



# REPORT

## ONLINE!

April 2010  
Issue 285

**1 YEAR ANNIVERSARY FOR  
RCREPORT ONLINE !!**

**ITS  
TOLEDO  
TIME  
AGAIN!  
COME SEE  
US IN OHIO  
APRIL 9-11**

Its' been an eventful year and I would like to thank all those subscribers that have supported RC Report Online during its infancy. The economy is on a rebound and we will be here to provide you with honest reviews, informational columns and a bit of humor here and there! Thanks for a good year, and we look forward to this next year!

# **RCReport Online**

## **April 2010 Index**

<b>Webb Scale by Gary Webb</b>	<b>3</b>
<b>2 Old Scale Guys by Watz and Hurt</b>	<b>8</b>
<b>Hanger 9 P-51 Sport ARF</b>	<b>13</b>
<b>The BIG Picture by Dick Pettit</b>	<b>19</b>
<b>Bird on a Wire by Terry Dunn</b>	<b>27</b>
<b>Fun Aerobatics by Ed Moorman</b>	<b>32</b>
<b>Oily Hand by Brian Winch</b>	<b>38</b>
<b>Here's How by Walt Wilson</b>	<b>45</b>
<b>Prop Cuts by Chris Handegard</b>	<b>48</b>
<b>Tail's from ..by Isabelle</b>	<b>54</b>
<b>Smiley Contest</b>	<b>58</b>
<b>Classified Ads</b>	<b>60</b>
<b>Event Flyers</b>	<b>61</b>

Hello again to all you “Scale Guys”! It’s starting to thaw out here in the Frozen North. The winter sand is starting to disappear. We even have been forecast to have temps in the lower 50’s this coming weekend. When March gets here, I really start looking forward to spring. I know we still have a couple of months of old man winter left, but a fellow has to have hope. Right? I’ve seen it snow here in April. I have almost frozen to death standing in line outside at the old arena where the Toledo Expo used to be held, and that was in the first week of April no less!

Here in the frozen North we modelers either fly indoors, have swap meets or mall shows to while away the winter months, along with a great time to be down in the “Man Cave” creating our next scale airplane. Our local club (The Upper Valley Fun Flyers of Piqua, Ohio) had our annual



**Photo 1: Upper Valley Fun Fliers of Piqua, Ohio Mall show. Note variety of models on display.** mall show this last weekend right next to the food court (How convenient, right?) (Photo 1). We try to have a variety of different types of models for the public to see, ranging from basic models up to giant scale models including helis. We also fly the little indoor helis and Vapor type aircraft there to attract attention. Photo 2 shows how we use a



digital projector to display the flight sim onto a large screen to allow anyone a chance to fly a RC model. Photo 3 is of our AMA District Three associate VP Jim Martin explaining the hobby with



the aid of a magazine to a new prospect to our hobby. Jim tries to make it around to most club functions in his district throughout the year and is a great ambassador for our hobby/sport. Photo 4

is a close up of our President, Todd Walker's new Troy Built Zero's prop. One of our club members works at Hartzell Propeller here in Piqua, and had painted the three-bladed prop with their new prop paint and it makes his wooden prop look like it is truly made of



**Photo 2: Visiting AMA District III Associate VP Jim Martin explaining the hobby to a prospective new member with the aid of a model magazine at our mall show.**

aluminum! Check it out! Todd plans to trick this plane out by weathering it and adding a scale cockpit to the model. He is powering it with a DA85. Also noted on this model is the trick way in which the outer wing panels are held in place. The model incorporates a three piece wing. There are no, I mean NO, wing bolts holding the outer wing panels in place. Their novel way is using the inner machine gun barrels that have a long stiff wire attached and runs back through the entire wing root through tabs that capture the wing in place. Just push the wire in after sliding the outer panel in place and then go fly, or just pull the wire out and remove the panel and the plane can fit into a van or trailer without removing the center section. It's great for moving it around on its wheels also. Just grab the tail and pull. Someone put a lot of thought into that detail.

We stopped last month with the surface detail of Robert's Rufe. He then started the cockpit interior build. Robert found that there is not a cockpit interior kit out there to his liking. He bought one and was able to use some of the parts and then ordered gages and the gun site through Hobby-Lobby for the panel. The rest he would have to make himself. I advised him of a couple of



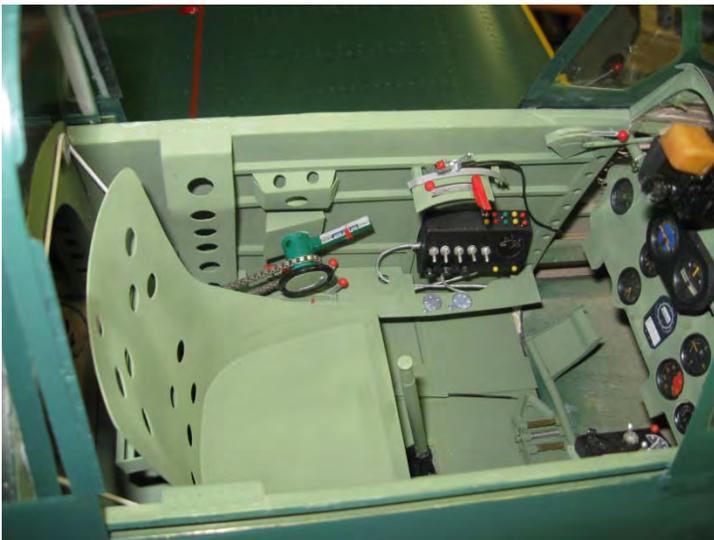
**Photo 3: Club President Todd Walker's great looking scale static prop on his new Zero. Special paint applied makes wooden prop look like it is made of aluminum.**

local RC shops that also handled electric trains ,which means they carry a large assortment of paints, plastic in different sizes, shapes and thicknesses, along with the usual brass and aluminum sheet and tubing. I also sent him to a large fabric store to purchase colored pins for handles along with large T pins. In Photo 5 Robert has started making and installing the cockpit side panels. This is all made from sheet styrene plastic. He used his documentation to create the different formers. Notice the great looking holes in the



**Photo 4:** The start of making the left side of Robert's A6M2-N Rufe's cockpit. Made from sheet styrene plastic purchased at a local hobby shop. Robert used photos of the actual cockpit of an A6m2 to make it as close to scale as he could make it.

formers. Photo 6 shows the cockpit nearing completion. Robert hand-made the pilots seat and all of the controls. Note the small chain used for the trim control. There is nothing you cannot do with a little imagination. REMEMBER we are trying to

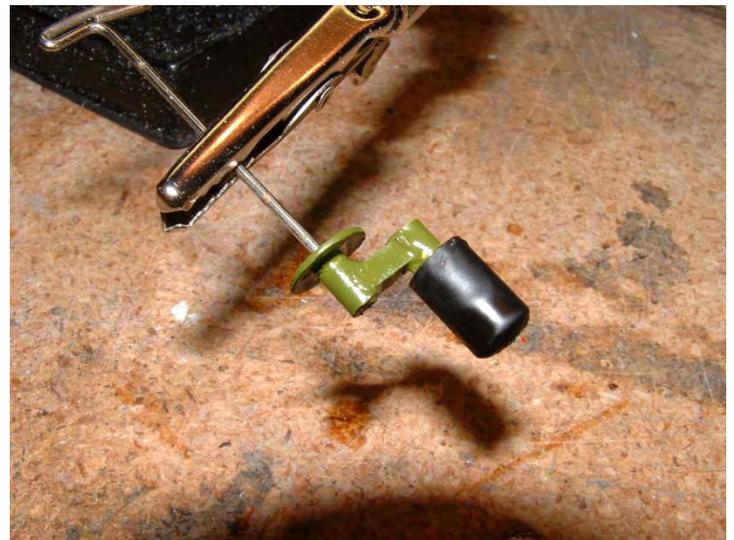


**Photo 5:** Left side of cockpit after paint and most of the detail work done. Notice how the cables, chain and wiring make the interior look real. The rudder pedals and return springs really add a touch of realism also.



**Photo 6:** Depicts an example of the use of different pieces of plastic to make control handles. This is the canopy crank I made for my Fiberclassics Mustang.

simulate not duplicate. The small cables and wires add the finishing touches. The toggle switches were made from small nuts and pieces of flattened plastic. The colored ball stick pins make great lamp indicators and handles. The throttle and mixture control levers are made from the colored ball stick pins with flat plastic glued to the side that shows to simulate the flat metal lever arms. The sick pin is then glued into balsa wood,



**Photo 7:** Depicts canopy crank just after paint. Crank will get the weathering touch once installed. Notice how the glue joints simulate welds.

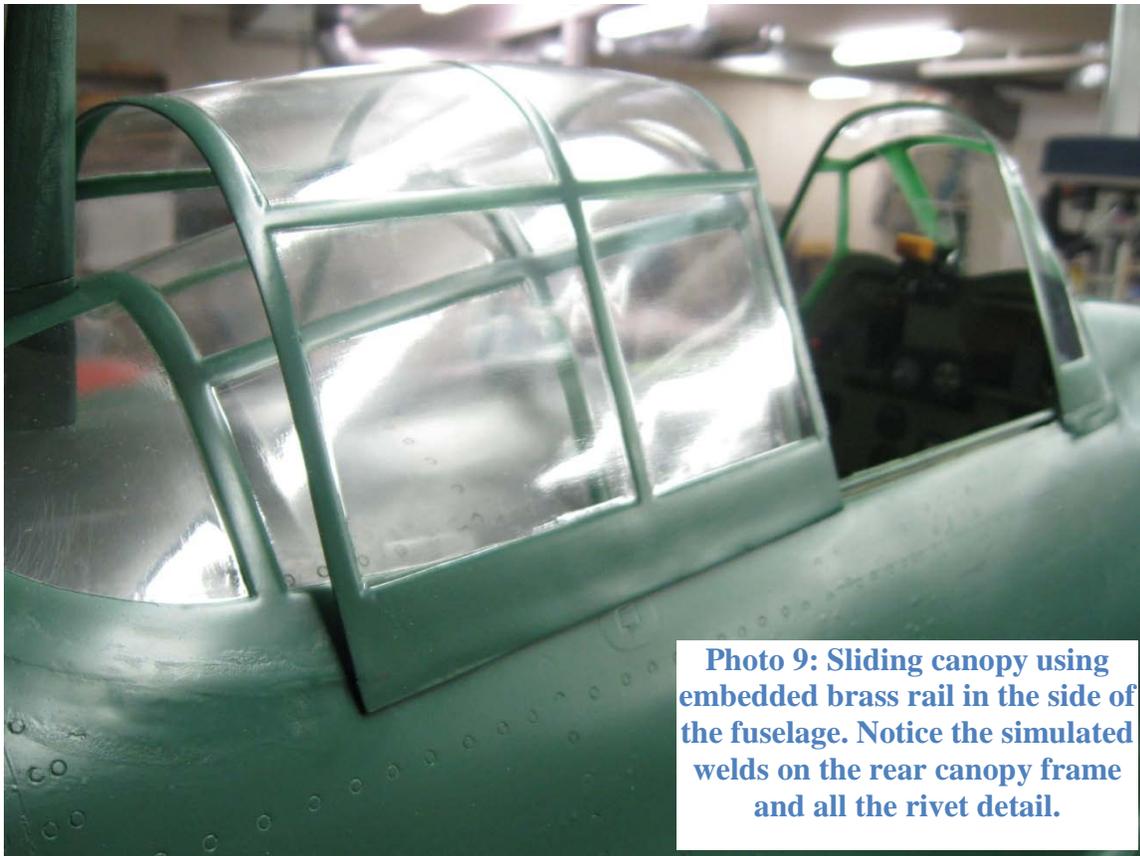


**Photo 8:** Notice simulated hydraulic lines made from plastic rods. Also the gun actuator on the throttle handle. One machine gun has been installed. Notice the manual cocking arm on the right side of the gun

glued into the back side of the control module or instrument panel. Also notice the rudder pedals. Photo 7 shows an example of using different pieces of plastic to make a canopy crank that I used for my Fiberclassics Mustang. Photo 8 shows the

finished crank before install. The rough glue joints look like welds after paint is applied. These plastic pieces can be glued together using Acetone and a small paint brush to apply the Acetone. Photo 9 is a photo of the right side of the cockpit. Notice the small hydraulic lines near the floor and the bundled wiring. Also you can see the gun actuator grip on the throttle lever in the left side. The guns on the Zero were activated by this grip lever on the throttle instead of the control stick. One of the machine guns have been fabricated and installed in this photo. (Upper left corner). Photo 10 shows how he incorporates a sliding canopy using imbedded brass rails. Notice the rough welds on the back of the canopy frame. You can also see the rivet detail inside the cockpit through the canopy glass and also along the side of the fuse. You can also see the scale antenna mast that protrudes through the rear canopy. In photos 11 and 12 are both sides of the finished painted model. You can distinctly see the cowl flaps in these photos. Robert used water based paints to finish the model in the Rufe paint scheme that is pictured on the plastic model's box cover that he used for his documentation.

Notice also the nav light lens cover on the wing tip and there are also more on the back center of each wing. Now most people would say that this is a fantastic looking model and stop right there and call it finished....NOT!! To me it looks like a plastic model, not a real scale aircraft. Okay, what's needed to make this an awesome scale looking model? Well, first he needs to fill that big ugly hole in the front right behind the spinner with a simulated radial engine.



**Photo 9:** Sliding canopy using embedded brass rail in the side of the fuselage. Notice the simulated welds on the rear canopy frame and all the rivet detail.



**Photo 10: Left view of the Zero after paint work is finished. Note cowl flaps installed and tiny nav lens on wing tip.**



**Photo 11: Light view of the model. Plane now ready for final weathering and simulated radial engine.**

Then the entire model needs to be weathered including the cockpit, which includes paint chipping, signs of wear and abuse along with the paint on the exterior showing signs of being in saltwater and the paint oxidizing from UV from the sun. Can you see the gun ports in the wings? He needs some powder burns there as well, along with exhaust streaks along the bottom of the fuse. The early Zeros had only two exhaust stacks that exited through the bottom of the fuse at the rear of the cowling.

Stay tuned fans for the grand finale. Next month, I will show how Robert and I painstakingly take this model to a finished scale model that will be displayed at the Toledo show this year. See you all there!

*Fair winds and blue skies my friends,*

*Gary Webb*

*gcwent@woh.rr.com*

*Webb's Scale*

# Two OLD Scale Guys

by Bill Hurt & Dick Watz

*Dick:* Hello Bill! I see all you in Geezer Gulch South have been getting some rain. We in the North have a saying this time of year. Oh well, you don't have to shovel rain. Weather is definitely a factor in this hobby. One which affords us northerners a good long chance to build and not be distracted by yard work, flying and all the other drains on our time constructing model airplanes.

*Bill:* Well, we don't have to shovel much sunshine either. Geez, but it was really cold here, mid January. We probably lost a lot of the citrus crop, but you will figure that out when you go to the grocery to buy some OJ. They tell us that the price will increase by about a buck per quart.

*Dick:* As most of you all know, if you have followed this column, Bill and I communicate as often as we can and discuss trends and changes in scale modeling. Some of those changes are the quality of radios, engines and general modeling products. We now enjoy what was unheard of twenty five years ago. These changes and others have made it possible to construct and fly planes only the top pros would consider. Bill and I are from the past, when silk and dope were the only practical choices when it came to covering models. Thanks to adventuresome modelers who now use epoxy and polyester resins as a matter of routine, we can produce some of the most beautiful metal looking war birds you can imagine. Bill and I still use dope but the covering choice has become Koverall and Super Coverite products. I still use some silk and dope on my favorite models, mostly golden age (1920 - 1940); in particular, the WACO series. Isn't that right, Bill? However, I have done

many columns and articles in several magazines on the use of polyester resin and fiberglass, especially for metal surface war birds. The medical speed bump I encountered this past year has caused me to turn my attention back to the golden age once again. Of course, meeting a new friend who lives and breathes WACO didn't hurt. No pun intended! That friend, of course, is Bill Hurt my co-columnist, best friend and founder of the WACO Brotherhood; a group of WACO nuts, or should I say WACKO nuts of which I'm proud to be a member. Will Rogers said, "He didn't know if he wanted to be a member of any club who would have him as a member." As my grandfather would say, "Dickie boy, you're taking the long way around the bush again. Take a deep breath and get to the point." The point is, my email and discussions with Bill suggest yet another column on prepping and applying fiberglass and resin followed by epoxy paint. You know what they say, Bill? Even a blind pig finds an acorn now and then. Even if you folks know all about the process of fiberglass and cloth, email me and give me your ideas. Maybe I can learn something. I have finished fiber-glassing Eric's Pica Spitfire





I'll try and get more pictures next month to support the text and maybe start a column about fiberglass and resin. I'm counting on Bill's help. I should learn something.

Now back to working on Eric's Corsair. When I revisited this plane, I realized it's not as finished as I remembered it before the bypass. I'll use this and the outer panels to show prep and covering. Two of the photos are of the Corsair's planking and installed flaps and waiting for finish. The Spitfire needs a coat of epoxy primer and surface detail. The Spitfire is all wing is all metal except the ailerons and flaps. Because the Spitfire had flush rivets, there are only a few fasteners and hatch detail on the wing. We'll discuss that in detail with photos in another column. Sound okay to you Bill?



The Corsair is a very unusual wing because it had a large portion of open frame work. I talked to the pilot of the Corsair at the Kalamazoo Air Museum and he said the open framework was largely to make repairs faster and easier in a war zone. I also talked with Eric, who spent five years as an air frame maintenance specialist in the Air Force. He agrees, saying that sometimes metal repairs are very difficult especially in the islands of the Pacific. Most gun strikes on the open framework went straight through the wing causing sometimes little or no damage at all. Damage to the surface could easily be prepared with patches.

I'm going to leave you with your thoughts on fiberglass and resin, Bill, and get started on next month's column explaining the procedure. I would like to reprint Eric's fine article on prepping for Monokote because everything he suggests, except the use of white glue applies to the prepping of fiberglass and resin.

*Bill:* I can't even begin to address the use of Monokote. I don't use it, don't know how to use it, and would not use it if I could. I don't want a flying bread sack. But I'm sure that there are tons of guys who love the stuff, and probably get some reasonably good use of it. I don't do ARF planes either, but that does not mean that they are not good for some guys. *(Editor's Note: Hey you two, if you two can believe it, I am working on a kit myself! It's even a scratch kit build, but it's almost entirely composite material!!)*

It's interesting that you brought up using white glue. I don't use much of that either, since most of my building uses aliphatic resin glue (Titebond II), and or some epoxies (thinned and full strength). I developed an allergic reaction to C/A glue several years ago, and can't use it any longer (at least with accelerator). I've tried the

odorless kind too, but it does not seem to help much. I've found that by using the Titebond glue, cut with a little distilled water the cure time is much shorter than it used to be. I use a small artist's paintbrush to apply the glue to the two pieces and position them. In about a half hour, they are bonded well enough to handle the structure. The bond is not as brittle as back when I used C/A to build.

I tried some of the expanding glues (*ie: Gorilla Glue*) that the local big box stores sell, but was less than impressed with them. They may work in some applications, but I don't feel that using that stuff to build a model airplane works very well.

One thing about getting older is that we have learned what does work and what does not. I can tell you that LePages musilage does not work to build a model plane. Dissolving an old plastic handle in Acetone will work to build a stick and tissue model. Duco Cement did not work all that well either. Ambroid was the cat's meow. The

only problem was that you could and did get high enough to go duck hunting with a garden rake. Yes, I was a member of the Ambroid Angels. Wonder how many remember that group? I built one of Ambroid's Super Whipsaw's and several of the Ares precision stunt C/L planes. Oh well, enough of that stuff.

