



The Flightline



Volume 45, Issue 12 Newsletter of the Propstoppers RC Club AMA 1042 December 2015



President's Message

The indoor picnic is at the December Meeting; **start time 6:30**, hoagies chips and drinks. If you have something you want to share bring it in.

Dec 11th is indoor flying at Tinicum and Dec 19th at Brookhaven, both start at 6:30 and end a 9:00. Reminder; No eating or drinking on Gym floor.

I'm sure the CA field is very wet so please keep to the left when coming in.

This monthly meeting would be a good time for show & tells, bring 'em in. Try and make the indoor flying and see you at the meeting

Agenda for December 8th Meeting At At the Church Room, CA Field Meeting 6:30pm till 8:30?

1. Christmas Picnic
2. Show and Tell
3. Membership Report
4. Finance Report
5. Club Calendar Review

Indoor Season

Tinicum; December 11, 2015 January 8, 2016
February 12, 2016 March 4, 2016

Brookhaven; 12/19, 1/16

All 6:30-9:30 pm

Minutes of the Propstoppers Model Airplane Club November 10, 2015 at the Christian Academy meeting room

Call to order took place at 7: 08 PM by President Dick Seiwel
Roll call by membership chair Ray Wopatek showed 11 members and two guests
Minutes of the October meeting as published in the newsletter were accepted
Treasurer's report by Pete Oetinger was presented to the membership

Old Business:

The first indoor meet Friday night at the Tinicum School was very successful with 15 fliers participating.

New Business:

Larry Woodward has volunteered to be the new webmaster. He will maintain the web site for the club and try to add a calendar of events.

The club decided to have an indoor picnic at the December meeting. The club will supply hoagies and side dishes.

Show and Tell:

Dave Harding brought two roles of reinforcing material. He had a role of carbon fiber and one of fiberglass both in thin sheets. These were not the woven type but unidirectional so that they are very strong in one direction. He gave pieces to interested members.

Ken Merlino showed a sheet of speckled purple sheeting that he uses for trim. He found it at a local graphics shop.

Al Tamburo showed small solar lights with batteries that he purchased for \$1.00 each at the dollar store.

He also showed a Propstoppers banner that he created to tow in the air.

Finally, he showed his tow plane. It was an old fuel ARF that he recovered and converted to electric.
Adjournment took place at 8:20 PM.

Dick Bartkowski Secretary

INSIDE THIS ISSUE

1	President's Message
1	November Meeting Minutes
1	December Meeting Agenda
2	Show & Tell
4	AM Reaction to FAA Proposed Limits
5	Amazon Delivery Drone Program Update
12	Eric Hofberg's Toy Train Open House
13	Soaring as Applied to Old Timers (and sailplanes)
15	1915 Supermarine Night Hawk

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; 10th November at Church Meeting Room

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.

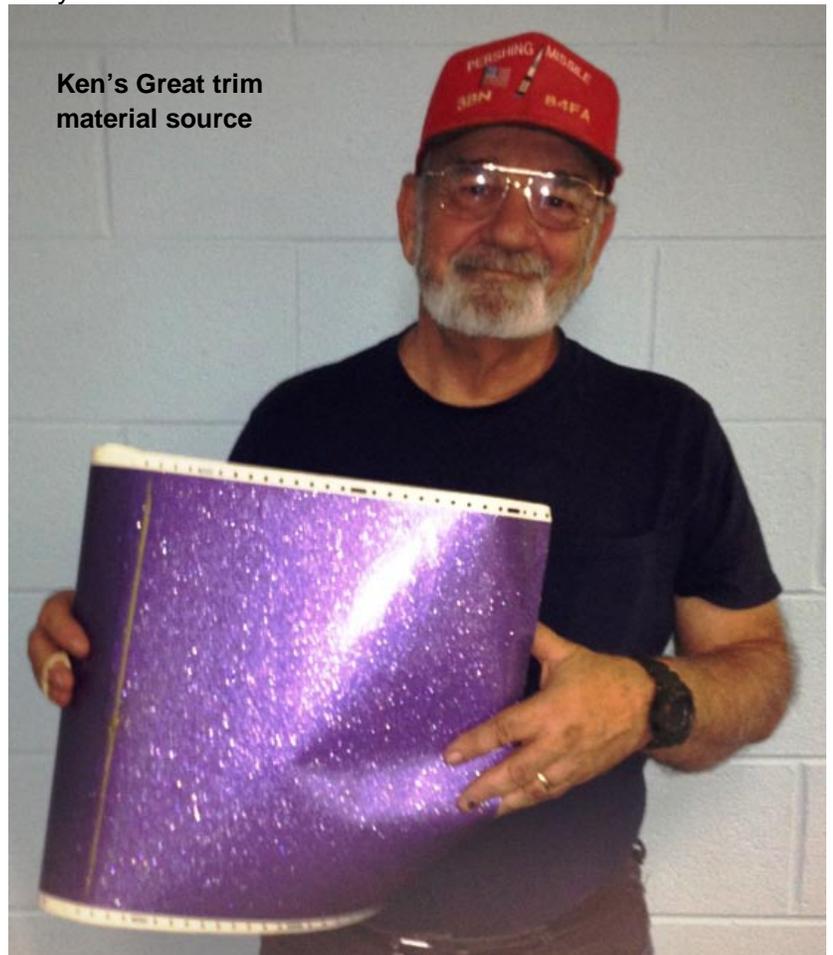
Show & Tell



Abundant Graphite 😊

Dave with roll of graphite epoxy similar to the one shown and handed out to members at the meeting.

