



# The Flightline



Volume 48, Issue 12 Newsletter of the Propstoppers RC Club AMA 1042 December 2017



## **Agenda for December 12th Meeting At Gateway Church Meeting Room** 7:00 pm till 8:30

1. Call to Order and Roll Call
2. Treasurer's Report
3. Christmas Party.
4. Adjournment.

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### President's Message

By now we have recovered from our turkey induced coma and are focused on the Christmas holiday season with all of its associated stresses, shopping, professional sports and visiting relatives. So, let's remember that one of the benefits of model aviation is the stress reducing effect of an hour of rc flying or working on a new build project. Take a moment when you can, you will be the better off for it.

We have our next indoor flying session coming up on Saturday December 9<sup>th</sup> at the Brookhaven Gym. (Make a note that the February 10 indoor has been moved to February 17 due to gym availability.) We are only holding these evening flights once a month this winter, so you want to take advantage of each one. We would like to see a broad interest with diverse aircraft and flying styles.

This is one of the few events we have that can bring all our members together for a night of flying and friendship. Our indoor "Air Traffic Controller," Chuck Kime is ready to accommodate any and all things that fly. If you have any ideas for indoor events or activities to make the evening more fun, please be sure to contact Chuck.

Our December 12<sup>th</sup> meeting will be the annual Christmas party with hoagies and soda provided. If you would like to bring a small side dish, chips or a desert that will finish out the menu. An added bonus this year are door prizes. Andy Peterson has generously donated the small indoor RC Chinook helicopters he demonstrated at the November meeting.

I look forward to seeing you all at the party. Best wishes for a great holiday season,

*Dick Seiwel, President*

**Minutes of the Propstoppers Model Airplane Club**

November 14, 2017 at the Christian Academy meeting room.  
 Call to order took place at 7:10 PM by Vice-President Chuck Kime.  
 Treasurer's report was given by Pete Oetinger.  
 Minutes as printed were approved.  
 Present were 14 members and one guest.

**Old Business:**  
 The club discussed food and drink for the December holiday meeting. Plans were also made for a door prize to be presented.

**New Business:**  
 Larry Woodward said that the new updated club bylaws are being prepared for committee review.

Picnic dates for the 2018 summer season were discussed. Choices were:  
 June 16 as a BYO picnic, July 21 as a burger picnic, August 18 as a club hoagie picnic and possibly September 15.

Discussed ways of improving club activities to keep the members involved. Several said a survey is ongoing and we will await its findings.

**Show and Tell:**  
 Andy Peterson showed and flew his RC Chinook twin rotor helicopter. It is a small model with counter rotating blades and an infrared control.  
 Al Tamburo showed an old favorite transmitter that he converted from 72 MHz to 2.4. It was one of his favorites in the past and he is hoping to use it again.

Adjournment took place at 8:15 PM



Andy Peterson and his twin rotor Chinook.



Al Tamburo with his 74 Mhz to 2.4 Ghz conversion

**Propstoppers RC Club of Delaware County, Pennsylvania.**

**Club Officers**

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Propstoppers Web Site; [www.propstoppers.org](http://www.propstoppers.org)

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## 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 Nov. at the Gateway 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 winter 10:00-11:00 (subject to availability of the gym).

### Regular Club Flying

**At Old Christian Academy Field; 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.

## Editor's Note:

This is the second issue of Flightline that I have produced since joining Dave Harding as Co-Editor. I knew he would be a hard act to follow. His inspiring work, over nearly two decades, has kept this newsletter at a level of excellence that would be the envy of any AMA chapter. Dave's depth of knowledge and experience is the foundation of each month's publication. We are very fortunate to have him, and owe him an enormous debt of gratitude.

As you can see from the last couple issues, my background pales in comparison and my editorial prowess is pretty much limited to lighter fare. But I have an ace in the hole, you the Propstoppers membership. With your collective experience and help I believe we can, together, maintain the quality newsletter we all have come to expect. And, we can do it without leaning on Dave forever.

Everyone can help. Send me photos whenever and wherever you fly. If you run across an interesting article, link, thread or video, send me the info. For your next build, plan to photograph the process and write it up. You all have expertise, share it!

Larry Woodward, Co-Editor

## 2017/18 Indoor Flying at the Brookhaven Gym

November 11, December 9, January 6,  
February 17, March 10:

6:30-9:00 pm.

