

# **rc** **REPORT**

June 2010  
Issue 287

## **ONLINE!**

### **TOPGUN 2010 COVERAGE**

**by DICK PETTIT**



## **Extreme Flight RC** **Vanquish MKII**

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## THE WEBB SCALE

**GARY WEBB**

Hello again to all you "Scale Guys". This month I will be reporting back from the Toledo Weak Signals show in Toledo, Ohio. Dick Pettit already reported on all that is new and exciting, I will concentrate on the scale models on display for the static contest. I have been going to this event for over 30 years now and still get just as excited as I did the very first time. The economy must be starting to come back from hearing that all the booths were filled by venders and the crowd was very good for all three days. Sunday is normally the slowest day for visitors and most of the venders are ready to pack it up and go home by then. I know from personnel experience, after working in a booth and talking to customers for two days; you start losing your voice by Sunday. I spent many hours this year in our booth on Saturday and Sunday talking with many of our readers and meeting some of you for the first time. It was great fun.

This is a great venue for all of us modelers to see whets new in our hobby. I truly recommend to all to go to a trade show like this in their area to get all the latest information on new and improved products in our hobby. Also you get introduced to other aspects of our hobby that we may not even know exists. Then of course there is the large swap shop going on above on the second level of the convention center and also the seminars on various subjects.



Now let's get down to the serious business of all the scale models on display. Toledo due to its status as the granddaddy of all trade shows brings modelers from all over the country to compete for the cash prizes in the static contest, and the coveted best of show that paid \$2000.00!

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This year was no different than previous years with a lineup of many beautiful scale models. I wish I could show you all of them. The tables were packed this year with all types of models.



**Photo 1: Robert Ball's A6M2-N Rufe on display**

Photo 1 is of Robert's Beautiful A6M2-N Rufe on display. The model received many excellent comments and many photographs were taken of this rare model subject. The next model was this very large Curtis Jenny, built by Randy Charles of Wilmington, Ohio.



**Photo 2: Huge Curtis Jenny scratch built by Randy Charles**

The builder told me that he scratch built this model including drawing the plans, cutting out all the parts, building, finishing, and installing the engine and radio system all in SIX months!! Yes I said six months. Now this might not be such a big deal except for the fine craftsmanship and all the detail that went into this model.

From the leather cowl straps, Photo 3, to the scale landing gear, cockpit detail and the entire surface detail on the wings and fuselage.



**Photo 3: Fine detail of the Curtis Jenny including the leather cowl straps and the copper plating of the leading edge of the prop**

He even used copper leaf on the prop tips to simulate the antique looking prop of the times that used metal to protect the leading edge surfaces from wear. Photo 4 is of a model of the last known prototype of the GB famed racing planes. The real plane was never flown, but if it had I'm sure it would have been very fast for its time.



**Photo 4: Grand Thurman Brothers (GB) last prototype that was only partially built. This is possibly what it would have looked like ready to race.**



Because the prototype never flew it cannot be used in any competition. Photo 5 is a Wildcat built by Dennis Friesel from Bloomington, IN. The surface detail was excellent. Notice the excellent scale landing gear and the simulated radial engine and display prop. The plane has a great looking cockpit as well. The plane is of a presently restored civilian owned aircraft so there is no weathering.



**Photo 5: Beautiful craftsmanship abounds with this F4F-3 Wild Cat. Check out the landing gear and scale display prop.**

Photo 6 is of a fantastic scale rendition or one of my favorite WWI war birds, the SE5A. The plane was built by Brian Perkins of Kingston, Ontario Canada, and he told me that he spent 14 years scratch building it.



**Photo 6: 14 year scratch built SE5A built by Brian Perkins. Plane took a well deserved first place in Designer scale**

The dedication to detail is evident all over this model. The scale exhaust is remarkably real looking. The only thing that he purchased pre-made for this model was the machine guns, which are Williams Brothers. Everything else he made himself. The scale prop hub is excellent along with the scale rigging, rib stitching, even the cockpit combing is real leather. The handmade radiator shell is outstanding craftsmanship along with that V8 engine. Photo 7 gives you a close up look at the front of the aircraft.



**Photo 7: Close up view of the SE5A so that you can appreciate all the painstaking detail work Brian put into this model**

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Photo 8 is of a Fieseler Storch built by Glenn McIntosh of Ann Arbor, MI. This plane is an ungainly looking aircraft the Germans purposely built during WWII as an observation and liaison aircraft that could get into and out of very short fields. It is a STOL type aircraft. The interior and pilot and passenger figures were very impressive. By now I'm glad I'm not doing the static judging!



**Photo 8: Great looking Fieseler Storch built by Glen McIntosh**

Photo 9 is of an F14 Tomcat built by one of "Scales" great builders and flier Dennis Crooks. Dennis has won the NATS and the Masters many times and is a great builder and competitor. Dennis hails from Rockville, IN.



**Photo 9: Dennis Crooks amazing swing wing F-14 Tom Cat. Notice the scale landing gear detail.**

I have had the privilege to know Dennis for many years. He has produced some of the finest competition scale models on a regular basis throughout the years. I remember seeing him fly the first ducted fan Lear jet of his own design back at the Byron Originals fly-ins. Also he had a ducted fan model of the swing-wing F14 and it worked flawlessly. Now here he is with a turbine powered version. I cannot wait to see this one fly as well. This airplane just has to be seen to be appreciated.

Another great looking jet is this outstanding F9F Cougar built by Eric Clapp of Northport, FL. I wish I could show all of you the numerous photos of each model so that I could really show the entire workmanship put into these fantastic models. The weathering on this model is faint and really adds to the realism of the model along with all the surface detail and the scale landing gear.



**Photo 10: Very well executed Cougar by Eric Clapp. The scale detail and weathering was very well done.**



Speaking of jets, take a look at Photo 11 of Hal Parenti's electric ducted fan WWII ME262 German jet. It uses two Turbax fan units and 4-5 cell 3000ma Lipo packs for each fan. This was the first production jet to see military service. Hal also is one of the patriarchs of the scale hobby. He has been scratch building and flying scale models for decades and has many award winning designs that have been produced by kit manufactures over the years. He has competed in F.A.I. many times, representing all of us Americans in world competition. I am always impressed with his models and all the scale detail he puts into his models. The plane weighs 25 pounds ready to fly. Hal hails from Westchester, IL.



**Photo 11: Hal Parenti's twin electric ducted fan version of the WWII German ME262.**

The next photo, 12 is of a huge A-10 Warthog built by Joe Grice. Check out the ground crew pulling maintenance on the aircraft. Again the scale detail has to be seen to be believed.



**Photo 12: Huge A-10 Warthog with lots of scale detailing.**

Even the nose art that was done on the inside of the front access panel was duplicated, see photo 13. Notice all the detail work he put into this model. The panel screws, the air duct with the screen, all the nomenclature, and truly excellent work. The use of mirrors being placed under the model to show off the underside of the model was used very well to show off the undercarriage in the wheel well areas and the landing lights. I spent a lot of time checking this bird out!



**Photo 13: Close up side view of the A-10 showing the amount of detail work put into this model including the graphic on the inside of the access panel.**

The next photo, Photo 14, is of Gary Prince's beautiful Meister Scale P-47 featuring flight metal covering. Gary hails from North Canton, Ohio. Gary's application of just enough weathering makes this model come alive. Again all the panel lines, hatches, and rivets are realistically duplicated.



**Photo 14: P-47 sporting an all metal skin and sliding canopy. The weathering and surface detail set this model off.**



**Photo 15: The ME163 Komet is another of those rare subjects seen here at Toledo. The removable undercarriage is seen at the bottom of the photo. Lots of scale detail present on this model.**

Photo 15 is of a great looking ME163 Komet built by Ray Mayaro. It is powered by a jet turban. Notice the main wheel undercarriage setting on the table as if it had just been jettisoned after takeoff. This was the first

production rocket powered aircraft to be used in war. It only had about 15 minutes worth of fuel onboard. It took off and climbed at over 10,000 ft per minute to get to the US bomber formations altitude expend its ammunition using boom and zoom techniques, and when the fuel was expended glide back down to a landing. They were not very successful due to the hazardous fuel they used that caused the planes to blow up on takeoff or landing. The pilots wore special suits to keep the fuel from contacting with their skin which would cause immediate severe burns. Most of the pilots were forced to fly these planes due to the poor chance of survival.

Photo 16 is of a 1/3rd scale Corsair built by Vince Blasley of Commerce, MI. This is one big bird. It has a 139" wingspan. It is powered by a huge 3W 210 IB2F engine and weighs in at 65 pounds. The only comment I can give is if you put all the work into building such a huge model and put all the work into all the ordnance why not do the surface scale detail? This model is very impressive and the finish was excellent. It just needed the extra time in doing the surface detail to make this an outstanding model.



**Photo 16: Huge Corsair, the only thing this model needed in my opinion to be outstanding was to have the surface detail applied. Really detailed ordnance**



Photo 17 is of Don Heinzerling's beautiful 1928 Ford Tri-motor. Don hails from Port Clinton, Ohio. I'm sure this is a scale model of one of the Tri-motors that plied the skies of Northern Ohio taking passengers from Port Clinton to South Bass Island in Lake Erie. I have seen these many times when I used to fly up to Port Clinton and Sandusky, Ohio's airports. The skin detail was excellent. All the screws and rivets were present also.



**Photo 17: Very large Ford Tri-motor. Model of aircraft that plied the skies over northern Ohio and Lake Erie.**

The plane is so large the photo doesn't do it justice, so I added Photo 18 so you can see the detail put into this great looking model.



**Photo 18: Detail shot of the Tri-motors corrugated skin along with all the control surface cables present on the external fuselage sides.**

Photo 19 is just for fun. Check out this huge tank sitting on the floor! It is a 1/2 scale Heinz tank, built by Davis Shultz all the way from Wichita, KS. He really did put a lot of work into this project and is very scale!



**Photo 19: Large German WWII Tank model.**

While we are at it here is another novel model in the boat competition. Photo 20 shows a model of the human torpedo. He scratch built all of this!!! The model was built by Malcolm Hann from Unionville, Ontario Canada. You just never know what you are going to see here at Toledo.



**Photo 20: Unique scratch built scale military boat model of the underwater Human Torpedo.**

Saved one of best for last! Photo 21 is of Graeme Mears beautiful repainted F-16. This plane won First place in team scale at Top Gun last year and was the first plane ever to score a 100 perfect static score.



**Photo 21: Best of Show, Graeme Mears beautiful F-16 sits with canopy open.**

Photo 22 is a close-up of the cockpit detail. I was told the displays even light up.



**Photo 22: Close up of Graeme's F-16 cockpit. Even the panels light up. Notice the ejection seat pull handles, and seat padding with belts.**

Graeme always does a fantastic job and is very approachable to gain advice from on building models. I have had the fun and pleasure of

chatting with him on numerous occasions at various contests over the years. Graeme hails from Woodbridge, Ontario Canada.

Photo 23 is of a smaller but still very Scale model of a Loening sea plane that was very detailed out.



**Photo 23: Scale model of a Loening seaplane by Allen Mrock**

*DON'T MISS GARY'S  
COVERAGE OF THE VERY  
LAST DOOLITTLE RAIDER  
REUNION!  
THE EVENT WAS HELD  
RECENTLY IN OHIO AND  
GARY WAS ABLE TO  
ATTEND AND SHARE  
THIS HISTORIC EVENT  
WITH ALL OF US IN THIS  
ISSUE!*



Okay now I know you are all wondering who won?!!!

Again my hat goes off to all the judges because they had a very hard task of deciding who the best of the best was. Most of these models would place or win at local events. They were all fantastic!

Drum roll please...

**Sport Civilian Scale**

1st place... Don Hienzerling... Ford Tri-motor

2nd place... Robert Wagoner... Mr. Mulligan DGA-6

3rd place... Allen Mrock... Aronka K

**Designer Scale**

1st place...Bryan Perkins...SE5A

2nd place...David Platt...Bulldog

3rd place...Hal Parenti....ME262

**Sport Military Scale**

1st place...Graeme Mears... F-16

2nd place...Gary Prince...P-47

3rd place...Glen McIntosh...Flesoler Storch

**Jet Planes**

1st place...Joe Rice...A-10 Warthog

2ndplace...Roy Mayaro...ME163 Komet

3rdplace...Jim Young...Gloster meteor

***BEST IN SHOW***

**GRAEME MEARS**

**& HIS F-16!!!**

Congratulations to all the winners, and thank you to all that brought their models for us to enjoy.

If you did not attend this year's Toledo Expo, please do yourself a favor and mark your calendar for next year's event.

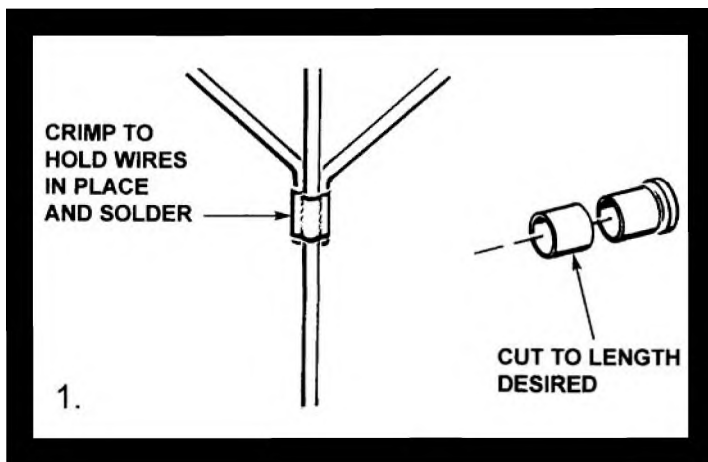
Blue skies and fair winds, Gary Webb [gcwent@woh.rr.com](mailto:gcwent@woh.rr.com)



## HERE'S HOW WALT WILSON



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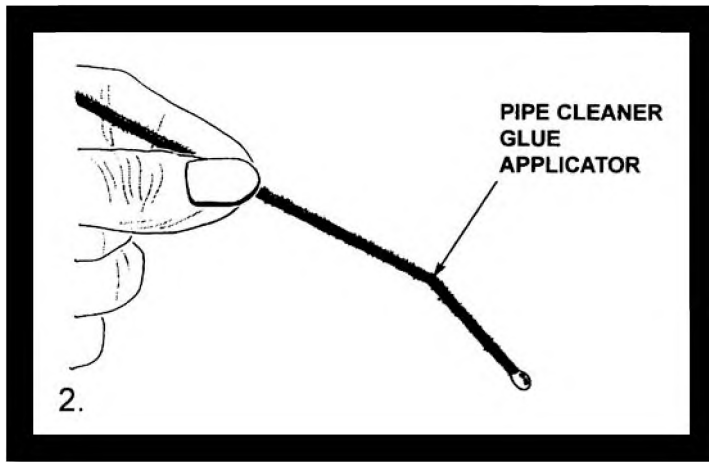
1. Shell Cases For Brass Tubing: From Harry Antenucci, of Albuquerque, NM. Harry was recently building a new plane and had to silver-solder the landing gear. One junction consisted of three pieces of 1/8" wire. He wrapped the joints with copper wire, then soldered them. Before he was finished, Harry found that he had run out of wire. After scratching his head a bit, he found that he had left-over empty brass shell cases from .380 ammunition. He cut a 1/2" long sleeve from it using a Dremel cut-off wheel. The length can vary depending on the joint. Slip



the sleeve over all three pieces and crimp it with a pair of pliers. The crimping takes up the slack and positions the wire exactly as needed for soldering without otherwise clamping it. The solder, flowed into the sleeve and around the wire, actually looks better than a wire wrapped joint. Walt's Notes: Copper wire is almost always available if you have an old electrical extension cord. Simply strip the insulation off and several strands of wire are inside! Use however many strands are needed for the job. Commercial brass tubing can also be used, if shell cases aren't available.



2. **Pipe Cleaners For Glue Application:**  
From Richard Slomba, of Methuen, MA. Pipe cleaners can be a great way to get epoxy or other glues into those hard to reach places. They can be bent to a lot of different shapes and are long enough to reach deep into those nooks and crannies.



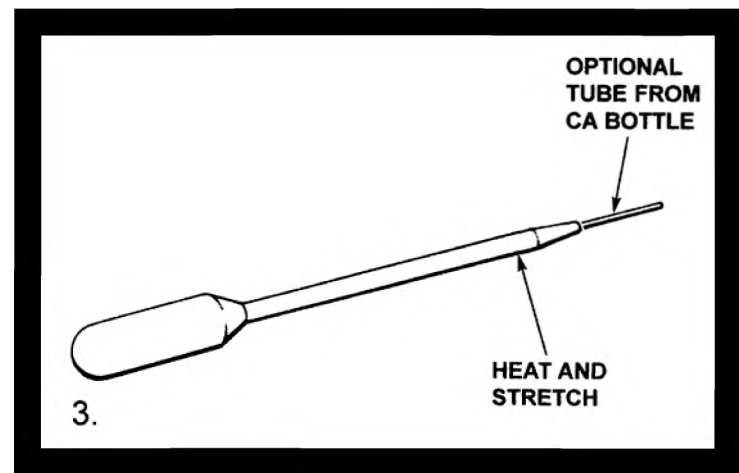
3. **Stretching Pipets For CA Application:**  
From Daniel Schaller, of Kinsley, Kansas. Modelers sometimes have trouble putting CA exactly where they want it in the proper amounts for the job. Small squeeze bulb pipets work really well for this. They're usually available from well-stocked hobby shops. If not, a box of 500 of the 1 ml bulb type, polyethylene pipets can be purchased from a company called Thomas Scientific at <http://www.thomassci.com>, part no. 7760M45, for \$15.76 plus shipping, which makes them very inexpensive. Five hundred would be a lifetime supply for one modeler, but a club could get them in bulk and sell small quantities to members.

Now to the good part. Since they are made from polyethylene, you can use a pocket hobby torch on a low flame to slowly heat the last inch or so of the pipet and stretch it way out before it

cools. This makes an applicator that will reach a long way into a model and apply CA right to that critical spot.

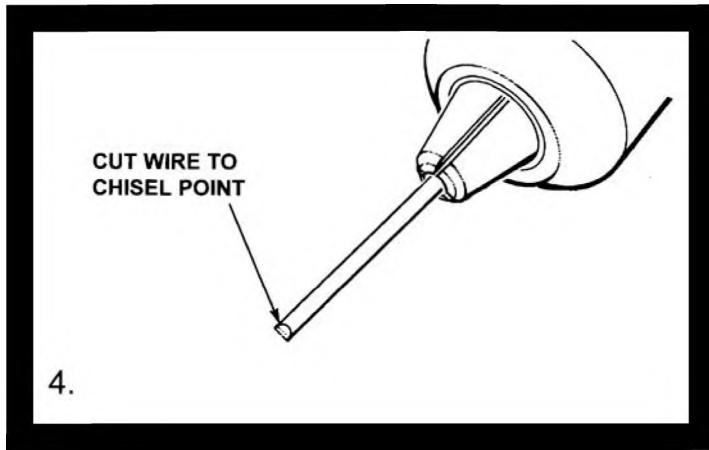
After it cools, take a hobby knife and cut a new end in the stretched pipe. Tiny application tubing from CA bottles will fit in the end of most pipettes for better control of flow.

After you finish using it, even though you could throw it away, it can usually be blown out well enough to be used again, or can be rinsed with solvent or CA remover to clean it up and be used again and again. These make great applicators and sure beats trying to drip the CA where you want it! Walt's notes: A pipet can also be used to apply oil to bearings or other mechanical parts in difficult-to-reach locations. Just don't get it mixed up with your CA pipet.



