

From: National Control Line Racing Association
Bill Lee, President
601 Van Zandt County Road 4815
Chandler, TX 75758



TO:

Slow Rat Special Issue!



“The ‘Biscuits & Gravy’ team of Mike Greb & Bill Bischoff at the 2002 Nats.
Honorary pitting assistant Jim Holland (L)

Torque Roll!!

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President's Column – February 2004

Bill Lee

World Championships: Here is a picture of the F2C lap count displays that the FAI requires you to have for a World Championships-class event. Since we don't have anything like this available, I have undertaken building the system:



There will be three displays, one for each team. During the race, they will display the lap count. At the end of the race, the unofficial race time will be indicated using all four digits with an implied ":" between the first two digits, and a "." between the last two. As an example, a time of 4:14.9 would be shown as 4149. The display shown in the picture is not complete. It will have a plexiglass face and will be nicely painted.

The lap counters will have a standard lap counter with an attached micro switch, cabled to a computer in the Jury Tower. When the lap counter clicks the button, the computer will sense it and update the display. Each lap's time will be recorded and the race time calculated.

Obviously if you have all of the individual lap times, it will be quite easy to print and plot a sheet for the team showing their race numbers on a lap-by-lap basis.

Coupled with this will be a small display for the F2C Jury that will flash a light when any of the teams has competed ½ of the race laps since that then makes the race official. And the foul lights will also be captured so that the system can record the lap when a foul was assessed.

All in all, a very interesting collection of hardware and software which so far has been a lot of fun to build.

The 2004 CL World Champs web site can be found at <http://www.2004CLWC.org>

There is a lot of information there, and it is updated routinely as new things are included. Bulletin 2 is now available.

If you want to join the U.S. Team as a team supporter, contact AMA HQs (Lisa Jonson: lisaj@modelaircraft.org) or the Team Manager, Keith Trostle (trostle@sprintmail.com).

Repeating a couple of paragraphs from my last column:

NCLRA Hall of Fame: The NCLRA Hall of Fame is an award that we give on occasion. It is intended to remember and reward those who have made a significant impact on CL Racing. We have remembered many, but there are still others to identify.

The NCLRA HoF information is available on the NCLRA web site. Please go take a look and see who's already there. And please note the procedures for making a nomination. Your input is needed and solicited.

NCLRA Officers Elections: As given in our By-Laws, 2004 is the year where we nominate and elect the President, Vice President and Secretary Treasurer. Nominations are not due YET, that will come in April. But it is time for you to be thinking about who should fill these roles and be prepared to make the nominations. Take a look at the By-Laws: they're also on the web site.

2004 NATs: AMA has sent out NATs entry forms to all who were NATs entrants the last two years. If you haven't received the package from them, please contact AMA Hqs and ask for a packet.

Bob Whitney, the 2004 NATs CL Racing director, still is looking for folks to run events. Please get with him if you can help. Remember: Racing happens only if YOU help!

Torque Roll: How about that December issue! Tim has done us all proud! We are getting compliments from many directions, and we have Tim Stone and his efforts to thank. So:

THANKS, TIM!

I keep trying to tell him to not burn himself out, but he keeps getting better and better and better!

CabinFever 2004: John Bruman has CabinFever scheduled again this year. The last weekend in March. Hope everyone can join me there for some good racing. This and several other contests are the highlights of the racing calendar every year.

SOUTH WEST DISTRICT REPORT

Douglas Mayer

Hello all of you guys out there! What's new in the great sunny South West? We just recently saw the big annual AMA convention here in Los Angeles. Historically, this convention was nicknamed the Pasadena model airplane show, but this year it was actually held in Ontario, CA at the Ontario Convention Center, which is a few miles south of Pasadena. A few of our local fliers went and said that it was a good show.

As some of you may recall, I did an article last month on a real Formula-1 air racer, "OUTRAGEOUS". I got some very nice compliments on the article. I've started the wing and the fuselage, but ALAS, I've got big news for everybody. I'M GETTING MARRIED!! I know this is my own personal business, but the point is that you may not see a construction article any time soon. I'm getting married in May, I'm taking the honeymoon in June, so at this point I'm not really sure that I can make it to the NATS, (I doubt it). I did make a soapbox speech last month about helping at the NATS, so if you can donate some of your time at the NATS to help with the officiating and event directing, please contact Bill Lee. (My soapbox speech still stands).

The next big thing in the news is the contest calendar. In the Southwest of the USA, Ted Kraver from Arizona (who is primarily a Navy Carrier guy) does a fantastic job of coordinating everybody's contest calendars for the western half of the US. "Everybody" in this context means Stunt, Speed, Scale, Combat, Navy Carrier and of course RACING. Ted's efforts are appreciated every year because he really gets the ball rolling. The next guy in line is Jim Holland who is currently writing the SCAR newsletter and has also been working on the SW Racing contest Calendar. You should see a copy of that in this newsletter. Thanks to both of these guys for their efforts to coordinate so many contests out here in our area.

The premier racing event of the New Year is the Cabin Fever contest held each spring in Tucson. I believe that this is the 3rd or 4th annual Cabin Fever, held this year on March 26, 27 & 28. It is one of the few contests in the US that features F2C team racing. It is also a beautiful place to be in March. If you can possibly make the trip to Tucson for some beautiful sunny weather and good camaraderie, make those plans and head down to Arizona. Friday is dedicated to practice and all racing is held on Saturday & Sunday. Contest Director is John Bruman, look for a contest flier in this issue of the Torque Roll.

Now for some real business. By the rule of the NCLRA by-laws, this is an election year. Tim Stone wrote up this item last issue, but I want to bring it to your attention. All candidates that would like to run for office of President, Vice president & treasurer has a limited time to do so. As far as candidates, ANY NCLRA member can be nominated for President, Vice President, or Treasurer. They just have to be nominated via mail or email to both Bill Lee & Tim Stone by April 30th 2004.

Tim will then print ballots in the June Newsletter, which must be returned by July 1st. The world is full of opportunities, so step up to the plate and volunteer to do some WORK!!!!

And finally, I would like to tell you about one of our special members out here in California. A gentleman by the name of John Patwell started to come to some of our contests in Los Angeles just a few years ago. He and I were actually practicing Fox race and Mouse race when he got called up by the Army reserves. Every so often I get a word from John and the last time I spoke to him I asked him to send in a brief story about his adventures in IRAQ that I could share with everybody. He did confirm that the Army edits everything coming in and going out so nothing here is classified. Also, I

stick to sending pictures of airplanes and nothing that may be considered risqué. Here's John's letter:

HI DOUG, I HOPE TO BE HOME FOR THE JUNE CONTEST TOO. I WILL LET YOU KNOW WHEN I GET MORE INFO. I WILL WRITE YOU A SHORT STORY ABOUT MY LIFE IN THE MILITARY.

