



**2012 USA F2C Team
Walt Perkins/ J.E. Albritton, Dick Lambert/Tom Fluker
Steve Wilk/Dave Fisher.
Trials in Huntersville, NC.**



**National Control Line Racing Association
456 Garvey Road S.W.
Palm Bay, FL 32908**

To:

**Torque Roll Issue #99
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PRESIDENTS' COLUMN-
BOB WHITNEY



Well it looks like we have the 2012 Nats covered thanks to Brian Silversmith. When asked to ED the Nats, he agreed. He will need all the help we can give him. I have not talked to him but VP, Bill Lee has been conversing with him.

The Nats schedule is set and looks good. It looks as though we have a new Goodyear class, the only question I have is if an AMA Goodyear works well in the 1 oz Goodyear than why do we need it? Why doesn't everyone just run AMA GOODYEAR?

I want to thank Dave MacDonald for going to the AMA Nats meeting for us sounds like it worked out good.

It looks like the world Cup in Bowling Green is going to be a go.

North Central District - Les Akre

Let's start off this issue with some Nationals business. Former NCLRA North East District Representative Brian Silversmith has agreed to run racing at the 2012 Nationals. In addition to the events held last year, the 2012 Nationals will see NCLRA "B" Team Race make a re-appearance, and a new 1oz. Goodyear event will also be offered. The rules for this 1oz. Goodyear event should be published in this issue. I have read the rules as posted on the Delphi Racing Forum, and have come to the conclusion that the model is basically an AMA style Goodyear (controls buried) with an externally mounted 1oz. fuel tank, with the engine running on suction only. The line size and length are the same as for AMA Scale Race, but with the option to run .015" stranded lines as well.

I attended the Virgil Wilbur Racing contest in California this past Oct. 15-16 and had a wonderful time. Attendance overall was down a few entries from last year, but the weather was great, and the So-Cal crew was very proficient at running the contest with minimal help. Everyone pitched in and timed, or officiated a race when necessary. Certain events such as SCAR Goodyear, and NCLRA Clown Race were very popular with 7 entries each.

I also got a chance to see them run their Cal .15 event. This is a local event that seems geared towards the use of F2D combat engines as the maximum venturi diameter is set at 4mm. The two models that flew in this event could easily be described as miniature TQR models, but the similarity didn't end there as they were just as fast as the full size models they were based on. The rules allow for a built up fully cowled pan rat type model, however most go with the simpler more reliable profile models.

During Sunday's lunch break, I sat in on their annual club meeting where they plan the next years' contests and events. Some discussion ensued on the possibility of the So-Cal crew resurrecting the now defunct Cabin Fever contest that was held in Tucson Arizona in the spring. Some ideas were forthcoming about where the location should be held (Silverbell park in Tucson or Whittier Narrows in the L.A. area), but nothing was decided, and the matter put over until more information becomes available.

There has also been some discussion (again on the Delphi Racing Forum) about slowing down the Clown race airplanes by changing the line length to sixty feet in place of the fifty two foot lines we currently run. This was brought forward by some of the racers in the North East, who feel the rotational speeds are too high for the majority of their competitors. The rotational speeds aren't too bad in a 2-up race, but a good 3-up with everyone going well can get exciting at times for the Pilot's. Lately the modus operandi in Clown Race has been to go fast and try to get a reasonable (40-45) lap count per tank. The other method, and one that I have had equal success with, is to go a bit slower and go for more laps (50-55). If you can cut out just one pit-stop, you don't have to go as fast as your competition to win. Lately I have been testing a Norvel AME 15 in my Clown Racer, it runs about 20/8 with 58-60 laps range so far, and restarts first flip.

'till next issue, keep warm.

Southeast Report Jim Bradley

As a follow up to my earlier article about the engines I build for my Slow Rats from parts based on the ready to run RC car engines, this month I am going to write a cheap source for OS Turbo plug head buttons. Once you get past that these heads are for the OS, and many others, turbo plugs and not the Nelson plug you are on your way. A quick look at the picture shows a stock head button and the modified head button I use. Bob Whitney modifies these head button for me but if you have a lathe, or better yet a buddy with a lathe, they are easy to modify to fit your head button holder for the engine you are using. Since all of the stock head buttons will have



to be turned down for the cylinder bore and added benefit is you can machine for a tight head button to cylinder fit. This in itself can be worth a few hundred RPM's.

Initially I was using standard head buttons that used the OS style ¼-32 glow plug. I found that switching to an OS Turbo glow plug was good for 500-700 RPM's. I have had good luck with the OS Turbo glow plugs and have found them to be very durable plus they have the added benefit of coming in many heat ranges.

All of these unmodified head buttons can usually be found on E-bay and can be had for around \$15. All of these Turbo Heads have a squish band domed chamber. Instead of writing about each head separately I am going to list them in chart form with basic combustion chamber dimension. The dimensions were taken with calipers so treat them as being +/- .005 or so.

The volume of a spherical segment, chamber volume, per *Machinery's Handbook*, is $V = \pi \times h \times ((c^2)/8 + (h^2)/6)$. Using this formula, **h** is the

Manufacture	Part Number	Chamber Diameter (c)	Depth to plug face (h)	Head depth into sleeve	Chamber Volume
Axial	AX098	.40	.135	.09	.0098 cu. in's.
Axial	AX047	.42	.110	.08	.0083 cu. in's.
Axial	AX053	.46	.110	.085	.0098 cu. in's.
Losi	LOSR1045	.49	.155	.110	.0139 cu. in's.

height of a segment (depth of the dome) and **c** is the diameter across the dome.

So far I have gotten the least RPM gain from the Losi head button but I haven't done a lot of testing using different head shims. This makes some sense since we use low nitro fuel which usually works better with higher compression ratios, hence smaller head chamber volume.

I hope at least some of you find this information of some use. If you have any questions you can E-mail me at [bmp4carbon @aol.com](mailto:bmp4carbon@aol.com).

Southwest Report- Dave Hull

Hope everyone has gotten a chance to develop their equipment and do a little racing since the last newsletter! I missed my deadline due to all the work going into preparations for the F2C team trials as well as life's routine demands. Things like making the boss happy and earning a living....



Jury at the 2011 Team trials

The team trials were a huge challenge, and in the most basic way, a huge disappointment. We got our clock cleaned! Things started off badly when Lenard got hit in the helmet by a landing airplane during the first pit of our first race. He was ok—stunned but recovered after about 8-10 seconds—but that race was not going to help. The officials on the far side of the circle said they could hear the Thwack! over the engine of the plane that was still in the air. The rest of Saturday was similar. All kinds of unusual things happened, but the bottom line was that leaving the field, we had one flyable model to get us through Sunday and no good times to get us on the team. We were the only team not running Yugov engines, and we had the slowest airpeed. That is a big hole to climb out of, and we found it to be insurmountable.... The other teams worked hard too, and good equipment and preparation paid off in each case. Congrats to the 2012 team!

Here in SoCal we just finished up our “big” race of the year—the Virgil Wilbur Memorial. We didn't get many from beyond the usual SCAR area except for the dangerous half of the Canned Ham Racing Team, Les Akre, who came down from Edmonton for one more shot at the good weather before getting frozen into the Great White North. Three teams did a little practicing on Friday, and

there was a lot of racing on both Saturday and Sunday.

Mouse I. Four competitors plunked down the big bucks to contest for bragging rights in Mouse. Two other teams recorded a DNS due to a conflict with the household plumbing. When water is running everywhere, ya gotta fix that first! New guy Mike had upgraded both his plane and the combusticator on the front end. He somewhere found a brand new, box stock Black Widow that ran steady all day. He co-opted Jim Holland to pit this new beast (Jim was gentle on the needle) and we started in with 2-up heats. The Burly Dukes brought their Outlaw Wing (miniBlob III) with multifunction everything and proceeded to suffer from standard Cox “hopping down” issues. Les recovered his senses from the Nats, and (a) went back to reasonable fuel, and (b) with a decent night's sleep managed to flip and launch within his right of way. Repairs to his equipment after the Nats final seemed effective. Bill Cave commented that “...it was really going good!” Since Bill has had plenty of fast Mice, that's a pretty solid evaluation. McSlow, as usual, was changing engine parts right up until the 2-minute warning. Even though he didn't actually get rid of another leak in his fuel tank, with a borrowed backplate the leak was reduced to the point that the needle worked and held a setting. After a lot of running and fueling and flipping, the order after the heats was Akre, Hull, Callas, and the Burly Dukes with just 24 laps. Because the Dukes retired with equipment problems, they were offered some backup equipment and three teams went to the final. The final was a good, solid race. It was also Mike's first 3-up race ever, and he did pretty well. He has figured out how to whip back to the pits (whip early and whip hard), and now is trying to figure out when to stop whipping so the pitman has at least some chance at nabbing the little bugger! A bit of unintended excitement when McSlow and Duly had a minor midair during a bit of jostling when stacked three high. After the race, neither team could find a (new) scratch on their planes! Final finishing order was Akre/Hull with a 5:10.73, Duly/Burke, and Callas/Holland. So Mike finished the race with nothing damaged and picked up his first finish in the money. A final note--after the racing, our official club photographer made arrangements to buy a Streaker kit so he can get in on this madness....



