

# The Flightline

Volume 30, Issue 6

Newsletter of the Propstoppers RC Club

AMA 1042

June 2000

## Editorial Too Many Projects?

From a thread on RC Online by  
**Kevin Schlosser** (aka: *PropellerHead*)  
Dorbrook Park, Colts Neck, New Jersey

My wife decided to come down to the basement last night where my shop is. Since I went around unplugging all the electronics in the house due to the wild lightning storms in the area, she decided to occupy her time keeping me company (asking dumb questions :-).

**Her:** So, why do you have all these planes in progress at the same time?

**Me:** Well, if I'm waiting for a part or waiting for something to dry on one plane, I can still be productive working on another. With 1 evening a week dedicated to planes, I need to be efficient.

**Her:** With a silly grin on her face ("Since when is he efficient?" she thinks). OK, fine, then why are there a half dozen planes down here being "worked on."

**Me:** Uh, Oh. Well, uh, same reason I guess.

**Her:** You start too many projects.

**Me:** Don't you have something better to do?

So guys, what's wrong with this;

In order of age from oldest to newest:

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1) Rick Allison Skywalker 60 from plans. Shoulder / foam wing. Progress: Joining wings and installing pushrods.

2) Altec Sage 20 trainer prototype - pre-production ARC kit. Progress: In the middle of a complex 4-color monokote scheme.

3) Goldberg Eagle 2 kit fuse. Fuse to replace the one I smashed on my E63. Progress: Installing fuel system, building tail feathers, filling / sanding fuse.

4) Speedy Bee w/aileron. Bought built. Installing radio, applying trim scheme.

5) Goldberg Cub from he!! . Picked up at an auction for my beater plane.

6) Combo Bipe - FM plans. Was to be the centerpiece at our wedding table. Got married two years ago. Top wing built 90%, Bottom right wing built, fuse sides built, formers made, landing gear plate and gear done, tailfeathers built. Put on back burner.

7) Flightcrap ARF auction Cub - Repairing snapped stab and broken motor mount from cartwheeling on first takeoff.

So, I think this is quite reasonable. I'm focusing on the Goldberg cub and the Eagle, just so I can get out to fly. The rest will happen whenever.

Do you have this problem? I don't think there is any problem in the first place.

Propellerhead's Place ([www.rcplanet.com/kschlosser](http://www.rcplanet.com/kschlosser))  
Jersey Coast Sport Fliers ([www.rcclubs.com/jcsf](http://www.rcclubs.com/jcsf))  
**The Joe Roslyn Memorial Fly In - June 24-25th, 2000**

Too many projects? - Nah! Not me.

But how about you? It might be interesting to hear what some of you are struggling / dreaming about. In fact, it seems to me that this is a significant part of our complex hobby; thinking, dreaming, planning, exploring, experimenting, (escaping?) or just plain working on a new airplane.

Give me a buzz, drop me a line or talk to me or Mike or Rusty at the field and tell me what you have cooking and we will publish them.

Those that do will get two free 50-50 tickets.

**Dave** ✍

## Calendar of Events

### Club Meeting

Tuesday 6<sup>th</sup> June 2000  
Place Dallett Field  
Time 7:00 p.m.  
Regular Meeting – Rain date following day.

### Club Picnic

Saturday 24<sup>th</sup> June 2000  
Dallett Field  
See this issue for details.

### Club Meeting

Tuesday 11<sup>th</sup> July 2000  
Dallett Field

### Thornbury Township Summer Day:

Saturday 15 July 2000 (tentative)  
Dallett Field

### Club Meeting

Tuesday 1<sup>st</sup> August 2000

### Regular Club Flying at Dallett Field

Every Saturday and Sunday weather permitting

Daily	10 am til Dusk
Saturday	10 am til Dusk
Sunday	Dawn till Noon Electric and Gliders only!
Sunday	12 p.m. till Dusk

## Propstoppers RC Club of

Delaware County, Pennsylvania.

### Club Officers

[http://members.xoom.com/\\_XOOM/propstoppers](http://members.xoom.com/_XOOM/propstoppers)

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## The President's Message

Mike Black

Dear Fellow Propstoppers,

From the meeting minutes you can see that we have a fairly full calendar of events for the summer with a few dates for New Jersey shows to be established.

