

# **REPORT**

**MAY 2010**  
**Issue 286**

## **ONLINE!**

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Spring has sprung around here because the trees and flowers are blooming, the grass is growing and my eyes are watering and my nose is running! The daylight hours are getting longer, and it's almost time to be able to go to the field after dinner for a few leisurely flights. That is one of the things I have missed over the last several months.

This time I'll show you a few tricks to help hide some of the small "boo-boo's" we all make when finishing a model, and I'll take a test flight with an onboard glow system from a well known manufacturer.

## TRICKERY, CAMOUFLAGE AND OTHER SUCH COVER-UPS

I don't care how good a builder or covering applier you are, you're going to make an error or two when fitting parts together or applying the final covering on your new project. I have done just that, too many times to count, and if you have not done it at least once; you're going to do it soon. I have three construction steps I follow religiously when building or assembling a new model, and they are:

- 1- Cut to size
- 2- Hammer to fit
- 3- Paint to hide

Those three steps sum up my building methodology. So, what do I do when a piece of covering doesn't quite match up with another or I get a drip or run in some paint or have a covering seam that sticks out like a sore thumb?



What if the full scale plane you are modeling just happens to have a trim stripe between the two major colors? Note the Fly Baby seen in PHOTO 1.



**Photo 1: Full scale Bowers Fly Baby with white trim stripe between red and yellow paint**

The answer is quite simple. I investigate the many possibilities, one at a time, to find a way to cover up, mask, camouflage or just make that little error look like it's really supposed to be there. There are many ways I have found to do all these; and, personally, I do not find it all that terrible to apply a little creativity to the finished product in order to save me from re-doing the whole thing again.

One of the best ways I have found to cover up a wiggly covering overlap or a squiggly paint edge is the use of good old striping tape. One of my mottos is “Striping tape can cover a multitude of sins.”, and over the last thirty years or so; it has done so many times. I have found that the 3M brand of striping tape, found in many auto parts stores or online, works very well and is available in many colors and widths. The last batch of 10 rolls of 1/8” wide black tape from an online distributor cost me less than \$2.00 a roll, and I think I even got free shipping. Remember that “Google is your friend” and use the internet to find such distributors.

Usually, the 1/8” width works to even out wavy covering edges because you have just about 1/4” of useful application area on which to apply the tape. First of all, make sure the covering is clean and totally stuck down. Thus also may be the reason for the wavy edges because of the application of high heat to stick it down securely. The covering will shrink back and create that wavy edge, so proceed with caution. I pull the backing from about 2 feet of tape and stick one end down at the end of the covering seam I am trying to hide. Make sure this is straight and even, and then pull the section of tape down the surface; but do not allow it to stick to the covering. Also, do not pull it tight because it may shrink back when let go; and you don’t want to see what happens next

Sight down the surface, and lower the free end of the tape slowly onto the surface making sure it will cover up the wavy edge and that is as straight as possible. Using your other hand, gently press the tape onto the surface and then remove the backing from the next section of

tape and apply it. Make sure the tape is straight, and if not; pull the whole piece up and try again. You want the tape to be straight, and the wavy covering edge completely hidden.

Another use of striping tape is to finish off the edge of contrasting colors applied in a curve, like seen in PHOTO 2. The edge between the red and white paint simply begs for some sort of trim tape, and here’s how I would do it. This technique also works for plastic film coverings, but make sure everything is well sealed before striping. First of all, make sure the paint is absolutely, positively dry. If you can still smell the paint, it’s not dry enough. Then get your striping tape out after choosing the appropriate width and color. Since this is a very large model, (50% scale Fly Baby) the full size plane may have a 1” stripe between colors. That means that 1/2” striping tape would be an appropriate size to use on the model. If possible, chose a size on the small side, in order for it not to stand out too much.



**Photo 2: 50% scale Fly Baby in desperate need of a trim stripe between red and white areas.**

Pull off about two feet of backing paper and stick the tape to one end of the color edge. Make sure it is aimed in the right direction, and then lay it down while pressing it with one finger. When you get to a curve, use one finger and the hand holding the tape roll and gently form the curve as best you can. Go slowly and if you get off line, pull it up and try it again. You will find that by coordinating your two hands; you can actually lay down a pretty good curve with a little practice. *(This whole process reminds me of when I painted Cass' room Hershey bar brown with cooper and teal trim, ceiling and horizontal stripes. You think painting a plane is difficult? Paint your teenage daughter's room! Julia)*

You will find that you may have to cut the tape at a severe angle at the ends of some trim schemes. I use single edge razor blades, used with great care, so as not to damage the covering and especially your fingers. I lay the entire blade on the end of the tape, and pull the tape upwards to cut, rather than try to cut into the tape, which usually results in cutting a hole in the covering.

There are times when you will have exposed ends of striping tape which will undoubtedly pick up dirt, oil, cleaning solutions and the like, which will then soften the tape's adhesive. I use clear nail polish applied on any tape end to keep it stuck down permanently. It is practically invisible and is very inexpensive. Plastic film covering can be cut into strips and then be used to hide seams and parting lined between airplane parts. ☺ne of the planes has a long top hatch and a two-piece cowl which resulted in a long separation line. Also, the rear turtle deck needed to be covered with a separate

piece of covering, which resulted in a seam between the two pieces; even though they were the same color. I cut some UltraCote into 1" wide strips and made up a trim scheme that would not only look presentable, but would also hide most of the seams.



**Photo 3: Top hatch and cowl have edges that are just about hidden by dark colored trim stripes**

PHOTO 3 shows the results with the covering stripe over the edges of the top hatch, the covering seam at the bottom of the turtle deck and the cowl parts. PHOTO 4 shows the same thing with the parts taken off, and you can see how well the gaps are almost hidden. Remember that dark colors hide parting lines and edges better than lighter colors.



**Photo 4: Here's what they look like when disassembled.**

Let's take a brief look at camouflaging some obvious mistakes while painting. I had a number of paint runs and bumps on the wings of a recent project plane. Rather than try to fix them, I just covered them up and made them look like they belonged there. There were three distinct paint runs in the top surface of the leading edge of the lower wing of this big biplane that looked a bit like they could be oil streaks. With a little black paint and a small brush, they did look like oil streaks that came from a leaking engine, as seen in PHOTO 5.



**Photo 5: Paint drips that were camouflaged with some black acrylic to resemble oil streaks**

Many vintage planes are housed in barns or hangars and most of the time there are birds in those buildings, too. Just suppose that one of those birds wanted to sit on one of the flying wires and while doing so, decided it was a good time to take a potty break. These white spots seen in PHOTO 6 used to be paint drips, but now look like the 'exhaust' from a fine feathered friend. Use your imagination and make up a good story to back it up. *(No, honey. That charge on my credit card was really for my hotel in Toledo; not that decidedly new airplane in the garage! Julia)*



**Photo 6: Small paint drips now look like a bird "left their calling card" on the wing**

### LIGHT MY FIRE

No, not the one by the Doors back in the '60's. This time, I'd like to tell you a bit about one of the best onboard glow plug lighter systems I have ever used. As you may know, I don't use many glow fuel engines in the models I fly, but when I do; I want the glow plug to be ignited for starting and kept on whenever it's needed. The good folks at Sonic-Tronics Inc./McDaniel R/C have been making onboard glow lighters for quite a while now, and I had the opportunity to use another one in a 180 four cycle powered war bird.

*Don't miss  
Dick's Toledo  
Report in this  
issue!*

I used the model Mcd464 (PHOTO 7) that was "...designed for Single Cylinder Engines on Airplanes, Helicopters, Boats, and Cars for starting and maintaining idle at low throttle..." It's built-in battery provides "...over 1.5 hours of glow power..." and "...you can parallel the On Board Glow Driver with your throttle servo using a "Y" cord for automatic "ON" operation at low throttle settings (fully adjustable set-point)..."



**Photo 7: Sonic-Tronics/McDaniel R/C Mcd464 Onboard Glow System**

"Another setup option is it can be switched on from your TX at any time you desire using an available channel. The external Deans charge jack will allow you to charge overnight ... or boost the on board battery from an external 1.5V DC source. A remote L.E.D. indicator lets you know when the glow plug is turned on. It can be mounted on the instrument panel or any convenient place to monitor the switching circuit."

"The system includes: Assembled Electronics, NiMh batteries inside plastic box for protection,

glow plug harness (leads are 18" and may be shortened but NOT LENGTHENED). An AC Charger comes with the Model Mcd466. Weight is 3.5 oz. including batteries."

I installed my model 464 up against the firewall, and ran the LED and charge leads back into the open area of the fuselage. Since I planned to use a separate switch on my transmitter to turn the glow plug on and off when needed; I plugged it into the gear channel. I also connected it to the throttle channel just to test the "coupled throttle" feature, which is fully adjustable and is reversible too.

I did shorten the plug and ground wires to avoid unnecessary voltage drop, and after allowing the battery to charge fully; I tried the 464 on an external glow plug. It glowed brightly, and I was ready to take to the skies. I flew the model a number of times, and the 464 never failed to provide plenty of current to the glow plug.

The model Mcd464 (without charger) costs about \$80.00, and the model Mcd466 (with charger) is about \$15.00 more. You can get them directly from Sonic-Tronics Inc./McDaniel R/C on their web site, [www.sonictronics.com](http://www.sonictronics.com) or at your favorite hobby retailer. Tell them I sent you.

*Well, that's about all I have for this month. By the time you read this, I will have returned from my annual trip to Toledo for the Toledo Expo, and possibly the complete story about what I saw there will be in this issue. I hope to see many of you there, and at other events in the coming months such as Top Gun and the Joe Nall Fly In.*

Until then, see y'all at the field...

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

In recent columns I've talked about the steps I went through to convert my Multiplex Twinstar II into a seaplane. The conversion kit from Park Flyer Plastics gives you all of the tools you need to turn the Twinstar into a beautiful and functional variation. However, I realize that some of you may not be comfortable making these types of changes to your models, or maybe you just don't want to put forth the effort. I'm back this month to tell you that it is possible to convert a land plane for water-ops easily, quickly and cheaply. But first, I'd like to show you a neat scratch built project.

My uncle, Lewis Dunn, is just a few years older than me, but he is one of the people that I credit for introducing me to modeling. I recall him teaching me how to build balsa gliders and control line airplanes when I was about 10 years old. In recent years, I've been able to return the favor somewhat by teaching him the basics of electric flight. It's too bad that we now live 1000 miles apart. Otherwise, I'm sure that we would fly together often.



**Photo 1: Lewis Dunn designed and built the Apex to utilize the gear from his worn out ParkZone Typhoon.**



Lewis had a ParkZone Typhoon 2 foamy that had become a bit worn out after a couple of flying seasons. He decided that he would remove the radio gear and power system and install them in a new scratch built airframe. Lewis started with the basic dimensions of the Typhoon and began cutting balsa to create the Apex (photo 1). Along the way, he decided to swap the original geared brushless motor for a Patriot RC 370 outrunner. It also features four Great Planes ES-80 servos and a 3S-2200 LiPo battery.

As you can see, the completed Apex looks great (photo 2). It weighs 33.6 ounces and the power system produces 260 watts of power. This all equates to an airplane with a wing loading of 12.5 oz/sq-ft and a power loading of 124 watts per pound. Good numbers for a sporty park flyer. Nice work Lewis. Don't crash before I get a chance to fly it!



**Photo 2: The Apex is simple and clean...a good recipe for success.**

Now, let's talk some more about flying off of the water. As I've suggested in the past, whenever you want to take on a project like this, start with an airplane that you know well and are comfortable with. This will help to minimize the variables and increase your chances of success. As with most of my projects, this one started out with a good deal on something that I didn't need. In this case, the thing I didn't need was a pair of floats for the Multiplex Easy Cub. I don't even own an Easy Cub, but for \$19, I figured I could find a way to use the floats...and I did!

Once I had the floats in-hand, I scanned my stable of favorite airplanes looking for one that could be modified. My ParkZone T-28 Trojan jumped out as the clear winner. It is a great

flyer in stock form. I knew from previous experiments that it could also tolerate some tinkering and carry extra weight.

The Multiplex floats, like all of their airplanes, are molded from Elapor foam. You don't have to cover them, glass them, or even add a spar. They are waterproof and strong right out of the box. All you have to do is glue in hard points so that you have a place to attach the landing gear struts. The float kit includes plastic hard points, nylon straps, screws, wire struts, and the actual floats. The struts are made for the Easy Cub, so I didn't use them.

I removed the wheels from the T-28 and left it standing on the wire struts. Then, I held the floats up to the wing to figure out where the hard points needed to be mounted. I positioned the step of the float about 1/2" behind the CG and marked where the Trojan's main landing gear struts met each float. I put some CA on one of the plastic hard points over the marked area on both floats and drilled holes for the wire straps. Once it was all set, I attached the floats to the main gear struts (photo 3).



**Photo 3: The hardware included with the Multiplex float kit worked well to attach the T-28 main wheel struts.**

To attach the floats to the stock nose gear strut, I added a 1/8" diameter spreader bar between the floats. You could probably use music wire

for this, but I used carbon fiber rod since I had some handy. I made sure to size the spreader bar so that the floats would be parallel. The front portion of each float has a recessed area for the forward hard points. When I mounted the spreader bar at the forward edge of the hard point, it lined up perfectly with the nose strut. I then used two small zip ties to secure the horizontal section of the strut to the spreader bar (photo 4).



**Photo 4: A pair of nylon zip ties secures the nose strut to a homemade spreader bar made of 1/8" diameter carbon fiber. It pays to keep things simple and light.**

At this point, I thought that I was finished installing the floats, but I was wrong. In my excitement to get the floats installed I didn't realize that my method of mounting the forward strut to the crossbar was binding the nose wheel steering mechanism...oops. To fix that, I just disconnected the steering pushrod at the servo. NOW, the floats were securely installed. Total time from box to airplane was about an hour, with most of that time being spent contemplating my next move. If I do this again, I'm sure it would take less than 30 minutes. I was happy to see that this modification added only 5 oz to the flying weight of the airplane.

Speaking of steering, the float directions warn you to avoid using the floats unless you have a water rudder installed. This kit includes some materials to build a rudder that will work for the Easy Cub. Before I could make a water rudder for the Trojan, I had to know how far the tail sat above the water surface. So I grabbed the airplane and headed for the nearest pond.

When I got to the pond, I realized that I had forgotten a ruler, so I used my knuckles as a unit of measure. I may have left the ruler at home, but I did think to bring a battery and my transmitter (Raise your hand if you know where this story is going.). I positioned myself at the downwind side of the pond so that the breeze would return the plane if I couldn't steer it.

With only the aero-rudder for control, I was surprised at the amount of steering control I had while sitting on the floats. With a burst of throttle, I had sufficient control authority to point the airplane in the general direction that I wanted to go. Without prop wash, it would quickly weathervane back into the wind. My next thought was "Hmm, I wonder what hi-speed taxiing is like."

The Trojan hopped right on-step and held a straight course with considerable right rudder input. The steering authority increased with more air moving over the tail surfaces. If I got too crazy with the rudder, it would spin out, but stay upright which is kind of fun. The most impressive part is that I was able to take photos with my right hand while driving the T-28 with my left (photo 5). *(Sounds like me back in the day, driving 90 to nothing and applying mascara in the side mirror of the car! Julia)*

I looked around the lake and saw that I was alone. The sun was setting behind the trees and a mild breeze was brushing my face. I kept thinking of the warning in the assembly manual: Do not attempt to fly without a water rudder...Do not attempt to fly without a water rudder. *(This reminds me of a trip years ago to Savannah, GA with Tony and a friend. We were leaving the drive thru of Krystal's, and you can only turn right because of the flow of traffic AND a concrete median. I knew that; so did our friend. Tony didn't; he had never really driven in this area before; especially at night. So he begins a left turn. Our friend and I are yelling "You can't go that way! You can't go that way!" All the while, Tony is still turning left. About the time we heard, and felt, this huge bump; which was the car going over the median, Tony asks "Why?" Duh! Julia)* After I'd repeated that mantra in my head enough times; Multiplex's sound advice became a challenge, an insult to my piloting prowess. Who are they to tell me that I need a water rudder? Now I know how Howard Hughes felt as he sat at the controls of the Spruce Goose in Long Beach Harbor. I gave the T-28 full throttle.



**Photo 5: What started out as a float test for the floating T-28 turned into a taxi test, which evolved into a test flight. The Trojan was so stable running on-step that I was able to take this photo while driving.**

By the time the Trojan was halfway across the pond, I figured that it wasn't going to go any faster. I started to add up elevator and the floats stayed stuck to the water. A little more elevator...we're still boating. With the far shoreline approaching, I heaved back on the elevator and the T-28 jumped into the air! It was then that I noticed the trees that border the pond. Why didn't I detect those before? No worries though. I just climbed up above them and started planning my landing approach. I made a few practice approaches and then set the T-28 down in the middle of the lake. That quick flight was enough to display that the floats alter the Trojan's flight characteristics somewhat. It was still easy to fly, but different. After I taxied back to the shore, I inspected the radio compartment for water and found none. I packed up and headed home wondering if I needed a water rudder at all. That was partly because of my flying success and partly because I forgot how many knuckles high the water rudder had to be. For now, I'm holding off. I may change my mind later and add the rudder. *(This was not how I thought this story was going to end, but what do I know? Julia)*

I've flown the T-28 on floats a few times since that first impromptu outing. It always gets lots of comments. Many people are surprised at how well it flies with the floats. It will still loop, roll, knife edge, tumble, and other fun stuff. The biggest difference is that the speed envelope has narrowed somewhat. The drag of the floats reduces the top end, while the weight raises the stall speed a little. But make no mistake; the T-28 on floats is still a very versatile and nimble airplane (photo 6).



**Photo 6: The floats do have an effect on the Trojan's flying qualities, but not much. It is still aerobatic and fun (Randy Stone photo).**

I added a strip of Lexan tape to the bottom of each float. My hope was the fairly slippery tape would allow me to fly the floating Trojan off of paved runways or grass. As it stands now, it won't quite do that. However, I was able to take off from a section of asphalt that had numerous pebbles, which acted like ball bearings. I've been able to take off of grass with a firm push to get things moving. I'll keep working on it.

One of my main goals when installing the floats on the T-28 was to avoid any permanent changes. I wanted to be able to revert back to stock form quickly and easily. The methods I used accomplish that goal. I can have the wheels back in place in a matter of minutes. In fact, I keep the wheels in my field box in case I ever get the urge. For now, I'm having too much fun with the floats. I don't believe that any full-scale T-28s ever had floats. Boy, were they missing out!

I'm sure that the Multiplex floats are not the only ones that will work on the T-28. ParkZone makes a set of floats for their Super Cub that I bet would also work well. At \$25 they are an affordable alternative. Why don't some of you

fellow T-28 owners out there try them out and let me know how it works for you?

Next month I plan to have a look at battery connectors and some accessories for them.

*Terry Dunn*

[\*boaw@comcast.net\*](mailto:boaw@comcast.net)

*15510 Penn Hills Lane*

*Houston, TX 77062*

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**MANEUVER OF THE MONTH:**

**Reverse Immelmann:** Just about everyone has done an Immelmann. If you haven't, check back in the archives and download that issue and brush up on it. This month we'll learn a backwards or reverse Immelmann. The maneuver still gains altitude; but unlike the regular Immelmann, which starts with a half inside loop, followed by a roll back to upright, the reverse Immelmann starts with a roll to inverted, followed by a half outside loop.

**Description of The Reverse Immelmann:** The reverse Immelmann is a half roll from upright to inverted flight, followed by one half of an outside loop, placing the plane at a higher altitude and going in the opposite direction.

**Keys to Doing the Reverse Immelmann:** You need a plane that will do an outside loop. You are going to roll to inverted flight, then push down to climb in an outside loop to a higher altitude. To do this, you'll need a plane with an airfoil and enough down elevator control to accomplish this. Most trainers with flat bottom airfoils may have trouble doing this. Trainers with a semi-symmetrical airfoil and especially those with a .46 for power will probably be able to do the reverse Immelmann. Any Stick (Ultra Stick, Big Stick, etc.) will be perfect. Any sport plane like the Hangar 9 Pulse, Great Planes Ultra Sport, Sig 4 Stars, World Models Sky Raider Mach II or LA Racer will also be great.

**Airplane Set-Up for Doing the Reverse Immelmann:** Check the amount of down elevator throw your plane has. If you have done outside loops, you'll have plenty. If you

haven't, make sure you have as much down travel as you do up travel.

**DOING THE Reverse Immelmann**

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

**DIRECTION:** The reverse Immelmann should be started flying into the wind, take off direction.

**What to do:** Immelmann turns gain altitude. In the reverse Immelmann you still gain altitude, you just do the roll first instead of after the half loop. Basically, you roll inverted, then put in down elevator to do a half outside loop to a higher altitude. If you have dual rates, you will probably want to use high rates on both elevator and ailerons.