4. **Drilling Tiny Holes:** From Earl Acker, of Fenton, MO. Most miniature servos come with very tiny mounting screws. The 1/16" drill usually used for drilling pilot holes is too large to allow the tiny screws to be threaded in place. Drills smaller than 1/16" are available, but may be hard to find. You could just use larger, standard, servo-mounting screws, or try this: Select a piece of music wire somewhat smaller than the provided screws. Cut off one end

using wire cutters. This will usually leave a burr or chisel end on the wire. If not, use a grinder or Dremel tool to grind a cutting end on the wire. Mount the wire in your electric drill and use it to drill the pilot holes for your servo-mounting screws. In most cases, it'll drill through balsa, or lite plywood, with ease.



5. Alternative Tubing: (No illustration)  
Another one from Daniel Schaller, of Kinsley, Kansas. If you buy a lot of aluminum or carbon fiber tubing, you know how expensive it can be. If the diameter is not critical, or you can design your project around it, arrow shafting can be a great and somewhat less expensive alternative to hobby grade tubing. Arrows come in different weights for different strength bows, so you can pick the size you need and have some on hand. Daniel gets his from Wal-Mart. They offer several different types and sizes, and the price is very reasonable in both aluminum and carbon fiber. Buy the ones without tips and have fun! Always check the clearance aisle; too, as sometimes these items end up over there. Walt's Notes: I also checked the local Wal-Mart (In the St.Charles, Missouri area) and was told they only stock arrows and Bow-Hunting supplies around the Bow-Hunting season. None were in stock in April. The Bass Pro Shops,

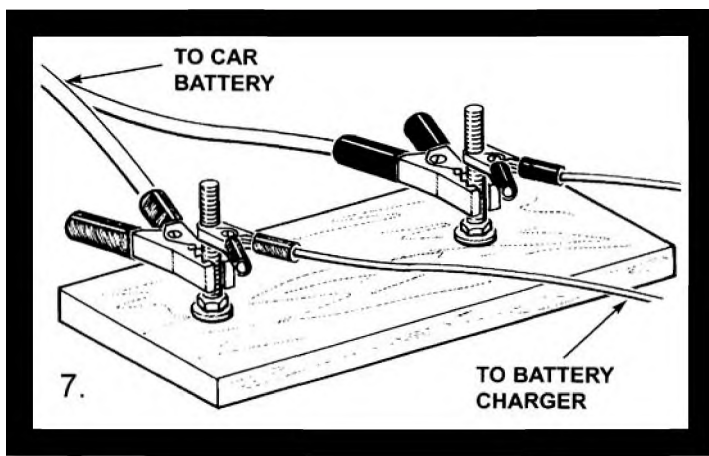
Cabella's, or other large sporting goods stores should have them all year long.

6. A Better Hinge Protector: (No illustration) After reading Al Knight's suggestion about dipping pinned hinges in Vaseline to protect them from glue when installing them, Richard Sprau, of Helena, MT, submitted the following: Vaseline will get full of dust and dirt! Use paraffin, or even better, melted crayons. Dip the hinge in a color to match the model. It keeps from collecting dust and is also a really good lubricant. A small box of crayons will last a long time. Richard makes jelly in the fall and seals it with paraffin wax, which also works very well and is inexpensive.

Safe LiPo Charging: Here's another one from your friendly writer: We are constantly being warned to take care when charging LiPo batteries because of the chances of fire or explosion. At the field, many of us use our car batteries as a source of power for charging. The leads on most battery chargers usually aren't long enough to allow the charger and battery being charged to sit on the ground, so we place it under the hood or, if the charger has a cigarette lighter plug on it, inside the car. We've seen photos and read horror stories of burned-out cars resulting from charging mishaps. One solution is to simply make longer charge leads between the battery and charger, with the charger under the hood and the battery on the ground. Here's another way to do it. Find a set of inexpensive jumper cables for starting cars. Lighter and more flexible wires would work best for this application. If you are so inclined, use the clips and replace the wires with a length of heavy-duty extension cord and use terminal lugs to replace the clips on the



terminal board end. Mount two 2-1/2" to 3" carriage bolts in a board about 6" apart. Attach one of the jumper cables to each bolt. Clip your charger leads to the bolts, being sure to maintain the positive/negative relationship, and the charging setup, with your LiPo battery, can sit on a table, chair, or the ground, away from the car. If you use the cigarette lighter as a power source, add a lead long enough to reach a terminal board outside the car, as above. Multiple chargers can be in use at the same time with this setup.



Help! I need ideas! With this column, I'm into my fifth year of doing this column, now! That's a lot of ideas presented. While some of them may seem basic or standard practice to modelers with years of building experience, they can be a revelation to a novice builder or someone whose total modeling experience has been assembling ARF's. This column is dependent upon your suggestions, so keep them coming!

Walt Wilson



**Some things never go out of style. Saving money is one of them.**

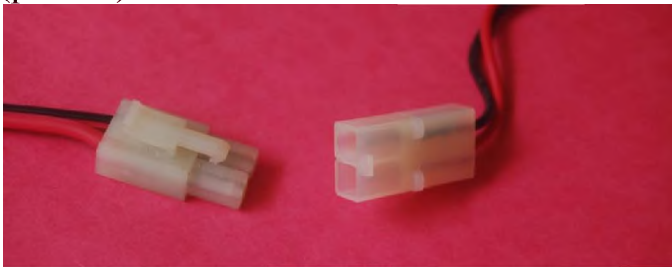
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They say that a chain is only as strong as its weakest link, so I'd like to dedicate this month's column to items that are often the weakest link in a power system, the battery connectors. I first learned the value of using high quality connectors when I was into RC cars. Back then, and still today, many electric cars and batteries included a plastic-shrouded bullet connector called a Tamiya, Kyosho, or Molex plug, depending on the local vernacular (photo 1).



**Photo 1: The Molex plug (also called the Tamiya or Kyosho plug) is standard equipment with many RC cars. They wear out quickly and shouldn't be used in airplanes at all.**

These plugs worked well enough when new, but the life of an RC car is a hard-knock one. The Tamiya plugs are prone to premature wear. Soon enough, they would show intermittent connectivity or high resistance. When the battery connector is hot after a quick drive, you've got problems.

Once I began participating in organized racing, I found that no one was using Tamiya battery connectors. They simply wasted too much power from the battery. The most popular plug used by racers was the Deans 4-pin plug. It was a huge step up in performance and reliability. Some of the hard-core racers didn't use any connectors at all. They would solder their ESC wires directly to the battery just before each race! That sort of set-up isn't really practical for



RC airplanes, and the benefits would probably be insignificant compared to using a high-quality set of connectors.

As I eased my way into electric flight about 12 years ago, the Deans 4-pin plug was being phased out in favor of the Deans Ultra Plug (photo 2).



**Photo 2: Deans Ultra Plugs are a very popular, high quality plug that is applicable for use in just about any size RC plane. Basic soldering skills are a must to use the Ultra Plug.**



One of my first electric airplanes, the Trick RC Zagi-400 included Ultra Plugs, so that's what I used. Just about every one of my planes since the Zagi has also used Deans Ultra Plugs. If I decided to change my connector allegiance now, it would cost me a bundle. The good news is that I have no reason to swap connectors. I've used the Deans in power systems ranging from 15-watts to 2200 watts.

The key to success with Deans Ultra Plugs is to make sure you get a good solder joint on the wire. I know that some guys are intimidated by soldering, but it's pretty much a required skill for electric flyers. So you might as well get the right equipment and build some confidence now. I could spend time coaching you on the proper techniques, but there is a wide variety of useful tutorials already available. Hobby Lobby has a good instructional video on their web site: <http://www.hobby-lobby.com/learntosolder.htm>

One of the common gripes about Deans Ultra Plugs is that they can sometimes be difficult to separate. The outer surface of the plastic housing is smooth, which can make it hard to grip at times. I've seen all sorts of home-brewed techniques for conquering slippery connectors, but I've never felt the need to utilize any of them. However, if you have trouble with them, here are a few of the remedies I've seen:

- Add 1/2" diameter heat shrink tubing over the connector housing
- Use a hobby knife to cut ridges into the connector housing
- Drill a small hole between the spades of each connector housing and use snapping pliers to pry the connectors apart

I recently purchased a new product that addresses the slippery nature of Deans Ultra Plugs. HDI Products ([hdiproducs.com](http://hdiproducs.com)) manufactures a two-piece shroud that covers the housing of an Ultra Plug and gives a better gripping surface (photo 3).



**Photo 3: These glue-on shrouds from HDI Products provide a large, textured surface that makes it easier to disconnect Ultra Plugs.**

The two halves of the housing are simply glued into place with CA. For most airplanes, the larger size of the shrouded connectors should not be an issue. I found the connectors easy to install and they definitely ease the task of disconnecting the plugs.

When I solder wires to Ultra Plugs, I typically orient the positive wire to the outside of its spade. Unless you're using really small wire, the HDI housing won't fit in this configuration. You just have to place the positive wire on the inside surface of the spade. It's no big deal as long as you are aware that it is required.

On a different note, HDI provided a sample of their nylon control horns (photo 4)



**Photo 4: HDI Products also sells these molded control horns that glue into place. I'll be trying them on an upcoming project.**

with my shroud order. The horns come in two sizes and can be glued into place with epoxy or CA. It looks like these horns can be used on just about any typical modeling material. I've got a foamie scratch build project coming up. That should be a good proving ground. Based on my visual and tactile inspections, they seem very strong and should work well.

Okay...back to Deans Ultra Plugs. If you've soldered them correctly and carefully applied the included heat shrink tubing, you should not have much risk of shorting the plugs. However, if the base of either heat shrink tube does not sit flush with the side of the connector housing, there may be some conductive material exposed. In this case, you can either start over or add a sleeve of 1/2" diameter heat shrink tubing over the connector housing and the solder joints. The idea is to make sure that an errant screwdriver or bolt doesn't bridge the connector and cause a short. Whether it's a lipo, nicad or any other kind of battery, a shorted output is a fantastic way to start an unwanted fire.

When I place a flying-day's worth of batteries in their assigned tray of my field box, there can be an awful lot of wires and connectors crossing paths. There isn't a huge risk, but there is always the possibility that a conductive trespasser can make its way to the recessed spades of any connector (You always put the female plug on the battery.). With so many batteries in one compact space, that would make for a very bad day. For the most part, I've just accepted the risk while being very careful with how I place the batteries and keeping the area clear of conductive interlopers.

Another new product that I recently purchased is aimed at protecting the exposed ends of Deans Ultra Plugs. Battery Buddies from Colorado Radio Control Products

(batterybuddies.com) are rubbery vinyl boots that fit over the end of an Ultra Plug (photo 5).



**Photo 5: Battery Buddies provide insulation to the exposed ends of Deans Ultra Plugs. They can also be used to identify the charge state of a battery.**

Once the boot is in place, the conductive spades are completely insulated from outside threats. I found that if you twist the Battery Buddy as you install it, you can slide it far enough to also cover the solder joints of the connector. One end of each Battery Buddy has a nice fat tab that is easy to grip. They come in black and red, so you could also use them to note the charge status of a battery. For example, charged batteries get a red boot while discharged packs wear black (It's very slimming!).

I bought enough Battery Buddies to cover the large LiPo packs that I keep stored in a .50-caliber ammo can. At about \$1 each, I can't quite justify the expense of purchasing enough Battery Buddies for my whole inventory of batteries. However, I think I may be able to find some generic vinyl boots that will do the same job (or close) at a lower cost. We'll see.

I've devoted most of this column to Deans Ultra Plugs, but they are certainly not the only high quality connector around. Anderson Power Poles are also quite popular. They are a little larger than Ultra Plugs, but they still easily fit in most planes. The housing can be separated into two halves and reconfigured in a number of



ways. This feature makes Power Poles very versatile, but you have to be careful that you don't plug in anything with the polarity reversed.

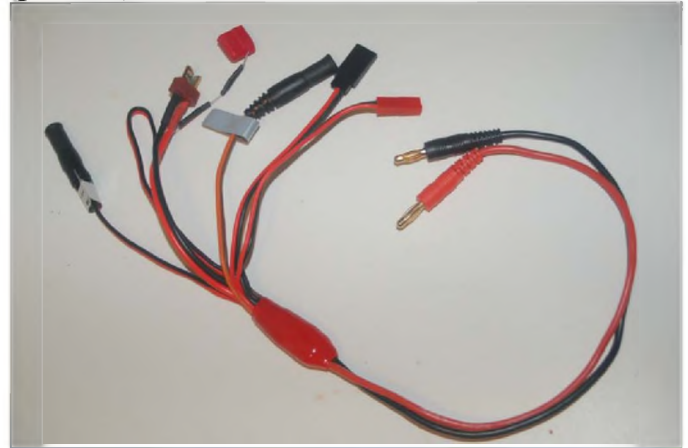
Models from E-Flite and ParkZone have been very popular for a while now. That popularity has helped to expand the use of their proprietary connector, the EC-3. From what I've seen, these connectors work fine. Although I am not sure that you have the capability to remove the wires from a connector without having to first destroy the plastic housing. For most of us, this would never be an issue.

Traxxas also makes a connector that looks good and is popular in the RC car scene, but it hasn't yet caught on with airplane guys. There are a number of different connectors available for small models. The JST connector is popular and is included with many small batteries and ESCs. They seem to work ok under 10 amps, but I prefer Deans Polarized Micro Plug on my smaller models. I don't have very many loyalties in this hobby, but I guess Deans is one of them. Maybe that's because I've likely spent over \$500 on various Deans connectors over the years. Once you find something that works and you become invested in it, it's tough to change tracks.

With so many different connectors about, you're bound to run into a situation where you need an adapter of some sort. I've soldered my own adapters that will allow me to use my Deans equipped batteries with someone else's Power Pole or EC-3 equipped airplane and vice-versa. These handy widgets live in my flight box and have been used many times.

It is also likely that you will need a handful of different leads for your battery charger. The output port on most of my chargers has female banana plugs. Over the years, I've soldered countless leads to accommodate charging of the

different popular connectors, as well as my radio batteries. I recently purchased an all-in-one charge lead commonly called an "Octopus" (photo 6).



**Photo 6: This "octopus" battery charging lead includes several different styles of connectors as well as blank leads where more plugs can be added.**

It has male banana plugs to mate with a charger and up to 7 different plugs attached. Mine has a Deans Ultra Plug, a JST, a JR transmitter plug, a Futaba transmitter plug, a universal servo plug, and two blank leads so that I can add a Power Pole and EC-3. The Octopus is much easier to manage than my old collection of individual leads. They are available at a variety of online hobby shops for around \$10-\$15.

That's all for this month. Send me an email if you have any questions or comments. I've got a few ideas on the table for next month's column. So come back and check it out. Until then...

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

It looks a lot like summer time around here and the pollen is just about washed away from everything in sight. The sun is staying up long enough for me to even take a short ride to the local flying field and get in a flight or two. Toledo was great and I really enjoyed talking to all the readers and subscribers-to-be, answering questions about just about anything and everything. It is a bit difficult to remember facts about planes I had built and reviewed years ago, but I still get those questions and don't mind trying to answer them.

I am planning my trip to Top Gun as I type and hope the weather is going to be good enough to stay out in the sunshine for most of the daylight hours. Again this year I am flying to Tampa and renting a car for the 60 minute drive to Lakeland. Less than a week after Top Gun, I will be driving to Greenville, SC for the Joe Nall Fly In, and maybe I'll see a bunch of you there too.

I have heard that R/C REPORT ☺online columnist Gary Webb will be unable to join the group this year at Top Gun due to a medical problem and we all wish Gary a speedy and complete recovery. Hang in there, buddy!

This month I don't have any photos of airplanes, so I will be talking about a little bottle of liquid that should help all us gasoline burning engine users. I'll try to describe the methodology I follow when selecting propellers



for engines and I will pass along some tips on the way model airplanes are sold to others.

Let's get started.

### SOLVING THE GAS PROBLEM

We as modelers use gasoline or alcohol based fuels to power our engines, and have been doing so for years. Most of us know how water can be absorbed into alcohol based fuels due to it being hygroscopic, or having the ability to absorb water. This is why glow fuels seldom work well for more than a year after being put into service.

However, we all know and trust good old pump gasoline, the stuff we regularly put into the fuel tanks of our models and also into the tanks on our vehicles for everyday use. There has been no evidence of problems up until now that pump gasoline could cause problems with our



model engines. But the US government has begun to mandate the addition of a form of alcohol into motor fuels in the form of ethanol for the following reason:

“The sale of ethanol blended fuel, commonly referred to as E10 gas, is on the rise in the US as more states are mandating its use to help improve air quality. Also promoting the growth of E10 is the need to phase out the current additive MTBE which has been found to contaminate ground water supplies.”

There have been a number of problems related to the introduction of ethanol into pump gasoline, and those problems have filtered down to our model engines. Hardened fuel lines, cracked carburetor gaskets, carbon and sludge buildup in the engine and spark plug, and others. Here's why that happens:

“Ethanol has a great affinity for water, and will attract moisture from the atmosphere through the vented lines of a fuel tank. The water molecules form an electro-chemical bond with the ethanol that is stronger than the fuel's original bond with the ethanol. Water is heavier than gas so the water/ethanol molecule is dragged to the bottom of the tank and separates from the more buoyant fuel molecules. This is referred to as phase separation and occurs when the water content in the fuel reaches roughly .5%”.

“E10 gas has a maximum shelf life of only 3 months under ideal environmental conditions, and can absorb excess water into gas in only a few weeks or less. Only 2-3 teaspoons water/gallon will phase separate E10 gas. Ethanol blends absorb 40-50 times more water, compared to 100% (non-alcohol) gasoline.”

“Because the emulsified water lowers the flame temperature in the combustion chamber the combustion efficiency is greatly reduced and the unburned hydrocarbons soar. This forms carbon deposits in the engine, especially on the piston crowns and on the spark plugs.”

While it is true that most of us gas powered pilots drain their fuel tank and run all the gas out of the carburetor at the end of every flying session, there is still reason to try to reduce the effects of ethanol in the gas to begin with. Some states do not require the inclusion of any ethanol in pump gas, while others allow it to be included year round. The sign on the pump that reads “May Contain Up To 10% Ethanol” leads me to believe that ethanol is in all the gasoline we buy from that pump.

So, rather than look for gas without ethanol, I found a product that does not remove the ethanol from the gas, but rather it removes the “EFFECT” of the ethanol in it. It's called Carburetor Saver and PHOTO 1 shows the tiny bottle it comes in.



Photo 1: Carburetor Saver that removes the effects of Ethanol in gasoline

There is enough liquid in there to treat 16 gallons of gasoline, if you use the recommended one capful per gallon. According to the instruction sheet, Carburetor Saver will "...disperses water derived from normal condensation into microscopic clusters...allows that water to pass through the fuel system and engine harmlessly...preventing buildup on the tank bottom...". Also, if large amounts of water are already present, "...it will be demulsified and drop out of the body of the fuel..."

Carburetor saver can also "...counter the effects of lost octane...prevent screen plugging from old gum and varnish...break down dislodged sludge and other deposits into sub-micron size particles that usually pass through the fuel filter and are burned away..."

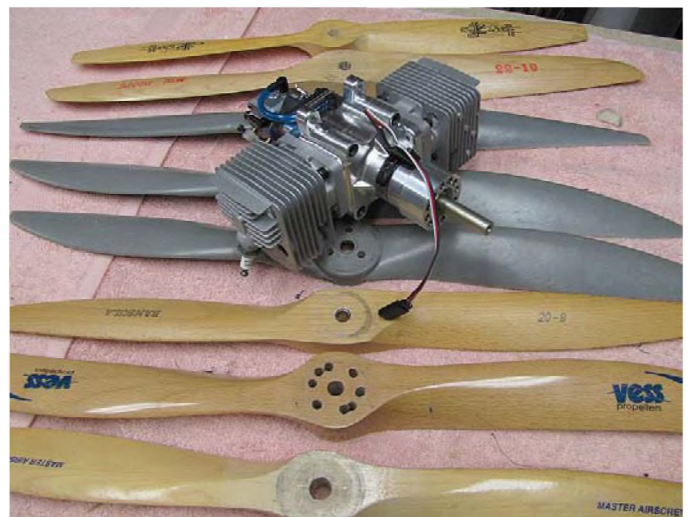
Now this all may sound like some sort of "snake oil", and I am not all that sure that Carburetor saver does anything at all, but for \$5.00 ☺ a bottle, I had practically nothing to lose. I fully expected the engines I used Carburetor Saver in to run at least as good as they did before. And, they certainly did. However the only true test of the product such as this one is to put it to a long term test over a period of months or even years. I have to admit that I am not in a position to do any tests of this magnitude, so I will continue to use Carburetor Saver in all the engines I run to see if any problems arise.

