



# The Flightline



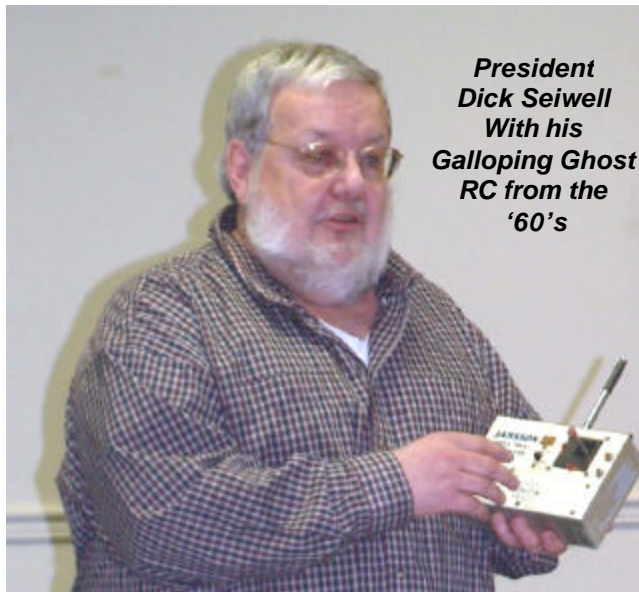
Volume 36, Issue 2

Newsletter of the Propstoppers RC Club

AMA 1042

February 2006

## President's Message



**President  
Dick Seiwell  
With his  
Galloping Ghost  
RC from the  
'60's**

### *Agenda for February 1<sup>st</sup> Meeting Middletown Library 7:30 pm*

- ? Approval of January meeting minutes
- ? Membership Report and Discussion
- ? Finance Report
- ? Flying Field Status and Issues
- ? Initial Planning for 2006 Events
- ? Plan for March Club Auction
- ? Show and Tell

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Well, here we are in February already, and what good flying weather we're having.

From what I understand both fields are in good condition for flying and driving, but be aware of the "soft spots" at Christian Academy so you don't get stuck in the mud.

We had a great turn out for the January meeting, with a lot of interesting airplanes and helicopters.

I feel the show and tell helps the members to know the new equipment and to find the best planes and gear so we can all enjoy flying at its best. So, please bring in all your ideas and findings to the February meeting.

If anyone has anything of interest for the show case at the library. Please bring it to the February meeting. This show case will be set up the first week in February and last for one month. Please make a list of anything you bring and give it to me so we can keep it for our records.

At the last meeting, I made a few small changes in the flying rules for student pilots. This change was made to promote more flying time and involvement for members and students.

1) A qualified pilot may help a student fly his or her plane if asked by the student.

2) The pilot must stay with the student while the plane is in the air.

3) When a student feels he or she is ready for solo flight, he or she must make arrangements with an instructor for a

Flight test. The instructor will make the decision whether or not the student is ready to be a solo pilot.

These amendments were voted on and approved by all members present.

The January indoor fly at Tinicum School was great. A lot of members brought friends and family to make this a great night out.

The next indoor fly will be February 3, 2006, so charge your planes and come on out.

We had decided to move the February auction to March so we could advertise more with other clubs. However, with a little more thought, I feel we should have the March auction for our club members only, due to the size of the meeting room. We can have another auction during the summer at the Sleighton field and invite other clubs via this newsletter.

Maybe one of our electric flyer (experts) can come up with some combinations of motors, speed controls, and batteries for 20 and 40 size planes; particularly outrunners which would give good performance for the size of the motor, speed control, and batteries.

Well, hope to see you at the meeting.

**Dick Seiwell. President**

## Calendar of Events

### Club Meetings

Regular Meeting 7:30 pm  
Wednesday 1<sup>st</sup> February, 2006  
Middletown Library  
Behind Weather's Dodge on Rt, 452

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

### Regular Club Flying

At Middletown / Sleighton Field  
Monday - Friday;  
10 am until dusk- Electric Only  
Saturday  
10 - 3pm-for FUEL PLANES and  
10 - Dusk for Electric  
Sunday - 12- Dusk - Electric Only

At Christian Academy; Electric Only  
Monday through Friday after School till dusk  
Saturday 10 am till dusk  
Sunday, after Church; 12 pm till dusk

### Indoor Flying

Tincum School Fridays;  
2/3, and 3/3; 7 - 9 PM.