**Step 1: Roll to inverted.** Start with a Standard Set-up, going into the wind. As you pass in front of yourself, roll inverted and release the aileron. You are now inverted. You don't want to stay here but just an instant because the nose will start dropping on you. If your nose does drop a lot, then in the future, you may want to raise the nose slightly before starting the roll. One thing here, make sure your wings are level or your climb will be off at an angle.

**Step 2: Do a half outside loop.** Push in DOWN ELEVATOR to start an easy outside loop. Be smooth and don't jam in the down elevator. Keep an eye on how the plane does. You may need to make a slight aileron correction. Remember, the ailerons do not reverse when you are inverted. Right aileron will still give you a right correction. Watch it that you don't get too tight during the climb.

<b>STANDARD SET-UP: 1. Full power, 2. Parallel to the runway, 3. One mistake high.</b>
<b>Doing The Reverse Immelmann</b>
1. Start with a Standard Set-up. You should be flying into the wind.
2. Roll inverted and release the aileron. You are now inverted. You don't want to stay here but just an instant because the nose will start dropping on you.
3. Push in <b>DOWN ELEVATOR</b> to start an easy outside loop. Be smooth and don't jam in the down elevator. Keep an eye on how the plane does. You may need to make a slight aileron correction. Remember, the ailerons do not reverse when you are inverted. Right aileron will still give you a right correction. Watch it that you don't get too tight during the climb.
4. At the top, release the elevator and you're finished.
<b>ERRORS:</b> 1. Nose drops after the roll to inverted. Raise the nose slightly before starting the roll. 2. Plane tracks off to one side in the outside loop portion. Make sure your wings are level before you start the push.
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### Step 3: At the top, release the elevator.

#### Notes:

- Like the regular Immelmann, you need to have the wings exactly level when you start the down elevator or the plane will track off to one side.
- It is really hard when you are flying a high wing plane with dihedral to keep wings during an outside maneuver. These planes are very roll stable upright, but will be unstable in roll when inverted. We really want neutral roll stability for good aerobatics. This is the reason I put anhedral in my high wing planes.

- Another thing you might want to do, and I mentioned this earlier, is to raise the nose slightly before rolling inverted. This is especially true if your plane is nose heavy or wants to drop the nose excessively when it is inverted. If you do raise the nose first, be sure you release all the back stick before you roll inverted or you will pull the plane off to one side.

Okay, let's go flying and try some inverted climbing reverse Immelmann turns.

### FEATURE OF THE MONTH:

**Keys to learning all maneuvers:** The premise of this column is to teach you, the reader, how to do aerobatic maneuvers. The idea is to not just write down how to do the maneuver, but to give you 1, 2, 3, steps and a method so you can take your plane to the field and teach the maneuver to yourself. To make it easier for you to learn, I have sorted through all the maneuvers and decided on the best method for you to learn them by. Some are done step-by-step, sort of "by the numbers." Others are learned easier if you learn in phases, starting with an easier version of the maneuver and progressing through phases until you master the complete maneuver. For a few, I give you some tricks or catch phrases to help you remember what to do in the air. As a learning aid, I came up with the aerobatics or maneuver card. The aerobatics card is laid out as a table that you can easily print out, maybe laminate, and take to the flying field with you. You can study the card, then go up and practice.

**“By the numbers.”** Some maneuvers I’ll instruct you to do **“by the numbers.”** This means to do step 1 first, then step 2 and so forth. These maneuvers are done without any blending or coordination of the controls. The basic aileron roll for a trainer or sport plane is an example of a by the numbers maneuver. Step 1, you raise the nose to 30 degrees and neutralize the elevator by releasing the stick. Step 2 is to put in full aileron and hold until the roll is complete, and then neutralize the ailerons by releasing the stick. You should have no elevator input during this step, only aileron. Step 3 is to use up elevator to level the nose. If you get in a rush and don’t perform each step by itself and let the stick return to neutral, bad things happen. Mostly you get a big barrel roll. You do not use elevator and ailerons at the same time. You need to teach yourself to feel for the neutral point of the sticks and only put in one control. You fly the maneuver 1, 2, 3, by the numbers.

Some examples of “by the numbers” maneuvers are the single aileron roll, inside loop, outside loop, inside and outside square loops, Immelmann, double Immelmann and Cuban 8. All of these maneuvers are done one step and control input at a time.

**Blending controls and learning in phases:** More difficult maneuvers require that you blend two or more controls together. A slow roll might be an example of this type maneuver. In a slow roll, you roll, and then blend in opposite rudder, down elevator and pro rudder. Another example of this type maneuver is the 4-point roll.

RC REPORT MAGAZINE	
TEACH YOURSELF AEROBATICS CARD	<b>REVERSE IMMELMANN</b> By Ed Moorman
<b>Description Of The Reverse Immelmann:</b> The reverse Immelmann is a half roll from upright to inverted flight, followed by one half of an outside loop.	
<b>Keys to Doing The Reverse Immelmann:</b> You need a plane that will do an outside loop. Most trainers with flat bottom airfoils may have trouble doing this. Trainers with a semi-symmetrical airfoil should be able to do the reverse Immelmann easily.	
<b>Airplane Set-Up For Doing The Reverse Immelmann:</b> You'll need adequate down elevator. If you have done outside loops, you'll have plenty. If you haven't, make sure you have as much down travel as you do up travel.	

For complicated maneuvers like these, I break the instruction down into phases where you learn the basic maneuver without any coordination in phase I, then add one control at a time in later phases.

The biggest mistake you can make is to try to learn all the phases in one day. It is my opinion that attempting this will frustrate you and slow your learning. I mean how can you learn how to add in right rudder, down elevator and left rudder when you are still trying to hit the points of a 4-point roll or control the roll rate of a slow roll? Don’t expect to do it in one flight. Stick to the phases and you’ll pick it up quicker.

The phases for the 4-point roll are: Phase I: learn the points. No other control, just learn to do 4 points. In phase II, you add down elevator at the inverted point. Why down elevator and not rudder? Because it's the easiest and it's in the middle so it keeps the plane from dropping half way through the maneuver. Phase III is directional rudder in the final knife edge. Moving your left hand in the same direction as you did your right hand is easier to learn, so you learn the 3<sup>rd</sup> point, 2<sup>nd</sup> knife edge position, next. Finally, in phase IV you learn the opposite direction rudder, the first knife edge position. The phases are the same for the slow roll.

**Catch words and phrases:** I use catch phrases for the stall turn. They are "flirt with the vertical," "go with the flow" and "give 'em L." "Flirt with the vertical" means don't go past 90 degrees in your climb. It seems if you get the least bit past a true vertical, the plane wants to flop and not rotate. Try a climb of 85 degrees instead of true vertical. "Go with the flow" means to check the plane after you pull up. If it is leaning left, go left. If it's leaning right, go right. Don't plan on a direction of rudder to use, give the plane its head and if it looks like it wants to go one direction, use that rudder. Don't go against the way the plane is tending or it will probably flop over. "Give 'em L" means to move the rudder-throttle stick in an L shaped direction. Back to idle, then full rudder. No pausing. Bing, bing, back and over.

I have noticed lately that everything and everyone is going faster. Rush, rush, rush. This is not the way to learn acro maneuvers. You need to slow down and go step-by-step. Doing it this way will actually speed up your overall learning. Also, bring your aerobatics card to the

field and review it prior to flying to get the instructions fresh in your mind.

Next month, I'll have a review on the World Models LA Racer. No, it's not a race plane. It's a better looking Sky Raider Mach II. It is an excellent flying, .40-.46 sized sport plane that will be great for learning acro.



**Richard "Redneck" Deese poses with his new Big Stick 60. Thunder Tiger Pro .61 for power. Excellent flying plane as you would expect from a Stick.**

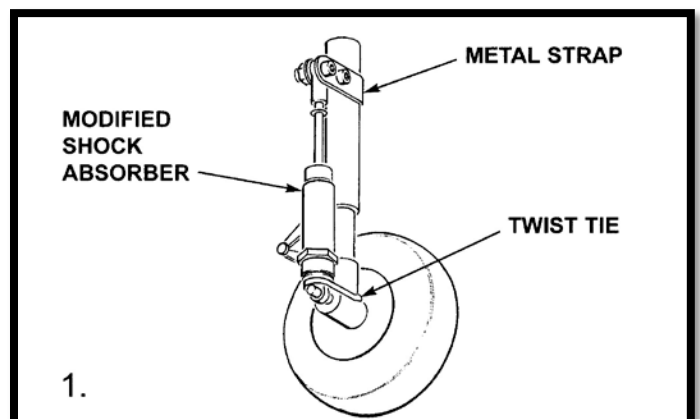


**"Dentist" Jack Aber with his ElectroStar. Nice little plane. Jack was not too enamored with the rubber band on wing.**

*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 email address. The first submitter of an idea used here will receive a free one year subscription or renewal to RC Report Online. If the subscription is to be a gift to someone else, please state this when submitting the idea.*



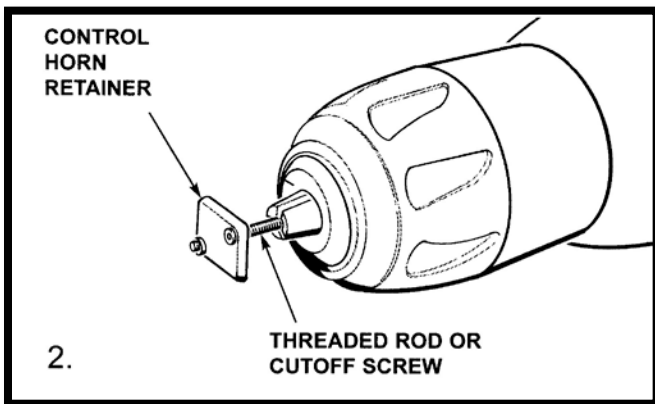
and recheck the oil level. Now, the shock will compress normally, but the extension will be considerably slowed down. This action releases the energy stored in the springs slowly, avoiding bouncing. To mount the shock, Pete installed longer axle shafts that protrude enough to mount the lower shock bushing and held them in place with a small twist tie. The upper end may need a bit more creativity. Pete used some perforated scrap iron from an old Erector set (see the illustration). He's been using this setup to tame his "Kangaroo" for three years and it works great.



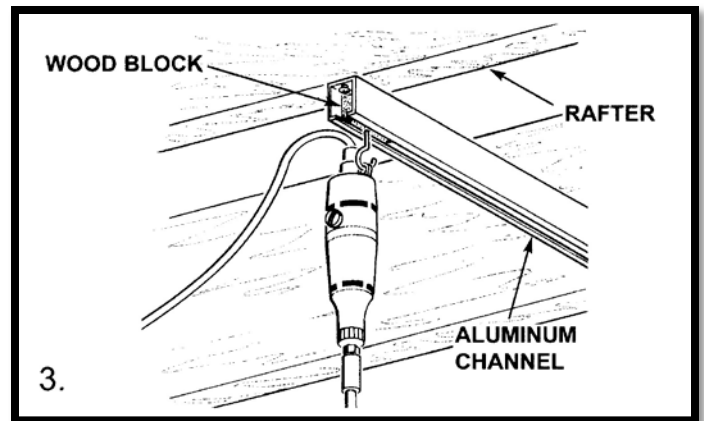
**1. Modified R/C Truck Model Shocks For Bouncing Jet:** From Pete Stapleton, of Prior Lake, MN. Pete had problems with his jet airplane that tended to bounce on landing. (That's why it earned the name "Kangaroo". *Tiggers bounce, too! Can we change the name?* Julia) He modified some RC model truck shocks, for one way action, as follows: Match the stroke length of the shock to the travel of the strut. Unscrew the top of the shock, remove the clip and remove the disk with holes in it. Cut a 6 mil plastic disk the same size as the disk. (The heavy plastic that parts are wrapped in will work for this.) Install the six mil disk and the disc removed earlier. Install the clip and fill the shock with the oil provided with the shock. Work the shock a few times to bleed out the air

## 2. Tap For Starting Control Horn Screws:

From Frank Maguire, of Portland, ME. When installing the retaining plates on control horns recently, Frank found it difficult to thread the screws into the nylon holes. Here's the solution he came up with: mount a short threaded rod, or a screw with the head cut off, in an electric drill and use it as a tap to thread the holes. The screws will go in very easily.

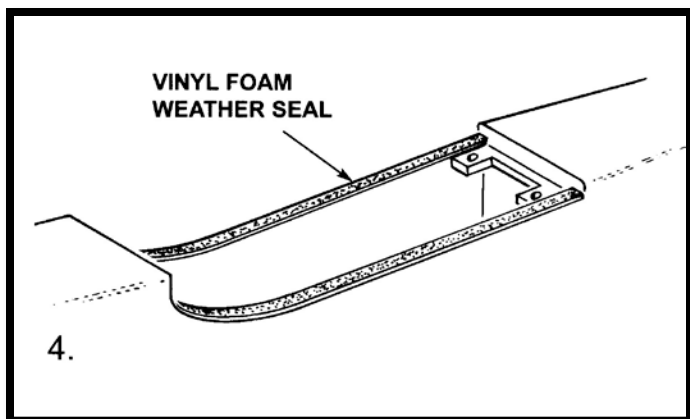


**3. Moveable Dremel Holder:** From Dan Yeager, of Tonawanda, NY. Have you ever needed your ceiling-mounted Dremel-type tool, with a flexible shaft, in a different spot over your building table? Find the remains of someone's vertical blind or other aluminum channel that looks something like the illustration. Cut a block of wood so that it fits inside the channel and will slide from end to end. Wax the block of wood. Screw a hook into the bottom center of the block to hang the Dremel tool. Screw the channel to your ceiling, leaving the end screws protruding a little so that the block of wood will not come out the ends.

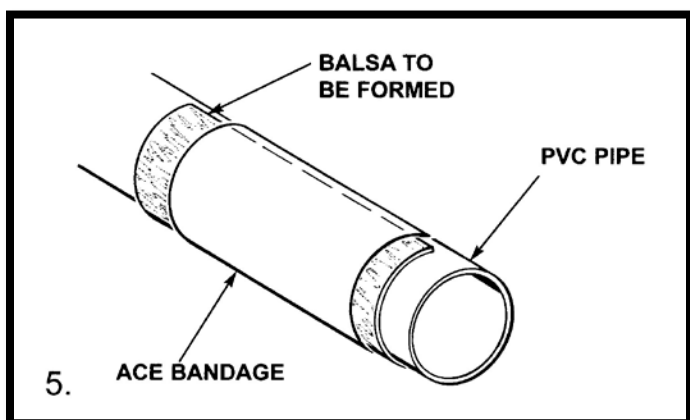


You can now slide your Dremel from end to end on your table and get it out of the way when you don't need it. To make life even easier, put a receptacle somewhere near the center of the bar so that you can keep the Dremel plugged in and ready to go.

**4. Foam Wing Saddle Waterproof:** From Dick Sprau, of Helena, MT. If you need some wing saddle foam, or foam for receiver pads, etc, go to your local hardware or home improvement store and get some vinyl foam weather seal. It comes in different widths and thicknesses and has an adhesive on one surface. The seals are available in 1/4" to 1" widths x 1/8" thick and 17 feet long. The cost is about \$2.49. Dick uses it on his seaplanes to keep the water out. It's 100% waterproof, compresses tightly, and doesn't change the wing angle. *(Something that he will need to worry about now that the lake has thawed. Julia)* It's usually made in the USA as well.

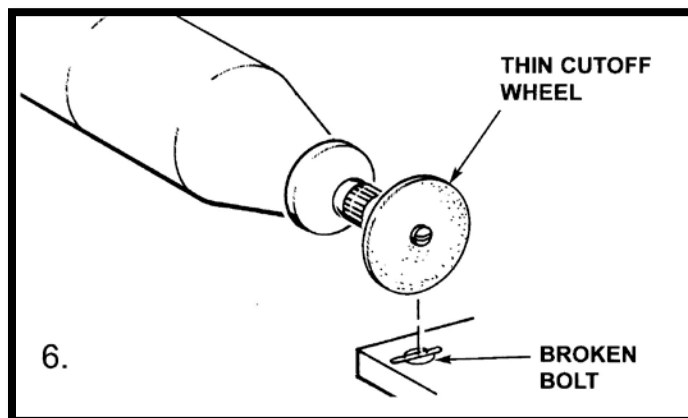


**5. Bending Sheet Balsa:** Here's another one from Frank Maguire, of South Portland, ME. Sometimes, it's desirable to bend sheet balsa into a curve before applying it to the structure of your plane. Here's another way to do it. Wet the balsa, as usual, with a water/ammonia mix and form it around a length of PVC pipe. PVC pipe comes in a number of diameters, so get a piece close to the diameter you want to bend the balsa. Use a 4" wide Ace bandage to wrap the wet balsa tightly around the tube. Drying it over night results in nicely curved wood with no splits.

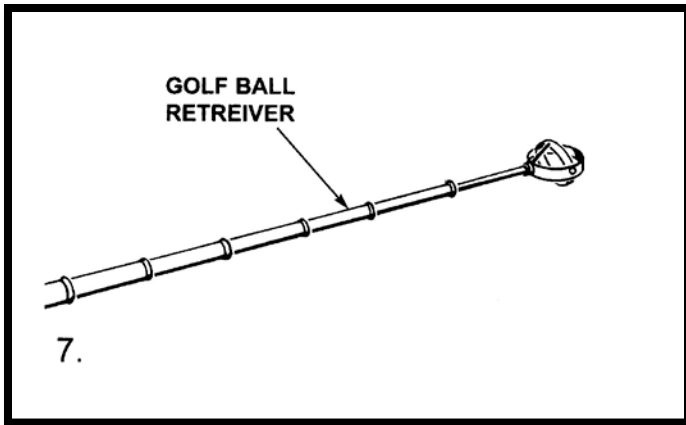


## 6. Removing Twisted-off Bolts and Screws:

From Larry Wilson, of St. Peters, MO. If a screw or bolt is broken or twisted off flush with the surface it's screwed into, it can be a problem to remove. Here's a way that usually works! Using an abrasive cutoff wheel in a Dremel tool, cut a slot in the top of the bolt. When the slot is deep enough, use a smaller screwdriver to remove the bolt. This is particularly easy with nylon, but will usually work with metal screws or bolts, too. Sometimes it's necessary for the slot to overlap the edges of the bolt, but that's usually not a problem. It may not be as pretty, but it's better than throwing an otherwise perfectly good part away.



**7. Plane Retriever:** From Robert Clark, of Murray, UT. It is very frustrating to have a plane stuck beyond reach in the branches of an unfriendly tree or a float flyer stalled near the shore, but just beyond reach, and where it is too deep to wade. On these challenging occasions, a great helper is a



light aluminum "golf ball retriever" which can be purchased at a local golf shop.

It extends ones reach by up to 20 feet and collapses like a radio antenna to a handy length which allows it to be conveniently stored. The ring at the end of the retriever, which was intended for a golf ball, fits readily over a wheel or prop blade to allow careful retrieval of the model.

**8. Engine Cleaner Safety:** Be careful storing commercial engine cleaners for extended periods of time. In some cases, the sometimes corrosive fluid may eat its way through the container! If you're unfortunate enough to have engine cleaner get onto a painted surface, such as a storage cabinet shelf (like I did), it can do a lot of damage if not immediately removed. If you have some of the cleaner left, store the container in a vessel or location that won't be damaged by seeping chemicals. More ideas are coming in, now. This column is dependent upon your input, so please keep it coming.

*Walt Wilson*

## RCREPORT CLASSIFIEDS

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THE OILY HAND: Covering engine topics and working with metal for models. Send your comments or questions to: oilyhand@bigpond.net.au or write to Brian Winch, 33 Hillview Pde, Lurnea NSW 2170. Australia. International Response coupon (Post Office) required if you want a written reply.

...AND THE WINNER IS...

The first modeler to provide the correct answer to the question I posed last month - metallic type names of substances - was DENNIS MILLER from BC, CANADA and the answer was...A SLIMMING TYPE CHOCOLATE MILKSHAKE!!!!

My wife, Shirley, received a sample pack of a slimming (meal replacement) chocolate milkshake in one of her magazines and she gave it to me. NO, not to slim me down; but because I like chocolate/milk and chocolate milkshakes. When I read the contents I lost my appetite, as it read more like a metallurgy laboratory sample of a new, secret alloy. Boy, I tell you, the stuff that is used for food these days can be quite startling. Well, the FROSTED GLOW PLUG (when available) will be sent by personal courier, carrier pigeon, migrating duck or a flight of fancy - whichever is most convenient and heading in his direction at the time. Someday. Maybe.

Good spotting, Dennis. Err...do YOU like that sort of chocolate milkshake? (*The Special K chocolate protein shakes are pretty tasty. Julia*)



I CLAIM AGE CONFUSION OR....