I use a lot of fiberglass cloth and polyester resin for making parts for my golden age models. There are a lot of fillets and fairings on them that can be made from lightweight sheets of the fiberglass, and they take paint really well, too. My current Waco build uses quite a number of these fairings and covers, from the tail group fairing, to the upper landing gear cuffs, to the replica fuel tank tops. I have a piece of poly vinyl that I use to make these parts on, since the resin will not adhere to that surface. I tape down a sheet of the glass cloth, and then saturate it with the resin. After the resin cures, I mix another batch of resin and catylist, and coat the surface fairly heavily to finish filling the weave, and to develop a reasonably smooth surface. Once

it has cured, I will sand it slick, and then use a set of heavy shears to cut it to the required shape and do what is necessary to mount it. It works very well, and does not add a ton of weight to the model. I made a few parts that required following the contour of the bottom of the fuselage that needed to show the stringers. I used some plastic kitchen wrap to keep the shape that I needed and laid up

**PRECISION CUT KITS**

- ★ Pro-Line Aerobatic Aircraft
- ★ Exclusive Distributor of Palmer Plans and Instructions
- ★ Exclusive Distributor of Don Smith Plans and Accessories
- ★ LASERLINE Giant Scale Aircraft Series

**PUTTING PRIDE BACK INTO BUILDING, ONE KIT AT A TIME**

We accept: Checks or Money Orders | 24/7 Online Ordering. Free quotes & prompt delivery.

**609.538.1388 ★ www.precisioncutkits.com**

*"Symbol of Excellence"*

the glass right over the fuselage. This gave me the same shape that I would have had by covering with Koverall and dope. Now I can remove these access panels to service the tail wheel, and the mechanism for the in flight adjustable horizontal stabilizer. I really don't know how often I will need to service them, but at least I can do the job without having to ruin the covering on the fuselage. Attaching other fairings to these pieces is much easier as well, since all you have to do is to use resin to attach them, and sand the finish to perfection. The tail wheel fairing is a great example of this type of addition.

I'm in the process of making the control housing for the Cessna 195. This is actually nothing but a large Y that the control yokes attach to, but they also carry some wiring and switches that are found on the full scale. I built the housing from balsa and then glassed it. Tom Crump was kind enough to cast a couple of yokes for me and they will attach to the housing for a nice scale appearance.



## Scratch Builder Warehouse

Tools, supplies and plans for the model builder



The Angle Wizard is a very accurate tool for measuring any angle. Use it to set saw table angles, to level fuse jigs, measure wing and stab incidence and many more jobs.



Plans for classic pattern winners. Atlas-Tiger Tail- Sweet Tater- Saturn- Compensator and many more. Partial kits with laser cut wood parts, foam cores and fiberglass cowls coming soon..



Tools and supplies- Unique and hard to find stuff model craftsmen will like. Fuselage jig- Olfa knives and blades- cork backed rulers for monokoting- extra long CA spouts

www.scratchbuilderwarehouse.com

Order Hotline- 1-877-856-7884

Do all scale builders have the reputation of being junk junkies? I mean do you constantly look on trash piles and junk boxes for things that you can use? Janelle and I went to a thrift store the other day, and I found a thin leather (suede) blouse that I just had to have for the material. This thin and pliable leather will be just the thing for my scale cockpit. When I grabbed the blouse, she just shook her head. She knows better than to ask, and she will be happy to stitch the detail into the cut pieces later. I have accumulated several boxes of small bits and pieces over the years, and while I don't know exactly what is in each box, I'll promise you that I can eventually find it; if pressed for the part.

Let's answer some email.

I just received one from a gent who wants to re-gear a couple of servos so that he can use some custom output arms that he has. I cautioned against what he wants to do, because he wanted to mix metal and nylon gears. I think that this is best left to the manufacturer, since there is no guarantee that

his gear selection will correctly mesh with the other gear set.

Next one:

*Bill and Dick, I really enjoy your column, and I have been having a problem getting my hand held tach to read my engine speed. It looks as if the idle is at 3200 RPM and the top speed is somewhere around 4500. The engine is a G-26, and I'm using a Master Airscrew Classic prop.*

Dan, if memory serves (and I'll bet it does) the Classic prop is black. Some of the tach's don't read a black prop very well, especially if you have a fairly dark background. First, check the tach. Point it at an incandescent light. The tach should read 3600 (the cyclic speed of a light bulb on household current is 60 cycles per second. There are 6☺ seconds in a minute, so 60X60 = 3600 at least in the good old USA!!). If that is your reading, then your tach is pretty close. Try a wooden prop, and see what you get.

He responded. *Tried a Xoar prop, and the idle is reading 1200. Top RPM is 7200.*

I love it when a plan comes together.

That's it from Geezer Gulch South. Dick, I'll turn it back over to you for the debriefing of this flight, since my computer is getting a little warm. That's my story and I'm sticking to it.

*Dick:* See you next month from Geezer Gulch North. Remember buddy, if you need to warm up you can always come up and stay with us for a week. Oh! Oh, did I say that out loud? Bill, I'll think of you every time I have to pass up a quart of orange juice because I'm on a fixed income and strawberries are only a fading memory of last summer. Don't let them wear you down, my friend. I'll talk to you soon.

Until next month, keep the greasy side down!

PS: We now have a new email address in Geezer Gulch North. It is [rswatz@speednetllc.com](mailto:rswatz@speednetllc.com).

Dick Watz

8400 Swan Creek Rd  
Saginaw, Michigan 48609

[rswatz@speednetllc.com](mailto:rswatz@speednetllc.com)

Bill Hurt

907 South 8th Street  
Leesburg, FL 34748

<mailto:williamhurt@comcast.net>

# RCReport Test Report

**HORIZON**  
H O B B Y



## Hanger 9 P-51 Sport ARF

Model	Hanger 9 P-51 Sport ARF	Wing Span	Advertised: 58.25 in
Airplane Type	Sport Scale ARF	Measured:	58.25 in
Manufacturer	Hanger 9	Wing Area	Advertised: 626 sq.in
	4105 Fieldstone Rd.		Measured: 603.75 sq.in
	Champaign, Ill 61822	Airfoil	Semi-Symmetrical
	(877)504-0233	Wing Type	Built-up balsa
Distributor	Horizon Hobby	Wing Joiner	Aluminum tube
	4105 Fieldstone Rd.	Fuselage Length	Advertised: 50.4in
	Champaign, Ill 61822		Measured: 51 in
	(877)504-0233	Pushrod type	Wire
Typical Price	\$274.99	Hinges included	Yes
Sale Price	\$199.99	Hinges Installed	Yes

Rec. Controls Ail, El, Rud, Throt,  
flaps and retracts optional

Engine Mount Installed NO

Rec. Engine .40-.52 cu. in. 2-stroke  
.72-.82 cu. in. 4-stroke  
Power .46 Electric

Assembly Tools required: Hobby knife,  
small drill bits, pliers, side cutters, various screw  
drivers

Adhesives required: Thin CA glue

### Completed Model Specifications

Landing Gear Installed No

Wheels Included Yes

Advertised Weight 6.5-7 lbs.

Hardware: SAE

Hardware Included: Pushrods,  
fixed landing gear, control horns, electric motor  
mount, glow engine mount

Finished Weight 7lbs 12oz.

Wing Loading 29.575 oz/sq.in

Engine Used Evolution .52 2-stroke

Propeller Used Evolution 11x6

Fuel Tank Used provided

Main Battery used: five cell NiMh 2700 MaHr

Items needed to complete: 3.5in  
spinner, engine, five-seven standard servos, five-  
seven channel radio system, 2500+mAhr flight  
pack, two 9in servo extensions, two 6in servo  
extensions, optional two additional 6in extensions  
and y-harness.

Radio used: Spektrum 7-Channel AR7000 Rx,  
Futaba 12FG with 8-Channel Spektrum Tx  
module

Servos used: 8-JR DS821

Covering Material Ultracote

Fuel Proofing required No

Estimated Assembly Time 8-10 hours

Estimated Skills required

Building: Intermediate

Flying: Intermediate

Drilling required Yes- Servo arms, servo  
screws, motor mount, optional control horns

**Cheers:** Great looking, many options for power  
system, very true and straight flying.

**Jeers:** Completed model much heavier than  
advertised, several mislabeled steps in  
instructions, similar scheme to other PTS  
Mustang.

The Hanger 9 P-51D Mustang is another  
sport scale ARF offered by Horizon Hobby. The  
ARF comes in a very nice covering scheme of  
silver and olive drab fuselage, beautiful red tail

and invasion stripes! This Mustang is scheme is reminiscent of the PTS (Progressive Trainer System) Mustang, but a trainer it is not. Let's get a look in at the instructions and get started on the building.



The manual for the P-51D Sport ARF Mustang is 55 pages and glue bound. As is always the case, I read the manual from front to back. Midway through the manual, I notice the first of many building steps that are miss numbered or referenced incorrectly. Several areas label steps four then five, then five again, and five one more time!! The building steps in the manual also integrate the electric version building steps among the glow version build. This gets a bit confusing when you add the mislabeled steps in the process. I decided to do a bit of checking, so off to the website I went. Low and behold, I downloaded the manual and compared it to the manual provided with the kit! The manual online has corrected a few of the numbering misprints, but several are still there. As long as you follow the pictures, step by step, and ignore the incorrect numbering; you should be fine. This P-51 can be build with several options like retracts, movable flaps and 2-stroke, 4-stroke and electric power system options!

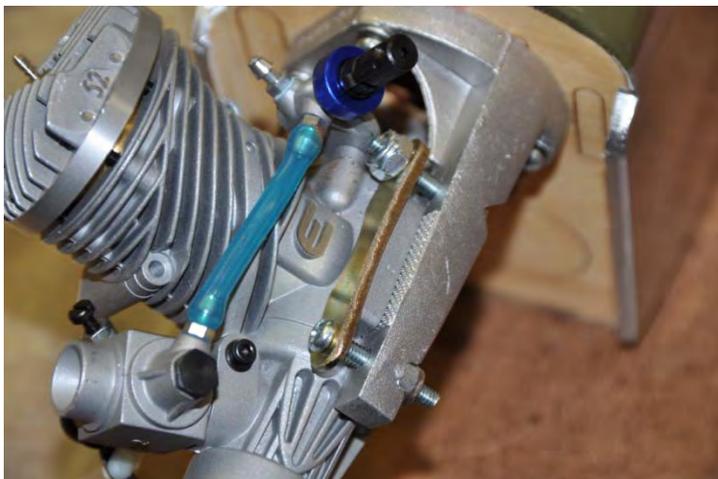
I will be using the Evolution .52 2-stroke engine, the recommended Robart spring down/air up retract system; and, of course, I will use the movable flap option as well. I am using eight JR DS821 digital servos. I could use something a bit smaller for the air retract valve and throttle; but I like to keep everything the same! Assembly starts by installing servos in the belly of the plane for the elevator and rudder followed by battery and charge switch installation. I chose the recommend five cell NiMh receiver pack and charging switch from JR.

The receiver installation gets a little tight and messy now! The AR7000 receiver sits down into a foam cutout very nicely, but we end up with an octopus of wires! Due to the eight servos, but only seven channels; I need one Y-harness. Now we need to do a bit of planning here. What channels do we use on the Y- harness? Well, the only surfaces that we have multiple servos are ailerons and flaps. When a y-harness is used it automatically makes two servos move in opposite directions; so I use the harness for my ailerons. Now I need two servo extensions for the flap channels, and I am going to use an extension for my retract servo because it is installed later after the receiver is packed away. The throttle, elevator and rudder servos get plugged in and all that's left is to locate the satellite receiver on the side of the fuselage. Then the receiver is packed with more foam and a plywood cover holds everything in place.

Now, we will be moving onto the pushrod installation for the elevator and rudder. Simple wire with clevises on the control surface ends and a z-bend through the servo arm! We can now install the tail surfaces onto the fuselage. This is

made very simple because there are two bolts that pass from the vertical fin through a fuselage fairing piece, through the horizontal stabilizer and the fuselage and nuts secure it from the bottom! Make sure that the horizontal stabilizer is not upside down here! The preinstalled control horn points down! Now all we do is attach the clevis to the rudder and elevator control horns. The motor mount is next!

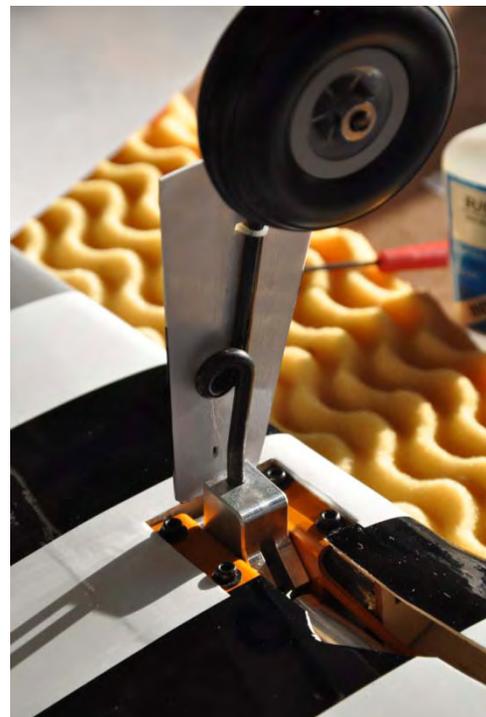
The motor mount is provided for us and we have preinstalled blind nuts in the firewall. The instructions reference some 4/3in. screws, but again this is a misprint. These should be 3/4in. screws. The Evolution .52 attaches to the mount with a strap type beam mount, **BUT DON'T INSTALL THE MOTOR YET!** Stop and install the fuel tank, or you will have to remove the motor later to get the fuel lines in! Now install the motor and then you can install the throttle pushrod and connect to the throttle servo.



This is the first time I have seen a kit that provided two cowlings. We have one very nice painted fiberglass one and one clear plastic one. The clear plastic cowl is used first to make all the cuts in, and then transfer to the painted cowl. These allows for very accurate cuts on the cowl;

and, trust me, there is a lot of material to remove! Using the pictures in the manual, clear cowling and the taped cardboard trick I ended up with a very nice fit of the cowl on the plane. A couple of screws, a new Dubro spinner, Evolution 11x6 prop and a pair of scale exhaust stacks and the front of the fuselage is finished!

Now we get into the installation of hardware in the wing panels. Here is where we can spend quite a bit of time. Even though the flaps and ailerons are hinged for us, there are still four servos to install, along with the drop in retract units. Oh yeah, the wings are already prepared for the stock fixed landing gear, so in order to use retract units, the slots and wheel wells need to be cut out. The manual supplies better than 50 pictures and drawings for everything needed in the wings to make them complete. Every step is covered very well, whether you are using any or all of the options.

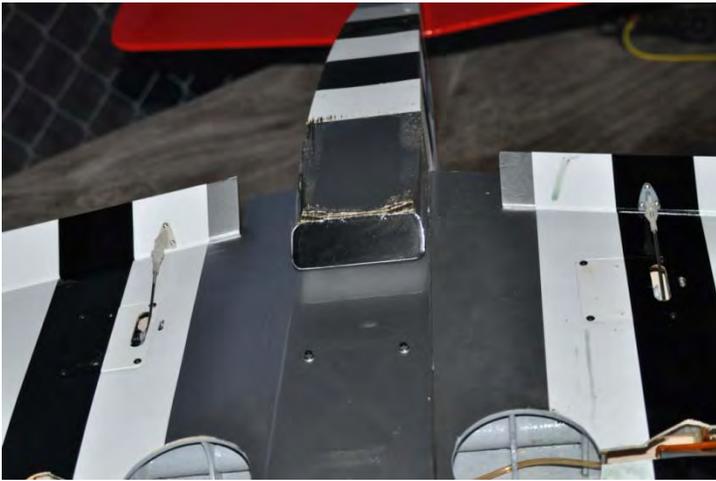


Moving into the fuselage again, we need to ready our air valve for the main gear retracts. The kit provides a nice plywood plate and bracket that holds the retract servo, air valve and valve for filling the air tank. One very nice thing here is that the entire air valve assembly can be assembled outside the plane and then installed into the plane with only one more hose to hookup. This is a good idea because the fuselage is getting filled up very fast. The air tank sits aft of the rudder and elevator servo tray and has a plywood bracket that fits the tank perfectly. It takes a bit of patience to get the tank into the bracket, so you might consider a small break before installing the air tank. Now just a bit of tidying up and we are ready to verify the CG and go fly!

All I can say about the CG is ouch! I was astonished that my P-51 currently balanced nearly a full 1 inch aft of what the manual wanted. I compared my manual with the online version, and they both said we wanted a CG in the 89mm-98mm range aft of the leading edge of the wing. I looked at the cord of the wing and did a bit of calculations of my own and established that the recommend CG was a very safe range, and my current CG would probably result in a very messy flight; probably requiring a golf cart and trash can! So I started adding weight, and more weight, and even more weight. I ended up with 13 ounces of lead in the nose of the plane in front of the battery just to reach a CG of 95mm. The total weight of the plane is now 7lbs 12oz! This is a full 12 ounces heavier than the manual says! I guess only the flight test will tell.



One late afternoon, I headed out to the local home field of RCReport Online in Huntsville to stretch the Mustangs legs a bit. With a couple of my partners in crime here in Huntsville, Terry Barnes and Rick Grim, we fueled up, aired up and tuned the motor and off we went!! A slightly rich setting on the new Evolution .52 was running a bit rough, but the 11x6 prop was pulling very well, so I taxied out took off. The roll out handled very well. I allowed a bit of extra runway before rotating into the air. First thing I noticed was that at a climb angle of about 10 degrees, the motor was pulling hard and still accelerating very well. Very little elevator trim was needed to maintain the climb out, but the elevator was a bit hot! I mean, I liked it; but it may be a bit sensitive for some. I pulled the land gear up and started the obligatory rolls, loops, and stall turns. I found that the 95mm CG



was probably a bit aft of a warm and fuzzy feeling for a lot of pilots. In a tight loop with full elevator, the P-51 would snap out at the top. Landing the Mustang would prove to be very stable, with full flaps and about  $\frac{1}{4}$  throttle until the wheels are lined up and a few inches off the ground. Cut the power and let it settle down on the mains and roll out to bleed of speed. My first landing was a bit different though! On touchdown, the landing gear folded up and the plane slid for about 60 feet before stopping! Hmmm...curious!

Spring down/Air up retracts are supposed to fail and lock down!! These came down, but

didn't lock! After further review, I found that a kink in the air line did NOT let all the air out, so the spring could not push hard enough to lock the gear! Make sure there are no kinks in your lines! The belly of the plane had a few scratches, but no damage.

I brought the plane out one more time to give Gary Courtney a go at the sticks while I took a few more pictures. He flew it well and agreed that it is a very sporty Mustang and doesn't really feel heavy in the air until you get a bit slow. Definitely, use the flaps on landing, not really on takeoff. On landing the flaps do exactly as they should and slow the plane down very well, and the added lift makes things feel very stable. You have good positive control all the way to touchdown! I like this plane a lot! I'm just not really sure why there is such a sever weight difference based on the manual and in reality. Thankfully, the weight is not a detriment in the air with the Evolution .52! Still plenty of power! I am sure this P-51 would be downright smoking with a big 4-stroke engine!