### Special Club Flying

Saturday mornings 10 am Sleighton Field  
Tuesday mornings 11 am Sleighton Field  
Thursday evenings 4:30 on, at CA field.

Note; only electric powered airplanes.  
Beginners using due caution and respecting club  
rules may fly GWS Slow Stick without instructors.

## Minutes of the Propstoppers Monthly Meeting January 4<sup>th</sup> at the Middletown Library

The meeting was called to order at 7:30 p.m. by incoming President Dick Seiwel.

Roll Call- Membership chair Ray Wopatek found 17 members and two guests present.

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

Treasurer's report-Jim Barrow presented the current report which was then approved.

### Old Business:

We are gathering materials to fill the display case at the Middletown library. This has been set aside so that we may put in a display for one month. We would like to have a display about various aspects of Model Aviation sponsored by our club. We currently have a collection of old and new model aviation magazines along with several small planes and other models.

Vice-President Dave Bevan gave an update on the Widener Student team building a fuel powered model to contest specifications for their international payload contest. They have designed a model with a wing of 95 and 1/2 inch span and 28 in. cord. The span was specified in the rules.

### New Business:

Dick Seiwel mentioned that Dave Harding is going to the winter Sam contest to be held in January in Eloy Arizona. This lies between Phoenix and Tucson. The club wishes him well. The membership voted to have a club auction during the March meeting to begin at 7:00 p.m...

Dick Seiwel proposed that student flyers can fly with any accomplished pilot rather than specifically an instructor.

### Show and tell:

Mick Harris showed his scratch built Buzzard Bombshell-84 in. span, covered with Mylar tissue and dope. It runs with a geared Astro motor.

### Mick Harris describes his Buzzard Bombshell Old Timer



## Propstoppers RC Club of Delaware County, Pennsylvania.

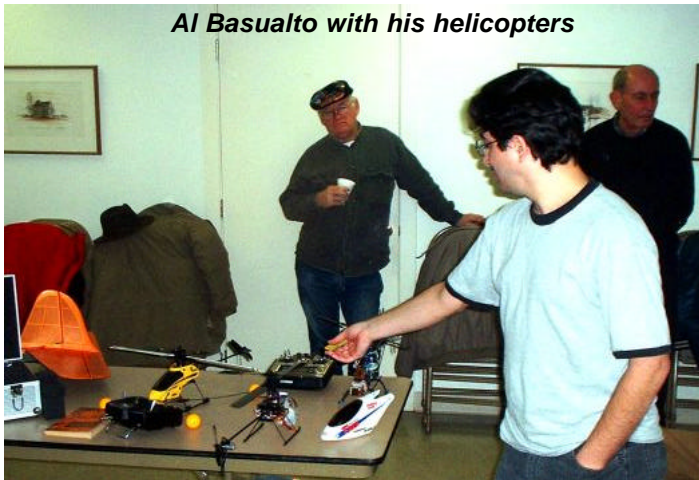
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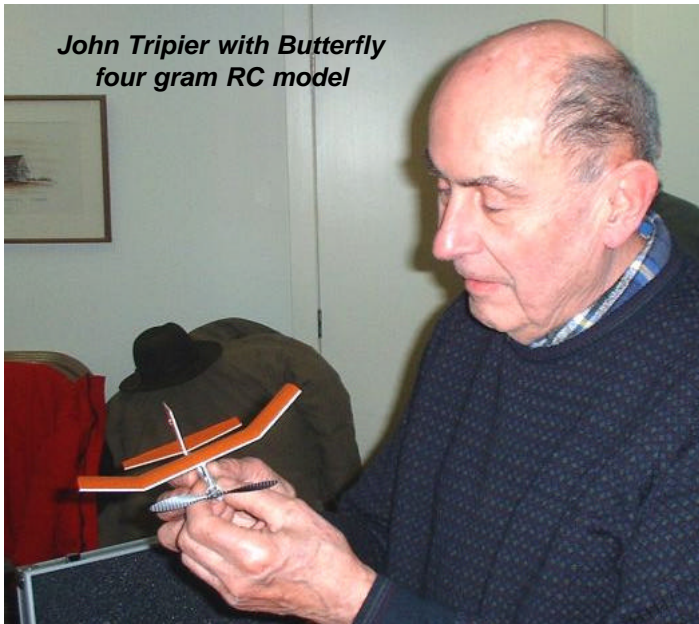
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Albert Basualdo showed a hybrid electric helicopter and Alan T-Rex helicopter made of carbon and aluminum which is capable of aerobatics.



