The Flightline

Volume 45, Issue 4 Newsletter of the Propstoppers RC Club AMA 1042 April 2015

President's Message

The C/A field is ready to fly on. Stay to the left when you enter and park near the pits.
Thanks to Dwayne Myers we all have a better understanding of the glues we use. For those who missed the briefing it is included in this edition. Thanks again Dwayne.
Show & Tells are a big part of this club so keep them coming in. We all learn from all of them.
By the time you read this hopefully Elwyn should have a first cut .
At the meeting we will go over all the events for the year
See you at the meeting.

Dick Seiwell, President

Agenda for April 14th Meeting At Gateway Community Church, At our CA Field site; Meeting 7pm till 8:30?

1. Show and Tell
2. Membership Report
3. Finance Report
4. Club Calendar Review
5. 2015 Dues Reminder

INSIDE THIS ISSUE

Minutes of the Propstoppers Model Airplane Club

March 10, 2015 at the Christian Academy meeting room on a dark and stormy night

Call to order by Vice-President Chuck Kime took place at 7:15 PM

Roll call by Ray Wopatek showed 13 members present

Minutes of the February meeting as published were approved by the members

Treasurer's report was presented by Pete Oetinger

Old Business:

President Seiwell pointed out the diagrams of the Elwyn Field that were published in the newsletter and discussed possible new runway locations. Plans for the new runways were laid out.

Show and Tell:

Pete Oetinger showed his ProtoX quad-copter which is approximately 4 inches across. He flies it at home in the living room.

Dwayne Myers showed his newly constructed motor and battery mounts for his electric conversion from a former glow airplane. He showed a printed plastic ¼ - 20 screw that was printed on the same 3D printer.

He also showed a large selection of glues including epoxy, CA and foam tack along with glue stick and guerrilla glue. He then led a long discussion on appropriate glues for different projects.

Adjournment took place at 8:25 PM

Dick Bartkowski, Secretary

Calendar of Events

Club Meetings

Monthly Meetings
Second Tuesday of the month.
Gateway Community Church at the Christian Academy. Doors open at 7:00
Next Meeting; 14th April
Tuesday Breakfast Meeting
Tom Jones Restaurant on Edgemont Avenue in Brookhaven. 9 till 10 am. Just show up.
Flying after in the summer at CA or Elwyn Field 10 am. Weather permitting.
Indoors at the Brookhaven Gym in bad weather 10:30-11:30 See dates allowable.

Regular Club Flying

At Old Christian Academy; Electric Only
Monday through Friday after school till dusk
Saturday 10 am till dusk
Sunday, after Church; 12 pm till dusk
At Elwyn Field; Gas or Electric
Monday through Saturday 8 am till dusk
Sunday 12 pm till dusk
INDOOR Flying, see attached dates.

Special Club Flying

Saturday mornings 10 am
Wednesday Helicopter evening in summer
Thursday evenings in the summer
Tuesday mornings 10 am weather permitting after breakfast.
Check our Yahoo Group for announcements;
http://groups.yahoo.com/group/propstoppers/

Beginners

Beginners using due caution and respecting club rules may fly Apprentice or similar models without instructors at Christian Academy Field.
The club also provides the AMA Introductory Pilot Program for beginners without AMA insurance.

Propstoppers RC Club of Delaware County, Pennsylvania.

Club Officers

President Dick Seiwell reslawns@verizon.net
(610) 566-2698

Vice President Chuck Kime chuxtruk@yahoo.com
(610) 833-5256

Secretary Richard Bartkowski
(610) 566-3950 rbartkwoski@comcast.net
Treasurer Pete Oetinger
610-627-9564
Membership Chairman Ray Wopatek raywop@gmail.com
(610) 626-0732
Safety Officers
Eric Hofberg bgsteam@comcas.ne
Ryan Schurman throttle152@hotmail.com
(610) 565-0408
Newsletter Editor
Dave Harding davejean1@comcast.net
(610)-872-1457
Propstoppers Web Site; www.propstoppers.org

Eric's New 17 inch Eflight B-17

Four motors and full stabilization, should be impressive in flight

Jeff Enters the Jet Age

86 inch Viper Jet from Skymaster

Not Jeff, but shows the size of the plane

Jeff Frazier has ordered his long anticipated turbine engine from Wren, a 100 DCiKero with 22 lb of thrust and an integrated start system.

The company is UK based and had phenomenal reviews and reputation!

The model in which it will be installed will be an 86 inch Viper Jet from Skymaster

Can't wait to see it fly, but not at Christian Academy field!

