The Flightline

Volume 39, Issue 6 Newsletter of the Propstoppers RC Club AMA 1042 June 2009

President's Message

Don't forget the next four regular monthly club meetings will be at the Christian Academy; June 9 July 14 Aug. 11 and Sept. 8.

The field is solid as a rock so use the old way to get to the pits.

If you missed the meeting the club Picnics are June 27, July 25, and Aug 29, which will also be the Walt Bryant all Electric Fun Fly

Please try and make these events. This is your club, and the club tries to make the most of your dues. The club supplies burgers, dogs, hot sausage and ice cold drinks. A hot grill what more could you want. If there is something why not bring it and share with the club, some desert would be nice……

And don't forget the planes. These events are the best times to strut your stuff, bring out the new and old and put on a show.

Dick Seiwell

Agenda for June 9th Meeting
At the Christian Academy Field;
Flying from 5pm, Meeting 7pm.

1. Approval of May Meeting Minutes
2. Membership Report
3. Finance Report
4. Flying Field Situation
5. Plan for June Picnic
6. Show and Tell and more flying

INSIDE THIS ISSUE

Minutes of the Monthly Meeting

May 12th, 2009 at the Middletown Library

Roll-call by membership chair Ray Wopatek showed 16 members and 1 guest present

Minutes of the April meeting as printed in the newsletter were approved by the membership

The treasurer's report presented by Pete Oetinger and accepted

Old Business:

Middletown Pride Day went well for the Propstoppers. We had 15 planes on display and several flew well for the enjoyment of the spectators. Township officials were pleased with our presentation.

President Seiwell noted that the Christian Academy field is very swampy at present.

New Business:

The club is planning three picnics with fun fly events for this summer. The membership chose June 27th for a picnic date, July 25th for another picnic and August 29th for the annual Walt Bryan electric fun fly. The club will supply basic food and refreshments.

Chuck Kime proposed that we continue the tradition of Thursday evening flying at the Christian Academy field. This will continue all summer beginning now. People begin to arrive at about 5:00 p.m. and fly until sundown.

Show and Tell:

Dave Harding showed his small electric DH-6 which was a World War one trainer. It is an electric scale biplane that flies very well.

. Bill Tomasco showed a mini old timer Quaker Flash built from a kit, at least the plans from a kit. He powered it with an electric outfit that he had available. He has colored it with a scalloped pattern much as was done in the 1930's.

Craig Meyer showed a tiny X electric aerobat. He has a new spectrum 2.4 gigahertz radio system that made the set up easy each

Adjournment took place at 8:45 p.m.

Dick Bartkowski, Secretary

Calendar of Events

Club Meetings

Monthly Meetings
Second Tuesday of the month.

Summer meetings at the Christian Academy Field.
Fly at 5 pm, meeting at 7 pm.

9th June
14th July
11th August
8th September

Tuesday Breakfast Meeting
Tom Jones Restaurant on Edgemont Avenue in Brookhaven.
9 till 10 am. Just show up.
Flying after at Chester Park 10 am.

Regular Club Flying

At Christian Academy; Electric Only
Monday through Friday after school till dusk
Saturday 10 am till dusk
Sunday, after Church; 12 pm till dusk

Special Club Flying

Saturday mornings 10 am
Tuesday mornings 10 am
weather permitting after breakfast.

Beginners using due caution and respecting club rules may fly GWS Slow Stick or similar models without instructors.

Propstoppers RC Club of
Delaware County, Pennsylvania.
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Middletown Pride Day Report

Despite the forecast for thunder storms and rain we were blessed with reasonable weather for the duration of Pride Day, although the wind limited the scope and frequency of our flying.
Once again the Propstoppers put out for this annual event with a great display of models. We were again assigned the lower ball field as our "pitch" but we were concerned about the soft surface and its effects on parking; it had been raining for days before the event. The first casualty was the RV as Brian decided that it was too risky as getting stuck would involve a monster extraction effort. President Dick Seiwell found the usual parking spot was indeed soft so he elected to have us set up under the goal posts. This turned out to be a much better arrangement as first we were able to lash the big canopy to the goal posts, a great safety precaution in the high winds and forecast thunder storms. Then we found the flying to be much more comfortable with the threatening high tension power poles and lines out of our primary vision and the grabbing trees well and truly in sight.