**Al Basualdo with his helicopters**

John Tripier showed his four gram R/C butterfly with actuator control.



**John Tripier with Butterfly four gram RC model**

Joe Mesco showed a blade C P helicopter that comes as a complete kit with transmitter. He has hovered it in the garage.

Mike Black showed a four Channel helicopter he got through eBay. It is a Col Co product and comes with a flight simulator CD for practice and skill development.

Adjournment-The meeting was adjourned at 9:00 p.m...

**Richard Bartkowski, Secretary.**

## **Another Indoor Blast**

These meets just get better and better, and different every time. This time was another heli-fest, with a crowded bleacher full of enthusiastic spectators.

One of the visitors, a quiet young man with a bunch of rowdy friends, brought along an Air Hog RC Helicopter "toy". Yeh, right, toy..... You should see this thing.

First of all it was indestructible, as he handed the controller among his lest sensitive friends and they literally bounced it off the walls and floor and anything else in sight. Amazing, an RC helicopter that can crash at any and all attitudes then right itself by powering the rotor and takeoff again and again.



**The Air Hog indestructible RC helicopter**



And what we are seeing here, yet again, is the youth of today have such wonderful eye-hand coordination and can decipher the most complex control laws in achieving their flight control desires. This machine has just a power on and off function. When you leave it on, the model climbs then begins to turn. When you turn it off it descends then begins to turn the other way. This young man was able to use these functions to achieve beautifully controlled flight such that you thought he had complete proportional control; which he did, but the hard way. Yes, yes, I know that is how it was in the old days, but these guys didn't get to practice for hours. Oh, yes, did I mention that he only bought it the day

before. And most amazing of all; they can be bought for under \$20 if you find the right outlet!

The heli wizards were out in force again although past President, Steve Boyajian, crunched his high dollar machine before most attended.



Heli Wizards Steve Boyajian and Al Basualdo

Joe Mesko accompanied by his wife Ginny, brought and flew his stable of fine flyers.

Rick Grothman debuted a new indoor lightweight made from carbon rods and film covering. He had a Fiaggio brushless motor in GWS gearbox but had some difficulties with his early flights. Son Paul had left his transmitter at home so they spent quite some time trying to cross train Rick's Tx to Paul's model, never getting it quite right.



Rick Grothman's new indoor lightweight biplane

And of course there were the usual freeflight contingent.



Chuck and Art flew Harbor Freight's finest.

Come on out again on 3<sup>rd</sup> February.

**Dave Harding**

**Fun in the Sun..... And Wind**

It's not easy building big airplanes. I know, I wrote an article explaining nature's scaling laws some years ago, but it becomes personal when you are trying to whip out the new contest ship to take away after Christmas.

The rules for the SAM electric competitions that us SAM 76 guys fly have changed this year. Whereas the batteries were specified as a fixed weight in prior years, this year they are a percentage of all-up-weight, 25% to be precise.

Now for the last few years we have had success in engineering to those old rules but the schemes we used no longer work so we need new strategies.

In the Limited Motor Run class, where you are allowed to run your motor for 90 seconds then glide down, we were challenged by visibility as we built better and better airplanes; they just climbed out of sight. Under the old rules making them bigger and easier to see also reduced the altitude gained in the climb, but with the new rules all well engineered planes will climb to the same altitude. However, bigger airplanes fly better because of the effects described by the good Doctor Reynolds in the mid 19<sup>th</sup> century. So I decided to build one almost twice the size of the old; 108 inch span compared to 60 inches for the last one that finally met its end by diving vertically into the El Dorado Dry Lakebed.