Tony Coberly

[tonyc@rcreport.net](mailto:tonyc@rcreport.net)



It has been a real zoo around here. Between trying to come up with a few topics to discuss, and describe in this column and trying to organize the move of my company's lab and office areas; I have been busy, busy, busy. We just got moved in last week, and it took about a full week to get things back to normal. We have lots of lab area, double the amount of work benches and plenty of storage space at our disposal. Plus, it's about half the distance between work and my house, so travel time is just about cut in half. It was a real nightmare during the move, but things have settled down and we can begin to get back to business.

I had to dig deeply into my files to find something to write about this month, so bear with me. I'll pass on a correction to last month's topic about converting a PC power supply into a bench top 12 volt supply. I'll show you the new large size fuel fillers from DuBro. We'll take a look at how to modify a firewall to fit a longer engine and I'll try to explain how to balance a completed model and how to correct for heaviness in the nose.

Let's take a look.

## **CORRECTION TO LAST MONTHS COLUMN**

Last month I described a way to convert many personal computer power supplies to stand-alone 12 volt power supplies that can be used with many 12 volt R/C accessories. In that



article, I mentioned that a brown wire needed to be connected to ground in order to allow the supply to turn on. Due to both my partial color blindness and lack of other information, the wire to be connected to ground is green, not brown!

Also, here is a link to a full blown article on PC power supply conversion from Red's Battery Clinic. There's lots more information here.

<http://www.hangtimes.com/id45.html>

## **SUPER SIZED FUEL FILLER**

I first saw the original E/Z Fueling Valve from DuBro at last year's Toledo Expo, and I have used a few of them on several of my models. They have never leaked, dripped or otherwise

malfunctioned in use; and I have recommended them to quite a few modelers. To me, it is one of the simplest yet most innovative fuel fillers available today.

However, some of you out there are using fuel systems for your really large displacement engines that cannot be fed by the diameter of the original E/Z Filler inside diameter tubes. DuBro has listened to you and recently released their large size E/Z Fueling Valve (**PHOTO 1**). The inside diameter of the ports on this monster fits 1/8" and 5/32" ID tubing as compared to 3/32" ID on the original E/Z Filler. The model 997 sells for about \$13.00, and is available at your local hobby retailer.



**Photo 1: DuBro Large E/Z Valve for large engines**

Also available now are mounting brackets for both the original and the large E/Z Fueling Valves for models that do not have a proper location for mounting the valve. Seen in **PHOTO 2**, this large mounting bracket #995 can be mounted inside the plane behind a hatch door without losing any scale detail of a filler valve



**Photo 2: Mounting bracket for any DuBro E/Z Filler Valve**

sticking through your fuselage. This bracket sells for about \$2.50, and is also available at your local hobby dealer.

### **IT'S TOO BIG TO FIT!**

I was in the process of aligning and drilling holes to mount an engine on a new kit plane when I found that things were not going well at all. First off, the original engine I had chosen, a two cylinder horizontally opposed gas model, would require that the cowl be literally butchered to fit the cylinders and mufflers. Plan B was to use a single cylinder engine mounted inverted and only have to cut the cowl for the cylinder at the bottom and the muffler at one side. That seemed to be the best idea until I got to the point where I needed to locate the mounting holes on the firewall. Not only was the location of the top holes too high on the firewall, the prop hub stuck out of the cowl by 1/2". Did I hear someone say "Plan C"?



Anyway, I gave it some thought and decided that instead of ripping out the firewall that was keyed and pegged to the fuselage sides already; I could just make up a new firewall to mount behind the original and mount the engine standoffs to that one. The original firewall was 3/8" thick, and if I routed holes through it, the standoffs could be bolted to the secondary firewall, which would also solve the problem of the prop hub location.



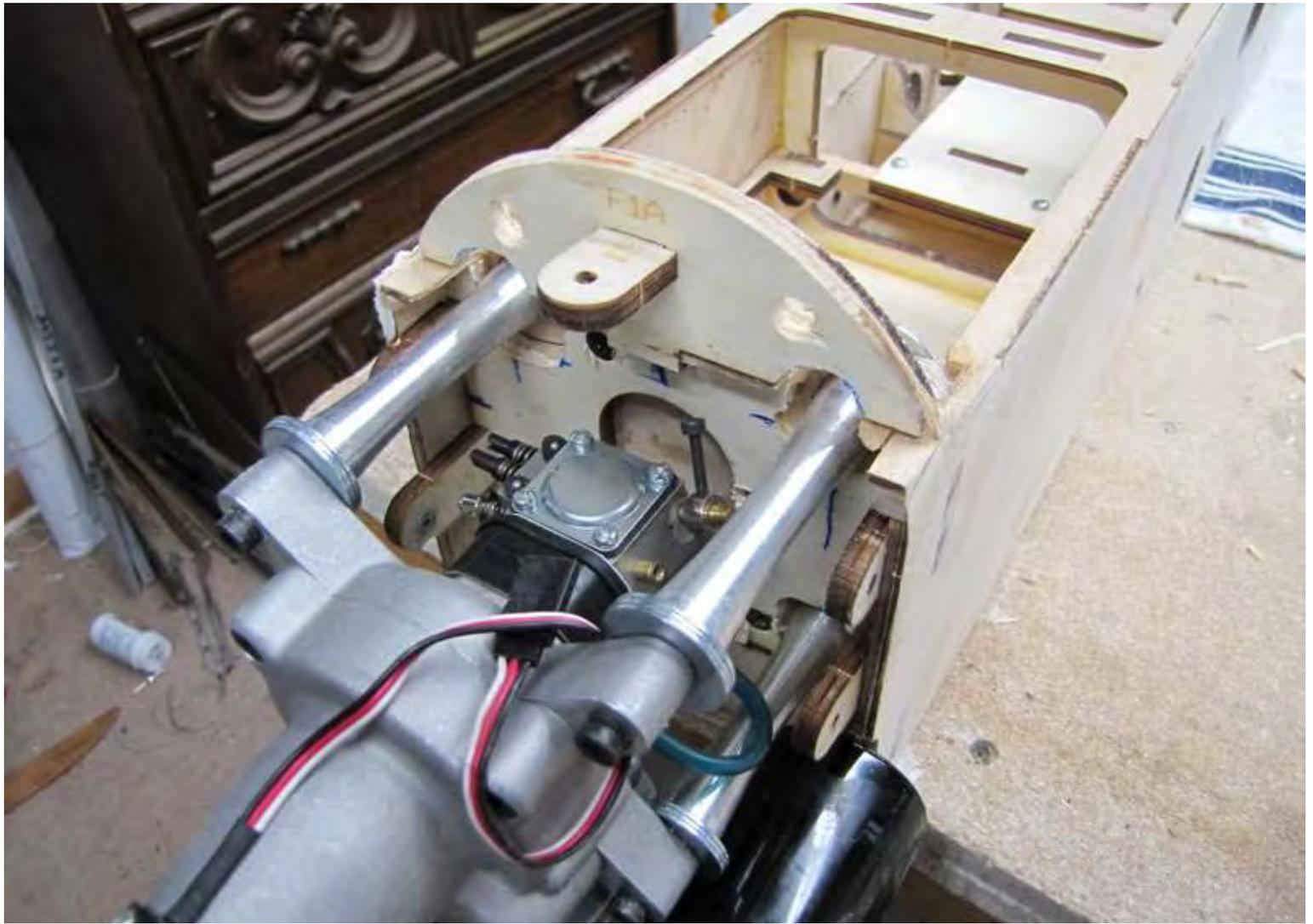
**Photo 3: Secondary firewall mounted in fuselage to fix engine positioning problem**

Using my high speed rotary tool with a Roto-Zip bit, I cut four holes in the original firewall through which the standoffs could pass through. They were cut large enough to be able to locate the engine where it should be mounted to align with the center line and thrust line. **Photo 3** shows the rough cuts made for the standoffs.

The secondary firewall was made from two pieces of 1/4" aircraft plywood laminated with epoxy and cut to fit tightly behind the original firewall as seen in **PHOTO 4**. Some of the fuselage structure needed to be trimmed slightly to allow the new firewall to be installed, but none of these trims would cause structural weakening. Epoxy was used to bond both the old and new firewalls together and sheet rock screws were used to keep everything tight until the epoxy cured. Since the original firewall was mounted quite securely to the fuselage sides, I felt that the secondary firewall would not need any sort of extra bracing other than the epoxy used to bond it to the original firewall.



**Photo 4: Clearance holes roughly cut through original firewall to set engine back 3/8"**



**Photo 5: Engine finally mounted at correct place**

### **BALANCING ACT**

The engine was placed at the proper position and the standoff locations were marked on the new firewall. Holes were drilled and the engine was bolted into place. With the cowl bolted into place the engine fit perfectly, **(PHOTO 5)** and my engine mounting problem was solved. And to answer your obvious question, yes I did clean up those nasty looking holes, and I will paint a coat of clear epoxy on the front and back of the firewall to keep fuel from soaking through.

Last time, I related my way of starting the assembly process of the popular Almost Ready to Fly models, commonly referred to as “ARFs”, and this month I’ll dig a little deeper into the methods and practices I follow when assembling my own models. Rather than go in order, I’m going to jump to one of the last things to be done to any model, be it ARF, a KIT or one of the planes you just got from your buddy. That procedure is called “balancing” and it can make or break any plane, both figuratively and specifically.

There's an old saying I like to use about balancing which is "Nose heavy planes fly poorly, while tail heavy planes fly once". Honestly, that is the most important rule any model airplane enthusiast should follow. Pretty much anything with wings will fly if it is balanced correctly and has enough thrust to get it off the ground. Probably the first step in determining if a plane is balanced is to find out exactly where the plane should balance. That brings up a whole rat's nest of theories about locating the proper center of gravity, most of which I will not go into here. You can find all sorts of methods and formulas online to calculate the balance point of any aircraft, and I'm leaving that excursion up to you.

Here's where I start. I look in the documentation for the plane I am building and find out where the designer of the plane has located the balance point. This point is marked on the top of the wings on a low wing plane and on the bottom of the wings of a high wing plane. I then stand back and see if that location "looks right". What I mean by that is, if the marks seem to be way too forward or aft; I'll go a little further to see what may be slightly wrong. A typical straight wing model should fly well with the balance point about 25% of the total wing chord behind the leading edge of the wing. If it is 30% or so, that may be okay, but if it looks to be too far back, I'd begin to do some calculations.

Measure the wing chord (for example 20") and divide it by 4 (that gives the 25% point) which results in 5". This is a very good starting point for the location of the balance point. If you want it to balance at 30%, multiply 20" by

0.30 and you get 6", or the 30% point. I sometimes calculate a "balance range" marking both the 25% and 30% points with strips of thin tape. If the plane balanced anywhere between those two points, it'll do okay.

Oh, you fly biplanes? With staggered wings, where one wing is mounted ahead of the other? No problem, we can figure that out too. Assemble the plane with the wings in place and block it up so that the thrust line is parallel to the work surface. Use a framing square to locate the leading edge of the top wing's position on the work surface. Now locate the trailing edge of the lower wing on the work surface. You now have two marks on the table that are the horizontal distance between the top wing leading edge and the lower wing trailing edge. This is now the total chord of the wing assembly. Let's say it measures 30", and you want the plane to balance at the 25% point. So, 30" times 0.25 is 7.5" and this is where you make the mark on the underside of the top wing to locate the balance point. It may not look "right" for the top wing only, but we must consider the lower wing too in our calculation.

Swept wings? Tapered wings? I suggest you go online and find out how that's done. We're working with basic planes at the present time.

Here's how I use those calculations to see if the plane is balanced anywhere near the places I marked on the wings. With the plane fully assembled, but with no fuel in the tank, I go to the work shop and locate my "Two Digit

Model Airplane Balancer". For those of you who haven't heard about this device, I'd venture a guess that 99.999% of you have this in your shop, and you may be using it to navigate the pages of this issue. It consists of the index fingers on your right and left hands and that's what I use to check the balance point of just about any plane. Stand in front of the model, put you index fingers on the marks you made (You may need to flip the model over if it is a low wing design since the marks are on the top of the wing.), and pick up the plane on the tips of your fingers. If the plane's tail lifts and then the whole plane comes off the work surface; you're in really good shape. If the tail seems to be glued to the table; you have work to do.

You say that your plane is too big or too heavy to lift with the tips of your fingers? Well, then, mark the balance points or balance range on the wing tips, take the plane outside where two people can handle it and enlist the assistance of a friend, neighbor or maybe even your spouse. Please do not mention anything about using one finger....okay...I won't go there. The technique is similar to balancing by yourself. Each of your fingertips on the points, lift it up and see where the tail goes.

Let's say the plane's tail stays low while you are lifting. How do you know how much weight to add to make it balance, and where should it go? I'll find heavy items in the shop of varying weights and place them approximately at the firewall location while I lift the plane again. You will soon determine how much weight will be needed and where it should be places. Take

your crescent wrench, those two batteries and the claw hammer to your digital scale (You DO have a digital scale, don't you?), and weigh everything. The total weight is how much of that "L" word stuff you will need to add to the firewall area.

Please do not be tempted to add any amount of lead to a cowl that is made from plastic or fiberglass. The cowl is probably only held in place with a few small screws, and any added weight plus the vibration from the engine and forces generated when taxiing on rough surfaces will just wrench the cowl off the plane. However, if your cowl is made from plywood and is not too long, lead and epoxy mix can be added, as seen in **PHOTO 6**.

I have used lead fishing sinkers, lead wheel weights, lead diving weights and many other forms of lead products to balance models, but more recently I have been using lead shot mixed with epoxy. It can flow into small areas and will stick to practically anything behind the



**Photo 6: Plenty of room for lead and such!**

firewall. I have found lead shot online at that “E” place for less than 50 cents a pound and 50 pounds is not too much to order. Believe me, you will be using it.

First, I take a look at the area ahead and behind the firewall to find a location, into which the lead shot and epoxy can be poured; like the spot between the firewall and floor in **PHOTO 7**. Ideally, a small plywood box could be made and the mixture poured into it; like the top of the engine box in **PHOTO 8**. Then I measure out an amount of lead shot a little less than equal to the total weight needed to balance the plane. This will account for the weight of the epoxy to be added. Mix the epoxy in a small cup (I use 30 minute epoxy just to have some working time.), and start adding lead shot a little at a time. Stir it until all the pellets are covered and keep adding more until all the lead is incorporated.



**Photo 7: Lead shot and epoxy can be added to a short wooden cowl, but not longer plastic or glass ones**

Now is the time for you to pour the lead and epoxy mixture into the firewall area without



**Photo 8: If a small plywood box is added on top of this engine mount, lead can be added**



**Photo 9: Lead shot mix, all 3 pounds of it, can be seen in the lower part of this cowl**



dribbling it all over your servos, receiver and anything else that may get in the way. Once all of the mixture is poured in, use a small stick or even one of your "Two Digit Balancers" to pack the mix into the corners of the firewall area. Once it is all smoothed out, let it cure and then balance your plane again just to be sure. It may be a bit nose heavy, but that's better than the other way. You can plainly see the lead shot mix in the lower part of the wooden cowl in **PHOTO 9**, and there's that much in the top part of the cowl as well. It took almost 3 pounds of lead to get this behemoth to balance.

If any of you have a better way to balance a plane, let us know and we'll give it a try. Until then, make sure you remember that old saying about "Nose Heavy Planes Fly Poorly, While Tail Heavy Planes Fly Once".

That's about all I have this month. Next time we'll try to go into some more details about ASRF assembly, and maybe even show you some photos from other modelers. We need all the photos we can get and we'd also like some suggestions about which new models you'd like us to write about.

*Until next time, see y'all at the field.*

*Dick Pettit*

[pettit@ti.com](mailto:pettit@ti.com)

# Bird on a Wire

by Terry Dunn

As I promised, this month's column will be devoted to catching up on a few lingering projects. I'll bring you up to date on the seaplane conversion of my Multiplex Twinstar II and fill you in on my Trick RC Zagi night-flyer. But before I get started on either of those; I'll show you the latest news on a project you probably forgot about, Bill Schwander's scratchbuilt Cessna UC-78 Bobcat.



**Photo 1: Bill Schwander's scratchbuilt Cessna UC-78 Bobcat is almost ready for its maiden flight. Bill used this project to expand his repertoire of modeling skills.**

As you may recall, Bill is building the "Bamboo Bomber" from a set of pretty old plans. Along the way, he has made modifications to incorporate an electric power system; mechanical retracts, working navigation lights, and a ton of scale details (Photo 2). It's been a long time coming, but the Cessna is finally nearing completion. He plans to take it to the Southeast Electric Flight Festival (SEFF) in late April of this year. I'm trying to convince him to finish everything in time to put in a few flights before SEFF. However, I think he's a little concerned about the plane being destroyed before he has a chance to show it off. Considering all of the time and effort that he has devoted to the Bobcat, I can understand his position.



Bill has been building airplanes for a long time, but he's not too proud to try new things. Among his modeling firsts with the Cessna are retractable landing gear (He only destroyed two sets of servo gears during set-up.), fabric iron-on covering (Coverite 21<sup>st</sup> Century Fabric), and vacu-forming plastic. The compound curves of the Bobcat's windshield eliminated the possibility of using sheet plastic. So, Bill built his own vacu-forming rig and a plug for the Cessna windshield. After several botched attempts, Bill now has a custom windshield, not to mention the equipment and knowledge to make plastic parts for future projects.



**Photo 2: Bill likes to add lots of scale details to his airplanes. The scale door provides access to the radio gear inside.**

Our original estimates put the flying weight of the Bobcat at about 8 lbs. With the build 95% complete, the new estimate is 8.5 lbs and it may need some lead in the nose. That's a little heavy for a 66" wingspan Warbird, but still manageable. If our weight estimate is correct, the wing loading will be about 26 ounces per square foot. Bill is using two Grayson Hobby GH2820-06 brushless motors, with each getting power from a 3S-2050 Thunder Power LiPo battery. With 11 x 6 props, the motors produce a combined power of about 640 watts. This gives a projected power loading of 75 watts per pound. While it's not the 100 watts per pound that I like to have with my sport models, it should be fine for hauling the Cessna around the pattern. I'll give everyone a final update when the Bobcat takes to the air.

Next up is my floatplane conversion of the Multiplex Twinstar II. I've decided to call the finished product "Seastar". I'm using the kit upgrade kit offered by Park Flyer Plastics ([www.parkflyerplastics.com](http://www.parkflyerplastics.com)). Midway into this project, I decided to upgrade the Twinstar's stock Speed-400 brushed motors with a pair of cheap brushless outrunners that I had in my spare parts drawer. The extra power of the brushless units should give the "oomph" needed to get off of the water.

The kit includes a clear plastic hull and parts to make tip floats for the wings. That's all you need to become seaworthy. However, the kit also includes a plastic cockpit kit, white radial engine cowlings (with stickers to simulate engines) and teardrop observation windows. I used all of the parts except for the teardrop windows. As of now, my Seastar conversion parts are still clear. I decided not to paint them until after a few water flights. That way, I can see if any water is leaking inside. ☺nce I'm confident that everything is sealed tightly, I'll add more color.

For the most part, I followed the online instructions for the conversion kit. The main place where I deviated is in the nose of the plane. The instructions have you chop off the stock nose and glue it back on to the plane inverted. I thought that the plastic hull fit fine without this modification, so I saved myself the effort. To steer my Seastar on the water, I programmed differential thrust into my Spektrum DX-7 transmitter. Basically, this provides individual control of each motor with rudder input. Feeding in right rudder will make the left motor spin faster and vice versa. With no rudder input, both motors run at the same speed. With the differential thrust, I don't have to bother with the added weight and complexity of a water rudder. This capability can also be used in the air for some unconventional aerobatics.