Ken Merlino suggest using trim film from auto paint shops to add decoration to your models. He says it is available in a vast array of colors.



Ken's Great trim material source

Propstoppers RC Club of
Delaware County, Pennsylvania.

Club Officers

President Dick Seiwel

(610) 566-2698

reslawns@verizon.net

Vice President Chuck Kime

(610) 833-5256

chuxtruk@yahoo.com

Secretary Richard Bartkowski

(610) 566-3950

rbartkowski@comcast.net

Treasurer Pete Oetinger

610-627-9564

Membership Chairman Ray Wopat

(610) 626-0732

raywop@gmail.com

Safety Officers

Eric Hofberg

bgsteam@comcas.net

Ryan Schurman

throtile152@hotmail.com

(610) 565-0408

Newsletter Editor

Dave Harding davejean1@comcast.net

(610)-872-1457

Propstoppers Web Site; www.propstoppers.org

Material herein may be freely copied for personal use but shall not be reproduced for sale.

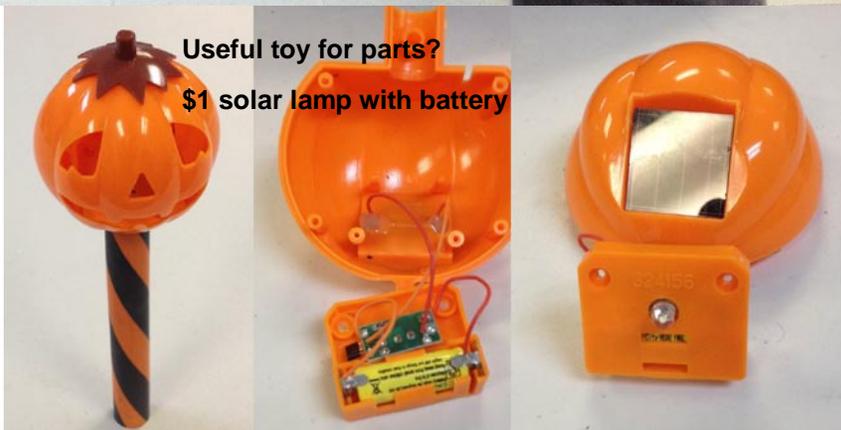
Al's Club Banner to be towed at a picnic in 2016



Al made this banner to tow at the next club picnic, or the one we hold with the Church kids.

Al suggests that the goodies in these \$1 solar lamps could be used in some way in our planes. It consists of a solar panel and associated electronics, an LED and a 200 mAh NimH battery.

Here he is with his banner tow plane converted to electric power from its original glow engine.



Glider Guiders Fly at Elwyn

Here is a video of Larry Woodward's 2N Spirit glider on a fine fall morning at Elwyn.

Larry's friend Pedro enjoys recording these events in video.

<https://www.youtube.com/watch?v=58rLXv3mROM>





FOR IMMEDIATE RELEASE: November 23, 2015
CONTACT: Allison Haley, media@modelaircraft.org,
(202) 777-3509

AMA REACTS TO DOT TASK FORCE RECOMMENDATIONS ON UAS REGISTRATION

MUNCIE, Ind. – *Dave Mathewson, executive director of the Academy of Model Aeronautics (AMA) which is the world’s largest community-based organization, today made the following statement on the recommendations released by the U.S. Department of Transportation’s Task Force on UAS registration:*

“As a member of the task force, AMA agrees that registration of UAS makes sense at some level and for flyers operating outside the guidance of a community-based organization or flying for commercial purposes. Unfortunately, as written, these recommendations would make the registration process an unnecessary and unjustified burden to our 185,000 members, who have operated harmoniously within the aviation community for decades and who register and provide their personal contact information when joining the AMA. For this reason, AMA wanted to include dissenting comments in the final task force report, but was prevented from doing so.

“Adding an additional requirement for AMA members to register at the federal level is contrary to the intent of the Special Rule for Model Aircraft in the FAA Modernization and Reform Act of 2012. Public Law clearly states that the FAA is prohibited from promulgating any new rules for recreational users operating within the safety guidelines of a community-based organization. Congress by no means intended to grant a free pass for individuals who operate model aircraft. Instead, it clearly intended to leave risk mitigation and the development of appropriate safety guidelines for the operation of these devices by the members of the AMA to the nationwide community-based organization.