My MAJOR concern at this point in time is the Thornbury Twp. Day event. Al Gurewicz has ordered the gliders for the children and an initial contact has been made with Mr. Sherman, the Twp. Chairperson for the event. What we need now is someone to organize and run the event on July 15 (the tentative date).

The membership pitched in and did a great job of helping Ken Merlino last year. Ken said he would be happy to explain to anyone what he did to organize the event. Here is the chance for someone who wants to get involved to step forward and volunteer.

No special skill or talent is needed. Just a desire to help out and share our hobby with the children and families of Thornbury Twp.

Please give me a call if you or a small group can spare a few hours on Saturday, July 15.

I hear a lot of talk about keeping the Twp. happy, but no one has come forward as of May 15.

Please gather up your fuel containers and bring them to the meeting at Dallett Field on Tuesday, June 5 at 7:00 P.M. The club will sell S&W fuel for \$10 a gallon. Yes that's right, \$10 a gallon. That is \$2 less a gallon than last year.

We need orders and containers for 55 gallons.

The fuel is 15% nitro and 20% oil content. The oil is 2% castor oil and 18% synthetic.

The fuel pick up date will be 9 am till 12 noon, Saturday, June 10, 2000. Fuel does not go bad if it is stored in a cool dark area in proper containers.

Gas cans cannot be used. Windshield Washer fluid bottles in good condition seem to work well, as there is methanol in washer fluid. Many of us are using fuel purchased last year with no ill effects.

This will probably be the only fuel sale for the flying season. So, get it while it lasts. It will be sold on a first paid, first served basis. Reserve your order by paying Al at the meeting and bringing your containers.

Happy flying, see you at the meeting.

Mike 

## Meeting Minutes April 4, 2000

### Russell Neithammer.

Vice President Dick Seiwel called the meeting to order at the Marple Library.

President **Mike Black** took a head count - there were 19 members and 3 guests present. The minutes of the April 2000 meeting were approved as published in the May newsletter, by the membership. Treasurer **Al Gurewicz** gave the treasurer's report with income of \$96.00, expenses of \$597.14 and a new balance of \$3770.56 reported.

Secretary **Rusty Neithammer** read a letter sent by AMA, which discussed their plans for the year 2001 Grand Event. They are considering a location other than the AMA headquarters in Muncie, Indiana, and are soliciting suggestions from chartered clubs who could potentially host the event.

### Old Business

The field work day at Dallet/Squire Cheyney on Saturday, April 29, accomplished the planned objectives, which included general clean up of the grounds, weatherproofing/staining the shelter, installation of additional benches in the shelter. Thanks to **Dick Seiwel** for pre-fabbing the new benches, **Mike DiDomenico** and **Walt Bryant** for repairing and re-installing the windsock, **Al Gurewicz** for bringing the stain and brushes, **Mike Black** for bringing the refreshments, and to all members who participated. Rolling and seeding of runway was not possible due to wet conditions - **Chris Cantania** will monitor the situation, and if an opportunity presents itself, will initiate this activity some time in the future. **Dick Seiwel** will do a general clean-up at Moore, although he could use some help in removal of a log left behind under the shelter by partying teenagers.

**Club picnic:** Mike and **Kathy DiDomenico** have again volunteered to chair this event (this is the 7<sup>th</sup> year they have taken this on). The date is Saturday, June 24 (raindate: Sunday, June 25). A sign-up sheet was passed around at the April meeting for members to sign up to bring food contributions, however, more participants are needed.

**Thornbury Township Summer Day:** Tentatively scheduled for Saturday, July 15. They are planning a larger event this year, which will start out at Squire Cheyney Park (Dallet Field) with airplane events as last year, and will continue at another Thornbury

Township field (the soccer field at Rt. 926 and Shiloh Road) with an ice cream social and antique car show. *A Propstoppers volunteer coordinator is needed.* Besides being a fun time, this event is very important to our continued good relations with the Township.

**Electric Fun Fly:** Dave **Harding** will again coordinate this event. Outside AMA member participants will be invited, as was done last year. The date is to be set for some time in September.