Having decided to build a bigger model I had to go about engineering two versions, one for the LMR and the other for the Texaco event, where the motor can be run at any time. This too benefits from larger scale effects, but both of them suffer from other effects of nature's laws of scaling. In particular the loads and stresses increase disproportionately with size. You may remember that when you double the size of an airplane, all other things being equal, you double the stresses in the load carrying parts. This means you must use materials with twice the strength; spruce and more graphite/glass re-inforcement. But how much? I found it impossible to guess so nothing for it but to engineer the parts so I built some wing design spreadsheets and went to work before cutting parts.

Spar with webs and no reinforcement by Graphite										
Station # from tip	Mean Spar Load lb	Bare Spar Stress - psi	Margin		Margin		Spruce margin	Web margin		
			6 pcf balsa	6 pcf balsa	11 pcf balsa	11 pcf balsa		6 pcf balsa	11 pcf balsa	
			Tensile	Compre	Tensile	Compre	Compre	Shear	Shear	
1	16	242	4.68	1.07	11.60	4.99	21.73	1.36	3.71	
2	35	531	1.59	(0.06)	4.74	1.73	9.36	0.18	1.36	
3	67	1,025	0.34	(0.51)	1.98	0.41	4.37	(0.21)	0.57	
4	110	1,687	(0.19)	(0.70)	0.81	(0.14)	2.26	(0.41)	0.18	
5	165	2,517	(0.45)	(0.80)	0.21	(0.42)	1.18	(0.53)	(0.06)	
6	230	3,516	(0.61)	(0.86)	(0.13)	(0.59)	0.56	(0.61)	(0.21)	
7	307	4,682	(0.71)	(0.89)	(0.35)	(0.69)	0.17	(0.66)	(0.33)	
8	394	6,016	(0.77)	(0.92)	(0.49)	(0.76)	(0.09)	(0.71)	(0.41)	
9	492	7,519	(0.82)	(0.93)	(0.59)	(0.81)	(0.27)	(0.74)	(0.48)	
10	602	9,189	(0.85)	(0.95)	(0.67)	(0.84)	(0.40)	(0.76)	(0.53)	

Tensile Strength of Graphite Reinforced Wing Spar Element (from above)									
Spar Dimension s	Wood	Density ~ pcf	Un-reinforced wood	Strength with layer/s of graphite uni fiber at same strain. For number of fiber layers. i.e. wood fails. *					
				Layers	1	2	3	4	5
Width - in. 0.375	Balsa	6	66	188	311	433	556	678	801
	Balsa	11	141	272	403	534	666	797	928
Depth - in. 0.125	Spruce	25	314	424	534	644	754	864	974
	Hickory	45	938	1,200	1,463	1,725	1,988	2,250	2,513

Another factor in the design was transportation. Not only was I planning to fly this model at the Muncie Champs in September, but at Eloy Arizona in January and Italy in June. So the model must also come apart and fit into a suitable shipping container.

My flying buddies from last year's Euro Champs used snowboard shipping containers for their models and one of our buddies use a fancy golf bag shipping container for last year's Champs. He managed to fit five models in there.

Well, as I was shopping in K-Mart before Christmas I found they had golf bag containers for only \$40 and they seemed like they might fit the new model with its 108 inch span, 11 1/2 inch chord and 49 inch fuselage; so I bought one (and kept the ticket just in case).

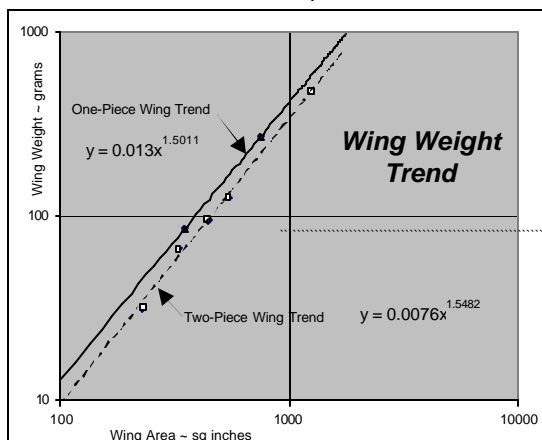
A little work suggested that if I made a three piece wing it might fit. And a three piece wing has the joints outboard where the bending moments are lower than at the center. Furthermore, on the Stardust Special the break would be in the flat part of the wing so the joiner would be a straight piece rather than the more common dihedral angled one in the center or outboard at the dihedral break. So I forged ahead with the design incorporating these features.