Flying after Tuesday Breakfast 10.00am

## Membership Renewal For 2018

*Membership renewal for 2018 is now required. You can renew by mail or at the club meeting in December or January.*

*Don't lose your club privileges!*

*Bring cash or check and your AMA card.*

*Dues are \$60.*

Please send a check *made out to the Propstoppers* 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  
Chairman**

# Outdoor Flying Season Refuses to Quit

By Larry Woodward

I thought for sure that my outdoor photos from the late fall in last month's "Flightline" would be the last for this season. But November proved me wrong again!

As long as the sun keeps shining and the winds stay low, we'll keep flying!



[Click here to see Pedro's video of Al Basualdo's Freewing Avanti flying at Elwyn Field](#)

# What is a drone?

By Murray Wilson

A little radio control history plus a question. What is a drone and which was the first?

When I went to school there was no sex education but we learned that a drone was the bee which had all the fun, he did no work and his sole task in life was to mate with the queen. Outside of school though I learned that during the late 1930s the USA and Britain had independently developed full sized remotely controlled aircraft for use as targets and these were being referred to as drones. After initial rather unsuccessful attempts at radio control in both countries the de Havilland Company led the way with a biplane based on an extensively modified Tiger Moth and named the Queen Bee. It was the custom of Geoffrey de Havilland to name his company's aircraft after insects, the WW2 Mosquito being a very well-known example. The Queen Bee flew with locked ailerons and three channel control. The pilot on the ground flew by turning a dial to the appropriate number for the action required. After witnessing a demonstration of the Queen Bee the US Navy followed with two similarly adapted Curtiss N2C-2 Fledglings and two Stearman biplanes. It was these that became known as 'drones', supposedly as a jokey nod towards the 'Queen Bee'. Incidentally, in both countries drones showed the accuracy of naval anti-aircraft fire to be very poor.



What I find particularly interesting in the photo is that the flying is being done by a corporal. In the RAF a pilot would be at least a sergeant. This corporal has what may be a telecommunications insignia above his chevrons, so it may be evidence of job demarcation. Hard to imagine though that a job which might have taxed our own AI Tamburo would be put in the hands of a non-pilot



So was this the first use of radio control? No, far from it. Physicist Oliver Lodge in 1894 demonstrated radio control in a laboratory, but it was Nikola Tesla in 1898 who patented a system and demonstrated it publicly with model boats. According to the patent wording the system had circuits responding to specific frequencies, but with the broad spectrum of the spark transmitters of the day and the unselective coherer receivers it is hard to imagine this system working with more than one channel and it may just have operated a sequencer. The system does not appear to have been used on anything after the model boats.

In 1917 Archibald Low of the British Royal Flying Corps, who like Tesla dabbled in many different technologies, demonstrated radio control of an airplane's controls, but unfortunately only whilst it was static. The moment the engine was started the ignition interference incapacitated the radio control system. This was overcome, but the aircraft was never flown. Sopwith built a small 35hp unmanned aircraft to use the Low system, but it too was never flown.

Meanwhile in the USA John Hays Hammond Jr. developed a system that was installed in several old naval ships, notably the retired battleship USS Iowa, for use as targets and this worked well. Of course on a ship it was possible to supply ample electric and steam power and have plenty of room for the equipment. It was the Hammond equipment which was then used successfully in the US target drones of the late 1930s.

At that same time the Russians developed small radio controlled tanks which they used in their war against Finland.

In WW2 little use was made of radio control by the Allies, but the Germans experimented extensively with unmanned rc "flying bombs." Several variations, deployed from larger aircraft, were successfully used in limited actions against Allied naval activity. Dave Harding researched and documented much of this work for Flightline over a decade ago. His article in the February 2001 issue details the experience of then fellow Propstopper Bill Ross, as he witnessed the destruction of a US Navy LST by a German rc flying bomb while participating in the amphibious invasion of Southern France. See his article on page six of the [February 2001 Flightline](#).