“More importantly, there is no finding or indication that any AMA member was involved in the incidents and sightings that lead to the decision to require UAS registration. In fact the AMA has proactively partnered with the FAA and other industry stakeholders in an effort to educate the new unmanned aircraft (“drone”) enthusiasts through the “Know Before You Fly” campaign. AMA members have been flying safely for decades, and our members are not the problem. Safety has been the cornerstone of our organization for over 80 years and, with our stellar safety record, AMA’s members strive to be a part of the solution. However, the solution should not involve our members bearing the burden of new regulations.

“Unfortunately the task force recommendations may ultimately prove untenable by requiring the registration of smaller devices that are essentially toys and do not represent safety concerns. Based on its years of experience the AMA cautioned against unnecessarily encumbering the toy industry and urged the task force to consider several factors when determining the threshold at which UAS technology should be registered – including weight, capability and other safety-related characteristics. But, the recommendations do not reflect this comprehensive approach. The task force only considered weight, requiring any device over 250 grams (0.55 pounds) to register. We believe weight should be only one of several factors considered when determining where the threshold should be for UAS registration.”

Amazon Delivery Drone Program Update



From CNET Sunday 29th November.

Amazon is offering a closer look at the drones it plans to use to eventually deliver customers' packages; nearly two years to the day after the Internet retailer first teased us with its ambitions for the unmanned aerial vehicles.

In a [video posted to YouTube](#) on Sunday (embedded below), Amazon showed off a new prototype drone it hopes to use to deliver small packages to customers in fewer than 30 minutes. Unlike a previous demonstration offered by Amazon that showed packages being carried below the drone, the new video shows the prototype accepting a package into its fuselage before delivery.

Part of a "family" of drones, the "hybrid" drone is shown in the video taking off vertically like a helicopter and then switching to a more airplane-like flight. Using "sense and avoid" technology, the drone can avoid potential obstacles in the air and on the ground for a range of 15 miles, Amazon said.

"In time there will be a whole family of Amazon drones, different designs for different environments," says Jeremy Clarkson, the former "Top Gear" host who presents the video, and who will [front a new car show on Amazon Video](#).

Retailers such as Amazon and Walmart are continually looking for new ways to get a jump on the competition and attract customers. Speedy delivery is one strategy. Small, unmanned commercial drones would avoid the delays of standard postal service by flying through the air to deliver a package directly to a customer's home.

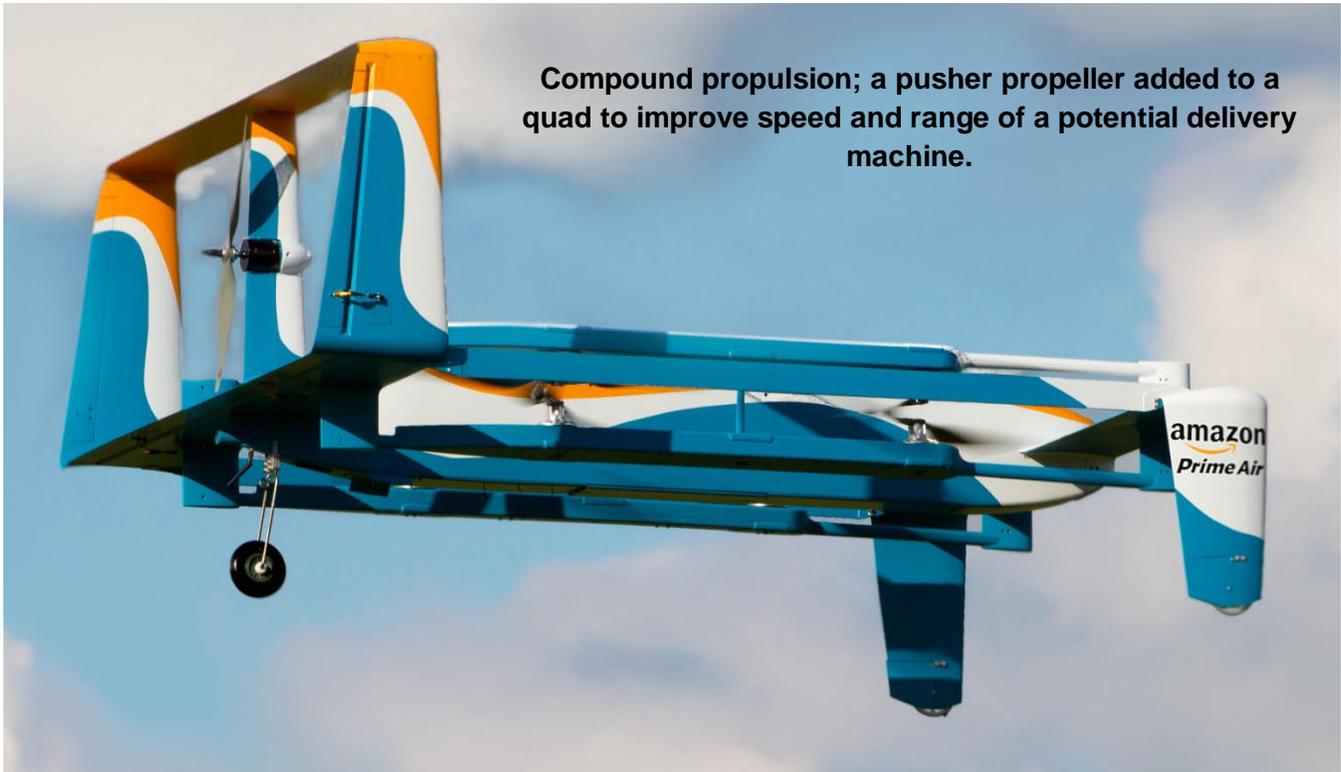
Amazon made a splash in December 2013 when it announced it was [testing a drone delivery service](#). Dubbed Amazon Prime Air, the idea is to deliver shoebox-size packages to customers with unmanned aerial vehicles -- about the size of a remote-controlled airplane -- faster than other delivery services. However, the service can't take off until the FAA figures out how it will regulate unmanned aircraft when they're used for commercial purposes.