Mouse winners at the SCAR Virgil Wilbur Memorial Contest. Since Mouse was first, all the racers are still looking clean, fresh and happy! (Photo courtesy of Ron Duly)

F2CN. This wasn't on the schedule, but with a little SCAR negotiation, it got squeezed in when the entry level in B-TR was insufficient to hold a 2-up heat. (Two of the likely entries had exploded at previous venues....) I believe there were four F2CN planes on the field, although two were not yet flown. The two F2CN entries couldn't have been more different. Akre ran a rear intake Nelson on a plane based on a recycled F2C wing with external controls—in other words, his black airplane; Holland ran a new Profi on a custom wing plane—this is his aqua colored plane. The Nelson was going for 50 laps and single pitting; the Profi was going for max airspeed and 2-pitting. The heats were where reality started to set in. The Nelson wasn't going to go 50, even with a smaller venturi. And it was going to run cold for the first three laps, no matter what the pitman did during warmup. The Profi was going to scream, and since it was humming and not burping, it was hard to tell if the setting would hold up. At times, it didn't. After some four rounds, everyone psyched up for a 200 lap final. Both teams wanted to win this one badly! Cave/Holland still had an airspeed advantage even after Hull/Akre changed strategies and equipment around. So it was going to come down to settings and pitting. In the end, a nose-over coming out the pit did in Cave/Holland late in the race. A tough break, but it was good to see such keen competition! There was one F2C plane on the field—a beautiful yellow Bondarenko plane that Jim brought. Maybe next year we'll squeeze that event in, too!



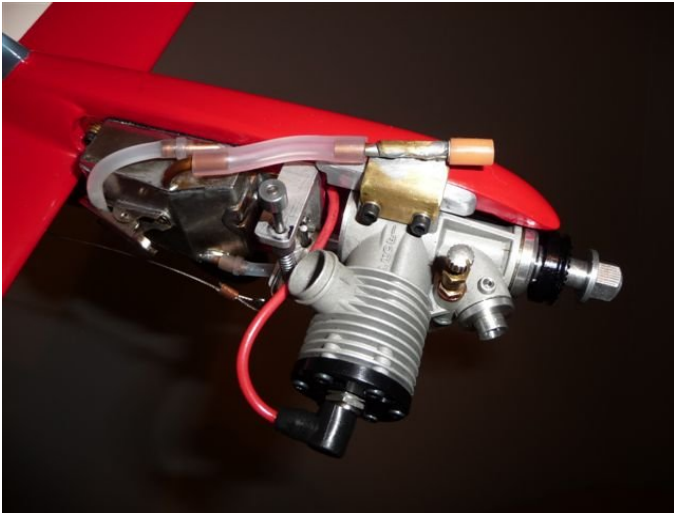
Jim Holland getting ready to go in F2CN. Custom plane had a brand new Profi engine that ran very well. (Photo courtesy of Ron Duly)

Orange Crate. Some logistics problems prevented this from going off on Saturday. No real problem since we can easily tell stories about the last 'crate race for another year. For example, after a near record time to get their plane assembled and started, one unnamed team lined up in the wrong spot and flew into the tree when they essentially had the race won! (The "kits" were available for this event on Sunday, but by then, everyone had done so much racing that we didn't have the energy to tackle this high adrenaline event.)

Super Slow Rat. There sure seems to be some fast SSRs in SoCal. The Burly Dukes had a brand new one with twin horizontal stabs. Purple and yellow with lots of scallops and fast...! I don't know why, but Don calls this one the Chiropractor, or something like that. At the beginning of the tank they were the fastest. By the end of the tank, the faster of the two ShyFoxes had 'em. So it really came down to the pitting and piloting. McSlow ran long, and tried to force a pit stop causing a missed catch and the Canned Ham Racing Team was out with 98 laps recorded. The Burly Dukes overran with just a single pit completed. I think everyone needed smaller tanks!

SCAR Goodyear. This was the big one for the contest, along with Clown, with seven entries. Ignore the posted score sheet—I think everyone was flying a different plane! Nice to see the variety, and it didn't seem like anyone was giving up performance due to the plane they picked. It all seems to come down to the engine and how well you race it. To be honest, I did so much flying in this event, all the races are jumbled together! I do

remember that Duly changed strategy from “hey, this ought to be a slow event so I’ll run my BoreDoak 15” to a first-gen Profi (!). No more comments about flies hitching rides... Krystina was doing well with her Shoestring. The improvement was not in airspeed, but in the right whipping getting back into the pits—and much better landings. McSlow was seen getting some tips from her between the races to apply to his Buster (Busted?) approaches. Everyone was looking for best needle settings and they seemed to come and go. The shootout final saw Akre’s Moki, Kusik’s ST(?), and Duly’s Profi go at it. And they finished in that order. Watching those scale planes go is great!



Engine Upgrade In Ron Duly’s SCAR Goodyear. First Gen Profi makes for a much more competitive racer. Ron says the plane flies great! Note the RC car plug lead going to hot glove contacts; a Dirty Dale style shutoff, but with the trip wire on the bottom; the center-feed coffin style tank with the pinchoff clip reversed; and the apparently magical combination of three different fuel line sizes. Bright fuel line is used as the filler bottle seal to help the pitman find it during the race! (Photo courtesy of Ron Duly)

Clown. Everyone had a Clown, and wanted in on the action. We saw Krystina flying a brand new one and it looked good! The ED set up a round robin matrix and all seven teams went at it. The TZ crowd (4 entries) were on the “go stinkin’ fast and work on laps” approach. Others tried their luck with a Cyclon F2D engine, a Nelson, and a Moki. All are known good setups with perhaps the Nelson being the most unusual. But it clocked off 146 laps in the prelims, which is often good enough to get into the

final. Not at this contest! Two teams elected to try to improve their first heat by going again. That paid off for Akre, who had some leaky tank issues (air leak in the overflow valve) who went from sixth to second in the heat finish order with a 172, and Bill Cave who went from a 48 to a 149, moving up from last to 5th. Not sure what ailed his TZ, but clearly it had more potential. The final was run as two separate 2-ups due to team conflicts, so four teams got to go, and it took a 152 to get in. A lot(!) of hard racing, and when the screaming engines stopped, the laps totaled up to 334 Akre, 324 Hull, 310 Burly Dukes, and 296 Holland. Some very close calls in the air on this one. I’m sure I didn’t see them all, but one between McSlow and Holland for the usual reasons—passing and running out of fuel at the same time. Jim was quick on the handle and saved the situation. Another was created by two planes both in the glide but one passing over top and stuffing into the pit to get out of the way. Conflict avoided, but cost a prop.

CAL 15. There were two, and they were cranky. This event is still developing, and the deletion of pressure fuel systems as compared to Rat hasn’t completely converted this to an “everyman’s” event. Still, it shows promise and you don’t have to run a pan to compete. Holland finished one 3:01 heat and then managed to finish the final for a win. The Burly Dukes were slower but consistent in the heats, but battled their equipment in the final and were out a 64 laps. The Canned Ham team never found a set of lines that met the rules that would fit on a SCAR Goodyear. Too bad, because you didn’t need blazing speed to do pretty well.

Quicky Rat Variations. We ran out of energy and daylight before we could start this one. I’m sure that everyone there had a good fast one, and planned on winning!

Thanks to all the guys that organized, ran, helped out, or just showed up and competed! Special thanks to Ron Duly as CD, rotating EDs Charlie Johnson, Dave Braun, Dale Long, and Don Burke; to a host of dedicated timers including Paul, Krystina, Krystina’s unnamed friend, Mike, Dale, Stan and others; to Ron for circle marking and maintenance; to Charlie for lugging the gear and handling the fuel arrangements; to Ron and Krystina for catering lunch (and for the birthday cake and cupcakes?); to Carl for pre-race publicity, limo service, costumes and makeup. Uhh, wait. That’s the other job!