If you want to try a bottle yourself, you can send an email to [uncgeorge@comcast.net](mailto:uncgeorge@comcast.net) and tell him I sent you and you want to do a long term engine test using Carburetor Saver. I'm sure he will be very happy with your suggestions.

## PROPELLERS; THE NEVER-ENDING STORY

All of you out there please raise your hand if you have ever read an article about how to determine the best propeller for your model. I see lots of hands being raised, mainly because there have been scores of such articles written over the years and most begin with very complex mathematical formulas and aerodynamic theories and I don't know what all. Reading further into the articles, you may read how propellers are supposed to work, what they are supposed to make your plane do and untold other information that mainly passes right over the heads of most modelers.

And, to sum them all up, the usually end with a line that may read "Or, if you want to get peak performance out of your engine, just acquire a number of suitable size and pitch propellers, like the ones seen in PHOTO 2, try them all on your engine on your plane, and you'll find the best prop for your flying style"



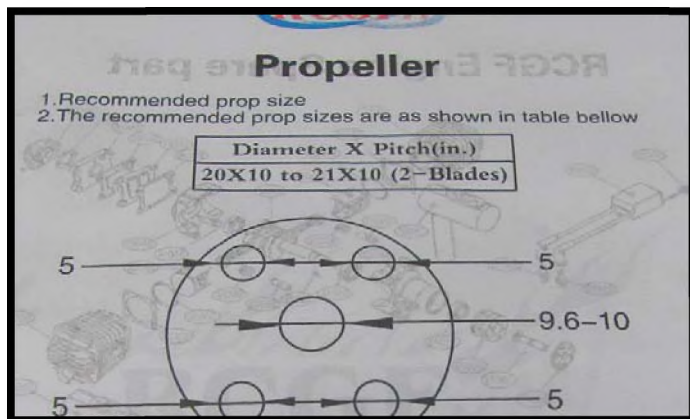
**Photo 2: Here are some of the props that could be used on this engine**



So, why didn't they say that to begin with and not waste our time reading mostly unintelligible information that makes sense only to the author? Good question, but it can be answered quite easily.

In my opinion (Something everyone has and is very proud of it.), the absolute best way to find the "right prop" is to follow the last line of all those articles and dissertations to begin with. There are a few things to consider when doing this process, but they are all easy to understand and put into practice.

First, read the @#\$\$% ☺ ^ & \* manual! (RTFM, for those who are not very cryptic.) and see what prop sizes are suggested for use by the manufacturer of your engine. They designed and built it, didn't they? They should have a pretty good idea of what props work best for all flying situations. Most include a page that looks like the one seen in PHOTO 3.



**Photo 3: Manufacturers recommendations for props are always included with the engine**

Second, look around your shop and see how many props in these ranges you have on hand. New or old, they are probably suitable for making at least one flight.

Third, in case you don't have many of the props on those listings, beg, borrow or steal (No, don't do that one.) some from your flying buddies, explaining that you will return them and maybe even lend them a prop or two when they try to go through this process themselves.

Fourth, one by one, put a prop on your plane and make a flight with it. See how well you like the way it allows the plane to fly. You may want to enlist the help of other pilots at the field, having them watch and listen to the plane and engine, checking for odd sounds or flight characteristics.

Last, narrow your search down to a few props that you felt performed the best on your plane using your flying style. Make a few more flights with those props and then you can start returning the props you borrowed and heading to the hobby shop to order a few of the props that worked best for you.

Yes, Virginia, there is a way to find out what props work best on your plane, and it is easy as what I just described. You may now be asking what propellers I use on my models. The late, great Cajun chef, Justin Wilson, once was asked what kind of wine was the best.

His answer was always the same, "The one you like".

I feel exactly the same way about propellers.



## PARTING IS SUCH SWEET SORROW

Every now and then, all of us have to part company with one or more of our model planes, for one reason or another. Maybe they are starting to get a little old and worn. They may be taking up a bit more space in the shop than we have available. Quite possibly, we may have seen a suitable replacement for those models and want to make them available to someone else to enjoy.

Whatever the reason may be, there comes a time when you will have to try to make a model available for sale. Over the years, I have built and flown more than 200 models in all shapes and sizes. Many I have kept for a longer period of time than others, with many residing in the shop for over a year. Some were sold a few weeks after the test flying was completed. And a few were “spoken for” even before they arrived at the shop for me to assemble. Mine is a special case, but the procedure for making an old plane available for sale is the same, no matter how long you have owned that model.

First and foremost, you have to make that older model presentable and attractive to the potential purchaser. Wrinkled covering, worn out wheels, broken propellers, fuel stains and oil spills are not the selling points of attractive models. Take some time and do a little cleaning and tidying up on the covering. Feel free to put a patch over a small hole, being prepared to explain how that hole got there in the first place. A shiny plane looks more attractive to a customer than a dull plane.

I always sell my planes almost complete, keeping only the batteries and receiver for use on another project. This way, the purchaser

only has to add their electronics, program their transmitter and go flying. If you really want to keep the engine, be prepared to suggest the use of that exact engine to the new owner, so major modifications will not be necessary. In any case, I suggest that servos be left in the plane because it is more trouble to remove them than it is to go out and buy a new set for the next project.

An important element of selling anything is honesty. Would you buy a used plane from this guy in PHOTO 4? He looks honest enough to me, but you might want to ask a few questions first. And as the seller of the model, you need to be prepared to answer all those questions honestly and to the best of your ability. If you don't know an answer, then let the customer know that you don't.



**Photo 4: Would you buy a used airplane from this guy? Many people have.**

The next question people ask me is about where I sell my models. I sometimes use one or two of the online website “swap shop” areas, but only the ones that do not charge for their services. The problem with these is that readers see a particular model for sale and immediately start asking generalized questions about the plane, like “How much did it weigh?” or “How well did it fly?”. These questions and more were not directed at my plane that I had for sale. They were asked to find out if they should buy a new model of the same type as mine. They never intended to purchase my airplane. I would have been happy to answer questions about the model, but not in the “For Sale” area.

Word-of-Mouth is always a good way to sell a plane. Since I mainly build the newest and greatest models, people are constantly asking me if I had ever built an “XYZ-99 SuperFighter” or whatever it is they were interested in. If I tell them that I was planning to build on in the very near future, more often than not, they would ask to be put “on the list” so that they would have the first shot at the plane when I am done with it.

Local flying events are another great way to do some advertising, especially when you can fly the plane that you have for sale. You could even ask the PS announcer to mention that the plane in the air “is available to any interested purchaser” which always drums up business. If you know the person who may be interested in your plane is a competent pilot, you might even let him have a turn on the transmitter to let him see how well the plane flies up close and personal. This technique always works.


As an example, I took two of my models to a local event, set them up and made them ready to fly. After flying one, a person asked if I would sell him both the planes, based only on the way the first one flew. He paid me cash dollar and took home both of the planes. Another satisfied customer helping me out.

So, when you have a model that you would like to send to a good home, the methods and techniques that I described here have never failed to work. Give ‘em a try.

That’s about all I have this month. I would really like some photos of your new projects, and maybe you’re flying buddy’s planes too. The more photos I can get the better.

See y’all at the field!

Dick



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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](mailto: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.

### ONCE MORE FOR THE NEW BOY

The number of times I have been asked for information relating to homemade exhaust systems is too many to remember. What type of metal, how to join the metal, will silicone compound hold the job together, baffles, outlet, intake manifold and the million \$\$ question, how big for a given engine size? (By 'size' I take it that the 'asker' means...engine capacity.) Well, the question of metals is no great brain drain and neither are the methods of joining the parts together. Baffles are not so easy, outlet is a bit of a problem, but not too difficult and intake manifolds - to attach to the engine - are not a problem if you have a bit of workshop equipment and metal work experience. However, the capacity is a real poser as there are so many factors to consider. For a guide, a two stroke (glow) muffler is the largest capacity. A two-stroke petrol engine is the next size down. A four-stroke on glow or petrol is the smallest. A two-stroke glow engine is a real fuel guzzler and the exhaust volume is enormous. A petrol two-stroke uses around one third as much fuel and its burn consumption is much better than a methanol engine (Only small



black spots from a petrol engine exhaust.) and a four-stroke uses the least fuel plus it exhausts every second cycle (third-stroke) and it is the most tolerant of a small capacity muffler. There is a moderate increase in the exhaust temperature of a petrol two-stroke over a glow two-stroke, so it is the volume of exhaust gas - plus the fuel that is blown out - of a glow two-stroke that requires a much larger muffler volume in order to prevent choking the engine.

### EFFECTIVE EXHAUSTING

The start of effective exhausting is the method of transferring the exhaust gas from the engine to the muffler - the style of manifold and header. The best design is to have a large - according to the engine capacity - expansion chamber similar to the common two-stroke mufflers. This design is not the best for noise suppression as the blast of exhaust hits the opposite side of the chamber and this, in my terms, is the BLAT effect. With your family chariot engine running, hold a piece of flat metal or wood very close to the exhaust outlet and listen to the increase in sound. Have

somebody press the gas pedal and you will really hear the 'BLAT'. This is a major part of the noise from a two-stroke (common) style muffler. Better is a curved header pipe as you see on motorcycle engines and the exhaust pipe from the header assembly of your car engine. The gas is flowed around the curve and flows into a large expansion chamber, which, if correctly designed, eliminates the blat effect. Listen to a BMW motorcycle; very quiet yet no engine restriction. Sometime in the future I will show you the inside of an early BMW muffler which was extremely quiet. The cops...err...Highway Patrol Police Officers rode these 'Beemers' and they were known, by the street riders, as silent death. You couldn't hear them coming for you (If you weren't watching the rearview mirror.), and suddenly, they were, silently, beside you and it was 'death' to your wallet or maybe even your license. I made a half size BMW muffler - 15" long - and I use it on many engines during testing as it has almost zero restriction and you cannot hear it over the noise of the propeller. Remind me and I'll dig out the drawing from...somewhere in my workshop...and I will see if I can reproduce it for the magazine.

Metal for mufflers can be aluminum, steel, (Stainless steel as the best choice.) brass and copper; second choice due to the weight (heavy) and not really good for glow engines as nitro methane attacks copper and brass. Assembly can be by all types of electric welding, brazing, oxy welding (steel and stainless), silver brazing (aka silver soldering), shrink fit, pop riveting, sheet metal screws or normal metal thread screws and bolts. Silicone compounds suitable for high heat and safe for whatever fuel you use

can be used with caution in some areas and can also be used as an excellent sealant for joints.

## SUPPLY IDEAS

As with the old gag about 'how to be a sculptor...you get a block of stone and remove all the material that does not look like your subject', you can do similar in reverse for making mufflers. Study items in the hardware store, kitchen goods store and the eastern type variety stores for material or even almost ready made mufflers. I made a very nice large muffler a while back using a stainless steel butter container.



**Photo 1: I made this .40 size muffler from a torch body to connect with a curved header.**

I fitted two outlet pipes, and simple manifold, a support bracket and silver brazed the lid on...one very inexpensive and neat stainless steel muffler. (I use an old chocolate box for the butter on the dinner table now. L ☺L.) Look for metal boxes, tubing, various hollow shapes and also any item with built in strength. A fine example of this is a simple stainless steel torch - quite common - made in China and very inexpensive. The body is very thin metal, but it is ridged and that provides great strength. It has a screw on end cap, and when you remove the

switch, a possible position for a side mount manifold.



**Photo 2:** These torches are common, inexpensive and very sturdy stainless steel.

Simple matter to blank off the other end. And there is a good technique for that. This applies to any shape of muffler or canister body you make if you have to fit end caps (almost always needed). For circular tube bodies, use a spade drill or Forstner bit to cut a shallow depression in a piece of hard wood of a diameter to match the body plus the thickness of the end cap. Cut a short length of dowel the same diameter as the muffler body. Lay the end cap material on the base block, align the dowel and hammer the metal into the depression to form a return (folded back edge) all around. Fix it to fit on the end of the tube to provide a perfect section for brazing, silver brazing, riveting or screwing. For square or rectangular tubes, use a section of hardwood to match the outer size of the tube. Cut the end plate about 3/16 larger on all sides, notch out each corner then tap the overlap down over the hardwood for the same effect as the round tube. Outlet tubes are best if they go through both walls of the muffler body with the opposite side (opposite to the outlet) just coming through the rear wall, blanked off and welded, etc.) to both the rear and front wall.

Before assembly, drill a number of holes in the section of tube that will be inside the body.



**Photo 3:** Flexible stainless steel tubes of all sizes are very good for headers or just on their own for a muffler.

Hole size isn't that important - just enough holes to provide an exit area slightly greater than the bore of the tube. Intake manifolds are your choice and depend on the muffler style and how you will attach it. A simple method is to slot a metal plate to match the exhaust manifold opening of the engine, squeeze the end of a metal tube to match the slot, weld (etc.) it to the plate then attach it to the muffler in a similar manner to the way I described for the outlet tube(s).

### **HOW BIG?????????**

Yes, the very big question as there is no real guide. Consider how small the muffler is that is fitted to your car and then consider the capacity of the engine. If we had mufflers fitted to our cars along the lines of those fitted to model engines, the muffler would be almost as big as the car. Problem is, gas (exhaust gas) does not scale down (like air) so the parameters are useless. As a rough guide that will certainly work, I would consider a muffler body for a two-stroke to be at least 1.5 times the capacity



of the engine. Take a measurement of the outer diameter of the barrel - excluding the fins - of the engine as a good guide. What you have here is the bore and stroke of the engine (diameter and length) plus the wall thickness of the inner liner and the outer barrel at the root of the fins. I would use this guide for glow and 2/3 of this for gas engines. For a four-stroke I consider that about half to two thirds of this would be more than adequate - even less if you consider the size of mufflers on some four-strokes. Use a supplied muffler as a comparison to give you a guide to see if you are on the correct path.

As a few last words, don't rely on the manifold screws (bolts) to support a large muffler. Use a supporting bracket, make sure the exhaust gas can expand as quickly as possible, use overlaps for all joints, use slots in the manifold for the screws and last and most important, if you are silver brazing or aluminum brazing, do a super good job of cleaning the joints that will be brazed and don't touch them after you have cleaned them. By clean, I mean as clean as a surgeon would have your scalp if he was operating to see how your brain ticks (Or if you have one.).



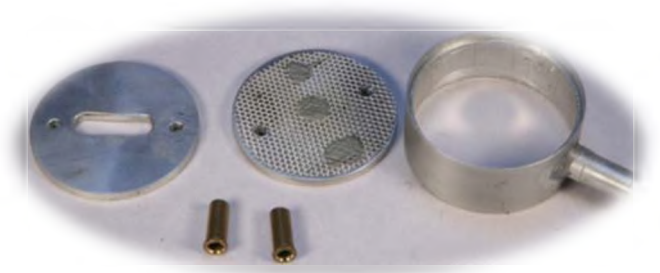
**Photo 4: A well used muffler with nitro attack on the paint. Note the return indicated on the end cap.**



**Photo 5: Double expansion chamber for a tight installation. The top section (manifold) was machined from bar stock - drilled hollow and the open end plugged and brazed.**



**Photo 6: One end cantilevered to suit a tight installation in a cowl.**



**Photo 7: Parts for a very simple and effective muffler for tight cowls. The .22 rifle cases are the internal spacers and the mesh tames the 'blat' effect.**

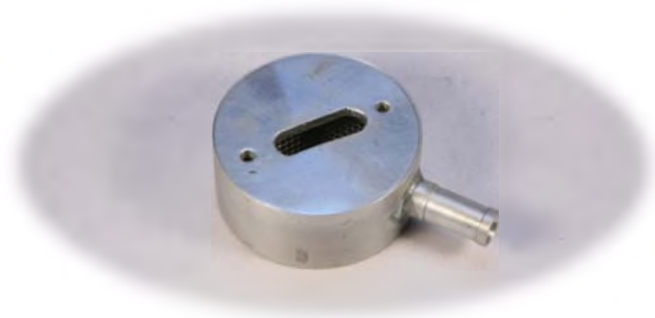


Photo 8: Assembled job - position the outlet to suit your model. This muffler is from a design by Mick Reeves of the UK. Mick Reeves Models UK.

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## THE LATEST ENGINE ☺N TEST



Photo 9: The first of the new wave - won't be the last.

ENGINE	O.S. GT55
CONFIGURATION	Single cylinder two-stroke, spark ignition, petrol fuel
DISPLACEMENT	54.9 cc
BORE	41.2 mm
STROKE	41.2 mm
WEIGHT	engine 1580 g - CDI - 140 g
STATED POWER	Quite adequate
R.P.M. RANGE	1,800 - 8,000
PROP' RANGE	22 x 8 to 24 x 10 tested
FUEL	40:1 according to brand of oil used
SHAFT THREAD	4 bolt common pattern
SUPPLIED WITH	Plug, exhaust gasket, ignition unit (CDI), instructions, and decals - integral radial mount

## FOREWORD

Firstly, let's kill the common rumor. This is not the first spark ignition petrol fuel engine produced by the O.S. Company. The first was in 1936, then '37 - '38 - 39 - 40' - '41 - '42-'46 and the last in 1948. A reproduction of the 1936 model was reproduced a few years back for interest and collectors. So, all in all, setting the record straight, this is the eleventh 'sparky' by the company, but this one is considerably different from its predecessors. In a flight of fancy, I considered that, if Shigeo Ogawa - the founder of the O.S company (His initials reversed gave it the name.), in his after life, was still interested in the manufacturing of engines bearing his name, he would have been watching the progress of this engine and thinking, "Well, very nice, but a lot different to my petrol engines so take care you get it right."

Well, for him, the engineers at O.S. DID get it right as this is a winner in the larger petrol engines field. First and foremost, as you would expect, this engine has been designed from the first pencil stroke to be used for model aircraft use. No chainsaws, leaf blowers or other hand tools; purely as an engine to swing propellers in large model aircraft. Delving very briefly into design factors (as opposed to hand tool engines), a model engine has to deal with a forward thrust load - the pull of the propeller, severe gyroscopic forces - the crankshaft suddenly changing direction (due to model direction) with the large fan on the front fighting against changing its rotating plane and operating under load at all times. Quite a lot to ask of an engine. Most important is the support for the crankshaft - two bearings spaced at the



extremes of the actual shaft section with adequate housing stability and, due to the constant load, adequate lubrication for the bearings. If the crankshaft and housing area is well designed and manufactured, the lower engine case will remain quite cool - in reference to the cylinder temperature. Another consideration is the engine balance. It is a fact that a single cylinder engine cannot be balanced for smooth running over its full RPM range. Hand tool engines are generally balanced for their average working RPM - a chainsaw will shake like full coffee cup carried over a new carpet when at idle, but it smoothes out quite well at full RPM - the operating speed. Model engines must have the best compromise so that the vibration is minimal over the full RPM range as there is no common operating speed except in the case of, say, pylon flying. No matter how good the balance the engine will always have a harmonic period where it DOES shake. However, good design factors can keep this shaking period to a very short RPM range and, generally at a less commonly used engine speed.

Okay, just a few requirements for a model engine so....how did this O.S. shape up?