I mentioned my TNC tachometer and credited John White as the originator and manufacturer. Alan Walker, a retired English aero engine designer (the real stuff) caught me out on that one as the person's name is/was Tony Criscimagna, and I think he lived in Whites Lane (maybe). As well, some time back I purchased a very old contact type tachometer from a John White, so the confusion reigned; and I WAS writing the article very late at night (Well, that's my excuse.). (So, I am not the only one burning the midnight oil, huh? I would tell you to MSN me, but midnight here is not midnight in the Land of OZ. Julia)

Thanks for the correct information, Alan and apologies to Tony Criscimagna if he is still involved and reading this magazine.

Alan is currently building a Kinner 5 model engine - 75% complete - and his next project is a P&W Wasp, designed by Bob Roach (Australia) using Bruce Satra castings. I sure hope you send me some photos. Please, Alan.

## ALL A FLUTTER

Now here's a topic that gets bandied around the fields from time to time. With something so popular and contentious, it is a prime favorite for magazine and club newsletter articles. What causes it? Well, here we jump into a pit of wondrous ideas, definitives, guesses and simple conjecture which, in many cases, leaves the modeler completely confused and very little advanced in fixing the problem. Let's look at some of the suggested causes. First off we have loose controls - the rods, wires and cables to a control surface are not rigid enough, tensioned correctly, and fitted firmly. Bends in control wires. The wire extension of a pushrod has a bend to come out of the fuselage side in order to connect to the elevator or rudder. Maybe the wire is not of sufficient gauge. The control surfaces have an imbalance; too much weight or surface area behind the hinge alignment. The leading edge of the control surface is thinner or thicker than the trailing edge of the fixed surface. For example, the leading edge of the elevator is thicker or thinner than the trailing edge of the horizontal stabilizer. Hinge gap. The gap between the fixed surface and the movable surface is too wide; air can flow through. Grasping at straws here: the servo gears are worn, holes in the servo outputs/control horns are worn or too big, servo is too weak to hold the surface, servo mounting too loose, the pushrod is not strong enough and vibrating. Now hold on with that one; I see a golden glow here.

Now, I'm not going to stick my neck out and come up with claimed positive information. However, I am going to add my two cents worth as I do believe that some of the

information is not correct some of the time, or it is partly correct and the applied fix or fixes (if the model was still fixable) may be solved another and unrelated problem. I base my reasoning on so many variations and so many models. Last week, I was at one of the fields of which I am a member and I was talking to the section leader as we watched another member flying his model. Every so often, I heard the sound of flutter and mentioned this to the section leader. "Yes, I have spoken to him about that, but it goes in one ear and out the other. He just keeps flying the model and we hear the flutter every so often." Well now, that got me thinking deeply. 'The flutter every so often' and 'he just keeps flying the model'. The flutter was not all the time and he had been flying this same model for two years. I later asked him about this. Quite confusing, as most experienced modelers would consider that flutter leads to a reasonably rapid end to a model, and yet this model had been flown just about every weekend for two years, and the flutter did not occur all the time. I began to closely observe the model and note when the flutter occurred. The model flew quite fast yet there was absolutely no evidence of the flutter in a straight line; which is where you would expect it most due to the speed. As I knew the modeler very well, he let me closely examine the model. As I was checking all the points he said, "It always does that, Brian, and always at the same places (on the field); been doing it for a couple of years." The moment of flutter was quite brief and that was more than likely the reason why there had not been any damage. On examination, I noted that the controls were quite okay; no slackness of flexing, the hinge gap was minimal and no apparent slackness in the servo gears. It was when I was checking the front of

the model; I noticed the plastic engine mount on the plywood firewall. The mount had been supplied with the kit and it was not one of the better types. By holding the hub of the propeller, I could move the engine quite considerably. All mounting bolts were tight, so the movement was coming from the plastic mount and the flexibility of the rather thin firewall. Running the engine with the model on the ground it could be seen to be shaking considerably; more than I would like. In the air, the engine would smooth out the rough vibration, but this would then become a resonant vibration setting up a harmonic. While the resonance would be continuous, the harmonic would vary according to the engine speed and this is where I considered I would find the answer. When the model was flown at reasonably high speed across the field, there was no flutter; as would be expected. When the model was near the end of the flying area where the turn was made, the flutter was evident and then stopped; then evident for a moment as the model started back across the field. As the model approached the turn area, the flier pulled the throttle off to reduce the speed for the turn. During the changing of speed, the changed engine vibration varied the resonance and the harmonic wave washed down the model, and virtually out to the elevator which shimmied, flexed and fluttered. During the turn, the throttle was lowered just enough to change the resonance so the flutter noise ceased. Same thing occurred as the model rounded the turn and the engine speed was increased; for a moment the flutter noise was evident. With a bit of experimenting, the flutter could be induced almost at any time by varying the engine speed. Similarly, by flying higher (one more mistake

higher) and flying much faster too, around and out of the turn; the flutter was not detected.

I experience the same effects with engines on the test bench. ☺n my indoor bench, for engines up to 1.80 cu in (30cc), the visual vibration (engine blurring in my vision due to vibration) is not evident until I run an engine above (around) a 1.20 (20cc). The bench is quite sturdy, all steel and well anchored; an excellent dampener for vibration. The upper capacity engines vibrate enough to set up a resonance through the bench so the fins become blurred in vision due to the vibration. Smaller capacity engines run quite smoothly as the heavy construction of the bench dampens the vibration, and this is a good guide for me as to the quality of the engine. If it is shaking and blurring, I consider that maybe things inside are not as good as they could be and the observation is noted on my bench note pad.

My outside test bench is a large metal frame constructed in heavy duty angle iron, well braced and the top is 3mm thick aluminum; a heavy lift for two men and not a movement in it as far as flexing. I use this for radial mount engines and all engines over 30cc. Running, say; a Saito 36cc sparky on this bench is a no issue deal. I could leave tools on the far end and they would stay there while the engine ran. Matters change though as the engine capacity increases. Running a 98cc single on it recently had it moving around like a prancing stallion. Running several different brands of spark engines (petrol fuel) in the 50 to 60cc range recently was a great indication of just how severe the harmonic period of an engine can be, and how solidly they would need to be mounted in a model. During the running of these engines,

the vibration levels varied according to the make (brand) of engine. Some were decidedly better than others, and the real shakers were written off my ENGINE REVIEW list as being, in my opinion, unsuitable for reviewing and model aircraft use. Probably make good boat anchors or reinforcement in a thick concrete slab. It was during the transition testing that I raised my eyebrows, considerably! Around the 3,000 RPM mark, the harmonic vibration was so severe the legs of the bench actually danced on the concrete and the bench was slowly spinning around. It reminded me a trained terrier (dog) (*My boxer mix shakes toys. No rats, please. Julia*) shaking a rat. Transmit that severe vibration to a model aircraft, and it is no wonder there are failures in the air where the models actually break up; wings snapping, empennage falling off, firewall coming adrift. Then there are the other failures; internal radio equipment suffering from the vibration causing an impact (unplanned and badly executed landing) Causing Random And Serious Harm to the model. Returning to the main crux of this discussion, what chance it is the cause of control surface flutter? Here's a simple experiment for you. Using a 12" steel rule; hold 2" of it on a table (or any flat surface) firmly down with the heel of your hand. Pull the overhang (10") down with your other hand as far as is reasonable; then let it go. It will flutter reasonably slowly up and down with hardly any sound. Do the same thing with only 4" overhang and note the difference. A greatly increased frequency, and a much louder sound – a flutter sound! I use to do this (as a kid) with a table knife, the bread knife was best, and as the long section flapped away; I slid the knife further onto the table (still with the heel of my hand pressing down firmly), and the shorter the

overhang - the higher the frequency of vibration and noise. I fancied, one day, that I could probably play a musical tune by moving the knife to and fro, and I was doing quite well until my Mum gave me a clip under the ear and sent me packing. How upsetting. Who knows; I could have ended up a great musician.

#### AND THE POINT?

Very simple advice here, if the engine is not attached to a solid mount and firewall, or fitted in a high quality isolator mount; you can expect various problems with the model - construction failures, control surface problems, onboard electronics and battery problems, engine and tank problems and many other things that beset modelers, that often, rapidly assist in the re-kitting of the model. Rather than add lead to the front end, carry out some well considered re-construction. Fit in some long and solid beams, add bracing and long gussets to sturdy up the front end, re-distribute the load of engine power and reduce vibration. If the tail assembly is dancing when the engine is running; it could quite easily break off the engagement.

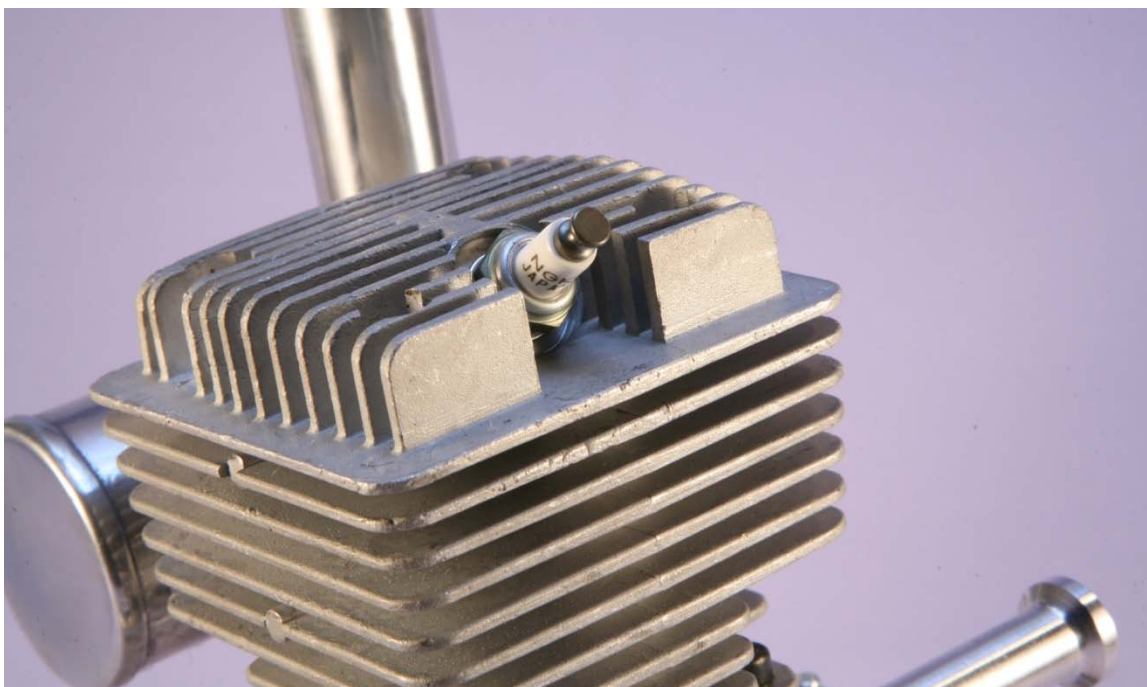
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**Photo 1: So much nicer when the plug can hide inside the cowl.**

## LOOKING AT ANOTHER ENGINE

As promised last month, this time round we will discuss my test bench observations of the YD-A 56 petrol engine made in Australia.

<b><i>ENGINE</i></b>	<b><i>YD-A 56 cc</i></b>
<b><i>CONFIGURATION</i></b>	<b><i>Single cylinder two stroke spark ignition</i></b>
<b><i>DISPLACEMENT</i></b>	<b><i>56 cc</i></b>
<b><i>BORE</i></b>	<b><i>44 mm</i></b>
<b><i>STROKE</i></b>	<b><i>37 mm</i></b>
<b><i>WEIGHT</i></b>	<b><i>1809 g (c/w ignition and muffler)</i></b>
<b><i>STATED POWER</i></b>	<b><i>6.2 hp</i></b>
<b><i>R.P.M. RANGE</i></b>	<b><i>1,200 - 95 ☺0</i></b>
<b><i>PROP' RANGE</i></b>	<b><i>22 x 10 - 24 x 8</i></b>
<b><i>FUEL</i></b>	<b><i>40:1 unleaded petrol</i></b>
<b><i>SHAFT THREAD</i></b>	<b><i>four bolt pattern</i></b>
<b><i>SUPPLIED WITH</i></b>	<b><i>muffler, ignition kit, spark plug, mounts, instructions</i></b>



**Photo 2: The YD-A 56 purpose designed model engine. Good performer.**

## FOREWORD

Now, we have a couple of firsts and a bit of a good surprise. The engine featured in this review is a 56 cc spark ignition (designed for petrol fuel) two stroke of very high quality. For me, it is a first and here is the big surprise. As regular readers would know, I have reviewed quite a few large ignition engines and several in this range; but the reason it is a first for me is that it is an 'Ozzie Job', an Australian manufactured engine - not a convert - an engine made for a purpose. Okay, then, yes, it is, in all the years and the many hundreds of engines I have reviewed, the first Australian made engine I have had for a full review. It is also the first Australian production line of large capacity, spark ignition, petrol fueled engines designed and manufactured solely for model aircraft use by an engineer who is also a very involved modeler. Whew! Quite a mouthful by way of

introduction, but the Ozzie flag must be waved as their flag is waved by other manufacturing countries. According to Steve, the West Australian manufacturer, he and many other modelers are very disappointed by the lack of back up service and availability of parts for many of the engines sold in Australia. For my part, I must say that there are a scant few model companies who have excellent back up service on the large petrol engines and the engines they sell are of very high quality. Problem is; it is a buyers' market with so many engines on offer and so many sales made through the 'electronic supermarket' (Internet and Ebay sales, for example.) that there is a flood of many brands of engines with a good percentage of them exhibiting, shall we say, less than desired consistent performance and backup almost non-existent. I know, for my part, from the emails

and phone calls I receive and the requests for me to 'work' on engines, there are certain engines I would not touch with the proverbial 'barge pole'. No, I won't work on them as I could never recover my time costs, even if I could get parts and get them to run. It would appear that Steve had similar thoughts after witnessing so many problems at flying fields and listening to the complaints made by modelers who had inconsistent starting and running engines that constantly let them down. As I said, there are a small few good engines available here, so why not increase the choice. At the very least, manufacture an engine designed for model use, build in certain performance parameters that are known to be desirable, and being made 'in house' as it were; an engine with a guaranteed backup service that includes warranty and spare parts readily available. Actually, it is not so difficult to design and manufacture a good (or bad) internal combustion engine. Information relating to design parameters is readily available, as is the general requirements of the target customers. Materials for the engine (different metals etc.), outsourced parts (Parts that are not viable to manufacture and are commonly available.), outside services (casting, metal heat treatment, mold patterns, for example) are generally close at hand, so there is not much stopping you. The only other items needed are qualified knowledge of engineering principles and practices, a thorough understanding of the project at hand and a machine shop equipped with a few hundred thousand dollars tied up in CNC machinery and other general workshop tools and allied equipment. Then there are the prototypes, testing and proving, but we will leave all that behind now as the engine is a reality, has been around for some time and is

gaining great ground in the (difficult) USA market.

## WHAT HAVE WE ENDED UP WITH?

We have a very nice, large model aircraft engine that is very well designed, and made. It has a pleasant appearance, a performance (overall performance) that will be hard to better and none of the bad attributes (my opinion here) of many similar engines on the market. Follow certain, simple guidelines for starting and operating petrol engines. You are not going to waste good flying time trying to start this engine. You can almost drop the dreaded 'needle fiddling' habit. Overheating will not be a problem. Vibration won't shake the empennage off your model (or any other parts for that matter) and you will be able to fly with the confidence that this engine will keep running and responding until you switch the ignition off after yet another successful flight. As well, it has to be said, if you make a mistake of some sort that results in a disastrous landing; if anything should be damaged (not likely - it is very sturdy) on the engine, a request made to the manufacturer or supplier will have the parts required on your doorstep in double quick time. Let's read my bench notes taken during the run in and testing period.

Simple run in procedure that I use, and almost the same as is advised in the instructions: several hot runs/cold starts until the engine will hold full RPM without sagging after five or so minutes. My poor old right arm is very well worn after many years of prop spinning, so I don't waste what I have left in it by winding propellers on petrol engines to prime the fuel pump for the initial start. No fuel pump is good for pumping air, so you can wind and curse for

ages trying to get the fuel up the line. You have an engine in front of you that will flutter the pump so much faster than you could ever do, so why not use it? You are not going to flood a reed valve engine with a direct carby prime, but you will leave a good charge of fuel in the carby venturi body to be sucked in when the valves do open. I give the carby a good squirt with my fuel pump (Petrol does run out, but that's okay.), then I flick the engine 2 or 3 times, switch on the ignition and it will fire up and run for a few seconds. During that brief run, the fuel will have raced up the line and filled the carby fuel chamber. I give the engine another squirt, open the throttle about  $\frac{1}{4}$ , switch on the ignition, hold the prop and turn it. Feel the bump, and then flick for an instant start on a brand new engine. I start them about  $\frac{1}{4}$  turn rich, and leave this tuning until I am ready to carry out the propeller tests. During the prop testing and general running observations, my starting procedure was to set the throttle about  $\frac{1}{4}$  open, hold the prop, turn once. It would bump on the second turn, and start, first flick every time, after that. I was very pleased with the ease of starting which didn't vary hot or cold. The engine is designed to tolerate considerable propeller loads, and I found that it spun the largest propeller a little faster than one with the same pitch, but one inch smaller diameter. As well, the tuning did not require

changing for all the propellers I used. I did try a retune, but the needle ended up back in the same position. It was surprisingly smooth running throughout with just a mild harmonic around 3,200 RPM (common area). The transition was very smooth and quite rapid for an engine of this capacity, very clean running (no leaks), excellent cooling; the lower side of the crankcase was quite cool during running. A very happy engine.

Testing was carried out on the 2 January, 2010 with the temperature at 30 degrees C and 79% humidity. Fuel was unleaded petrol mixed at 40:1 with Cool power blue oil.

#### ON TEST

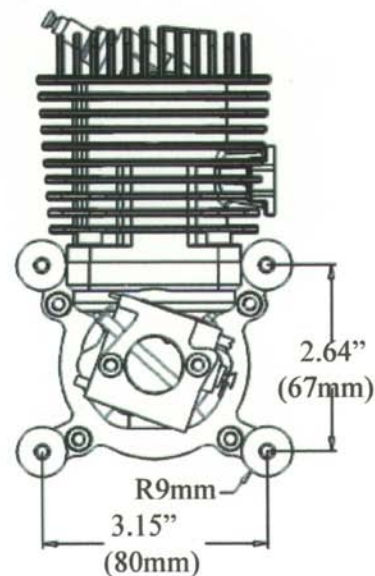
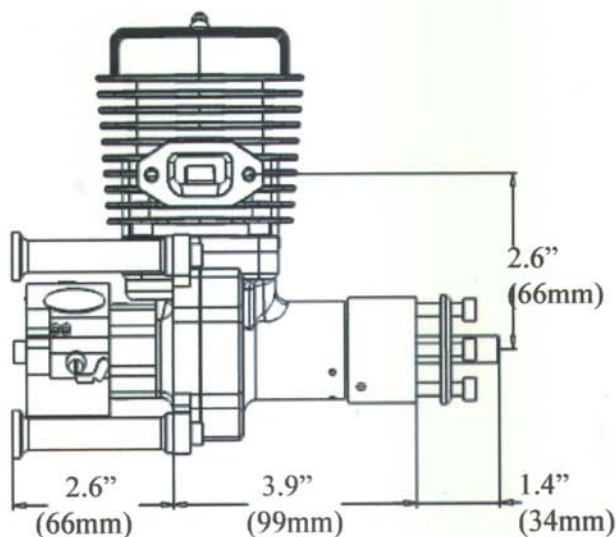
I was supplied 3 TZB propellers to evaluate and use for the testing; very well presented wood props in white livery and bright red tips. They certainly performed well, and as claimed, their blade and tip shape was extremely quiet compared to several other wood props (my test props) I tried. This is an area not often considered by modelers when assessing aircraft noise. Even the fliers of powerful electric models are beginning to suffer the problem of propeller noise, which, in many cases, can outdo the sound of the engine when internal combustion engines are used.