During our usual SCAR business meeting held at lunchtime, we talked over the event schedule for next year. The main decision was that the makeup of the racing classes would center on Mouse I, Clown, and SCAR Goodyear, with an additional rotating event added to each contest. Although I did not write down the details, those included the usual suspects such as SSR. Also, the holding of diesel events on Saturday is on a demand basis. The sanctions are for both Saturday and Sunday in order to accommodate the speed events, so if two or more teams want to race diesels, just coordinate with the teams and then see if we can get some timers and officials. The key is to get on the phone and organize the teams and be sure to let the CD know. So the default is no Saturday racing except for the Virgil Wilbur unless the teams do the coordination up front.

The fees for the field may be going up next year, but we do not know yet. I believe I heard that the current exclusive use fee was \$60 and the new one might be \$120. Also, the park entry fee of \$6 which the park has been waiving for AMA members may be required in the future. Stay tuned.

A discussion of a substitute or reconstitution of the Cabin Fever contest was discussed. Opinions differed on whether it would be better attended in SoCal or in Arizona. The key issue is contestant attendance, not administration at this point. A couple of people were assigned to making some phone calls to get more info before we make any decisions. At worst, those racers from around the country can contact SCAR and with prior coordination we can add any missing events and race both Saturday and Sunday *at our regularly scheduled spring race*. The only obstacle discussed seemed to be running events on Friday, and having a separate day for diesels. Diesels could be Saturday, if we don't run every other AMA, NCLRA and ACLA event.

Also discussed was the decision to move the SCAR contest a week ahead of the proposed Bowling Green World Cup event. This both avoids a conflict, and is perhaps an opportunity to have back-to-back weekends of F2C racing in the USA. The opportunity will entirely depend on whether there is sufficient interest to make this worthwhile. At best, we have two California F2C teams to anchor the event. Any interested racers will need to speak up....

Fly safe. Race hard.

EDITORS' COLUMN- TIM STONE

COX ENGINE & PARTS SUPPLIER- In his excellent article about Mouse racing in this month's issue Paul Gibeault mentioned a Cox supplier that I had not heard of before, <http://www.coxengines.ca>. I don't know how long they have been around but their site is very impressive. Here is text from their website under the "About us" link;

"We are the world's largest seller of Cox products. Having purchased the remainder of Cox inventory from Estes Corporation (the owner of the Cox brand), we currently have over \$1,000,000.00 of Cox inventory in stock.

Furthermore, we partnered up with a model engine manufacturer for the purpose of producing assorted, hard-to-find, parts that will fit Cox engines. Although such are after-market parts, they are manufactured to exact Cox OEM specs and should fit your engine perfectly."

Their site is definitely worth a visit for all you Cox enthusiasts and racers looking for high performance Cox parts.

SOUTHWEST HAPPENINGS

Charlie Johnson sent me some photos from the Virgil Wilbur race of some interesting new planes.



Don Burkes' new SSR with twin tail, Dave Hull says it grooves quite nicely.



Jim Hollands' Cal .15 Forz power. Said to be as fast as AMA Rat, and much less complex.



Some interesting thoughts

Over prepare, then go with the flow.

Be eccentric now. Don't wait for old age to wear purple.

Don't take yourself so seriously. No one else does.

Your children get only one childhood.

**Don't sweat the petty things,
and don't pet the sweaty things!**

1 OZ GOODYEAR RULES

Next year at the 2012 Nats an event new to the Nats will be run in hopes of increasing participation from some of the East Coast racers. As you can tell from Phil Valent's column in this issue, there is a pretty healthy local racing interest. Here are the rules;

1.) All A.M.A. control-line unified racing rules and 317 control-line scale racing rules shall apply. Except as follows:

2.) Lines:

In addition to the .014 diameter 59'6" - 60'6" lines specified, multi-strand lines of .015 diameters, 59'6" - 60'6" length will also be permitted.

3.) Fuel:

a. Fuel capacity is restricted to 1 fluid ounce, with a +5% tolerance, 31cc maximum.

b. The fuel tank shall be fully external of the plane, on the outboard side of the fuselage. There are no other limitations of the tank location.

c. Glow fuel shall contain a maximum of 10% nitromethane with a minimum of 20% oil and the rest methanol.

d. Glow fuel shall be provided by the NATs contest management, who may provide fuels with differing lubricant quantity and composition for contestants' choice, which will be announced in advance of competition.

e. No pressurized refueling systems allowed.

4.) Shutoffs:

a. Shutoffs are legal for this event.

b. Shutoffs may be used during the race.

5.) Races:

a. Two 70 lap preliminary heats. No mandatory pit stops required. Fastest times proceed to the finals.

b. 140 lap final. No mandatory pit stops required. Fastest times win. At the event directors discretion the finals will consist of either: one 3 up race or two 2 up races.

6.) Diesel engines:

Use of diesel engines are not allowed.

RESULTS: South Jersey Aeromodelers

Middlesex, NJ June 26, 2011

Phil Valente, CD / & reporting

SPORTSMAN CLOWN RESULTS (8 entries 7.5 minutes)

1 st .	Tom Schaefer	135 laps	
2 nd .	Louis Lopez	128	
3 rd .	Roy Glenn	127	tie
3 rd .	Walt Gifford	127	tie
4 th .	Jim Gall	125	
5 th .	Brian Silversmith	119	
6 th .	Al Ferraro	115	
7 th .	George Connors	108	
8 TH	Phil Valente	97	

“Sportsman Category.” We fly 71/2 minute races; each contestant had two chances.

Speed maximum 22 seconds for 8 laps on 52 ft lines. A contestant is disqualified if his speed exceed 22 seconds for 8 laps or number of laps exceed 140. This has become our most popular event as only the brave can keep up with NCLRA Clown.

1 Ounce GOODYEAR (3 entries) 140 lap feature no pits required

1 st .	Tom Schaeffer	7:47
2 nd .	Walt Gifford	8:26
3 rd .	Brian Silversmith	8:57

SLOW RAT (7 entries) 7.5 minutes 1 pit

1.	Al Ferraro	3: 08
2.	Walt Gifford	3:23
3.	Tom Schaeffer	3:29
4.	George Connors	3:35
5	Jim Gall	4:00
6.	Brian Silversmith	4:02
7.	Phil Valente	6:32

RESULTS: South Jersey Aeromodelers

Middlesex, NJ July 17, 2011

SPORTSMAN CLOWN RESULTS (7 entries 7.5 minutes)

1st.	Walt Gifford	133 laps
2nd.	Steve White	133 (solo)
3rd.	Brian Silversmith	131
3rd.	Al Ferraro	128
4 th.	John Ross	124
5th.	Brian Silversmith	119
6th	Phil Valente	107
7th	Raul Diaz	105

“Sportsman Category.” We fly 71/2 minute races; each contestant had two chances.

Speed maximum 22 seconds for 8 laps on 52 ft lines. A contestant is disqualified if his speed exceed 22 seconds for 8 laps or number of laps exceed 140. This has become our most popular event as only the brave can keep up with NCLRA Clown.

NCLRA Clown Racing (5 entries 7.5 minutes)

1st.	Walt Gifford	170 laps
2nd.	Brian Silversmith	158
3rd.	Al Ferraro	140
4th	Jim Gall	134
5th	Raul Diaz	107

FOXBERG (5 entries) 140 laps 3 pits

1.	Al Ferraro	10: 41
2.	Phil Valente	10: 48
3.	Brian Silversmith	10 :56
4.	John Ross	10: 57
5	Steve White	DNF

MIDDLESEX MODELERS

AUGUST 21, 2011

CLOWN - SPORTSMAN.....7.5 minutes

1. Walt Gifford.....136 laps
2. John Ross.....122
3. George Connors.....117
4. Phil VALENTE.....114
5. Brian Silversmith.....113
6. Steve White.....112
7. Al Ferraro.....109

SLOW RAT

1. Al Ferraro.....3:00:07.....(go)
2. John Ross.....3:10:38.....(go)
3. Walt Gifford.....3:13:58.....(go)
4. George Connors.....3:41:06
5. Jim Gall.....3:41:3...(NR 21)
6. Brian Silversmith,.....4:00:35...(NR 21)
7. Phil Valente.....5:59:45...(NR 21)

FOXBERG

1. Brian Silversmith.....10:15
2. Phil Valente.....10:40
3. George Connors.....10:53
4. John Ross.....11:33
5. Steve White.....DNF

SOUTH JERSEY AEROMODELERS

SEPTEMBER 25, 2011

Middlesex , New Jersey

1 OZ GOODYEAR

1. Phil Valente.....10:12:49
2. Brian Silversmith.....10:38:53
3. Al Ferraro.....10:42:12
4. Raul Diaz.....36 LAPS

2 OZ BIG GOODYEAR

1. Jim Gall.....7:15:14
2. Brian Silversmith.....7:54:12
3. John Ross.....8:56
4. Phil Valente.....14:00

½ A Goodyear

1. Al Ferraro.....6:53
2. John Ross.....8:46
3. Steve White.....10:05
4. Phil Valente.....10:50
5. Brian Silversmith.....38 LAPS

