invited me to present a program on the model airplane hobby for his elementary school class (1st grade). Me, and my able assistant, Ben, along with my wife and daughter, introduced the class to the hobby via the "Egg Crate Glider" found on AMA's web site.

You need the top from a one-dozen-size egg carton. The Wing Pattern is placed inside the foam lid and the outline traced with a ballpoint pen.

I had traced the pattern on enough egg crate tops to have one for each student and enough pennies for nose weights. The students were able to cut out the gliders using blunt tipped scissors from their personal school supplies.

After a word of caution from the teacher about not throwing the glider towards anyone's face, the "sky" was full of gliders. The barrage balloons were Easter egg cutouts hanging from the ceiling. Helped to contain the gliders!

The kids seemed to enjoy the exercise.

Tom Tredinnick

Dave Harding – Editor
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Brookhaven, Pa. 19015
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Propstoppers R.C. M.A.C

Prostopper junior member Matthew Everett with Mick Harris's Bristol Scout at Muncie just after he flew it for the third time to win second place in the National Open Electric Scale competition. Incidentally, beating his grandfather, Dave Harding, Dick Bartkowski and another senior flyer.

Picture by Don Belfort, Electric columnist for Flying Models and also the winner of the Scale event.

This picture appeared in a recent edition of FM.

Membership Renewal For 2004

Membership renewal for 2005 is now due. You can renew by mail or at the club meeting in January.

Dues are $60.

Ray Wopatek
1004 Green Lane
Secane, PA. 9018

Please enclose a ***copy*** of your current A. M. A. Membership card,

And Please, Please enclose a Stamped self- addressed envelope.

Ray Wopatek Membership Chairman