The next big-model problem is one of weight and balance. Our competition rules require a minimum wing loading of 8 ounces per square foot, and we have been able to build down to that in the smaller sizes, but what about big airplanes with their higher stresses and stronger materials? Then there is the problem of balancing these airplanes. The LMR model will have a heavy high-power motor up front but the Texaco will use a small lightweight motor and gearbox. They will have about the same battery weight but can it be made to balance?

Again I was forced into using the engineering methods we employed in the really big airplane world at Boeing; I had to do weight and balance calculations. Worse, since I did not know what the parts would weigh I had to make assessments of those too.

In the big airplane world we make the initial assessments largely based on historical data, modified to accommodate the peculiarities of the new design. Hmm... what will this big three piece wing weigh?

Nothing for it but to weigh every wing I have in the shop and make an assessment in the form of a weight trend. I guessed that the weight would be a function of wing area so I plotted weight against this primary parameter, but I noticed that there were two distinct trends; one for one-piece wings and another, heavier one for two-piece.



The calculations suggested that I needed spruce upper spars on the inboard panels and graphite re-inforced hard balsa on the lower inboard spars, with something less needed outboard. The dihedral braces needed graphite reinforcement, particularly in the center. So the first thing I did was to go and buy some hard balsa and I thought I should have no trouble by going to the local hobby store! Sure enough, the sheet of 1/8<sup>th</sup> I bought was at almost 20 pounds per cubic foot; about four times the density of good balsa and almost as dense as spruce; a good start, bad LHS

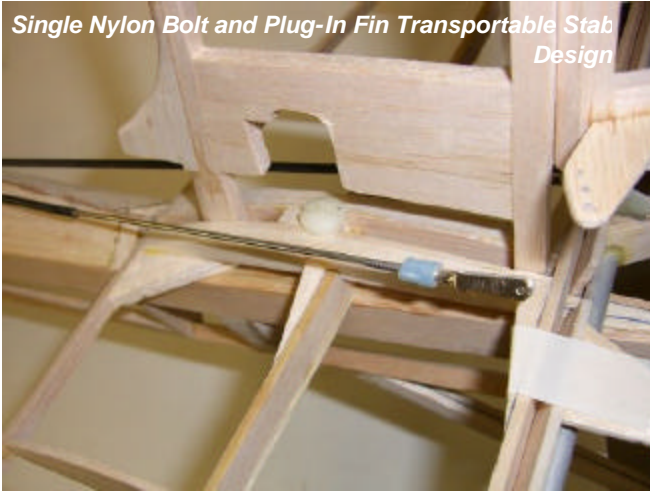
For the dihedral braces I made two moulds so I could make accurate graphite parts. I took a piece of 2 x 1 pine and cut it with the dihedral angle, then wrapped the surface with tape as a parting agent. I then moulded a multi-layer part which was then sliced to get two identical pieces. I built the wing panels with open spars in the brace area then first added the graphite cap to join the halves then followed by the shear webs. This way I could glue and then clamp the joint between the graphite and the spars to ensure a perfect bond, then I added the shear webs.

The joiner assembly was done in a similar way as I made the joiners from a multi-layer graphite cap over an end grain balsa core. These were made to fit the spar cavity. Here the important joint is the shear webs to the spars and I made a composite of 1/64<sup>th</sup> ply and graphite. The graphite for strength and the ply for wood to wood bond. These joints were made before the LE sheeting was applied, again to ensure a good clamped bond.



On most of my new planes over the last four years I have made removable stabs with a simple, lightweight method using a single nylon screw to fasten the horizontal and a plug-in vertical that also keys all the parts to the aft fuselage.

*Single Nylon Bolt and Plug-In Fin Transportable Stab Design*



As the parts came together I was able to refine my weight and balance calculations and plan for the battery installation. For the LMR model I had decided to use an old Aveox 1412/2Y motor and gearbox with 14 CP 1300 Sanyo Nicad cells. This is the setup I used in my Trenton Terror at last years Champs and it worked well enough, but is rather heavy. The Texaco version uses a Mega 16/15/3 brushless motor turning through a Model Motors 6:1 gearbox on 14 Sanyo 1500 AUL cells arranged into two parallel seven cell packs. The LMR battery needed to be mounted aft to balance the heavy motor and the Texaco battery forward to help the lightweight motor keep the CG forward. This necessitated a very large mounting cavity with a similarly sized fairing.