The Revised 2011 Gibeault Mouse Race Program

By Paul Gibeault



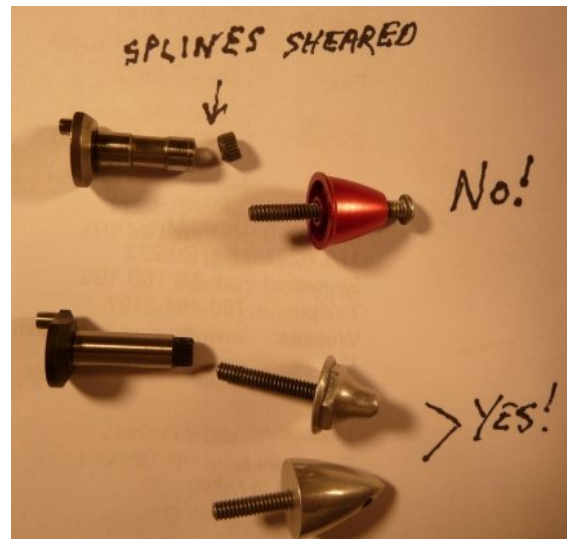
Happy mouse race finalists from the 2010 Northwest Regional C/L Championships. L-R: Mac Ryan & Todd Ryan (Team Ryan), Paul Gibeault (aka Mr. Mouse), John Thompson & Mike Hazel (The Nitroholics)

AMA Class 1 Mouse Racing objective: It is the purpose of mouse race to fly up to 3 models in direct competition in 50 lap preliminary heat races leading up to a 100 lap feature (final) race. A minimum of 1 refueling pitstop is required in the heat(s) & 2 pitstops in the final. The winners are those with the best scores (times) in the feature race. The engine requirement is any reed valve engine with an integral tank. This means 99% of racers use some form of a Cox Black Widow .049. It has always been a favorite of mine because no machining equipment is required to be competitive. There is no restriction on aircraft type other than it must be able to take off from the ground (ROG) with a fixed landing gear. It's cheap to fly but oddly enough, cubic dollars have little to do with how you place in competition. The deceptively simple looking Cox .049 engine has been known to stump even the most experienced modellers, causing great frustration. The following article represents much of what I have learned in my 35+ years of competition in this event. It is my hope that those wanting to fly with high performance Cox reed valve engines will find it useful. This is a much updated version of my earlier article.

Engine

1. Crankshaft/Crankcase Assembly

Problem: Cox .049's (when pushed really hard) are prone to breaking the crankshaft. Usually the crank pin parts company from the crank throw web.



The recommended prop stud attach method for Killer Bee/Venom crankshafts.

Solutions: The use of the Cox "race car" crankcase assembly reduces this problem as the crank throw web is noticeably thicker on these variants, but they are noticeably slower so that's not so good. Davis Diesel cranks can work BUT you really must bench run them first! REASON: Due to tolerance mismatching many DDD cranks run very slow & give very poor starting & running characteristics. It's a real gamble. The safest bet is to use Cox "Killer Bee" cranks, for greatest longevity & speed, but with one proviso. **You must use a 5-40 prop stud screwed all the way into the crankshaft.** You will then need a Cox (or equivalent) spinner to hold the prop on. IF you use the standard 1" Cox prop screw, the crank will shear off at the spines later on down the road. The fitting of a prop stud seems to have cured the crank shearing problem. See photo.

Using a modified crankcase with a bronze sleeve bearing in the crankcase is a gamble. Unless the clearance honing is perfect, it can be noticeably slower than stock. My experience has shown that Cox's hard anodizing makes for a very good bearing

surface, and so the stock Killer Bee or Venom set up is more than adequate. It's a good idea to lay some 400 wet/dry sandpaper over a piece of glass, and with the addition of some oil sand the back of the crankcase. This will remove any burrs that might otherwise prevent a perfect seal with the fuel tank. It's also useful to use a 2-56 TPI bottoming tap on the crankcase holes as extra threads in that area help.

It is very useful to disassemble the crankcase assembly. Thoroughly clean everything, and then polish up the crankshaft with 600 fine sandpaper to remove any nicks scratches or baked on oil that may be present. For re-assembly, use a 5-40 socket head cap screw & an old prop to draw the crank squarely into the drive plate. When re-assembled clean & dry, give it a spin. It should be really free with no binding whatsoever. On the best examples, the crank throw will even rock back to the bottom. The best engines have less than .015" end play on the driveplate.

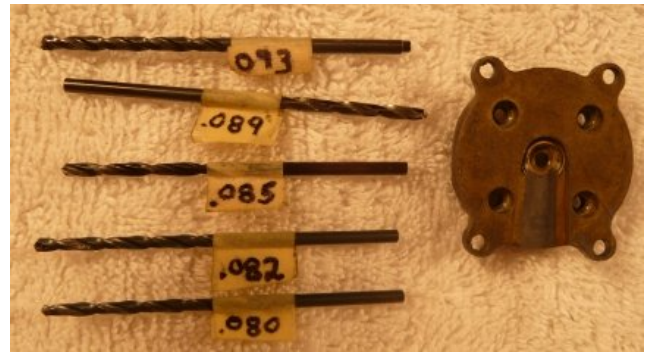
2. Integral Fuel Tanks

Problem: The stock fuel tanks can be slow and sometimes short on range. They also may have trouble holding a consistent needle valve setting (due to leakage).

Solutions: Use one of the larger 8cc stunt tanks for the greatest range. These are commonly found on Golden Bee, Super Bee, Black Widow & Venom engines. Since the stock needle valve w/ spring arrangement is prone to leaking, modify the needle valve assembly as follows. Remove needle valve, discard the spring, install a #4 flat washer, and then add a piece of medium silicone fuel tubing. Inspect the tip of your needle valve to make sure it's not bent. Re-install the needle valve and you now have one cheap, but air tight needle valve assembly. See photos.

With the tank and tank back together, check that the venturi size is .082" I.D. If not, drill out the tank and tank back inlet venturi to .082", (this is what the record holding engine used). Drilling out the venturi larger than .082", sometimes produces an rpm gain, but often your engine won't run as steady and your range will be less. To me, it's just not worth it. Next,

sand the metal tank back flat over glass (again with the 400 paper), as some tank backs are warped a bit & do not sit flat when bolted to the firewall. If you wish, you can use a Dremel tool to grind away the screen holder from the venturi area of the tank back. It looks racy, but I doubt that it makes any difference.



'Numbered' drill bits are measured & use to determine tank venturi size.

The fuel pickup absolutely must be located at the outboard corner of the tank. The normal neoprene tubing arrangement is prone to moving out of place & giving an unstable engine run. I bend a piece of 3/32" O.D. soft aluminum tubing & make the pick-up one solid piece. I file a chamfer at the bottom of the pick-up tube so that it fits perfectly into the backplate. Attach it to the tank back with a short piece of tight fitting silicone tubing. The net effect will be that the pick-up stays perfectly positioned. You will notice greater range & stable running from your engine, with a properly positioned fuel pick-up tube. See photo.



The next step is to prevent the integral tank from leaking. This is a must if you wish to hold a consistent needle setting, and have the engine shutdown properly. In some cases it may be

necessary to wrap a piece of 1/2A dacron line around the entire peripheral groove of the tank to help seal it. Hold the dacron thread in place with saliva or oil for final assembly. It may help to lap the metal tank & tank back joint instead of using thread. The use of a thread gasket is not necessary if you're using one of the newer nylon tankbacks.



Golden Bee tank with damage to both reed sealing area and reed retainer area.

*NOTE: The metal tank backs are much more durable & will often survive a crash without breaking. The newer nylon backplate is much more fragile, & will often be damaged the very first time you crash. Metal backplate fitted engines finish more races whenever flying incidents/accidents are involved. In order to finish first...you must first FINISH!

High-Power: The original Cox copper/beryllium reeds tend to 'float' at ~17,000 rpm & so they are not optimal for top performance. In a reed valve engine, top performance is only attainable by using the clear mylar reed. I find the cross shape better in tanks that use a 'G-Clip reed retainer wire & the rectangular ones better in the tanks using the nylon retaining cap. This last production change allows reed engines to be on par with "TeeDee's" in performance! My test bench results indicate that 24,000+ rpm is achievable for steady-state running with such reeds.