Wren, a 100 DCiKero

http://www.wrenturbines.co.uk/turbojets/wren-100-dci-kero
http://www.skymasterjet.com/viperjet.htm

Glues and Their Application

From the talk given to the club meeting by Dwayne Myers

Glue, Glue, Glue…

Many of us have several varieties of glue. Building, repairing, covering, which one to use? Glues come in a variety of chemistries and provide varying properties that make them ideal in different applications. Are you building wood, foam, plastic, fiberglass, carbon fiber? Then there are different types of wood, foam, plastic, and fibers.

Let's start by talking about the cured product of several popular glues:

- Epoxy: Epoxies come in varying "cure times". The longer the cure the stronger the cured glue. Epoxies come in two parts that normally need to be mixed in equal portions (but not always). It is important to get the two parts mixed in the portions directed to insure you obtain the best end product. Wrong proportions will cause either uncured glue or overly brittle glue. You also need to make sure you blend the parts well before application. It is normally thick when mixed and applied. The end product is basically a semi-flexible plastic.
- Foam Tac & Welders: We'll group these together for now. These are single part glues and cure by having their solvents evaporate off. They are thick like rubber cement. These form a strong joint under tension.These glues are very flexible when cured.
- CA Glues and Kicker: CA glue (Cyanoacrylate) comes in different thickness but are all basically "instant" glue. The instant part is subject to the application surface and the amount of moisture that is contained in the surface and air. This can be sped with Kicker or Insta-Set. Like epoxy, the slower the cure, the strong the final product. Therefore kicker causes a more 'brittle' final product. Fast curing can also occur in woods that contain more moisture or in dust generated from sanding or cutting because it contains a magnitude higher surface area. As the CA reacts with the moisture in the end joint, heat is generated from the chemical reaction; sometimes very high heat. Be careful of breathing in the off gas of CA glue as it can cause irritation. The end product is basically a hard clear plastic. (There are special formulations that take on flexible properties and bond better to rubbers and other materials.)
- Yellow wood glue: A classic yellow rosin glue. This soaks well into wood and has chemical additive to speed it's curing. 24hrs later your ready to go… But it works. Yellow glue maintains a flexible joint but only bonds to some materials.
- Low Temp Hot Glue Sticks: Glue sticks are a flexible low temp plastic that gets really sticky when heated. I like to use this to glue servos into foamies. Use isopropyl alcohol on it and it

softens and releases from your bonded surface. Great for temporary or even longterm bond areas. Out of all the glues, it generally has the lowest bond strength.

- Polyurethane (Gorilla Glue): Sticky, seams to get everywhere, forms a foam when not contained. Polyurethane glue cures in the presence of moisture and can actually stay uncured if put on too thick or in an area that protects it from atmospheric or surface moisture. Once activated it starts to foam up and sticks to anything and everything that brushes against it. Use it to fill the nose of your foamy for impact assistance. If you do this, do it in thin applications layers and let it foam up, cure, repeat. Else, I don't like this glue because of the foaming and mess it makes in your joints.

Applications:

In general all glues work best when there is a thin bond line across a larger bond area. More glue is not better for strength. Deep penetration into your bond surfaces with a tightly mated surface is always best. Slower cures usually mean higher strength. In the previous part I provide some uses for the glues mentioned. In this selection we will look at three classic aircraft build and repair types: wood, plastic, carbon fiber rods, and foam.

- Wood is none flexible, is made of a cellular structure and loves to draw in adhesives deep into it's grain. Yellow wood glues work well, but in todays world of build faster CA glue works extremely well and arguably could have a higher bond strength. Both provide bond strengths typically high enough for our hobby. Wood glue once cured takes on a slippery surface that is difficult to re-bond to. Because of the need for moisture to cure CA, it works slower on joints that require re-bonding. Kicker can help, just keep in mind to keep the bond line thin and depending on the area you are bonding kicker makes for a technically weaker joint. Also be careful of wood dust when using CA as this can greatly speed it's cure and create a lot of heat and off gassing. When fiberglass and carbon fibers are used to reinforce a high stress area, like a wing root, a slow set epoxy is always best used and pressed through the cloth and into the wood. So more modern plans indicate a CA can be used, but I would suggest against this for the simple reason that an epoxy forms a flexible glue when cured and a CA forms a inflexible glue when cured. Under stress the CA will fracture causing at least a partial failure if not a catastrophic one. Epoxy is the proper glue for the job in this case.
- Plastics present an interesting challenge, there are varying types and not all glues work on all plastics. ABS plastics work well with CA glue. Polypropylene, common highly flexible plastic used in helicopter frames and landing skids tend to be hard to bond to because of the surface tension is very low. For repairs use JB Weld (a specialty 2 part epoxy) and a cotton thread wrap to do the trick. When gluing clear lexan canopies, CA can cloud the plastic from the off gassing during curing. Kicker can help this, but a better product is "CanopyBond". When gluing / repairing many plastics another option is a specialty epoxy made specifically for plastics with solvents as part of the formulation that help etch the plastic surface for a better bond. Finally, Welders works well when you are bonding a surface area (and not an edge) of plastic to other surfaces, this is partly because Welders uses acetone as a solvent.
- Carbon Fiber Rods have become popular and relatively inexpensive for our builds to bring more rigidity to our wings, tail booms, to use as pushrods, and many other purposes. Carbon fiber tends to be very porous on a molecular level. This allows it to be bonded very easily by most adhesives. Carbon fiber also tends to naturally wick in moisture which makes CA aggressively bond to it. Consider the location and amount of flexing the Carbon will see. Carbon fiber to foam and Welders or Foam Tac (depending on the foam type). Glue the carbon fiber rod into a clevis as a pushrod and CA works extremely well. Use the Carbon Fiber as a structural piece and epoxy is your friend.