*Stardust Special LMR Propulsion System and large battery cavity requires a very large fairing*

The design challenge for the fairing was to be strong and stiff enough for the handling loads, this is a 60/70 ounce model without ballast and you need to grab it from below. I decided to make a fairing with graphite reinforced frames shown here. Each frame was made from a two-ply 1/16 in balsa sheet with a strip or two of uni graphite wrapped around the outside and inside. It was finished with soft 1/16<sup>th</sup> inch balsa sheeting, moulded wet around the formers. The finished moulding was sanded then further re-inforced with

several layers of cheap tissue paper applied with water based Polyurethane sanding sealer. It worked out great.



*Lower fairing structure*

Soon it was time to finish the model, and our current favorite is to use thin Mylar then cover with doped on tissue. This is the stiffest lightest most durable approach, but how to dope such a large model when the weather is below freezing and the wife is allergic to dope fumes? We have two significant requirements for our covering on these old competition models, the first is weight and covering a large model might add several ounces, the second is stiffness as these structures have wide open surfaces that rely on the covering for torsional stiffness. In the event, there was no way to dope on tissue in the house so I elected to use a film covering. I did a thickness survey on the various films I had on hand. I knew I couldn't use Solite, our one mil favorite for small models, as I had stiffness problems with it before so I settled on 1.7 mil Flitecoat.

Would it fit in the transport case? I did a dry fit when the parts had taken shape and it seemed ok.



*Airframe Test Fit in Golf Bag Shipping Container*

For flight systems I elected to use a separate receiver battery for two reasons, first the controllers I have don't do BEC with more than 12 cells, and with the high currents for long durations I am concerned about the reliability of the power battery after the long climb. I want to be sure to have control, even if I loose power. So I bought a two cell LiPoly high capacity (low current and therefore lighter weight) battery and a matching voltage regulator from Batteries America. These turned out to weigh over two ounces, but for insurance I think this is best. I even added a switch to the Rx circuit, a rare treat for me where most of my models are "switched" by unplugging the power battery. Two mini servos and a trusty FMA M5 Rx completed the electronics and graphite pushrods with quick-disconnect clevises finished the transportable controls.

For every other contest we seem to have at least one day of high winds and our lightly loaded models have difficulty staying on the field. In these conditions you can add

down trim to increase the flight speed but this destroys performance and L/D goes down quickly. The better way to handle these conditions is to add ballast, and I vowed that all of my new models would accommodate ballast from the start. Adding ballast to models not so equipped is folly as the heavy weights need to be retained and the structure designed to accommodate the loads arising from them.

I made build-in ballast provisions in this model. The wing mounting pylon is hollow and can contain up to 20 ounces of sheet lead, right on the CG. I made the ballast in three pieces and packed them for Eloy. Indeed, I needed six ounces to bring the Texaco up to the minimum of 64 ounces and a wing loading of eight ounces per square foot.



For the final fitting in the transport case I had to do a little work in bulging out a few places to accommodate the model and I added a center septum from plywood to ensure that the case would not be compressed down onto the wing trailing edges. But it fit and fit well. Indeed, there is room for another modest size model such as the one I will build for Europe in the spring.

So now I had a model and it fit the box, but would it fly? Well, Mick and I did our usual cold weather test flight one fine day at Sleighton. The model was in LMR form with the big Aveox. It flew like a dream, fine climb and superb floating glide. It was a little sluggish in the turns but a subsequent move of the pushrod to a shorter horn hole cured that. Most of all it just floated and floated, not wanting to come down. Wrap one good model for the contest.



Next came a test flight with the Texaco propulsion system. This time Dick Bartkowski and I went to CA field for the test flight. With Texaco models we worry about the takeoff and climb as we usually install smaller, lower power motors aimed at efficient cruise. Take off was no problem and climb out just fine, but after a few minutes it seemed to loose

power. As it descended it was clear that the prop was not turning so I landed and we searched for the problem, which was immediately apparent. One of the three motor wires was loose and the others clearly had wrapped themselves around as the motor somehow turned in the mount. How could this happen?.