Black Widow tanks with severe wear in reed retainer (G-clip) area and wear on reed seating area.

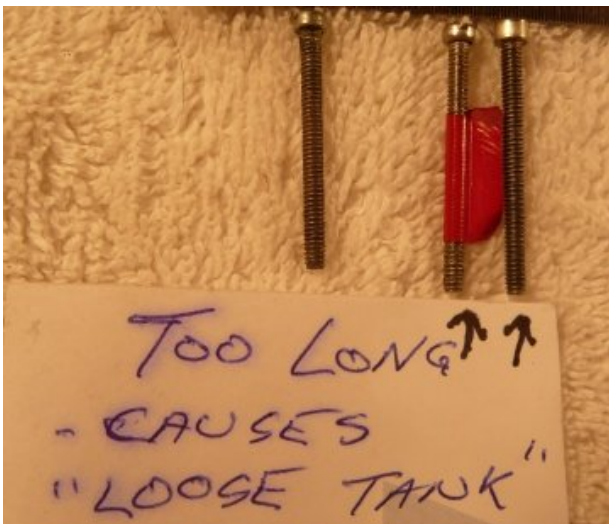


Damaged reed retainers: RT: tangs cracked, causing leaks LF: crankpin has gouged top of retainer.

What about 'other' reed materials & shapes? Cox engine designer Larry Renger prefers the Cox stainless steel reed over the mylar reed. My main concern with the steel reed is that it wears the anodizing right off the mouth of the venturi tube, although the rpm seems to be the same. I've tried other reeds made of thinner steel, floppy disc material, etc. & so far haven't found anything better. One Australian made metal reed was indeed 300 rpm faster, but it broke away after only a few minutes of running. Teflon reeds may or may not work as well. I've not found them to be any faster, & sometimes worse. The final reed sealing check is done by attaching a piece of tubing to the tank venturi & sucking on it. A proper fitting reed will hold the pressure & not leak.

Final Assembly: Clean the 2-56 tank screws with thinner. Final assembly is done using blue Loctite thread-locker. Every time you tear down the engine, replace both the paper tank gasket and the venturi o-ring. This may seem like a waste, but \$2.00 worth

of new gaskets now is \$100.00 worth of reliability in the racing circle! Once assembled, apply an RTV type silicone sealant over the tank screw head area. The tank screw heads are a major source of leakage & this really seems to help. Removing the sealant is very easy if you need to remove the screws later on. **NOTE: Some Cox engines have been supplied with screws that are up to .115" longer than normal. Often these engines will have the tank leak & come loose during running! Bottom taping the c/case screw holes can help here OR use the proper length screws in the first place. It took me an awful lot of wasted time, lost races, & loose leaky tanks before I found out what exactly was going on here. See Photos to note the difference. *Note: If you really hate paying a paltry few bucks for new gaskets, they can be home made. Cut from the tank gasket from thick vellum paper & from a piece of silicone tubing, thinly slice the venturi o-ring...



The offending 'long screws' come in many disguises.

3. Piston/Cylinder Assembly:

Problem: Not enough power!

Solution: Any type of piston/cylinder assembly made by Cox can produce good results. However, a superior "fit" will overcome nearly any porting deficiency. This means that a well fitted "Babe Bee" piston/cylinder is better than a bad "TeeDee" piston/cylinder. I recommend a flying test for all piston/cylinder assemblies in your possession, as certain assemblies will occasionally defy all rules of performance. Having said this, I find that good fitting "TeeDee" #4 piston/cylinder assemblies to be

excellent. Many of the the very fast engines use these. The Cox Venom cylinder porting seems to be consistently fastest. With just a little Dremel work, you can make your TD cylinders identical. Personally, I rarely grind in my own cylinders as I'm afraid of doing more harm than good...

Aftermarket pistons: Some enterprising individuals have offered for sale standard Cox pistons that have been lightened by grinding the piston skirt on the inside or by cutting the skirt off at the bottom causing increased Sub Piston Induction (SPI). Actually these mods can be useful, if & only if the fit to the cylinder is good. If the fit is wrong then all is for naught. So of course, a test run is always in order when going with this piston type. A note on SPI numbers: Measured with a feeler gauge, SPI should be in the range of .012" - .025". I've yet to determine exactly how much SPI is too much...

Ball-Socket Resetting: It is worth noting that new Cox pistons often come with the connecting rod ball-socket joint set too loose. Therefore it's a good idea to re-set the fit with a Cox factory tool to .002" slop, or less. Using the wrong piston holding fixture can result in a mushroomed head piston (totally ruined), so I don't use one. Clean the socket area with acetone or brake cleaner first to remove the oil. Then lay the piston on a heavy piece of 1/2" plate glass or flat thick piece of steel (something quite dense like a vice). With the tool in place, tap with a hammer, rotate a bit, tap again and continue, checking often until all excess play is removed. It is necessary to check this joint after every contest. At normally low rpm's this isn't critical. However, at racing rpm's (20,000+) a loose ball-socket joint reduces piston life to a few minutes.

Piston Fit: Optimum piston to cylinder fit needs to be checked with parts being absolutely clean and dry. To check the fit, slide the piston up the cylinder bore (with no finger prints!) until it sticks. Ideally, it should stick flush with the glow plug land or even slightly higher. Now with a slight tap of the finger, the piston should fall right out of the cylinder. If the fit is slightly looser this may be OK, unless starting consistency deteriorates. In this case, the piston is worn too far for that particular cylinder. Keep it to try in other slightly smaller cylinders in your collection later on.

Please note that some new TeeDee piston/cylinder assemblies are fit just a bit too tight. Those of you with an excellent feel can go ahead and lap the piston to fit. However, Dale Kim's easier way to do this is by just running in the engine. Start by cutting down a 5x3 prop until it turns up to 24,000 rpm rich. Run up to 2 dozen tanks of fuel through the engine, but for no more than 2 minutes at a time, to allow for cooling in between runs. It is better to use a TeeDee crankcase for this purpose, and transfer the piston/cylinder assembly to the reed valve crankcase when it is run in. The reason being that at 24,000+ rpm some reed valve crankcases will wear out quickly, notably the non anodized cast R/C Bee type.

Lastly, it is very important to keep carbon varnish off the piston and especially the cylinder walls. #000 steel wool or medium grade Scotchbrite wrapped around a small dowel wet with solvent easily removes all the carbon. This procedure takes only a minute, but really should be done before every contest to ensure peak performance. **Note: the Davis de-varnishing brush can also be used, but be careful not to get carried away. Bob Davis recommends only a few strokes as his brush actually hones the cylinder. Used vigorously & too much can cause 'over-honing' making the piston fit too loose. Do be aware of this possibility.

Cylinder orientation: This is something very mistakenly taken for granted. I don't know why exactly, but I've had certain engines lose massive rpm or just 'run funny' by mounting the cylinder sideways. That's expressly why my engine cylinders are all mounted upright. Mounting the cylinder sideways also exposes the needle valve to damage in case of a flip over. I will allow that the odd racer seems to be able to get it to work OK for them. All I will say is, try a back to back flight test & note how stable your engine runs before going this route.

4. Glow Plug

I use only Cox TD high compression glow heads for maximum reliability & stable running on a new (or newly re-built) engine. My engines also start out with 4 new head gaskets. A good rule of thumb is one head gasket for every 10% of nitro. (hence 35% nitro = 4 shims)

After removing a new Cox plug from it's package, carefully sand the seal band on a plate of glass with 400 paper and oil. This will ensure the plug seal area is flat, and will seal properly when tightened. Now examine the plug element, and with a T-pin, make sure the coil is centered. Finally with a T-pin, very gently pry at the element where it is welded to the plug. It should be a firm weld. If it breaks loose (which won't happen often) you'll unfortunately need a new plug!

After awhile, you may notice that your glow head keeps coming loose in flight. This is due to the copper head gaskets becoming old and hardened due to the constant heat cycling. Since the Cox engines use an annealed copper gasket, replacing the head gaskets with new ones will solve the problem. *Note: I've heard that annealing the gaskets with a torch can work, but have no experience doing that. I find removing gaskets from a cylinder is easier when carefully using a very thin surgical blade or a Davis brush. A micrometer or calipers is really useful here as the odd head shim is thinner than the standard (.005") giving a less than desired head clearance. Head gaskets can also 'fuse' together & the calipers can easily show this. A Cox replacement head manufactured by Doug Galbreath that uses the Nelson HD plug can offer better performance at less than half the cost (per plug). These are certainly worth using once you have a stable running engine set up. On the odd engine they run slower than normal, which is why you need to use the TD plug as your performance reference. Note: the Galbreath/Nelson head often gives harsher running until your engine warms up, so go easy on the needle adjustment until the engine gets hot.