**RC Report ☺online offers a wide variety of ways to get freebies for yourself or your best friend!**

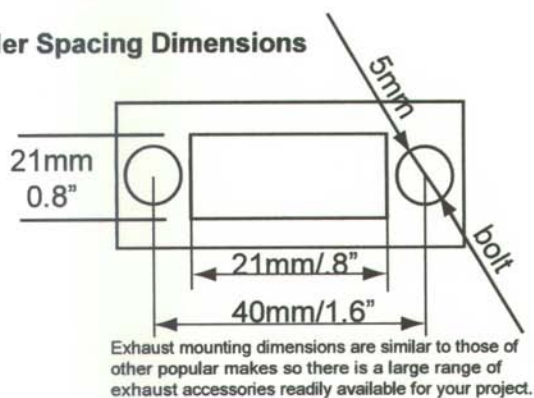
***\*Submit ideas to Walt Wilson for Here's How. See his column for details!***

***\*Go searching for Smileys! Find all of them, then start checking the mail***

***\*Send in a photo of your pet to Isabelle and receive a "toy" from her toy box!***



#### Muffler Spacing Dimensions



Item number	part name
YD 55-01	spark plug
YD 55-02	cylinder
YD 55-03	piston set
YD 55-04	crank set
YD 55-05	crankcase
YD 55-06	reeds valve
YD 55-07	rotor
YD 55-08	muffler
YD 55-09	carb
YD 55-10	Ignition
YD 55-11	prop shaft
YD 55-12	gaskets
YD 55-13	prop plate
YD 55-14	standoffs

**Photo 3: Dimensions**

### ***PROPELLER TESTS***

#### ***BAMBULA WOOD***

***22 X 8                      6,107***

#### ***TZB WOOD***

***23 X 8                      5,667                      1085 IDLE***

***23 X 10                      5,524***

***24 X 8                      5,714                      950 IDLE***

### ***RETEST***

***23 X 8                      5665***

## MAGNETIC ATTRACTION

The 'fool' aka brain dead laboratory assistant, is away on a flying holiday; of a sort.

He decided to go for a fly in a glider as an intending pupil - try before you buy, sort of thing. He headed off to Canowindra, one of our great glider areas, and met the pilot who would take him for his demo flight. The glider was on the field, connected to the tow plane and the tow plane pilot was standing outside the aircraft having a smoke. The glider pilot told 'goofhead' he could go over and sit himself in the glider, have a look inside, but not to touch anything and he would be there in a few minutes as he had a little chore before he took off. (He needed a pee - whiz - shake the snake.) Fool went to the glider, and as he was climbing into the cockpit; he waved at the distant tug (tow plane) pilot. Now, here we have a problem. The tug pilot does not know who is flying the glider, but a wave is the signal that all is well; start the tow. Just as the fool closed the canopy down on the cockpit, the glider moved forward. The tow was in progress, and the glider pilot was still in the dunny. An interesting note here, this glider and tug were fitted with the new magnetic tow connection, a massively strong magnet each end of the two rope. The glider pilot could turn a handle (reversing the built-in magnet), and release the cable and the tow pilot could do the same thing with a hydraulic control. About 3,000 feet, the tug pilot is worrying why the glider pilot hadn't released, (no radio contact) and due to the thermal activity in that area; the glider was lifting rapidly and was rising above the tug plane (a dangerous situation).

The tug pilot made a quick decision to save himself, and the glider and he disconnected his end. Away went the tug down to land again, and up went the glider in a massive thermal; and attached to the nose was the tow rope with a monster magnet swinging in the breeze. Inside the glider, the fool was petrified as he had no knowledge of flying and he had been sternly warned to not touch anything. Not too far from Canowindra there is an experimental satellite and rocket base. A group of amateurs and partly qualified 'space fanatics' build and launch all manner of rockets and space vehicles, some rather crude devices, but money is not freely available. On this very day, they were about to launch the largest ever 'spaceship' they had built. It was cobbled together from six 44 gallon oil drums and various bits of scrap metal. Its fuel load was intended to get it to Jupiter where the onboard video camera would record the planet as the rocket went into orbit; hopefully. The countdown was completed, the button pressed, and with a roar, flames and lots of smoke; the metal monster took off. Just as it reached 5,000 feet, a large magnet swung across and attached itself to the side of the steel drums. Attached to the magnet was a rope and attached to the rope was a glider.

On the news that night it was reported that a large cylindrical object towing a winged aircraft had been seen via a satellite, and it appeared to be heading in the direction of Pluto, the Dog Star. I wonder if he can glide out of an orbit?

I'll slip off here while the going is good, and I'll talk with you again next month.

Brian Winch

[oilyhand@bigpond.net.au](mailto:oilyhand@bigpond.net.au)

Hi gang! Greetings from sunny South Florida. The combat season is heating up to match the sunny weather across the US that you will all soon enjoy.

## **BE THERE OR BE SQUARE**

Events for the month of May are: 5/1 "MARKS Spring Shootout" SSC, Salisbury, MD. 5/8 "Wings Over Malheur Butte" Scale combat and Open B, SRVM Malheur Butte, Ontario, OR. 5/8 "Spring Hell Over Hillside" Lim B, Opdyke Park, Montpelier, OH. 5/8 "Battle for the Empire" Open B, SSC, Corona RC Club, CA. 5/15 "Richardson Spring Combat" SSC and scale 2948, Lucas, TX. 5/15 "Tundra Terror" SSC, Green Bay, WI. 5/15 "Frenzy at Freestate", SSC, 2948, Laurel, MD. 5/22,23 "Great Lakes Combat Champs" SSC, Lim B, Open B, Lenox Twp, MI.

Events for June are: 6/5, 6 "Battle for Beantown", SSC, 2948, Lim B, Delphos, OH. 6/5 "Red Baron's Turkey Shootout", 2610 Scale, Open B, Shelley, ID. 6/12 "Mid America Combat Championship", SSC, Jackson, TN. 6/13 "Battle of Midway", SSC, Open B, Fallbrook, CA. 6/19 "Spring Street Brawl", SSC, 2948, Street, MD. 6/19 "North Dallas Spring Combat", SSC, Open B, Aubrey, TX. 6/27 "Battle for Beaver Dam", SSC, Lim B, Beaver Dam, WI.

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>. I'll also mention it every month until July **so plan if at all possible to attend the combat Nat's in Muncie, In. July12-15**. It is THE event of the year and well worth the effort! Be there or be square!



## **EVENTS DEBRIEF**

The first events to report on this season come from the "other" sunshine state, California. "Air Combat Alpha", a one day contest for SSC and Open B, took place on Sunday, March 7, in Coachella, CA near Palm Springs.



**Photo 1: Group photo of Combat Lineup for "Air Combat Alpha" hosted by the Coachella Valley R/C Club in March 2010**

Congratulations to Russ Donnelly and Todd Melton, winners of Open B and SSC, and to all the competitors for a job well done.

This being but the first of many events that will take place this year, as results are posted I will give you some highlights and a reminder of where the full report and lots of photos can be viewed. Be sure to go to the events report/debrief section of the RCCA site and read the full report.

<http://www.rccombat.net/forum/viewforum.php?f=21&sid=a314565314be62f1afef337b01c8d0e2>

Also go to this way cool site by the Palomar Fliers and check out the wealth of info there!

<http://pfcombat.hyperboards.com/index.php>

The photos and in-depth coverage are far too detailed to go into in this column. Please take the time to avail yourself of these great resources for information on events as they take place. Just like the calendar of events section, these debrief forums are dynamic and change with every event and contest that takes place and as the reports are uploaded. The photos and background information, as told by the pilots and event directors, are entertaining, informative, and you can really get a feel for the excitement of boots on the ground on contest day.

The second competition for the record books in 2010 is the LSN “Lone Star Nationals” in Dallas/Ft Worth, TX – a 3 day event that was held March 26 – 28. It featured Scale 2948, SSC and Open B.



**Photo 2: 2948 Pilots – The Four Horsemen of the Apocalypse brave enough to fly Scale combat at the LSN 2010**

The weather conditions were clear and sunny, a little cool, as evidenced by the long sleeves and jackets, but it appears to have been the wind that was the single most deciding factor of the elements impacting the contestants. From the windsock standing straight out at a 90 degree angle, to the decided bend in all the background trees, it is clear that the flyers had to contend with not only a stiff breeze, but one that came from the worst possible direction, behind the flight line. It was so windy in fact, that on day two, the SSC portion of the competition, with 16 pilots, was called after five of eight scheduled rounds for safety reasons. The 2 ☺-25 mph winds, with gusts to 35+, made launching an SSC plane with a tail wind next to impossible.



**Photo 3: Group photo Saturday, SSC featuring 16 pilots**



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Sunday’s action featured nine pilots competing in Open B class. Conditions were still windy, but Open B planes and the amount of power they produce had much less difficulty overcoming the conditions. I visited the Dallas/Ft Worth area myself in 2008 to compete at the LSN and had a great time. The host club and the Texas combat community really roll out the southern hospitality for their guests. Congratulations to Dane McGee for the win in 2948, Evan Wenger, 1<sup>st</sup> place SSC, and Gil Hernandez for the win in Open B, as well as all the pilots competing. You are all winners!

Be sure to go to the RCCA’s event debrief section and read the full blown report on the Lone Star Nationals 2010 and don’t miss the YouTube links if you want to see the blow by blow videos they have posted from the contest. Okay, now that you have your homework and reading assignment for this month, “which will be fun, don’t worry, you’ll like it” here’s one more event I’d like to mention. It isn’t a contest, but this is something really special. The folks in Palomar, CA, who threw a MIG building party, deserve a hat’s off and round of applause. Definitely check this one out in the debrief section. David Drowns and a group of friends provided the laser cut chloroplast and other laser cut parts to build 19 MIG kits at their first combat-build party of the year.



**Photo 4: Parts that go into making one of the MIG kits which were provided for a nominal fee to the builders. The kit makers donated all their time and use of CNC laser cutting equipment to the project.**

This is an outstanding example of combat enthusiasts who have experienced for themselves the excitement of RC combat competition giving back by providing new pilots interested in combat the ways and means necessary to get their feet wet. Just outstanding guys. Great Job! The increasing numbers of RC combat pilots and new growth evidenced by numerous competitions being held is likely the result of efforts such as this.

**FROM THE BENCH**

This month’s How-To tip, boys and girls, is how to make a cowling for your RC (We’ll assume it’s a Scale combat model.) plane. The procedure is relatively simple and falls loosely into the sub category of recycling. You know all those plastic juice bottles that go into the recycle bin, (Or egad! let’s hope not to the land fill!), well, here’s a much better use you can put them to.

ACCESSORIES		NEW COCKPIT KITS	
SEE TEMP PRODUCTS!	INST.GUAGES	B-25	ESM / H 9 / Zirolì
CANOPY RAILS	GUN SIGHTS	BF-109	ESM / Platt
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JB ACCESS PANELS	BOMB DROPS	P-47	H9 / ESM / Zirolì
COCKPIT KITS	GUN KITS	P-51	H9 /TF / ESM /Zir / CA
BALSA WOOD	WING TUBES	SBD	ESM/ Jerry Bates
DYNAMIC BALSA		Stuka	ESM / Zirolì
www.dbalsa.com		T-28	Cox/Pica/ Platt
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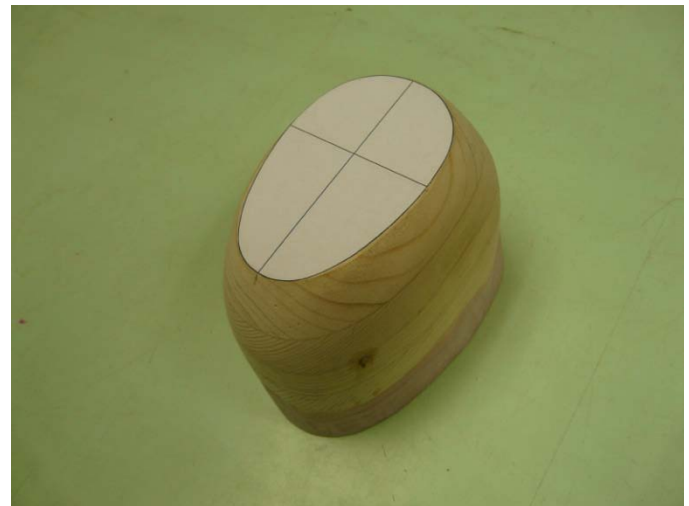
As long as they don't have the words Ocean Spray or Gatorade impressed so deeply into the plastic of the container that it won't come out, they will look great on the nose of your next scale combat plane. ☺nce you put it through this simple procedure, they will transform from a lowly vessel of high fructose corn syrup, artificially flavored, color enhanced, empty calorie substance of questionable nutritional value to a WWII Warbird cowl, suitable for nose art.

We'll assume at this point you have already selected an airplane to model. Most cowlings can be reproduced from the two basic shapes that are formed by the shape of the cowl where it meets the fuselage and the shape of the front of the cowl just behind the propeller. Some are simple round or rounded/oval shapes but can be a little more complex depending on the actual airplane you are replicating.

Remember, this is an RC combat, not Scale model. The end result need only be a reasonable representation of the actual airplane. Its function comes first. Form always follows function. As such, you may need to smooth out any protrusions, scoops, blisters or other relatively small features, in order to simplify the plug, made of wood or other heat resistant material that the plastic cowl is formed on. Some aircraft, for instance the P-51 Mustang with its distinctive air scoop, have features that should be retained. You don't want to go to extremes when simplifying that will result in losing a particularly recognizable shape.

One place to acquire the two shapes I mentioned needed to form your wooden plug can sometimes be found from online resources such as 3-view websites like this: <http://richard.ferriere.free.fr/3vues/3vues.html> ...which lists quite a variety of aircraft alphabetically. From the 3 view, not only can you get a basic outlines needed to build the model itself, but with a little creative

engineering you should be able to get the shape of the firewall for the back of your plug and the nose for the front of your plug.



**Photo 5: P-47 front former**



**Photo 6: P-47 back former**

Now for the tricky part; getting the drawing to the correct size. The method I use requires a computer loaded with an auto-cad type of program. Capture or "save as" the 3 view and paste it into the model space of an auto-cad drawing. Then simply scale the 3 view up until the desired wing span is reached. Now, everything in that drawing is the right size to match your airplane's wingspan. Most 3 views show a nose-on perspective so the front opening in the cowl, or front former, should be clearly visible. Likewise, the firewall is usually fairly easy to see or determine by some careful

examination of the 3 view. Remember, this isn't Scale; this is a combat project, so you may have to simplify slightly to connect all the dots. Just be careful not to distort the finished product to the point where it becomes unrecognizable, or starts to get that "Huh, what's this?" kind of appearance.

If you don't have access to an AutoCad type of program; you will have to resort to trying to blow the 3-view jpeg up to reach the desired size with copier scaling - a much more difficult method to be sure.

You will also have to determine the overall dimension of your cowling from front to back. And don't forget to plan for some overlap of the cowling onto the fuselage. Usually it has to slide over the fuse by approximately a 1/2" or so to give you an easy means of attachment.

Now that you know the rough shape and size, and have printed on paper your front and rear formers, you will need a stack of wood blocks large enough to cut the cowling shape from. My method uses clear white wood commercially available at home building supply stores, 3/4" thick by a width that is slightly larger than your cowl diameter. Cut rough blocks of the 3/4" stock, clamp and glue them in a stack tall enough to produce a cowl the right size. (Remember the 1/2" overlap on your fuse.) Keep your stack of wood lined up evenly because you have to align your front and rear paper formers so that when you cut their shapes on the front and back they line up with each other.

Once the glue has dried, remove the clamps and stick your paper prints of front and rear formers on the block. Make sure to center them where they line up with each other. Rough cut on band saw and then sand to finished shape with belt, vibrating or hand sanders. Take your time and do a good job at this stage because your

finished cowl will take the exact shape of the wooden plug.

Okay, now you should have a finished plug. If you are satisfied with it, it is time to have some fun. No doubt you've been thinking ahead with this whole process, which takes a little time, (I hope you've been thinking ahead because that is a good indication of intelligent life.) (*Chris, honestly, it's really late here for me and I am struggling just to keep up with what I am reading. No real hope of thinking ahead at this point. But, I trust you, so we will push on anyway. Julia*) and you may have arrived at a juice container that you think will fit your plug. If not, keep drinking more juice (I recommend Supersize Mott's Apple Juice from Costco) (*I like Ocean Spray White Cranberry, personally. Julia*) and save the lid. It comes in handy later. You'll see.

Cut the bottom off your juice container and attempt to push your plug, small end first, into the empty juice bottle. If it doesn't fit, get a bigger bottle. If it does fit, you want to push it as far up toward the neck of the bottle as possible. Using a MonoKote heat gun, and wearing a leather glove, slowly work your way around the plastic, being careful not to over shrink any one spot. This is also the stage where you remove any labeling. The heat will help it release. Just peel it off before you continue shrinking. I should mention at this point that I have found some types of plastic bottles shrink more than others. You may have to experiment a little to find one that works for you.

Working your way slowly and evenly around the plug, draw the plastic down until it fits tightly. Your plug should have a flat surface at the back. Cut the waste plastic at the rear of your cowl off flush with the back of your plug. Remember, this is why you made your plug a little longer. Now you have enough cowl to overlap the fuse.

Okay, now we're almost finished. (*Okay. You may be, but not me. I have two more articles after yours. Julia*) Turn the whole business over and set it on your bench with the back side down and let's get the front to take a good shape. This is the neck of the bottle, so the trick is to heat it up, shrink it down, and it will probably take a little pressure to press it flat against the front of your plug. When finished, you should have transformed your plastic bottle into a close-fitting shape that is now quite stuck to the wooden plug.

Oops, I forgot to tell you that you need an air compressor for this next part. Don't worry if you don't have one; a trip to the old fashioned service station with an air nozzle will probably do the trick also. (*Don't forget you quarter. Air is not free anymore. We even pay for the air we breathe now days. Consider for a moment all the second hand smoke and pollen. Someone has to pay for the all the antibiotics to cure the ear infections and Zyrtec. Julia*) Drill a hole in the bottle cap you saved (hopefully) just big enough to squeeze an air nozzle through. By screwing the cap-nozzle tool onto the formed cowl, a simple quick blast of air should pop it off like magic. Viola! You just fabricated your first plastic cowl for a scale combat model. The finishing touch requires only the removal of the now-useless bottle neck and a paint job.

**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.



**Photo 7: Examples of cowl plugs and finished cowls with a .25 size engine to show relative sizes. L-R P-51, .15 size radial cowl not fully sanded to finished shape, Ki-43 Oscar, and a P-47.**

Well, that's it for this month gang; tune in next month for a report on my local contest here in West Palm Beach, FL: the "Bushwhacked Spring Fling." I hope you enjoyed it and I'm looking forward to hearing your comments. Don't forget to clear your guns before you engage and check your six o'clock frequently!

Chris

[chandegard@peersonaudio.com](mailto:chandegard@peersonaudio.com).

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Are you thinking about converting some of your gear to 2.4GHz Spread Spectrum this season? Or perhaps you are looking at a brand new Spread Spectrum system, from the ground up. Either way, you certainly have some choices now!

I have been flying Futaba for many years now, and am very satisfied. Keep in mind that I have flown Kraft, Pro-Line, Ace R/C, EK Logictrol, JR and Futaba over the years. I have also flown Airtronics and Hitec/RCD equipment, but just not a complete system. I've had great success with all of them. It just shows you that the R/C manufacturers, both past and present, have worked hard to earn our trust with quality systems that are reliable and have proven themselves over the years.

Currently, I own the Futaba 6EXA 2.4GHz FASST system, a Futaba 9C (still on 72Mhz) and a Futaba 14MZ that I converted to 2.4GHz FASST Spread Spectrum. It continually amazes me how far we have come with our R/C technology.

A while back, I completed an Aeroworks YAK54 100CC ARF-QB, and installed the updated 14MZ. I put the equipment in a test model first, as I NEVER test fly equipment in a "good" airplane! I sure hope you do that as well. If not, you should look at purchasing a cheap "junker" model to use strictly for that purpose. Anyway, I put in a few flights in the test model, just to verify that all was working properly, and then I installed it into the YAK.

As I suspected, there were no surprises during the YAK test flights. The FASST system performed perfectly, and was able to move directly into the trimming stage, working to get the model trimmed out for aerobatics. It is really nice to fly an expensive aircraft using a

system that eliminates the possibility of being shot-down by another R/C pilot.

However, you have dollars invested in every one of your airplanes! While it is not a cheap proposition to convert your gear over, it may be some of the best hobby dollars you spend, if you are in an environment that puts your aircraft at risk of being shot-down. By that I mean if you fly when a lot of others are at the field, or attend events away from your home field, Spread Spectrum might be a smart choice for you. If it saves just one airplane, it would be worth it!

Many of you fly with your buddies at a time when you have the field mostly to yourselves. Going to SS might not give you any more peace of mind at all, and would in fact be a waste of money at this time because you don't have to worry about anyone shooting you down. Hey, don't spend it if you don't need to! With many modelers migrating to 2.4, most flying sites are finding that the pressure on 72 MHz channels is easing and you may find yourself as the only one at the field on your channel. Isn't having your own channel just about as good as SS? Pretty much, the only thing is you just don't know what the next guy that drives up is going to be on; perhaps your channel. You just have to be watchful. Remember, spread spectrum does not mean you won't ever have another radio failure or problem, it just means that you won't get interference from another modeler.

