The Flightline

Volume 39, Issue 2 Newsletter of the Propstoppers RC Club AMA 1042 February 2009

President's Message

Don't forget Friday's indoor fun fly, they have really been great so pack up a plane and come on out.

Still no word on the potential new field but I will keep trying I'm sure in the end it will work out.

The meetings have had good attendance and a lot of really good show and tells, you, the Members, really make a great meeting, so please bring in more planes and things.

Don't forget to renew your membership. Just bring your 2009 AMA card and $60 to the meeting and you will be all set. Can't come to the meeting, well just mail a check and copy of your AMA card to Ray at the address on the back of the newsletter.

I will keep this short, see you at the meeting

Dick Seiwell

Agenda for February 10th Meeting
At the Middletown Library;
Doors open 7pm, Meeting 7:30pm.

1. Approval of January Meeting Minutes
2. Membership Report
3. Finance Report
4. Flying Field Situation
5. Indoor Flying
6. Show and Tell
7. Plans for 2009 Activities

INSIDE THIS ISSUE

Minutes of the Monthly Meeting

January 13th, 2009 at the Middletown library

Meeting was called to order at 7:30 p.m. by Vice President Dave Bevan

Roll-call by membership chair Ray Wopatek showed 19 members present

Minutes of the December meeting as published in the newsletter were accepted by the membership

Treasurer's report was given by Pete Oetinger and accepted

Old Business:

Several members asked about the possibility of additional indoor flying opportunities. Others suggested flying is available monthly at the New Jersey Silent Flyers indoor site. They also mentioned opportunities to fly with the Delaware group. Member said they would e-mail notice of indoor flying at other sites.

The club discussed having an Introductory Pilot Program which allows a designated instructor to mentor non AMA or club members and still be covered by the AMA insurance plan. Several members agreed to serve.

Several people complemented Eric Hofberg on his train display which hosted about 160 people over the holidays.

Show and Tell:

John Moloko showed a Wowie flying rotor (ceiling walker) that has infrared control. It is available at Radio shack.

Calendar of Events

Club Meetings

Monthly Meetings at the Middletown Library (behind Weather's Dodge on Rt. 452)
Second Tuesday of the month.
Doors open 7 pm, Meeting 7:30

10th February

Tuesday Breakfast Meeting
The Country Deli, Rt. 352 Glenn Mills
9 till 10 am. Just show up.
Flying after at Sleighton Field 10 am.

Indoor Flying

Friday evenings at Tinicum School
6:30 till 9:30 pm

6th February
6th March

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.

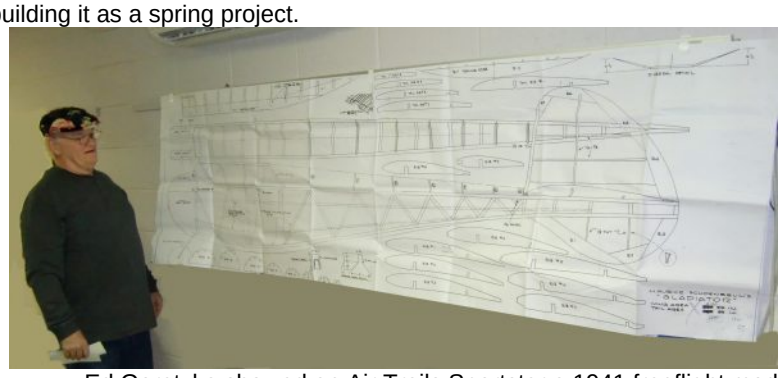
Propstoppers RC Club of
Delaware County, Pennsylvania.
Club Officers

President Dick Seiwell
(610) 566-2698 reslawnsi@verizon.net
Vice President Dave Bevan
(610)-566-9152 oldave@icdc.com
Secretary Richard Bartkowski
(610) 566-3950 rbartkwoski@comcast.net
Treasurer Pete Oetinger
610-627-9564
Membership Chairman Ray Wopatek
(610) 626-0732 peteandellen202@juno.com
Safety Officer Jess Davis
(610) 494-5070
Newsletter Editor and webmaster
Dave Harding
(610)-872-1457 daveiean1@comcast.net

Propstoppers Web Site; www.propstoppers.org

Mick Harris showed a Tomboy a very popular British old-time gas model built for R.C.. This version is covered with Solite and is set on floats.