Well, perhaps the first comment I wrote on my bench notes tells a good story and the comment is 'smooth power'. I was really impressed when I started the engine as to how smooth it was at a high idle speed. There was just no shaking - smooth as the rocking of a cradle. So nice and so easy to start. You read the instructions for the preferred method of starting. Don't try my methods. Just a few turns of the propeller had the fuel to the carby; a couple more to get fuel into the engine (throttle open full), choke

closed, ignition on, flick for a 'burp', choke open, just above idle for the throttle and two good flicks had it running like a top. You need good flicks as the ignition will not operate under 100 RPM for safety. Good idea! No bursts of life for the casual prop turner. All my starting was by gloved hand and 1-2 flicks hot were the norm; maybe 3 flicks if the engine cooled off a bit. After a brief run in process I assessed the throttle operation and engine RPM. Transition was very fast. Commensurate with the prop size being used, idle was instant (on closing the throttle down) and very steady. The harmonic period ranged around 3,200 to 3,500 RPM (common range), but it was not excessive (or alarming as some engines are). The idle tuning was spot on for the elevation in my area and I estimate a maximum of 10 degrees variation was all I needed for the different propellers used. Back to the idle setting for a moment. I know I push the point about fiddling with the idle setting on quality engines as they come spot on in 99% of the cases. I was 'gently' reminded by one of my distant information resources (long distant mate who discusses engines with me) that a small change would be needed for modelers (him and his mates) living in high elevations. Yep, correct and I forgot about those blokes living in the clouds. A little tune in these cases is well in order.

I had to mention that for other reasons. He is, on my recommendation, in the process of purchasing one of these engines and I know he will retune it very slightly and his flying mates will be watching him.

After running in and using props in the common range, I carefully measured the cylinder head

temperature at the rear of the cylinder just under the plug for readings of 96 to 112 degrees and the crankcase in the middle and front bearing housing at 27 to 31 degrees Celsius which, for my liking, is spot on. The main testing was carried out on 13.4.2001 - temperature was 21 degrees C - humidity at 63% and the fuel was 40:1 unleaded petrol and Coolpower blue oil.

My final comment on my bench notes - 'Easy to handle - very nice engine'.

## ON TEST

Of its type and capacity, an excellent engine that will provide long and reliable service from a quality we have known for many years.

## PROPELLER FIGURES

### BAMBULA

22 x 8	7520 - 1358 IDLE
22 x 10	6650 TZB WOOD
23 x 8	5580 - 927 IDLE
23 x 10	5525
24 x 8	5626 BAMBULA
24 x 10	5107*****

## IT'S THAT TIME...

APRILWUN.ROT.COM: where we look at strange happenings, weird things, absolute nonsense as advised by Julia's (Publisher's wife) dog and my pet tarantula. Nothing is real. Everything is rot and there is nothing you can, should or attempt to do unless you are completely mentally incompetent or absolutely stupid and have the permission of your mental

health consultant and somebody's pet rattlesnake.

As is usual, my weirdling laboratory assistant is up to his nonsense again in his never ending attempts to fly without the use of an airplane. After his many failed attempts with various wings attached to his arms, membrane thin webs from outstretched arms to feet and umbrellas popping up and down like poppet valves on a four-stroke engine, he still has not achieved his desire to fly without the aid of a conventional aircraft. Ever-seeking, he came up with an idea whilst watching the pedal cyclists at the ☺lympics on the TV. Next thing, he has a bicycle, lengths of carbon fiber tube and 20 or so rolls of heat shrink covering as is used on model aircraft. Lots of banging, clanging and other assorted sounds from his workshop (an unused chicken shed up the back paddock), then, after a week or so, he emerged with his latest wonder. Wait for it.....a bicycle with ornithopter wings! As he peddles, the wings flapped and the entire contraption - with him peddling, lifted a couple of feet off the ground. Problem was ...it needed a lot of effort...He needed to pedal like the Olympic cyclists he had watched. Anyway, he practiced and practiced and gained more elevation each time he peddled hard. Just as he was about to try it on a long stretch (cross country highway) an emu sighted him. Now, emus (like an ostrich -unique to Oz) are very inquisitive and almost fearless, plus they can kick like, about, four mules in one. Well, the emu started chasing him, more joined in (They are a flock bird.). A couple of kangaroos saw the emus so they joined in until he had a large mob of followers on his tail. He pedaled like crazy, rose off the ground and into the territory of a pair of wedge tailed eagles

(Like a bald eagle, but with an attitude.). The 'Wedgies' (as we call them) swooped down to attack, so he returned to the ground; but the emus and 'roos had gained on him so up he went again. The eagles renewed their interest and swooped again and so it continued. He was last seen hedge hopping across the Trans Continental Highway, about as long as half way across USA, where more emus, roos and eagles will join in as this is their main territory. If he reaches Perth in Western Australia, he can take off and fly over the Indian Ocean where he will be safe from the land animals and eagles (They don't fly over salt water very far.), but I don't like his chances with the Western Australia sea gulls. They are very large, numerous, aggressive, and...always hungry. He might make it to South Africa, but I don't like his chances; and besides, don't they have lions and other bitey things over there?

## **WORKSHOP TOOLS - DIFFERENT WAYS OF SEEING THEM**

### **DRILL PRESS**

A vertical machine useful for suddenly snatching flat metal bar or sheet out of your hands so that it tears your fingers, smacks you in the chest, flings your beer across the workshop and dents a freshly painted project or smashes a new model aircraft that you had carefully set in a far corner where nothing would contact or bump it. It will do similar when you attempt to open the shaft hole in a new propeller.

Good news from WINCH - THE WHATEVER WIZ

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Greetings and salutations all you streamer hungry heathens out there thirsting for your next head hunting party. The contests are rockin' and rollin' across the country. If you are an active combat pilot, chances are by now you have drawn first blood or at the very least collected a few minor scrapes and abrasions to show for your troubles. Figuratively speaking, of course; I hope.

### BE THERE OR BE SQUARE

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.

Events for July are: 7/12-7/15 "AMA/RCCA Combat Nats", Open B, SSC, 2948, Lim B, AMA Field, Muncie, IN. 7/17 "Texoma Summer Scorcher (1)", SSC, 2948, Sherman, TX. 7/17 "Furball over Phillips Field", Open B, 2610 Scale, Pocatello, ID. 7/24 "Desert Storm of Victor Valley", Open B, SSC, Hesperia, CA.



You can always go to <http://rccombat.net/events/index.asp> for an up to date listing of events and to sign up for the events you are interested in. Signing up online prior to the contest date should be done as soon as possible. This helps the event coordinators and contest directors get all the needed supplies, manpower and club resources to make the event run smoothly. Also seeing the names of other pilots you may know or want to compete with is a good draw to encourage participation, so don't be shy! Sign up early!

Be sure to note the first event in July which is the AMA Combat Nats at the National Modeling site in Indiana! Be there or be square!

## EVENTS DEBRIEF



**Photo 1: Open B group of pilots**

I have an event to report on from firsthand experience this issue. This was the Bushwacked 2010 “Spring Fling” contest, hosted by the RC Bush Pilots Club, and held on April 10 & 11, in West Palm Beach, FL. Three classes of combat were flown: Open B, SSC and Scale 2948. Nine pilots registered and competed in Open B and SSC and eight pilots competed in the Scale class. Although under mostly sunny skies on Saturday, the impact of steady 20-25 mph gusty wind was a major factor influencing the flying. Scoring was relatively average in the Open B class with the exception of the event winner, Nicholas Windsor, who won going away by a margin of 1104 points. Well done, Nick!



**Photo 2: Nick Windsor**

Following Open B, four rounds of 2948 Scale were flown on Saturday. This portion of the competition is split into two four-round segments in order to squeeze in all three classes over the course of the two day event. As you may know, the scoring for Scale combat is identical to ☺pen or SSC class when it comes to points earned by cutting streamers, starting on time, etc.

So why bother, you might ask yourself. Why go to all the extra trouble of building a more life-like replica of a WWII fighter plane instead of just flying more rounds of a non-scale class? Just ask anyone who has tried it and the answer may be similar to my feelings on the subject. Scale combat lends an aura of realism in the reasonably authentic appearance and scale-like flight characteristics of these planes. It’s quite a different feel and the tactics follow suit. Much more pursuit and strategy is involved, rather than all-out “turn and burn” flying. Not to mention the fact that it’s just plain “way cool”. Any self-respecting combat pilot has at least one all time favorite WWII fighter plane. It’s the next best thing to being there...without getting your butt shot off!



**Photo 3: Scale 2948 pilots**



The wind was still pummeling us pretty good, testing the pilot's skills on the sticks, especially when launching. On Sunday morning, to finish up the scale portion, four more rounds were scheduled to be flown. More blustery conditions awaited the group with the added challenge of a little rain. Notwithstanding the conditions, everyone soldiered through another four rounds and the standings remained closely spaced, indicating a very even playing field and skill level.

With more bad weather forecasted, and showing as rainfall approaching on long distance radar; we moved into SSC as quickly as possible. SSC class, with its .15 size engines, feels the impact of windy conditions even more than Scale or Open B. After flying only one round, due to very high humidity and some very light misty rain, the forestry tape came out. When the streamers start dropping off on their own, you don't have much choice if you want to continue. Being much harder to cut or break, the wet weather streamers combined with slower flying planes made for some almost comical wing drapes. No, I don't mean the kind hanging in your living room window. (Drapes, as every combat pilot knows, are the dreaded condition of a near cut; a teaser of streamer folded over your wing or touching the plane in such a way that under normal circumstances would have produced a cut.) It's pretty funny to see a 60" wing plane spun around by what looks like a flimsy, thin piece of material that doesn't break. Just goes to show, you can pick the best date on the calendar, but someone else is in charge of the weather.

At the completion of six rounds, the contest was halted when a dangerous storm containing lightning got too close for comfort. Finishing order was the same in both Scale and SSC classes.



**Photo 4: Scale and SSC winners**

Lots more events worth reading about, but too lengthy for this article can be found in the events debrief section of the RCCA site at <http://www.rccombat.net/forum/viewforum.php>

## **FROM THE BENCH**

This month we are going to talk about something that every combat pilot needs to be well prepared for a contest. A starting stand that can hold your plane while you fuel it, attach streamer, get ready for a round, etc., as well as restraining it after it is running. The variations on this theme differ as much as the pilots themselves. One common thread seems to run through most of the different varieties I have seen; common home improvement store available PVC pipe and the fittings that go with it, such as 90 degree elbows, T's and 4 way cross fittings.



They can be as simple as minimal structure, free standing, or a little more involved and possibly mounted to the top of a rolling tool box. There are quite a few varieties of this tool box on wheels base at the same home improvement stores in which you shop for the PVC. The advantage to having wheels is of course the transporting from one location to another, like your car to the flight line, but some prefer the ultra simplistic approach.



**Photo 5: Simple stand 1**



**Photo 6: Simple stand 2**

I've tried both; very simple with minimal parts intended just to get the plane off the ground, as well as more involved structure mounted to the top of a rolling tool box. They both have their

uses as sometimes, you might just want to throw something out of your car without a lot of hassle.

For competition, however, I prefer the tool box mounted method. This approach affords you the stand holding your plane as well as stored tools and supplies, such as fuel, props, glow plugs, etc., depending on the capacity of the tool box. So if you are planning the tool box approach, I would suggest trying to envision the support PVC attached to the tool box in a way that does not prevent opening compartments. For instance, if it has a flip top lid or cover, it is nice to be able to open it when the whole thing is fully assembled.

Bear in mind that if you glue your pipe and fittings together, they will stay that way. If not glued, disassembly for storage remains an option. I have found that it is not necessary to glue them together as they remain tight enough to be stable and sturdy. Just be sure to test your rig out by simulating enough force along the lines of what your plane would be exerting running wide open to be sure it stays together.



**Photo 7: Engineer's special by Jim Nadasky**

Commonly these frameworks, as well as simply cradling the plane prior to start up, have some means of restraining it once it is running. Be sure to incorporate that into your design. Notice the little arms or L shaped extensions of PVC on nearly every stand pictured. They usually wrap around the leading edge and slightly over the top of the wing to prevent forward movement.

You might also consider in the design of your competition flight stand your own personal stature. Unless you want to bend over a lot or get close to the ground, be sure to size it appropriately for your height. It is worth mentioning here another advantage of the glueless approach: if you decide later you need to add or subtract a little height, it is easy to cut some new PVC to make adjustments.



**Photo 8: 7 foot tall Rick Engel's skyscraper model flight stand**

I've also seen a lot of guys using the rolling tool box approach because the box not only provides a good base for the supporting PVC, but it is also a good way to consolidate other essential equipment such as fuel and fuel pump, batteries to power things such as your pump, power panel, glow driver, etc. So kind of plan that

into your stand project along with everything else.

Having things already put together like this is also very beneficial because much of it can stay that way and be at the ready on a moment's notice. It is a real time saver not to have to scramble around, reassembling the same stuff prior to each contest. I keep my box pretty much geared up and ready to go all the time. The PVC support structure, when disassembled, all fits neatly inside the box itself. Attachment to the box is accomplished using 90 degree elbows at the 4 attachment points. I use the kind that has a slip to a male threaded side. Just drill a hole in your plastic box to put the male threads through, and attach with a conduit lock ring. I leave that part attached on the outside, and remove everything else for transport.



**Photo 9: Attachment points and interior storage of disassembled parts**

Of course this is just one possible means of tying the PVC into a plastic tool box. For instance, you could also use conduit straps on the outside or PVC flange fittings to get the same end result. The bottom line here is to arrive at something that makes your life easier on the flight line while safely and securely



holding your plane in position. The added security afforded by a well thought out flight stand that keeps your plane from getting out of control while freeing up your hands for other duties is well worth the effort.



Photo 10: Flight stand on rolling tool box by Craig Buttery

Well, that's it for this month gang! I hope you enjoyed it and I am looking forward to hearing your comments and please send in those tips and tricks to share with our readers. Don't forget to clear your guns before you engage and check your six o'clock frequently!

Chris

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**MANEUVER OF THE MONTH: DOUBLE STALL TURN.** Several issues ago I taught you the stall turn. It's actually a pretty easy maneuver, but it does require that you get the timing down. The double stall turn is two of them in opposite directions with the bottom part of a loop in the middle. If you are not up on the stall turn, take a look at that particular back issue and practice up on it, then do this month's maneuver.

**DESCRIPTION OF THE DOUBLE STALL TURN:** The double stall turn is two stall turns done back-to-back. First, you do a stall turn going into the wind, then, instead of leveling off at the bottom, you continue the pull out until you are vertical a second time. Then you do a second stall turn.

**KEYS TO DOING THE DOUBLE STALL TURN:** The key to doing a double stall turn is learning to do a good single stall turn. Practice it first. If you nail the first stall turn, pulling up and doing the second stall turn is usually easy. The trouble comes if the first stall turn isn't very good. This messes up your entry to the second stall turn, usually messing it up, too.

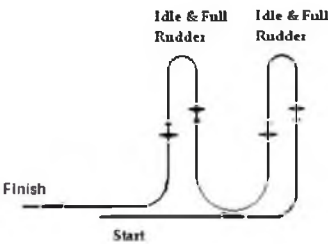
**AIRPLANE SET-UP FOR DOING THE DOUBLE STALL TURN:** Make sure your rudder movement is about 30 degrees to each side. This should be plenty for a stall turn.

**DOING THE DOUBLE STALL TURN:** First, I am going to review the stall turn, then add the



second stall turn to make a complete double stall turn. Like other maneuvers that a trainer can do, the stall turn is a “by-the-numbers” maneuver. You know, step 1 do this, step 2 do that, etc. It is also the first maneuver many of you trainer pilots will do that requires some real flying skill. Loops and rolls just require the stick to be moved to full throw and let the airplane do its thing. Not so with a stall turn. Even though you'll be doing it “by-the-numbers,” using one control at a time, but you'll need to watch the plane and time your stick movements to get the correct results.

Here are the basics of the stall turn. You pull the plane up to vertical, throttle back to idle, put in full rudder to make a 180 degree yaw turn,

RC REPORT MAGAZINE	
TEACH YOURSELF AEROBATICS CARD	DOUBLE STALL TURN By Ed Moorman
DESCRIPTION OF THE DOUBLE STALL TURN. The double stall turn is two stall turns done back-to-back.	
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AIRPLANE SET-UP FOR THE DOUBLE STALL TURN. Make sure you can get about 30 degrees of rudder travel.	
Always begin with the Standard Set Up 1. FULL POWER 2. PARALLEL TO RUNWAY 3. 1 MISTAKE HIGH	
DOING THE DOUBLE STALL TURN	
The Four Commandments for the Stall Turn	
1. Flirt with the vertical 2. Go with the flow 3. Give 'em an "L" 4. Timing is everything.	
1. <b>FLIRT WITH THE VERTICAL.</b> A perfect stall turn is done from a true vertical line. If you must err from the true vertical line, be slightly less than vertical, rather than past vertical. 2. <b>GO WITH THE FLOW.</b> As you pull up, check the top of the plane. More than likely, it will be leaning off to one side or the other. If the plane is leaning left, go the direction it is pointing, use left rudder for the turn. If it is leaning right, use right rudder. 3. <b>GIVE 'EM AN L.</b> This means move the left stick in an "L" direction. Reduce power to idle and put in full rudder.	

Now, let's get to the maneuver.

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

The double stall turn should be started flying up wind. It's easier starting going into the wind.

What to do:

In a stall turn, you fly past yourself a good amount and do a smooth pull-up to approximately a vertical attitude. You want to be far enough down so you can see the top of the plane when you pull up. This is fine for a stall turn, but for the double stall turn, you want to start the pull up right in front of yourself. If you go farther down the runway, the maneuver won't be centered. Since you are starting the pull up right out in front, you can't see the top of the plane very well. This is the reason you want to have the regular, single stall turn down pretty well before attempting the double.

1. Flirt with the vertical. A perfect stall turn is done from a true vertical line, but don't try from this at first. Just get nearly vertical. If you must err from the true vertical line, be less than vertical, rather than past vertical. When the airplane gets past vertical, slightly over on its back, the rudder, which is mostly on the top of the plane, becomes blanked out, less effective and you usually flop. For this reason, FLIRT WITH THE VERTICAL Pull up toward the vertical, but stay just a bit short, maybe 85 degrees instead of 90. Do this until you are good at the maneuver and have a powerful plane.

then recover to level flight. That's it. Sounds easy, doesn't it? Well, this is not necessarily so.

The most prevalent error you'll encounter doing a stall turn is a flop over. That is, the plane ignores your rudder input and flops forward or backwards instead of yawing around. Timing is everything here. You miss the timing and you get a flop. Here are some tips to help you in learning how to do a good stall turn. They are four commandments that you must keep when doing a stall turn. Remember them from when I taught it.

Flirt with the vertical.

Go with the flow.

Give 'em an L.

Timing is everything.

2. Go with the flow. As you pull up, check the top of the plane as best you can. More than likely, when you pull up, your plane isn't going

to be exactly straight up from a side-to-side standpoint. Whether you didn't have the wings precisely level when you started the pull up or you have a cross wind doesn't matter. It will more than likely be leaning off to one side or the other. Note which way the plane is leaning, right or left. Normally, it will be canted into the wind. If you have practiced the stall turn, you'll know about which way the plane will normally lean, helping you to tell the direction you need to go. You want to GO WITH THE FLOW. If the plane is leaning left, go the direction it is pointing, use left rudder for the turn. If it is leaning right, use right rudder. If the plane is leaning left and you try to go right-forget it-you are guaranteed a flop. Go with the flow

3. Give 'em an L. What this means is move the left stick in an "L" direction. You are going to reduce power to idle and put in full rudder. You do not move the stick diagonally to the corner. You go back, then over. Make two straight movements. Don't stop and pause when you get to idle. It's back, then over. Bing, bing. No stopping at idle, back, over. After the turn, release the rudder; let the plane descend back to slightly above the starting altitude.

4. Gentle, rounded pull out. After you have released the rudder and are starting downward, start a gentle pull out like the bottom of a big loop.