I am saying all this to say that going to Spread Spectrum is not a requirement, but it does have its advantages. You should think about your particular situation and when and who you fly with. Maybe you are not at much risk at all. Maybe you have a big risk. Before you spend your hard earned hobby dollars, give it some thought. 'Nuff said.

Recently, Hi-Tec has entered the 2.4GHz market, unveiling their new Aurora 9 system. I have taken a look inside the TX and have seen it in operation and it looks to be another great choice for the RC modeler. In fact, they are currently having some really great introductory sales with a free 2<sup>nd</sup> receiver and the option for a 3<sup>rd</sup> one at a very reduced price. It is really good to have another company out there, as they all will work to make their equipment better and have lower prices when companies have to battle each other for customers.

At the recent Toledo Trade Show, the XPS folks (Xtreme Power Systems) were selling a new micro 6 channel receiver for their equipment that featured very light weight, micro size and FULL RANGE, for only \$30! Now that's what I'm talking about! Really good equipment at very reasonable prices that we can all afford!

I am confident that these new items will create more innovative and inexpensive products for the modelers and that will benefit all of us! Keep up the great work manufacturers; we are taking note and will spend our dollars accordingly!

As I wrote this column, it was apparent to me that many people that are still flying on 72MHz are not sure how to do a good range check of the RC equipment. So...

#### RADIO RANGE CHECKING, revisited

I continue to get calls on how to properly do a range check. So, it is best to print this one again, I think!

The following procedure will work with any kind of 72 MHz R/C radio equipment commonly seen at flying sites today. First you need to assemble your model exactly the way you intend to fly it. I've seen people perform range checks before they install their wing, or before they hook up flying wires, struts, etc.

This is not a complete range check. Assemble everything just the way it will be when you fly.

Fully extend the transmitter antenna if necessary, and then collapse the antenna until only the section closest to the transmitter (the largest diameter portion) is exposed. Then turn on the transmitter, and then turn on the receiver in the model. Now back away from the model, with the airplane positioned perpendicular to your line of travel. In other words, if the model were to move forward, it would move to your left or right. Keep the bottom of the transmitter against your stomach as you walk away, while constantly moving the elevator or rudder control stick smoothly in both directions. Watch for any hesitation or jerky movement in the control surface, especially at a distance. If you find a dead spot while backing away, stop and test right there for a moment. You may find that by moving the antenna from side to side, the problem may come and go. Make a mark on the ground or leave a marker of some kind there, so you can come back to this spot later.

Then back away a few more steps and you'll likely regain control again. Keep backing away, stopping at any additional dead spots you may find, and marking each one as before. You may find that the controls begin to get twitchy at a certain point. If so, mark this point on the ground as well. Keep going until you can no longer control the servos in the airplane at all.

Once you reach the end of your range, mark that point too, and then start walking back toward the model until you regain control. Now, counting your steps as you go, walk back to the model. If you get 50 full steps of range (about 130' or so), you're in good shape, but this is the minimum range you should accept. If your range is any shorter than that, don't fly! The system is telling you that it's not happy at that distance, so listen to what it's saying, and find the problem before it kills an airplane! That is, after all, the purpose of a range check!

Now, if you noticed and marked some dead spots during your walk away from the model, go back and see what the distances were. The distance itself isn't too important, but knowing them will help a tech reproduce your problem. Such problems are usually caused by an out of tune receiver or transmitter combo, or poor receiver sensitivity inside the receiver. This isn't usually adjustable, and it often means that a critical component has lost some of its gain. This can be hard to track down sometimes, and some components that cause this aren't easily replaced. In the case of many of today's modern receivers, a bad SMT (surface-mount technology) component may not even be available, and may require replacing the receiver. But even that is cheaper than replacing an entire airplane.

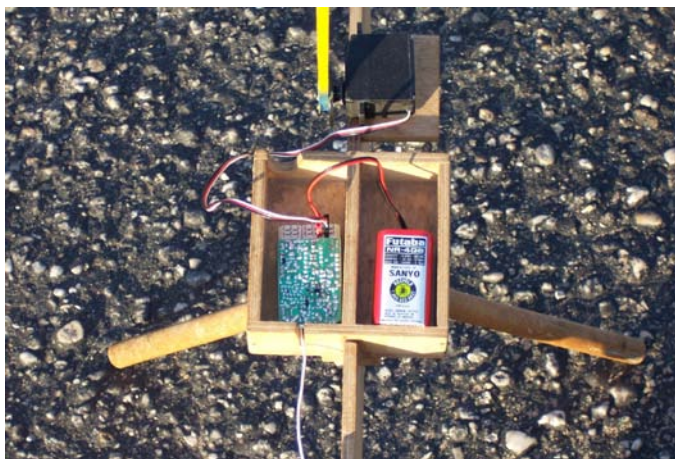
In some cases there are updates to receivers to increase or improve its sensitivity. Check with your service center about this before you decide to throw away a receiver that works poorly. The ultimate range check is to do the above checks with the engine running at a high idle while the model is safely restrained. A capable person holding the model will do, but it's best to use physical restriction device. First, a human body close to the receiver can affect the range check. Secondly, if the model suddenly does something totally unexpected, a person might be so surprised, they jump away or let go of the model. A simple but safe restriction device is not hard to devise, depending on your location.

It's also important to know that you shouldn't range check while other transmitters are on, even if they're not on your frequency. This will shorten your range check. If you're at a busy flying field you may not have a choice, but try to test while yours is the only transmitter turned on.

While reading the above, you have probably been saying to yourself (or to me); "I can't see the control surfaces when I walk away from the model, so how can I tell when they twitch or quit working?" One way is to attach something you can see from a distance. Try temporarily taping a 12-14" length of brightly colored paper or card board to the control surface. Since we don't have the customer's model here in the shop for making the ideal range check, we use a simple test fixture. All it amounts to is a model airplane silhouette cut from plywood. A small tray at the front of the fixture holds a servo, battery, and receiver.

At the tail, there's a clothespin glued in place, which is used to hold the end of the receiver antenna. The servo has a balsa pointer attached to the servo output wheel or arm. The pointer is painted bright yellow to allow easy visibility during the range check. Photo 1 shows my "Bootlegger II" test fixture. I built this back in the late 70's when I was flying a Bootlegger pattern plane designed by Steve Helms, a top man with Futaba who now lives in Huntsville, AL, where he expertly flies R/C helicopters.





The outline looks much like a P-51, but the shape is not important. Photo 2 shows the tray

area with a receiver and battery in place. The canopy area is actually a carrying handle! The wear and tear on this unit reveals the literally thousands of range tests this device has seen over the years. It makes range testing a breeze. You might want to make something like this yourself, but keep in mind, that the best way to range check a radio is to do it while the radio is installed in the model in which it will be flown.

Tony Stillman

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Well hello everyone! I'll admit that I messed up last month, so I had no column. I'll try to make up for it this month. I am going to look at some additions for our plane hauler for those long distance events this spring and summer. Let's look at the average two or three day SEFF type fly-in event.

Here is the scenario: on a beautiful spring day in Tennessee, I spend the early morning driving the two hours to an electric Fun Fly event. I arrive to find twenty to thirty pilots just starting the day and enjoying flying. I jump from my full size Chevy Express 2500 and throw open the rear doors and grab a plane and get to the flight line. Throughout the day I retrieve several more planes and continuously recharge LiPo packs from the battery under the hood of the Express. As the day wears on, we plan for dinner at a local Chinese restaurant and then come back to the field for some night flying, or so I thought. I jump into the van and turn the key, and NOTHING! Yup, One dead battery! Well considering this is not the first time this has happened; I always have a jumpstarting box of some sort on hand. I get the van going and off to dinner, but now I am pondering..."How can I prevent this from EVER happening again, in theory?"

First, the easiest thing to look at is a secondary battery in the van. Well, that's easy enough to do with a large deep cycle marine battery in the rear of the van; strapped down in a plastic box to prevent spills. Now this is defiantly a very good option, but there is still a problem. Generally a 110Amp hour deep cycle marine battery is still only good for about four or five charge cycles on



my 10 or 12 cell LiPo batteries. Now I have a dead secondary battery and I am back to using the main battery on the van to be able to "play" for the next few hours. We need to find a better solution for the second battery. Having a second battery is a good option for smaller airplanes, but with what I'm flying these days; I need a larger option. I have several good friends that carry the Honda 1000 watt inverter type generators with them. They tell me that generators are a good option because you can always run 110 V into a good clean power support to keep your batteries charged. I would rather not carry a generator unless I absolutely have to do so. My idea is to look towards the RV companies that have been doing this for years and to try to reinvent the wheel.

RV's and travel trailers and motor homes normally have at least two batteries and sometimes as many as four. These batteries are all ganged together with varying types of battery isolators. First, I am on the lookout is very simple dual battery set up. For optimal efficiency with multiple batteries, that will see different varying loads, we

need to make sure we can keep the second battery charged without drawing down the primary battery. A battery isolator circuit is basically a one-way diode that allows current flow into the secondary battery as the vehicles alternator. When the vehicle is not running, the first battery is disconnected from second battery via an open diode. The charging of the batteries and circuit dependent upon the alternator in the vehicle. An alternator generally puts out approximately 13.8V to 14.4 V into the electrical system of the vehicle. This increase in voltage is what gives us our charging of the batteries. While the vehicle is running the primary vehicle battery sees the higher voltage of the alternator. This higher voltage on the primary

battery side causes the diode to close in a battery isolator which then allows charge voltage to proceed to the secondary battery in the system. Battery isolator circuits can come in dual, triple and quadruple battery systems that allow you nearly unlimited 12 V power sources.

Okay, so now we have the idea that we want to use a battery isolator of some sort. Looking on the internet, in general local RV shop there are several battery isolators out there. I decided on a Sunforce 150 amp microprocessor controlled battery isolators circuit. This battery isolator is small, compact and will run you about \$40 ordered from Amazon.com. ([Sunforce 150Amp Dual](#)

[Battery Isolator](#)) This Sunforce battery isolator will allow maximum of 150 amps throughput from the main battery to the secondary battery for charging purposes. I chose the Sunforce because it has one other feature that I find handy. In the event of the primary battery being dead due to leaving headlights on, doors open radio on whatever be the case; there is an override button on the processor itself. This override button temporarily joins your main battery and your auxiliary battery so the vehicle can be started.





Let's look at what we need to install this isolator in my van and run the necessary wiring. I plan on placing my secondary battery in the rear of the van for easy access; making it bit more difficult to setup the wiring. The Sunforce isolator is small enough to mount under the hood of the van, but it is a very tight fit. Due to the tight fit, I will put the isolator in the rear of the van along with a backup battery. Therefore the cabling will need to run under the van to the rear where the isolator and 110Ar deep cycle battery will mount. We need to run a positive cable from the main battery positive terminal to the secondary battery positive terminal. Now for the question of what size wire do we run between the primary battery and a secondary battery? If we were fairly sure that the secondary battery will never be drawn down to completely

dead condition; we can use a wire in the 10 gauge size or so. In my case I'm very sure that I will draw the battery down to completely dead, condition more than once, so I'm going to use a 4 or 6 gauge wire. Having this larger wire size will be helpful should I need to use either one of the batteries as a jumpstarting battery. The larger wire between the two batteries the more easily it can flow current, due to decreased resistance. Now we have a plan, so let's get to the actual installation.

The isolator comes with a couple of mounting brackets, but in my case; I simply mount it to the rear wall of the van. Two screws will be very sufficient. An isolator needs a chassis ground as it has a short wire attached to it. I drill a small hole in the plastic surrounding it; aiming for a doorframe screw in order for the isolator to be



grounded. I connect the 4 gauge wire that I ran from the main battery to the isolator via 80 amp blade fuse.



My secondary battery gets installed in the battery box, and strapped down to the floor in the rear the van. I used a battery box to contain the battery, but I chose not to bolt it down; just a good tarp strap to hold it down. I don't like bolting the battery box down because should the battery leak, the acid could leak out into the van. Now, we need to run a ground wire from the secondary battery to the chassis of the van. Finally, we run a positive wire to the auxiliary side of the battery isolator and were finished - sort of!

My local ham radio shop is a deal for West Mountain Radio equipment, so I picked up a power panel and some connectors to be used as a "rinky chinks" to add to my secondary power system. The [West Mountain Radio RIGrunner 4005](#) is a five



port 40 AMP power pole bus system that allows up to five 12 volt ports for chargers, lights and accessories. I just attached the six foot 10 gauge power cord to the secondary battery, and some double stick tape holds it to the side of the battery box. Now there is just one more thing to add to my power system.

As my primary charging device I use the secondary deep cycle battery as a power source for my 750 watt inverter. I then plug in a server PC power supply into the inverter to produce clean 12 volt DC power. When I charge my large packs, I like to keep a balanced even voltage to my chargers. A clean, steady input voltage means the charger has to do less regulating while charging the batteries.



the less regulating that a battery charger has to do the more balanced they are while charging the batteries and less heat buildup in the charger itself. Having the inverter will also allow me to run a extension cord from the rear the vehicle to the actual charging area in the pits.

Okay, so what have we accomplished today. Now I can go to the field and fly as long as my secondary battery has enough capacity to run my inverter for charging. Like I said before though, even with this high capacity deep cell battery I can only charge my 10 cell 5000mAr packs about 4 times. So after I charge for the fourth time I will have to start the van to allow the battery isolator to close the diode and charge the secondary battery. Now that is necessarily ideal, since I am burning gas to charge my second battery, but at least I don't have to move my inverter to the main van battery to be able to charge. Just a simple turn of the key and I am back in business. Now let's look at the other scenario I mentioned earlier.

I have been at an electric fun fly all day long with the radio in the van on and having a good old time. At the end of the day I realize that the main battery on the van is depleted to the point that the big Chevy 2500 will not start. Just a simple push of the button on the Sunforce Battery isolator, and the secondary battery and the main van battery temporarily bridge together, and the 4 gauge

wire that runs from the rear of the van allows the van to be started by drawing from both batteries. Now that problem is solved. There is still one potential problem that I haven't addressed yet. What if BOTH batteries are completely dead!

Well, I have a solution for two dead vehicle batteries, but it requires a little open-mindedness and an old four or five cell LiPo with about a 3000mAh rating or so. Simply keep a three or four cell pack charged at all times as emergency backup. (I prefer a four cell pack.) It can be a new pack, but an old pack that just doesn't perform well in an airplane works very well as a backup! Just make up an adapter to go from your LiPo battery connector to a fairly heavy duty set of battery clamps. In the event of a completely dead battery, just plug in your backup LiPo to the adapter and connect the dead vehicle battery. The higher voltage of the LiPo will charge the vehicle battery, BUT we need to be careful here. The LiPo can flow large amounts of current during this charging, so I recommend only allowing the LiPo to be plugged

into the vehicle for a few minutes at a time. Then unplug the LiPo and feel for heat. Wait another two minutes and then repeat the process. Depending on the state of your vehicle battery, whether you use a three or four pack, this usually only takes about 10 to 30 minutes, and you should be able to start your vehicle. Let's have a look.

As a demonstration I have my old deep cell battery on the bench. I have the aforementioned adapter connected to the battery. For demonstration purposes I have a watt meter in line with deep cycle battery and the LiPo pack.

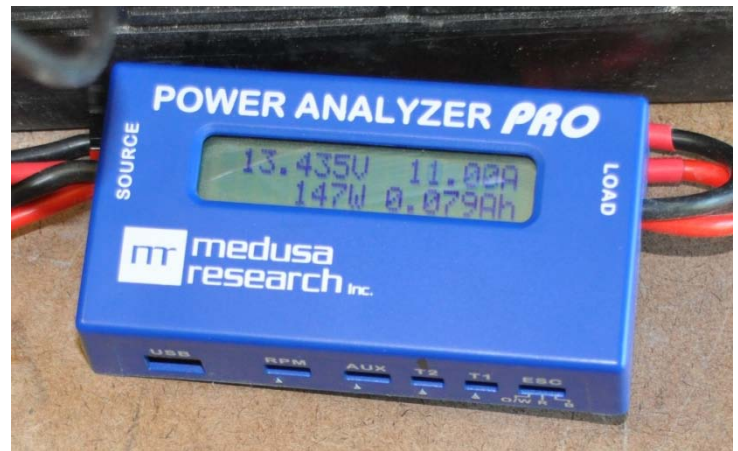


Now we can look at the voltage of the dead deep cycle battery, and see what we have for a starting point. Before charging the watt meter reads a 11.90 volts on the deep cycle battery. When I plug in the four cell 2100 mAh LiPo the voltage jumps up and the amps and watts are shown on the meter.



### Charging started

Initially, we see 16.52 amps from the four cell LiPo. This is a 20C 2100mAh pack that can sustain a discharge rate of 42 amps continuously, so there is little possibility of damage to the LiPo. After two minutes, the charge rate has dropped considerably, as the battery voltage is higher.



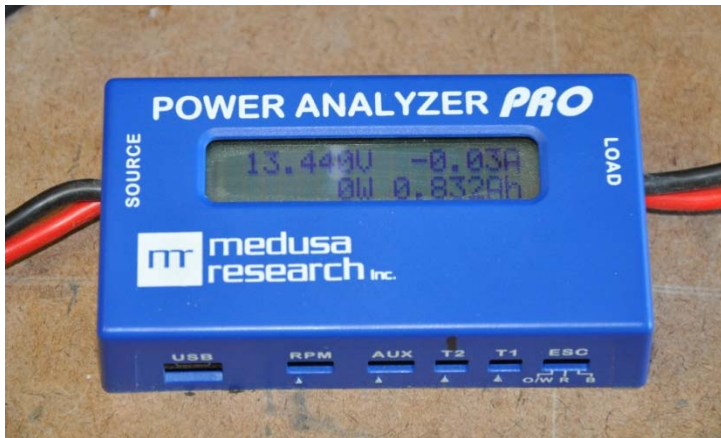
### Two minutes into charging.

After just a five minute charge cycle, the battery voltage is up to 14.3 volts. The LiPo is still delivering 5.03 amps to the deep cycle battery, and the LiPo is only slightly warm to the touch at 95 degrees. I unplug the LiPo now and allow the deep

cycle battery to rest for five minutes to allow the voltage to stabilize.



**Five minutes into charge cycle, just prior to disconnect**



**Two minutes after disconnection as the voltage stabilizes.**



**Five minutes after charging, voltage stabilized**

Now, we have charged the deep cycle battery up, right? Wrong. We have partially

charged the battery, but not completely. This process is not intended to be a full charge solution for your vehicle battery. It is just intended to be a stop gap measure to get your vehicle started again. The time for these charge cycles are for demonstration purposes. If I were dealing with a completely dead battery, I would plug it in this four cell battery as I did in the demonstration. I would then probably wait at least 10 minutes for the battery to charge. More than likely, after a 10 minute charge cycle the 2100 mAh pack would have equalized with the vehicle battery and a voltage somewhere in the neighborhood of 13 volts. Well, now that we have this emergency charging sequence completed; I think I will call it a month.

I would like to thank the folks in Toledo for taking the time to come by and see myself, Dick Pettit and Gary Webb while we were there. The Toledo show was a success again this year, with vendor and spectator participation up considerably over last year. There were dozens and dozens of competition planes on display for varying awards, and it was great to see. We are looking forward to this year with site improvements and many review products to come. Continue to read RC Report Online and tell your friends and club members!

*Until next month*

*Make sure to keep the voltage up*

*and the smoking in!*

Tony Coberly

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

Well, it looks like summer is coming regardless of how I feel about it. I long for the sweet days of spring and the relaxing days of fall. I recall a poem that spoke of summer being too proud. Any of you know that one?

I want to take a moment to wish all the mothers out there a Happy Mother's Day this year! Fellas, take a minute and show some appreciation for the women in your life. They deserve it!

There is another special lady that I would like to acknowledge this month, who is not a birth mother, but holds a special place in our family. I am speaking of my great aunt Marie. She will be celebrating her 87th birthday on May 9. Many of you will never hear the whole story, but she played a very important part in the birth of RC Report Online. Dare I tell you, without her; this magazine would not exist today. Happy Birthday, Aunt Rhee! We love you!

Here we go; looking ahead to June! Don't forget, for information on events in May; check out the flyers near the end of this issue!

On June 5&6, 2010 visit Chino, CA for the 4th Annual Scale Squadron Scale Fly In at PVMAC Flying Field. Contact Randy Wilbur for information at 949-683-9662 or [rwilbur@videotecheng.com](mailto:rwilbur@videotecheng.com). All scale or stand-off scale aircraft are invited, including sport scale, built up, ARF's, kits, electric, glow, gas, EDF Jets. Prizes, awards, food on site, overnight parking, no hookups.