Chuck Kime showed his plans for a 108 in. span Gladiator. He is building it as a spring project.



Ed Goretzka showed an Air Trails Sportster a 1941 freeflight model converted to R.C. and covered with silk.

Dave Harding showed the remains of the foam wing from his Hurricane scale R.C. model and gave a discussion of its problems: each flight has ended in a vertical spiral dive to earth. Dave speculates it may be due to the crudely formed airfoils at the wing tips. He suggested he may do some measurements and analysis of the actual airfoils. Dave Bevan suggested it may be due to fuselage aerodynamics. He had experience with a full sized airplane that had fuselage aerodynamics that coupled into a similar problem.

Dave also showed his foam Handley Page HP-42 which uses the R.C. guts of an air hog biplane. The model made one excellent flight at the last indoor fun fly (see following article).

.

He also showed the Bleriot XI model in the English JAP Harding markings. Dave made this model some years ago to take to England where they have a vibrant indoor flying activity in the winter months. The model was made from original full-scale plans contained in an excellent book on the Bleriot XI. All the structure, landing gear and rigging are true to the original design. The wings are braced by cotton threads.

Only one attempt has been made to fly it at a Propstoppers indoor meet, resulting in a good deal of interference and some damage. It is currently fitted with an old GWS single conversion receiver and we have had problems flying when others are on adjacent channels. Dave will fit a 2.4 GHz receiver for the next opportunity to fly.

He then showed his transport box for carrying planes onto an airplane. The models are hand carried and stowed in the overhead. So far, no problems with the security forces.

Adjournment took place 8:50 p.m.

Dick Bartkowski, Secretary

The Propstoppers Board at "work", from the left, Pete Oetinger, treasurer, Dick Bartkowski, secretary, Dave Bevan, Vice President, Dick Seiwell, President and Ray Wopatek, membership chairman.

January Indoor Flying Session

Another great turn out and an excellent mix of helicopters and airplanes marked this session together with some visitors and their first class rubber powered free flights. The incredibly successful Parkzone Vapor was the overwhelming favorite. In fact so many flew at once during the airplane sessions that some flyers began to mistake other's planes for their own. One flyer actually "lost" his plane after thinking he was flying another. We found it though, and we didn't need Dave Bevan's A frame catapult to get it down!

Now not all these planes fly well trimmed out of the box so there is an initial period while the trim is set and the CG placed.

Mick Harris and Pete Oetinger study the Parkzone Vapor manual

Mick Harris has bought one of these gems and here he is setting up the controls with Treasurer Pete Oetinger reading the instructions. Mick subsequently made several successful flights.

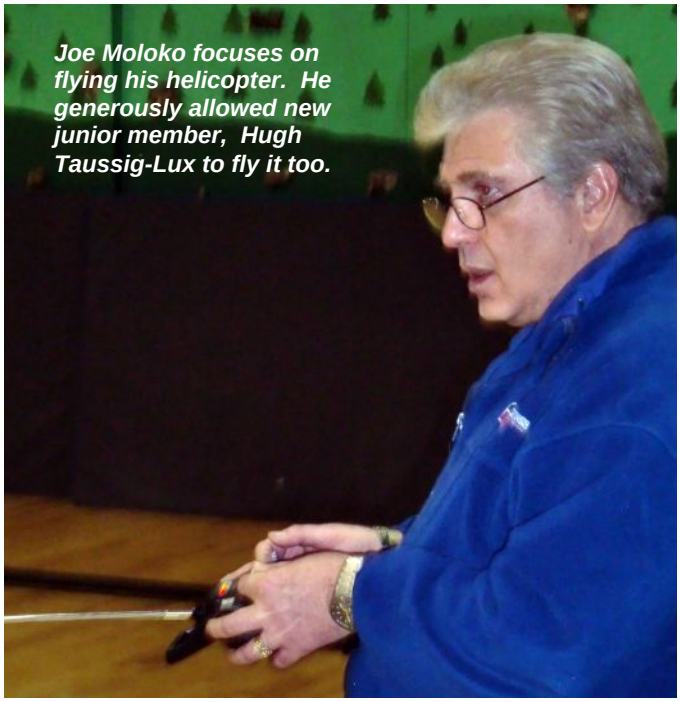
Mick initially had some problems with his model as when it was delivered the wing cabane strut was CAed to the fuselage stick and setting the CG was impossible. Mick arranged to send it back and received a new one just prior to the meet. The company support is first rate.