Even as the FAA enforces its ban on unlicensed commercial drone operations, the agency is working on **rules to permit drones without business having to secure specific permission**. It's released draft regulations but missed a September deadline to finalize those rules. (See the AMA letter above. Dave)

Amazon is working with regulators and policymaker to make the delivery service a reality as soon as possible, an Amazon spokeswoman said Sunday evening.

"We will deploy when and where we have the regulatory support needed to safely realize our vision," Kristen Kish said.

The creation of new drones and the interest in using them commercially has exploded in the past few years. The Association for Unmanned Vehicle Systems International claims the first three years of integration of drones in the US skies will create more than 70,000 jobs and create an economic impact of \$13.6 billion



Compound propulsion; a pusher propeller added to a quad to improve speed and range of a potential delivery machine.

As you can see, Amazon has now moved to a hybrid design. It looks much bigger than in previous renderings. Imagine that thing flying towards the neighbor's house. Get ready for reports of aliens rising if this thing ever comes to fruition.

The new Prime Air drone isn't just a quadcopter anymore. It still takes off and lands vertically, but then it switches to a regular horizontal flight mode, which is far more efficient. It's basically part helicopter, part airplane. With this new design, the drone can cover over 15 miles and fly over 55 mph, Amazon says. In the video, Clarkson says Amazon is working on a family of drones for different environments and purposes.

The new drones feature at least some degree of sense-and-avoid technology and once it arrives at its intended location, it'll scan the area and look for a landing spot. Right now, it looks like users will be able to mark this spot in their yard, for example, with an Amazon logo. The drone then lands, drops off the package and takes off again.

"This design enables it to fly long distances efficiently and go straight up and down in a safe, agile way. It is one of many prototype vehicles we have developed," an Amazon spokesperson told us. "One day, seeing Prime Air vehicles will be as normal as seeing mail trucks on the road."

Obviously, Amazon still has a few hurdles to climb, even with this new design. Chances are, we won't see these new drones deliver packages in a city anytime soon. The new design, however, should work really well in a more rural and suburban area (and yes, feel free to leave us a comment about how you would shoot it down if it flew over your house).

If Amazon can solve some of the harder sense-and-avoid issues (like small power lines), then maybe Prime Air will take off sooner than many of us expected (assuming Amazon manages to work within the FAA's upcoming regulations for commercial drones).

For comparison, here is what the old drone looked like:



Drone Tech and Compounds

These developments by Amazon have stirred the old rotorcraft and VTOL design and tech juices. Why, because I see the “drone” guys beginning to follow the path of countless prior developments on VTOL vehicles that are seeking speed, range and endurance beyond that afforded by the simple helicopter. But speaking of simple helicopters, you may not have heard of Igor Bensen, but in the 1950s he was a prolific airplane builder, beginning with gyrocopters;



But he also made a variety of “duals” and “octos”; Helicopters featuring small gas engines and fixed pitch propellers, just like our quads! His B-12 Sky Mat featured eight rotors powered by sixteen engines!