**Night Fly:** The occurrence of the first new moon after the end of Daylight Saving Time is forecast for Friday, October 13. However, in order to hold this event during warmer weather, it was decided to plan it for Saturday, September 14 (i.e., over the September new moon).

### New Business

AMA has requested that we submit the GPS coordinates of our field(s). The last time this was done, **Tom Morse** had used his GPS receiver, and they were published in the Flightline, some time in '97 or '98. **Mike Black** will call Tom to see if he still has the data.

**Toys for Big Boys:** This event is planned for Sunday, June 25 (the day after our picnic). It is to be held at Historic Bartram Gardens, 59<sup>th</sup> and Lindberg Blvd., in Philadelphia. The Propstoppers have been asked to participate and display/fly models. There is supposed to be an area suitable for flying, and **Mike Black** will call **Joe Scavito** (who lives near there) to see if he knows how suitable it really is.

**Fuel order:** This time, all fuel must be pre-ordered, so as to avoid the multiple dates for members to pick up fuel, and having any left over quantity of fuel. It was noted that fuel, when stored in a cool, dark location, will keep for quite some time - as much as several years.

The old "Kamikazee" award plaque was found in the home of a former (now deceased) club president. The names of several current members were on the plaque, including **Al Tamburro**, who's name appeared twice. Al "volunteered" to be the custodian of the plaque.

**Cape May Fly-In** June 18, 2000, is the date for the spring fly-in, hosted by the Cape May, NJ WASPs, who are again inviting the Propstoppers to participate. This event is held in Wildwood, NJ, at

*Continued on page 4*

17<sup>th</sup> and the boardwalk, on the beach.

Best wishes to WASPs member **Harold Sherwood**, for a speedy recovery. The WASPs will also be hosting several other fly-in events in the future, and **Al Tamburro** will keep the membership advised as to their schedule.

The 50-50 winner was **Walt Bryan**.

## Break

## Show and Tell

**Rusty Neithammer** showed his Saito 90TS flat twin four stroke engine. He plans to build some sort of biplane for it. Suggestions are welcome.

**Adam Kraut** showed his ARF trainer wing, in which the joiner/dihedral brace did not properly seat, thus presenting a "challenge" to get it corrected.

Reminder: Summer meetings at Dallet/Squire Cheyney – 7:00 PM:

June 6  
July 11  
August 1

Raindates for the above meetings will be the following Wednesday.

Vice President Dick Seiwel adjourned the meeting at 8:45 PM.

**Rusty Neithammer** 

## Where Are We?

Thanks to Tom Morse we have the following GPS location information for each field:

### Moore Field

N 39 degrees 52 minutes 824 seconds  
W 75 degrees 24 minutes 383 seconds  
elevation 236 feet

### Dallett Field

N 39 degrees 56 minutes 260 seconds  
W 75 degrees 31 minutes 533 seconds  
elevation 315 feet

Thanks also to Walt Bryan for contacting Tom and relaying the information. The information was forwarded to Joe Beshar at AMA as per his request.

**Mike** 

## Fuel Tech – Castor Oil

### From George Aldrich

Back in 1983 there was quite a controversy in Radio Control Modeler magazine about the tests that were necessary to measure the "lubricity" of various oils that might be useful in model engines. Castor oil was used as the benchmark, but it was obvious no one knew why this was so.

They apparently got a lot of info on various industry tests of lubricants, but these were really designed for other purposes.

This was my answer. I will remind you that I was a lubrication engineer and not a chemist, but I drew my chemical info from Bob Durr, the most experienced lubricant scientist in the labs at Conoco.

Bob worked with my group on many product development projects and I can tell you that he is one smart hombre!

Small changes were made in the text, but surprisingly very little has really changed since this was originally written.

Here goes with the answer:

"I thought I would answer your plea for more information on castor oil and its "film strength", which can be a very misleading term. I have never really seen a satisfactory way to measure the film strength of an oil like castor oil. We routinely use tests like the Falex test, the Timken test or the Shell 4-ball test, but these are primarily designed to measure the effect of chemical extreme pressure agents such as are used in gear oils.