After the last club monthly meeting new member Joe Paradine asked your editor and Chuck Kime to help him with a trainer plane. He said the usual Super Cub RTF was too fast for him, and we have observed this with other beginning flyers too. We had recently seen some of our experts fly the Vapor so we suggested he try one. Well, he did and I must say his flying was excellent.

Joe Paradine enjoyed many great flights with his Parkzone Vapor. He is catching on to this RC flying business.

Joe had less luck with his helicopter as it needed a repair to the rotor shaft and after the fix is is down on power.

Joe Moloko maybe having some learnig difficulties with learning to fly his hot 3D outdoor machines but he does great with his helicopters.



Joe Moloko focuses on flying his helicopter. He generously allowed new junior member, Hugh Taussig-Lux to fly it too.

We signed up a new young man at this meet. He is Hugh Taussig-Lux. His father Brian contacted me a week ago or so asking if we could help them fix their new-for-Christmas Super Cub. They had tried to fly it a couple of times but with poor results as the model was out of trim for the launch. I helped them repair it and invited them to a Saturday flying session at CA field. They came to the indoor and Hugh was wowed with all the aviation committed in the name of fun. I

advised them to seek out a flight simulator and practice before flying the Cub again and they discovered a free online one to try. I hope they will tell us how it works.

Club Membership Chairman, Ray Wopatek, was flying his helicopter in each of the helo sessions, but we miss his blimp from a few years ago. Come on Ray, dig it out and fill it up for the next meet in February.

Ray Wopatek got the helicopter bug too.

Your editor flew the Handley Page HP-42 he built for last year's indoor season but was unable to attend due to a trip our west. Completely untried the model had two initial problems; it was over elevated and the controls were backwards! This model, shown on the cover, uses the guts from a Air Hog biplane pusher. I turned the motors and prop around as tractors and installed the whole thing into a foam airframe (see the Dec 2007 newsletter for the information on this airplane and the indoor model build).

The initial "flight" highlighted the problems and the final arrival broke a piece of airframe; easily repaired. President Dick Seiwell provided the best input, if the controls are reversed hold the transmitter upside down; antenna down!

Well, with a tweak of down elevator and an upside down transmitter it flew very well. Well enough to climb close to the ceiling during a flight of several laps of the gym. A subsequent flight attempt after a recharge was less than successful so the hoped for movie was not made. Oh well, such models are bound to be fragile, but I was well pleased with the one great flight and this is another one to retire.

Dave Harding's foam and Air Hog Handley Page HP-42

Dave Harding

Servos

by Richard Lindberg

From the Rocky Mountain Flying Machine Web site

What's a "servo"?

Servos are small, electro-mechanical devices that are mounted to your RC airplane. When connected with push rods, they move control surfaces such as elevators, rudders, and ailerons.

What's "in" a servo?

A typical servo consists of a motor, drive gears, output shaft and arm, a circuit board, and a potentiometer. The circuit board contains a signal amplifier and comparator circuits. These items are configured as in the following:

Position + Position
Reference Output

What differentiates one servo from another?

Primarily the motor, then the amplifier type. Inexpensive servos contain cored motors, which are incredibly common and cheap. The core, or armature, is comprised of metal plates (poles) sandwiched around a metal shaft that's supported by bearings at both ends, and each pole is wrapped with wire. The armature spins inside a hollow center, permanent magnet that lines the inside of a metal can (the enclosure). Power is introduced to the windings, generating an electromagnetic field, which is opposed by the permanent magnet field, thus causing the armature to rotate. More expensive servos contain coreless motors. These motors have the armature on the outside (imagine a hole saw with an arbor attached) that's very light, and rotates around the fixed permanent magnet. Because of the larger size (diameter) of the armature, a coreless motor has a higher torque rating, and the lack of poles allows the motor to center more accurately while maintaining or holding position with increased authority.