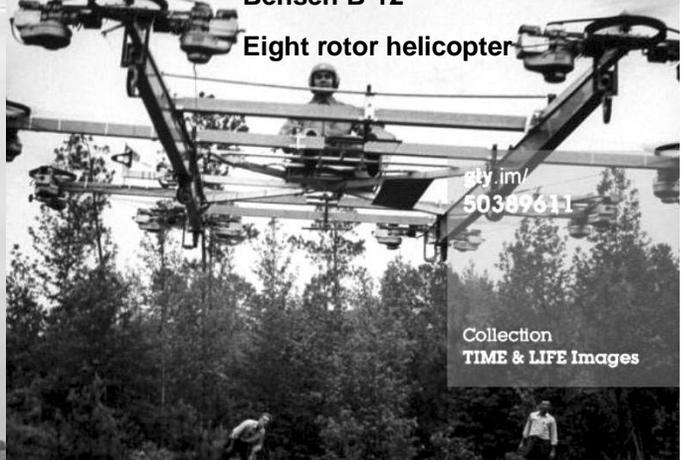
Igor Bensen B-10

Two rotor helicopter



Bensen B-12

Eight rotor helicopter



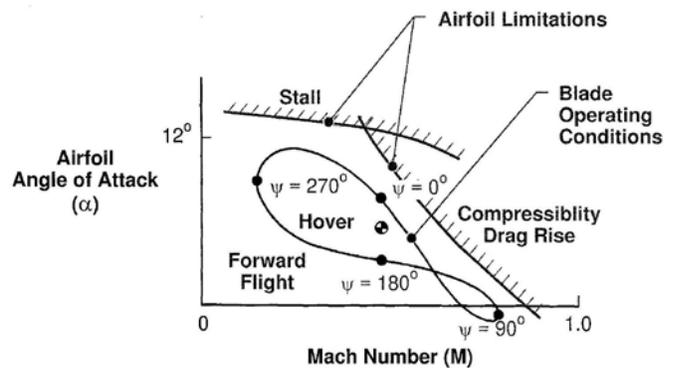
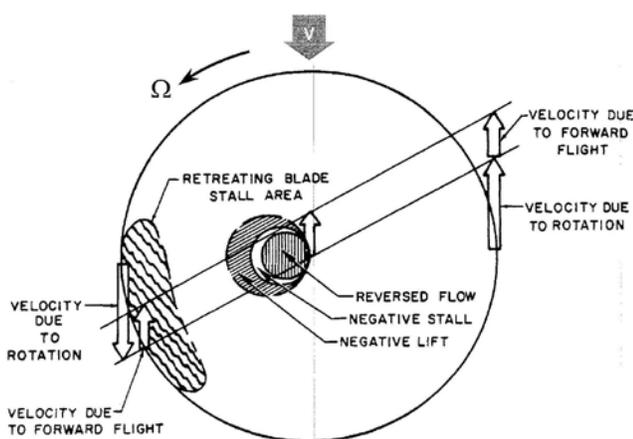
Collection
TIME & LIFE Images

But let's for a minute go back to the “conventional” helicopter with articulated rotor blade operated with collective and cyclic pitch control. In forward flight, where the advancing blade; the one going forward at the tip, experiences higher dynamic pressure than the retreating blade (dynamic pressure; think sticking your hand out of the car window at speed).

In forward flight If the pitch of the blade remained constant around the revolution, like in hover, the advancing blade would have more lift than the retreating blade and the helicopter would pitch up (no, it would not roll because the blade response 90 degrees after experiencing the lift increment: trust me, it was a surprise lesson learned by the pioneers). So the helicopter is trimmed by reducing the pitch of the advancing blade and increasing on the retreating blade (with cyclic pitch) to achieve balance. Further, the inboard portion of the retreating blade is experiencing reverse flow, therefore not doing much but adding drag. As speed increases and more differential pitch necessary the retreating blade tip begins to stall; the angle of attack is so high. All this means as speeds increase the plain old helicopter gets inefficient, the drag and power required to turn the rotor and make propulsive force (in the direction of travel) significantly increases and several limits are reached.

On real helicopters you can speed up the rotor to minimize the retreating blade effects but then you run into critical Mach numbers on the advancing blade tip. The critical Mach number is when the local flow around the airfoil goes; supersonic; exceeds the speed of sound and results in “Compressibility Drag Rise”. You can minimize this by using thinner airfoils at the tip but at that point you are in a corner. Some helicopters fly beyond the Mach “limit”; Have you heard the sound of a heavy UH-1 Huey in flight? Wop Wop Wop is supersonic flow!

Rotor Flow Conditions in Forward Flight



Now the early attempt to pass these limits was to relieve the plain old rotor of the need for propulsive force and in some cases lift too. The propulsion was provided by auxiliary means; pusher propellers of jet engines.



Bell 533 High speed compound helicopter flew 316 mph in 1969



Fairey Gyrodyne early compound helicopter

Some also featured small wings to further offload the rotor.

But Sikorsky went further by using rigid rotors in a coaxial configuration. The advantage of this configuration is you can load the advancing blade and live with the lower lift on the retreating because the upper rotor's asymmetry counteracts the lower. They called this the Advancing Blade Concept; ABC and build such a machine with jet compounding for Army evaluation.