WELL,ABOUT 30 YEARS AGO IN JULY OF 1973 I ENLISTED IN THE ARMY. I WENT TO BASIC TRAINING AT FORT ORD, CALIFORNIA AND THEN WENT TO HELICOPTER MECHANICS SCHOOL AT FORT EUSTIS, VIRGINIA. I SPENT THE NEXT 2 1/2 YEARS AT FORT LEWIS, WASHINGTON AND THAT WAS THE EXTENT OF MY MILITARY CAREER. (SO I THOUGHT). 25 YEARS LATER IN JANUARY OF 2001 I HAD THIS CRAZY IDEA TO REINLIST IN THE CALIFORNIA NATIONAL GUARD AT 46 YEARS OF AGE. I DRIVE A TRUCK FOR A LIVING AND BECAME A PART OF THE 756TH TRANSPORTATION COMPANY IN LANCASTER, CALIFORNIA. MY UNIT WAS ACTIVATED AT THE BEGINNING OF 2003. THE STATE OF CALIFORNIA PULLED PEOPLE FROM 10 DIFFERENT TRANSPORTATION UNITS AND ADDED THEM TO THE 1498 TRANS. CO. OUT OF RIVERSIDE, CALIFORNIA. SO, HERE I'VE BEEN ON AN ALL EXPENSE PAID VACATION TO THE MIDDLE EAST. MY UNIT IS BASED IN KUWAIT AT CAMP VICTORY.WE CROSS THE BORDER TO IRAQ ABOUT 2 TO 3 TIMES A MONTH AND THE MISSIONS LAST ABOUT 7 TO 15 DAYS. THE TRUCKS WE DRIVE ARE CALLED HETS (HEAVY EQUIPMENT TRANSPORT SYSTEMS). WE HAUL EVERYTHING FROM M1 TANKS AND CRANES TO CONNEX'S AND PALLETS OF WATER. WE ALSO BRING A LOT OF BLOWN UP STUFF BACK TO KUWAIT. I HAVE DRIVEN THROUGH, BEEN LOST IN, OR SHOT AT IN JUST ABOUT EVERY TOWN IN IRAQ. MY UNIT WAS SUPPOSED TO BE BACK IN THE STATES BY DECEMBER. BUT LIKE EVERY OTHER TRANSPORTATION UNIT HERE WE WERE EXTENDED AT LEAST 5 MONTHS. THAT WILL PUT ME HOME AROUND MAY OR JUNE. WELL THAT'S ABOUT IT. TAKE CARE AND HOPE TO HERE FROM YOU SOON.

KEEP YOUR LINES TIGHT! JOHN

P.S. JIM HOLLAND HAS PICTURES OF MY TRUCK AND CAMEL..

That's it for the SW District Report. See my short article on "New Planes" following this report. Its always fun to see some pretty new airplanes before they get all beat up!! Remember, tighten your bolts and wear your sun block!!

SOUTHEAST REPORT- BOB WHITNEY

Nothing going on down here, as for the Nats, not much mention of any help yet. I am still looking for many volunteers to help run events. I have had volunteers step up to run Mouse 1 and Mouse II. Lets go guys step up to the plate, give me a call.

On another note we will be checking wing thickness in Clown, and Fox. Venturies will be checked in TQ and heads and backplates will be pulled in Fox also.

I wanted to remind everyone we will have JR/SR classes at the Nats in Fox , Mouse 1&2 and Texas Quickie Rat.

We will also will have something for top JR and SR in NCLRA Clown.

I do have plans for a MUNSTER [Hamster] on the board so you guys are in trouble RAD!
I also have a new SECRET WEAPON [engine] coming, I'll let you know if its any good!

South Central District Report

By Russ Green

Not a lot of district news this time. Dallas has set their contest dates and Houston plans to have some racing at one of their contests this year. Dates and details can be found in the contest calendar.

I was glad to hear that Slow Rat was going to be the focus for this issue. I started flying Slow Rat last year and it has been fun and exciting. I got hooked on Slow Rat at one of the Dallas contests when I helped pit Mike Greb's airplane. The thing was truly amazing. I can still hear that screaming Nelson as Mike's airplane sliced through the air with Bill Bischoff at the handle. At first I wasn't sure if I was willing to make the kind of commitment necessary to be competitive in the event. But I keep hearing that screaming Nelson. So, I ordered a new Slow Rat engine from Henry Nelson.

I decided to go with the well proven and reliable Biscuits and Gravy airplane that Mike Greb and Bill Bischoff use. Mike and Bill were very helpful. Bill had plenty of new Slow Rat components (foam cores, Greb heavy duty bell cranks, etc.) in his garage and essentially put together a kit for me. I followed Bill and Mike's instructions and built my Biscuits and Gravy Slow Rat. I was pleasantly surprised at how well everything worked when the airplane first flew a few weeks before the Nationals. First day out and it was turning 14.6 using an APC 7.8-7. I was also surprised at how hard the thing pulled. So I started jogging around the neighborhood to increase stamina and working with weights to strengthen my arms. One side benefit of all this exercise was that my cholesterol eventually went from 230 to 170. I wasn't in shape yet and had no Slow Rat race experience, so I did not pilot the airplane at the Nationals. Bill Bischoff had a real workout flying 3 airplanes in the heat races, mine, his and Mike's. Jim Holland did a good job flying for me in the final and I ended up placing third behind Bill and Mike. Not bad for the first race.

The next race was in Wichita where I decided to fly the airplane myself. It did not go very well. You know you are in trouble when you glance at your pit man and he has both arms wrapped around his head! We now refer to this as the emergency shutdown signal. It was pretty clear that I was going to have to go to Slow Rat school. So I took Slow Rat lessons from Bill and Mike. Actually, we had hands-on racing school with Bill and Mike sharing piloting and pitting knowledge in multiple racing events with several of the racers in the area. My final Slow Rat exam was at the next Dallas contest where I was able to stay out of trouble and fly a good race. The last race of the season was in Florida. I once again was able to stay out of trouble and ended up with a first place.

I am glad I decided to fly the event. It has motivated me to get in shape and be a better pilot. But most of all, I love hearing that big Nelson scream!

EDITORS' COLUMN-TIM STONE

NOMINATIONS FOR NCLRA OFFICERS

This year is an election year for NCLRA Officers. According to NCLRA bylaws, elections for President, Vice-president, and Secretary/Treasurer are held on even numbered years for these 3 positions; District Rep's elections are held in odd-numbered years.

Any NCLRA member may be nominated for these positions by submitting their names to both Bill Lee & Tim Stone. Send your nominations to us via email or U.S. Mail at our contact addresses on the back page of newsletter. All nominees will be printed in the June 2004 newsletter.