The first water that the Seastar touched was that in Bill Schwander's pool (Photo 3). I got a little overzealous playing with the differential thrust and drove the still spinning starboard prop into the pool wall. That little transgression resulted in a shattered prop and a bent motor shaft. Other than that, things went well. I could see that I had plenty of clearance for my 7" props. I had been concerned that they might be too close to the water. In addition to water, the Seastar also has enough power to take off from grass or paved surfaces. As you can imagine, concrete scrapes up the plastic



**Photo 3: My Twinstar II seaplane conversion floats comfortably in Bill's pool. The clear plastic hull and tip floats are difficult to see now, but they'll soon get a coat of paint. Note the broken starboard prop...oops.**

pretty quickly. I accidentally sanded a hole in the bottom of the hull while playing with the differential thrust in my driveway (I really need to stop playing with the differential thrust!). I've had to delay water flights until I get that patched up.

While I've been working on my Twinstar conversion, other folks have been doing the same. My buddy Elwood Kotil finished his in record time (Photo 4) and flew it from the lake in his back yard. The man behind the conversion kit, Keith Sparks, converted a second model (following the prototype) and gave it a nice Cayman Airways paint job (Photo 5). He has a great video of his Twinstar flying during a freakish snowstorm in Dallas. I'm not sure whether I should be thankful or jealous that the snow didn't quite make it to my house in Houston.

The final project that I'd like to talk about this month is my Zagi night flyer. The Zagi is a foam flying wing from Trick RC ([www.zagi.com](http://www.zagi.com)) that was very popular about 10 years ago. I think that this tough and simple design was responsible for getting a lot of people into flying electrics. I had a spare set of wing cores in my shop, so I built this



**Photo 4: Elwood Kotil's Twinstar uses counter-rotating, 3-bladed props. He finished the conversion quickly and maidenied it from his backyard lake (Kotil photo).**



**Photo 5: Keith Sparks' personal Twinstar seaplane is nicely finished. It flew well during a freak Dallas snowstorm (Sparks photo)**

plane as a simple way to get into night flying. Last month, I explained how I wired the lighting system. This month I'll talk about how it all turned out.

Weight-wise, I'm very happy with the 8.5 ounce result. This is less than half the weight of a conventionally built and powered Zagi. I achieved this weight savings by omitting all of the covering. The traditional finishing method for a Zagi is to lightly coat the wing with spray adhesive, and then apply a strategic pattern of filament strapping tape. A complete overlay of colored packing tape

determines the final color scheme. It's a fairly lightweight approach that provides some rigidity, but let's the foam flex during a big impact. A carbon fiber spar could be glued into the wing to prolong the life of the foam. I didn't use carbon fiber or tape. It's all bare foam. I figured that I'd be flying slowly enough that the Zagi would be fine without any additional support. So far my theory has been correct. I did spray paint on some simple stripes to give it just a little color. (Photo 6)

Another way that I saved considerable weight was by using a tiny, brushless power system. The Zagi's legacy power system featured a direct drive speed-400 brushed motor with a



**Photo 6: By omitting the covering and using a small, modern power system, my Zagi night flyer weighs less than half what it did 10 years ago. It will fly SLOWLY.**

4.9x4.3 prop (like the Twinstar) and an 8-cell 600 mAh Nicad. This was a surprisingly potent system for the Zagi, even if a bit inefficient. The main obstacle with using that combination in my night flyer is that it weighs about 9 ounces.

In place of the speed-400, I installed a Turnigy 10-gram outrunner brushless motor. This thing looks tiny next to the speed-400 and looks even tinier on the 48" wingspan Zagi. However, with a 7x3 prop and a 2-cell 500 mAh LiPo, it flies the Zagi through the night sky quite well. The little power system weighs less than 2 ounces and only

produces about 30 watts. With an 8.5 ounce airplane, that's a power loading of 60 watts per pound; more than adequate for the sedate flying I plan to do with the Zagi.

The really cool thing about my Zagi (other than the lights) is that the wing loading is only 2.5 ounces per square foot. The wing loading of your average nitro trainer is somewhere around 16-20 ounces per square foot. This ultra-low wing loading translates into a very low stalling speed. I can pretty much walk along side it during a flyby. Since it doesn't require much juice to fly, the flight times so far have been over 10 minutes per charge. I once flew it with an 1100 mAh battery and got bored after 20 minutes of night flying.

I'm happy to report that the lights worked out very well. I have a total of 25 LEDs installed that sip power from the 2-cell flight battery. The bottom side of the wing has three pairs of white lights on each side. The top has four pairs of blue lights across the middle, a pair of green lights on the right wingtip and a threesome of red lights on the left wingtip. This puts out an impressive amount of light. During low fly-bys (shoulder altitude or lower), the white lights illuminate the ground underneath. The colors are easy to distinguish from far away, so orientation hasn't really been a problem. The only times that I've gotten mixed up were during slow rolls. But I haven't crashed it...yet. I just wish I knew how to photograph it while flying at night. A static photo will have to do (Photo 7).

The blue LEDs are a little strange. They emit a fuzzy aura that is hard to focus on. It isn't a big deal while flying the plane, because you don't really want to focus on just the blue lights. But any other time, this phenomenon will make you blink and squint if you look too hard.

**Photo 7: This photo gives you some idea of what the Zagi looks like flying at night. Visual orientation is surprisingly good.**



As my first night flyer, I'm sure the Zagi will be a good teaching tool for me. It has already helped me to learn the basics of wiring and configuring a nocturnal model. I think it helps that I started this project being intimately familiar with the Zagi; experience gleaned from countless other Zagi modifications over the years. The only real variable for me was how the lighting system would pan out. If you decide to try night flying, I suggest that you follow the same route. Start out with an airplane that you are already comfortable with. That is probably why so many guys use GWS Slow Sticks for night flying. It is a common plane that is easy to fly and tolerant of all sorts of modifications.

As I was writing this column I couldn't help but notice the irony of my two main topics, the Twinstar and the Zagi. As an electrician, I

feel it is my duty to educate and inform the readers about the state of modern power systems. Yet, I've been flying Zagi's and Twinstars for well over a decade. How is it that these antiquated airframes are still relevant? I guess it just goes to show that models that were designed to perform well on simple brushed motors and "round cells" tend to adapt well to brushless motors and lipos. I don't think I'll be getting rid of either airplane anytime soon.

*For next month's column, I'm planning to convert another very popular electric plane for float flying. It should be a fun experiment. Until then, fill me in on your latest projects.*

Terry Dunn  
[boaw@comcast.net](mailto:boaw@comcast.net)

15510 Penn Hills Lane  
Houston, TX  
77062



**Some things never go out of style. Saving money is one of them.**  
www.rtlfasteners.com  
1-800-239-6010  
RTL Fasteners

## MANEUVER OF THE MONTH:

More Loops with Snaps: Blizzard. Last month we looked at the avalanche, a maneuver that combines an inside loop with a snap roll. To do an avalanche, you begin a normal inside loop. Then just before the highest point, the top of the loop, you do a single inside snap roll. After the snap is complete, you continue to finish the inside loop. The blizzard is sort of the reverse of the avalanche. It combines a reverse outside loop with an outside or inverted snap roll at the top.

**DESCRIPTION OF THE BLIZZARD:** The blizzard is performed by starting a reverse outside loop, then performing a single outside snap roll at the top of the loop. When the outside snap roll is complete, you finish the outside loop and roll back to upright flight.

**KEYS TO DOING THE BLIZZARD:** The key to doing the blizzard is being able to do an outside loop and an outside snap roll. This normally means that your plane has a symmetrical or semi-symmetrical airfoil. Planes with a flat bottom airfoil, like many trainers, struggle to get around the outside loop. A Stick or any of the low wing or mid-wing sport or fun planes will do extremely well.

**AIRPLANE SET-UP AND TESTING FOR DOING THE BLIZZARD:** The first thing to check on the airplane set-up is the amount of down elevator you have. Switch your plane's transmitter on and compare your full up movement with the full down movement. If you have very little down elevator, you need to adjust the movement for more control.



Test 1-Outside loop. Crank up and take your plane up to a safe altitude. Roll inverted, level the wings and push in full down for a tight outside loop.

- a. If the plane goes right around the outside loop; you're good.
- b. If the plane gets very slow on top or can't complete the outside loop, either you don't have enough down elevator or you don't have enough power. If you know your plane has plenty of power for a loop; land and set in more down elevator and try it again.
- c. If the plane gets part way around the outside loop and rolls off; this is the start of a snap roll that you don't want. You have too much down elevator and you need to land and reduce the down travel some and retest.
- d. The reason we test with full down elevator is because first, you need to know if your plane can actually get around an outside loop. Second, we want to avoid an unintended snap roll because, sooner or later, you are going to get nervous and pop in full down elevator.

Test 2-Inverted snap roll. Once you are sure you plane can do a nice outside loop, you need to test for an outside or inverted snap roll. I have done a Maneuver of the Month on the inverted snap roll, so you can check the R/C Report archives for the August 2008 issue if you want more extensive coverage. If you don't want to search back; the stick positions are in the Aerobatics Card.

Take your plane up and pull up into about a 45 degree climb. The climb simulates the slower speed you'll have at the top of the outside loop. Now push both sticks full forward and toward the center. There is no half way for a snap roll. FULL FORWARD & FULL TOGETHER. This is full down, full throttle, full left aileron and full right rudder. This will give you a left inverted snap roll. If you don't believe that right rudder is the way to

go, lay your plane inverted in the cradle, turn the radio on and put in full right rudder. The rudder moves over to the left. Yep, rudder reverses when you are inverted.

2a. If your plane does a nice, crisp inverted snap roll; you're good.

b. If your plane does a big outside barrel roll, land and increase the rudder movement. You may not be getting enough yaw to cause the plane to break into a snap roll. You should have at least 30 degrees of movement. Your down elevator movement should be fine since you have already adjusted it for the outside loop.

c. While you are on the ground, put in full right rudder and hold it. Grab hold of the rudder and see if you can easily straighten it out. If you can, check for the pushrod flexing. It may need bracing. The other cause could be a weak rudder servo that may need replacing with one with a greater torque value.

Now that we have the plane set up correctly, let's get to it.

### Doing the blizzard

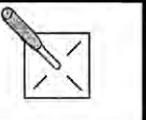
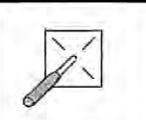
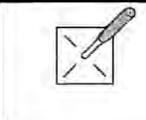
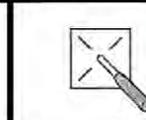
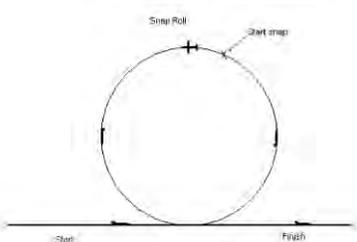
As we normally do, we start from the standard set-up.

STANDARD SET-UP: 1. Full power, 2. Parallel to the runway, 3. One mistake high.

The blizzard should be started flying into the wind.

What to do:

Step 1: Take off, climb up to a safe altitude and practice a few inverted snap rolls. Once you're comfortable; drop down to one mistake high.

RC REPORT MAGAZINE			
TEACH YOURSELF AEROBATICS CARD		LOOPS WITH SNAPS By Ed Moorman	
<b>Avalanche: An inside loop with a snap at the top</b>			
Practice a snap roll from a climb first to get used to doing one at a slow speed. Once you can do one snap give the avalanche a try.			
✓Step 1: Start from our Standard Set-Up like always. You remember, 1. Full power, 2. Parallel to the runway. 3. One mistake high.			
✓Step 2: When you are in front of yourself, start a regular inside loop. No need for full up. We want a fairly good-sized loop, not the biggest your plane will do and not a real tight one.			
✓Step 3: Just before you get to the top, hit snap roll controls. Check the R/C Report Maneuver Card for stick positions. Release the controls so you get one snap.			
✓Step 4: Finish the loop			
<b>PROBLEMS:</b> Your plane pulled off to one side during the snap roll.			
✓When you release the controls to stop the snap, blip in some opposite rudder to pull the plane's nose back on track.			
✓The other way to end up on line is to cheat and start off slightly in the opposite direction from the direction your plane will be pulled off. This way when your plane stops the snap, you'll be lined up to finish the loop			
<b>TRAINERS: Use FULL AILERON AND FULL RUDDER for the roll</b>			
Left Snap Roll		Right Snap Roll	
			
			

Step 2: At one mistake high, practice a couple of reverse outside loops. Once you're comfortable with the reverse outside; go for the full blizzard.

Step 3: Now it's time to do the reverse outside loop with the inverted snap at the top.

a. Before you pass in front of yourself; roll inverted, and stabilize the plane with a little down elevator. Don't wait to start the roll to inverted and get rushed. Start early and give yourself time to roll over and get comfortable holding altitude inverted.

b. As you pass directly in front of yourself, push in some down elevator to start an outside loop. About half down elevator should be enough.

c. Just before you get to the top of the outside loop, put in controls for an inverted snap roll. Check the RC Report Maneuver Card for stick positions. Do one inverted snap roll and release the controls.

d. Come back in with some down elevator to continue the outside loop and level off at the bottom.

e. Roll back to upright level flight. That's it.

**THE FEATURE BEFORE THE FEATURE:** Ed's rant on global warming. I don't know about you guys, but I am sick and tired of winter. I live on the north coast of the Gulf of Mexico in the Florida panhandle. I've lived here since 1975 and to my best recollection; this has been the longest, hardest and windiest winter I remember. And don't give me anything about being in Florida. In the panhandle, we get Alabama weather with temperatures down into the 20's and a rare snow.

Nearly every winter, however, we usually get a sort of break in the weather equaling several spring, like days of 60 degrees where we can do some flying.

This year this has been no break. All we've had is mostly cold days, wind and rain with some sleet and some snowflakes. Grrrr!!!

I have been told that it is all the fault of global warming. I'm not sure about that myself, at this point. I will state that it is my opinion that the weather scientists need to get their stuff together and start doing the job they are paid to do and quit faking and selecting data to get more grant money.

Well, off my soapbox. I'm just grouching due to lack of flying time. I know you guys in the mid-west and northeast have had it a lot worse. All I can say is hang in there; spring's coming (some time).

**FEATURE OF THE MONTH:** Advances airplane set-up: Flight Modes. Last month, I covered setting

<b>BLIZZARD:</b> <b>A reverse outside loop with an outside snap</b>			
✓Step 1: Start with the Standard Set-up. 1. Full power, 2. Parallel to the runway, 3. One mistake high. ✓Step 2: Before you pass in front of yourself, roll inverted and stabilize in inverted flight with a little down elevator ✓Step 3: Directly in front of yourself, push in some down elevator to start an outside loop. About half down elevator should be enough. ✓Step 4: Just before you get to the top of the outside loop, do an inverted snap roll. Do one inverted snap roll and release the controls. You may want to use opposite rudder to pull the plane back to the original loop track. ✓Step 5: Continue the outside loop and level off at the bottom. ✓Step 6: Roll back to upright level flight. That's it.			
<b>Trainers: This is a hard maneuver for planes with a flat bottom airfoil.</b>			
Left Inverted Snap Roll		Right Inverted Snap Roll	
<b>CLIP OUT-TAKE TO THE FIELD</b> <b>COLLECT THE WHOLE RC REPORT SERIES</b>			
For reprints of Fun Aerobatics or back issues call R/C Report (256) 503-8436 Ed Moorman E-mail: emoorman25@gmail.com			



**Photo 1: Ugo Ferrari poses next to Steve's Decathlon. That is one big airplane.**

up your radio in a new plane. This month, we'll go into some more advanced radio set-up: flight modes. A flight mode is a total set-up of your plane for a certain portion of the flight. This feature allows you to change the dual rate settings, the flap setting and elevator compensation and any mixes you want all with one switch movement. I'll cover flight modes in more detail, but first, let's start with the basics.

**BASICS:** Just about every radio except the very low end ones now come with dual rates on elevator and aileron. The mid-range and top line radios have dual or triple rates on elevator, ailerons and rudder. The dual rate function allows you to change the amount of control movement with the flip of a switch. On **LOW**, your control only moves a certain amount. On **HIGH**, the controls move further. You can set and adjust the amount in the radio's program. Most ARF kits these days have low and high settings in their instructions. For example, the elevator movements may indicate  $\frac{1}{4}$ " movement from center for the low setting and  $\frac{1}{2}$ " for the high setting.

Some of the less expensive transmitters have only one switch for all the dual rates. You flip this one switch and all the dual rates on this transmitter change. For many people, this is a great idea. I have heard many people complain about having to remember which switch to flip and when. Let's say you normally take off and land on low rates, but would like a more responsive plane for acro maneuvers. On most transmitters, the aileron dual rate switch is on the right and the elevator switch is on the left. The rudder dual rate switch, if the transmitter has one, may be on top or on the front near the center. That's three switches to find and change by feel. Some people just give up trying to find them and don't use dual rates. The single dual rate switch solves this problem. One flip of one switch and everything is changed. No fumbling around for multiple switches. The single dual rate switch could be called a poor man's flight mode.

**FLIGHT MODES:** The flight mode switch is going to do what the single dual rate switch does, but it goes further and includes flap and spoiler setting and mixes. You pick what you want set in a certain



**Photo 2: Richard Deese shows off his new Tamecat ARF. Super Tigre 40 powered.**

flight mode. Transmitters that have flight modes normally support three different ones. Takeoff, normal flight and landing are the three most popular flight modes. Let me give you a few examples so you can better understand flight modes.

Scale planes and jets example: You may never own a jet, but you might buy a scale warbird kit. Most people have one sooner or later.

Takeoff Mode: Rudder to low rate so you don't move all over the runway on takeoff. Set elevator and ailerons to low rate. Flaps should be down 20 degrees and all other mixes off.

Normal Mode: Rudder, elevator and ailerons to whatever sensitivity you like. Flaps up. For some planes you may want some aileron to rudder mix to counter adverse yaw. Others may like some



elevator mix with rudder to counter pitch movement when rudder is used.

**Photo 3:** Dave Perkins poses with his kit built Uproar 40. He powers it with an OS .40LA.

Landing Mode: Rudder, elevator and ailerons to low rate for landing. Flaps down 60 degrees. Elevator moves down to compensate for extra lift of down flaps. Spoilers or speed brakes activated.

Ed's Ultra Stick example: The plane is an OS .55AX powered Ultra Stick 40 with 3 degrees of anhedral on each side. You may not think you would use flight modes on a Stick, but they make mine a lot more enjoyable to fly.

Switch position 0 (up) Takeoff & normal flight mode: Elevator, ailerons and rudder set to high rates. Elevator to flap mix on. This is stunt flaperons where the ailerons move like flaps and opposite to the elevator, giving you more lift for tighter maneuvers. I use 50% flaperons. Other mixes are off.



**Photo 4:** Here's a blast from the past I found in an old folder, a Tiger Sport 40 from probably 15 years ago. Ugo gave it to me to get back in the air after I bashed my favorite. The Tower .46 I used for power was one of the first ones out and had a muffler with the short exhaust stack. The muffler wouldn't clear most fuselages, so the stack was lengthened. If you happen to have a Tower .46 muffler, take a look at the exhaust stack and you'll see where the casting has been lengthened by about 1/4".

Switch position 1 (center) Knife edge loops: Elevator, ailerons and rudder set to high rates. Stunt flaperons off. Rudder to elevator mix on. This gives down elevator with either rudder to compensate for the pull toward the top of the plane with rudder. The 3 degrees of anhedral I have built

in compensates for the roll due to rudder. Other mixes are off.