Brian Williams flew everything he brought. Two aerobats, his new gas powered helicopter and his big glider.

Brian Williams brought a bunch of airplanes and flew most of them

Sometimes it takes a while before we have sufficient people to assemble the big Subaru canopy, but it is worth it.

It takes a whole population of people to set up the big Subaru canopy, but it is worth it. The canopy provides a focus for members and visitors to congregate and chew the fat.

Mick Harris brought a few models to display, including a "bones" from one of his big scale models currently in construction (well, currently spans a long time as we all know!)

Mick Harris describes the bones of a scale job to Dick Miller.

Above, Mick Harris with his big PB-2 Old Timer, below explaining the assembly to Vice President Dave Bevan

Dave Bevan and Dick Seiwell brought balsa gliders and rubber powered models to hand out to the visiting kids.

Then of course there were the usual rail birds.

Jess Davis, Scott Resweber and Mick Harris

Former Propstoppers President and behind the scenes spark plug, Jess Davis was back in action at Pride Day marshaling the rail birds and generally seeing that we all behaved in a proper manner. We have missed you Jess and hope you are back in business.

And we were blessed with all three of our new junior fliers and their fathers.

Brian Williams shows some of his models to Jeff and John Simon .

Brian and Hugh Taussig-Lux repair Hugh's Cub

Drew Resweber examined the reconstructed Miss America but declined to fly it in the gusty conditions. The old dog did fly though and is again ready for duty as a club trainer in Drew's hands. He will have his Sig Kadet LT-25 finished soon so the Miss America will again rejoin the trainer fleet at the field.

Drew Resweber watches as Dave Harding does the pre-flight checks on the recently fixed Miss America

Here is the other club trainer, your editor's Trenton Terror, also a reconstruction from last year's Pride Day excursion into the spruce tree at the end of the "flying" field.

Dave Harding with the "club trainer" Trenton Terror talks with Brian Taussig-Lux and Mick Harris

Pride Day seems to attract member's families, probably due to the other attractions. They have seen the flying before! This event is really big and according to the organizers this was the biggest event ever. There are all kinds of rides and entertainment and this year I noticed a flea market, or at least that is what it appeared to be. On the other hand, maybe the displays represented other Middletown groups and activities. Wonder if they regarded our model display as junk too?

Club President Dick Seiwell with his son and daughter-in-law

John Moloko with his daughter

Before this event club president Dick Seiwell fretted that he had not given us an adequate heads up to organize and put on a display that showed the club in its best light. Well he had no cause to worry because the club knew how to do this one and we did indeed put on a good display. The club members have an astonishing array of models that can be produced, at least to display, in a short notice. Such displays are ideal for this kind of meet as they bring out the various interests of the spectators and stimulate discussions. Hey, if it comes to that they stimulate discussions among club members!

Vick Williams with his son

Brian Williams' wife brought out his latest "model".

Brian Williams with his wife, new model and daughter.

There were still only a few spectators that found us in the far field, but that can be fixed in future events by arranging for the announcer to make periodic announcements of our activities. But we did well anyway.

Best of all, the good weather held for the duration. And we remembered to call it a day when there were still sufficient members to manage the packing of the big canopy; a critical factor!

Thanks to Vick Williams and Dick Miller's wife, Lee Vizor for taking the pictures shown here.

A good meet!

Dave Harding

Balsa Plane Repair *(from Jan 05)*

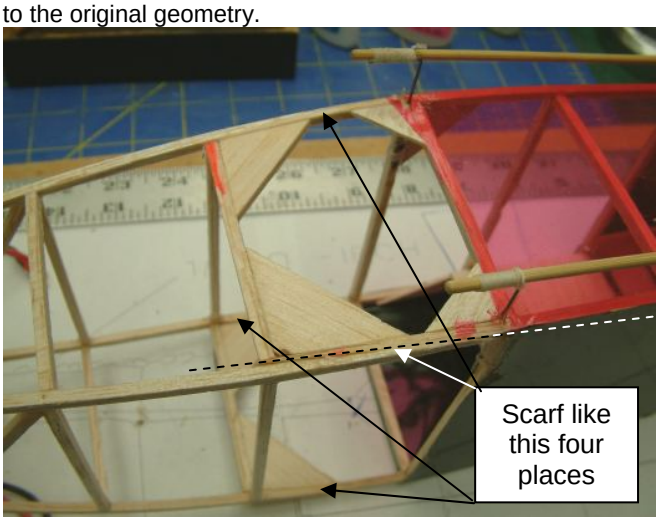
Following the SAM Champs I was faced with a bunch of broken models. Now with the next contest only a few weeks away I am busy fixing some to pack in my luggage. I have decided to take two models that I can use for four events. The primary reason is that they fit in the same box that I used last year.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