Nominations must be received between March 1st 2004 – April 30th 2004. Nominees will then be placed on a ballot that will be printed in the June 2004 'Torque Roll' and must be returned by July 1st. Results will be tabulated and election results will be announced at the Banquet meeting during the 2004 Nationals.

Fox Racing Rules Change

As of this date, the Officers of the NCLRA have decided with nearly unanimous support from members to modify the rules for NCLRA Fox Racing. Where 1 heat race WAS the rule, each entrant will now be allowed 2 Heat races. Here is the revised wording; those of you on the web can view complete rules at <http://www.nclra.org>

“Races: Races are to be 100 laps 2 pitstops required. Races should be flown 3 up. Event director may run heat races if desired. Heat races shall be 100 lap 2 pits with the top times advancing to the finals. Two heat races are suggested. The final shall be 100 laps with 2 pits.”

Mouse ½ kits available

Melvin Schuette had informed me that he has 4 Streaker (Mouse) kits prefabbed by Ken Smith for sale at \$35.00 each. When these are gone, he intends to make more. Contact info for Melvin & MBS Model supply is listed in the supplier's section of this newsletter.

The Hamster Dash (Speed) at the NATS

If you have been following the Delphi Speed forum, then you probably already know that the Speed Community has been talking about sponsoring an informal event for .15 Rat at the 2004 Nats. I received the following from Dave Mark...

“The C/L Racing community now fly's .15 powered Rat racing event. They affectionately refer to their models as Hamsters. The First Annual Hamster Dash will be held on Tuesday July 13, 2004 at the Muncie Speed Site. The contest will start at 5:00PM after the completion of that days' scheduled events.

All models will be timed from a standing start and also for seven (7) laps on the fly. Awards suitable for framing will be presented for both methods. The survey on Delphi forum showed 18 for Proto time and 15 for standard so we will do both. NASS will supply watches and contest equipment and awards. Contestants will supply timers.

1. Models with .15 size engines max (.1525)
2. Models must use two (2) lines sized .014 x 60' plus all you want minus 6" (six inches)
3. Times of models flown on 59' 6" lines will be adjusted to 60' with a correction factor.
4. All models must have at least one (1) wheel.
5. No asymmetric models allowed.
6. Models may be whipped for take off only. When the wheel leaves the ground the arm stops!
7. Hamsters, Goodyear racers, and any model with a .15 on the nose including purpose built are welcome to compete as long as they meet the above criteria.
8. One and one-half laps allowed to enter the pylon.
9. Open face exhaust or mini pipe allowed. No tuned pipes.
10. Fuel of 10% Nitro will be supplied by contest management.

Rules subject to change up to the day of the contest with the intent of obtaining maximum participation. “

Dave Mark

Editor- Speed Times speedtimes@chartermi.net

Letter to the Editor

George Lieb of Omaha writes;

“Hi Tim, I just received the December issue & noticed a discrepancy. The NCLRA Clown race record is listed as 297 laps. At both the Rebel Rally & Middlesex NJ contests the 1st 3 places all exceeded this. I also had 317 laps at the Spring contest in Jacksonville. Do you need to update the records?”

EDITORS' REPLY

George... In the Records section of the “Torque Roll” we only list records for AMA Events & those Supplemental events that are flown at the Nats. As a result of this, records are only considered official if they are set at the Nats.

Your performance & those others you mentioned are quite commendable but will have to remain as regional records, not National records. This rule was put into effect years ago and is spelled out in the unified section of AMA competition rules book.

Pack it up...Airline travel to contests

The cold Midwest Winter is getting to me...so I was thinking why not warm up in Tucson with a little racing on March 27&28! I have never flown out to a contest and with Airline security being what it is now, I decided to tap a couple of seasoned travelers for advice on how to get planes & toolboxes safely out to their destination.

Hopefully this will be helpful to those of you that are thinking of doing the same. I'll let you all know in April issue how it worked out!

Bill Lee's advice;

Hi, Tim; If you can afford the little extra time, do the FedEx or UPS thing. Just make sure that a fair value on the contents is declared!

I suspect that security wouldn't be too concerned if the luggage was clearly marked "Model Airplane Equipment" and was freely and openly searchable. I have watched the TSA folks do their baggage checks at our airport in Tyler, and it's pretty routine. If the bag looks o.k., it's a simple swab with the patch of cloth and then through the sniffer, and a quick open and look-see. If the box has anything suspicious about it, which I am sure a model box would, you can be assured that they will open it, and that's where you have to make it easy and convenient for them to get it open, see the contents, and then get it closed again properly.

As to what to pack in the box:

Obviously no flammable fluids, or anything that might even LOOK flammable. And other toxic stuff, too. Check the airlines web pages: they list all sorts of stuff that are a no-no.

If you can pull the fuel tanks about and throw them away, that's a help. They really don't like the idea of a container that at one time contained flammable stuff since it "may still have vapors in it"! If you can't get rid of the fuel tanks, consider purging them with pure castor oil, and then mark them as "Purged with pure castor oil". Castor oil is an identified purging agent, documented by the Feds as such.

Engines are probably o.k. Lambert has traveled with them by thoroughly cleaning them with non-flammable brake cleaner, then thoroughly oiling them with Castor oil, and sealing them in a zip-lock bag with all of the air evacuated.

Clean the models thoroughly before you go. Again, Lambert washes them VERY thoroughly with the non-flammable brake cleaner, lets them dry, and then puts them in his box.

Labeling on and in the luggage is a good idea. Make sure that the inspectors know what they are looking at. But on a generic way. As an example, I would label the stuff "Model Airplane Equipment" and NOT "A fuel tank that used to contain nitromethane and alcohol"!!!!

Dick Lambert advises me;

One of the reasons I went to the Tucson contest in March was to see what I could get away with on my carryon and check in baggage. I had heard several stories but I wanted to find out for myself.

First of all use a lot of common sense, don't take any liquids you can't drink or splash on your face. Second purge all your engines and tanks with anon-chlorinated brake cleaner.(I use Valvoline Synpower because it has a smell that covers up the ether.) I put each engine in a zip lock bag and put them in my carryon, I also put some diversions such as camera, air density gauge, etc.

Third clean your model box and models so there is no ether smell, pack them in your box an spray a underarm deodorant in the box. Put tanks and props in your model box, I also sprayed deodorant around the tanks. On the outside of my model box I have fragile and up on the outside. When I checked in the box they did not ask me what was in the box or questioned me about the box, the box made it to Tucson and back without being opened at all, no problem. Security at the gate check in was more interested in the air

density gauge then anything else in my carryon, they did ask me what the engines were and I told them, no problem.

New Landing gear available from Steve Wilk

Steve Wilk sent me some photos of new landing gear that he is making for Hamster, Goodyear & TQ/Fox/Slow Rat. They appear to be much beefier than previous samples, and look like they are up to the task. Steve's contact info is in the supplier's section of the newsletter.