Well, first of all I hate coupling motors to gearboxes. I find it so hard to get good alignment, much less excellent low drag alignment. My first attempt to mount the Texaco propulsion system resulted in noticeable drag when I turned the propeller, so I removed it and first filed some more clearance in the mounting adaptor plate. You see, both propulsion systems must mount to the same former and it is necessary to make adaptor plates to accommodate the smaller motor. Next I disassembled the gearbox main housing from the motor and checked out the gear assembly. It seemed fine and so I reassembled it hand-tight so as not to force things out of alignment.

What seemed to have happened at the field was the screwed-on housing had turned, perhaps tightening further, as I was unable to tighten it once removed from the plane. Nevertheless, I again loosened it and added a touch of Loctite to the joint, then reassembled the whole thing into the plane as Texaco was the first event. I decided to make no further test flights as you always run the risk of damage and I thought I was ready.

So I found myself with two days left prior to departure and wondered how best to spend the time, and seeing as I was in full building mode my mind wandered to a new event for this year; Scale Spirit of SAM. This is a special class for the SAM Champs, where they honor a different Old Time flyer each year. This year the individual is Earl Stahl and one of the events is for his scale rubber models built and flown to the Spirit of SAM rules. These are usually about 150 sq inch wing area and use GWS indoor components with a four cell 350 Nicad battery pack. Dick won Spirit of SAM at the 2005 Champs and I finished second, so we know how to set them up for flying in good conditions.

Now I am a Hawker apprentice, and one of Earl's fine models is a Hawker Hurricane, the WWII fighter (that destroyed more aircraft during the Battle of Britain than all other aircraft combined.... But I digress).

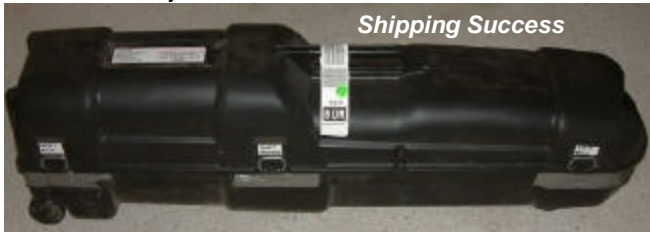
So, since the plans are on the web ([www.theplanspage.com](http://www.theplanspage.com)) I downloaded them, scaled to 150 sq in and printed them out.

I made it to the point of installing the systems by eight pm the night before I would leave, but decided not to

pull an all-nighter, but rather take the model and the system parts for finishing in SoCal after the event. So I put the parts in the travel case too.



As is my custom, I packed all the support equipment including tools, chargers, Tx and all the necessary spare parts together with my cloths etc in my other suitcase. So bright and early on Friday 13<sup>th</sup> I checked in with Southwest and flew to Phoenix. The bags arrived just fine and loaded in the rented PT Cruiser, my Seattle Boeing friend Colin and I drove out to Eloy.



We drove out to the flying site where the weather was perfect, warm with light breezes and clear blue sunny skies. In fact it was so comfortable it was just easier to lay back and catch up with our flying buddies rather than assemble models and test fly.

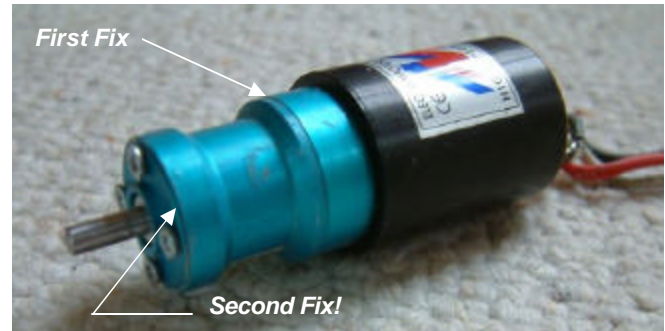
I had left two models (for three events) in Pasadena following the 2005 Champs. Fortunately, Mike Myers, President of SAM lives close to my daughter and he volunteered to bring them to me. I knew some repairs were in order but I would have time to do them at the site or in the motel.

Early on Saturday we drove to the field and prepared the big Stardust Texaco for its first competition flight by slow charging the battery. The new rules for electric competition have taken away my engineered competitive advantage and the models should be fairly even at this point, although I am hoping for some edge from Reynolds number effects and the ability to see a big model higher in thermals. Nevertheless, I decided to take my time and wait for the morning thermals rather than my prior practice of making an early flight in the still morning air.