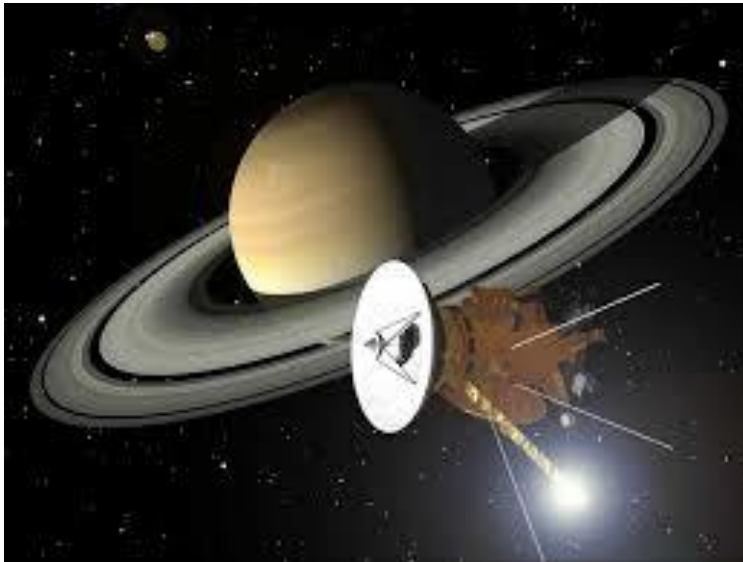
After the war it was the turn of the modelers to get cracking with boats and aircraft. Initially most model flyers had to be content with single channel "all or nothing" control of just the rudder, but experimenters who built their own equipment could be more enterprising. In the USA the twin brothers Bill and Walt Good were the outstanding pioneers, starting in the 1930s and there is quite a lot about them on the internet. At [www.youtube.com/watch?v=jduj1wkGFT0](http://www.youtube.com/watch?v=jduj1wkGFT0) there is a twenty five minute video on the history of radio controlled model aviation in the USA. At

[www.modelairplanenews.com/the-first-days-of-rc](http://www.modelairplanenews.com/the-first-days-of-rc) there is a short article from MAN.



*Walt and Bill Good and their R/C model—the Guff (circa 1939).*

All the important, to us, development of multi-channel and proportional control for models from the 1950s on was completely put in the shade by the applications of radio control to unmanned space vehicles, for which the development of pulse code modulation had been a vital factor. The very nature of space exploration results in current projects being carried out by obsolescent technology. The recent spectacular success of Cassini showed what was achievable with the technology of twenty years ago, for that's how long Cassini had been active. Twenty years exposed to the rigors of space and controlled from a distance of millions of miles. Radio control had not only come a long way it had gone a long way.



In 1997 it would have been difficult to imagine the progress that would be made by 2017 in capability, cost and the size of our hobby radio control equipment. No doubt the equipment is going to get even smaller. Perhaps unfortunately it has become possible to buy at a very modest price a multi rotor flying device, probably equipped with a camera and stabilized. Somehow these and only these have become known to the general public as Drones and regarded as invasive and threatening. That is a whole other matter, though one that is probably going to be quite troublesome to the hobby, but it does bring us back to the question asked in the title. What is a drone? Well today it is one of these potentially invasive wingless wonders, but it wasn't always. Ask any Queen Bee.

Joe Paradine pilots his rc WWII Tiger Moth at Brookhaven Gym; but not, intentionally anyway, as a target "Drone."



# **Free Flight is only one reason- Why I Love Tuesday Morning “Breakfast Club”**

By Larry Woodward

If I were forbidden from even touching a model aircraft or holding a control transmitter, I would still gladly be a dues paid member of Propstoppers, if only to be able to join my friends for Tuesday “Breakfast Club.” Since my retirement, now six years ago, there have been few things more impactful on my daily life than taking up model aviation and making connection with Propstoppers. And for those members not yet at the retirement stage in their lives, I can only say that the best is yet to come.





Every Tuesday morning those of us lucky enough to have time on our hands, aka retired, meet at 9:00 for breakfast at the Tom Jones Diner in Brookhaven. Typically there is a group of a dozen or more who spend an hour catching up on the day to day news, talking about models, old and new, telling “war stories” from the good old days and planning future projects. For a newcomer like me, the depth of knowledge and experience at the table is nothing short of amazing. Between the multiple decades of model aviation experience, not to mention professional aviation engineering, represented at the table there is no end of help with every aspect of my development. And for icing on the cake, you could not ask for a nicer bunch of friends.

After breakfast we move to the Elwyn Field in fair weather and to Brookhaven Gym in winter. The indoor venue accommodates many types and styles of aircraft and at some point you will see them all. But lately, my love affair with Breakfast Club focuses on one particular activity popular with this group, indoor free flight rubber powered aircraft.

There are so many aspects to model aviation that it is hard for me to find time to explore them all. I enjoy learning about aviation theory, aircraft design and flight dynamics, construction and building techniques, flight trim and control, electronics, materials technology, radio systems and flight controls, and on it goes. What I have found is that when winter forces me to scale down my flying environment I do not have to sacrifice my breadth of interest. It’s all there with indoor free-flight.



Murray Wilson with a beautifully crafted sheet balsa model made by Newt Bollinger. This is the minimalist approach at its finest.