These "EP" agents have no function in an IC engine, particularly the two-stroke model engine types. You really have to go back to the basics of lubrication to get a better handle on what happens in a model engine.

For any fluid to act as a lubricant, it must first be "polar" enough to wet the moving surfaces. Next, it must have a high resistance to surface boiling and vaporization at the temperatures encountered. Ideally the fluid should have "oiliness", which is difficult to measure but generally requires a rather large molecular structure. Even water can be a good lubricant under the right conditions.

Castor oil meets these rather simple requirements in an engine, with only one really severe drawback in that it is thermally unstable.

This unusual instability is the thing that lets castor oil lubricate at temperatures well beyond those at which most synthetics will work.

Castor oil is roughly 87% triglyceride ricinoleic acid, which is unique because there is a double bond in the 9th position and a hydroxyl in the 11th position. As the temperature goes up, it loses one molecule of water and becomes "drying" oil. Castor oil has excellent storage stability at room temperatures, but it polymerizes

rapidly as the temperature goes up. As it polymerizes, it forms ever-heavier "oils" that are rich in esters. These esters do not even begin to decompose until the temperature hits about 650 degrees F.

Castor oil forms huge molecular structures at these elevated temperatures - in other words, as the temperature goes up, the castor oil exposed to these temperatures responds by becoming an even better lubricant!

Unfortunately, the end byproduct of this process is what we refer to as "varnish."

So, you can't have everything, but you can come close by running a mixture of castor oil with polyalkylene glycol like Union Carbide's UCON, or their MA 731.

This mixture has some synergistic properties, or better properties than either product had alone. As an interesting sidelight, castor oil can be stabilized to a degree by the addition of Vitamin E (Tocopherol) in small quantities, but if you make it too stable it would no longer offer the unusual high temperature protection that it did before.

Castor oil is not normally soluble in ordinary petroleum oils, but if you polymerize it for several hours at 300 degrees F, the polymerized oil becomes soluble. Hydrogenation achieves somewhat the same effect.

Castor oil has other unique properties. It is highly polar and has a great affinity for metal surfaces. It has a flash point of only 445 degrees F, but its fire point is about 840 degrees F! This is very unusual behavior if you consider that polyalkylene glycols flash at about 350-400 degrees F and have a fire point of only about 550 degrees F, or slightly higher.

Nearly all of the common synthetics that we use burn in the combustion chamber if you get off too lean. Castor oil does not, because it is busily forming more and more complex polymers as the temperature goes up.

Most synthetics boil on the cylinder walls at temperatures slightly above their flash point. The same activity can take place in the wrist pin area, depending on engine design.

Synthetics also have another interesting feature - they would like to return to the materials from which they were made, usually things like ethylene oxide, complex alcohols, or other less suitable lubricants. This happens very rapidly when a critical temperature is reached. We call this phenomena "unzippering" for obvious reasons.

So, you have a choice. Run the engine too lean and it gets too hot. The synthetic burns or simply vaporizes, but castor oil decomposes into a soft varnish and a series of ester groups that still have powerful lubricity. Good reason for a mix of the two lubricants!

In spite of all this, the synthetics are still excellent lubricants if you know their limitations and work within those limits. Used properly, engine life will be good with either product.

Cooked on a lean run, castor oil will win every time. A mix of the two can give the best of both worlds. Most glo engines can get by with only a little castor oil in the oil mix, but diesels, with their higher cooling loads and heavier wrist pin pressures, thrive on more castor oil in the mix.

Like most things in this old life, lubricants are always a compromise of good and bad properties. We can and do get away with murder in our glo engines because they are "alcohol cooled" to a large degree. Diesels, though, can really stress the synthetics we use today and do better with a generous amount of castor oil in the lubricant mix. Synthetics yield a clean engine, while castor oil yields a dirty engine, but at least now you know why! "

Bert Striegler

Bert was the Sr. Research Eng'r. (ret.) at Conoco Oil Co. He's a graduate in aeronautical eng'g., and a long time modeler. I never understood how he wound up in the oil research business, but I guess it's because he's just very smart! I deserve no credit; Bert's the brain!



## Club Picnic Saturday, June 24

The annual Propstoppers picnic will once again be held at Squire Cheney/Dallet Field, hosted by Mike and Cathy DiDomenico.