Switch position 2 (down) Landing: Elevator, ailerons and rudder set to medium rates. Stunt flaperons off. Rudder to elevator mix off. Throttle to flaps mix on. This moves both ailerons up like spoilers as the throttle is reduced, starting at half throttle. The spoilers move up about 15-20 degrees. As I add power, they start dropping down and at half throttle; they are completely back in the normal aileron position.

Let me summarize my use of flight modes. I use three dual rates on this plane. I also have three mixes that I use during different modes of flight (Notice how I snuck the words “modes” and “flight” into the sentence.). These functions would normally take six switches that I would have to remember and feel for. As it is now, I can feel for

one three-position switch and change everything. I like that. No, I love it. I have had several 7, 8, 9 and 10 channel radios and never used as many mixes as I do now just because it was hard to remember, and find, the switches for all the combinations. Flight modes are it!

Ed Moorman

85 12th Street

5

Shalimar, FL, 32579

850-651-9269/850-240-2753

## LIGHTER, **STRONGER**, FASTER

UPGRADE YOUR  
HELICOPTER  
NOW WITH  
**CERAMIC  
BEARINGS.**



Boca Bearings cutting edge ceramic bearings that go to the **EXTREME.**



**BOCA  
BEARING**

Miniature Bearings For Industry, Hobby & Recreation

Tel: 1-800-332-3256

Fax: 1-800-409-9191

[www.bocabearings.com](http://www.bocabearings.com)

## GLOW PLUGS DON'T LIKE WATER

A surprising number of contacts (email or phone) I receive from modelers relate to engines running poorly: won't idle, backfire, die on transition or just refuse to run at all. The engine(s) ran okay yesterday or in the near past on the same fuel, but something is wrong now. Generally, the first attempt to cure the problem is a change of glow plugs. Here I often see a problem due to the meanness of some modelers. A plug is found to not work in an engine and another one is fitted which might or might not work; and the crook (bad, no good, useless etc.) plug is put into a drawer or section of his model box as 'it might work in another engine'. Well, Titus Canbee (I was going to say 'tightass' but that is rude.), unless it is a new plug of the wrong heat range, in which case it might work in another engine, if it just ceased working as it should, turf it. Give it to somebody you don't like; throw it at a straying bison; anything except keeping it for 'maybe later'. The blasted plug has died. Gone to plug heaven, carked it, the flame has fizzled. Maybe it will work in a fashion in another engine and then die completely just as the model is climbing out after takeoff and you know what that generally means. Instant re-kitting, in case you forgot. Right then, back to the problem and here we get to another nasty bit that really concerns me. After checking the plug, the modeler, or somebody at the field, starts wearing out the mixture needles by winding both the main and low speed mix needles in and out for no useful purpose other than unnecessary wear on the threads. Why would you go to extremes winding the mixture needles, for heaven's sake? The engine ran



okay previously so, if there is a considerable weather change, it is going to run again on the same settings or with just a minor change to the main mix. Never touch the idle mix once it is set correctly. It is not sensitive enough to require altering. Well, now we come to the desperate stakes. Check all fuel lines, change the tank, change the propeller, sell the cat, and divorce your wife. Try anything to find why the engine won't run. Okay, really desperate now. Contact the Oily Hand (or Winch person) as a last measure. Simple answer here from me. "Cadge, (bludge, borrow or steal) some fuel from another modeler who is NOT having engine problems. Try the engine and then contact me again with the results." One day, one blasted day, I'm going to advise the caller to take two aspirins, go to bed and call me in the morning if the engine still won't start. I know it won't help, and it will certainly confuse the caller; but it will appeal to my nasty inner self. Now back to being nice. The modeler contacts me again and announces that the engine ran perfectly, so he tried it again on his own 'good' fuel and it played up something terrible. Second answer based on the new evidence. "Throw your fuel away, as it is

contaminated with water.” I have modified that answer now. More on it further on.

We’ve discussed this in the past, but the problem still crops up. Methanol, the fuel ingredient of our fuel mix, is a hygroscopic chemical. It will absorb and contain water in any form and is very much inclined to absorb it from the air. Strangely, it seems, a byproduct of its combustion is water and this is something else to consider. Right then, you have a gallon fuel caddie you take to the field with your fuel supply. It starts off full of nice, fresh fuel. You fill the tank in your model and there is now an air space above the fuel in the caddie. How’s the weather at the time? High humidity? Pending rain soon? Well, the air might be loaded with moisture and the moisture content of the air in your caddie will be absorbed by the methanol. This is not a great problem at the time as the moisture absorbed is not going to upset the engine. After all, it is sucking in the same air as is in your caddie and running on it quite well. Let’s say we have X amount of moisture in the tank now. We take another flight and get more air in the caddie, so we now have two times the moisture. We take one more flight and three times the moisture, and then a coffee break. One more flight for the day, but just as you complete one circuit your remember you have to pick the kids up or take your lady shopping or walk the dog; something to do so you land and the tank in the model is about  $\frac{3}{4}$  full. You use muffler pressure so the muffler is pumping moisture in (A byproduct of combustion - remember?) and the tank now has air space so...more moisture. The fuel in your tank is pumped back into the caddie so we will say, now, four times the moisture content. Next flying session you top up the caddie, or maybe consider it has enough in it for the day and the process continues. You don’t drain the caddie. It is just topped up until

we get to FINISH X. The moisture content is so high in the fuel that your engine will not run on it. Every time a charge of fuel enters the combustion chamber, the water in the fuel cools the glow plug.

## NEVER HAPPENS

Now, I know some modelers will say, “Never happens to me.”. I agree 100%, and it is due to where you live. If you live in an area of very low humidity, dry as a dead dog in the desert, you won’t have this problem generally. However, if your fresh air is a bit on the higher humidity side, you are a starter for the race if you don’t have a care. Here are a few considerations. Use a smaller caddie or two small caddies rather than one large one and keep both of them full until you start to use the fuel; obviously, emptying one first before using the other. Don’t drain unused fuel back into your main fuel supply. Take a small container that has the same capacity as your fuel tank and drain into this. Seal it well and use this as the first fill next time you are at the field; adding a drop of fresh fuel if necessary to top off the model tank. If you have a reasonable fuel supply always on hand in your workshop or wherever, keep it in small containers; no larger than one gallon, so that air space never increases enough to be a problem. If you follow these easy directions you can almost eliminate the water in fuel problem.

Now, due to not taking care, we have a reasonable amount of water contaminated fuel. You hate to throw it away, and it is really not much good as a weed killer, so what to do? If you have a spark ignition (gas) engine, mix it with the fuel for this engine. Spark ignition engines run very well on methanol based fuel and are quite happy to have some methanol mixed with the normal petrol fuel.

As for the water, it is rarely a problem unless the water content is getting to a ridiculous percentage. Water will not extinguish a spark plug; and, in fact, a petrol fueled engine does run quite well with a little 'water injection'.

### IN MY WORKSHOP

This is often asked of me: "Testing any new engines lately?" Fact is, it is rare that I am not doing something or other with a new engine. It is heartening for me that the internal combustion engine manufacturers are going at it, hammer and tongs, so to speak, producing magnificent new engines and many of them arrange for me to have a sample for testing and reviewing. At the moment, I have recently reviewed a very nice Australian manufactured YD-A 56 cc petrol (gas) engine which was quite a pleasant surprise. This engine was 'consumer tested' in your backyard due to the much higher modeling population and modelers willing to try a new, well presented product. It was very soon realized that this was a high quality engine with a very good torque figure giving power at low RPM (less engine and prop noise), and an agency was quickly established with RC AERO PRODUCTS and Bill Jensen will be looking after your interests with this engine range. Further on, I will let you know how I found the engine on the bench.

The next review was the O.S. Alpha 110 P, the well known Alpha engine fitted with the well proven O.S. Diaphragm pump. We will discuss this also in a moment.

Waiting in the wings for running tests I have the magnificent ☺.S. 55 cc petrol engine, not the first (that was in 1936), but shall we say; the first of their modern large capacity petrol engines. After that, I have the Saito 30 petrol four-stroke and the

DL 30 two-stroke petrol. I have done a sort of review of the 50th Anniversary Gold Saito, a .30 (5 cc) standard engine that has been totally gold plated right down to the glow plug. Certainly not an engine to be test run, it is under the gold plating, a normal .30 - lovely little engine; but this one will not run in my workshop; no point in doing so, as it will not be used in a model. It comes with a clear plastic stand, and I will make an airtight glass case for it to sit on my desk. I plan to delete the oxygen from the case when it is set up, and the sealant has dried. Have a thought about how you think I will remove the oxygen? A glow plug (minus the element) for the first correct answer!

MY ENGINE OBSERVATIONS (O.S. Alpha now; more next month.)

ENGINE	O.S. FS Alpha - 110 - P
CONFIGURATION	Single Cylinder, OHV 4 stroke. Ringed. Integral pump
DISPLACEMENT	1 8 c c
BORE	30.4 mm
STROKE	24.8 mm
WEIGHT	610 g
STATED POWER	1.8 HP/10,000 RPM
R.P.M. RANGE	2,000 - 11,000
PROP' RANGE	13 x 9 - 17 x 6 tested
FUEL	18% oil + 5 -20% nitro + methanol
SHAFT THREAD	U N F 5 / 1 6 - 2 4
SUPPLIED WITH	Glow Plug, needle extension, muffler assembly, instruction manual, decals.

## FOREWORD

We have looked into the performance and quality of the Alpha range of O.S. four-stroke engines previously, and all came up as excellent choices for a range of models requiring up to 120 size engines. The maximum capacity engine in the range is the 110 at 18 cc; just a tad less capacity than a 120 at 20 cc. However, with the performance of the engine and its light weight; it is quite suitable for all but the heavier 120 size models, particularly when you consider it swings a 15 x 8 (default propeller for a 120 four stroke) at close to 9,000 RPM. Whilst we are considering the weights of models, this engine will slot right into the .91 size mounts where the extra 3 cc over a 91 engine capacity will turn that 'lead sled' model into a crisp performer.



Since I carried out the first review of the 110, I have seen a number of them in use at different fields which is an odd thing here that speaks a lot. When I asked some of the modelers what they thought of the engine, the reply was rather similar from most along the lines of, "Oh, the ...err...O.S. Alpha...Don't think about it much. It always starts easy, runs very well and I hardly ever touch it."

I had similar thoughts when I had completed the first bench testing of the engine. It performed so well I wondered if and why anybody would want to improve it. Well, here we have the latest version; no changes to the engine and no improvement. What we have is an addition, a fuel pump and that is going to please the builders of scale models plus quite a few ARF models where the tank position is a problem. For this engine you would fit a 360 to 400 cc tank. That means 360 to 400 grams of weight to be considered for trimming balance throughout the flight, particularly with a lightly load scale model. The closer you can set the tank to the balance point (C of G), the less you need to trim the model for the varying weight. By fitting an efficient pump to the engine you can move the tank much further back, and not have concerns about reliable fuel feed. Actually, no concerns at all about diminishing fuel capacity and possible mixture changes as the pump and regulator will ensure you have a constant flow from a full tank to the time when it is getting close to sucking air. O.S recommends that you keep the fuel tank within a range of 500 to 600 mm from the engine. Whilst the following is not a recommendation, as a bench test I found that the engine would run quite well with the tank close to one meter back and about 200 mm below the engine which is really impressive.

The new 61P carburetor fitted is self-regulating and balances very nicely with the pump. From new it requires a couple of minutes to sort itself out, so to speak. With the first start it is best to keep below  $\frac{3}{4}$  throttle, or even safer,  $\frac{1}{2}$  throttle for 3-4 minutes, then slowly and carefully progress up to full throttle. Check that you can richen the mixture at each step up until you can run on a rich mixture at full throttle. After this first 'training tune', the pump, regulator and carby are now

familiar with each, and will be quite affable from then on. One further piece of advice, and I urge you to take notice, MAXIMUM filter your fuel. Filter it



going into your CLEAN field canister, filter it going from the canister to the onboard tank then filter it between the tank and the carburetor. Regularly check and clean all the filters. You would be surprised at the small size of foreign material that will upset a small pump or regulator. With clean fuel you might never have a problem.

From here on, as nothing major has changed other than the pump and carby, my comments remain close to the same regarding the engine and parts. If you missed that section first time around, now you can catch up, but you will find a few small changes.

As with the other engines in the Alpha series, you have the usual O.S. high quality in design and engineering. This is coupled with a very modern appearance that not only looks very pleasing, but incorporates some innovations that become apparent when the engine is used, and if ever

needed, when disassembly is required for replacement of bearings, for example. One example of this is the removal of the gudgeon pin from the piston through an aperture in the rear of the cylinder. In the majority of cases, the engine has a lot of time on the clock before maintenance, such as when bearing replacement is required. Subsequently, there is a normal build-up of running deposits on internal parts. This has been a real problem when removal of the gudgeon was attempted. Due to the very fine fits and lack of wear in the piston bosses, the slight build-up of deposits made the job of removal one that caused a lot of angst due to the lack of purchase facility and the reluctance of the pin to be dislodged. Now, a couple of taps with a pin punch, or indeed, a short length of appropriate diameter music wire and the job is done; with no swearing. Another feature that has raised a few questions from modelers to me is the lubrication system. Lubrication is the same as with any model four-stroke engine using oil mixed in with the fuel. During combustion, a small amount is forced past and through the gap of the ring and an even smaller amount seeps up the valve stems during induction and exhaust strokes. Certainly, a minute amount; but repeated thousands of times per minute according to the running speed of the engine. All internal parts are adequately lubricated and the oil, plus combustion by-products are, usually, expelled out a breather nipple. In this Alpha, some of the developed case pressure is used to drive the diaphragm pump. The major blowby, correct term for the lubrication system, oil does its job around the connecting rod and the rear main bearing, travels up the center of the crankshaft, is flung out two holes to lubricate the camshaft assembly, its bearings and the cam followers, pressure then pushes it up the pushrod housings (lubricating the pushrod ends on the way) and into the rocker chamber to lubricate the rockers, springs

and valve stems. It is taken back into the engine via a jet hole in the head to be mixed with the combustion charge and expelled out the exhaust. The end result is an adequately lubricated and clean engine.

### **Let's now see how it performed on the bench.**

I carried out the testing and observations on Feb16-10 with the weather at 26 degrees and 73% humidity. The compression was close to optimum straight out of the box (superb ring fit); the same as the first engine. The initial start was a little different in that the pump had to be first primed, quite rapid as the engine was spun, then the orientation run as previously described. Starting was by hand throughout and no tendencies to kick back were noted. It was very responsive to throttle movement with very smooth and rapid transition. While the cylinder head was normally hot, the crankcase was cool for a considerable running time; very free bottom end. Tuning was easy and maintained regardless of the RPM, due to the automatic mixture control system incorporated in the carburetor/pump unit. As suggested in the instructions, the mixture control valve, aka idle needle, was factory set and to be left for the first run of the engine. Then, only if necessary, adjust it. I am prepared to bet you will not need to adjust it as the engine recorded an idle far lower than you would use for flying; as at such a low RPM the propeller would be acting as an air brake which is a reason for many landing crashes. Running was smooth, no abnormal vibration noted. Actually, it was very low on vibration, and the engine was absolutely as clean as it was out of the box after all running. A pleasant engine to run and one I am sure you will enjoy owning and using.

### **ALL IN THE SAYING**

Well, 'lard head' finally found his way back home (mores the pity) after his last 'flying' venture. He had quite a few bandages, splints and other medical paraphernalia sticking into, out of and onto his body, so he has been looking for some restful pursuit while he mends. He was in my office last week and saw a note on my desk where I had penciled a few odd sayings we take for granted. Many are used quite often, and I am sure, without due thought as they DO read oddly when you think of it. The first two on the list are for your consideration. Have a few thoughts and let me know if you have an answer.:

1. *Why does your model ALWAYS crash on the last flight?*
2. *Why do you ALWAYS find something in the last place you look?*

A few more for consideration and thought:

- Why do we always take the last cab off the rank? The last card in the pack? Always move one foot after the other? JUMP to conclusions?
- How come we earn a penny if we save a penny? Haven't we got a penny already?
- Have you EVER tried working with your nose to the grindstone?

The 'brain' was quite taken with the list and made a copy of it. Next that I saw of him, he had a large stone jar that contained 5 gallons of writing ink, a pen knife (knife for sharpening a quill pen), 50 goose feathers, used for making quill pens, and 47 reams of parchment type paper. He was heading down into my deepest basement, three stories down, where he will ensconce himself while he compiles 'THE COMPLETE GUIDE TO PHRASES, SAYINGS, CLICHES, CORRECT SPELLING

and HOW TO COMPOSE A GROCERY SHOPPING LIST.’

He didn’t start off so well, as he bumped into the door frame and slopped some ink on himself. He now has a blue/black leg and hand, a large smear on his face from brushing away a fly with his inky hand and one of the goose feathers stuck in his bu...err...ear.

He plans on being down there for several months, but I wonder how he will get on. There is a W.C. down there, plus water and an old bed frame; but the food and drink is a worry. I have a supply, a large supply, of extra strong blue moldy cheese stored in that cellar. It is extremely smelly and sharp, so a small piece on a cracker once in a while is about all I can tolerate. There is also a gross (144) of bottles of red wine and that is my main concern. It is very cheap and nasty red wine. I might use it for removing oil stains from concrete, but I certainly would not drink it. It was left to me by an uncle who didn’t know the difference between a half decent wine and the rear end of a female mongoose. Apparently, he was at a large auction, and due to lack of interest, he dozed off. The rough red wine came up and the bidding was nonexistent, so the auctioneer asked for a \$100 bid on the lot. At that moment a fly landed on my uncle’s nose, and he brushed it away in his half asleep condition. The auctioneer took it as a bid and knocked the lot down to my uncle. He tried giving it away for Christmas and birthday presents, but it was returned to him for his next birthday and Christmas present. Only one bottle was opened and duly discarded. Really, I don’t want to be in the area when the fool returns from his sojourn after all his writing, eating nothing but smelly cheese and drinking rotgut wine. He will pong something awful. Maybe it will be prime time for me to take a

holiday. In the mean time, it must be time for the next move, and this month, the sign is quite simple. It is one I noted on the lawn outside the DRUG & ALCOHOL REHABILITATION CLINIC. Think about it.

#### APRILWUN -DOT ROT- DOT CON

In this section we are exploring the weird world of strange people (and Julia’s dog which barks at my material when it arrives) and the odd things they say or write. These are ‘signs of the times’ I have noted at times that have been written and installed by ‘people in authority’ to guide us, warn us or simply confuse us.

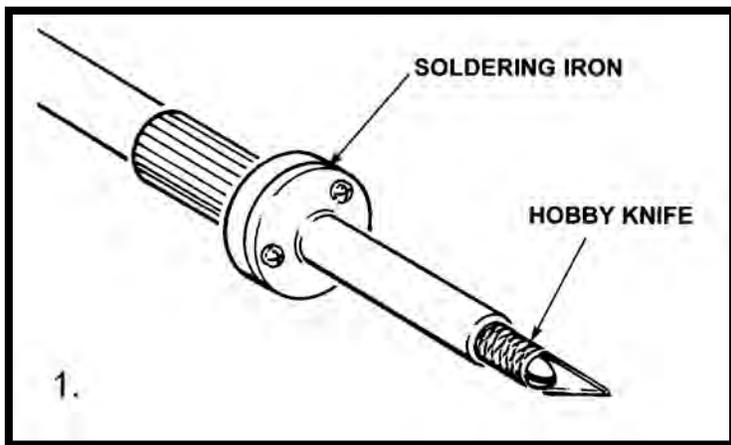


*Another spiffing episode from*

*WINCH, THE WELL WORN  
WIZZ [oilyhand@bigpond.net.au](mailto:oilyhand@bigpond.net.au)*

*Brian Winch, 33 Hillview Pde, Lurnea NSW 2170,  
Australia International Response coupon (Post ☺ffice)  
required if you want a written reply.*

Share your best ideas and building tips with others. Send your "Here's How..." ideas to... Walt Wilson, 3000 Persimmon Drive, St. Charles, MO 63301, or e-mail them to [rallyo@charter.net](mailto:rallyo@charter.net). Please be sure to include your full name and mailing address. The first submitter of an idea used here will receive a free one year subscription or renewal to R/C Report Online. If the subscription is to be a gift to someone else, please state this when submitting the idea.