Damage to tank back hole areas & missing mounting lug



The Cox Silver Bee, Golden Bee, Black Widow & Venom (shown w/ Galbreath head) can all be made to work well in AMA Class I mouse racing.
 *note: engines are keep pristinely clean for maximum power & reliability

There are other glow head alternatives in the form of the Norvel 'Speed Plug' & the Merlin plugs. I do not have enough experience to know if they work well or not. They are certainly worth exploring though.

RPM Performance numbers: Ah...it's pretty easy to banter about high performance rpm numbers, but really they aren't meaningful unless one compares apples to apples & under the exact same conditions of prop, fuel, & weather. And YES, I can get some very impressive rpm numbers with 70% nitro, high compression & a large venturi size at sea level. BUT, such an engine will rarely finish a mouse race...so, let's get real. To that extent using Sig 35% nitro fuel, an APC 4.75D X 4P prop & Galbreath head, (w/ my 'local Leduc weather'): 19,000 rpm is my minimum standard. 20,000 is quite a "good engine" & 21,000+ is superior. Increasing nitro content can easily give a boost of 1000+ rpm over these figures, BUT the engine/glow plug reliability goes down proportionally.

5. Miscellaneous Problems

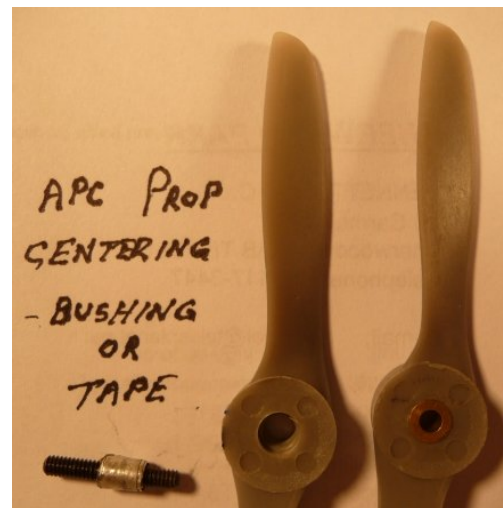
Problem: Engine comes loose in flight, prop falls off, glow plug comes loose in flight.

Solutions: 1. Use the right length tank screws with silicone sealant on top. 2. Check tighten the glow plug, prop spinner, & mounting bolts before every race. 3. If field disassembly can't be avoided, use Loc-Quik super primer T accelerator, with blue Loctite thread locker upon re-assembly. The tank back can be sealed on the field using a single piece of sticky Fascal tape over the entire backplate with only the venturi area cut away.

Airframe & Race Equipment

Airplane: In my opinion, there is no better design to start with than the rugged record holding Streaker Mk V.

Prop: You must use 4" of pitch to get rolling! Any 1/2A prop made by Cox, Tornado, Top Flite or APC is OK. However, cut down props (less than 5" diameter) go faster than stock. Only test flying will determine which prop(s) ultimately work best for a given combination. The tough & forgiving Tornado Black 5DX4P cut to 4.75" diameter has won the Nat's final, so you could start there. The APC 4.75D X 4P is my personal reference standard & and was used to set my last (2:14) heat record. The APC 4.5D X 4P is also a reasonable choice, if you want a lighter prop.



Recommended ways to mount APC props

Fuel: A minimum of 25% nitro is required to get with the program. A 60%+ mixture, yields faster times, but only if everything else is correct. i.e. You

have fabulous reliability on lower (35%) nitro, are practiced and know what you are doing! Be prepared to buy lots of expensive glow plugs as well!

A most important note about Cox .049 fuel: A minimum of 5%, & preferably 10% of the oil mix must be castor oil. Should you decide to race your Cox .049 on a castor oil deficient fuel, your engine will commence a course of self destruction, and you will find out first hand why some have sworn off flying with Cox engines for good! YOU HAVE BEEN WARNED!

A truly good performance mix for Class 1 Mouse racing is Sig Champion 35% nitro fuel. I have found it to be the only fuel I need to consistently make the finals at the U.S. Nats, and win anywhere else.

Pre-Race Start & Warm-Up

1. Before the first run, always prime the crankshaft with oil or raw fuel for additional lubrication at this critical time.
2. Fill tank, prime exhaust, and wind up the spring starter 1 ¼ turns to start. Anything less than 1 ¼ turns will allow your engine to start backwards. 1 ¼ turns ensures a correct start first time every time.
3. Most Cox .049 engines do not take a really good needle setting until warmed up (especially with the Galbreath/Nelson head combo). Therefore don't be surprised if the ground and air settings differ, sometimes as much as ½ a turn! The best time to fine tune the needle valve is immediately after a flight. Important note: If your needle valve setting changes by more than a ½ turn, you have a fault! Clean or flush out the dirt, but stop perpetually messing with the needle valve. A non-responsive needle valve most often means you have a tank leak !
4. To stop a running engine on the ground, squeeze your thumb and index finger over the tank vents. This will verify your tank seal. If the engine doesn't stop, but continues running, then you have a sizeable leak somewhere that needs to be fixed as soon as possible! Pressurizing a full tank with a fuel bulb can often pin point where your leak is.
5. I have mentioned earlier that Cox crankshafts may have a fatigue problem when run really hard on high nitro fuel. You can accelerate all kinds of shaft and crankcase wear problems by stopping a running engine by it's prop nut. Do not do this. Stop the

engine by blocking the vents & pointing the model's nose down. You will increase the life of these parts considerably, as well as save yourself some grief.

6. Always monitor the color of the engine exhaust oil. Usually a good running engine will alert you in advance of an impending failure by "making metal". This usually means tiny aluminum particles are being rubbed off and are visible in the exhaust oil, if you look closely. This is usually accompanied by frequent plug failures. At this point, it's best to find the trouble spot and fix it. The same holds true if your crankcase ever makes a squeaking noise on start up, or shutdown. When this happens, I replace the whole crankcase assembly, because the crankpin has worn (tapered) causing the rod to slide off the crankpin and rub away at the tank. Examine your tank regularly. If you notice excessive rubbing, (see photos) you'll need to replace your c/case ass'y or crankshaft at minimum. If you are able, use the newer type tank that incorporates the nylon reed retainer. A steel crankpin rubbing on nylon is much preferable to one rubbing on aluminum. Again, watch for excessive rubbing on the nylon reed retainer & replace the offending worn parts as necessary. See photos.

7. Always keep your engine clean and always protected from corrosion with a plastic bag or rag. Always filter your fuel, especially when changing containers. Ensure your fuel bulb is in good shape and not cracked, or flaking rubber. Better yet, replace it yearly for a paltry \$4.00 and don't worry about it. When everything checks out OK, and your engine still hics and coughs, it's very possible that dirt in the fuel system somewhere (or bad fuel) is causing the problem. It doesn't take much dirt at all to raise havoc with a Cox reed engine which is why it's just so important to keep your motors scrupulously clean.

Tips and Suggestions

"The Engine"

I assume that if you followed my engine set-up tips, you should have a very decent running engine. The later Cox "Venom" engine can make you competitive quicker (due to the slightly better cylinder porting & better crank balance), but I strongly recommend one change. In the original production batch of engines, they varied from

designer Larry Rengers' original drawing & made the piston too thin at the top. This caused the piston top to separate in as little as a half dozen runs. My cure has been to fit up a TeeDee piston to the Venom liner (as described earlier). Now you have one great running set up with no more piston failures. Using a "Venom" will not necessarily make you an instant winner. You still need to keep in mind all of the maintenance tips mentioned earlier. Besides, both previous AMA records (2:18:6 & 4:34:0) were held with a much older engine, (a Golden Bee w/ TD cylinder) so don't go throwing out "ole reliable" just yet.

"The Model"

I assume that you have built the all basswood Streaker Mk V with 2 ounce fiberglass cloth on the wing, stab & motor mount. Plus 1/4 -1/3oz. tip weight, for a total model weight of about 6 3/4 oz. In this event only, heavier is better.

You will notice this advantage in windy conditions (and when isn't it windy when flying Mouse!). Unlike many designs, the heavily tip weighted Streaker can darn near fly in a storm if need be. After all, anybody can fly in the calm.....but successfully flying in wind separates the men from the boys!



Paul Gibeault's "Streaker" fleet, ready to go at a moments notice

However, if you have ignored the instructions and built your Streaker out of balsa instead, and without enough tip weight, then you will find out two things. 1) That it doesn't whip well flying high and falls out of the sky downwind, cart wheeling upon landing. 2) It builds momentum slowly and won't

keep its speed up with a dead engine, and you end up crashing in a line tangle anyway.