Sikorski XH-59 jet powered compound helicopter flew 274 mph in 1977

It was not a very successful demonstration as there were difficulties with vibrations and the choice of two J85 jet engines resulted in a flight duration measured in minutes. The program was dropped but stayed in the Sikorsky DNA to this day. Indeed, in the last few years they built the X2 high speed demonstrator shown here;



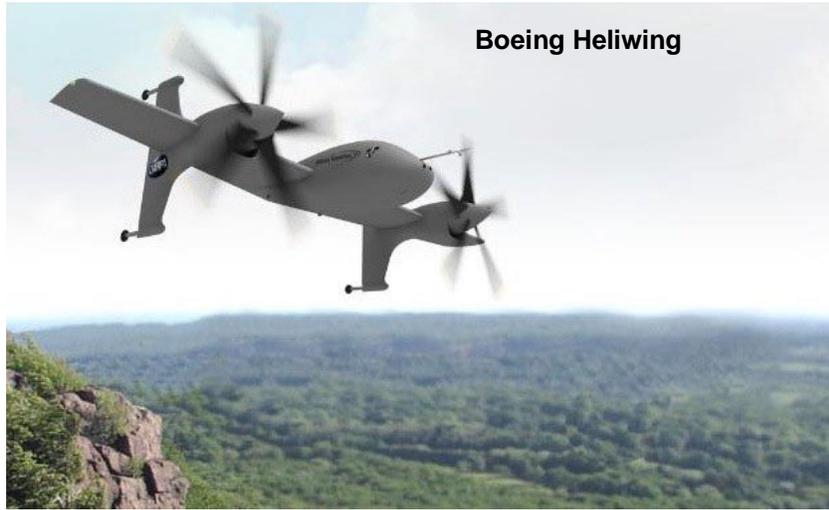
Sikorsky X-2 compound helicopter flew 290 mph in 2010

They are now teamed with Boeing to build a version of this for the US Army Joint Multirole, JMR Program.



But there are all kinds of ways you could “compound” a quad or how many rotors you wish. If there is no pilot or passenger you can do other mechanizations, like the Boeing Heliwing of twenty years ago.

Invented by one of my colleagues, it embraced the helicopter behavior of a Boeing tandem rotor machine in hover with the forward flight behavior of the V-22 tilt rotor, or the very early Vertol (Boeing) VZ-2 tilt wing.



**Vertol (Boeing) VZ-2
Tilt Wing VTOL 1959**



So, what do you think guys, anyone up for compounding one of your quads or even building something from scratch as Joe Mesko did some years ago?

Dave

Eric Hofberg's Annual Christmas Toy Trains Open House



Our annual Open House is scheduled for Sunday 12/27/15 from 2:00 to 5:00 pm

There will be 2 operating toy train layouts with standard gauge 1930 vintage trains upstairs and O scale modern vintage trains downstairs.

Snacks and beverages will be provided. Family and friends are invited! No snow date.

We are collecting non-perishable food goods or small cash donations that will help support the local food bank. Your generosity in supporting this worthy cause is most appreciated!

Location:

Eric & Peg Hofberg

836 Surrey Lane

Media, Pa. 19063

THERMAL SOARING AS APPLIED TO OLD TIMERS

(And other gliders too; Ed.)

An article by Don Bekins from SAM Speaks #27, Sept – Oct, 1977

Gleaned by Don Bekins from Mark Smith (former National Soaring Champion)

The only difference between an old timer and a glider is the method of getting the model in the air. Deriving the benefit of thermal activity is a matter of recognizing the updraft when your model passes through it, and then getting in it and staying there. Once that is done, and then you must get the plane down on time and hit the proper spot if you are flying the limited engine run events. Here is a summary of Mark Smith's comments, with some of mine added.

When you arrive at a field, look for the "hot" spots; a building, dark roads or fields or other landmarks that can produce enough radiant heat to start thermal activity. Don't forget that line of contestants' cars from which those shimmering heat waves rise at mid-day! This is a part of getting to "know the field". It is most helpful to have an "assistant" who can help in spotting thermals and educating the timer in reading the watch and calling countdowns.

Before take-off, the assistant should hold the plane and confirm with the pilot that he has the transmitter and receiver ON, with all controls operating properly. When the model is off and climbing, the timer should call the time every five seconds of engine run to fifteen seconds, then call each second as it is tacked off. At eighteen seconds, the pilot should give some down elevator and cut the throttle. The reaction time for the movement of the stick and the mechanical cut-off will give a perfect twenty second run. Now the model is gliding and properly trimmed for straight and level flight. In Mark's words, "Don't stand there and watch it fly - stare at it, concentrate, bear down and look hard". "Watch for the faintest wiggle, bump or deflection from its flight path". "Don't let anyone distract you by talking; thermal soaring is work! Keep upwind, set up a search pattern and stay alert". Hunt, trading altitude for distance. If the airplane is in 'down' air, get the nose down and get out of there. Usually strong down currents are an indication that a thermal is in the vicinity. Other indications are circling birds, a sudden change in temperature or a sudden wind shift. Be alert.