**1. Hot Knife for Cutting Foam:** From Gene Jones, of Hazelwood, MO. Some older Weller and other soldering irons have screw-in tips. If you have such an iron, you can make a hot knife for cutting foam, plastics, or other materials. Remove the blade holder from your hobby knife and install it in place of the soldering tip. Frequently, they have the same threads. If not, the iron can be drilled and tapped to match the knife. Another alternative is to drill the iron to match the knife handle diameter and cut the knife handle off to fit. Then, the knife can be held in place with a setscrew, like the soldering tip. Plug the soldering iron in and the knife blade becomes a hot knife. Caution: Make sure the knife doesn't have any plastic parts



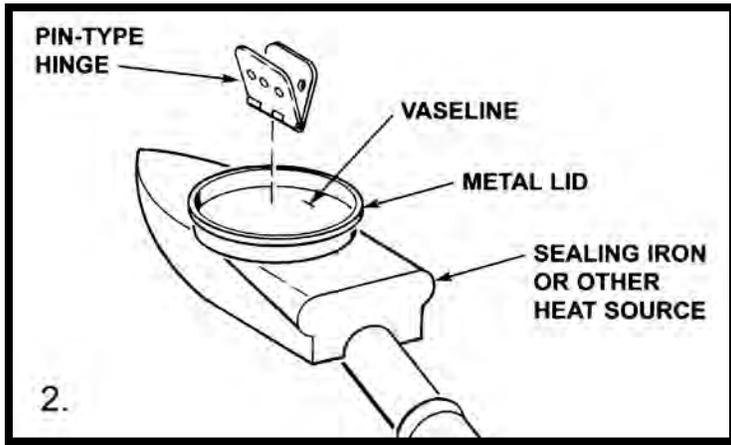
in the blade-holding mechanism. Also, avoid applying excessive pressure, because the heated knife blade or holder may bend easily when hot.

**2. Protecting Pinned Hinges:** From Al Knight, of West Deptford, NJ. If you are using pinned hinges, and want to keep the glue off the pins, try this; Put your covering iron handle in a vise with the shoe facing up and level. Set a small metal cap or lid on the shoe, put a small amount of Vaseline in the cap, and let the iron melt it. Dip the pinned section of the hinge in the Vaseline and set it aside for a few seconds. It will harden up when it cools, keeping glue from sticking to the pin section during installation, and help the hinge have a smoother action.

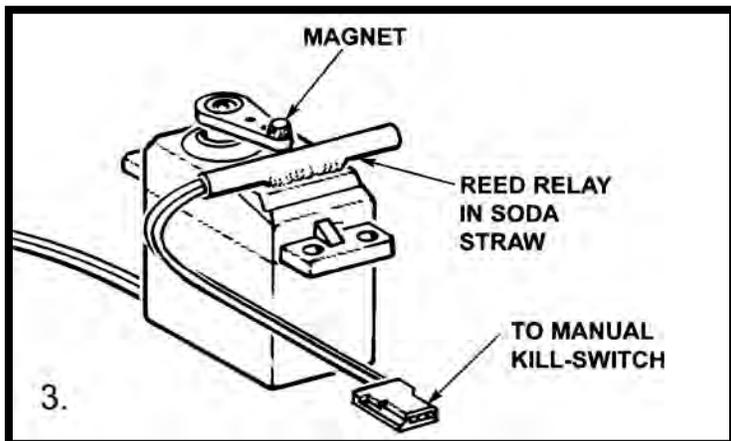


**Some things never go out of style. Saving money is one of them.**  
[www.rtlfasteners.com](http://www.rtlfasteners.com)  
1-800-239-6010



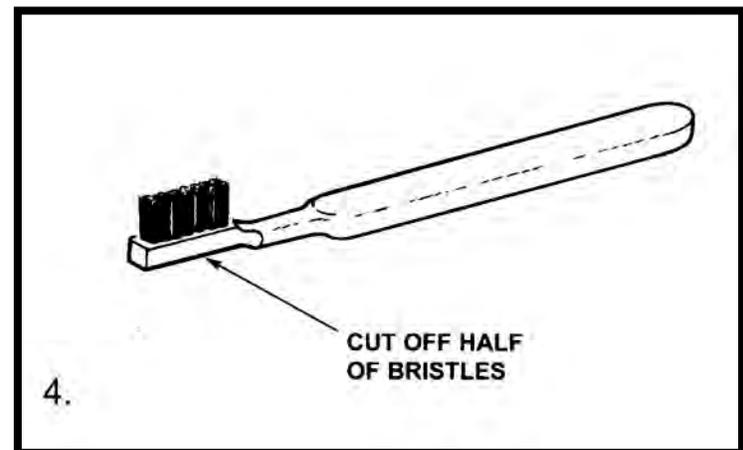


**3. Kill Switch Actuation:** From Jim Wilde, of Ocean Pines, MD. Jim saw the Radio Controlled kill switch, to supplement the manual switch, in a recent issue of Here's How. He has a lighter, more compact way to do it. Drill a 1/8" hole at the end of a servo arm and glue in a 1/8" diameter rare earth magnet. Solder a lead to each end of a .5 to 1A SPST (Single Pole, Single Throw) reed relay, fold one lead back toward the opposite end, and stuff the relay and lead into a 1-5/8" long piece of soda straw. Apply some epoxy in each end of the straw to retain and protect the glass relay shell. Use JB Weld to glue the straw, with the relay, to the top of the servo. Mount the servo and connect the wires across the contacts on the manual kill switch. The relay may fit under the servo arm, but it's not necessary to be directly under, just close. The tiny magnets have a lot of pull (up to 1.75 lbs). On some installations, Jim has used up to 1/8"

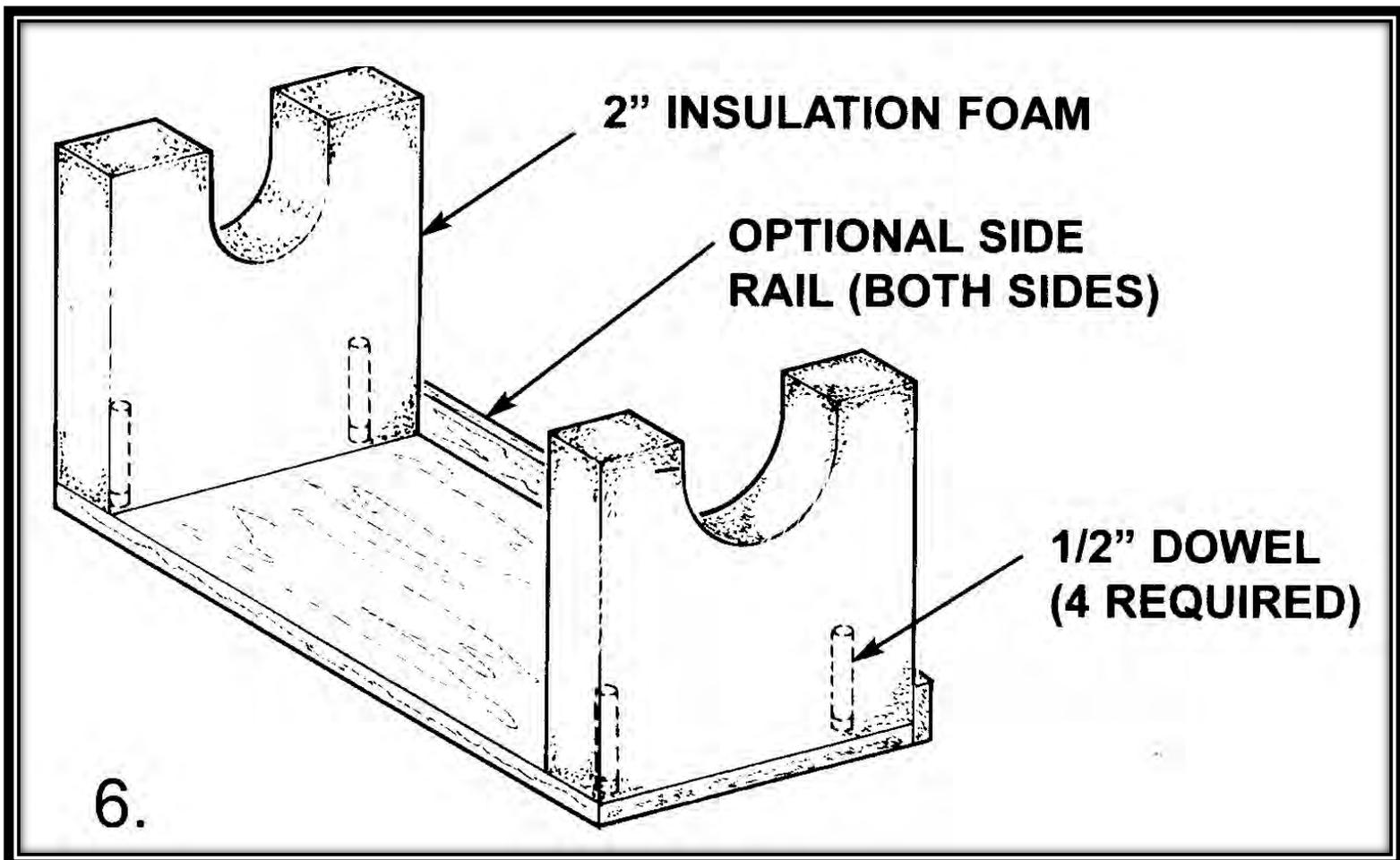


air gap between the magnet and the relay. It's very easy to test how close it needs to be by moving a relay near a magnet you plan to use. You can hear the relay operate when it's close enough. Jim uses it to ground a magneto or as a power switch on a CDI system. It's very light, compact and inexpensive.

**4. Fin Cleaner:** From Frank Maguire, of South Portland, ME. Frank had problems cleaning debris from the cooling fins and other crevices on his engine. After some thought, he took an old but usable toothbrush and sliced it down the middle of the bristle area on his band saw. Now he has a handy, narrow brush, which gets in where a full-sized one would not go.



**5. Glow Plug Igniter Fix:** From Robert (Babe) Raab, of St. Charles, MO. Babe bought a new glow plug igniter with a meter. The fragile plastic meter broke the second time he used it. He tried unsuccessfully to glue it back together. Babe discarded the meter and made a wooden plug to tightly fit the end of the barrel. He then unscrewed the barrel a little and drilled a hole, for a screw, at the end of the battery. Be careful to avoid drilling a hole in the battery! When the barrel is screwed back on, it tightens the screw against the battery, giving a good connection. It now works perfectly.



**6. Fuselage Stand:** From Marshal Emmendorf, of New Lothrop, MI. Marshall makes fuselage stands to fit specific aircraft from 2" pink insulating foam and a 1" x 12" wood board. He cuts the foam to match the fuselage contours where the vertical parts of the stand will be. He cuts the board to length and drills 1/2" holes through the board into the foam. Marshall then glues the foam to the board with vertical 1/2" dowel rods, in the holes, to support it. If the vertical parts are still shaky, they can be reinforced by installing 3" side rails. The side rails also help retain loose parts.

*This column is dependent upon your ideas, keep them coming!*

*Here's How..." ideas to... Walt Wilson,  
3000 Persimmon Drive  
St. Charles, MO 63301  
or e-mail them to [rallyo@charter.net](mailto:rallyo@charter.net).*

*Walt Wilson*

Bad Hyperlink: A dead-end hyperlink may have prevented some e-mail from getting to me earlier this year. If you submitted an idea via e-mail, and I didn't answer you, please re-send your suggestion.

# PropCuts!!

By Chris Handegard

FOR THE COMBAT ENTHUSIAST and FIGHTER PILOT WANNABE!!

Hey gang! As you read this, much of the country may still be in the grip of some nasty weather we are having this year, so I'll feature some info on a few topics related to building technique and the hardware to do your own CNC (Computer Numerically Controlled) hot wire foam cutting. If you're snowed in and getting cabin fever for lack of something to do, maybe now is a good time to get going on one of those scale combat plane design-build projects you've been day dreaming about!

The combat calendar is filling up for 2010 so there will be many events across the country to report on as the year continues. Be sure to keep an eye out for any contests in your area. The RCCA website offers an interactive page that allows you to see what, where, when, etc. and sign up electronically to help the event director prepare for the competition. Later this year the AMA contest listings will not appear in print any more, but can be accessed online. I would also encourage anyone competing or interested in combat to join the RCCA and help support the growth of combat by being a part of the official organization that represents us to the AMA. The RCCA provides a host of services that are well worth the nominal \$15 yearly membership dues. <http://rccombat.net/>

## **BE THERE OR BE SQUARE**

Lots of events in the month of April so don't miss out on the fun! Here's the run down: 4/10, 11 West Palm Beach, Fl. the 5<sup>th</sup> annual "Bushwhacked" SPRING FLING contest for Open B, 2948 Scale and SSC. 4/11 "Doolittle's Raid" Open B and SSC, Fallbrook, Ca. 4/17, 18 "Dogfight Over Dovre" Limited B and SSC, New



Auburn, WI. 4/17 "Battle of Benbrook" for Open B and SSC, Benbrook, TX. 4/24, 25 "Thunder Over Exeter 5" for Open B and SSC, Exeter, CA. 4/24, "Spring Sussex Streamer Cuts" SSC and 2948, Seaford DE.

To make sure this article posts and I mention these events before they happen I'll run down the list for the month of May also. 5/8 "Wings Over Malheur Butte" Scale combat and Open B, SRVM Malheur Butte, Ontario, OR. 5/8 "Spring Hell Over Hillside" Limited B, Opdyke Park, Montpelier, OH. 8/15 "Richardson Spring Combat" SSC and scale 2948, Lucas, TX. 8/15 "Tundra Terror" SSC, Green Bay, WI. 8/22,23 "Great Lakes Combat Champs" SSC, Lim B, Open B, Lenox Twp, MI.

The contest listing is dynamic and periodically changes as new contests are put up or modified so it's best to go to this web page where you can see what's listed and also sign up online. <http://rccombat.net/events/index.asp>

Get your game on girls and boys; you can't play unless you suit up and show up! It will come as no surprise to hear that there are those interested in combat that have nothing of that sort going on in their area. It's a big country and the

events I mention are widely scattered. Take a buddy, go for a little road trip to one nearby if you can, bring that experience back and start the fire burning at home. It's not that hard!

I'll also mention it every month until July so plan if at all possible to attend the combat Nat's in Muncie, In, July 12 through the 15. It is THE event of the year and well worth the effort! Be there or be square!

### **FROM THE BENCH**

As promised, this month I have a close up look at my CNC Hot Wire Foam Cutter for you. After many years of competing in scale combat I have tried everything from scratch building using traditional methods and materials like balsa and lite-ply with various covering techniques, to purchasing the kits manufactured by other scale combat enthusiasts. Some of the nicest looking "kits" were the bare minimum of parts consisting of a really nice fiberglass fuselage and a set of wing cores. That was it! It was up to the builder to furnish all other materials and follow the sparse instructions to achieve the desired result; a decent looking scale combat plane. A bit pricey at \$90 each back in 2005 dollars, but it flew well for the class it was designed to conform to, which was called 2610.

With the advent of a new provisional scale class called 2548, many of the available kits for 2610 became obsolete and were ineligible because of other criteria they did not meet. Do you remember AIRKILL Models? The owner, Jeff Weiss, did a superb job of kitting numerous fighters for 2610 Scale Combat. The laser cut balsa, AutoCAD drawn plans, thorough instructions and photo documentation made for an outstanding model to build and fly. Sadly, however, they were just too fragile to withstand any but the lightest of contact abrasions. Another case in point is the Great Planes ARFs for 1/12

scale combat. They are nicely made by a factory in China and go together easily, but no one in his right mind would use them in competition, and certainly if he did, the outcome is a foregone conclusion! So finding very few choices available, I built my own cnc hot wire machine to cut some foam and give it a whirl.

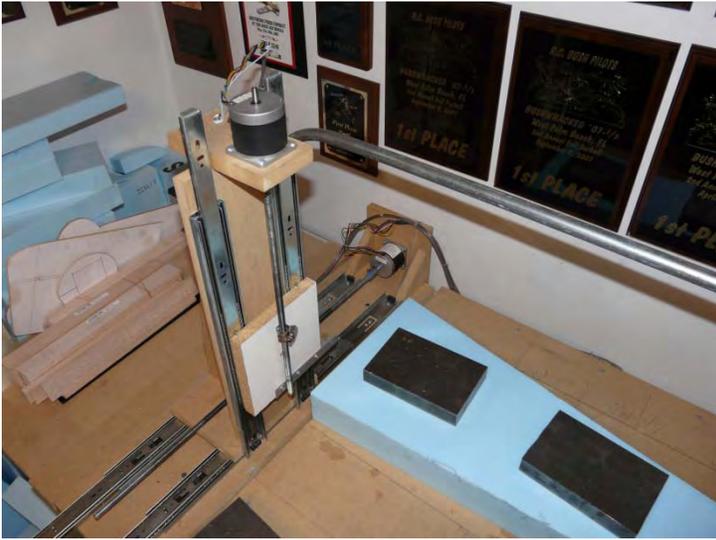
Before we get going I would like to credit Mike Fredricks, AKA "DR. EVIL", for his support of combat by kitting several great designs for open and scale classes. Buying and building his renowned Zero for 2548 educated me in the fine art of blue foam combat airplane structure! <http://www.hattrickrc.com>

I stumbled upon an article describing the process of building and operating a CNC hot wire at just the right time and since it sounded much easier than I had feared, which put me off before, I followed the advice given and ended up with a very functional machine. Sorry I can't recall the publication and article I'm referring to so for now will pass along the resource links for you to do some research on.

The instructions to build the framework are available from <http://www.drayerconstruction.com/foamstuffs> for \$9.95 as a pdf document. The price is right and his plans are simple and easy to follow. He also points you in the right direction for the other elements required to make the whole thing come together and work; a hardware package that includes the driver board and stepper motors, and the software to run the steppers.