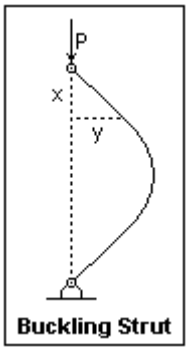
Repaired fuselage front end in place

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.



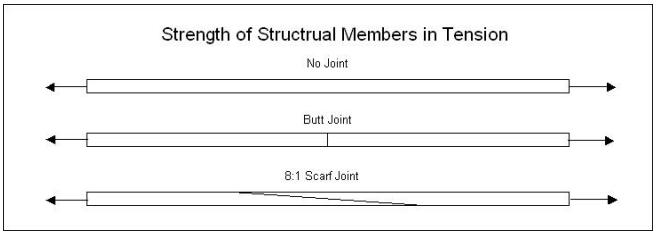
I first fit each scarf to its mate then clamp them in place at all four longerons. Then I adjust the fit up so that I get the alignment right. Then, with these medium 1/8-inch balsa longerons I can use thin CA to join them. Finishing the fix is just the same as finishing the original build from this 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 un-joined 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

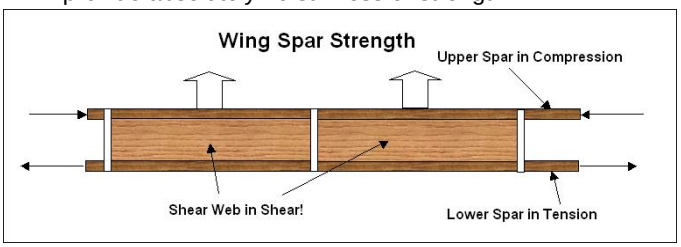
The trailing edge scarf is shown here and if you look closely you will see an additional strengthening "trick" where I have added a unidirectional fiberglass (rotor blade material!) reinforcement tape to upper and lower surface.

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 Graphite Re-inforced 1/4 in square ~ in pounds*		
	Pounds per cubic foot	*Unr-einforced Wood*	*One layer of fiber (0.007) in*	*Combined strength lb.*
Balsa	*6*	*100*	*350*	*390*
Balsa	*11*	*200*	*350*	*425*
Spruce	*25*	*500*	*350*	*550*
Hickory	*45*	*1000*	*350*	*750/1000**
** Graphite fails at 750 lb, Hickory then takes up to 1000*				

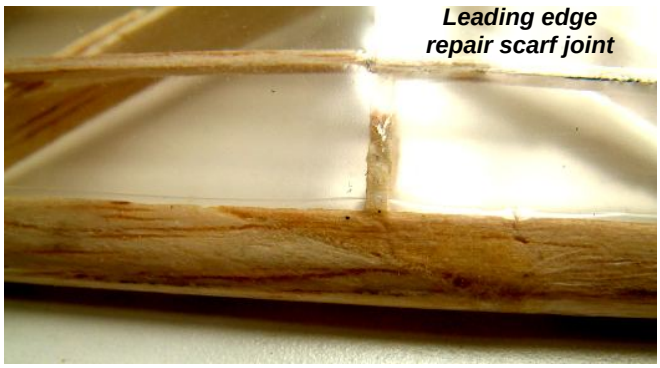
Lower spar scarf joint

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.

I have included these two old articles as this edition of our newsletter was prepared in early May before my departure for Europe and another bash at the Euro SAM Champs.