The date is Saturday, June 24, at 12:00 noon.

Members planning to attend should have signed up with Mike to bring a food contribution (or call Mike to coordinate if you missed the sign up).

This has traditionally been a great time, with lots' of good flyin' and lots of good eatin'. Mike and Cathy will bring an inflatable swimming pool and ice to keep cold things cold, plus the basics (dogs, burgers, condiments, rolls, beverages, etc.).

Canopies for shade would be welcome.

Come on out, bring the family and a model to fly and enjoy the camaraderie with your fellow club members. 

## Around The Newsletters

### HOW TO TURN A BAD THING INTO A GOOD THING.

*A revealing personal experience by the CAM Journal Editor.*

I have always been in love with biplanes with round engines and when I saw that beautiful Great Lakes biplane advertised as an ARC by Model Tech, I immediately placed an order.

It was beautifully built with a generous assortment of hardware. I was delighted. I covered it in yellow with black checkerboard around the engine cowl and rudder. It really was a thing of beauty, from wheel pants to wing tip.

Its maiden flight was a disaster! After licking my wounds and replacing a shattered cowl, I decided to place a question on the R/C Online internet web and ask some of my peers what experience they had had with the Great Lakes.

The answers came back in droves... all negative!

"Don't waste your money." "It flies like a brick!" "You have to put a ton of weight in the nose to balance it and it still flies like a dog." The list went on and on for about a dozen similar comments.

Well, you don't have to hit me more than twice with a brick I could see that I had a real dog on my hands. With heavy heart, I removed everything and installed a dummy drive shaft and prop and hung it from the ceiling of my garage workshop.

Wow... that turned out to be the most rewarding thing I could have done! Now, each time I enter my shop I see that beautiful plane hanging there as if it were doing a fly-by just for me. It always brightens my day. That plane will "fly" in my shop for months to come, giving me pleasure with every flight... and with never a scratch. I had turned a disappointment into a joy.

God bless those hanger queens!

*Marvin Hinton, Central Arizona Modelers*

### EASY TO TEST YOUR NITRO CONTENT

Want to determine the optimum nitro content in your fuel? Here's an easy method.

Start your engine and run it up to full throttle at your normal takeoff mixture setting. After 15 seconds warm-up, touch the glow-plug with your glow starter. If the engine slows down, you need to reduce the nitro content. If it remains the same, or speeds up a couple of hundred RPM, you are at the optimum nitro content. If the engine speeds up quite a bit, you need more nitro.

Your goal is to use a fuel that speeds up only a trace with additional glow plug heat.

*Taken from the AMA National Newsletter*

## JUST ASK PATTY

*Editors note The following is the first of a series of interesting answers to oft asked questions by Miss Patty Wagstaff, one of The world's most skillful and highly respected aerobatic pilots (taken from FAA News)*

- **Is your Extra 300 equipped with a metal prop?**

No. Metal propellers on high performance aerobatic airplanes stress the engine's crankshaft. There have been several crankshaft failures because of the high stresses put on them from multiple snap rolls and tumbling maneuvers like Lormcevaks. We prefer to fly with lightweight composite or wood propellers. I use a Hartzell made of Kevlar with a stainless steel leading edge for its strength and superb performance. I can fly in the rain with it unlike other composite props and the Kevlar even makes it bulletproof. You never know when that might come in handy.

- **How many shows a year do you fly?**

Because I balance air shows with competition, I fly between 15 and 18 shows a year. Some performers fly up to 30 air shows a year. Each show requires about three to four days of participation, so that's enough for me.

## JUST ASK WILLIE

Write to Willie Washout, famous self-appointed authority on all things R/C.

*Dear Willie,*

*I have been flying RIG for a couple of years and I have often wondered how far my airplane could go before it was too far away to respond to my radio transmissions. I've never heard of one flying beyond the radio control signals.*

*Just Curious*

Dear JC,

This is probably the most common question that comes up with new pilots and non-flyers as well. The answer is very simple.

"Farther than you can see it"

This axiom, naturally, applies when all things are functioning properly and the transmitter's antenna is fully extended. In the latter case, your plane will behave only within the limited range of spitting distance plus about a hundred yards.