CF Monostrut for inverted Hamster.

Weights are 11 grams for GY gear, 5.5 grams for the Hamster strut. Both very light weight items. \$15.00 for GY gear, \$10.00 for the Hamster gear. Steve has also been working on a number of new props, contact him for a current list.



Vic Garner's sweet looking new B TR. Webra .28 power has it in the low 16 sec range...pretty quick! Vic is getting serious about this event now that the speed limit rule is erased. Vic holds the current 35 lap record for BTR & is gunning for the 70 & 140 lap records!



THE SLOW RAT CHRONICLES

TIM STONE

This issue we put the spotlight on Slow Rats. I have to admit to being more of an observer of this event in the past; this year I have decided to compete in it. When I returned to C/L racing in the '90's some of the first few airplanes I flew were overweight, poorly set up Slow Rats. They pulled like sled dogs and handled very slowly to control inputs. In addition to this, they took a lap & 1/2 to shut down. Given what I first observed, I had no desire then to get into this event. Several things since then have changed my opinion about the event.

Over the past few years I have flown many different Slow Rats for several people. They have ranged from good...to bad...to ugly! What I have found is that if set up well, they are not a whole lot harder to fly than a quick Goodyear.

Different racing events have their appeal to different people. C/L racing runs the gamut from the simplicity of Fox Racing to the technical complexity of F2C.

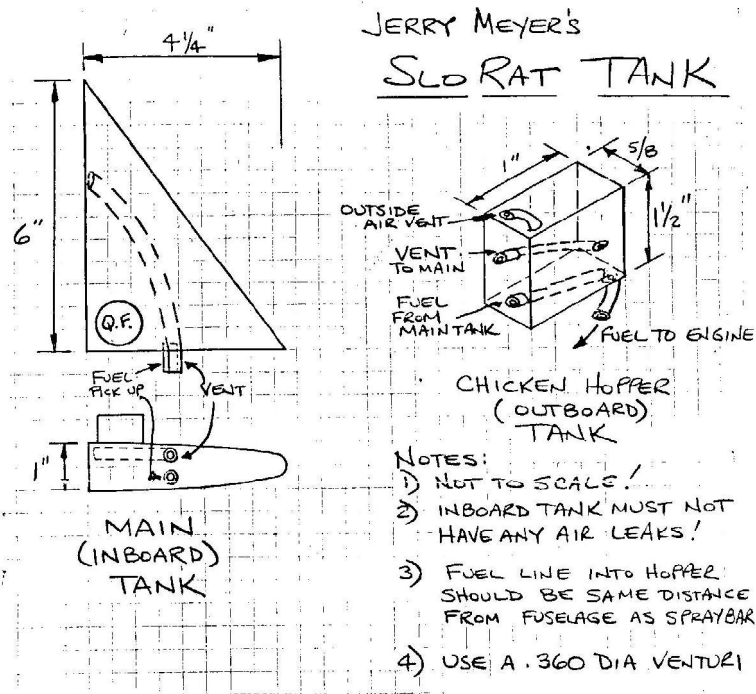
Slow Rat has evolved from something very much like Fox Racing in the beginning to become the premier high power event it is now. In the mid '70's, the team of Paul Tune & 6 foot 7" Larry Hill, The "Nashville Rats" set the standard for Slow Rat. Their O.S. .36 Rear rotor conversions made by Paul were way ahead of their time, and Larry was a dominant pilot. A few years back I had the chance to fly one of their original planes, with original motor and found it to handle delightfully, light on the lines, stable & responsive. I'm sure that the handling qualities of their airplanes contributed much to their success.

As time went on, motors became faster & quite a bit heavier. The Supertigre .36 conversions made in the late '80's by Henry Nelson made their mark as THE choice motor, being based on the X-.40 case & quite a bit faster than the O.S. conversions. These ST conversions are still competitive today; Bill Bischoff has won 3 of the last Nats since 1998 with his Nelson/ST conversion. K&B 4.9's were also used by some with great success in the '80's. Currently the Nelson .36 front intake seems to be the motor of choice, and unlike the O.S. or S.T. handmade conversions they can be purchased directly from Henry Nelson as a 'stock' item.

Slow Rat is currently the 'He-Man' event, the .44 Magnum of control line racing. Make no mistake...you have to be in pretty good physical condition to fly this event. There are several things that can be done to make things manageable for the pilot. Keeping weight low on a Slow Rat is critical. At around 130mph, 1 OZ of airplane generates a little more than 1 LB of pull at the handle. The motor alone weighs around 14 OZ, so about the lightest RTF plane would be 2 LBS. Less weight = less pull, less pull = more airspeed. I am surprised that I do not see more Slow Rats using adjustable leadouts. Generally speaking you want to have your leadouts on ANY racing plane as far forward as possible without having the plane come in at the pilot on takeoff. Adjustable leadouts allow you dial this in & also allow you to move them back for those windy days. Another detail to carefully check is thrust alignment; any excessive offset means more pull & less airspeed.

One of the rules unique to Slow Rat is that the suction-only fuel tank must be completely in front of the leading edge of the wing. This was done originally to keep the event simpler and slower. Due to the considerable weight of a typical slow rat motor, this rule has somewhat complicated the mechanical planform. Having the tank behind the engine & in front of the leading edge of the wing would require either tail weight or an excessively long tail moment to properly balance the plane. Neither is desirable, especially having a long nose moment.

Out of this rule has come 2 favored tank setups; the "Chicken Hopper" tank, and the single, square "Uniflow" tank setup.



The theory behind this tank setup is that the smaller tank remains full at all times and is at a more consistent pressure level than a single large tank during a race. After fuel shutoff, the tank is still full, and close to the venturi to eliminate the need for a prime, or choke for restart. The size of the small inboard tank & location of vent & fuel feed line must be done correctly in order for runs to be consistent. The size & shape of the large inboard tank is a non-critical item, but feed lines must be located properly for it to work. Once this setup is dialed in, it is reliable and eliminates the need for a swing weight carb.

(Drawing courtesy of Bob Whitney)

The single 'Uniflow' tank setup is described later in this issue in an article by Bill Bischoff. Russ Green has also submitted an article on the setup of swing weight carbs.



John Starkey sent photos of his new Slow Rat. It features carbon fiber LG Strut, and swing carb used with chicken hopper tank. Maybe the best of both worlds? Nelson .36 power.



single wire shutoff (as shown on previous page) or the "Glen Lee Mouse-trap" style shown on the side view of John Starkey's plane on this page. These shutoffs are available from Melvin Schuette/ MBS Model Supply for a reasonable cost, and they're well made. Fabricating either type is a pretty simple matter.