5. Add full power back in. If you add the power first before starting the pull out, you'll be screaming straight down. Start in with the elevator, then add throttle.

4. <b>ROUNDED PULL OUT.</b> After you have released the rudder and are starting downward, start a gentle pull out like the bottom of a big loop.
5. <b>ADD FULL POWER BACK IN.</b> Start in with the elevator, then add throttle.
<b>DO THE WHOLE THING OVER AGAIN.</b>
6. <b>FLIRT WITH THE VERTICAL A SECOND TIME.</b> Continue the pull out/pull up until you are vertical again just like the first stall turn. Don't go over vertical or you'll flop.
7. <b>GO WITH THE FLOW AGAIN.</b> Whichever way the plane is leaning, use that rudder. Going the opposite way is a sure failure.
8. <b>ONE MORE TIME, GIVE 'EM AN L.</b> Once you check the way the plane is leaning, throttle back and over. No stopping at idle and no cheating across the diagonal. Back and over.
9. <b>PULL OUT LEVEL and ADD POWER BACK IN.</b> Make a nice gentle pull out to level flight and then add power back in to your cruise setting. You're done.
<b>DON'T FORGET THE FOURTH COMMANDMENT, "TIMING IS EVERYTHING."</b>
Although it is not a specific step, this is a timing maneuver and that's what makes it harder than most regular maneuvers. ✓When you pull up to the vertical, you have to judge the amount you climb before you cut power and add rudder. Try to climb too far and you'll be out of airspeed and won't get the 180 degree yaw. The plane will flop over. This depends on your plane and the amount of power you have. ✓If you don't time the rudder application correctly, you'll run out of airspeed just like you can if you try to climb too much. Remember, you make an "L" shaped movement of the throttle stick, down and over. Pause too long at idle before adding rudder and you'll flop just like you do when you try to climb too far. Timing. ✓You must get to know your airplane and time the vertical climb for its power. You also must learn the timing on the power reduction and rudder movement.
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6. Flirt with the vertical a second time.  
Continue the pull out/pull up until you are vertical again just like the first stall turn.

Remember, FLIRT WITH THE VERTICAL.  
Don't get past 90 degrees.

7. Go with the flow again. Your pattern buddies, if you have one, may tell you that both must go toward you or both go away, but don't listen to them. They are doing competition and we are learning a maneuver from scratch. Go with the flow whichever way it is.

8. One more time, give 'em an L. Once you check the way the plane is leaning, throttle back and over. No stopping at idle and no cheating across the diagonal. Back and over.



9. Pull out level. Make a nice gentle pull out to level flight and add power back in. We're done.

Although it is not a specific step, don't forget the fourth commandment, "Timing is everything." This is a timing maneuver and that's what makes it harder than most regular maneuvers. When you pull up to the vertical, you have to judge the amount you climb before you cut power and add rudder. Try to climb too far and you'll be out of airspeed and the rudder won't have the power to yaw the plane. It'll just hang there, then flop over. This all depends on your plane. If you have tons of power, you can climb more. If your plane is a trainer, you'll need to make a short climb. Timing is everything.

Remember, you make an "L" shaped movement of the throttle stick, down and over. Pause too long at idle before adding rudder and you'll flop just like you do when you try to climb too far. Timing is everything.

You must get to know your airplane and time the climb for its power. You also must learn the timing on the power reduction and rudder movement. The double stall turn isn't tricky, but you do have to get the stall turn timing down pretty well or the second one will be pretty bad. Give it a try. Stall turn practice first, then the double stall turn.

Feature of the month: Great Planes Fiberglass ARF Floats: I finally got the Sig Rascal 40 ready for the water. This is the third set of floats on it and I have high hopes that the third time will be the charm and these floats will last for the long run. I have to admit that I never actually flew the Rascal from land, but I will

say that it is a beautiful flier in the air on floats and handles very well.

My first set of floats was a balsa sheeted, foam set that was fiber glassed and painted white and red to match the plane. These seemed to work pretty well for the two take offs I made. I mentioned in a previous column that I was making a close-to-the-trees, photo pass and a gust of wind put me into the trees, then on the ground. The nose was broken off and the floats and wire strut assembly were too badly damaged to fix. My fault for flying too close in to the trees with a cross wind right in my face.

After Flaps did the rebuild, we used some struts from another plane and a set of floats from a third plane. The floats historically have handled really well on the water, but the strut assembly wasn't up to it. It was made from 1/8" wire so it was too spindly for a plane the size and weight of the Rascal. The floats tended to wobble around and one tended to and dig in at just the wrong time. It made for really exciting take offs and water handling. I finally gave up on them.



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I was about to mount some aluminum landing gear as struts when flying buddy, Ugo Ferrari, gave me a new, in the box, set of Great Planes Fiberglass ARF .40-.60 size Sport Floats he had picked up at an estate sale package deal. Their

price from Tower Hobbies is \$79.99. Thanks for the present, Ugo.

The Great Planes ARF floats came in an airplane kit sized box and each float is packed in individual plastic bags for protection. In the box with the floats is all the necessary hardware for mounting the floats. This includes the struts, a sub fin for increased vertical area, a water rudder, the water rudder pushrod cable, mounting blocks to be installed in your fuselage, all the screws, bolts, and plastic clips and mounts so you don't have to furnish anything except a small amount of labor and the glue. Naturally, there is an excellent Great Planes illustrated instruction manual.

The floats themselves are constructed from fiberglass and are painted silver in color. The glass work looks excellent. I haven't noticed any pin holes or flaws. The floats are 38.5 inches long, despite the box saying 34.5". I measured. The Rascal is a little over 51" long with a 72.5" span, so they are a good size for the plane. They do add some weight, but I am using an OS .70 Surpass so I have plenty of power.



**Photo 1: Ed with Rascal on the Great Planes ARF Fiberglass Sport Floats.**



**Construction:** The strut assembly was already wire wrapped and soldered together, so that saved some work.



**Photo 2: The floats mounted on the bottom of the Rascal.**

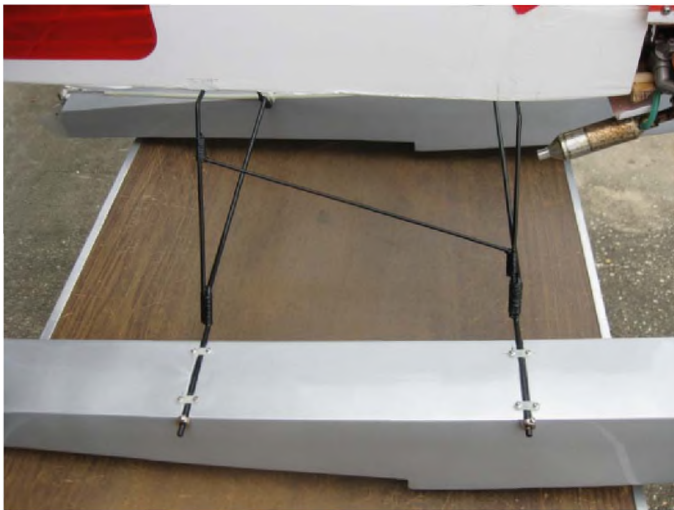
Note that the center of the N-strut is backwards, according to Flaps and I. It should run from the upper front to the lower rear. When you land, the floats are pulled toward the rear relative to the fuselage as they touch the water. When the center of the N is upper front to lower rear, the center strut is under tension. As they are now, the center strut is under compression when the floats are pulled to the rear, which isn't as strong. But, that's the way they are shown on



the box and in the instructions and that's the way they were built when we received the kit.

The forward float mounting block, the normal gear mounting block of the Rascal, was close to the correct location, so Flaps only had to add the rear one. Our previous rear mounting block wasn't far enough back. He trimmed the mounting block to fit, made the cut out for it and glued it in place with 30-minute epoxy. After the epoxy cured, he sanded a little and covered the installation with white Oracover.

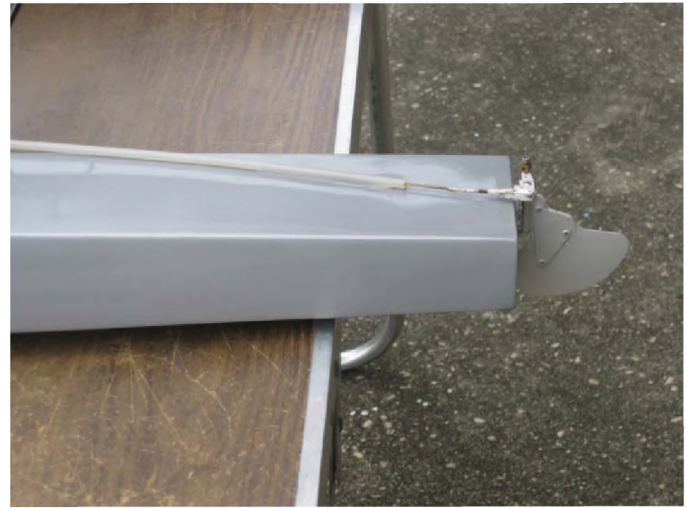
Next, he attached the struts to the fuselage with the supplied plastic landing gear clips and screws. The strut "axles" are set in grooves in the float and attached using the supplied plastic landing gear clips.



**Photo 3: The strut assembly for the Great Planes ARF Fiberglass Floats showing strut attachment to floats.**

We used an Ernst water rudder we had on hand. The Ernst is a nice piece of hardware and we use them on most of our seaplanes. Tower carries them. We already had a flexible pushrod for the water rudder made up and installed in the airplane, so we didn't need the one from the float kit. The pushrod comes out the left side of

the plane and loops around back to the water rudder. All it took was hooking it up to the Ernst and we were ready for a check. Oops, the water rudder was working backwards so I had to reverse the control arm on it. Once it was working correctly, I used a little silicone to glue the outer pushrod sheathing to the float and a couple of zip-ties to hold it to the struts.



**Photo 4: Ernst water rudder and pushrod.**

Finally, Flaps attached the sub fin that came with the kit.



**Photo 5: Sub fin included in the Great Planes ARF Fiberglass Float kit.**



Okay, it's Cub yellow because the floats are meant for the Great Planes Cub. Actually, I don't mind the color difference from the stock white and red and also, Flaps didn't want to recover it.

As I mentioned earlier, the floats came already painted silver, and I do like matching floats to the color scheme of the plane. Silver is fairly scale, since a lot of full scale floats come in the silver and never get painted to match the plane. What Flaps and I plan to do is to fly the Rascal a few times to check out how these floats handle. Then we can get ambitious and spend some time painting them in red and white to match the plane.

The Rascal floats on the bayou in Flaps' backyard on its new Great Planes ARF Fiberglass Floats.



**Photo 6: The Rascal on Great Planes ARF Fiberglass Floats on the water.**

Sorry, but I didn't do a test flight. The bayou is salt water and, yes, we've tried it, and no, we don't fly there anymore. Salt water is bad, bad, bad for your engine, radio and all other metal parts. We'll get her in the air as soon as the weather cooperates.

Bottom line: The Great Planes ARF Fiberglass Floats are a great buy, considering what you get. The kit comes with very nice fiberglass floats, the struts, a water rudder and pushrod, a sub fin, plus all the plastic and metal hardware you need to mount the floats and get you flying off the water.

Ed

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# THE DOOLITTLE RAIDERS REUNION

**APRIL 16-18, 2010**



On April 16-18, 2010, the sounds of B-25s roaming the skies between Urbana and Dayton, Ohio were flying in tribute to the famous Doolittle Raiders of WWII. They came first to stage at the Grimes Field in Urbana, Ohio, on Thursday and Friday April 17 & 18. They took off early Saturday morning into the crisp cool blue skies to form up into formation to fly south to the National Museum of The United States Air Force and land behind the museum on the recently restored runway to pay tribute to the

remaining Doolittle Raiders in attendance. Mother Nature smiled down upon us with perfect weather for the entire event.

I am not going to go into great detail about the historic day of April 18, 1942, when 16 B-25s, crewed by 80 brave Americans launched their twin engine bombers from the deck of the now famous U.S.S. Hornet air craft carrier to be the first Americans to draw blood with their lightning bombing strike against Tokyo, Japan,

causing the Japanese to draw back some of their naval resources to protect the homeland. You can visit <http://www.doolittleraider.com> or <http://www.doolittletokyoraider.com> and read all the details if you are not familiar with this day in WWII history.

Needless to say this was the largest gathering of B-25s since WWII. Seeing them flying over in formation brings goose bumps all over and real pride to this American. My friend, Joe Balmer, who took all the photographs for this article and I have been volunteers at the museum for over 13 years now, were present when the diorama of the Doolittle Raiders B-25, lashed to the deck of the Hornet was dedicated approximately 10 years ago, and had the privileged to meet many of the remaining Raiders and members of the Hornets crew at that time.



**Photo 1: Diorama of Doolittle's B-25 lashed to the deck of the Hornet in route to Tokyo, Japan. Doolittle is depicted as the short officer talking to one of his crew while the plane is being armed and the crew checks its systems.**

Photo 2&3 and video 1 is of one of the 17 B-25s landing at Grimes Field with one of the B-25s parked in the forefront of the photo. Even some "little friends" showed up to help

celebrate. (That would be P-51 Mustangs. See video 2.) There are only eight Raiders still with



**Photo 2: B-25 just before touch down Friday morning landing at Grimes Field in Urbana, Ohio.**



**Photo 3: B-25 taxiing to the ramp at Grimes Field after landing.**

us today and four were able to attend the ceremonies here in Dayton. The Doolittle Raiders have held an annual reunion almost every year since the late 1940's. The high point of each reunion is a solemn, private ceremony in which the surviving Raiders perform a roll call, and then toast their fellow Raiders who passed away during the previous year. Specially-engraved silver goblets, one for each of the 80 Raiders, are used for this toast. The goblets of those who have died are inverted. So that each crewmember can be recognized, whether dead or alive, their names are engraved on the goblets twice, right side up and upside down. When only two Raiders remain alive,



they will drink a final toast using the vintage 1896 bottle of Hennessy cognac which has accompanied the goblets to each Raider reunion since 1960. The vintage was chosen because it was the year of Jimmy Doolittle's birth. The bottle of cognac and the goblets had been maintained by the United States Air Force Academy on display in Arnold Hall, the cadet social center. On 19 April 2006, the memorabilia were transferred to the National Museum of the United States Air Force.

Wikipedia.com

The Doolittle Raiders present at this year's event were LT. Col. Robert L. Hite, pilot of the 16th B-25 to take off from the carrier, Lt. Col. Richard E. Cole, Doolittle's co-pilot of aircraft 1, Major Thomas C. Griffin, navigator for the 9th aircraft, Sgt. David J. Thatcher engineer/gunner for the 7th aircraft.

There ages range from 88 to 94 years old. The oldest was Mr. Cole, Doolittle's co-pilot.



**Photo 4: The four Doolittle Raiders being shuttled around the B-25s on the runway at the U.S. Air Force museum on Saturday. They met with each B-25 crew that day, along with greeting the visitors.**

The aircraft flew in very early Saturday morning to much disappointment of all who attended because most were not there when they came in. By 8:00 AM all the aircraft were parked on the runway and the area was opened to the public at 10:00 AM. The crowd was estimated at over 34,000 for the three days of the event.



**Photo 5: Depicts the line up of the 17 B-25s on display at the museum and the large crowd that were allowed up close inspection of the aircraft and interaction with the crews.**

I'm sure this brought a warm feeling of pride to the Raiders present for the ceremonies. The public was allowed to get up close to inspect all the aircraft and talk with the crews flying each of the B-25s. The Raiders were escorted up and down the flight line using golf carts, and they stopped and had their photos taken with each crew of the B-25s.



**Photo 6: The four raiders getting their picture taken with one of the B-25 crews along the**

runway at the museum on Saturday. The men wearing the white caps are Doolittle Raiders.

On Friday, they had a signing of autographs in front of the Doolittle B-25 on display in the museum for two hours. This allowed many grateful Americans to meet and thank these American heroes for their courage and service to our country. On Saturday the crowd for the autograph signing was so large that they had to move it to the Modern Flight Hanger to accommodate them all. There were over 1500 people waiting in the lobby before the doors to the museum were opened. On Sunday the aircraft took off and formed up south of Dayton (video 3), and then did a fly over in formation to honor the Raiders. The memorial service including the laying of a wreath to honor the fallen Raiders was held in the Memorial Park adjacent to the museum in front of the Doolittle Memorial monument.



**Photo 7: The solemn memorial service and laying of the wreath on Sunday to honor the Doolittle Raiders at the Raider's monument in Memorial Park adjacent to the museum. There was a large crowd present for the ceremony.**

This was one of the largest crowds I've seen to date at a memorial service at the museum.

\*A side note to you "Scale Guys", note the climb rate of the aircraft on takeoff in Video 3. Notice how the plane climbs at a very shallow angle. This is how you should be doing your take offs with your models to emulate the real plane.

After the memorial the Raiders were again escorted back to the Modern Flight Hanger for two hours to sign autographs. There were only three Raiders present Sunday. Mr. Cole, being the oldest, was not able to attend due being worn out from the previous day's activities. If I get to be 94, I probably would be worn out too. He was said to have stated he had had it and was going home. Salute Sir!

On Friday night there was a banquet in the Modern Flight hanger in their honor and was sold out the first day the tickets were available. No, I did not get a ticket. Joe and I felt that we had had the privilege to have met these men a few years earlier and to let others have the same privilege as we had. The Concert at the Nutter Center on Saturday night featured the Air Force Band of Flight, and the Dayton Philharmonic Orchestra who played a variety of music from the WWII era and was a huge success. This weekend was a great time for remembrance of all those brave Americans who fought and died to give us all our freedom during WWII that we still enjoy today. These men were part of the Greatest Generation. Many of these men and women went on to serve in Korea and Vietnam before retiring. Their sacrifices have inspired today's men and women who serve in our armed services. Remember to go out of your way to thank anyone you see in uniform and



any Vet you meet. It means a great deal to them and you will go away with a good feeling also for doing it.

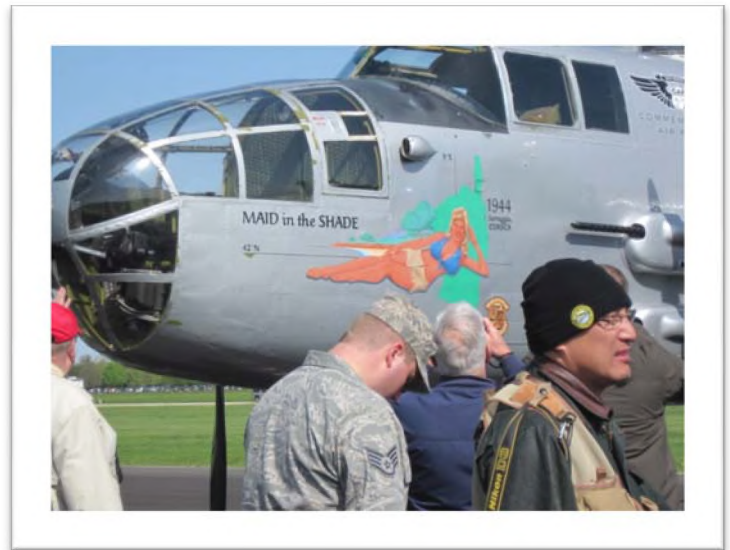
Now I would like to introduce you to some of the B-25s present at the event. Photos 8 through 22 are of the nose art of the aircraft present at the event and represent the aircraft that flew during WWII. I really enjoyed looking at all the different models of B-25s present at this event. There was even a solid nosed version that bristled with machine guns and canons that was used for ground strafing. It is sad to realize that this will be the last time for the Raiders to have a public reunion and a gathering of B-25s like this may never happen again. This was truly a once in a life time event, and I am glad that I live near enough to have enjoyed it in person and to be able to share it with all of you who could not attend.