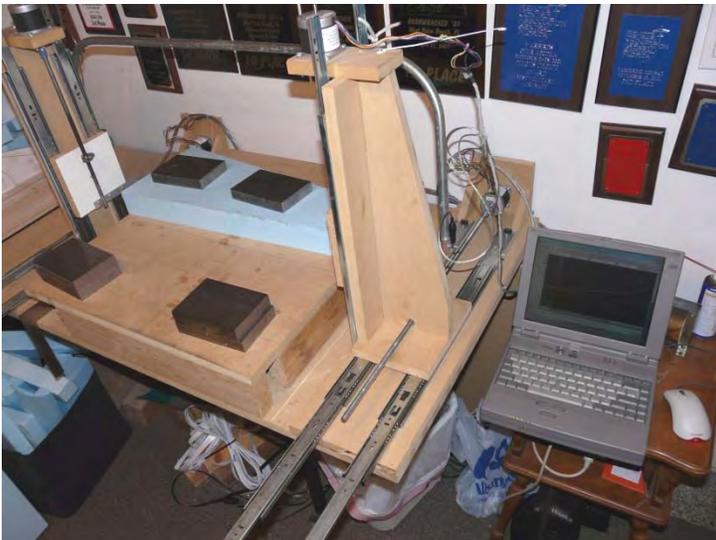
I used the Gilles Muller software pro version. <http://gm.cnc.free.fr/en/index.html> He has a cheaper version, but I needed one that would take AutoCAD drawings as the basis for cutting parts. The driver board and stepper motors came as a package from <http://www.hobbycnc.com>

I built my rig back in 2006 or so, and the exact cost escapes me now; but in round numbers the materials to build the framework were under \$100, software for the pro version \$250,



**Photo 1: Left side of cnc hot wire showing “x” and “y” stepper motors with drive screws made of threaded rod. Notice the drawer slides.**

and the driver board kit with stepper motor package under \$200, miscellaneous other stuff \$50. Figure you’ll be in for maybe \$500 by the time you get up and running. Check the current pricing on software, driver kit and steppers to nail it down more precisely before buying and some soldering skills are required to build the driver board.



**Photo 2: Right side of cnc hot wire showing full setup. Notice laptop computer and hot wire bow.**

The basic operating premise of a hot wire cutter is the computer controlled movement of the cutting element, a wire made hot enough to melt the foam by passing an electric current through it, on two axis of travel. They are the “X”

or horizontal axis and the “Y” or vertical axis. This movement is achieved with the use of a threaded rod driven by stepper motors. Unlike other types of electric motors, steppers are designed with a large number of “steps” in their movement so a computer with the right software can tell the motor to rotate at a very precise speed and stop at any of the points these steps allow. A cut can be made with accuracy that would be hard to match by hand, but the real beauty of computer control is the ability to repeat the motion with the same precision every time.

I found the driver board kit to be complete and the instructions clear and easy to follow. Anyone with a little printed circuit board experience or decent soldering skill should have no trouble assembling the parts on the driver board.



**Photo 3: Finished driver board assembly mounted in plastic project box (not included in driver kit).**

A couple of things not included that are required to bring the driver kit together and make it work are a power supply and some kind of box to house the driver board itself. In the instructions from Hobbycnc the part number for a box is suggested which I obtained from an internet electronics parts supply. Allied or Newark electronics should have it.



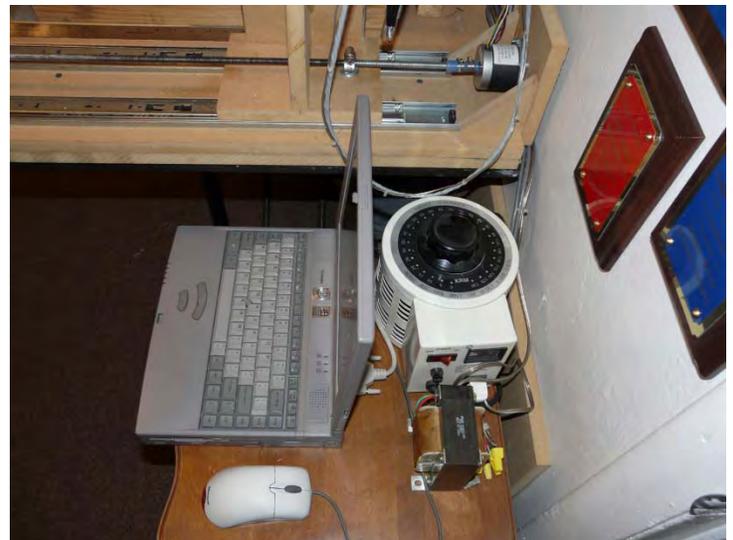
**Photo 4: Completed driver board assembly mounted to power supply from an old computer. Note switch on power supply and fan on driver box.**

The second essential component you have to get is a power supply for the driver board. Don't confuse this with the power supply that makes the wire get hot. While the driver can control wire temperature by regulating a DC power supply, it requires its own separate power supply to operate and run the stepper motors. The instructions include a how to build your own stepper board power supply from one scavenged out of an old computer, (not a laptop). I happened to have an old computer that didn't work anymore and by following the instructions to remove it, make minor modifications and add a switch, was pleased to find that it works quite well.

I did not have a DC power supply for the hot wire, but I did have VARIAC, (variable AC power supply) which works just as well to get the wire hot; but cannot be controlled using the driver board. This means I have to manually set the temperature which took some trial and error and a step down transformer, but gives good results overall. I plan to get another DC power supply and try the driver controlled heat function soon to see if it makes a difference.



**Photo 5: Finished wing half with spar slots**



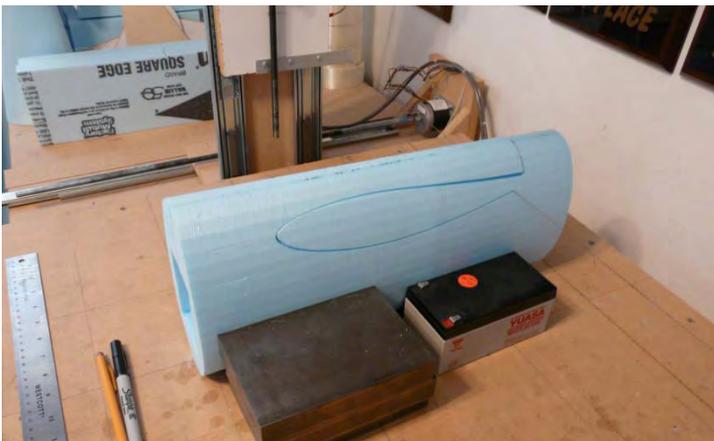
**Photo 6: VARIAC power supply for getting wire hot. Note step down transformer.**

Cuts with a CNC controlled hot wire can be far more intricate than one could achieve by hand. The method I use to cut fuselage parts starts with two blocks of foam square cut to give the wire enough thickness for the full diameter of the fuse. When the cut is finished the blocks come apart and you have two matching halves. The cut first travels around an inside shape to create a hollow and then finishes by tracing the outside profile of the fuse.



**Photo 7: Fuselage section being cut. Note hotwire resting in aluminum slot on Y axis tower.**

Giles Muller, the creator of the software I used, did a pretty good job of translating the instructions from French, but it still took some time to get used to his method of describing certain things. One thing I found is that you need to be patient and persistent when getting started. What at first seemed to be nonsensical errors that prevented a good cut turned out on more than one occasion to be some minute flaw in the drawing I was trying to insert into the program. The software was smart enough to see the problem, but I had to go back and look very carefully at the original AutoCAD drawing to find and correct whatever was causing the hiccup.



**Photo 8: Wing saddle profile being cut into Fuselage front half.**

The whole experience was very educational and well worth the effort. One more thing to check on before you can do much foam cutting is the availability of raw material in your area. In some parts of the south, Florida for instance, where temperatures do not require the use of thick blue foam sheet insulation in construction you may find as I did that there is little or no supplier support. I searched the entire state without much success to find anything thicker than 2”.

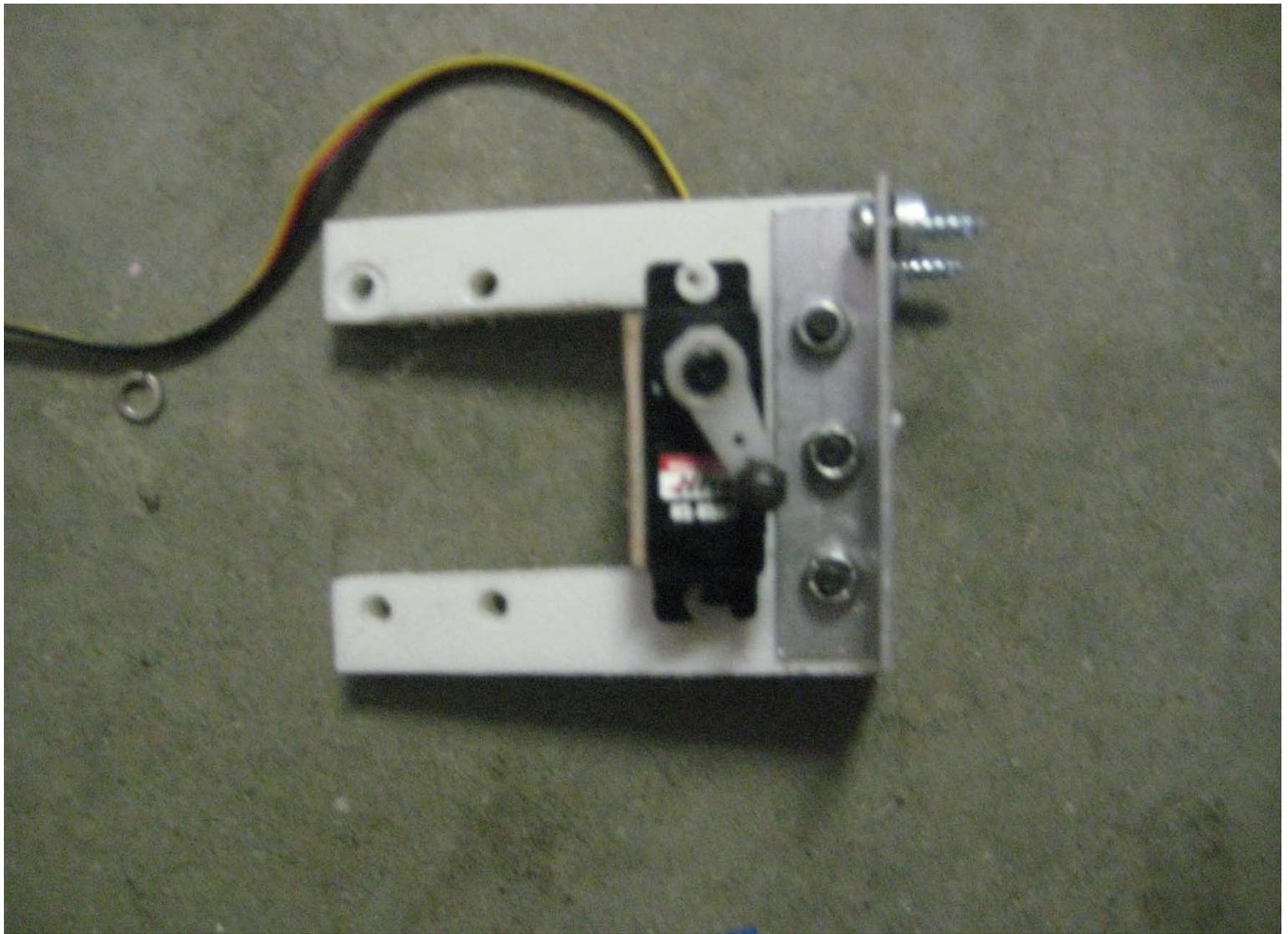
## **HOW TO**

My tip for this month was sent in by Sam Windsor of Naples Florida. He and his son Nick recently moved from the Maryland area, and are a welcome addition to the combat scene here in the Sunshine State! I first met the father son duo at the AMA Nat's in Muncie, Indiana, a couple of years ago where Nick, who does the flying, placed very high up in multiple classes. With father Sam doing the mechanic and pit crew duties; they made a formidable team!

Sam's tip is a nifty little homemade motor mount that incorporates a throttle servo right behind the engine. It appears to be fabricated from aluminum L channel and some depron or cutting board material bolted together. Pretty slick, Sam! Thanks for the tip!



**Photo 9: Young Sam Windsor holding his new Bulletproof Models Ki-43 “Oscar” for 2948 scale combat**



**Photo 10: Homemade motor mount with throttle servo**

Well, that's it for this month, gang! I hope you enjoyed it and I am looking forward to hearing your comments.

Email me  
at: [chandegard@peersonaudio.com](mailto:chandegard@peersonaudio.com).

Don't forget to clear your guns before you engage and check your six o'clock frequently!

Chris Handegard

# Tails from the Other Side

By Isabelle

Dearest RC Report Online Subscribers,  
It is with great sadness that I must share with you that this will be my last column. No more Pet of the Month, either! The weather has turned warm here in North Alabama. I find that I have a strong desire to sun myself on the patio and just cannot find the time to sit in front of the computer searching the World Wide Web for RC events around this great country. I am terribly sorry if this news brings you to tears or causes you to throw your favorite motor at the wall!  
Sincerely, Isabelle



APRIL F©OLS!!! Smile, people! It's spring!

Okay, now that I have gotten that out of my system; I do have some business to clear up from last month. First off, I have to apologize for Mom's typing skills. PEBBLES was our Pet of the Month last month and Mom spelled her name wrong. So sorry, dear friend. Unlike us, humans are never perfect. Much love to you! Next off, I forgot to wish Scotchie a Happy Birthday on March 10! Let me tell you, I got a lot of grief for that one from the orange cat. Fifteen or so pounds of fussy cat is not fun!

On to April, I say! Easter will probably have come and gone by the time some of you read this, but I want to wish you a wonderful day! Rejoice in the knowledge that HE IS RISEN! Risen, indeed! Looking at the calendar with Mom recently, we were both amazed to realize that RC Report Online is celebrating its FIRST year in business this month! WOW! Time sure has flown by! Thanks to all of you who have made this possible! We appreciate your support and look forward to providing you with quality RC journalism for many more years to come!

Just a little note from the office...Mom has been in and out of the office recently. Some nasty bug had invaded her personal space and made even getting out of bed difficult. If you have tried to reach her and been unsuccessful, please try again. She is back at work and feeling normal again. Good news for all of you; good news for me, too!

Before I forget and cause more trouble for myself, here's another birthday shout-out to the twins that share my home. Happy 6<sup>th</sup> Birthday, Moo Moo and Ginger!



**This is a picture of the twins on the day Mom found them! Our lives have not been the same since!**

Ready to find out what's happening in May? Read on! Don't forget, for information on events in April; check out the flyers near the end of this issue!

Well, if you are on the West Coast during the first weekend of May, check out the Channel Islands Condor's 22<sup>nd</sup> Annual Gathering of the Giants, held in beautiful Camarillo, at Cal State University. Contact John O'Brien, CD, at 818-991-2139 or [aeronca@sbcglobal.net](mailto: aeronca@sbcglobal.net) for more information or visit [www.cicondors.com](http://www.cicondors.com). Motels are nearby and primitive RV parking is available. Call for Fri arrival. \$15 registration fee includes lunch on both days and pilots' raffle on Sunday, noon flying demos. Vendors welcome. Sponsored by Channel Islands Condors.

If you happen to be over on the East Coast, drop on by for the 26<sup>th</sup> Annual Joe Kitts Big Bird Fly In held in Sanford, NC (C-Restricted to IMAA). Mark Cline is the go-to guy, so give him a shout

at 919-776-9504. \$5 landing fee, 600' grass runway, food on site, registration begins at 8:15AM. Flying begins at 9AM. No idea when those RC happy folks in NC will close up shop! Raffle on the day of event. Sponsored by Sanford Mac.

The following weekend, May 8-9, is Mother's Day weekend and you really should not be at any field. Unless of course, SHE flies! Take your Mom or your wife, who is the lovely mother of your children, out to dinner or the movies!

May 15 and 16 make up for the weekend you took off, so get ready! Don't miss the Mint Julep Scale Meet in Falls of Rough, KY (AA), which actually starts on May 14, held at the Rough River Dam State Park. Paul Cain is the CD and can be reached at 812-945-3103 or [c103iflyrc@att.net](mailto:c103iflyrc@att.net). Visit [www.sircm.org](http://www.sircm.org). Builder must be present for static judging in Team Scale. Sponsored by Southern Indiana RC Modelers. Mom wonders if they will be serving Mint Juleps. Send her an email if you find out!

You've always wanted to see Texas in the spring, huh? Well, how about this? The 21<sup>st</sup> Annual Control Texas Jet Rally will be held on May 14 – 16, 2010 in Austin. Kenneth White can hook you up with information on this event. Contact him at 512-736-3007 or [f9eflyer@juno.com](mailto:f9eflyer@juno.com). Visit [www.austinrc.org](http://www.austinrc.org) if you can't reach him. The landing fee is \$25. Camping at field w/limited elect is available for \$10 per night. Dinner on Friday is free for pilots and steak will be served on Saturday at the field for the great price of \$15. Not too bad for a Texas steak. Mom has stopped eating meat. Wonder if they serve tofu? Bring

your T-28 to fly after hours. Sponsored by Austin Radio Control Association.

The following weekend, May 22, head to Thompsonville, MI (C) BARC for the Spring Thing Fun Fly held at the Thompsonville Airport. Contact Edward McIntosh at 231-882-4990 or [emcintosh04@charter.net](mailto:emcintosh04@charter.net). This event will run from 10AM-3PM. They have a new 2900x75 ft asphalt runway. Food and refreshments will be available and reserved parking for flyers near pits is provided. Free admission and lots of parking for the general public. Two divisions: fixed wing and helicopter with separate air space and pits. Sponsored by Benzie Area Radio Control.

You're still in Texas? Well...The All Scale Fly In held in Mansfield, TX (C) is the place for you! Gary Panell is the CD. Contact him at 817-247-6280 or [garpannell@gmail.com](mailto:garpannell@gmail.com). Visit [www.hawkfield.org](http://www.hawkfield.org). The field opens at 8AM. This event is for all scale or semi scale aircraft. Three views required for identification. The field fee is \$20 and includes lunch for pilots; \$5 lunch for all others. Planes will be judged on scale like looks and flying characteristics. Trophies for civilian, sport, and military. Sponsored by Hawk Field Flyers.

Round out the month in Tullahoma, TN (A) at the Midsouth Soaring Championship. Don Cleveland can be reached at 931-581-7077 or [dcleve1130@aol.com](mailto:dcleve1130@aol.com). Visit [www.coffeeairfoilers.com](http://www.coffeeairfoilers.com). Dad has spent some time with these guys and they are a ton of fun! Just wait until they get you hooked on night flying! Sponsored by the Coffee Air Foilers.

Maybe you would rather spend Memorial Day weekend closer to "The Big Easy"? Give this a try...The 23<sup>rd</sup> Annual Memorial Day Fly In held in Edgard, LA (C) on May 29 &30, 2010. Contact Raymond Miller at 504-393-1559 or [rayjackiemiller@doz.net](mailto:rayjackiemiller@doz.net). Visit [www.ccrc.com](http://www.ccrc.com). Primitive RV parking is available. Bathrooms, food and beverages are on site. Saturday evening meal will be provided for all registered pilots. How about a Hurricane, too? ON second though, NO! You can't drink and fly! All types of model aircraft welcome. Sponsored by Crescent City Radio Control Club.

Hope you find this information helpful! Stay busy and stay out there in the hobby!

If you have an event that you would like for me to promote, please send me an email with the information and attach a flyer too!

Now on to the Pet of the Month...Again, this month, a winner was selected by random drawing. Congratulations to RC Report Online's April 2010 Pet of the Month, Smokey, from Embarrass, Minnesota. Smokey's dad writes:

*Hello*

*Here is a photo of my cat Smokey checking out my Balsa USA 1/3 scale cub. Smokey is an 8 year old tiger striped cat. Spoiled and loved. He is a people cat and will greet anyone who visits us.*

*Pat*



**Nothing to be embarrassed by here! He is a cute cat and he's doing a great job with the pre-flight check!**

Pat and Smokey will receive a free premium subscription for one year to RC Report Online, which can be used as a gift or as a renewal, AND a \$2☺ Petco gift card.