Airframe/Kits

Currently there are no kits being made for Slow Rat with the exception of the Brodak "Super Fly". In order for this kit to work with a typically heavy .36, the nose moment would have to be shortened by moving the wing forward. Almost any Fox race plane could be converted to a Slow Rat by beefing it up overall; just remember that rules specify that you must have a canopy, vertical fin, and minimum 24" body. (Fox length minimum is 22") 300 Sq. inch wing area rule is the same as Fox, so if you can build a Fox racer....

Front ends also have to be made extremely solid for the stresses produced by heavy motors. Balsa tail feathers that would be ok on a Fox racer will not be strong enough on a Slow Rat. The same goes for wings, wing loading is close to double that of a Fox Racer. When you hit the shutoff at 130mph & flap it down, the wings take a pretty heavy G-load.

Elsewhere in this issue you will find reduced plans for Mike Greb's 'Biscuits n' Gravy' Slow Rat, generously submitted by Bill Bischoff. It is one of the winningest Slow Rats designed to this date. This design has everything going for it, and flies quite well if set up properly. Bill has also written an article on mechanical setup & hot tips for a fast plane.

Russ Green has also sent a nice article on setting up swing weight carbs.

Steve Wilk recently added a carbon fiber landing gear strut To his offerings, he sells them for \$10.00.



Just remember to build them light, eat your Wheaties And we'll see you at the races!

Bill Bischoff on Slow Rats

Mike Greb and I started flying together in 1986, and our slow rat setup has always been pretty similar; low aspect ratio, constant chord wing, single inboard tank, swing weight carb. We have used front and rear intake K&B's, rear intake Nelson/Supertigres, and front intake Nelsons over the years. Some planes have had built-up wings, others used foam-core wings, but the basic configuration has remained steady. The lion's share of the credit for the fuel system goes to Larry Miller and Larry Hoffman, and I think the airframe design came from Frank Williams, but this was all happening in Texas before I moved here. When I came along, Mike already had competitive equipment and I was just the designated driver.

One of the biggest sources of problems seems to be the chicken hopper tank setup. Many potentially fast airplanes have burped and farted their way through heats (and finals) with fuel delivery problems. The inboard tank system is much simpler to set up and operate, and leaks are less of a problem. Bill Lee published a column in the July 1978 issue of Model Aviation outlining this system.

Our tanks are 3 3/4" long, 1" wide and 2 1/8" tall. The pickup goes to the rear, bottom, outboard corner. The vent goes to the front, top, outboard corner. Since the vent and pickup are both

against the outboard side, the tank is essentially a uniflow design.

My Supertigre powered airplane uses a carb made by Willy Wiley, based on the old HP carb. These days most people are using Nelsons, and fortunately Nelson Quickie 500 carbs can be easily adapted for use as swing weight carbs. A weight needs to be installed on the throttle arm, and some type of stop needs to be installed to limit how far the barrel can close. The barrel must also be free enough to open and close due to the weight.

As Bill Lee's article states, the needle needs to be set in flight. Adjusting how far the barrel closes controls the takeoff and first lap. Assuming the flight needle setting is correct, if the airplane gets off the ground rich, the carb closes too far; if it sputters or sags on takeoff, it is lean and the carb should close more. Once set correctly, the transition from ground to air should be smooth with no noticeable changes.

Something I hear from other pilots during races is how poorly their airplanes fly. I can tell you that this doesn't have to be the case! The right combination of control sensitivity and balance point can yield an airplane that is stable enough to be able to look away from, and still shake down in a lap or less. Nose heavy airplanes fly smoothly but are hard to shake down; tail heavy airplanes shake down easily but are more difficult to fly level. On Mike's most recent airplane, the CG is back farther than previous ones, and I found that I could get the airplane down comfortably in $\frac{3}{4}$ lap, but the airplane required too much attention during the race. By moving the pushrod one hole farther out on the control horn, we were able to desensitize it enough to be stable during the race, and still allow me to shut down in less than a lap. The right setup will vary for each pilot, so test flying will be necessary to find it. Hopefully this will be done before the morning of the race! Our C.G. is about 1 $\frac{3}{4}$ " to 2" behind the leading edge.

Our airplanes use aluminum landing gear legs, and Mike has made a selection of gear with different amounts of forward/rearward sweep. Part of our initial testing on a new airplane is to figure out what landing gear gives the best ground handling. An airplane with a properly positioned wheel will land smoothly without bouncing and roll without nosing over. This makes the pitman happy and the pilot look good!

Having another pilot to practice actual 2 up racing is simply not possible for many racers, but can be tremendously helpful. Russ Green, the newest member of the Biscuits and Gravy team, didn't have any two-up practice time with his slow rat before the NATS, so I flew it for him. Between the NATS and our Labor Day contest, we had several practice sessions with lots of two up racing, allowing Russ to get comfortable flying in actual race conditions. It helped me quite a bit as well, and I figured out that if I could fly one handed comfortably, proper positioning in the circle was much easier to achieve and maintain.

As for props, on my ST powered airplane, I won the NATS 3 times using a stock black APC 7.8x6 prop. This past year John McCollum made me some carbon fiber copies of this prop, as the plastic ones are extinct. The stock prop pitched out at 6.5 on my gauge, so I made a selection of props from about 6.3 pitch to 6.8 pitch. The lowest pitch prop was fastest on my airplane (but not any faster than the stock APC???)

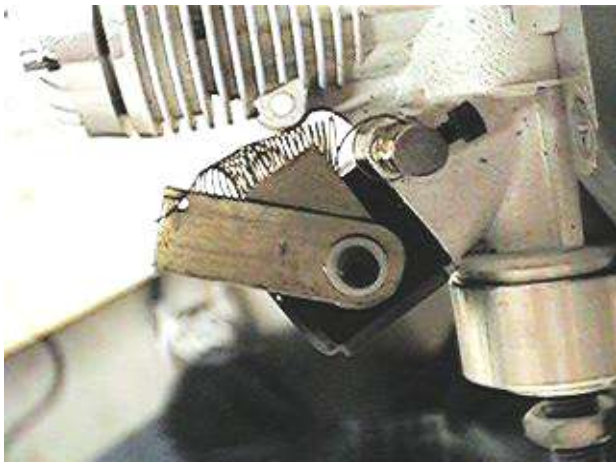
and it turned out that the 6.8 pitch prop was a couple of tenths of a second faster on Mike's Nelson airplane than his best prop. Mike had been running an old Vic Garner prop left over from the nitro days, trimmed down in diameter to get the rpm's back up. This was his "magic" prop for about 10 years. He broke this prop thanks to an airframe failure a couple of years ago, but found a suitable replacement from Steve Wilk (Eliminator props). I don't know which one; hopefully Mike will tell you. We were pleasantly surprised when we tried my props just before the NATS and were able to consistently run 13.8-13.9, compared to the 14.1 we were used to.