Okay, that's fine, But what about the amplifier?

There are two basic kinds of amplifiers: analog and digital. Analog (conventional) amps interpret receiver commands and pulse power to the motor armature at 50 cycles per second. The space between pulses is known as the dead-band. If a signal is received from the receiver or the servo arm is deflected, the amp pulses power to either move the armature or resist the opposing force. The duration of the pulse speeds up the motor (longer pulse) or slows it down (shorter pulse). Digital amps interpret receiver commands and pulse power to the armature at 300 pulses per second. The increased pulse cycles command the servo motor to react and perform with more precision. This results in faster response to control command signals, lower dead-band numbers, increased holding power, and much better resolution. Also, these digital amps are microprocessor controlled, and some can be externally programmed. Center and end-point positions, speed, dead-band, rotation, failsafe, and more are programmable.

Wow! Digitals seem to be the way to go. What's the downside?

In a word, cost. While there's no inherent reason why a digital amp couldn't be incorporated in a cored motor servo, the built-in limitations of such a servo would make the benefits very small. So, multi-pole (less than 3 poles) motors or coreless motors are used, and the cost is commensurately higher. The microprocessor cost is somewhat higher, too, but that's coming down as more servos come to the marketplace. ✈

Give Me Exponential Rates

by Matthew George **From the Northern Utah Radio Control Aircraft Club**

I wanted to take a few minutes and talk about the use of exponential rates as supported by most of our RC transmitters. After getting back into the hobby over the last several years, I'm surprised at the slow adoption rate (no pun intended) of using exponential rates.

I have even heard recommendations that you shouldn't use exponential rate features on your radio. I can tell you by experience, that any pilot serious about becoming accomplished in aerobatics will make his life much harder if he tries to fly precision maneuvers without incorporating exponential rates into his control surface throws. I am of the opinion that almost any aircraft should be set up with exponential rates on the control surfaces. You will immediately see an improvement in your flying once you understand and start dialing in exponential rates for all your aircraft. Trainers to unlimited IMAC birds, gliders, sport planes, flying lawn mowers, etc …

What is the definition of using an exponential rate on a control surface? Exponential rate is where the servo movement is not directly proportional to the amount of control stick movement on your transmitter. Over the first half on the stick travel, the servo moves less than the stick. This makes control response milder and smoothes out level flight and normal flight maneuvers. Over the extreme half of the stick travel, the servo gradually catches up with the stick throw, achieving 100% servo travel at full stick throw for aerobatics or trouble situations.

All the newer radios support this feature and the best part is the fact that no physical change is required on the aircraft. It's a simple matter of programming your radio to use exponential rates on some or all of your control surfaces including your throttle.

Have I convinced you to give expo rates a try? It's not scary; I promise. Pull out your transmitter manual and start reading. It's usually a simple matter of scrolling through your on-screen setup menu and finding the option to set expo for each control surface.

There is only one caveat I know of, if you have a Futaba radio, make sure to dial in your exponential rates as a negative number. All other radios use positive numbers when setting up expo rates.

I would start by static checking your control throws after you dial in some expo. Start with your ailerons and dial in about 30% expo for channel one. Now watch your aileron control throws as you move your stick on the radio. You will notice a soft, easy movement while you are at the center of the stick and as you move the stick to full left or right, the controls will begin to move faster to their current end-point setup. This will make your aileron response much more soft at the center of the stick and you will be doing full, slow rolls all across the field. When you need some quick aileron for a quick correction or faster aileron roll, you will still have the throw you need when the stick gets to its extreme position. It will make your flying much smoother. If you are using the newer faster servos, you will see much more effect by using expo rates.

So how does Matt have his radio set up? There is no exact formula, but this may give you a place to start:

My expo setting on my Composite ARF 330S for precision non-3-D flying are below. Keep in mind I have a lot of throw in my control surfaces even on low rates, so you will want to experiment and find the best settings for your aircraft. (Note: I'm using a Futaba radio, so these numbers are listed as negative. For other radios—JR, Airtronics, etc.—you would dial in positive numbers.)