When flying in rainy conditions it's the pilots job to wipe the lines with a soft cloth moistened with acetone. Do this prior to every race. Much of the sticky film buildup is caused by the oily exhaust residue produced during flight. If not cleaned often, the solid lines can stick together causing a loss of control, almost always with disastrous results. I have lost races neglecting this!

You need to use a good quality nose wheel, and solder it on with Sta-Brite silver bearing solder. Many racers have lost races when their wheel fell off during a race. Regular solder just doesn't cut it here.

"Piloting"

An otherwise great airplane/engine combination is obviously disadvantaged by poor piloting. Here are a few suggestions you might find advantageous. Since mouse races often involve line tangles, (surprise!) choose a pilot with combat experience. This type of individual often has a "never say die" attitude when lines from other (often crashed) models have him wrapped up. He just keeps on flying, no matter what. The lesson here is that not all line tangles will bring you down if you keep a cool head about you. A great pilot must train himself to not look at his own model, but watch his opponents models and his own pitman for signals. This allows him the important split second to see and avoid accidents just as they happen and fly accordingly.

Cox .049 reed valve engines unfortunately do not have shutoffs. This lack of a shutoff, often causes a fatal mistake as seen in the following scenario: You are flying along, just overtaking a slower model and your engine quits! You quickly lose airspeed and sink into the model you just overtook, bringing both models down in a line tangle. Happens frequently it seems, but consider this:

A great mouse pilot must:

Count and be aware of his laps at all times, i.e. Know what lap his model is on, and how many laps his model is capable of flying in traffic. (for this example, let's say 35 laps per tank) At maximum

laps, less five (per example, 30 laps), assume that your engine will quit if you overtake. If you are approaching a passing situation at this critical stage; as you approach to overtake, quickly whip hard with just enough height to get by safely. Do not climb any higher during passing than absolutely necessary or your engine surely will quit! As soon as you have completed the pass, stop whipping. You shouldn't have to whip for more than a few seconds to accomplish this correctly. You may well be called for whipping, but better a penalty than a crash. Should your engine quit while passing, the whip momentum will allow you to complete the pass even with a dead engine! Such is the beauty of a properly weighted Streaker Mk V.

“Pitting”

An otherwise good pitman can cost you the race by launching your model without first looking for traffic! Sometimes you will be taking off just as another pilot is landing. A launch at this critical time involves you in an instant line tangle/crash, and disqualification from that race. The solution is “heads up” pitting. A great pitman must simply 'relax' and hang on a second or two until it's safe and clear to release. You must remember to always yield to the landing model. Seldom is a mouse race lost by 2 or 3 seconds, but it's always lost on a pitting accident that results in disqualification. The pitman is also responsible for signaling when his pilot is being called for whipping and when he's due to run out of fuel. In very close races (or record setting), this becomes very important.

“Conclusion”

A winning Mouse Race effort can basically be put down to the right amount of teamwork. That is to say the ability of a good team working together in a nice flowing manner, carefully avoiding accidents, yields better results than a team with a killer fast model, but lack of team work and practice. I have been most fortunate to fly with my buddies, Roy Andrassy, Les Akre and Todd Ryan. Their superior piloting and pitting abilities have guided us to many victories. Thanks for all the great work guys, I enjoyed every minute of it! Thanks also to John McCollum, Dale Kirn, Joe Klause, & Larry Renger whose knowledge and expertise has helped me on many occasions & increased my knowledge base a great deal.

I wish to thank the rest of you fellow Cox Mouse Racers out there for coming out to race with us. If it wasn't for all of you, Mouse Race wouldn't be the one of the more popular racing events that it is today. I wish you all great success with your Cox .049's. Good Luck!

Source appendix for equipment:

1. Cox International: All the Cox parts you need + SUPER service
www.coxengines.ca
2. EX Model Engines: Lots of new OEM Cox engines & parts
www.exmodelengines.com
3. eBay stores: Even more sources of Cox parts
www.ebay.com
4. Doug Galbreath: High performance Cox heads/plugs
F1Cdoug@aol.com
5. Streaker plans available from
pgibeault@shaw.ca
6. MBS Model Supply: Solid lines & racing supplies, PO Box 282, Auburn KS 66402
www.MBSModelSupply.com

CONTEST CALENDAR

NOTE! Confirm all contest details with Contest Director! NCLRA cannot be held responsible for errors or omissions! This calendar is compiled from data collected at the NCLRA website nclra.org. Members can log in there and submit contest details. All contest information must first be posted to the web site.

NORTHWEST DISTRICT

None

SOUTHWEST DISTRICT

Dec: -4th 21ST TOY FOR TOTS
Mouse 1, NCLRA Clown, NCLRA S/S Rat, Q Rat

NORTH CENTRAL DISTRICT

None

SOUTH CENTRAL DISTRICT

None

MIDWEST DISTRICT

None

NORTHEAST DISTRICT

NJ
OCT 30--Middlesex, NJ (A) Racing Site: Mountainview Park.
Events:
312 - Slow Rat
2 Oz Big Goodyear
FOXBERG
Sponsor: South Jersey Aeromodelers #434. CD: Phil Valente,
1523 Ulster Way, West Chester PA 19380. Phone: 610-692-
6469(day) E-Mail: phil_valente@millipore.com

NJ
NOV 13--Middlesex, NJ (A) Racing Site: Mountainview Park.
Events:
312 - Slow Rat
WARBIRD
FOX Race
Sponsor: South Jersey Aeromodelers #434. CD: Phil Valente,
1523 Ulster Way, West Chester PA 19380. Phone: 610-692-
6469(day) E-Mail: phil_valente@millipore.com

SOUTHEAST DISTRICT

FL
NOV 12-13 – Starke Florida Site: Bradford County
Fairgrounds
Fox Race, Super Slow Rat, Slow Rat, Clown, F2CN, F2C,
TQR

NATIONAL RECORDS

SLOW RAT (.25 engine)

Op (70 laps) 3:01.52 Jim Gall/ Les Akre 7/04/11
(140 laps) 6:17.59 Russ Green/ Bill Lee 7/07/09
(no Jr or Sr record)

½ A MOUSE 1

Jr (50 Laps) 2:37.57 Scott Matson 7/15/99
(100 Laps) 5:17.68 Scott Matson 7/17/99
Sr (50 Laps) 2:44.68 Dave Rolley Jr 7/15/99
(100 Laps) 5:20.11 D.J. Parr 7/16/98
Op (50 Laps) 2:12.3 Jim Holland 7/16/04
(100 Laps) 4:22 Ryan&Gibeault 7/15/99

½ A MOUSE 2

Op (70 Laps) 3:01.24 MacCarthy/Kerr 7/11/03
(140 Laps) 6:18.13 Whitney/Hallas 7/10/09

SCALE RACING

Jr (70 Laps) 2:50.65 Bob Fogg III 7/16/91
(140 Laps) 6:08.55 Bob Fogg III 6/23/92
Sr (70 Laps) 3:15.12 Doug Short 7/11/00
(140 Laps) 5:40.05 Bob Fogg III 7/11/95
Op (70 Laps) 2:39.38 Willoughby/Oge 7/15/97
(140 Laps) 5:33.04 Bob Fogg Sr 7/16/91

F2C TEAM RACING

Op (100 Laps) 3:16.47 Lambert/Fluker 7/07/09
(200 Laps) 6:43.80 Fisher/Wilk 7/07/11

F2CN (NCLRA RULES)

100 Laps 4:14.84 Bill Lee/ Russ Green 7/07/11
200 Laps 8:54.66 D. Hallas/Whitney 7/07/11

‘B’ TEAM RACING

Op (35 Laps) 1:24.34 Burke/Duly 7/12/05
(70 Laps) 3:05.73 Green/Lee 7/10/09
(35+70 Laps) 4:33.91 Green/Lee 7/10/09
(140 Laps) 6:08.80 Green/Lee 7/10/09

RAT RACING (.15 RULE)

Op (70 Laps) 2:44.6 Jim Holland 7/15/04
(140 Laps) 5:33.1 Jim Holland 7/15/04
Jr-Sr No record established

NCLRA FOX

Jr (100 Laps) 5:57.11 Scott Matson 7/11/99
Sr (100 Laps) 5:28.09 Scott Matson 7/16/02
Op (100 Laps) 5:32.55 Tim Stone/Bob Oge 7/10/05

NCLRA CLOWN

Op (15 Min.) 344 Laps Les Akre/Andrew Robinson 07/14/10
Op (7 ½ Min.) 167 Laps Les Akre/ Dave Hull 07/05/11

NCLRA TEXAS QUICKIE RAT

Op (70 Laps) 3:04.28 Jim Holland/Bill Cave 7/14/05
(140 Laps) 6:07.01 John McCollum/Bill Lee 7/14/05

NCLRA SUPER SLOW RAT

(100 Laps) 5:14.30 Bill Lee/Russ Green 7/05/09

REBEL RALLY 2011



Bradford County Fairgrounds
2300 N. Temple Ave.
Starke Florida
November 12th and 13th, 2011

Sponsored by the: Jacksonville Flying Rebels "Class - A"
AMA Sanction No. (number pending issue from AMA)

Contest Director: : home: (904) 743-4317 / cell: (904) 703-8104 E-Mail: mas23@comcast.net

Entry Fee: \$10.00 1st Event, \$10.00 2nd Event, \$10.00 for 3rd Event, etc.