- Foam comes in many flavors, Pink, Blue, and now Green builders foam, white styrofoam, depron, and EPP Foam. Each one of these can be bonded strongly with gorilla glue, but like I indicated before, it foams up, makes a mess, and gets everywhere; I don't use it any longer. Regular CA when it cures gets to hot at the joint surface and actual melts the foam. You may get away with a fresh bottle of CA, but instead they make "Foam Safe" CA. In general though I never use CA and foam together because the bond line does not take into consideration the polar opposites of flexibility. When a foam model tries to flex and the hard stiff CA glue fights it, you have a potential for an adhesive failure. Epoxies, can work but in general add unnecessary weight; it's harder to maintain a thin bond line. This is where Welders and Foam Tac shine. They are incredibly strong when used in foam construction. It is impossible to pull too pieces of foam apart without damaging the foam elsewhere once glued with either product. Why mention two products, because Welders can only be used on EPP type foam because of its acetone solvent agent. The acetone will melt the other types of foam. Foam Tac can be used on all types of foam and works equally as strong on the finished bond line. The only issue is, FoamTac is not as readily available. Look online and buy several bottles. Just as a testimony to it's strength, I had a Horizon foamy airplane where the nose snapped clean off during a flat spin into the ground. FoamTac on both pieces, let it setup for a couple minutes, push the two parts together and you can not even tell the difference. Another bonk on the nose during a repeated attempt and the results show no damage but a fractured plastic cowl. It works. The Welders and Foam Tac remain high flexible after cure and maintain bond strength through repeated abuse.

Do you have other glues that you use or different ways you use your glues, share and we can enhance the article for a part 2.

The First Propstopper Member of the Vaunted 94th Fighter Squadron

Former Propstopper junior member Drew Resweber, serving at the USAF Academy, has just completed his upgrade and is now a glider instructor pilot at USAFA. This is the patch he is now entitled to wear. It features the "hat in the ring" originated by the (the highest ranked American ace of WW1 with 26 aerial victories).He will also be receiving his "G" wings in a ceremony in May.

We're looking forward to a visit from Drew in late March as we will not be seeing much of him during the summer. He will be going to Panama for 4 weeks then has been appointed as a group NCO, which is a Cadet Chief Master Sergeant position for the 2nd part of his summer then he will be going to an operational Air Force base for the final 23 weeks of his summer.

http://www.usafa.edu/tu/306ftg/94fts/programs.cfm

1st Lt. Eddie Rickenbacker of the 94th Aero Squadron in WW1,

Note the Hat-in-the-Ring logo.

How to fly a drone through Crossrail's tunnels

Crossrail is a huge new development of a 73 mile rail link running East-West through London on the north side of the Thames River. It will link with existing subway (Underground) and surface rail systems and includes 26 miles of new tunnels under much of London's busiest neighborhoods.
http://en.wikipedia.org/wiki/Crossrail