Aileron: -50% (left and right)
Elevator: -40% (up) -20% (down)
Throttle: -38% (this smoothes out the throttle response across the whole stick movement)
Rudder: -80% (left and right)

If you are skeptical, start with lower numbers, 0% would equal no exponential at all. Try a different setting after each flight and get to a point where you see your flying get smoother.

You have heard all the top aerobatic pilots' names: Frazer Biggs, Quique Somenzini, Mark Leseberg, Christophe Paysant-LeRoux, Chip Hyde, Mike McConville, Bill Hempel, Kenny Lauter, Jason Noll, Jason Schulman, etc. I'm not even in the same league as these pilots, but guess what all these pilots have in common? Yep, they all make heavy use of exponential rates when setting up their radios.

So pull out that radio manual and start dialing up that expo! You will be glad you did and your friends will be asking you what you did to improve your flying. ✈

Battery Shorts, How They Occur

by Red Scholefield

A short develops in a NiCad when conductive particulates bridge the separator or the separator itself deteriorates to the point where it allows the negative and positive plates to touch. Rarely does the short occur all at once but rather building up a very small conductance path termed "soft shorts."

In a charged cell the energy in the cell will blow away any short as it tries to develop. You've heard about "zapping" cells. The cell actually zaps itself before the short can develop. Only in cases of severe overcharge at high rates when the cells heat up significantly, can the separator melt down to the point where the plates contact each other (hard short). In this case the energy in the cell then dumps and we have what is referred to as a hot steamer, the electrolyte boils, nylon in the separator melts down and is forced by the steam through the vent.

On some occasions the vent is clogged by the molten nylon separator and becomes inoperative causing the cell to rapidly disassemble. So under normal circumstances a cell maintained at some state of charge is much less likely to short than a cell that is completely discharged.

It should be noted however, that the self-discharge increases rapidly in cells where there is a short building (high resistance-soft short) because of separator deterioration and/or cadmium migration. One other shorting mechanism is a manufacturing defect where the positive or negative collector tab bridges the opposite plate. These usually fall out before the cells are shipped or assembled into batteries. ✈

More battery and charger information on Red's site; http://www.rcbatteryclinic.com/ Red now pens a column in every other Model Aviation.

An Aeronautical Challenge

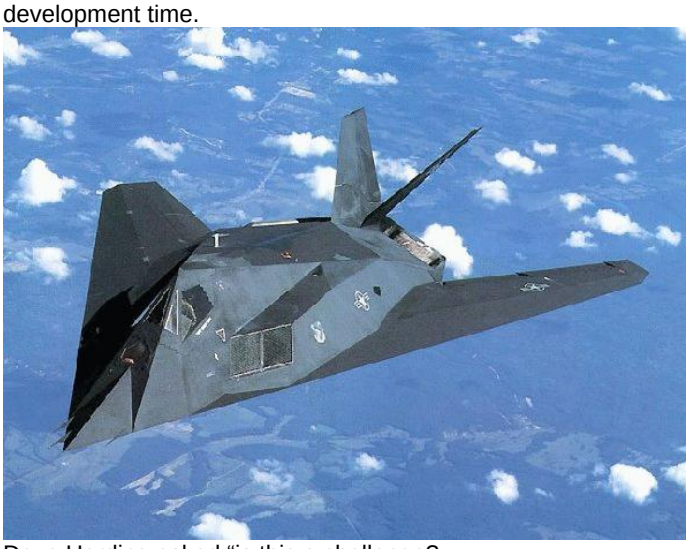
Joe Secunda asked;

WHY NO ONE BUIDS A F-117 RC PLANE

The F-117 achieves its low RCS (Radar Cross Section) mainly by its design which reduces its radar signature over 85 percent. All previous military aircraft have had curved shapes with little to no flat faces. The problem with the curved design is that figuring how every single radar wave is going to reflect from the curved surfaces of the airplane becomes extremely difficult. It is important to know how the radar waves are going to bounce off a stealthy plane because if in order for the enemy radar to pick up the plane some radar waves being emitted have to bounce off the plane and return back. The "faceted" design of the F-117 reflects the radar waves sent at it away from the place that sent them so that even if the waves are hitting the plane none return to alert the enemy radar to the F-117's presence.