Of course there are those lightweight gliders which, on rare occasions, get caught up yonder in the wild blue with air currents that defy all control movements. When this phenomenon occurs, the bird sails merrily over the horizon, ostensibly on its way to Flagstaff. These don't count.

Willie

*CAM journal, Marvin Hinton*

## DC Milli-amp Meter

by Steve Holly

Here's a handy tool I thought I would share with you. It's used to check the current drawn by the servos and receiver of your aircraft. You might begin with the manufacturer's literature. Idle currents are usually specified in either the sales brochure or the owner's handbook. Make a list of the equipment in your plane and then list the idle current next to each item. Add these currents up and you find the total amount of current that your particular aircraft should require from the battery pack.

Shown at the right is a diagram of the circuit you need to build to test your equipment. The analog meter movement can also be substituted with a digital current meter. If the deflection of the meter movement is backward or the current read on the digital current meter is negative, then just reverse the input and output leads in the diagram.

Now we're ready for testing. Install the battery pack into the female socket shown above. Install the male connector into the switch harness of your flight pack. Turn on the receiver. (Transmitter must be off.) The idle current should measure somewhere between 25 and 50 mA. This measurement will, of course, depend on the number of servos, manufacturer, and condition of your equipment. Write this measurement down in your owner's manual or notebook for future reference.

There is some possibility of error in the measurement above. If your servos aren't absolutely quiet when the measurement is taken, then the current will be too high. Jittery servos can be caused by a number of different reasons. Other transmitters in the vicinity, a noisy servo in the group, improper arrangement of the servo pigtails with respect to the antenna, or by noise picked up by an unknown source nearby are all causes.

When faced with these problems, you must find a way to dispose of the noise before an accurate idle reading can be taken. Now that you have taken your idle current measurement, you can go back and compare it to the total current you calculated before.

I'd now like to take you through an example of live currents to help you understand how handy this little tool can be. For the sake of this discussion, let's assume that the current jumped up to 300 mA and stayed there when you turn your transmitter on. You have trouble. Turn off the set and unplug all the servos.

Turn the transmitter and receiver back on again. The idle current for receiver only should be between 10 and 50 mA. If your receiver is drawing 100 mA or more, it needs service. Start plugging in the servos one at a time and observe the increase in current for each one. Each servo should settle out at about 10 to 25 mA each. Any servo that increments the current significantly more than its brother is suspect. When you find a servo that is drawing excessive current, disconnect its push rod from the craft. If this eliminates the excessive draw then you know that the item being controlled is causing the problem. Likely suspects of this kind of problem are:

**Throttle servo** - (low adjustment) the arm bottoms out or locks up.

**Nose Wheel** - Nose wheel loads heat up a servo so it is common practice to put a blend in the push rod or use a spring device to protect the servo. Unfortunately, you still have to make sure that the nose wheel tiller bar doesn't bottom out anywhere in the left, right, or trim range.

**Landing gear retract**

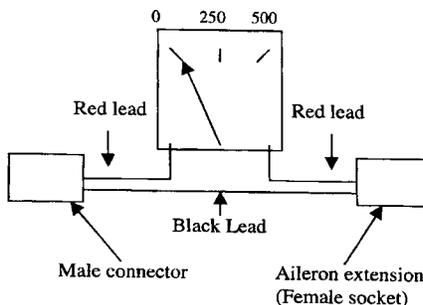
**mechanisms** - It is common practice to use some form of over center cam to provide a solid up and down lock. This leaves a load on the servo, particularly if you fail to use a 180-degree retract servo made especially for this function. Anyone who uses any kind of retract mechanism should perform the idle current test measurement in both the up and down positions.

One final thought to help you analyze your problems. Any servo has three characteristic currents according to what it is doing.

1. Idle (about 10 mA) energized stationary, no signal.
2. Free running (150-250 mA), no mechanism connected to it.
3. Stalled (about 450 mA) trying to push an immovable object.

Warning: After you use this little gem, you may be tempted to build it right into your aircraft. I suggest that you don't. The meter is too delicate and will not stand up to the engine vibration or a crash. You can however, use it to monitor current while charging your batteries.

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