If you happen to be in North Carolina on Saturday, June 5, consider attending the Southern Air RC Spring Fly In at Gaskins Field. Michael Zaytoun is the guy to contact at 252-229-9161 or [michael@zaytouncustomscabinets.com](mailto:michael@zaytouncustomscabinets.com). Pilot registration is \$10, and the pilot meeting is at 9AM. The field has a 100'x600' beautiful grass runway and plenty of parking w /primitive camping. There will be great food, plenty of prizes, and all size airplanes are welcome.

I've heard that New Mexico is nice time of year. How about this during the same weekend? The Blue Skies ver New Mexico Hand Launch Glider Challenge will be held at Gardner Turf Farms. Bruce Twining is the CD and can be reached at 505-797-9261 or [bgtwining@comcast.net](mailto:bgtwining@comcast.net). Visit [www.soarabq.org](http://www.soarabq.org). 10+ rounds plus fly off rounds according to F3K rules, flying, food, fun, camping permitted.



**This month in US aviation history:**

**On May 19, 1943 in Kiel, Germany the Memphis Belle flew the 25th and last mission. Robert K. Morgan and his crew became the first bombing crew to survive 25 bombing missions over German strong holds in World War II. Morgan and his crew flew the Boeing B17F flying fortress serial number 41-24485, 324th Bomb squadron, 91st bomb group. 21 of 25 missions were flown the Memphis Belle, including 25th and final mission. The Memphis Belle was flown back to the United States on June 8, 1943 by Morgan's crew in support of the war bonds effort.**

Hope you all enjoyed this month's history lesson. Dad added this to my column. He thought it was fitting. You know? The Memphis Belle mentioned in the Huntsville Belle's column! He's such a funny guy. Before my time, the family visited Memphis and actually had the opportunity to see the Memphis Belle up close. It was on display on Mud Island several years ago.

The 15th Fly Over Niagara Remote Control Air show will be held on June 12 – 13, 2010, from 10AM until 4PM in Lewiston, NY, the Northern suburb of Niagara Falls. Both fuel and electric power are welcome. Of course,

AMA membership is necessary to fly. Trainers will be available for those interested to fly with an instructor and a "buddy box." The contact person for this event is Charlie Incorvaia and can be reached at 716-837-6128 or [lazyace1@verizon.net](mailto:lazyace1@verizon.net).

Don't miss this! On June 11-13, 2010, in St Louis, MO; check out the Gateway Jet Rally. Philip Westrich is the man with the plan and can be contacted at 314-846-4905 or [pwestrc@sbcglobal.net](mailto:pwestrc@sbcglobal.net). Visit [www.slrcfa.com](http://www.slrcfa.com) for more information. The field features a 600'x42' blacktop runway w/100' run off at each end. Fly over 1300 acres of soybean, blacktop

pit walkway on each side of 42'x24' pavilion. Overnight camping, and RV's welcome and concessions will be available all three days. Landing fee is \$30.

Maybe, I'll take a trip up to Vermont for the Green Mountain 3-D Fest at the Green Mountain Race Track. Albert Kanser is the CD. Contact him at 607-293-7924 or [akanser@hughes.net](mailto:akanser@hughes.net). Bring your giant scale legal aerobatic RC aircraft. A Saturday dinner is offered with a live band and entertainment. \$10 registration fee. For additional information contact Chris Yerdon at 518-280-1788 or [usair762@yahoo.com](mailto:usair762@yahoo.com) or Scott Lyons at 802-477-1687.

On June 10-13, you can attend WyMoPa's 8th Fly In in Riverton, WY. Richard Hardt can be reached at 307-851-0505 or [richhardt@aol.com](mailto:richhardt@aol.com). visit [www.wyomingmodelerspark.com](http://www.wyomingmodelerspark.com) for more information!

Father's Day weekend is up next! The following events caught my eye for some fun and entertainment.

The Fond du Lac Fun Fly will be held on June 19, at N4841 Hickory Road in Fond du Lac, WI. David Elsinger is the CD and can be reached at 920-926-0551 or [ess@fasatbytes.com](mailto:ess@fasatbytes.com). The field boasts 1314' of smooth grass runway. Food and soft drinks served and primitive camping is available.

The 27th Annual Platt I Float Fly will be held at the Platt I Reservoir in Sutherlin, OR on June 16-20, 2010. David Olson can be contacted at 541-580-0011 or [dolson3265@msn.com](mailto:dolson3265@msn.com). Open flying all days and dry camping available.

On the East Coast that weekend; specifically Butler, PA? Check out the Annual BAMS Fly for Fun on June 19. John Vogel is the CD, and can be reached at 724-444-6464. Shelter, food, and restrooms are on site. Fly what you bring, have fun.

While you are in the area, well, sort of, visit Harrisonburg, VA on June 25 & 26, 2010 for the 26th Annual Ray Gordon Memorial Jumbo Fly In. Phillip Speicher is the CD. Contact him at 540-335-5328 or [pcs4@shentel.net](mailto:pcs4@shentel.net). Visit [www.vrcfc.org](http://www.vrcfc.org) for more information. \$15 landing fee. Registration is at 0800 and flying begins at 0900. No channel 35, please. Concessions, TV coverage, vendors welcome, no hookup camping, motel at field are all available.

On June 26 & 27, in Crown Point, IN, you can enjoy a Float Fly at the Fairgrounds. Ronald Parent is the go to guy and can be reached at 219-365-8053 or [ronaldparent@sbcglobal.net](mailto:ronaldparent@sbcglobal.net). Visit [www.aeromodelers.net](http://www.aeromodelers.net).

During the same weekend, in Empire, MI, stop by the Empire Airport for some fun! Contact Stanley Hyman, CD, at 231-941-0022 or [as426@tcnet.org](mailto:as426@tcnet.org). Visit [www.traversmodelpilots.com](http://www.traversmodelpilots.com). Open flying both days, with a paved runway. Dinner will be served Saturday night.

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 May 2010 Pet of the Month, Schatzie from Dedham, Massachusetts!



**Eleven week old retriever puppy greets something new, loose powder snow, with typical retriever reluctance and circumspection!**

Her dad tells me that she really is a girlie girl, no matter how this picture looks!

Schatzie and her dad, Edward Watts, 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 \$20 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. Each month a pet will be selected from all entries received by the 15th of the current month and any previous months. 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. 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!

Well, until next month,

Isabelle

Hello, once again all you “Scale Guys”! As I write this, Toledo is only two weeks away, and by the time you read this it will be over and all of you will be out breaking-in those new motors, and getting in your first flights of your new projects. (Hint-hint; send photos and videos of your flights to share with the rest of us “Scale Guys” Okay?). Now is the time to practice your routine for the coming contest season, if you plan to compete. Top Gun is just around the corner. Of course, all those guys in the South cheat and have been practicing all winter long...hehehehe. *(No way! We’ve had snow a couple of times! Julia)* I’ll get some hate mail for sure with that one, huh?

As I promised last month, this month’s column will be dedicated to finishing up Robert’s Japanese A6M2-N Rufe.

First things first, Robert needed to fill that big hole in the front of the cowling with a simulated radial engine. Photo one is of the molded engine from Tiano Enterprises. He first removes all the flash, then painted it aluminum and painted the crankcase grey. Then, he added the pushrods and installed it into the cowling making sure that it was centered on the real engines crankshaft. Don’t you just hate it when after you install the simulated radial, and then reinstall the cowling over the engine to find it’s off center? Oh, I guess that only happens to me sometimes.



Photo 1: Simulated radial engine molding from F.T.E. just after basic paint



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Photo 2 shows the completed simulated radial engine installed in the cowling with that scale looking three bladed prop and spinner. Really creates the illusion, doesn't it?



**Photo 2: Close-up view of the simulated radial engine installed in the cowling of the Rufe after completion.**

Photo 3 shows the custom made muffler for Robert's engine built by J-Tec mufflers. This will allow the exhaust to exit in a scale manner through the bottom of the fuselage. Look for a column on how the process of creating a mock up and then having it turn it into a scale muffler for your scale exhaust very soon.



**Photo 3: The custom made muffler for the Rufe project built by J-Tec mufflers to Robert's specs.**

Next, we had to make that beautiful model look real by weathering it. The first thing we did was attack the entire model with red scotch bright pads. This scratches the surface, and dulls it to give the appearance of age. We rubbed the fuselage from the top to bottom and the wings and stabs from leading edge to trailing edge. If you look at an aircraft that has been left out in the weather, you will notice it does weather from top to bottom as rain and wind forces work on the fuselage, and the wings and horizontal tail surfaces wear from leading edge to trailing edge due to the leading edges get more wear in flight. You only need a light touch of the pads to get the effect. This aircraft was flown off water, and was brought into shallow water which would cause sand and saltwater to be blown all over the front and sides of the fuselage, causing the floats to chip and wearing the paint off to bare metal; in this case bare aluminum. We then proceeded to use a technique taught by the master of weathering, Mr. Dave Platt. We used the Silver Leaf paint made by Rub 'n Buff, acquired at a local art supply store to simulate the bare metal, Photo 4.



**Photo 4: Silver leaf paint made by Rub'n Buff, purchased at a local art dealer used to create the look of bare aluminum in the weathering process.**

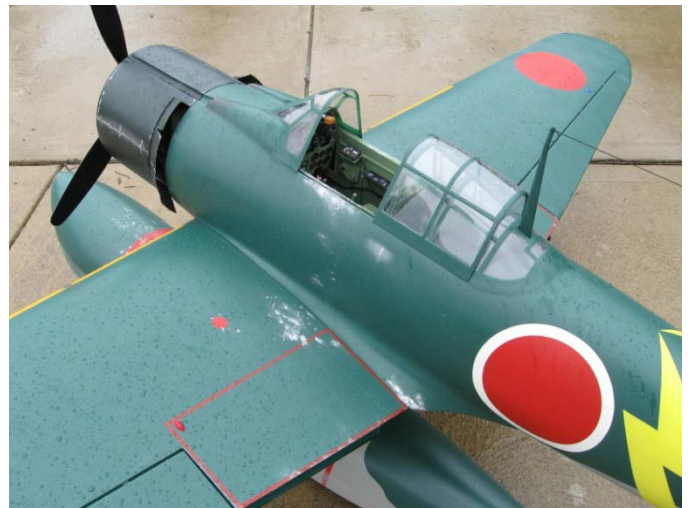
We used small paint brushes and toothpicks to apply the Silver leaf to simulate chipped and worn away paint from foot traffic, blowing sea water and sand on the leading edge surfaces of the aircraft including the outer wing floats. The nice thing about the Silver leaf is that it can be removed by rubbing it if you do not like what you see. Also, you will see the wear on the bottom of the floats from take offs and landings and sliding against the sandy beach when taxing in and out of port. You can see this very plainly in Photo 5.



**Photo 5:** Denotes weathering using an off white wash to simulate oxidation of the dark paint colors, also the staining of the paint due to salt spray and drainage off the leading edge of the wing onto the main float. Also note the chipped paint to bare metal that can also be seen.

Also note the chipped paint on top of the main float in line with the prop arc due to debris being pelted against the top of the float from the prop wash. Also note the wear on the pilot entry side of the fuselage that can be seen in Photo 6 due to the pilot and maintenance crew getting in and out of the airplane. By rubbing the Silver leaf with a dry cloth you can feather the edges. Side note: these last photographs were taken in a light mist. When I went down to photograph the finished aircraft, a light drizzle came up and I felt that having some scale rain on the plane would enhance the effect of a sea plane setting

out in the weather, so that is why the water droplets are on the plane. Who said there isn't a God? Anyhow, where was I? Oh yeah, after we finished with the Silver leaf, it was time to simulate oxidation of the top Green and Grey paint from setting out in the elements. Japanese paints were notorious for oxidizing very quickly when exposed to the elements. I mixed up a batch of white wash paint, using Testors water based acrylics. Remember this plane was finished with War Bird water based paints. I mixed white with small amounts of brown, yellow and black to give me the effect I was looking for. This is then thinned down with water to make it go on very light. I then, use my trusty Testors air brush, holding it about a foot and a half away from the surface. I mist the wash over the top surfaces until I had the desired effect. If you do not like it, just wash it off with water and start over. The secret is using a light colored wash on dark colors and a dark wash over light colors. Also, in the close up of Photo 6 you can see how I applied the wash to simulate the spray from the prop along the sides of the fuselage and also the runoff from the leading edge down onto the main float.



**Photo 6:** Here we can see the wear on the paint due to foot traffic and climbing in and out of the cockpit. Also notice the scale antenna wire.

This was also done on the wing floats and the leading edge of the horizontal stab, and at the back of the main float. You can see this on the wing float in photo 7.



**Photo 7:** The paint chipping can be seen along the leading edge and on the wings outer float along with the float support. Also note faint paint stain of saltwater across the front of the float from spilling off the leading edge of the wing.

The main float still needed a water line from the salt water staining the sides of the float as it sat in the water, as you see on any boat that sits in water for a long time. I then sprayed the wash along the sides of the float while Robert held a long piece of cardboard cut with an irregular line approximately a quarter inch from the surface to give it a fuzzy line. I then added more brown to the mix to create the effect at the very edge of the top of the water line which is slightly darker. Robert then held the cardboard again up to the side of the float, and I lightly sprayed the darker mix just to the top of the line.

After that, I added the gun powder burns around the gun ports both in the cowl and the leading edge of the wings as seen in photo 8.



**Photo 8:** Here you can see the powder burns from both the cowl mounted machine guns and the two wing canons. Don't overdo. Also note paint chipping along the horizontal stab.

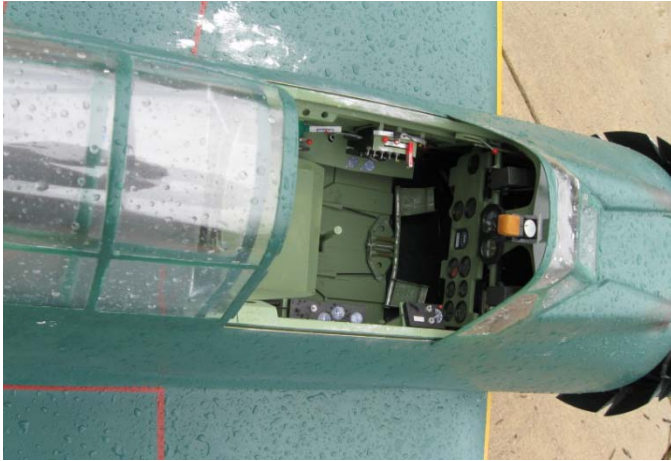
Remember powder burns are not black, but a dark grayish brown color. I mixed a batch of this a few years ago in a jar and have been using it for many projects calling for powder burns around guns on a few of my friends' and my own aircraft. I really enjoy the weathering, and the use of the air brush to help create the illusion of weathering. We also added some flak damage to the left wing as seen in photo 9.



**Photo 9:** Here we can see the effects of wing damage due to shrapnel from a flak burst on the left wing. Note irregular holes and powder

burns. Also note streaks in weathering across the wing from leading edge to trailing edge.

These planes were used to attack allied airfields on the islands, and we thought this might add a neat touch. What do you think? Take a look after all the weathering was done, which included the cockpit; photo10.



**Photo 10: Cockpit weathering is apparent here. Rub 'n Buff used on controls, pedals and along top edges of cockpit.**

Notice the wear on the rudder pedals, hand controls, and along with wear on the side rails of the cockpit. After that, Robert sprayed the entire model with a light coat of flat water based polyurethane clear to seal in all the details and protect the surface. Photo 11 is a photograph of the finished model.



**Photo 11: Here we see finished the model with flat clear coat applied. Notice the waterline stain**

**on main float and overall appearance of wear and tear of an aircraft that has seen battle.**

Notice the scale antenna and antenna wire. Also see how the fabric covered rudder is slightly weathered more than the metal painted vertical stab. Some of you will be able to see his model on display at Toledo this year, and I have also added the last photo; Photo 12 of the plane with the proud builder and owner Robert Ball.



**Photo 12: Proud builder and plane together at the finish of a great project. Congratulations!**

This again was Roberts first attempt at doing a truly detailed, scale model incorporating all the surface detail and weathering, along with designing the float system and modifying the Ziroli kit to match the A6M2-N Rufe. I can't wait to see his next project, which happens to be a huge multi-engined sea plane. He plans on incorporating electric motors into this project! That's all I'm going to tell you now. I look forward to seeing Robert's Zero lifting off the water for the first time sometime this summer. Stay tuned!!!

If you have any questions or comments on any of the methods Robert used on completing his model please forward your questions to me and I will relay them to Robert.

Fair Winds and blue skies my "Scale Guy" friends,

Gary Webb

gcwent@woh.rr.com

## WEAK SIGNALS: TOLEDO ☺ 2010

By: Dick Pettit

Following an “interesting” trip from home to Toledo, Ohio, I settled down for a pleasant journey around the displays and manufacturers’ booths at the 2010 Toledo Weak Signals Expo. I began by cruising around to see who was there, and who was not there. I can honestly say that there were more new vendors there than last year and only a few of the ones that have attended in years past were absent this year. I also think that attendance was up a bit over last year, probably due to the slightly brighter economic forecasts. Also, the weather was really nice!

My purpose for writing this article is *not* to show you all the new stuff, all the “best” stuff or even the prettiest stuff at the Expo. It is only a collection of what I saw, and what caught my eye at that particular time. If I have missed something that you particularly wanted to read about; I apologize. In addition, I offer the following recommendation: maybe next year we can attend the 2011 Toledo Expo together and you can get a look at everything firsthand.

As I started to “cruise” around the show floor on Friday morning, I came upon this beautiful ARF version of the Howard DGA-12 sitting in the Kangke booth. I had heard about this particular model almost a year ago. Due to production and shipping problems, the kit has only just become available here. The Howard, seen in **PHOTO 1**, has a 95” wingspan. It can be powered by a 1.6 to 2.4 gas engine, or can be converted to electric power. The finished weight will be in the 16 to 17 pound range. It is available from Kangke for about \$450.00, plus shipping.



Photo 1: Kangke Howard DGA-12 ¼ scale ARF

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I am always interested in small useful items that are simple to assemble and operate. I saw just that at the Top Notch Models booth. Do your fuselage interiors look like mine with hoses and wires twisting and turning from front to rear? Well, this is just the thing for both of us. It's called the Cable Guide (**PHOTO 2**) and it consists of laser cut plywood parts that assemble into 10 notched parts to hold servo leads, retract hoses and just about any other item in your airplane.

Once each guide is assembled, a simple paper clip is used to keep all the wires in place, making them easily removable. The set of 10 will cost you about \$5.00, but you'll have enough for several planes.



**Photo 2: Cable Guide laser cut parts from Top Notch Models**

Also at the Top Notch Models booth was this beautiful Mooney Mite, seen in **PHOTO 3**, which will be available in laser cut kit form. It needs something in the 90 four cycle range engine, or is perfect for electric power. It has facilities for retracts and will be available soon.



**Photo 3: Mooney kit from Top Notch Models**

My good friends at Balsa USA had a real surprise for both myself and a number of long-time Balsa USA kit builders. They are re-releasing the popular Fly Baby Biplane in 1/3 scale, seen in **PHOTO 4**, after making some much needed updates to the instructions. It will have a wingspan of 88" and can be powered by an engine in the 35 to 62cc range. Projected weight will be in the mid-20 pound range. It will be available later this year for about \$350.00.



**Photo 4: Balsa USA 1/3 scale Fly Baby Biplane to be released later this year**

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**Photo 5: WWI fighter in 1/6 scale from Balsa USA**

Also from Balsa USA, are these neat little 1/6 scale WWI kits (**PHOTOS 5 and 6**) that are perfect for small glow engines or electric power. They have wingspans in the mid-50" range and the kits are available right now for about \$150.00.



**Photo 6: 1/6 scale Sopwith Pup kit from Balsa USA**

It seems that every year, Nick Zirolì has drawn up a brand new set of plans and has built a prototype of that model for the Toledo Show. This year he has done up a beautiful Spitfire MK1 thru MK5 as a plan set and accessories. Seen in **PHOTO 7**, the Spitfire is only finished in clear to show the quality of the completed model. Cowl, retracts, canopy and other scale parts are also available from Nick Zirolì Plans.



**Photo 7: Spitfire MK1-5 from Nick Zirolì Plans**

Aero Works always has a few new ARFs on the Toledo show floor and this year they have two of them. The beautiful P-51 Mustang, seen in **PHOTO 8**, is an extremely complete model, with retracts installed, control surfaces hinged and just about everything else that is needed included in the box; except for an motor and some radio equipment.



**Photo 8: Aero Works P-51 Mustang ARF with LOTS of extras**

The 86" span also has a sliding canopy, a retractable tail wheel, inner and outer gear doors and bomb drop mechanisms included in the kit. It sells for about \$1850.00, but it is well worth the price; considering all the pieces and parts that you would normally have to purchase and install already supplied.