This design greatly reduces its RCS but also caused **some large problems**. The main problem with the airframe design is that it causes major instability in the plane. Some previous military airplanes are unstable to a certain degree. In fact many fighters and bombers were designed to be unstable so they would be more maneuverable like the General Dynamix F-16 Fighting Falcon that is unstable on only one of its three axis. It is only unstable on the pitch axis (nose moving up or down). Compensating for just one axis took some work and a fairly complex computer. The computer inside the F-16 keeps it stable for the pilot. **The F-117 on the other hand is highly unstable on all three axis: pitch, roll (wing movement up and down), yaw (nose movement from side to side).** This design would not have been used 20 years ago because the computers then were to big or slow to keep the airplane stable. Stability is especially important for the F-117 because its a bomber and trying to drop bombs from a unstable object with any precision is very difficult.

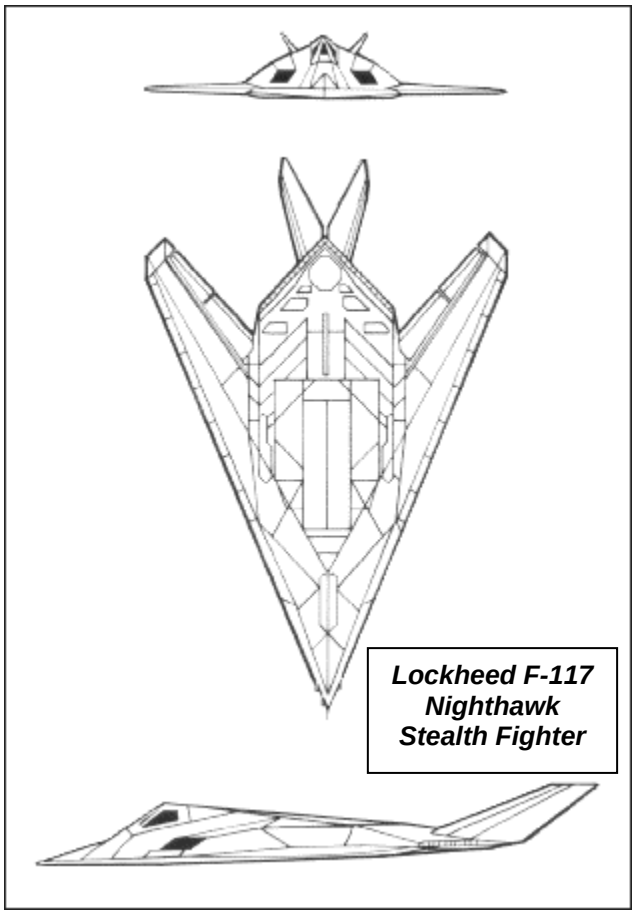
The development of the F-117 was made possible by several recent technological developments which included an improved method for testing the radar cross section and Infrared or heat signature of an object, **the development of a fly-by-wire flight control system**, the development of advanced composite or radar absorbing materials, also the development of new designing tools like computer aided design (CAD) and computer aided manufacturing (CAM) that reduced the cost and development time.



Dave Harding asked “is this a challenge?

Rusty Neithammer replied “If I can make a guitar fly I don’t see why you can’t make an F-117”

Rusty Neithammer with his successful flying guitar at Sleighton Field Day in 2001



Lockheed F-117 Nighthawk Stealth Fighter

Anyone up for it? ***Dave Harding***

Dave Harding – Editor
4948 Jefferson Drive
Brookhaven, Pa. 19015
610-872-1457

Propstoppers R.C. M.A.C

Two Handley Page HP-42s at Croydon Airport in the 1930's?

Fun in the sun yet again. Dave and flying buddy Colin at Eloy, Az in Jan.

Doug Klassen photo

Up and Coming Activities

Indoor Flying Friday 6th February
6:30 – 9:30 pm at Tinicum School

Monthly Meeting Tue 10th February
.The club meeting will be at the Middletown Library. (Behind Weather's Dodge on 452)
Doors open at 7 meeting at 7:30

Membership Renewal For 2009

Membership renewal for 2009 is now available. You can renew by mail or at the club meeting in February

Bring cash or check and your AMA card.
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