As you practice R/C soaring you will find yourself being able to sense the location of a thermal. If the airplane will cover enough ground, the chances are good that you will find rising air. When in the immediate vicinity of a thermal, the flight path will be deflected depending on the location and strength of the thermal. If the airplane passes along the edge, it will raise one wing. Turn into the wing that rises, for the model is just outside the thermal. If the tail rises, the airplane is flying through the thermal so press on until the plane regains a normal flight altitude. Then turn and plunge into the center of the thermal. Start a large easy circle. If the plane ascends on one portion of the circle and descends on the other, move the pattern over toward the ascending portion. Keep working until the model is going up at a high rate. Security is a thermal!

Mark Smith's advice continues, but I would like to add a short note. How do you tell when the airplane is going up? When the model is nearly overhead, this is nearly impossible to perceive. Therefore, I make it a practice to move the model upwind to approximately a 45° angle. At that position it is easy to detect the altitude changes immediately. Once you are circling in a thermal, you can set down your transmitter and let your airplane do what it does best - soar. If it passes overhead or through the sun, don't worry. Your model is stable and will continue flying as a free flight in the trim that you have set. Only when the model stops going up, or is too high, or too far away for visual contact, do you disturb the trim and bring the plane back. Thermals move with the wind direction - downwind. Mark continues: "As the plane moves out of visual range, get the nose down and head back. Return to the area where you found the last thermal and set up another search pattern ..."

Finally, the plane has been up as long as required. It is time to establish your landing strategy. At the John Pond Commemorative, the requirement is to hit a fifty foot circle at exactly five minutes of duration. Time over or under is deducted from your time in the air. If you are way up, then you had better start down with one and

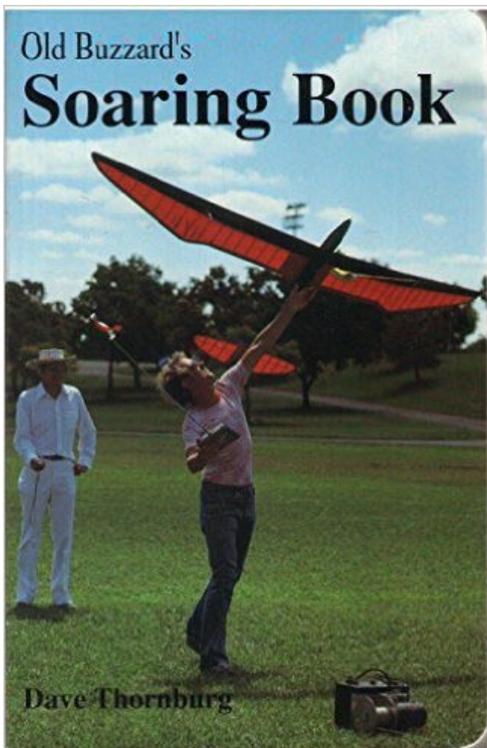
one/half minutes to go. (*We no longer have this rule, Ed.*) In any event, start your descent at the latest one minute before touchdown. Have the timer call off the elapsed time every minute during the flight so you are fully time-oriented. At one and one/half minutes to go, have the time called every fifteen seconds. Stay upwind during the descent. At one minute to go, you should be about one hundred feet off the ground. Turn down wind and pass to one side of the spot in a shallow dive. At thirty seconds you should be on your final approach aimed at the fifty foot circle. Keep up your speed. Your distance downwind is determined by your airspeed and the velocity of the wind. The timer should now be calling the time every five seconds. At fifteen seconds he should count down every second, and your plane should be ten to fifteen feet off the ground. If your plane has sufficient speed you can make it touch the ground just as the timer calls one second to go. By the time he reacts and pushes the button, you should have five minutes to the second and a spot landing. Remember, it is better to pick up the extra points by hitting the spot than to miss it and touch down at the exact moment.

Now a word or two about flight attempts; If you have a foreshortened engine run or poor engine performance, it is far better to take an attempt by letting the engine run over twenty seconds, or in the case of a short run, getting the plane down under forty seconds. Remember, you have six attempts for three official flights. (*We no longer have attempts, every flight counts, Ed.*) Don't tempt fate by trying for that elusive thermal if you don't have maximum altitude!