*Photos 8 through 22 show photos of the 17 B-25s present and their nose art that was prevalent during WWII. Notice some of the B-25s sport the solid nose with .50 cal. Machine guns and 20 mm nose canons for ground strafing.*

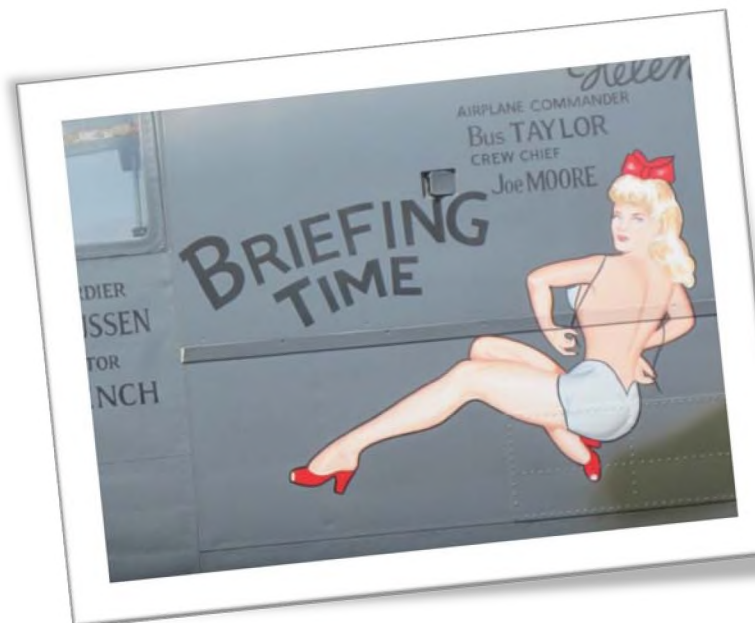
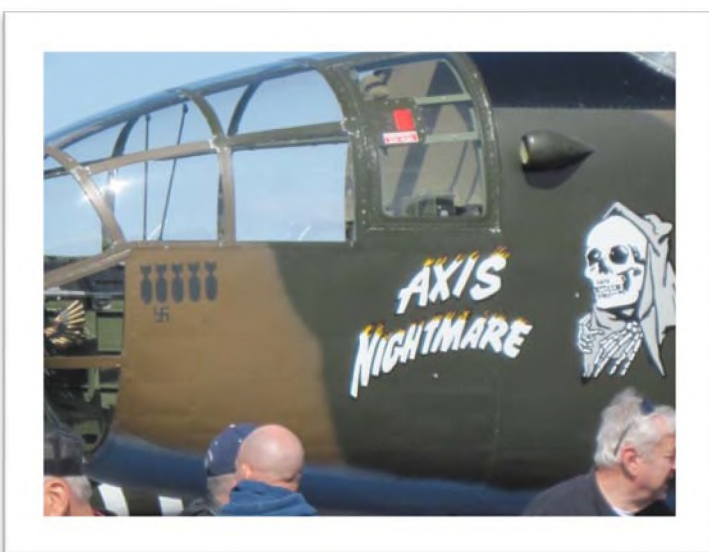
Fair winds and blue skies to you all,

Gary Webb

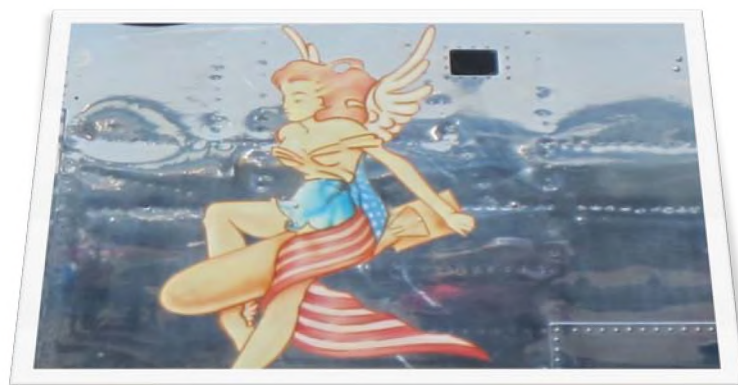
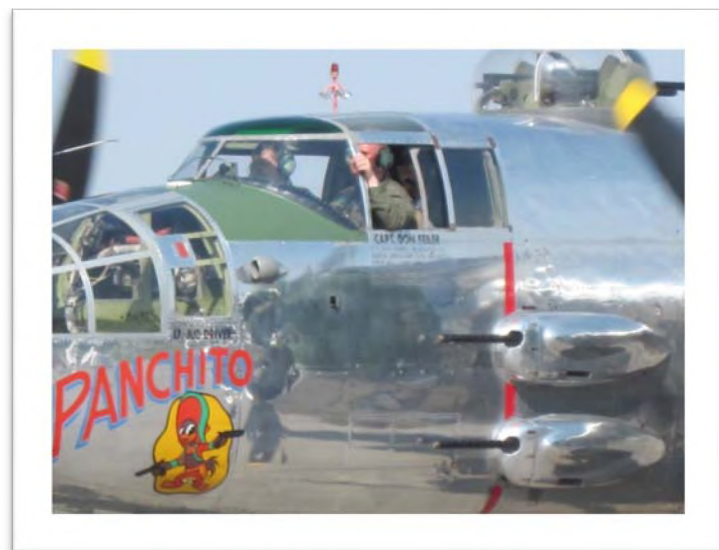
**MANY THANKS  
TO JOE BALMER  
FOR HIS GREAT  
PHOTOGRAPHY!**











# TOP GUN 2010



Every year, around the last part of April, I have headed down to Lakeland, Florida and Linder Airport to attend one of the finest model airplane contests in the world. This year, as he has done for more than 20 previous years, Frank Tiano and his group of volunteers held Top Gun 2010, and I was lucky enough have been one of those in attendance. Walking the flight line and mingling with the pilots and builders in the pit area, I witnessed some of the most beautiful and highly detailed model airplanes ever flown in any event anywhere.

Every morning, the event starts with a pilots meeting, seen in PHOTO 1, where the event directors, chief judges, the announcer and even Frank Tiano himself lay out the ground rules for the pilots and guests. Since the pit area is rather



**Photo 1: Pilots meeting prior to first flight of the day**

shallow, it is limited to only pilots, crews, judges, and of course, photographers like me. Some guys have all the luck. So without further interruptions, let's start looking at some of the beautiful planes and their pilots, and I am



presenting them in no particular order, either by class, type of airplane or which trophy it had won in competition. I'll also mix in a few other planes and stories just because I felt they were worth mentioning.

One of the first airplanes in the air on Wednesday morning was this beautiful (and big!) T-45 Goshawk, seen in PHOTO 2.



**Photo 2: Dustin Buescher's T-45 turbine jet on approach.**

Built by Dustin Buescher from a Skymaster kit, the T-45 uses a JetCat Titan turbine to lift its 38 pound weight into the air. Dustin uses a JR 12X radio system and the 1/5 scale model earned him 3rd place in Pro-Am Pro.

Next up was Greg Foushi flying his Lavochkin LA-7 seen in PHOTO 3, which is powered by a Moki 250cc radial engine. The 110" wingspan model weighs 53 pounds and is guided by a JR 9303 radio system. The LA-7 was built from a Scale Wings kit and it wound up capturing 2nd place in Pro Am Sport for Greg.



**Photo 3: Greg Foushi's Lavochkin LA-7 on a slow fly-by**

I think that the Cessna 152 seen in PHOTO 4 looks exactly like the full scale airplane, and Jason Noll must have a lot of practical application time with the full size 152 since he flies it exactly like the full scale counterpart. Jason's C-152 model comes from a Wendell Hostettler kit and is powered by an OS Pegasus 4 cylinder four stroke engine. The 30% scale 120" wingspan model weighs 29 pounds and Jason piloted it to a 2nd place in Pro-Am Pro.



**Photo 4: Cessna 152 flown by Jason Noll. Looks like the real thing.**

Everyone knows what an AT-6 is, right? How about an AT-6A? Here's one of them, seen in PHOTO 5 that was entered by Mike Barbee in



**Photo 5: Mike Barbee's AT-6a turbine trainer ready to take to the air**

Expert class and he is powering it with a JetCat Turboprop engine. The 42 pound model uses a Futaba 14 radio system and it took home Runner-Up position for Best Military Model. Mike also received the 2010 Gray Eagle Award, having something to do with longevity.

Last year's Mr. Top Gun, (and the previous year's winner also), David Hayes, always provides a real thrilling show for the judges and spectators every year. This year was no different, as he entered a scale model of a very obscure Nikitin-Shevchenko IS-1 experimental Russian airplane from the mid 1930's into the Masters class. David's 23% scale model, seen in PHOTO 6,



**Photo 6: David Hayes entered this Nikitin-Shevchenko IS-2 biplane in Masters Class**

uses a Zenoah GT-80 engine and a JR 9303 radio system. However there is a very out of the ordinary feature of both the prototype and David's model. As seen in PHOTO 7,



**Photo 7: Or is it a monoplane? It features retractable wings!**

the lower wing retracts upwards into the bottom of the top wing and the landing gear retracts into the sides of the fuselage, transforming it from a biplane into a monoplane. David attempted a flight, but the model would not take off properly and impacted the ground on the far runway. David says that his 3 ½ years of searching has given him the basis to build another one using lighter materials and maybe a larger engine. His achievements did impress the panel of experts enough to allow David and his IS-1 to win The Engineering Excellence award for 2010.

Big biplanes with real operational radial engines always put on a good show for the judges, and Mitch Epstein's WACO YMF-5 succeeded in providing a great show, Seen in PHOTO 8. His WACO uses a Moki 215cc radial engine and the 33% scale model is controlled by a JR radio system. The smoke system on Mitch's plane is one of the best I have ever seen and although is not considered to be a "mechanical option" that



scores points, it adds to the realism score. It must have done that very well since it allowed Mitch to take home a trophy for Runner-Up Civilian model.



**Photo 8: WACO YMF-5 on a smoky takeoff, Mitch Epstein piloting**

There were only a few multi-engine models at Top Gun 2010, and one of them was this sleek and fast Grumman F7F-3 Tiger Cat, seen in PHOTO 9. Built by Chip Greene using Don Smith plans, his 'Cat is powered by a pair of Zenoah G045 engines turning Master 20-8 props. The 1/6 scale model weighs 53 pounds and has a 103" wingspan. Chip took home a trophy for Best Multi-Engine Model for his efforts.



**Photo 9: F7F Tiger Cat on a gear pass, piloted by Chip Greene.**

I think there were quite a few P-47 models this year and they all looked and flew great. This is one of my favorite models, probably because one of my relatives worked at Republic Aircraft during WWII and actually built P-47's. The example seen in PHOTO 10 was built by Marco Benincasa from a CARF kit and uses a Moki 250cc radial engine for power. The 1:4.5 scale JUG has a 110" wingspan and Marco uses a Futaba T14 radio system. Marco took home two trophies this year, one for Best Four Cycle performance and the other for 4th Place in Pro Am Pro.



**Photo 10: Marco Benincasa and his P-47 entered in Pro-Am**

Electric models have certainly made an impact in every aspect of R/C modeling, and the beautiful F-86 Sabre seen in PHOTO 11 made a lasting impression on the judges and spectators at the event. Built from a BVM kit by Pablo Fernandez, it uses a BVM electric ducted fan power plant which provides excellent power and control. The 1/7 scale F-86 weighs only 17 pounds and flew well enough to earn Pablo a 4th place trophy in Pro Am Sport.





**Photo 11: Electric jet model of an F-86 by Pablo Fernandez**

Another rather obscure model at the event was this CA-13 Boomerang (PHOTO 13) entered by Don McLellan that was built from plans that Don drew up himself.



**Photo 13: Team entry Macchi 200 by builder Eddie Newman and pilot Lee Rice**

The 1/4 scale model, seen in PHOTO 12, uses a Moki 150cc radial engine and is controlled by a Futaba 14MX radio system. The 30 pound Boomerang, done up in Australian markings (Who would have guessed?) took home 5th place in Pro-An Sport for Don.



**Photo 12: CAC Boomerang flown by Don McLellan in Pro Am Sport**

We now have our first Team Scale entry, this beautiful Macchi 200 built by Eddie Newman and piloted by Lee Rice. The Macchi, seen flying in PHOTO 14, uses a Fuji 86cc gas engine and a Futaba radio system. Built from a Raimondi kit, the Macchi was awarded 3rd place in Team Scale and also took home the Best Military Aircraft trophy.



**Photo 14: Here's the Macchi on a low and slow pass across the field**

It's time for the first "Interesting Story" from Top Gun 2010. One of Europe's noted scale builders and pilots is a man named Richard Crapp, and in years past has brought several trophy winning models to the event. This year

he was planning to build and ship a Fairchild PT-22 and enter it in the Expert class. However, when he attempted to put the crate carrying it on the Virgin Atlantic airliner, the management started to ramble off a number of reasons why the crate could not be put on the airplane for shipment to the “colonies”. They said it was too heavy and Richard showed them it was not. They said it was too large and Richard proved it was not. Then they said it had an engine in it and would leak oil. Richard opened the box and showed them that it would not. They also said they couldn’t open the box, which Richard just did for them. I guess they just didn’t want to ship the plane to the USA for some reason.

Richard put the crate back in his “van” (truck to us) and jumped on the plane to get to Top Gun, with or without his model. Being a very determined person, he immediately headed to a hobby shop in Orlando and purchased a small model and a radio system to fly at Top Gun. He also needed a flight box and since Virgin Atlantic also lost his luggage, he had to buy a pair of tennis shoes to be more comfortable at the field. PHOTO 15 shows the shoe box that Richard used as his flight box, despite the questions asked of him at the field.



**Photo 15: Field box used by Richard Crapp after His little “problem” (see text)**

Richard’s entry, this Aeronca Sedan (PHOTO 16) with about a 70” wingspan and powered by a .40 size engine, was flown at least once in competition, but not up to the level of expertise we are accustomed of seeing from this noted pilot. He did have a plane and he did compete, and he did get a round of applause from the audience for his effort. I don’t think Virgin Atlantic is deserving of any applause at all.



**Photo 16: Richard’s replacement entry in Expert class, a store-bought Aeronca Sedan**

Jack Diaz has been competing at Top gun for years and it seems like he always takes home some sort of trophy with his models. His F-100D seen in PHOTO 17 was built from a BVM kit and uses an AMT 120 turbine. This year Jack’s model earned him a trophy for 2nd place in Expert.



**Photo 17: Jack Diaz flew this BVM F-100 in Expert Scale**



Back to WWI models for now and we see this beautiful ¼ scale SPAD 13 built from a Balsa USA kit by Lou Centrangelo in PHOTO 18.



**Photo 18:** One of the best looking entries in Pro Am Sport, SPAD by Lou Centrangelo

The SPAD uses a Brison 2.4 engine and the 80" wingspan model weighs 23 pounds. Lou and his SPAD took home the 3rd place trophy in Pro Am Sport for their efforts. PHOTO 19 shows the SPAD during a fly past.



**Photo 19:** Here's Lou's SPAD on a typical low pass

Here's "Interesting Story #2 at Top Gun 2010. There is a Team Scale event every year, consisting of a pilot and a builder and they fly a model in competition. However, this year there was a team of "workers" that came from Europe with a SBD Dauntless model entered in Pro Am Sport. It was a beautiful model, but the "team" consisted of pilot Oistein Agnensen and his 4 or

5 assistants, all decked out in cowboy hats and shorts. Before one of their flights, the prop shattered and required replacement, so the "team" took matters into their own hands and began changing that prop. PHOTO 20 asks the proverbial question, "How many Q-Boys does it take to change a prop at Top Gun?"



**Photo 20:** How many Q-Boys does it take to change a propeller? See text.

Another of my all time favorite aircraft is the Ercoupe, mainly because I learned a lot about it during the construction phase of my Balsa USA kit. There was another Ercoupe flying at Top Gun 2010 and he probably did not use the full scale model seen in PHOTO 21 for documentation.



**Photo 21:** Ercoupe seen at Florida Air Museum, but not the prototype for the next plane



Sid Rosen built the same Balsa USA kit that I built and he entered it into Pro Am Sport. His Ercoupe, seen in PHOTO 22



**Photo 22: Sid Rosen's Ercoupe flown in Pro Am Sport looks much more scale-like**

uses a Fuji 64 gas engine and handled the winds at Lakeland quite well. Sid is used to flying a more aerobatic model and he started out by tilting the wings on the Ercoupe to a 90 degree angle for turns. We suggested that he level the wings a bit more and his subsequent scores probably went up.

Top Gun usually has its share of interesting and obscure models and the one seen in PHOTO 23 is right up there with the others in the obscure category.



**Photo 23: Big 168" Curtiss B-2 bomber entered by Curtis Schweitzer in Pro Am Sport**

Built from his own plans, Curtis Switzer's Curtis B-2 bomber uses a pair of Saito 180 four strokes to pull the largest wingspan model at Top Gun through the air. The plane is only 1/8 scale but has a 168" wingspan. It is relatively lightweight too, weighing only 37 pounds. It handled the crosswinds easily and always flew very realistically. Shown in PHOTO 24 just before landing, Curtis's Curtis (I think that's right.) took home a trophy for Critics Choice and 1st Place in Pro Am Sport.



**Photo 24: Here's the big Condor on a landing approach**

Some of the turbine powered models were capable of performing aerobatics up to the limits of their scale counterparts. This F-16 seen in PHOTO 25 was built by Gary Freeman Jr. and uses a JetCat P120 turbine to push the Skymaster kit plane around the sky, even tilted on its side. It looks great to me.



**Photo 25: Gary Freeman Jr. flew his SkyMasters F-16 very well.**

Another of the larger propeller driven models at Top Gun was this Hawker Sea Fury seen in PHOTO 26.



**Photo 26: Sea Fury flown by Frank Noll in Pro Am Pro class.**

Built and flown by Frank Noll from Jerry Bated plans, the 1/5th scale model weighs about 50 pounds and uses a Moki 215cc radial engine for power. Being a representative for Futaba, Frank understandably uses Futaba radio equipment. It was flown in Pro Am Pro and earned the 5th place trophy in the class.

PHOTO 27 shows an interesting feature of the Sea Fury. Frank attached small smoke unit to the wing tips which provide smoke trails that last for just about the entire flight. They have to be “set off” by a helper with a cigarette lighter just before takeoff, but once in the air, the smoke shows up quite well.



**Photo 27: Notice the wing tip smoke system. They are really small smoke bombs.**

One of the other nicest looking and flying models at Top Gun 2010 was this beautiful Nieuport 11 seen in PHOTO 28.



**Photo 28: Nieuport 11 entered by Steve Thomas in Pro Am Sport**

Built and flown by Steve Thomas, the Nieuport is powered by a Zenoah GT-80 engine and weighs about 38 pounds. It was built from plans and although didn't win any trophies, I would be proud to call this plane mine any day.

I have known Dino DeGeorgio for a number of years and he always brings some of the nicest models to Top Gun each year. This year he flew this beautiful Meister Scale P-47 seen in PHOTO 29 in Pro Am Pro.



**Photo 29: Meister Scale P-47 flown by Dino DeGeorgio in Pro Am Pro**



The 1:4.5 scale P-47 has a 102” wingspan and weighs 46 pounds, all pulled into the air with a DA-85 gas engine. Dino uses a JR 12X radio system and this year, he went home with a 1st Place trophy in his class along with another trophy for Best Pro-Am entry. Photo 30 shows Dino-s P-47 in a fly-by for the judges.



**Photo 30: Here's Dino's P-47 on a wheels up high speed pass**

One of the “regulars” at Top Gun is the team entry of pilot Eduardo Esteves and builder Octavio De Paula, and this year they brought along their beautiful PT-19, seen in PHOTO 31. The plane was built from scratch using self-drawn plans and it uses a ZDZ-60 engine for power. A JR 9303 radio system and a Xoar propeller complete the entry. Eduardo and Octavio won 2nd place in Team Scale with their entry.