[Click here for a link to flight video.](#)

There is an inherent beauty to these models that appealed to me from the start. However, their simplicity is deceiving. Perhaps because they are so stripped down and elementary we think they lack sophistication. In reality, they must perform in every aspect of more complex aircraft, except they do it with essential elements alone. The challenge of free flight is to understand and execute flight “perfection” through the most rudimentary means. This combination allows one to examine all the fundamental aspect of flight and aircraft design without spending a lot of time and resources in the building process. For a beginner like me it has been an exceptional tool for learning about basic concepts such as center of gravity, balance, wing camber and aspect ratio, flight trim and control surfaces, and even prop design and power distribution.



Joe Paradine with a full fuselage balsa and tissue model made by Newt Bollinger

[Click here for a link to flight video.](#)

However, the real payoff is in the flying. These models just look so beautiful as they literally “float” on air and navigate the room by design alone.

At the extreme, where every element is stripped down to the lightest possible construction, the form may seem a bit odd, but the performance is truly surreal. We congratulate each other with flights that last for a couple minutes. At the national competition level, you will need to consistently make half hour flights if you hope to take home a trophy in the most advanced classes. And if you want to compete at the world wide level, don’t bother packing your bags unless you can keep a model up for over an hour.



Mick Harris's balsa and tissue, rubber powered Spitfire MKII

At Breakfast Club, the man to beat in free flight is Mick Harris. Whether you are looking for scale war birds, high performance duration, or anything in between, Mick is our currently undisputed indoor champion for building skill and flight performance. Click the link at left for a video of his most recent high performance duration flyer.

[Duration Flyer Video](#)

Not everyone is in love with rubber band power. Some of our breakfast group like to take the free flight challenge into the 21<sup>st</sup> Century with micro electric power. And some of us who don't have the patience for balsa and tissue building have been working with very thin foam sheeting.

Dick Bartkowski and Dave Harding have been working for some time with foam indoor electrics using very small brushed motors and various types of electronic



timers to power their creations. And, Al Tamboro is king of the

reverse engineers. He has a passion for picking up electronic toys and taking them apart to get parts for his models. This one is powered by a motor and gear box from a plastic toy from Five Below. Stay tuned for more detail coverage of these in the January Flightline. Make a point to spend a little time with the free flight guys. You never know what you might learn.



# Could Robotic Birds Lead to Safer Air Travel?

By SAMANTHA STARK, JAWAD METNI, SARAH KRAMER and JASON GREENE | New York Times Nov. 27, 2017 | 5:25

Birds and planes don't mix — so some airports are testing whether drones (with flapping wings) can scare flocks away. We take you inside a trial program in Alberta, Canada.

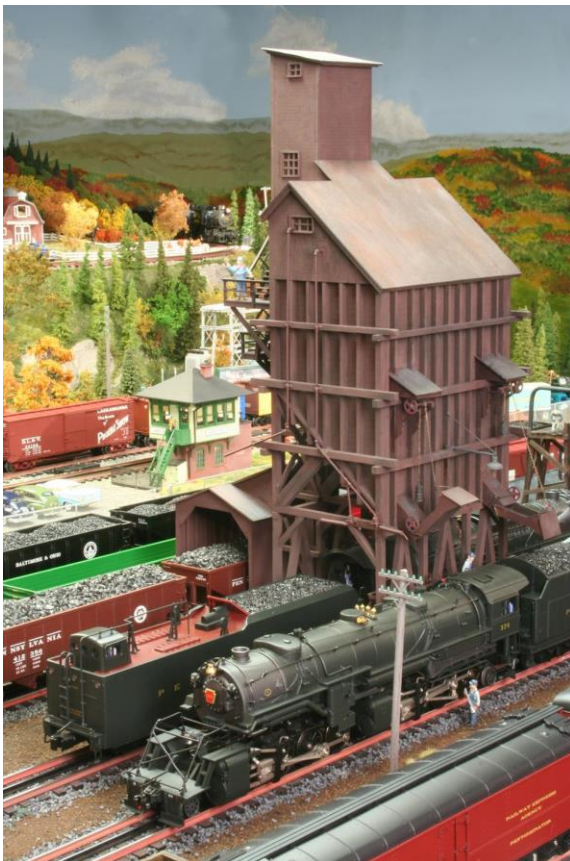
Related:

- [Click here for article: Where Birds and Planes Collide, a Winged Robot May Help](#)



Click on the image below to connect to the NYT video article

## TOY TRAIN OPEN HOUSE



Eric and Peg Hofberg invite you to their annual Toy Train Open House, which will take place on Saturday, December 30th, 2:00 to 5:00 p.m. at 836 Surrey Lane, Media.