Slow Rat Swing weight Carburetor Setup **Russ Green**

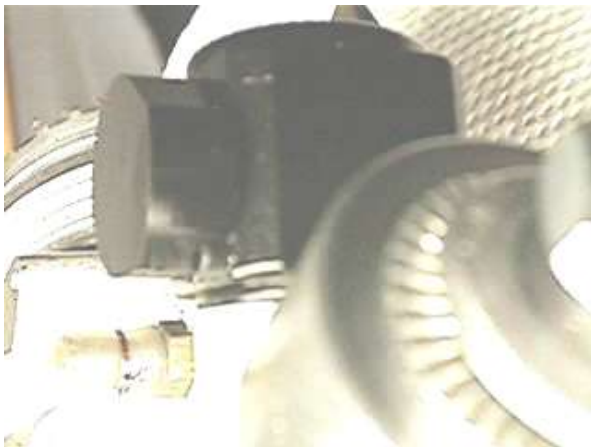


Swing weight carb in closed (starting) position



Swing weight carb in open (flight) position

I use the same carburetor setup that Mike Greb uses. It is a Nelson Q-500 Carb. bored out to 3/8 inch. The molded arm is machined off leaving only a stub. A slot is then ground in the arm stub so that a 2-56 bolt placed in a corner of the Carb. under the arm stub will serve as a stop (see photo below).



The swing arm consists of two strips of 7/16 by .032 brass. One strip starts out 1 7/16" from the centerline of the barrel with the last 7/16 being folded over so that you end up with a 1" arm. There is another arm that is 5/8" and trails back about 45 degrees from the main arm. This arm can be adjusted to control the actual closing of the Carb. by butting up on the NVA. Mike's Carb opening is about .275" in the closed position.

Sometimes this carburetor setup will work fine with no spring. The prop blast will hold it in the closed position while in the pit and acceleration will hold it closed during takeoff. However, we have found that a small amount of spring force

may be necessary to get a good transition from takeoff to full speed. I use a very light spring that I made by winding .012" control line around a 3/16" drill rod using an electric drill. The spring ends up expanding to about 5/16" in diameter once the winding tension is released. I then hook one end to the swing arm and the other to the NVA with the spring under the arm and behind the carburetor (see pictures at left). Length of the spring is adjusted on my airplane so that it will only pull the carburetor about 1/2 of the way closed while it is cold in the shop. It doesn't seem like enough to make much difference; however, not much is needed.

The really good thing about this setup is that it seems to always work. As a matter of fact, it works so well that the top three finishers at the 2003 Nationals used this setup.



Detail from below. Note position of shutoff & fuel pickup line from tank, passes through hole in landing gear strut.

NEW AIRCRAFT FROM THE SOUTH WEST **By Douglas Mayer**

Here in the South West we have seen a real revitalized interest in an older racing class called Formula Unlimited. In other parts of the country this event is also called "Big Goodyear". The basic rules call for a Formula-1 racing style airplane such as the big Shoestring, Cosmic Wind, Buster stunter airplanes with a .40 sized motor and a 2 oz. Tank. I won't get into all of the specifics, but this class also allows for any model of an actual Formula-1 aircraft as long as the wing is 390 square inches, plus some other requirements.



Jim Holland has just built a very handsome Buster. He built a nice clean nose, “the business end”, with a good clean cheek cowl, a rebuilt HB with PDP porting, and a good compact arrangement of tank, shutoff and motor. He also sheeted the wings with 1/16” balsa to clean the wing up. He also used titanium landing gear and finished it all off with a nice clean paint job.



Dave Dawson is a relative newcomer to our racing circle, but has years of experience as a stunt flier. Several issues ago I featured one of his airplanes that has an amazing finish on it. Well, Dave continues to awe the crowd with his spiffy looking race planes. He is full of ambition and wants to build “One of everything!!” Well, he is certainly on his way. This month I’ve got photos of two of his new planes that debuted at the Toys for Tots contest in December. Unfortunately, it started to rain and all we got was a “show-n-tell” out of Dave, but I sneaked a few photos in a light drizzle. One of his planes is an original design quickie rat with a V-Tail, and a few racing modifications that he learned from his first quickie rat.



Don Burke took advantage of the rules and built his own design of Boo Ray. This plane was very unique and commanded much attention at it’s debut during the Toys for Tots contest in December. Don covered the wing in transparent monocoat which is a nice touch. This allows you to see the nice rib work on the wings. Don also utilized the HB motor which is the choice of this class, and he also finished his plane off with some very nice paint and graphics.



The other plane that he brought out was a brand new Mouse-2, with a sidewinder half cowl. Hey, where have I seen that design before? Oh yeah, I built one of those too and it went

pretty good. Well, hopefully Dave will have good luck with his Mouse-2 as well. This plane also features a V-Tail like his quickie rat. As for the paint job.....well, it looks like layers of paint are burning off of the plane leaving a black finish behind.



If anybody else in the South West District would like their new airplane featured, please contact me in advance and I'll bring my digital camera to the contest(s) and feature your plane. Cheers!

2004 Contest Calendar

NOTE!! Confirm dates, locations & events with the CD or contact listed below. NCLRA cannot be held responsible for changes, errors, omissions, etc.

SCAR Race #1: Cobweb Duster. February 29. Whittier Narrows, CA.

Events: NCLRA Flying Clown, SCAR Goodyear, NCLRA Fox Race, NCLRA Quickie Rat (+ NCLRA F2CN if possible) CD Jim Holland, Phone 209-726-0357
Email jgmholland1959@yahoo.com

CABIN FEVER RACING Mar 27, 28, 2004.

Christopher Columbus Park - Tucson AZ CACLC:
Helmets required for all pit crews. SAT-F2C, Mouse, NCLRA Fox, .15 Rat (Hamster), NCLRA Clown. SUN-Mouse 2, ACLA/SCAR Formula Unlim, SCAR Sport Goodyear, NCLRA Texas Quickie Rat. SUN- after 4 PM F2CN, BTR. CD John Bruman jbruman@precisiondie.com 480-967-2038 days, 602-751-2492 eve & weekends

SCAR Race #2: April 18 Whittier Narrows, CA

Events: AMA Mouse II, NCLRA Flying Clown, NCLRA Fox Race, NCLRA Quickie Rat CD Jim Holland, Phone 209-726-0357 Email jgmholland1959@yahoo.com

DALLAS, TEXAS April 17-18 2004

CL Speed/Racing Spring Warm-up

April 17-18, 2004 Racing events will be held on Sunday the 18th. Site: Hobby Park
Patrick Hemple CD, 3005 Bayport Cir. Rowlett TX 75088
214-607-1561 Events: Slow Rat, Goldberg, TQR, Sport Goodyear and Mouse I