**Photo 31: Who is that we see piloting this PT-19? Not the team of Esteves and DePaula.**

Although Rick Boyer's Pitts Special didn't place in the top five in Expert Class, it really impressed the team of judges. Rick's entry, seen in PHOTO 32, came from Sheber plans and was built by Rick. The 1/3 scale biplane has a 68” wingspan and is powered by a Brison 4.8 twin engine, and Rick uses a JR 10X radio system. Rick took home a trophy for Best Civilian Aircraft for his efforts.



**Photo 32: Pitts S2 by Rick Boyer won him a trophy as the best Civilian Aircraft.**



Another of the very impressive electric powered models at Top Gun 2010 was this twin fan F-4 Phantom, seen in PHOTO 33, flown by Tommy Wood in Expert Class.



**Photo 33: Twin Electric fans drive this F-4 piloted by Tommy Wood in Expert class.**

It is a BVM designed kit powered by a pair of BVM EVF fans and the 1/7 scale F-4 weighs 30 pounds. Those fans really push the plane through just about any maneuver, and high speed fly bys sound terrific. It almost sounds like a turbine with mufflers! Tommy's F-4 earned a 3rd place trophy in Expert class and PHOTO 34 shows why.



**Photo 34: Looks like the real thing, right? Those fans sound like a turbine with mufflers**

Roy Vaillencourt brought this FW-190A to Top Gun and entered it in Masters Class, probably

because Roy has been designing and building top quality plans and kits for quite a while. His 190A seen in PHOTO 35,



**Photo 35: Roy Vaillencourt designed and built this FW-190A and entered Masters Class**

is powered by a Zenoah GT-80 and the 1/5 scale model weighs 31 pounds. It has retractable main and tail gear designed by Roy himself and he uses a JR 8103 radio system. Roy and his FW-190A took home the 3rd place trophy in Masters.

Older biplanes are always interesting to most modelers, especially when they are flown in a scale-like manner. This DH-82A Tiger Moth, seen in PHOTO 36, was entered by the team of pilot Doren Luck and designer/builder Gary Allen.



**Photo 36: Lovely de Havilland DH-82a Tiger Moth by team of Doren Luck and Gary Allen**

The 1/3 scale model has a 105" wingspan and is powered by a Zenoah G-45 engine. It uses a Futaba 7C radio system and a Zinger 22-8 prop. It was flown past the judges all four rebounds

and it was awarded the 4th place trophy in Team Scale for its efforts.

Another beautiful entry in Team Scale was this 1.3 scale Sopwith Camel, seen in PHOTO 37, entered by the team of pilot Ransom Fairchild and designer/builder Marvin Erbesfeld. The Camel was built in 1/3 scale with a 112" wingspan and it weighs 43 pounds. It has a DA-100 engine and uses a Futaba 9C radio system. It earned the 5th place trophy in Team Scale.



**Photo 37: Sopwith Camel entered by team of Ransom Fairchild and Marvin Erbesfeld**

Probably the most colorful and uniquely decorated models at Top Gun was this beautiful Rafale BO-1 seen being prepared for flight in PHOTO 38.



**Photo 38: Rafale BO-1 with colorful markings by Gustavo Compana in Expert Scale**

Entered in Expert Class by pilot Gustavo Compana, the 1/7 scale Rafale was built from an Aviation Design kit and uses a JetCat P160 turbine for power. A JR radio system is used for control and Gus used it to his benefit, as seen in PHOTO 39. It took home the 5th place trophy in Expert Scale.



**Photo 39: Here's the Rafale on a low and relatively slow fly-by**

There are several groups of people at every Top Gun event that get little or no recognition for their efforts. One group is the dedicated team of judges that sit out there in the blazing sun watching each and every move that a pilot tells his plane to perform, be it good or bad. They then mark their score sheets and note down explanations as to why a certain maneuver was scored as it was, be it good or bad. This year's team of flight judges is seen in PHOTO 40 and they add deserve a good round of applause.





**Photo 40: This is the team of judges that scored each and every flight for the pilots**

The other group of volunteers that have helped with the arrangements, set-up, take-down and actual daily operations of Top Gun are the members of the Imperial R/C Club, seen in PHOTO 41.



**Photo 41: Thanks go out to the volunteers from Imperial R/C Club for doing everything else**

These guys and gals are seen patrolling both the flight lines and the parking lots. They sell raffle tickets and help participants in any way possible. Without them, there would probably be no Top Gun. Next time you see an Imperial R/C Club member, thank them for their efforts.

Every Top Gun event I have attended features a vast majority of the finest builders and pilots

found anywhere. This holds true for designer, builder and pilot Bob Violett, who is one of the noted ducted fan and turbine jet experts worldwide. This year, Bob brought one of his electric fan jets for competition and his 1/7 scale F-80 seen in PHOTO 42 and since he had designed it himself, it was entered in Masters Class. It is powered by a BVM EVF-2-12S electric fan unit and Bob uses JR radio equipment. Bob and his F-80 took home the 5th place trophy in Masters Class.



**Photo 42: Bob Violett brought this electric F-80 and entered it in masters class**

A long time friend and excellent model designer and builder, Rich Feroldi always shows up with something new and exciting. In past years his WWI models featured things like bombs dropping and pilots waving their hands before takeoff. This year, Rich added another “option” to his Ansaldo SVA-5 seen in PHOTO 43. The 1/3 scale biplane dropped hundreds of simulated leaflets over “enemy territory” and if you look at the video in this issue you will see them dropping to the ground, warning the enemy to stop fighting, or whatever. In any event, Rich’s 50 pound model earned him the 2nd place trophy in Masters Class and also won a trophy



for Best Pre-WWII Airplane. So, Rich, what's it gonna be for next year?



**Photo 43: Richard Feroldi flew this Ansaldo SVA-5 in Masters and dropped lots of leaflets**

Another long time friend and Top Gun participant is David Johnson, this year flying his Albatross D-5 in Masters Class. I am showing David's plane in sepia tone rather than color because I felt it was much more realistic and they didn't have much color film back then anyway. The Albatross, shown in PHOTO 44, was designed and built by David himself and the 1/3 scale model weighs 32 pounds and is powered by a Fuji 64EI engine. David had a bit of a "mechanical problem" with the engine after he ran it during a test flight (The entire front end blew up!) but with the help of some of the other pilots at Top Gun, David was able to fly well enough to take home the 5th place trophy in Masters class.



**Photo 44: Sepia photo of David Johnson's Albatross on a reconnaissance mission in WWI.**

Team Scale has been represented by a certain team of pilot and builder for a number of years and this year they outdid themselves. Pilot David Shulman and designer/builder Graeme Mears entered this beautiful F-15C Aggressor seen coming in for a landing in PHOTO 45.



**Photo 45: Team entry from Shulman and Mears was this F-16C Aggressor**

The 1/5 scale F-15 weighs 58 pounds and is powered by an AMT Olympus turbine and it also has a simulated afterburner shown in PHOTO 46. These are high intensity LED lamps that look just like the flame of an afterburner.



**Photo 46: Here's the simulated afterburner on the F-16C**

David pilots the F-15C with skill and ability derived from years of practice and PHOTO 47 shows him next to the judges mumbling something like "Oh that was nice..." Graeme and David took home several trophies, including First Place in Team Scale, High Static Score, Best Jet, and the Charlie Chambers Craftsmanship trophy.



**Photo 47: What's David mumbling to the judges about?**

A newcomer to Top Gun this year is no newcomer to aviation in general. The name Matt Chapman is known worldwide as a skilled full scale aerobatic pilot, but not many people know that he also loves to build and fly model airplane also. This year, Matt brought this beautiful Bucker BU-131B Jungmann seen taking off in PHOTO 48 that was built from a Gary Allen kit and entered in Expert Scale. The Jungmann is powered by a DA-85 engine and Matt uses a Futaba 12Z radio system.



**Photo 48: Matt Chapman's Bucker Jungmann on a takeoff roll**

Here's Matt's Jungmann on a landing approach (PHOTO 49) and you can see why it won a 1st place trophy in Expert class for Matt the first time he ever flew in Top Gun competition. This put him in contention for the "Mr. Top Gun" trophy also. He also took home trophies for Best Biplane and High Static Score in his class. Welcome to Top Gun, Matt, and we hope to see you next year, providing your full scale Jungmann is completed by then.



**Photo 49: Here's the Jungmann on a slow fly by**



Last but not least, one of the more unique models at Top Gun was this beautiful Westland Wyvern seen in PHOTO 50.



**Photo 50: Westland Wyvern by David Wigley with counter rotating props**

It was designed and built by David Wigley and he also pilots the Wyvern in competition. David flies the Wyvern through a number of scale-like maneuvers including dropping a torpedo in the same manner as the full scale plane did in combat. The torpedo can be seen approaching the “water” in PHOTO 51.



**Photo 51: Yes, the Wyvern can and does drop that “fish”**

One of the unique features of the Wyvern is the use of a simulated counter-rotating propeller assembly where the rear prop is driven by the engine and the front prop is free running on a shaft and air flow allows it to rotate, as seen in PHOTO 52.



**Photo 52: You can see the two propellers spinning in opposite directions.**

The two propellers make a sound much like a turbo-prop engine, which was used on the full scale Wyvern, but David’s model uses a BME 100 gas engine for power.

David and his Wyvern took home the 1st Place trophy in Masters Class and also one for High Static Score in Masters, making him eligible for the title of “Mr. Top Gun”. More on that later.

## BRISTOL M-1

*British World War I Fighter*



**Kit No. 436**

*Wing Span: 60 inch  
 Flying Weight: 6-6 3/4 lbs.  
 Fuselage Length: 44-1/2 inches  
 Engine Size: .40- .60 2-Stroke Glow  
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Now it's time to show you some of the trophy winners at Top Gun 2010. First of all, there were three trophy winners that hail from the same area of the country as I was born and raised in, that being "Southern New York", or as they call it, Long Island. PHOTO 53 shows from left to right David Wigley and his Wyvern, Roy Vaillencourt and his FW-190 and Lou Centrangelo next to his SPAD 13, along with all their hardware they are taking home.



**Photo 53: The Long Island Boys, David Wigley, Roy Vaillencourt and Lou Centrangelo**

Next in PHOTO 54 is the TEAM SCALE winners Graeme Mears and David Shulman with their beautiful F-15C Aggressor and their trophies, including 1st place Team Scale, Best Jet, High Overall Static Score and the Charlie Chambers Craftsmanship trophy.



**Photo 54: Team Scale winners Graeme Mears and David Shulman and their F-16C**

Dino DeGeorgio and his beautiful P-47 are seen in PHOTO 55 along with his trophies for Best Pro-Am Entry and 1st place Pro-Am.



**Photo 55: Pro-Am Pro winner Dino DeGeorgio and his Meister Scale P-47**

Next we see the "new guy" Matt Chapman and his award winning Bucker Jungmann in PHOTO 56 along with all the trophies they took home, including Best Biplane, Expert High Static and 1st place Expert Class.



**Photo 56: Expert Class winner, Matt Chapman and his Bucker Jungmann**

Finally, we come to the time to introduce to you the winner of the prestigious “Mr. Top Gun” trophy. The winner is determined by taking the top scores of both the Expert and Masters classes and the one with the high score wins the trophy. The trophy and title are well deserved, although the scores were extremely close.

This year the trophy goes to David Wigley and his Westland Wyvern seen in PHOTO 57 with his other trophies, including 1st place Masters Class, and Masters High Static. We hope to see David and his Wyvern next year too.



**Photo 57: Masters Class winner and “Mr. Top Gun” David Wigley and his Wyvern**

That about wraps it up for this year’s Top Gun Invitational. I had a good time, despite the hot and humid weather and the dry and dusty conditions. I saw a lot of great looking models and some equally good flying, but there were several less-than-perfect landings that took their toll on both pilot and airplane. But everyone had a great time and we all would like to thank Frank Tiano and his group of assistants for yet another thrilling and enjoyable event.

I hope to see you all next year at Top Gun 2011!  
Dick Pettit

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School's \_\_ out \_\_ for \_\_ summer \_\_ school's \_\_ out \_\_ forever! AC/DC said it best, huh?

Birthday shout out to Bailey this month! He will be 15 in a week or two!



**Photo 1:** That's him with Dad's Catalina. See the irony?

Father's Day is looming large about now. Don't forget Dad this year! I am sure he would enjoy something from his local hobby store or maybe a road trip to one of the events mentioned last month! There are a couple of new events for June in the flyer section of this issue! Take a look! Our local field Rocket City Radio Controllers, will be hosting its very first pylon race on June 26! Contact Don Peck at [donpeck2@aol.com](mailto:donpeck2@aol.com) for more information. If you happen to make it to Huntsville this summer, send Mom an email and I will meet you at the field.



Let's see what happening in July!

Celebrate your independence in Quincy, Ohio this year at a Giant Scale event. David Collins is the CD, and can be contacted at [collinsdh2002@yahoo.com](mailto:collinsdh2002@yahoo.com). I wonder how easy it would be to rig a plane with some really big sparklers. FUN!

Now this is what I'm talking (barking) about! The Valley Big Dogs Rally in Fargo, ND on July 10-11, 2010! Jeffrey Stremick is the "Top Dog" for this event. His email is [strem@aol.com](mailto:strem@aol.com). A \$10 landing fee includes lunch for both days. RV's welcome but electrical hookups are limited. Enjoy a 800' grass runway with no obstructions.



You're on the East Coast, huh? I didn't forget about you. On July 9-11, 2010 in Gilbertsville, NY, you can attend Warbirds Over the Polo Field. Contact Albert Kanser at [akanser@hughes.net](mailto:akanser@hughes.net) for more information or visit [www.rcbuzzards.com](http://www.rcbuzzards.com). Come early leave late!

I looked and looked for an event in Pennsylvania during the weekend of July 16, but no luck! ☹ You see, mom will be in State College that weekend and I was hoping for an exclusive. How about this though? On July 17-18, 2010 in Ishua, NY, the 33<sup>rd</sup> Annual STARS Rally and Air Show will be held at Cattaraugus County, Olean Airport. David Pratt can be reached at 585-973-7929 or visit [www.rcstars.org](http://www.rcstars.org). RC flying from 10AM to 5PM on Saturday and 10AM to 3PM on Sunday. Saturday evening wine and cheese party will be followed by Park Flyer and U Control Flying. How far is Ishua from State College? The wine might be just the right bait for Mom.

That same weekend, you could take a trip down to Houston, TX for the 3<sup>rd</sup> Annual HSF Summer Picnic at Schiveley Field. You can email Todd Brueggeman at [planeloco@comcast.net](mailto:planeloco@comcast.net). (Love that email address, by the way!) Visit [www.houstonportflyers.com](http://www.houstonportflyers.com) for information, too. Say hello to fellow columnist Terry Dunn if he happens to be around.

Here's that event in PA – the following weekend (July 24-25, 2010) - in Quakertown, PA. Warbirds Over Pennsylvania Jim Simmons Memorial Giant Scale Fly In will be at Buc-Le Jon P Fritzges Memorial Flying Field. Travis Moyer CD can be contacted at

[tsmdmm@comcast.net](mailto:tsmdmm@comcast.net) or visit [www.buc-le.org](http://www.buc-le.org).

If that's not enough, here's another PA event. (Mom, you really picked the wrong weekend to travel up there.) On July 24, in Butler, PA, at the BAMS club field you can attend an electric fly. John Vogel can be reached at 724-444-6464.

Round out the month (July 31, 2010) in Stratford, Wisconsin at the 8<sup>th</sup> Annual Dick Strand Fun Fly. Contact Joe Mayer for more information at [josephwmayer@charter.net](mailto:josephwmayer@charter.net). Visit [www.msaero.com](http://www.msaero.com).

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!

## PET OF THE MONTH

**How do you enter?** Just submit a picture of your pet, 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 15<sup>th</sup> of the current month and any previous months. You can email your picture 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!

Without further delay...Again, this month, a winner was selected by random drawing. Congratulations to RC Report Online's June 2010 Pet of the Month, Gracie Lou! From Hendersonville, Tennessee!



**Photo 2: So when are we going out to the shop, Dad?**

She writes, with a little help from her Dad:

*Dear Isabelle,*

*I enjoyed your article when my Dad read it to me. I am the newest member of my family. I have one grouch old big sister (a 130 lbs., 12-year old bloodhound) that complains loudly when I try to play with her, and I have a very protective big brother (75 lbs, 10-year old) and a very tolerant big sister (65lbs, 8-year old), both Old English Bulldogs like me. At just over 30 lbs., my Dad calls me a 50% scale bulldog. I really like going out to his shop and helping him build model planes – he even keeps some of my toys out there (so I won't chew on his stuff). I like to help him fly some of his micro-sized models in the backyard when the wind is calm. I bark at them, but I know better than to try to catch them when they land – Dad kind of frowns on that.*

*I hope you like the pictures, and tell your Mom and Dad to keep up the good work with the magazine.*

*Looking forward to the next issue,*

*Gracie Louise (Gracie-Lou for short)*

*P.S. My Dad's name is Don Lewis and we live in Hendersonville, Tennessee*

Gracie Lou and her dad 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!

Well, until next month,

Isabelle



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**VANQUISH MKII**



**BY  
TONY COBERLY**

**Model:** Vanquish MKII Electric ARF

**Airplane Type:** Electric Pattern ARF

**Manufacturer:** Extreme Flight RC

3600 North Pkwy. Suite 101

Atlanta/Cumming, GA 30040

[Http://www.extremeflightrc.com](http://www.extremeflightrc.com)

**Distributor:** Extreme Flight RC

3600 North Pkwy. Suite 101

Atlanta/Cumming, GA 30040

**Typical Price:** \$179.95

**Sale Price:** \$179.95

**Wing Span:** Advertised: 48 in.

Measured: 47.875 in.

**Wing Area:** Advertised: 416 sq.in

Measured: 365.6 sq.in

**Airfoil:** Symmetrical

**Wing Type:** 2 piece, Built-up balsa

**Wing Joiner:** Carbon fiber tube

**Fuselage Length:** Advertised: 51.5 in.

Measured: 50.875 in.

**Pushrod Type:** Music wire

**Hinges included:** Yes



**Hinges Installed:** NO  
**Rec. Controls:** 4  
**Engine Mount Installed:** Yes  
**Rec. Motor:** Torque 2817/820 Brushless motor  
**Landing Gear Installed:** NO  
**Wheels Included:** Yes  
**Advertised Weight:** 44-48 oz  
**Hardware:** Metric  
**Hardware Included:** Motor mount, pushrods, control horns, ball links, axles, EZ connectors

**Items needed to complete:** Spinner, Prop, 2814/820kV brushless motor, 45 amp ESC, 4-cell 2100-2700mAh LiPo 25C pack, four or five channel receiver, four HS-65 or equivalent servos, two 6 inch servo extensions, two 24in servo extensions, four micro servos, two with metal gears

**Covering Material:** Ultracote

**Estimated Assembly Time:** 6 hours

**Estimated Skills required:**

Building: Intermediate

Flying: Intermediate

**Drilling required:** Yes- Servo arms

**Assembly Tools required:** Exacto knife, #0 Phillips screw driver, pin drill, straight edge, soldering iron for ESC connectors

**Adhesives required:** Thin and Medium CA glue

---

### Completed Model Specifications

**Finished Weight:** 50 oz

**Wing Loading:** Advertised: 17.28 oz/sq.ft  
Measured: 19.69 oz/sq.ft

**Motor Used:** Scorpion SII 3014-830

**Propeller Used:** APC 12x6 E

**Battery used:** Hyperion VX G3 4 Cell LiPo 2200mAh 35C

**Speed Controller:** Castle Creations Phoenix Ice 50

**Radio System used:** R617FS 2.4GHz FASST 7-Channel Receiver, Futaba 12 Channel transmitter, two Futaba S3115 on ailerons and two Futaba S3156 high torque digital metal gear servos.