Many thanks, again, to all that entered this month! Entries received this month will automatically be included in next month's drawing, but I am always looking for new faces and friends!

### **How do you enter?**

Just submit a picture of your pet or pets, including their name, approximate age and a brief description, with or without one of your planes for a chance to win a toy from my "Toy Box"!

All types of pets are eligible: with fins, fur, feathers, scales, farm animals, etc. Just so you know; Mom loves cows! And you know what? I'm just a little spoiled, so I have some great toys to share! Toys are selected randomly and may be anything from a toy for your pet or a toy for you! Each month a pet will be selected from all entries received by the 15<sup>th</sup> of the current month. Entries

received this month will have the chance to be selected as RC Report Online May Pet of the Month. If you have more than one pet, you can enter multiple pets each month. You can email your picture (preferred method) or you can mail it by regular mail. Only photos received with a self-addressed stamped envelope will be returned. Please send entries to Mom at [juliac@rcreport.net](mailto:juliac@rcreport.net). Please put "Pet of the Month" in the subject line and make sure that you receive a confirmation email verifying that I received your entry. Even computers make mistakes and I would not want your pet to miss out just because of a computer error. I would certainly appreciate other correspondence as well, such as funny or heartwarming stories about your pets or anything else you would like to share. Birthday shout-outs are welcome too!

One last thing, just like Here's How by Walt Wilson, this column will depend on input from all of you. So send in your pictures and event details to me and your ideas to Walt!

Well, until next month,  
Isabelle

# Smile! You could be the next

## Winner!



O.S. .46 AX



O.S. .55AX

# O.S.<sup>®</sup> ENGINE



O.S. .75AX

## Smiley Face Contest #4 2010!

We are bringing back the smiley face contest. Throughout this issue we have placed five or more Smiley Face Figures like the one shown here (☺), but as before this page doesn't count. Write us and tell us where at least five are, and you'll be eligible for a random drawing in which the winner gets to choose from the three engine shown above. Two more winners will receive one year subscriptions or renewals to RCReport Online. Winners will be selected by a random drawing from all the correct entries received no later than May 1, 2010. No entries will be accepted after this date. Entries must be sent via US mail or E-mail only, and reference the correct contest number in subject line or address. Hobbico employees, RCReport Online employees, columnist and advertisers are ineligible for prizes. No Purchase Required. Valid in USA and Canada only.

[smileys@rcreport.net](mailto:smileys@rcreport.net) Subject line: Smiley Face Contest #4 2010 US Mail: Smiley Face Contest #4, 2010 PO Box 12051 Huntsville, Al 35815

*All terms subject to change without notice. This contest is void in any area, state, or locality where taxed or prohibited.*

*I am glad to see the smiley face contest back because who doesn't need a new and reliable O.S. Engine? Five!*

**Ken Gardner, Murray, Utah**

*Hey Tony & Julia,  
I must really need the Eye surgery that's planed this month cause I could only find ( 6 ) of those illusive little fa--s.*

**Thank you so much, Plane Doc, Magnolia Springs, AL**

*Five! Am happy that I did not find a Grumpy plus getting to renew a premium subscription at the regular rate during March.*

**Gerald Ewell, Sr., Manchester, TN**

*Dear Gang,  
I have a pain in the neck and crossed eyes after scanning the entire magazine looking for those little grinners, and in all that time I found only seven of them, but at least I found a photo of myself and my "Executive Canard" in Ed Moorman's column. That's a reward in itself. I used to read the print magazine straight through in a day or two, but these old eyes weren't made for spending that long at a computer screen so I spend most of the month reading the articles one at a time now.*

*Thanks for keeping up the good work,*  
**Frank Maguire, South Portland, ME**

*Did someone steal some of your smiley faces as I only found 7 this time or is it that I AM GETTING old?*

*I will take the OS 75 when you draw my name.*

**Jay Stargel, Woodbine, MD**

*I got lazy and only found six. Thanks for the entertainment as well as the information.*

**Gerald Klose, Berkley, MI**

*I only found five this month. Again , great mag. Really enjoy the scale stuff and fun aerobatics. Hope to win an engine!!*

**Bill Batchelor, Mtn. Home, Idaho**

*Again I have found 6 smileys with no problem. It seems I can't get over that amount. Why am I stuck on 6? That's all I could find. Keep up the good work on the magazine.*

**Howard Pascoe, Whitney Point, NY**

*Well everyone I am glad to say that the smiley contest has had great response. The winner will be contacted and announced in the May issue. The winner will receive his choice of one of these three engines: OS .46AX, OS .55AX, or OS .75AX. Keep searching those articles and columns.*

*Total Smileys for the March 2010 issue was 8.*

***February's Winner is Milton Johnston of Acworth, GA.***

***Thanks for your submission, Milton!  
Your OS .75 AX is on the way!***

*Tony Coberly*

[tonyc@rcreport.net](mailto:tonyc@rcreport.net)

# RCREPORT CLASSIFIEDS

The following are BIY kits

NIB- Goldberg "Tiger 2" - \$90

Un-started Goldberg "Anniversary Cub" (Not a laser cut kit and it would be NIB except the construction manual is a copy and the box is worn.) - \$80

NIB- Direct Connection "Fantasy" - \$100

NIB - Ace 1/2A "Whizard", Collector Quality - \$60

NIB- Balsa USA "Northstar" - \$100

NIB- Norvel .061- Never seen fuel or motor mount - \$35

NIB- Global Raven, Delux kit, collector quality, \$225

USED Fox 40 air bleed carb. (square throat type) fair condition, \$10

The above Plus Shipping

The following are completed models and cannot be shipped. I will deliver within 125 miles of Prescott, Arizona and send photos upon request.

Balsa USA "Enforcer" Completed! Never flown, w/ new, bench run only "Magnum 61XL", pusher prop, Hi-tec Servos, fixed gear, complete and ready for your receiver and flight battery.

Beautiful bird, crafted by a master model builder. - \$300

House of Balsa 1/2A "Chipmunk" Completed, never flown. OS .10LA included (installed) ready for your mini servos and battery. This is another beauty. - \$110

Great Planes "Super Decathlon" 40 Completely built and finished in red and white w/ 21st Century Fabric.(like new) Set up for 60 size

engine on Great Planes adjustable mount w/ rear mounted remote needle valve. (Engine and servos not included.) Looks great, flies better! - \$125  
Contact Ron Fiedler at [rfiedler@cableone.net](mailto:rfiedler@cableone.net) or 928 710 9564.

WANTED: RC Report Online is currently looking for new columnists in the fields of pylon racing and helicopters. If you or someone you know would be interested in joining our staff, please contact Julia Coberly at 256-503-8436 or [juliac@rcreport.net](mailto:juliac@rcreport.net) to discuss these opportunities.

Wanted: 80 inch Hanger 9 P 51. Please contact Marshal Emmendorfer at [marshalemmendorfer@hotmail.com](mailto:marshalemmendorfer@hotmail.com). Best to call at 810-348-6390.

NIB Great Planes Ryan STA (ARF)., 82" span, 90 to 1.20. In Military Colors - \$325

NIB Kit: Bridi Bezzee Bee Sport Flyer 96" span, 3.0 and up mtr - \$225

46" Gator Speedboat w/30cc Gas Engine, New Hitec Radio. Ready for the water - \$425

Victor V-32 Sail Boat w/ Radio, Servos etc - \$185

All above prices do NOT include shipping. Shipping costs to be determined based on your Zip Code. Contact Roger Rohloff, Iuka, MS at 662-423-1545 or [rcroger2001@bellsouth.net](mailto:rcroger2001@bellsouth.net).

# **RCReport Online**

**The  
following  
pages are up  
coming  
events all  
around the  
USA...And  
Beyond!**

# 2010 Central Texas Heli Fun Fly

## April 9, 10, 11 2010

### Lester Field - Austin, Texas



- \$20 Pilot landing fee
- **FREE** to the public
- Night Flying
- **FREE** pizza dinner Friday night for pilots
- Famous steak dinner Saturday night. Everyone welcome
- Concession Stand with hamburgers, snacks, hotdogs & drinks
- RV parking & camping on site  
1<sup>st</sup> come 1<sup>st</sup> served basis  
RV electric hook-ups - \$10/night
- See website for directions & hotels  
[www.austinrc.org/map.html](http://www.austinrc.org/map.html)



## Contact Information

CD: Christophe Olivier 512-731-9097  
[colivierus@yahoo.com](mailto:colivierus@yahoo.com)

Joe Doran [joe@jbdww.com](mailto:joe@jbdww.com)

Field phone 512-272-8402

Or visit the club website at: [www.austinrc.org](http://www.austinrc.org)



# Richardson RC Club All Electric Fun Fly

Sunday April 11<sup>th</sup>, 2010

Gates Open at 8:00AM

Bratonia Park, near Lucas TX

“If it flies on volts, bring it!”

Richardson RC Club: [rrcc.org](http://rrcc.org)

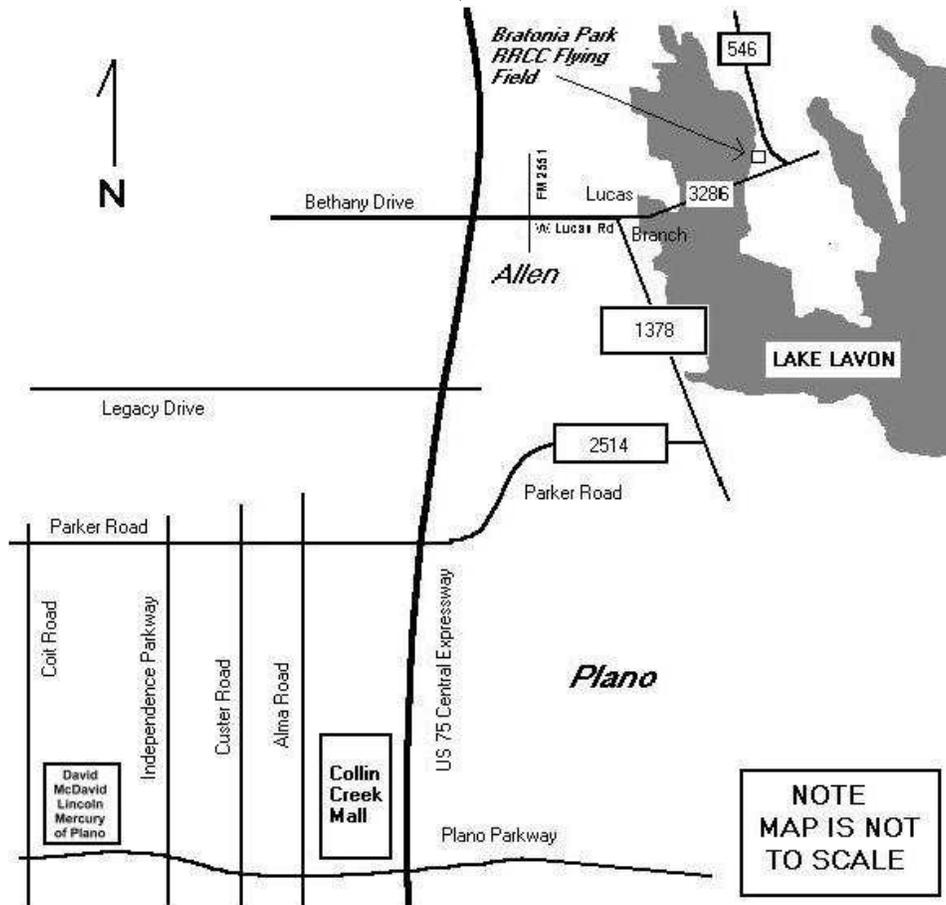
# Richardson RC Club

## All Electric Fun Fly

Sunday April 11<sup>th</sup>, 2010

Gates Open at 8:00AM

Bratonia Park, near Lucas TX



**The Richardson All Electric Fun Fly** will be held at the club field near Lucas TX (GPS 33.107 96.521 ) in Bratonia Park on **Sunday April 11th 2010**. Several major improvements at the field include 110vac electric power along with a high amp stable 12vdc source, making it very "electric friendly". I am still working on the details, but right now I have the following ideas:

- Lots of open flying
- Food/drink (Pilots eat free)
- Raffle (pilots get a free ticket)
- Lots of open flying
- A couple of casual events
- Some awards (not a competition)
- Lots of happy people
- Did I say lots of open flying? 😊

Let me know how that sounds. I hope to see you there and that you have a great time. I'd like to grow this into a two-day event so we have major spring and fall events in DFW.

Ed Kettler - CD [ed.kettler3@verizon.net](mailto:ed.kettler3@verizon.net), 469-867-7981

The Austin Radio Control Association invites you to the  
**12<sup>th</sup> Annual**

# WARBIRD FLY-IN



**April 23<sup>th</sup>, 24<sup>th</sup> 25<sup>th</sup> 2010**  
**Lester Field**  
**Austin, Texas**

**Any Size Military,  
any Paint Scheme**

For Information Contact  
CD: Edwin R Smith  
512-259-2978  
e-mail:

[edwinrsmith@gmail.com](mailto:edwinrsmith@gmail.com)

Or visit ARCA's website  
<http://www.austinrc.org>

**Pilot Registration \$20.00**  
**FREE TO THE PUBLIC**  
**RC Airplane raffle**

RV parking & camping on site,  
available on a first come first  
served basis  
RV electric hook-ups  
only, \$10 per night

See our website for Directions &  
Hotel Accommodations  
<http://www.austinrc.org/map.html>

Flying Field Phone Number  
512-272-8402

There will be a steak dinner w/ all  
the trimmings Saturday evening at  
the field \$13 per person, Everyone  
Welcome

Concession Stand w/  
snacks, HB, HD & drinks.

Free pizza dinner Friday  
night for all pilots

# Big Bird Fly-In



## Tri-County R/C Club, A.M.A. Sanctioned Fly-In Saturday April 10, 2010

- ◆ **Location**
- ◆ Rainbow R/C Park, Dunnellon, FL
- ◆ Located East of Dunnellon on S.R. 484 to Bridges Road, then follow signs to the field.
  
- ◆ **Current A.M.A. card required**
- ◆ Minimum wing span 80" Mono, 60" Biplane
- ◆ Pilot registration starts at 8:30.
- ◆ Pilot meeting 9:00.
- ◆ Landing fee \$5.00
- ◆ Parking donation for non-flyers \$2.00.
- ◆ Pilot Prizes
- ◆ Plaque for Spectator Choice Award
- ◆ Rainbow Cafe will be open for lunch

More information??? George Derewenko 352-270-3307 or  
e-mail at: [gderewenko@tampabay.rr.com](mailto:gderewenko@tampabay.rr.com)

All AMA Safety Rules and Regulations will be STRICTLY FOLLOWED

**Fly RC COMBAT and get**

# **BUSHWHACKED**

**At the 5th Annual "SPRING FLING" RC COMBAT Contest**

**April 10, 11 2010**

**LOCATION: Phil Wherry Field, Dyer Park, W. Palm Bch., Fl.**

RADIO CONTROLLED COMBAT CONTEST, AMA / RCCA  
RULES FOR OPEN B, SSC and 2548 SCALE COMBAT

FIELD OPENS 7:00A.M. REGISTRATION 8:00A.M. START COMBAT 9:00A.M.  
SATURDAY 8 ROUNDS OPEN B and 4 ROUNDS 2548 SCALE,  
SUNDAY 8 ROUNDS SSC, and 4 ROUNDS 2548 SCALE  
ENTRY \$25, 1<sup>st</sup> Event, \$40 2 Events or \$50 all three.  
TROPHIES 1st THRU 5th PLACE.

GO TO [WWW.RCCOMBAT.COM](http://WWW.RCCOMBAT.COM) > START COMBAT > CONTEST CALENDAR OF  
EVENTS TO SIGN UP ON LINE AND RESERVE YOUR FREQUENCY.

FOR INFORMATION ABOUT FLYING SITE AND HOST CLUB GO TO:  
<http://www.rcbushpilots.com>

OR CONTACT: CHRIS HANDEGARD (561)723-2440  
E-MAIL: [chandegard@peersonaudio.com](mailto:chandegard@peersonaudio.com)

**SPONSORED BY THE**

# **RC BUSHPILOTS CLUB**

River City RC 20<sup>th</sup> Annual Spring Float Fly  
April 16, 17, 18, 2010 in San Antonio, TX  
AMA# 10-230



Bring your favorite water plane and join us for a great weekend.  
A 30 acre lake and a 16 foot carpeted ramp is ready for your convenience.  
A retrieval boat will be available for that occasional flame out or tip over.

\*Free BBQ lunch for registered pilots. \*Random drawings both days.

\*Special activities for other prizes. Practice on Friday April 16<sup>th</sup>.

**Registration 8 a.m. flying till 5 p.m. \$20.00 landing fee.**

\*Food and drinks available on site.

River City airpark is  
located one mile north of I-10 East  
on 1604 east of San Antonio,  
south of Randolph AFB  
Camping OK, but no hook-ups.  
Motels available nearby.

For more information call  
Rick Carlo 210-872-3282



[rickcarlo@att.net](mailto:rickcarlo@att.net)

GPS Coordinates  
N29.28759  
W98.17746

***The Spirits of St. Louis R/C Flying Club, Inc***  
Invites you to a

# **TAILGATE SWAP MEET**

**May 15, Rain Date: May 22.**

**Spirits Flying Field, St. Charles, County, Missouri**

See our web site at: [http:// spiritsofstl.com](http://spiritsofstl.com) for directions to the field.

**9:00 A.M. till ?**

**\$5.00 per car (Swapping, or Flying)**

**Concessions Will Be Available**

**All Proceeds Go To The  
Make-A-Wish Foundation of Missouri**

**For more Info: Call: Chris Nenzel: 636-634-8888**

**Field will be Open for Flying**

*AMA Membership Required For Flying*



<http://yorkcountyflyers.com>



## ***York County Flyers' Annual Spring Fly-In***

**Come Join Us for Our Annual Spring Fly-In  
at the York County Flyers' Field**

Langrum Branch Road near the Intersection of  
Hwy. 161 & Hwy. 5 in York, SC

**DATE: April 17, 2010**  
**TIME: 9:00 a.m. until.....**

**LANDING FEE:**  
**\$10.00**

**(AMA membership required to fly)**

***Awards Given as Follows:***  
***Best Military / Warbird***  
***Best Bi-Plane***  
***Best Scale***  
***People's Choice***



***CD: Jim Carroll***

***Email: [airfoiled@gmail.com](mailto:airfoiled@gmail.com)***

***Home: 704-588-1984, Work: 859-907-9267***

***Directions to Field: [http://yorkcountyflyers.com/?page\\_id=7](http://yorkcountyflyers.com/?page_id=7)***

***Raffle Prizes***

***Pilot's Prizes***

***Concessions***

***Photo Ops.***

***Fun, Fun, Fun!***

***See You There!***



PRESENTS:

**Z3D**

*Sanction #10-229*

*Helping raise money for the Children  
of Fallen Soldiers Organization*

*April 9<sup>th</sup>-11<sup>th</sup> at Can-Am*

*ZephyrHills, Florida*

- **Gates open at 8am**
- **Pilot Fees- \$15.00 pre registration, \$20.00 at field**
- **Overnight camping NO HOOK UPS**
- **Night flying for electrics**
- **Vendors Welcome (pilot prize for vending or sponsorship)**
- **Rudder Dunking for the brave hearted**
- **Park flying zone**
- **\$3.00 parking donation (pre register pilots free)**

**Pre registration and Vendor registration in the Z3D section of**

**[www.planeaddicts.com](http://www.planeaddicts.com)**