2011 AMA License Required.

Rules: All Events Will Be Conducted According To The Most Current Edition Of The Appropriate Rules (i.e. AMA, FAI, NCLRA)

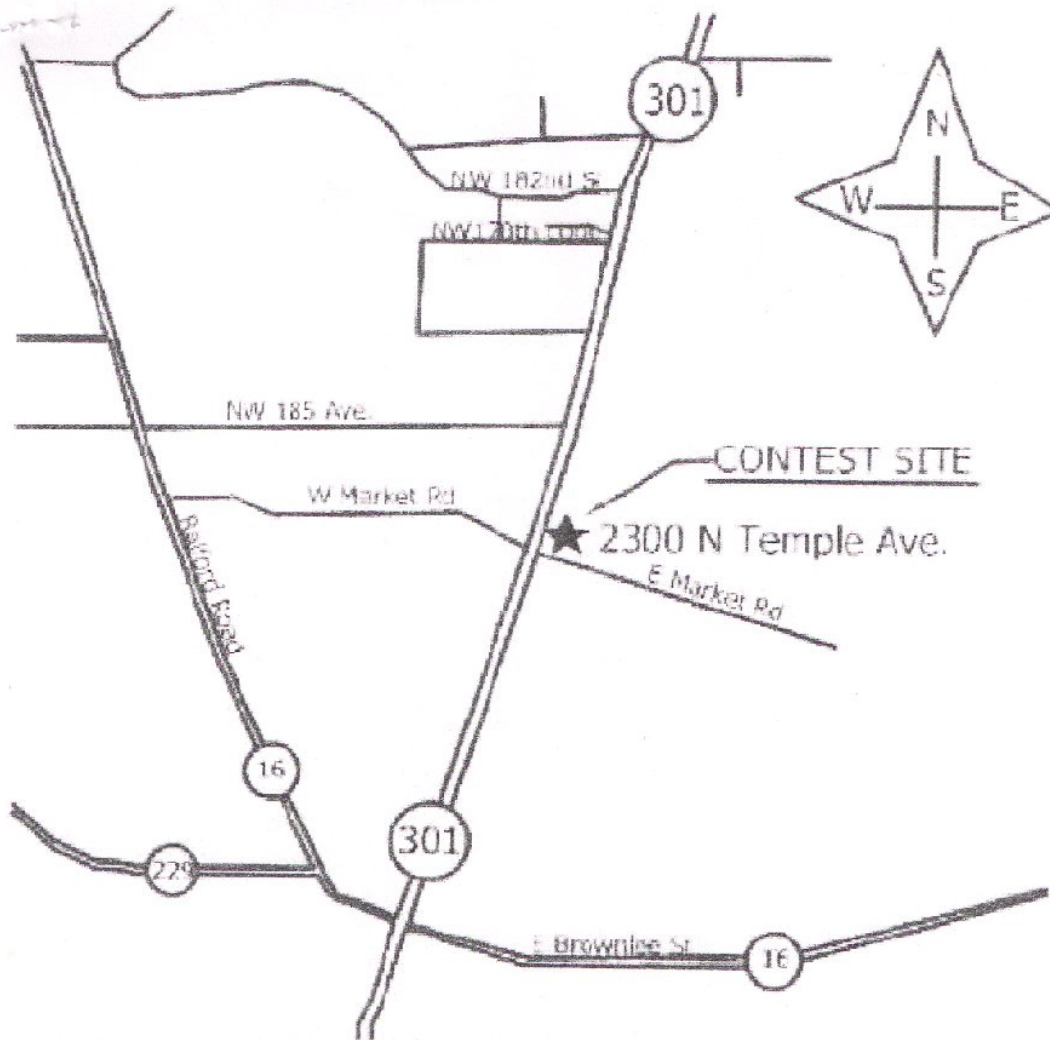
<u>Saturday 11/12/11 9:00 AM</u>	(Unless there are insufficient entries in a particular event, events will be flown in the order listed below, each day. If this order presents a hardship, please advise the Contest Director during the initial Pilot's Meeting each day. All consideration and accommodation will be made.)	<u>Sunday 11/13/11 9:00 AM</u>
Racing - Cash awards 1 st , 2 nd and 3 rd place to be 30%, 15% and 5% respectively times 50% of each event's entry amount.		Racing - Cash awards 1 st , 2 nd and 3 rd place to be 30%, 15% and 5% respectively times 50% of each event's entry amount.
RACING		RACING
Fox Race & Super Slow Rat (if enough entries)**		Texas Quickie Rat (TQR) **
Slow Rat (if enough entries)		F2CN ** - 3 rd heat & Finals
Clown Racing **		F2C - 3 rd heat & Finals
F2CN ** - 1 st & 2 nd heats		
F2C - 1 st & 2 nd heats		

** - as per this NCLRA rule-set: <http://www.nclra.org/Rules/index.html>

For additional event information contact:

Call, e-mail or write to:

Mike Schmieder
5390 Emerald Reef Court
Jacksonville, FL 32277
Home: (904) 371-4995
Cell: (904) 703-8104
Work: (904) 357-4814 (it is OK to call me at work)
mas23@comcast.net



CAUTION: PLEASE OBSERVE SPEED LIMIT SIGNS AND
 DRIVE SAFELY THIS IS A SMALL COUNTRY TOWN
 NO ALCOHOL IS ALLOWED ON CONTEST SITE

motels close to contest (on HWY 301)

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456 Garvey rd sw, Palm Bay FL 32908
f2cracer@aol.com

Officer's Addresses

President

Bob Whitney

456 Garvey Rd. SW
Palm Bay, FL 32908
Phone 321-676-0554
Email F2CRACER@aol.com

Vice- President

Bill Lee

601 Van Zandt CR 4815
Chandler, TX 75758
Home: 903-852-5599
Cell(or other): 903-288-6029
E-Mail: BILL@WRLEE.COM

Secty/Treas

Dave McDonald

P.O. Box 384
Daleville, IN 47334
Cell(or other): 765-749-9249
E-Mail: dsmsgolf62@comcast.net

Editor

Tim Stone

4919 Country Oaks Dr
Johnsburg, IL 60051
Phone 815-344-5728
Email CLWHIPPER@YAHOO.COM

Northwest Representative (none)

Midwest Representative

Tim Stone

4919 Country Oaks Dr
Johnsburg, IL 60051
Phone 815-344-5728
Email CLWHIPPER@YAHOO.COM

Northeast Representative

Phil Valente

1523 Ulster Way
West Chester, PA 19380
Home: 610-692-6469
E-Mail: phil_valente@millipore.com

Southwest Representative

Dave Hull

704 35th Street
Manhattan Beach, CA 90266
Home: 310-545-6029
E-Mail: dahull@raytheon.com

South Central Representative

Dave Rolley

P.O. Box 330
Bennett, CO 80102-0330
Home: 303-644-3715
E-Mail: soar.rubber.duck@gmail.com

Southeast Representative

Jim Bradley

1337 Pine Sap Court
Orlando, FL 32825
Home: 407-277-9132
BMP4CARBON@aol.com

North Central Representative

Les Akre

13336-129st.
Edmonton, Alberta
Canada T5L-1J8
Home 780-454-5723 Cell # 780-919-2792
Email scaleracer@hotmail.com

Torque Roll is the official publication of the NCLRA. Published bi-monthly. All submissions are valuable & will be considered for publication subject to editing. Preferred format for publication is as a MS Word document using 10 point Times New Roman font. Any photos should be sent as a separate jpeg file, medium res. Email all as an attachment to Tim Stone at the address given on this page. While this is preferred format, we will take submissions in just about any format, they can be written, typed or mailed to Tim Stone.

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Note that a \$.90 (\$1.10 for foreign membership) surcharge is added for the PayPal charges.

OR VIA THE WEB: Membership renewal can be easily done via the NCLRA web site at
<http://www.NCLRA.org/>