---

**Cheers:** Clean look, great performance, can do any and all maneuvers you ask of it. Great backup or practice plane for pattern.

**Jeers:** Manual not specifically rewritten for the new version, wing area not accurate.

The Extreme Flight Vanquish MKII is a small precision pattern F3A aircraft. The original Vanquish was released back in 2007. The Vanquish was received very well due to its great performance and value. The Vanquish was so popular that many of the upper level FAI flyers were flying them, and the airframe preformed well, but not the best of the best pilots were finding little aerodynamic issues that could be addressed to make the plane even better! Extreme Flight listened and now we have the Vanquish MKII. The MKII has a nice smooth airfoil design on both the vertical and horizontal stabilizers, instead of flat slide in plates. This airfoil built up horizontal stabilizer also means that there is no need for carbon fiber support rods. The wing was lowered in reference to the thrust line of the motor and the horizontal stabilizer has been raised to help reduce the amount of coupling when rudder is applied. (*Coupling is when a rudder input is applied, the plane has some tendency to roll; usually in the opposite direction of the rudder input.*) A few other changes are a very nice swept back carbon fiber landing gear and easy access spring loaded canopy hatch for battery access. The manual actually states that you can build it today and fly it tomorrow, so let's get to building.

## **Building the Vanquish MKII**

The manual did not come with my MKII, so I contacted Extreme Flight via email to find out why. There was not a manual out yet due to the kits just getting into the states a week before I got mine. They told me that the assembly process is exactly the same as the original Vanquish, so just download the original manual and use it. I really didn't like that option, so I

just decided to wait a month or so, and I checked back on the site. Now there is a MKII manual available, so I downloaded it and off we go.

One thing I like about the manual for the MKII is that several times on the first couple of pages we are told to read the entire manual before starting the kit. Reading the entire manual before starting has helped on many occasions for planning and setting up the bench and knowing what tools you will need, and also deciding if you want to move on to that next step, or wait until the next morning!

First thing to do is work on the wing panels. The ailerons are positioned and installed in the wings with CA hinges, but they are not glued in. I am using Mercury Adhesives brand thin CA for all hinges here. Next the aileron servos are installed with a six inch extension. I chose to dig through my box of servos and I found some Futaba S3115. This would not be the best servo for this application because it is slightly larger and heavier than the recommended HS-65, but I have it, so I'll use it. I'll admit that in retrospect I wish I had not used these servos. I spent about an additional hour carefully grinding away at the servo holes to get them to fit. With the servos installed I can install the aileron control horns with medium CA as instructed. The control horns are just fiberglass pieces that fit into the slot already provided in each aileron. The pushrods provided are simple wire rods with ball links on one end and an easy connector on the other. Here we need to install the easy connector at the closest hole to the servo output shaft for pattern flying. For 3D flying you would put the easy connector out near the end of the servo arm.



The wings are now done, so we move on to the fuselage assembly.

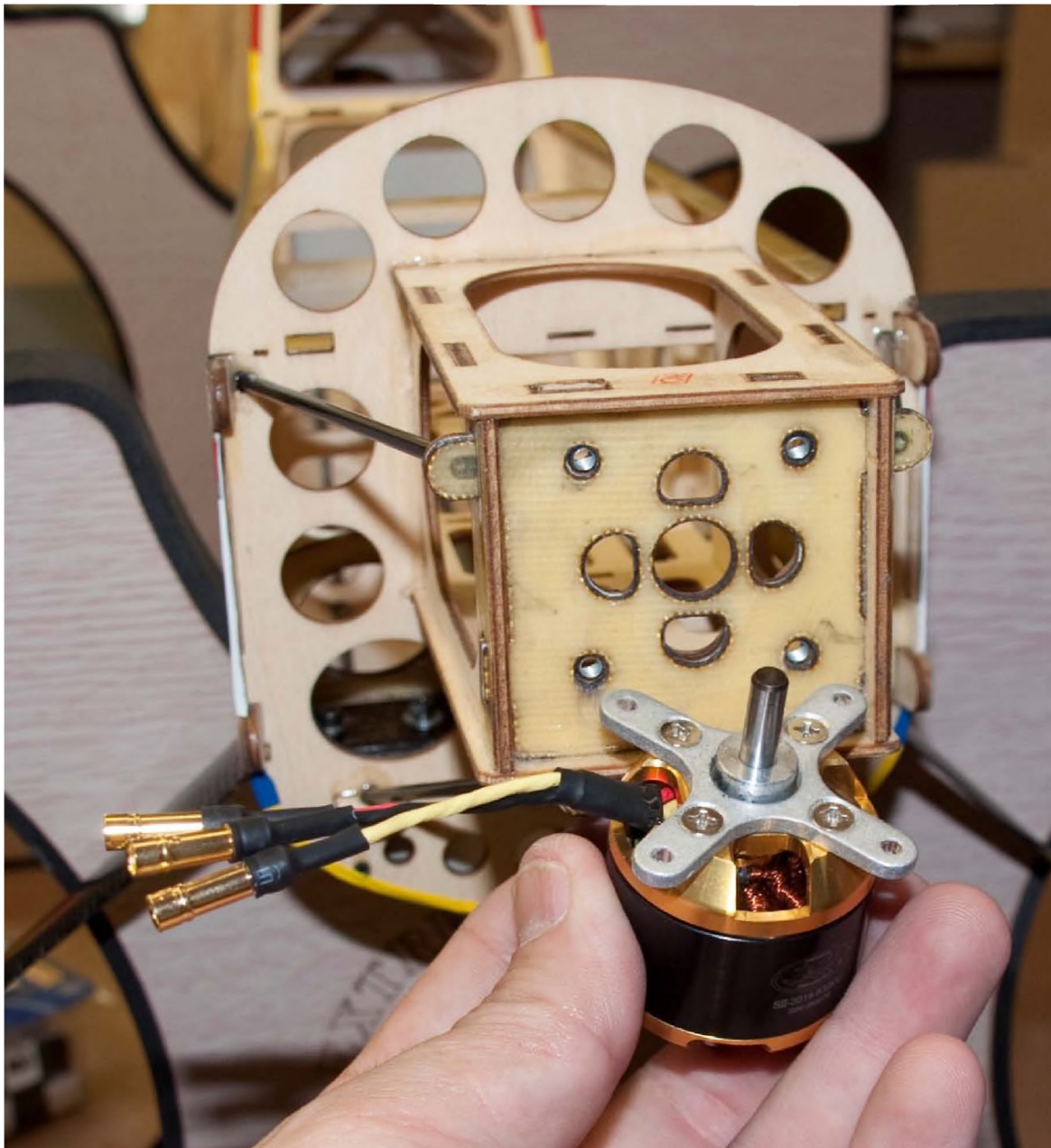
The first step on fuselage assembly is to assemble and install the landing gear. The manual covers this very well, yet the pictures reference the original Vanquish with aluminum gear, not the MKII with carbon fiber landing gear. The gear attaches to the fuselage with four screws into blind nuts. I like installing the gear first, so we can set the fuselage on the table without a stand needed. On to the motor

mounting next!

The Vanquish is designed for a Torque 2814T/820 brushless motor. When I got my MKII, the torque motor was not in stock so I had to look in my parts stash that I got from the Toledo model show. I came across a Scorpion 3014-830kV that is close enough. The Scorpion motor mounts into the holes as provided in the firewall just as the Torque motor would. The rear radial mount is the same diameter bolt pattern for both motors. I guess the manual just

had us install the motor since we were there, so now we move to the rear and install the horizontal stabilizer.

The slot for the horizontal stabilizer is airfoil shaped for the MKII. The stabilizer fit into the slot very well with only a minor amount of filing needed to get the stabilizer lined up evenly with the wings. The stabilizer already had the covering removed to allow the glue to soak into the wood,



but I had to remove a bit more covering to get a wood to wood glue joint. With everything in line and the elevator assembly installed we can CA the stabilizer in place. Make sure to use plenty of good fresh thin CA so everything soaks in and sets up well. Now the rudder is hinged and glued in and it's off to install the tail wheel. Just a couple of screws through the carbon fiber bracket and a pin in to the rudder to allow it to move with the rudder. The kit provided a screw to go through the slot in the bracket, but it was wider than the slot. I used a small piece of carbon rod that I had in the junk drawer

The control horns on the rudder and elevator are the same fiberglass plates that were used on the ailerons. The horns are glued into very tight fitting slots for a very solid and positive connection. The servos I am using for the rudder and elevator are my favorite small

fast metal gear servos. The manual lets us know in large bold underlined lettering to make sure to use metal gears. The Futaba S3156 Micro Digital High torque servos provide 33oz-in at 6 volts, run a very quick .11 sec at 60 degrees and only weigh 9.3 grams. They are slightly smaller than the recommended HS-65MG, so I have the opposite problem that I had in the wings! I decided to shift the rudder servo to the very rear of the slot provided and install the rear servo screw. I then added a washer to the second servo screw and installed it outside the servo tab. I added a drop of CA to the servo mounting tab. The rudder and elevator servos both use the same easy connector and ball links as used on the ailerons. Here again we need to keep the easy connectors moved fairly near the servo output shaft, not out on the end of the arm as shown in the picture. Now back to the front of the fuse to finish up the motor, ESC and receiver installation.

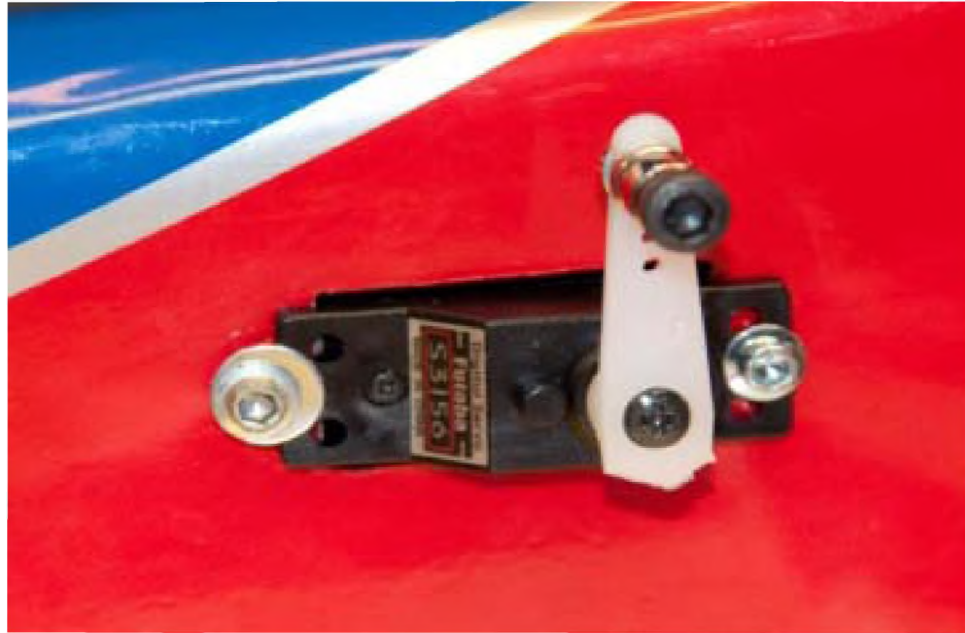




Well considering we've already mounted the Scorpion motor, it would seem this should be easy. The Phoenix Ice 50 ESC mounts to the motor box with the bullets provided. I ran the model lead through the firewall into the main bay of the fuselage. Now I decided this time to put on the cowling to finish up the nose of the airplane. Why was I wrong? It turns out that the Scorpion motor is considerably longer than the recommended Torque motor. I knew it was some longer biasing there was only 2 mm, but in actuality was nearly 3/8 inch. Now what to do; what to do. Well my first thought was see if I can cut down the shaft of the motor, but I quickly dismissed that. Since I can only trim approximately 1/16<sup>th</sup> inch off the shaft it wouldn't do me much good to lose 3/8 inch that I need to.

Examining the firewall I decided my only option would be to move the motor mount to the rear of the firewall rather the front. So I got out the rotary cutter and cut a hole in the firewall slightly larger than the diameter of the motor. The opening firewall came right up to the mounting holes that were predrilled, but I'm not really concerned about this. When I insert the motor from behind a firewall, the radio mount grabs plenty of wood and I could simply use the mounting screws provided by adding my own new lock nuts to the rear of the radial bar wall mount. Photo six and seven show the completed opening firewall and then the motor successfully mounted to the firewall. By continuing to use the four predrilled holes in the firewall, I can be assured that the motor is centered where it should be and the right thrust and down thrust are unchanged.

A test fit of the cowling reveals good centering and my space between spinner and cowling is very nice. I chose to secure the cowling with button head machine screws rather than the screws provided. Okay, finally we can move to the guts of airplane and get the receiver mounted.



I mount my receiver to the rear of the battery tray, just in front of the wing tube as instructed in the in the manual. The servo lead from the ESC is just long enough to reach the receiver location, so extension is not needed. A bit of Velcro on the back of the receiver and on the tray will hold the receiver. By also adding a strap of Velcro around the receiver; makes sure doesn't go anywhere. I will be using a 4 cell LiPo from Hyperion to power to Vanquish MKII. Based on the Scorpion motor recommendations in this four cell pack I will start with an APC 12x6 electric propeller and go from there. With everything installed, I adjust the battery in the fuselage until I reach the center of the recommended CG range. I am setting my Vanquish up at 4.75" back from the leading edge. This is the very center of the CG



range. They're ready to fly weight of the Vanquish MKII, four cell 2200 mAh Hyperion is 50 ounces.

Now I set the recommended control surface movement per the manual. Ten degrees for elevator on low rate and maximum throw for high rate. The rudder receives 20° and throws for low rates and maximum rates. And finally the ailerons see 15° for low rates and 35° for high rates. Now the Vanquish will do 3D maneuvers but is really designed as a pattern airplane, so we will we will be flying at low rates are smooth and stable flights.



### Flying the Vanquish MKII

On a beautiful day at Rocket City Radio

Controllers

Huntsville, Alabama, we proceed to do the maiden flight of the Vanquish MKII from Extreme Flight RC. Considering that there have been some minor repairs to the runway recently we have a bit of asphalt debris on the runway, but the vanquish and it's 600+ watt power system had no

difficulty in taking off and less than 50 feet. As the Vanquish climbed down, I noticed sensitivity on elevator control and a slight roll to the right. Five clicks of left aileron and a bit of altitude later; I slowed down my elevator inputs and put the Vanquish through its paces. To say I am a pattern guy as of late would not be accurate. Because of my work schedule recently I have not thought much about pattern





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in the past 12 months, but my run through of the AMA intermediate pattern made it clear that I was very rusty. The Vanquish performed extremely well. Because I decided to fly the Vanquish as a pattern type aircraft, I set the throws as such. The low rate as indicated in the manual equals a very sporty elevator control and a slightly sluggish aileron control. Now I must clarify here, the aileron servos and elevator servos are different servos. The aileron servos are a sport servo non-digital, whereas the elevator and rudder servos are a digital high-speed high torque servo. I flew the entire intermediate pattern on the first flight which according to my timer indicated a four minute and 41 second flight. I like the Vanquish very much. After making some minor adjustments to exponential control and the control throw (and work off a considerable amount of rust on my own), I was able to fly the Vanquish very confidently and very effectively through the AMA intermediate pattern. The Vanquish MKII is a great flying aircraft for the sport flyer and perhaps an even better aircraft for the pattern enthusiast. It is light weight and can be stored in an average SUV or minivan without disassembly. Is very capable of flying all levels of AMA pattern competition, as well as extremely enjoyable for the sport pilot. It is

very affordable, easy to assemble for any intermediate pilots, and would not take more than a few days to assemble for a newly soloed pilot who recently ran across a club member with a 2m pattern aircraft at the field. The Vanquish is a great airplane and I highly recommend it!

*Tony Coberly*

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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.

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## Smiley Face Contest #6 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 July 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](mailto:smileys@rcreport.net) Subject line: Smiley Face Contest #6 2010

US Mail: Smiley Face Contest #6, 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.*

*After I found 9, I had to quit and hunt for a boat -- been raining all afternoon and I was so busy looking for Smileys; I didn't notice my house was about to float away. Move over Jacques Cousteau here I come!!*

**Gerald Ewell, Sr.**

*Here in the Mountain West, the weather is still crappy. Perhaps electric indoor flying will be the rage around here. This month I found 10 Smileys - the most I have ever found. Either you're getting easier or I am getting smar-----no, it is definitely easier.*

**Ken Gardner, Murray, Utah**

*FIFTEEN!*

*That is all for this month, somebody got Smiley Face wild! (Guilty! Julia)*

**Manfred Decker, Wahpeton, ND**

*Dear Julia,*

*Great distribution of the smiley faces in the May issue. I found 14. I am not certain that I didn't miss any even with all those. Thanks for all the fun!*

**Jim Kropelin, Lewiston, NY**

*Hi Julia,*

*I am pulling a late one to get the smiley's in. The weather in Wisconsin has been dry and windy for the past 2 weeks. Hope your work load is a little less now that Toledo show is over for this year. Flying season is now upon us. I have found 14 smiley's for May 2010.*

**Larry Slowiak**

*Hi Julia,*

*I found 10 smileys. I enjoyed it! Thank you very much... Enjoyed the B-17F picture!*

**Mike Kellner**

*Hi Julia and Tony,*

*I found 14 smiley faces. This year is the first time in a long time I started the flying season in April. I have flown once all year and I live in Northern Minnesota. At this time I have 3 student pilots. One is 9 years old. I am a member of the Iron Range Radio Control Club.*

**Tony Kostanko**

*Recently got new glasses, wonder if that will help with the smileys??? Damn sure can't hurt my flying ability any! FOURTEEN!*

**Dan Schaller**

*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.*

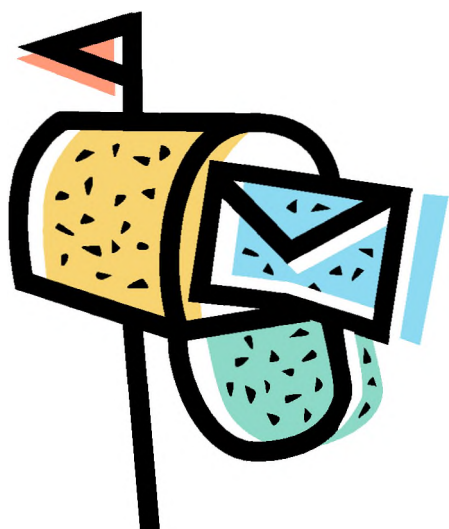
*Total Smileys for the May 2010 issue was 16.*

*April's Winner is Jay Stargel from Woodbine, MD!*

*Thanks for your submission, Jay!*

*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!

Here's a little something for all you smart people out there! Send in your answers to Julia at [juliac@rcreport.net](mailto:juliac@rcreport.net). Correct answers will be published next month in Mail Call! Thanks to Dick and Baby for the fun!

A quiz for people who know everything:

There are only nine questions.  
Google if you must, but use your noodle FIRST!  
These are not trick questions.  
They are straight questions with straight answers.

1. Name the one sport in which neither the spectators nor the participants know the score or the leader until the contest ends.
2. What famous North American landmark is constantly moving backward?
3. Of all vegetables, only two can live to produce on their own for several growing seasons. All other vegetables must be replanted every year. What are the only two perennial vegetables?
4. What fruit has its seeds on the outside?
5. In many liquor stores, you can buy pear brandy, with a real pear inside the bottle. The pear is whole and ripe, and the bottle is genuine; it hasn't been cut in any way. How did the pear get inside the bottle?
6. Only three words in standard English begin with the letters 'dw' and they are all common words. Name two of them.
7. There are 14 punctuation marks in English grammar. Can you name at least half of them?
8. Name the only vegetable or fruit that is never sold frozen, canned, processed, cooked, or in any other form except fresh.
9. Name 6 or more things that you can wear on your feet beginning with the letter 'S.'



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