They have two permanent train layouts: an antique Standard Gauge layout on the main floor and a large O Gauge layout in the basement. Bring your family and friends to this very informal open house.

In lieu of treats for them, Peg and Eric will happily accept non-perishable food items (or cash) to be donated to the Delco Interfaith Food Assistance Network (DIFAN) pantries.

# Aurora Flight Sciences and Stratasys Deliver World's First Jet-Powered, 3D Printed UAV in Record Time

*Leading provider of advanced unmanned systems and aerospace vehicles leverages the power of 3D printing to reduce design and build time by 50 percent*

*3m wingspan UAV is 80% 3D printed, with lightweight Stratasys materials key to breaking speeds of 150mph*



MINNEAPOLIS & REHOVOT, Israel--([BUSINESS WIRE](#))--[Stratasys Ltd.](#) (Nasdaq:SSYS), the 3D printing and additive manufacturing solutions company, today announced that it has teamed with Aurora Flight Sciences to deliver, what is believed to be, the largest, fastest, and most complex 3D printed unmanned aerial vehicle (UAV) ever produced. Unveiled for the first time at this week's Dubai Airshow (Stand 206), the high-speed aircraft is built using lightweight Stratasy materials to achieve speeds in excess of 150mph.

To realize the joint goal to design and develop an advanced 3D printed demonstration aircraft, the final UAV – which has a 3m (9ft.) wingspan and weighs only 15kg (33lb.) – leveraged 3D printing for 80 percent of its design and manufacture and is built on the expertise of Aurora Flight Sciences’ aerospace and Stratasys’ additive manufacturing.

According to Dan Campbell, Aerospace Research Engineer at Aurora Flight Sciences, the project achieved various targets. “A primary goal for us was to show the aerospace industry just how quickly you can go from designing to building to flying a 3D printed jet-powered aircraft. To the best of our knowledge, this is the largest, fastest, and most complex 3D printed UAV ever produced.”

“This is a perfect demonstration of the unique capabilities that additive manufacturing can bring to aerospace,” says Scott Sevcik, Aerospace & Defense Senior Business Development Manager, Vertical Solutions at Stratasys. “This meant using different 3D printing materials and technologies together on one aircraft to maximize the benefits of additive manufacturing and 3D print both lightweight and capable structural components.”

For Aurora, Stratasys’ additive manufacturing solutions provided the design-optimization to produce a stiff, lightweight structure without the common restrictions of traditional manufacturing methods. This also enabled the cost-effective development of a customized – or mission-specific vehicle – without the cost constraints of low-volume production.

### **Design and build time cut by 50 percent with Stratasys 3D printing solutions**

“Stratasys 3D printing technology easily supports rapid design iterations that led to a dramatically shortened timeline from the initial concept to the first successful flight,” adds Campbell. “Overall, the technology saw us cut the design and build time of the aircraft by 50 percent.”

According to Sevcik, the project exemplifies the power of Stratasys’ flagship Fused Deposition Modeling (FDM) 3D printing technology.

“Aurora’s UAV is a clear evidence of FDM’s ability to build a completely enclosed, hollow structure which, unlike other manufacturing methods, allows large – yet less dense – objects to be produced,” he explains.

“In addition to leveraging FDM materials for all large and structural elements, we utilized the diverse production capability of Stratasys Direct Manufacturing to produce components better suited to other technologies. We elected to laser sinter the nylon fuel tank, and our thrust vectoring exhaust nozzle was 3D printed in metal to withstand the extreme heat at the engine nozzle,” Sevcik adds.

“Because Stratasys is able to produce parts that meet the flame, smoke, and toxicity requirements set by the FAA, ULTEM™ has become the 3D printing material of choice for many of our aerospace customers for final production applications,” he continues.

For Sevcik, this particular collaborative project with Aurora achieves one of the foremost overall goals among aerospace manufacturers, as well as those in other industries, which is the need **to constantly reduce weight**.

“Whether by air, water or on land, **lightweight vehicles use less fuel**. This enables companies to **lower operational costs**, as well as **reduce environmental impact**. In addition, using only the exact material needed for production is expected to **reduce acquisition cost by eliminating waste and reducing scrap and recycling costs**,” he concludes. The high-speed Aurora/Stratasys UAV is being showcased at this year’s Dubai International Airshow (8<sup>th</sup> – 12<sup>th</sup> November, Dubai World Central) on **stand no. 206**. To view the video customer story, please visit: <http://www.stratasys.com/industries/aerospace/fdm-uav>