JACKSONVILLE, FLORIDA APRIL 24 & 25

Events to be determined. Contact Bob Whitney
Phone 321-676-0554
Email F2CRACER@aol.com

SCAR Race #3: Knights Joust

Saturday, May 15, Whittier Narrows, CA

Events: AMA Mouse I, NCLRA Fox Race, SCAR Goodyear, NCLRA Quickie Rat CD Jim Holland, Phone 209-726-0357
Email jgmholland1959@yahoo.com

MAY 28,29,30,2004 ALBANY, OREGON –

NORTHWEST CONTROL LINE REGIONALS

Racing events (spread over 3 days) include: Mouse I, Mouse II, .15 Rat, AMA Goodyear, NW Goodyear, NW Sport Race, NW Super Sport, Clown Race, Quickie Rat. Contest also includes Stunt, Combat, Carrier, Speed, Scale, and a swap meet. CD: Craig Bartlett, 205 NE Cedar Lane, Corvallis, OR 97330, E-mail: sraigbart@yahoo.com

HOUSON, TX May 29

Site: Scobee Field
Richard Stubblefield CD, 1922 Thousand Pines Kingwood TX 77339 781-358-3522
Events: TQR, Foxberg

SCAR Race #4: Pre-Nats Warmup

June 20, Whittier Narrows, CA

(Note – This date needs to be checked to avoid a possible conflict with the Bob Palmer Stunt contest)
Events: AMA Mouse II, AMA Scale Race, NCLRA Classic B Team Race, NCLRA Quickie Rat, NCLRA Flying Clown CD Jim Holland, Phone 209-726-0357
Email jgmholland1959@yahoo.com

DALLAS AERO SUMMER HEAT June 19-20

Racing events will be held on Saturday the 19th.
Site: Hobby Park
Phillip Nickles CD, 6640 Champion Midlothian TX 76065 972-736-3780
Events: Goldberg, TQR, Sport Goodyear and Mouse I

DALLAS, TEXAS SEPT 4-5

Charles Ash Memorial

Racing events will be held on Saturday the 4th.

Site: Hobby Park

Bill Bischoff CD, 2609 Harris Dr. Garland TX 75041 972-840-2135

Events: Slow Rat, Goldberg, TQR, Sport Goodyear and Mouse I

NATIONAL RECORDS

SLOW RAT

JR (70 LAP)	5:16.20	SCOTT MATSON	7/10/00
(140 LAP)	6:47.37	SCOTT MATSON	7/10/00
SR (70 LAP)	4:29.63	HOWELL PUGH	7/20/94
(140 LAP)	10:58.47	DOUG SHORT	7/10/00
OP (70 LAP)	2:36.31	BOB OGE	7/18/91
(140 LAP)	5:24.94	MIKE GREB	7/19/90

½ A MOUSE 1

JR (50 LAP)	2:37.57	SCOTT MATSON	7/15/99
(100 LAP)	5:17.68	SCOTT MATSON	7/17/99
SR (50 LAP)	2:44.68	DAVE ROLLEY JR	7/15/99
(100 LAP)	5:20.11	D.J. PARR	7/16/98
OP (50 LAP)	2:14.35	RYAN/MCCARTHY	7/13/01
(100 LAP)	4:22	RYAN/GIBEAULT	7/15/99

½ A MOUSE 2

OP (70 LAPS)	3:01.24	MACCARTHY/KERR	7/11/03
(140 LAP)	7:16.03	WHITNEY/HALLAS	7/11/03

SCALE RACING

JR (70 LAP)	2:50.65	BOB FOGG III	7/16/91
(140 LAP)	6:08.55	BOB FOGG III	6/23/92
SR (70 LAP)	3:15.12	DOUG SHORT	7/11/00
(140 LAP)	5:40.05	BOB FOGG III	7/11/95
OP (70 LAP)	2:39.38	WILLOUGHBY/OGE	7/15/97
(140 LAP)	5:33.04	BOB FOGG II	7/16/91

F2C TEAM RACING

OP (100 LAP)	3:16.7	ASCHER/ASCHER	7/19/02
(200 LAP)	6:57.36	LAMBERT/BALLARD	7/15/98

'B' TEAM RACING

OP (35 LAPS)	1:32.71	VIC GARNER	7/09/03
(70 LAPS)	3:30.75	TOM SCHAEFER	7/09/03
(35+70 LAPS)	5:09.48	TOM SCHAEFER	7/09/03
(140 LAPS)	NO RECORD ESTABLISHED		

RAT RACING (.15 RULE)

OP (70 LAP)	2:46.50	MCCARTHY/LAMBERT	7/10/03
(140 LAP)	5:58.75	MCCARTHY/LAMBERT	7/10/03
JR-SR	NO RECORD ESTABLISHED		

NCLRA FOX

JR (100 LAP)	5:57.11	SCOTT MATSON	7/11/99
SR (100 LAP)	5:28.09	SCOTT MATSON	7/16/02
OP (100 LAP)	5:37.41	MCDONALD/MATSON	7/11/99

NCLRA CLOWN

OP (15 MINUTES)	297 LAPS	DAVE HALLAS	7/7/03
OP (7 ½ MINUTES)	154 LAPS	DAVE HALLAS	7/7/03

NCLRA TEXAS QUICKIE RAT

SR (70 LAPS)	3:04.22	SCOTT MATSON	7/12/01
SR (140 LAPS)	6:20.20	SCOTT MATSON	7/12/01
OP (70 LAPS)	3:00.58	JOHN MCCULLOM	7/10/03
(140 LAPS)	6:21.34	MIKE GREB	7/10/03