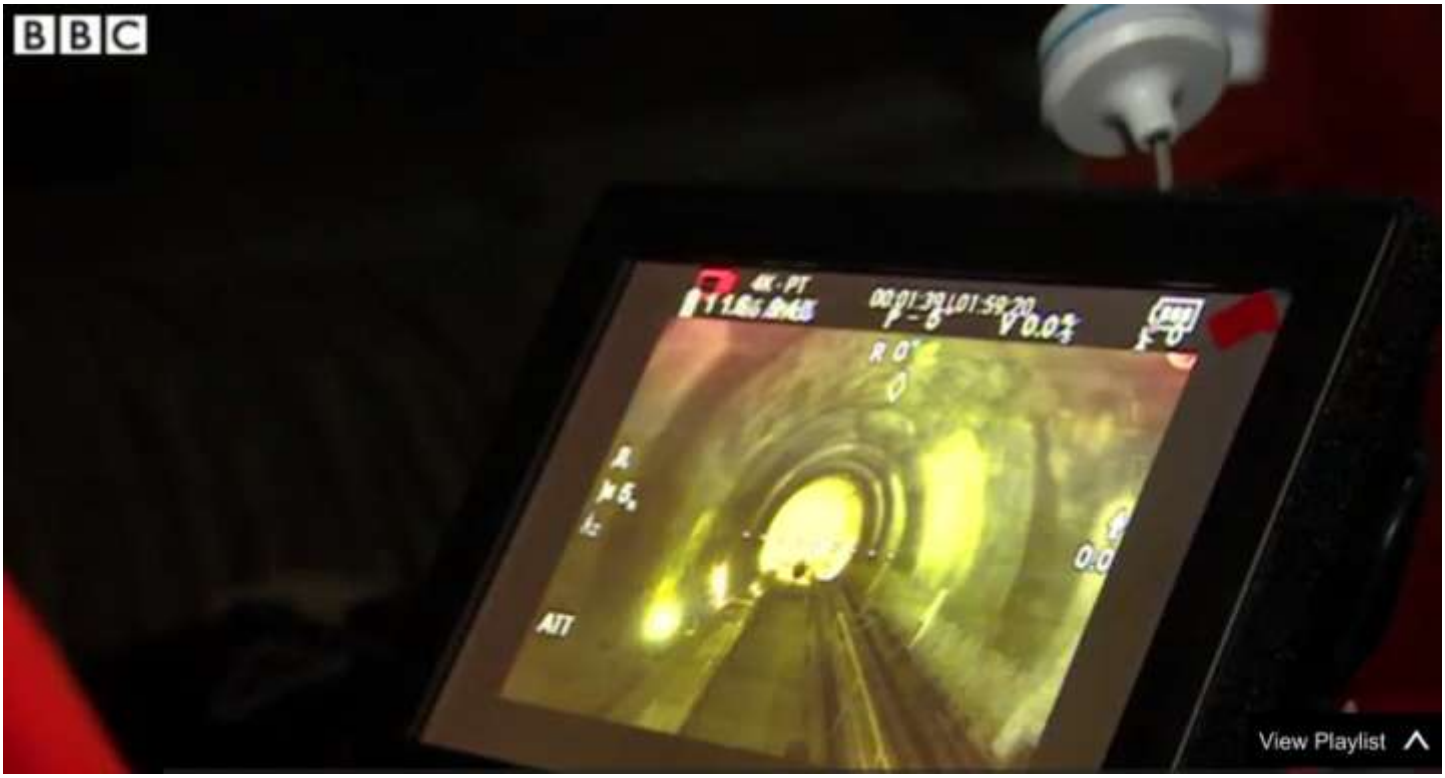
BBC article 10 March 2015

For the first time, the BBC has been allowed to fly a remote controlled camera along the tunnels of Crossrail, the giant building project that will eventually see trains criss-crossing London and the South East on a brand new train line.

It took four months of negotiating with the Crossrail safety team, but eventually they agreed that a BBC trained pilot, Jon Bontoft, could go down with our transport team, Richard Westcott and Jonathan Sumberg.

Is this the beginning of another application for these amazing machines?

Note the pilot is guiding the quad via FPV screen.
See the video here. http://www.bbc.com/news/business-31820033



Coming Soon; Larry's Seaplane at the Monthly Meeting Show & Tell

Come on guys; re-up!

Membership Renewal For 2014

Membership renewal for 2015 is now required. You can renew by mail or at the club meeting in April.

Don't lose your club privileges!

Bring cash or check and your AMA card.

Dues are $60.

Please send a check to;

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

Newsletter Inputs

Members, this is your newsletter which I have the privilege of editing. Well, mostly not just editing but writing too. I enjoy doing it.
BUT, since I don't get out to many club events I rely on you, the members, to provide me with information to publish.

I can use almost anything to generate a piece which will be of interest to the club members at large, so send me pictures, write-ups of any size or just suggestions for articles you would like to see. You don't have to do the editing, just jot down your thoughts, even on scraps of paper sent to me in the mail and I will polish them for publication.

Your Editor, Dave Harding