Next to the P-51 is this neat ARF of a Cub Sport S2 (**Photo 9**) that is a scale model of a homebuilt version of a Piper J-3 Cub. The Sport Cub has a 110" wingspan and has provisions for a canister equipped 50cc engine. It sells for about \$900.00 and is one of Aero Works QB (Quick Build) series of models and is very complete.



**Photo 9: Sport Cub S2 ASRF from Aero Works**



**Photo 10: KMP 90" L-4 Grasshopper with really big rocket tubes**

The folks at Kondor Model Products always bring several new models to Toledo and this year is no different. The 1/5 scale Piper L-4 Grasshopper, seen in **PHOTO 10**, has a 90" wingspan, can be powered by a 20cc gas engine and is dressed up in Vietnam era military decorations, complete with some huge rocket

tubes. It sells for about \$450.00 and will be available soon.

Another warbird at the KMP booth was this beautiful T-28C (**PHOTO 11**) with an 81" wingspan and designed to be powered by a 45cc gas engine. This particular model had a powerful Saito 450 three cylinder radial "under the hood, and it fits the cowl perfectly. The plane can be equipped with retracts from KMP and it all will be available shortly. The ARF alone costs about \$600.00.



**Photo 11: T-28C ARF from KMP**



**Photo 12: 1/4 scale 100" span WACO YKS-6 Cabin biplane from Hobby Lobby**

Just down the aisle, were the very large Hobby Lobby tables. This year they had expanded across the aisle with even more items. One of

them was this beautiful ¼ scale WACO YKS-6 cabin biplane (**PHOTO 12**) that is one of the popular PILOT-1 kits. It has a 100” wingspan, is designed for electric power; but can be powered by a 45cc gas engine. The registration numbers (NC16512) match with a full scale YKS-6 that is in Germany, and painted exactly like the model. The WACO sells for about \$900.00, but expect to pay a substantial delivery charge since it is shipped in two HUGE shipping boxes.



**Photo 13: Ontario Adhesives display with Super Phatic glue**

A while back, I wrote an article about a new adhesive product known as Super-Phatic, and I have received many questions and even more positive comments about this adhesive product. The Ontario Adhesives booth (**PHOTO 13**) attracted a lot of attention, including mine. I spoke with the folks about my article. They then said they have a brand new adhesive product called EZE-KOTE, seen in **PHOTO 14**, which is a water based product that can be used to attach fiberglass cloth to solid wooden structures. It replaces epoxy and resin products. It's odorless and is easy to sand, once dry, in about 20 minutes. I watched a short demonstration of EZE-KOTE and I liked what I saw. For more information, contact Ontario Adhesives directly.



**Photo 14: EZE-Kote adhesive, water based to attach glass cloth to wood structure**



**Photo 15: SIG Four Star 20 kit for electric or optional glow power**

My good friends at SIG Manufacturing have made available an even smaller version of the popular Four Star planes. This one, called the Four Star 20 EP, is seen in **PHOTO 15**. It has a 48” wingspan, all the style of the larger our Star models and according to **PHOTO 16**, it can also be flown with glow power. Turnabout is fair play. No price was listed, but it'll be on the SIG site really soon.



**Photo 16: See how far we've come? An electric plane with facilities for glow power.**

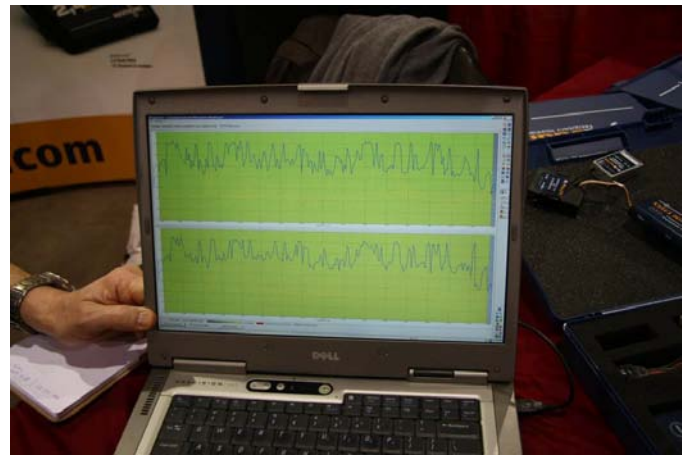
Spread Spectrum radio systems have become the standard equipment for just about all the pilots I know, and it seems like new ones are being developed with even more features. This is true for the 2.4 Dual FHSS system from Weatronic, seen in **PHOTO 17**.



**Photo 17: Weatronic Spread Spectrum with many advanced features**

The system uses its own technology and programming for Spread Spectrum while adding things like being able to control 8 servos individually from one receiver output. Additional features include the ability to program each receiver output to whatever you want it to be as far as direction, speed and curve programming. You can sequence several servos used on one single channel (great for gear doors!), and it can handle LiPo, NiMh or A123 battery technology.

Another feature is a real time transmitter monitor that listens to the radio signals at the flying field and displays them on a lap top screen, as seen in **PHOTO 18**. If you are at a new flying location, and wish to see how “noisy” the conditions are, the transmitter module will take a look and show you exactly what is happening. Remember that microwave ovens, some garage door openers and many other industrial machines transmit signals on 2.4 GHZ. Check with Weatronic directly for prices and more information.



**Photo 18: Laptop view of radio signals at the typical flying field**

I had made an appointment to visit with the marketing people at Horizon Hobby, and was greeted by Kim and Steve who proceeded to show me what was new for 2010. Their Seagull line of ARFs always feature high quality and good value. The 120 size AT-6, seen in **PHOTO 19**, is one of the best I have ever seen. The 81” wingspan model can be powered by a 1.20m four cycle engine, and I was told that optional retracts will be available soon. The AT-6 sells for about \$300.00.



**Photo 19: Seagull AT-6, 81” span, from Horizon Hobby**



**Photo 20: Night Vapor micro electric with illumination**

The popular ParkZone Vapor has been available for a while and this year they have released the Night Vapor, seen in **PHOTO 20**. It has a set of LED lights that run off the receiver battery and the tiny Vapor can be flown in the dark. It is available in a Bind-N-Fly version for about \$100.00 and a ready-to-fly version with a 2.4 GHZ transmitter for about \$120.00.



**Photo 21: Saito FG-14 four stroke gas fuel engine**

Saito engines have never failed me over the years, and for 2010, they have introduced several small gasoline fueled four cycle engines. The FG-14 (**PHOTO 21**) is a 14cc engine with electronic ignition and a gasoline compatible carburetor. It weighs about 25 ounces, and can be used wherever a .60 size engine is called for. The FG 30 (**PHOTO 22**) is

a 30cc version, and it can be used wherever a 1.6 two cycle is called for. The FG-14 sells for about \$440.00 and the FG-30 will cost about \$640.00.



**Photo 22: Saito FG-30 four stroke**

Retractable landing gear has been on the “wish list” for electric modelers for a long time. E-flite has just made available some light, but sturdy electrically operated retracts in both 2 and 3-wheel versions. The 3-wheel version seen in **PHOTO 23** sells for about \$120.00 and the 2-wheel version is about \$85.00. They each have safety switches that shut off the power from the battery in case one gets jammed and starts to drain the battery.



**Photo 23: Electric retracts for electric powered models**



**Photo 24: Micro Cub, available in BNF and RTF versions**

The tiny Piper J-3 Cub seen in **PHOTO 24** is called the Ultra Micro Cub, and it is available in both Bind-N-Fly and RTF versions. With an 18" wingspan and a flying weight of about one ounce; the ultra Micro BNF Cub costs about \$90.00 and the RTV version is about \$120.00 with a 2.4 GHZ transmitter.

The popular Blade series of helicopters has been around for several years and one of the smallest, the Blade MCX, seen in **PHOTO 25**, has a 7.5" coaxial rotor diameter. It comes in both BNF and RTF versions, and can be flown anywhere indoors. "The Blade® MCX is an ultra micro-sized version of the Blade CX/CX2. It offers first-time pilots the ability to learn how to fly with ease, and experienced heli pilots the ability to fly anytime, anywhere indoors." The RTF version is about \$100.00 and the BNF version is about \$80.00. I can see one under the tree for my grandson right now.



**Photo 25: Blade MCX micro heli**

Having built and flown several of the laser cut kits from Aircraft Modelers Research, I was anxious to meet the guys that actually did the design and development of those kits. The AMR booth, seen in **PHOTO 26**, features a few of their latest creations. They were very willing to provide any information to the visitors. Their precision laser cutting is so well done that I was able to assemble an entire wing half and pick it up off the building board without any adhesives holding the parts together. Try that with any other kit.



**Photo 26: Airplane Modelers Research (AMR) booth**

Two of their new releases are seen in **PHOTO 27**. On the left is the 140" wingspan Air Tractor, which is available in both radial engine and turboprop versions. On the right is the Payload Master with a 132" wingspan and a load carrying capacity of more than 30 pounds. These kits will be available later this year, so be on the lookout. Tell Danny that I sent you.



**Photo 27: Air Tractor and Payload Master Laser cut kits available soon.**

Hitec RCD recently released their new Aurora Spread Spectrum radio system, and I was told by several of their representatives at the show that they have received nothing but positive comments about this system. They were showing something brand new that is an optional accessory to the Optima System in the form of a data collector, several sensors and other items that can relay real-time data from the aircraft in the air to the transmitter or to a laptop computer. Things like airspeed, fuel level, temperatures and engine RPM are all sent down to the transmitter where it is processed and is then either stored or viewed in real time. The system with all the available options is seen in **PHOTO 28**. More information is available from Hitec RCD on their website.



**Photo 28: Hitec RCD Optima system accessories**

I had an appointment to visit with the great people at Great Planes, and all their subsidiaries. I was greeted by Carol Pesch with open arms. She directed the "grand tour" around the area and asked various experts to describe all the new product items that were being shown.

Frank Noll, noted pilot and radio expert, proceeded to show me the latest and greatest in wiring up the servos in a typical large model. Seen in **PHOTO 29**, the S-BUS system eliminated the need for more than a single servo wire to be used for a wing panel with a pair of aileron servos and a pair of flap servos. The control module is adjusted to control on any servo and others that have to be mechanically linked to the first are electronically programmed

to follow the first exactly. Any other servos are then programmed individually, and set up mechanically by additional programming. In the photo you can see a single wire going down the fuselage mockup, and it alone is controlling 14 individual servos; each in its own manner. The S-BUS system will be available later this year.



**Photo 29: Futaba S-BUS servo connection system**

Those of you into ducted fan electric powered models have got a real treat in store for you from Great Planes. The ElectriFly F-20, seen in **PHOTO 30**, is a fast jet model that comes with a powerful motor and needs only an ESC and radio components to take to the air. It will cost about \$135.00.



**Photo 30: ElectriFly F-20 fan jet**



**Photo 31: Great Planes Evader Electric DF model**

An even faster jet is the Great Planes Evader, seen in **PHOTO 31**. This one has a 26.5" wingspan and comes with a powerful motor with 56mm fan. The Evader will set you back about \$180.00

Now for those of you with really fast reflexes. The Rifle is available, seen in **PHOTO 32**. This bullet-like model has a 31" span, a thin wing and fuselage cross section and will fly over 90 MPH, even with the smallest recommended batteries. The Rifle will cost you in the \$135.00 range, and you have to be on your toes to keep up with this one.



**Photo 32: Great Planes Rifle, faster than a speeding bullet...almost!**

Beginners are being told these days to get a Spread Spectrum radio to start out with, and up until now; those systems usually feature many extra adjustments and controls that beginners don't really need. The Tactic TTX404 system, seen in **PHOTO 33**, is a basic 4 channel transmitter with a 6 channel receiver that has

servo reversing, a wireless trainer link, digital trims on elevator, rudder and ailerons and batteries for both transmitter and receiver. Now the good part; the Tactic system costs only about \$90.00 (without servos) and is available right now.



**Photo 33: Tactic TTX404 entry level Spread Spectrum radio system**

The last thing I was shown was a beautiful GT55 gas engine from OS Engines. Seen in **PHOTO 34**, the GT55 features a front pump carburetor, and a traditional motor mounting. It weighs about 50 ounces, and it will turn props in the 22" to 24" range. Mufflers are available from Slimline, and will fit perfectly. The GT55 will sell for about \$580.00.



**Photo 34: OS GT55 gas engine with front carb and lots of power**

The rest of the photos in this article are just a small sampling of the beautiful airplanes, boats and land vehicles on display at the Toledo Expo. Most of them are deserving of some sort of a trophy, and they all were in the “Best of Show” competition. The descriptions and builders are in the photo captions.

It was a great time this year at Toledo, and I was happy to see and meet many of our subscribers; along with answering all the questions they asked. I look forward to heading up to Toledo again next year for the 2011 Toledo Weak Signals Expo.



**Photo A: A6M2-N Rufe float plane built by Robert Ball, Lebanon, OH**



**Photo B: Curtis JN-4D Jenny, built by Randy Charles, Wilmington, OH**



**Photo C: F4U-5 Corsair built by Vince Blasky, Commerce TWP, MI**



**Photo D: Ford Trimotor built by Heinzerling, Port Clinton, OH**



**Photo E: Classic Lightning Turbine built by Eric Clapp, Northport FL**



**Photo F: F16-C Aggressor with builder, Graeme Mears, Woodbridge, Ontario**



**Photo G: ME-163 Komet built by Roy Maynard, Eden Prairie, MN**



**Photo H: Several of the Vintage R/C models, circa 1940's-1950's**



**Photo I: Sport planes on display**



**Photo J: Some of the Old Time models, Pre-1940**

### **Contact info for dealers and distributors:**

Kangke: [www.kangkeusa.com](http://www.kangkeusa.com)  
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Top Notch Kits: [www.topnotchkits.com](http://www.topnotchkits.com)

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Nick Zirolis Plans [www.ziroliplans.com](http://www.ziroliplans.com)

AeroWorks: [www.aero-works.net](http://www.aero-works.net)

KMP: [www.kmp.ca/](http://www.kmp.ca/)

Hobby Lobby: [www.hobby-lobby.com](http://www.hobby-lobby.com)

Weatronics: [www.weatronic-usa.com](http://www.weatronic-usa.com)

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Great Planes: [www.towerhobbies.com](http://www.towerhobbies.com)

Ontario Adhesives: [www.ontarioadhesives.ca](http://www.ontarioadhesives.ca)

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



The 4-Site Micro BNF is yet another indoor winter rust fighter for us to enjoy. The 4-Site Micro is a tiny little biplane that is designed for absolute indoor flying only! The 4-Site Micro is just over 15 inches across and 17.5 inches long. The entire airframe comes preassembled in a sturdy box that can be used as a transport box to and from the field. The BNF (Bind N Fly) version comes with the following: two single cell 150mAh LiPo batteries, a four port LiPo charger, a preinstalled AR6400L DSM2 Ultra Micro receiver, four AS2000L linear servos, 8.5mm coreless brushed motor, A/C to 6V D/C power supply.

The 4-Site Micro has all the control surfaces preinstalled and it is truly ready to fly. Ideally you open it up and plug in the charger and insert both batteries to the charger. While they are charging you need to get your DSM2 compatible radio and begin setup. The 4-Site Micro BNF will bind to any DSM2 radio system, even the small systems that come with the other E-flite micro flyer systems! When the 150mAh batteries are charged we can begin by binding the biplane to the selected DSM2 radio.

The manual guides us through the binding process by simply plugging the flight battery into the connector on the plane. The receiver powers up and starts to blink. We now need to power up our selected transmitter in the bind mode and 5-10 seconds later we should have a solid light on the plane receiver! Could it be any simpler? Doubtful!

The manual recommends that we use a transmitter with dual rate settings, and I agree totally. The dual rate function allows this to be a great indoor flyer for the intermediate and expert flyer. For a first time indoor flyer, the low rates let you get your feet wet by short takeoffs with predictable controls. The minimum air speed of this



little biplane is very slow, but if you add the optional airbrakes; you will need to keep the power on.

The 4-Site micro is a great performing ultra lightweight model will cost you \$169.99 for the BNF version and \$1 ☺9.99 for the PNP version. (<http://www.horizonhobby.com/Products/Default.aspx?ProdID=EFL9080>) It is a great first indoor flyer that can fly smooth and gentle, or it can be a full indoor 3D machine!! All you need is your own 2.4GHZ DSM2 radio system for the BNF version, and this is the version I recommend. You can have a great time, very inexpensive and quickly.

Tony Coberly

tonyc@rcreport.net

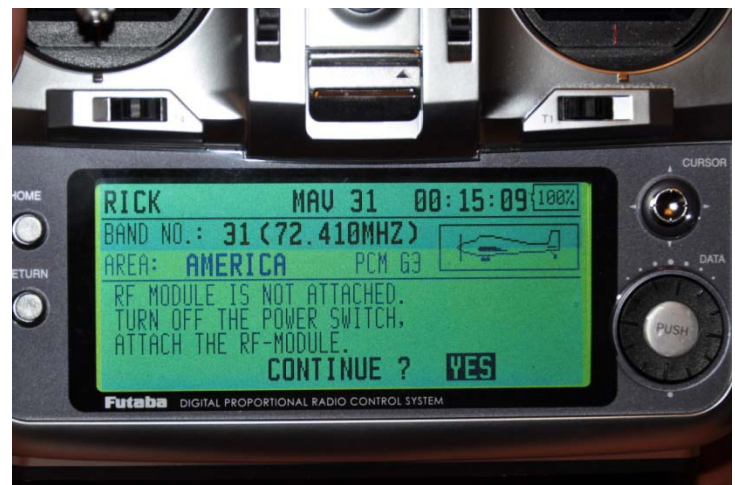


Well Spektrum RC has come out with a new transmitter module system that is designed to work with Futaba 12Z and MZ14 radio systems so let's have a look. As seen in the photo above the Spektrum system comes with a nine channel module that plugs into the rear of your Futaba 12 Z. or 14 MZ transmitter. The module includes a 7 channel AR7000 receiver with one remote. Also included are binding plugs, antenna module, and antenna adapters for both radio systems. The transmitter module simply plugs into the rear of your transmitter, but there are additional connections that can be made. At the bottom of the Spektrum 9 channel module there is what appears to be a trainer cord. This cord needs to be plugged into the trainer/DSC jack of your transmitter. We don't even need the instructions to understand how to do this part, but we do need to refer to the instructions to see what to do next.

The instructions provided cover all newer Spektrum modules for various radios. We need to read through page 8 before we find reference to our Futaba compatible version. Here we are instructed to see MZ special instructions on page 22 for more details, so off to page 22 we go! Page 22 gives us instructions on what settings need to be in the transmitter to allow the Spektrum module function. Here is where it gets kind of strange. We have two notes: the first being we should expect the Futaba logo to flash because the transmitter does not recognize the module, and second that the Futaba MZ transmitter outputs 8 channels with PPM Modulation. Therefore, we only have an 8 channel system. One thing that bothers me about this is that my module is not labeled as an 8 channel module; it is labeled as a 9 channel module. The next page of the instructions lets us know what the default channel assignments are even though I expect if you have a Futaba Z or MZ transmitter you will

know what these channel assignments are. At this point, we are told how to range check our module. That's it!! We are offered additional hardware that can be purchased from Spektrum RC for our receiver such as flight log etc. Common sense would say at this point we can go fly our plane once we install the AR 7000 receiver provided. Well that's defiantly NOT the case!

Okay folks, from here on out I will show you exactly how he used his module in your Futaba 12Z radio transmitter system. First you create a new model and select PPM modulation on the 72 MHz band. The actual channel selection is irrelevant so pick a number you like. The transmitter will NOT transmit any 72MHz when the Spektrum module is installed. At this point your radio will warn you there is no module attached, that is just fine to worry about it. Photo 1 shows channel 31 on 72 MHz and we are asked if you want to continue because there's no module attached, we select yes to continue.