So, by mid morning I was ready and with the weather still warm with light breezes I took off for my first flight. After about ten minutes I seemed to lose power and found that, yet again, I had lost all power and glided down for a first flight time of almost 15 minutes. In the confusion of changes in wind direction I landed (deliberately) on the wrong side of the flight line to score a zero!

I found that I had again broken a wire and this time discovered that as well as the main gearbox splice the front

housing is screwed in, and it was this joint that was still loose.



Oh well, learned again so I CA'd the joint and soldered the wire then set about charging the battery. For whatever reason I charged the two seven cell packs separately and at a low rate, because this is the way to get the maximum charge with these cells.

Meanwhile I helped out with some of the other flyers including timing for my friend Jack Hiner.



The first charge took two hours and even though I upped the charge rate it took another hour for the second. The packs took 34% of full charge so I should expect a still air power-on time of about 45 minutes; about what we calculated for the new rule airplanes (vice the 90 minutes for my old Texaco). Normally this late second flight would not have been a problem as the good thermals seem to come in mid morning and mid afternoon in the desert. But this time the wind began to blow harder. Indeed, the forecast was for some kind of front to come through as Sunday and Monday were forecast to be fifteen degrees cooler. I wondered why nobody else was flying and clearly the wind had picked up but I thought I could handle it. I even made a conscious decision not to add ballast.

This seemed to be ok as the model immediately hooked a fine thermal and I climbed to altitude power-off for about fifteen minutes although I had blown downwind a bit. Then I surfed what ever lift was up there but continued to lose distance downwind but I was at considerable altitude and thought getting back would not be a problem. But the wind just continued to build and eventually I had to add down trim to stay up and finally had to add power to drive it back to the field, ending at full-power. Short of the field I ran out of power and landed for a zero score in 31 minutes.

The wind was now blowing hard and only a few hardy souls flew the rest of the day.

There was a good showing for Electric Texaco and the three place winners were very close in the 49 to 51 minute range with some thermal assist. So the new rules



have achieved one of the objectives and that was to reduce these very long times, and I should be competitive.

Sunday dawned cool and the wind was already blowing so I charged my last year's winning Wakefield then, having measured the wind speed, added three ounces of lead to the ten ounce model. The flight was less than spectacular with modest climb height and difficulty in keeping it on the field. My time was less than two minutes against a five minute maximum. Others faired better, indeed my buddy Jack Hiner likes heavy models and he put in two fairly good flights even struggling to get out of a booming thermal. Others braved the conditons but only one put in two fair times. I quit for the day as the wind speed continued to increase. Nevertheless, my time was good for third, no real consolation though.

We were due to fly the lightly loaded Spirit of SAM models on Sunday but decided to postpone it until Monday with the hope of better conditions.

We were subjected to several desert twisters, some of which were carrying large objects into the sky. One blew down the freeflight flight line ending their day.



*Eloy Twister*



*Freeflight Flight Line Shut Down*

Monday also dawned cool but with mild breezes so I immediately put my Spirit of SAM battery on charge for a top off; Wrong! Others arrived fully charged and flew immediately. They got in decent flights, but by waiting I ended up in the increasing wind and flew for a barely fair flight of just a few seconds. Indeed, on landing the battery flew out the front of the model, probably in a straight line through whatever structure was in the way. No fun here.

And so it went as the wind speed continued to increase, although some brave souls flew and I kept thinking I might fly the LMR, after all I had provided ballast for such occasions, and I was particularly motivated when my flying

buddy Steve Roselle flew his heavy Nomad for a decent flight. But it turned out that somewhere in the chaos of working out of a rental car and motel we had bst the ballast, so I decided not to chance things further.



*Steve Roselle with Nomad LMR Here shown at the Champs in Las Vegas*

By 9:30 the wind speed had risen to 19 mph by my meter and with the forecast for continued winds the CD called it a day and we covered (because it was cold too) while the trophies were given.



*Competitors cold but happy*

But there was the BBQ under the stars Sunday night; magic. I'll be back next year.



*BBQ inder the desert sky; magic*

*Dave Harding*

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# Propstoppers R.C. M.A.C

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