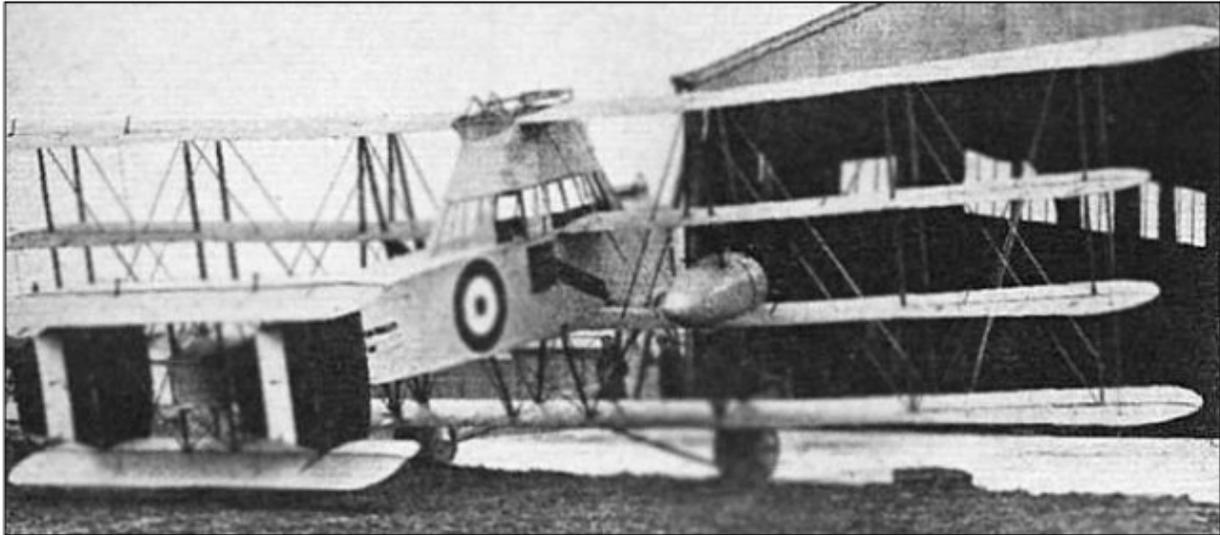
So there is a proven formula for contest wins. In the words of Mark Smith, "Prepare the airplane and yourself. Mental attitude has a lot to do with *RIC* thermal soaring. A positive thinker expects to find a thermal and when one is found he is ready to work it. A negative thinker does not expect to find a thermal, so he does not really look for one" Think positive! With all that down air there has to be a thermal there somewhere." Good luck at the John Pond Commemorative. Remember, practice will help win contests.

Don Bekins

Here is another source on thermal flying; in fact this is the bible. If you can find one buy it. They currently list on Amazon for \$99



The 1915 Supermarine Night Hawk



The Supermarine Night Hawk of 1915 was an aircraft with the mostest of everything, from wings to range. Powered by two 100 h.p. 10-cylinder Anzani radials, it was designed by that remarkable man, Noel Pemberton-Billing, as an anti-Zeppelin fighter.

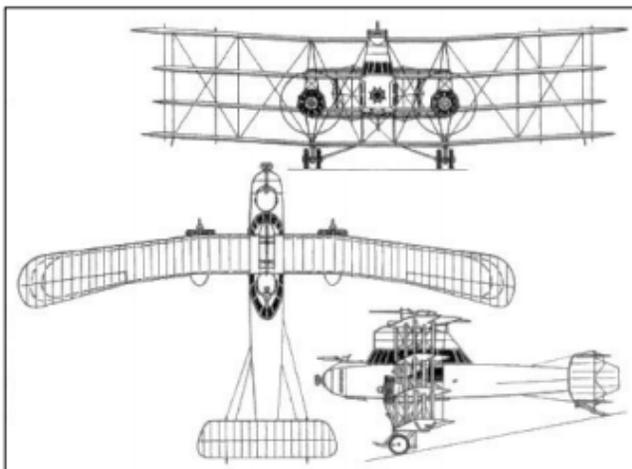
It had swept quadruplane wings, a biplane tail and a square-section fuselage in which most of the wooden structural members were fabric-wrapped to reduce the possibility of injury to the crew from splinters in an accident.

The pilot sat at the rear of an enclosed glasshouse with side windows in the fuselage to give a good downward view. In action, the gunners occupied open-air positions in the nose and above the pilot's cabin, level with the top wing. Lewis machine-guns were fitted in the nose and to the rear of the top platform, but the real "secret weapon" was a 1½ pounder Davis gun, with 20 rounds of ammunition, in the front of the upper position.

No less interesting was the searchlight on a flexible mounting in the nose which was intended primarily for target illumination and so fore-shadowed the Turbinlite night fighters of 25 years later.

The *Night Hawk* carried a ton of fuel in its nine tanks, sufficient for a patrol endurance of 18 hours, and even contained a bunk on which one crew member at a time could get some sleep.

It flew well, and its non-production was probably because the Zeppelins had been mastered by standard fighters by 1916.



Dimensions

Span: 60 ft.

Length: 37 ft.

Height: 17ft. 8½in.

Wing area: 962 sq. ft.

Weight empty: 3,675 lb.

Weight-loaded: 6,145 lb.

Max. speed: 75 m.p.h.

Landing speed: 35 m.p.h.

*Model Aircraft
December 1957*



Delaware R/C Club

FLEA MARKET & SWAP MEET

Saturday
January 16, 2016

Newark Senior Center

200 Whitechapel Dr, Newark, DE 19713

Tables \$15.00 each Confirm reservation by Dec 15,2015
Table set up @ 8:00am
Doors open to the Public @ 8:30am

“Impromptu Auction” at the end of the event

Admission \$5.00 includes one raffle ticket

Food by Troop 30
Raffle prize and 50/50

For more information contact:
Mark Weiss ama82824@yahoo.com