**Photo 1: note this was the model MAV 31 prior to renaming NEW2.**

Once the radio is powered up and we accept the continue option we are left with what we see in photo 2. Photo 2 shows us a model named NEW2 on channel 31 broadcasting PPM modulation, but with

no module attached. When we power up the AR 7000 receiver with a few servos plugged into it we have no control whatsoever of any channels. My first thought is the receiver was not bound to the

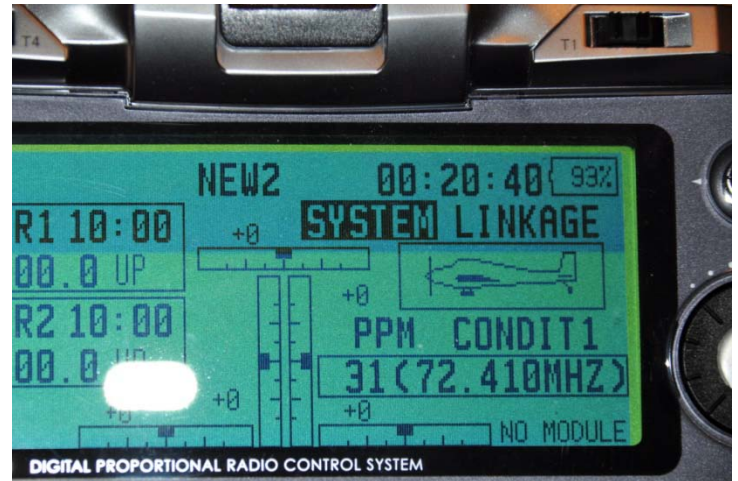


**Photo 2: Radio on ready to go but are we? Note the red light!**

transmitter module. I decided to attempt to bind the transmitter module to the receiver in the event that the factory had not done as such. So I power down the transmitter and the receiver. I insert a binding plug into the receiver in the provided channel, and power is applied to the receiver. The orange light in the receiver begins to blink indicating it has accepted the bind mode condition. To get the transmitter module into bind mode we simply push the button on the module and hold it while powering the transmitter up. Once bound the receiver packs as it should complete bind mode with a flashlight transferring over to a solid orange light after being bound, but still I have no control over the servos plugged into the receiver. What to do what to do what to do???

Well after a few phone calls and talking to some other folks, the solution became clear as mud. Considering the Spektrum module is basically only pulling power from the radio itself through the

module connection, it stands to reason that any and all servo control is being done through the trainer/DSC port. Now we need to enable the trainer function on the radio system. So now we need to go to the **system** menu first. See photo 3.



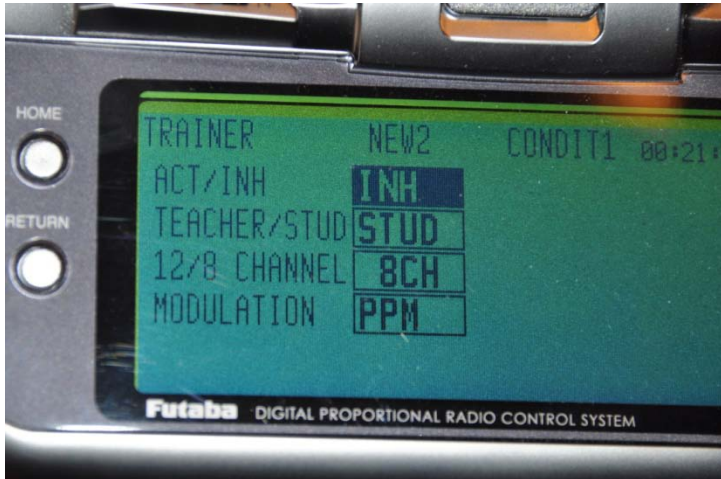
**Photo 3: system menu selected.**



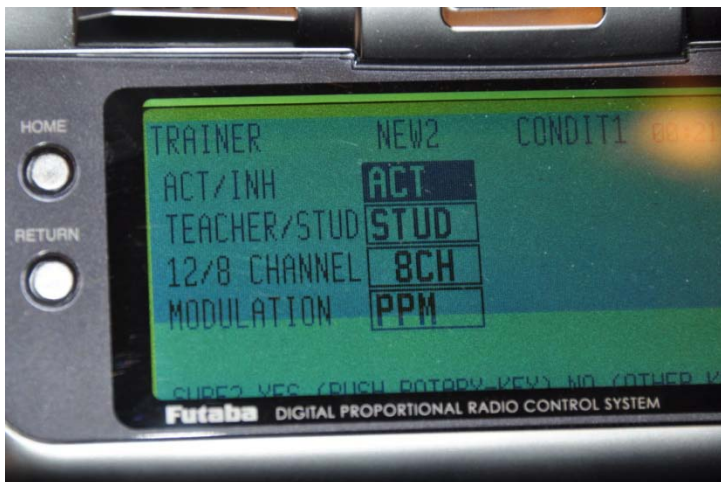
**Photo 4: Now we select the trainer function.**

After selecting the **system** menu we now select the **trainer** function under the **system** menu. The **trainer** menu shows the option for inhibited or active. We need to switch the inhibited to active and leave the teacher/student channel and modulation alone for now. Once we switched the trainer function to active and press the dial to select, the trainer function now reads ON. After making this change we exit out of the home menu. A few

things are different now. First thing we notice is the red light becomes a blue light under the T12ZA logo. Additionally we now have control of our servos, imagine that! Checking standard directions and movements of our servos, everything seems to be operating correctly. This is a fairly simple fix, but I can understand why it was not addressed in the instruction book. Perhaps Spektrum didn't have access to a 12Z transmitter?



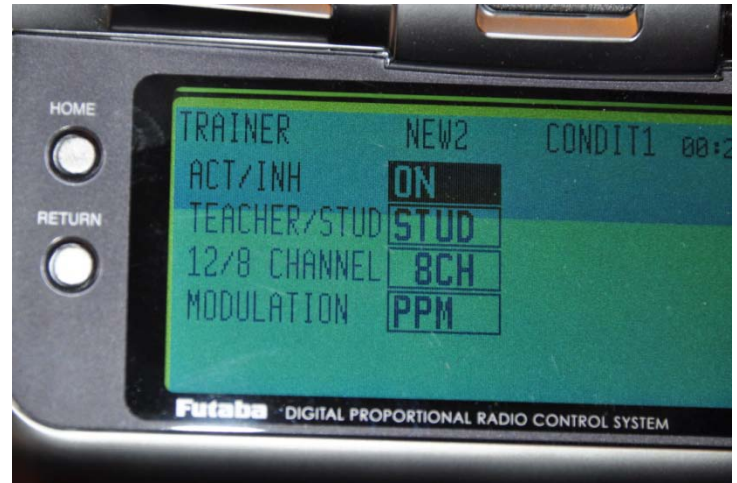
**Photo 5: Notice the trainer function is inhibited.**



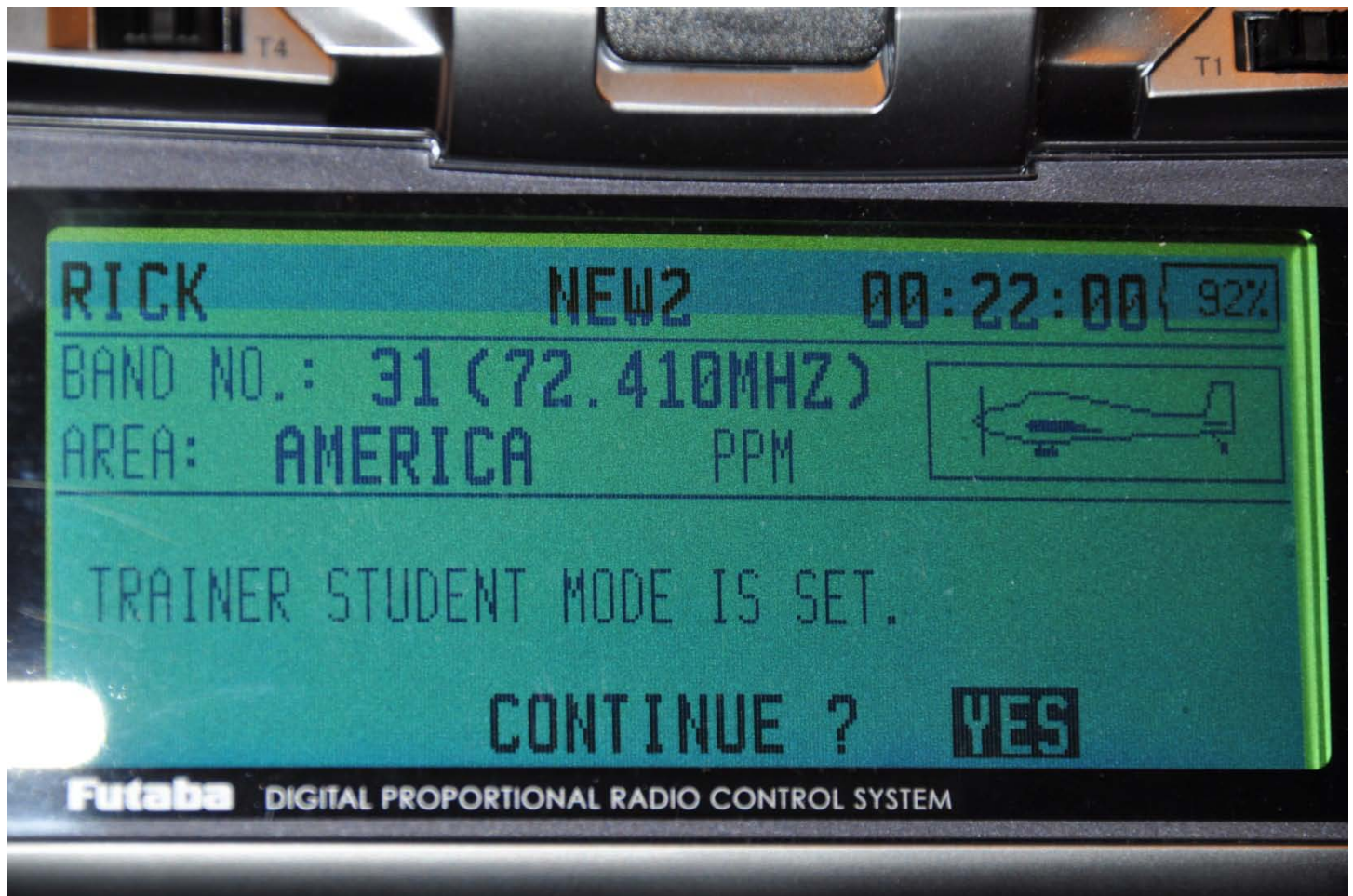
**Photo 6: The Trainer function and about to be selected.**

Now we can take full advantage of the Spektrum radio system. The Spektrum module is great for us Futaba flyers who want to be able to fly the myriad of Bind N Fly and Plug N Play aircraft currently

being offered by Eflite, Park zone, and Horizon. This radio system is a full range radio system so it can also be used with any aircraft from a 40 size sport plane up to and beyond a twin turbine A-10 Warthog like we saw at Toledo this year.



Eight Futaba channels at our disposal and the ultra-easy programming options provided in the Futaba 12 Z radio system allows much more flexibility than the micro radios provided with the indoor micro flyers. This module system for the Futaba 12 Z and Futaba 14 MZ retails for will \$199 at the local hobby shop here Huntsville, but oddly enough is a little hard to find on the Internet. There are several references to an 8 channel version but my module is clearly marked as DM9. I have always thought of radio systems will the rivalry between Ford and Chevy. This module system is a great item to add to your inventory because it will allow you to fly an even larger spectrum of aircraft that are ready-made, and receiver ready with a great programming features that we've come to know in love and Futaba radios. Now I'm not saying that Futaba is better or Spektrum is worse; I'm just making the point that with a small investment in this module you can now fly almost any radio



system out there with the programming features that you come accustomed to and Futaba radios.

I believe the system is well worth the \$199.99 cost and a great addition to our arsenal, but I've never seen an item that would simply not work with the instructions provided with it.

*Just one footnote here: this module system does also work with the Futaba 12 FG, BUT it falls out of the radio transmitter!! Generally the setup functions are the same as the 12 Z, but for whatever reason the module does not positively lock into the back of the radio system. The Futaba 12 FG uses the same Futaba modules as to 12 Z and as the 14 MZ but this Spektrum module does not positively lock into the Futaba 12 FG! I do not recommend using this module in the 12 FG for this reason, but I do have a rubber band on my 12 FG to hold the module in!!*

Tony Coberly

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



*Many thanks to Bob Temple for writing this article, and getting it to me in such a professional manner. Great communication and follow-up! Thanks also to Joe Mannino for sending along the pictures! They are great, too! Thanks Artie Mundell for spending the weekend holding your camera! Looks like you all had a lot of fun! Looking forward to hearing about the 3<sup>rd</sup> Jamboree! Don't forget to call on us when you begin preparing for your next event! Other clubs and CDs are welcome to contact us, also. We would love to offer you some publicity, raffle and door prizes and hear about what's going on in your part of the country. Julia*

Fashioned after the renowned Rhinebeck Jamboree held at the Olde Rhinebeck Aerodrome in New York's Hudson Valley, the Palm Beach R/C Association hosted its modest version of the classic at West Delray Regional Park in Delray Beach, Florida on March 27-28, 2010. There were a total of twenty two airplanes, all scale models of vintage aircraft built prior to the end of 1939. Seventeen pilots entered the event. This is a most enjoyable fly in. Trophies are given for static display as well as flying prowess and were funded by contributions from various club members.. The entry fee was \$15 for one day; \$25 for two days. This event appeals to the person who holds an interest in early aviation.

Each time a pilot flies, he earns a coupon for a specific prize. Coupons are labeled with the names of the pioneers of aviation, as well as early aircraft. Trophies were hand crafted by club member Mike Bacon. Each trophy has a space for a photograph of the pilot and his plane. Photographs were taken by Artie Mundell and were inserted in the trophies prior to their presentation.



**Arty Mundell, club photographer, displaying the Colonel Art Johnson Memorial Award. (Best of Show Award.).**

Judging was done by the pilots themselves. The Best in Show Art Johnson Memorial trophy was won by Walt Moucha and his Bristol Scout. Walt is a veteran pilot who designed and built his plane. He is truly deserving of the award.



Walt Moucha's Bristol Scout. Walt designed and built it himself; powered by a DLE III Twin and was the first British use of the synchronized machine gun.

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We were fortunate to receive donations from R/C distributors and dealers, as well as from friends and members. Notable is Steve Westervelt, a club member who donated special shirts for the event and a blown up copy of our Rhinebeck South logo in front of which photographs of all the pilots and aircraft were taken.

Rear view of one of the 80 logo shirts donated by Steve Westervelt.



Artie Mundell took over one hundred seventy photographs for us. Joe Nanno provided all of the graphics involved in the event. ☺ther contributors for prizes were RC Hobbies, 3G's Hobby, Horizon Hobby, Great Planes, Micro Fasteners, Balsa USA, Aero works, RC Report Online, Sig R/C Hobbies, Vintage R/C Plans, Heliproz, R.C. Revolution, Outback Steakhouse and Rich Gangi Hobbies. Food for the concession was donated by Pedro Jordan of Publix Super Markets.

Bob Temple, CD

Artie Mundell, Photographer



**Bob Temple's Sig Waco SRE; powered by an OS120. Oh, oh, looks like Bob lost his "pants".**



**Michael Knight's trophy winning Stinson. Powered by a US41.**



**Bob Curry's highly modified Nieuport Eleven.**



**Brian Kessler's Monocoupe from Kange. Brian made it look realistic in flight.**



**Another trophy winner: Frank Lacava's beautiful Waco YMF5, powered by an OS108. It is over ten years old and looks like the day it was born.**

# 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 #5 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. Winners will be selected by a random drawing from all the correct entries received no later than June 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, RC Report Online employees, columnist and advertisers are ineligible for prizes. No Purchase Required. Valid in USA and Canada only. smileys@rcreport.net Subject line: Smiley Face Contest #5 2010

US Mail: Smiley Face Contest #5, 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.*

*Dear Tony, Julia, and all,*

*You're getting craftier in hiding the smiley faces - I searched in vain for any between pages 11 and 40, and then found enough to play the game, but I have to wonder how many I missed.*

*I found five! There is also a yellow grin on the RC fun fly map page - does that count? (We didn't put it there, so it does not count in the final total of smileys. Good job on finding it though! Julia)*

**Frank Maguire, South Portland, ME**

*What is that about SPRING? We are expecting 4-10 inches of SPRING tomorrow here in the Intermountain West. At this rate we may not be flying till June.*

*Here are my 5 entries for the April 2010 Smiley Contest.*

**Ken Gardner, Murray, Utah**

*Found five! Don't have time to look for any more--it's flying weather out there!!!!*

**Gerald Ewell, Sr.**

*Did you see the yellow smiley in the Richardson RC Club Electric Fly Ad? Well, I did; but I found 7 normal smiley's in the magazine. Is this a trick or treat smiley or full real one. (It's definitely a trick or treat smiley! We can't edit the flyers! Julia)*

*Thanks for the magazine.*

**Larry Slowiak, Rhinelander, WI**

*Eight!*

**Manfred Decker, Wahpeton, ND**

*Wow, I only found four this month, but there are bound to lots more of them at all the upcoming events! (Good thing you won back in March! Julia)*

**Gary Clifford, Colonial Virginia  
Aeromodelers**

*Six!*

**Milton Johnston, Acworth, GA**

*Seven!*

**T. Cornell**

**WOW! I can really tell the weather is changing! Smiley face entries are a little low this month! Remember, you gotta have some to power your planes; and what's better than a FREE engine? Julia**

*Still loving the smileys! The winner will be contacted and announced in the July 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.*

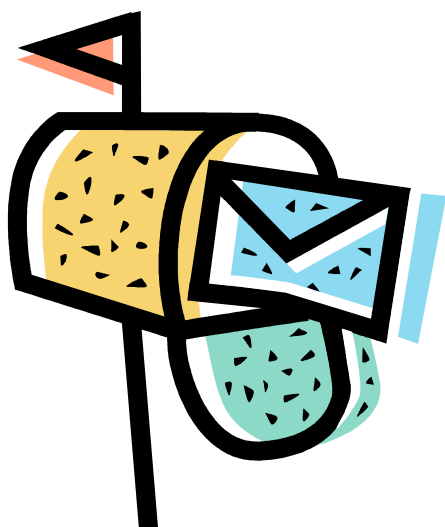
*Total Smileys for the April 2010 issue was 9.*

**March's Winner is Gary Clifford of New Kent, VA.**

**Thanks for your submission, Gary!**

*Tony Coberly*

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



## Mail Call

Well folks keep your questions and comments coming. We will do our best to answer each and every question asked of us. We will continue to post a few each month for the rest of the readers to see your questions and comments.

RC Report Online Staff!

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*"Symbol of Excellence"*

Got this one, late in the day, one weekend, when I was trying hard to work! Thanks for the funny, Larry!

Forgetter Be Forgotten?

My forgetter's getting better,  
But my rememberer is broke  
To you that may seem funny  
But to me, that is no joke.

For when I'm 'here' I'm wondering  
If I really should be 'there'  
And when I try to think it through,  
I haven't got a prayer!

☺ft times I walk into a room,  
Say 'what am I here for?'  
I wrack my brain, but all in vain!  
A zero, is my score..

At times I put something away  
Where it is safe, but, Gee!  
The person it is safest from  
Is, generally, me!

When shopping I may see someone,  
Say 'Hi' and have a chat,  
Then, when the person walks away  
I ask myself, 'who the hell was that?

Yes, my forgetter's getting better  
While my rememberer is broke,  
And it's driving me plumb crazy  
And that isn't any joke.

**The Texarkana CL Meet location May 1st and 2nd has been moved to Eldorado, Arkansas Due to Flying Site Complications this year....**

**TEXARKANA CONTROL LINE STUNT CHAMPIONSHIP**

**KENNETH MAKEPEACE FIELD EL DORADO, ARKANSAS**

**May 1st and 2nd 2010**

**AMA REQUIRED/AMA SANCTIONED EVENT**

**HOSTED BY MASA**

**MODEL AVIATORS OF SOUTH ARKANSAS AMA#3185**

**<http://www.myspace.com/southarkansasaviators>**

**PA, SATURDAY** THE 1ST (BIAE) 2 ROUNDS, HIGH SCORE, AWARDS 1ST-3RD, ARF'S WELCOME.

**PA, SUNDAY** THE 2ND (BIAE) 2 ROUNDS, HIGH SCORE, AWARDS 1ST-3RD, ARF'S WELCOME, PILOTS CHOICE AWARD.

**\$20** ENTRY FEE COVERS BOTH DAYS. TWO CIRCLES, 1 GRASS, 1 ASPHALT. THE FIELD IS **LOCATED ON INDUSTRIAL RD.** AND EAST MAIN, APPROXIMATELY 3 MILES EAST OF DOWNTOWN, 70 MILES NORTHEAST OF SHREVEPORT, LA AND 150 MILES SOUTH, SOUTHWEST OF LITTLE ROCK, AR.

RAFFLE PRIZES, PILOT ENTRY GIFT, SWAP/TRADE ITEMS WELCOME AND GOOD FOOD. **MOTELS WITHIN A FEW MILES OF FIELD** LOTS TO SEE AND DO IN HISTORICAL DOWNTOWN EL DORADO, ARKANSAS. **<http://eldoark.com>**

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**JASON CUNNINGHAM, 870-862-1533 [jcunningham50@hotmail.com](mailto:jcunningham50@hotmail.com)**

***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  
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Sherman, Texas

Saturday May 1, 2010

AMA Sanctioned

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AMA membership  
required!

Pilot meeting  
at 9:00 am

**Mike's Hobby  
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Fee  
Includes  
the Pilot's  
Lunch

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or see the club's website at <http://www.texomarc.org>