Dave Harding

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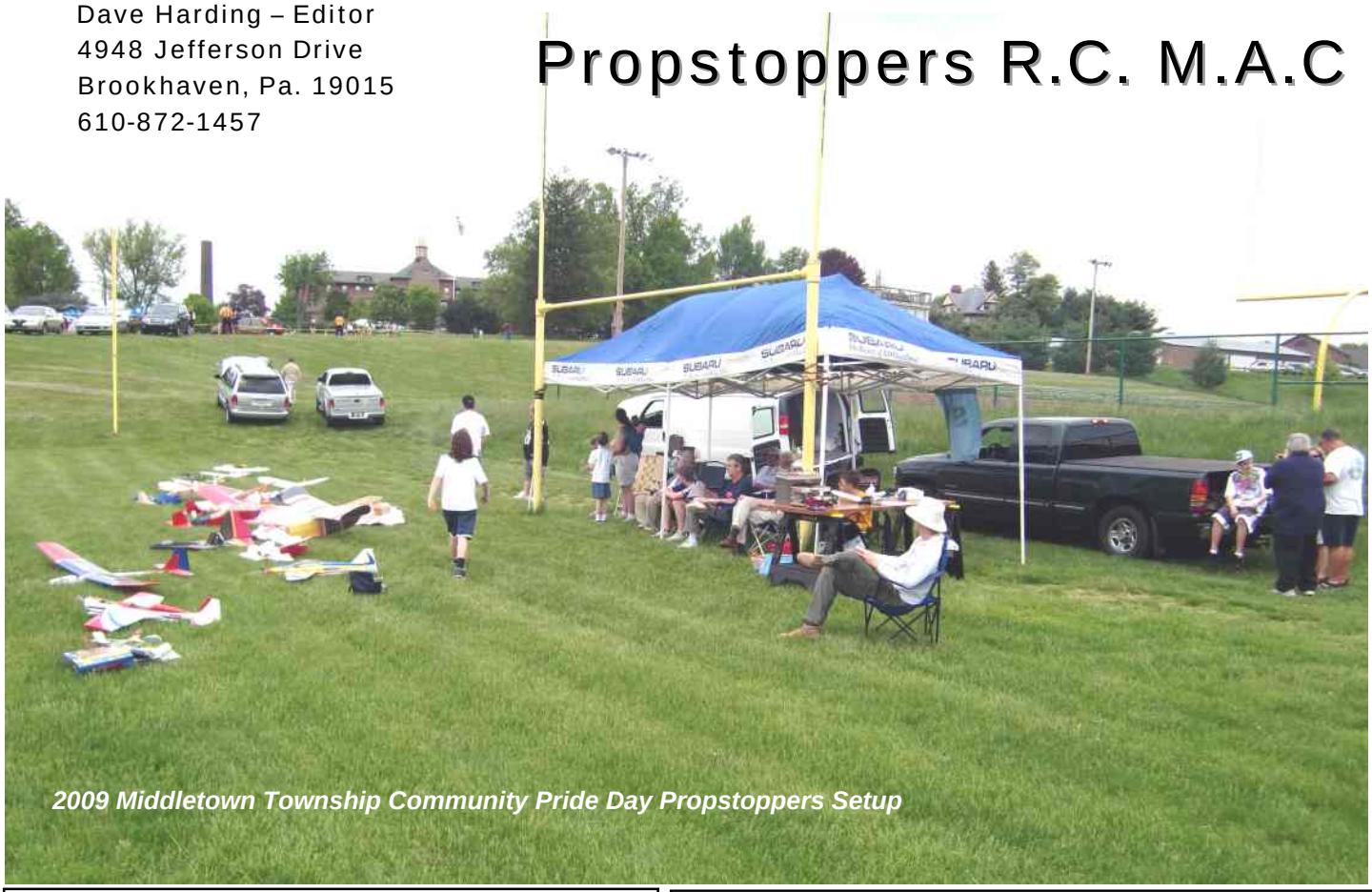

2009 Middletown Township Community Pride Day Propstoppers Setup

Club Picnic Saturday June 27th at CA Field 10 am till 3 pm. Be There!

New Member Mike Williams with his Cessna after four great flights; His first four! He learned to fly on the simulator; with ailerons yet. Welcome to the club Mike.

Propstoppers at the Field

Summer Monthly Meetings at the Field

9th June
14th July
11th August
8th September
Fly at 5 pm, meeting at 7 pm and fly some more

Club Picnics

Saturday June 27th
Saturday July 25th
Saturday August 29th Walt Bryan Memorial
10 am till 3 pm

Saturday Regular Flying - 10 a.m. till?

Thursday Evenings, 5 pm till dark.

Tuesday Breakfast

At Tom Jones Restaurant in Brookhaven, 9 am, then at 10 am flying at Chester Park till school is out; then flying after breakfast at Christian Academy Field.