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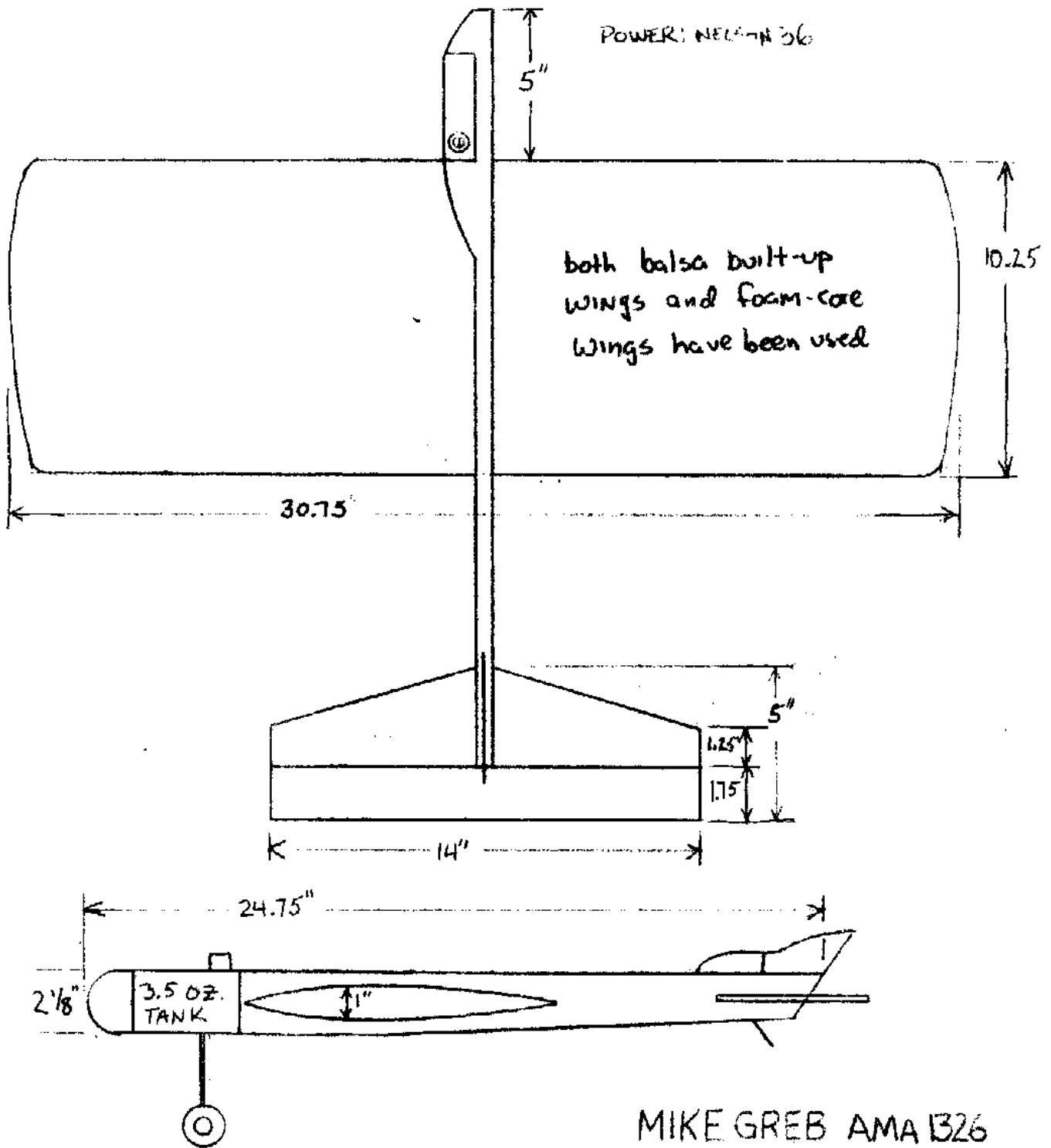
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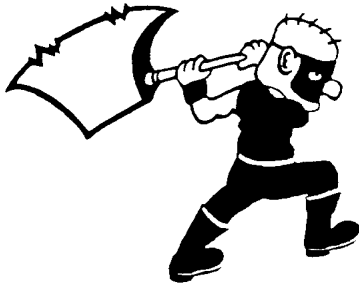
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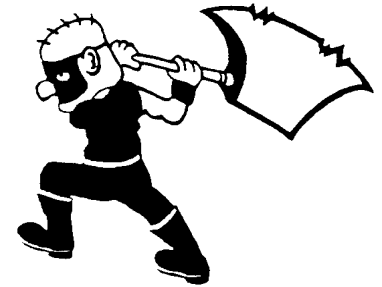
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E-3	4 1/4 X 4 1/2	
E-5	4 1/4 X 4 3/4	
E-6	4 1/4 X 5	
E-7	4 1/4 X 5 1/4	
Cuff Blade Design		C

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T-1	5 X 4	
H-2	5 1/4 X 4 1/4	C
MA-1	5 1/2 X 4 1/2	
G-7	5 1/2 X 5 1/4	
G-8	5 7/8 X 6	
T-12	5 7/8 X 3	

TR-SI	6 1/8 X 6 1/2	1/2
TR-M5	6 1/8 X 6 1/2	1/2
TR-Z	6 1/8 X 6 1/2	1/2
TR-SC	6 3/8 X 6 3/4	1/2
TR-M2	6 1/8 X 6 3/4	1/2
TR-A3	6 1/4 X 6 3/4	
TR-L2	6 1/8 X 6 3/4	1/2
TR-JM	6 1/4 X 7	1/2
TR-SS	6 1/4 X 7	1/2
TR-C	6 1/8 X 7	1/2
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B-4	8 X 6 1/4	
R-1	8 3/4 X 6 1/2	
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M-2	8 1/2 X 6 3/4	C
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R-6	10 X 5 1/2	
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R-7	11 1/2 X 5 1/2	
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Officer's Addresses

President

Bill Lee
601 Van Zandt County Rd.4815
Chandler, Tx 75758
Phone 903-852-5599
Email Bill@WRLee.com

Vice- President

Jim Holland
1161 Loughborough Dr. Apt #5
Merced, CA 95348
Phone 209-726-0357
Email jgmholland1959@yahoo.com

Secty/Treas

Mike Macarthy
4704 Hillsboro Ct.
Santa Rosa, Ca 95405
Phone 707-542-2492

Editor

Tim Stone
4919 Country Oaks Dr
McHenry, Il 60050
Phone 815-344-5728
Email tstone@mc.net

Northwest Representative

Mike Hazel
1073 Windmere Dr. NW
Salem, OR 97304
Phone 503-364-8593
Email ZZCLspeed@aol.com

Midwest Representative

Stewart Willoughby
95237 Aero Drive
Naperville, Il 60564
Phone 630-904-7011
Email StooDDS@aol.com

Northeast Representative

Brian Silversmith
86 Kingsland Circle
Monmoth Jct., NJ 08852
Phone 908-274-8945
Email via Phil Valente Phil_Valente@millipore.com

Southwest Representative

Doug Mayer
1727 Penmar Av #2
Venice, CA 90291
Phone 310-392-9008

South Central Representative

Russ Green
615 Oldham Ln.
Granbury, TX 76048 (817) 573-7416
Email jgreen2@charter.net

Southeast Representative

Bob Whitney
456 Garvey Rd. SW
Palm Bay, Fl 32908
Phone 321-676-0554
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None Named

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 New Times 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.

Apply for membership by mailing annual dues of \$ 10.00 to the Secretary/Treasurer at the address on this page. Make checks out to the order of " NCLRA" and be sure to provide the correct address for receiving the newsletter.



“ Our Slow Rats are turning 11 seconds flat & have melted down to nothingness! To challenge us is the ultimate suicide! We will be defeated! Never! Better for you to lay down your handle most shamefully than confront swift defeat that we will surrender to you!!” ***Baghdad Bob on his new Slow Rat***