The Launch Rack

Published by the Garden State Spacemodeling Society
National Association of Rocketry Section No. 439
New Jersey's Oldest Model Rocket Club
Volume 30 Number 6 (Issue 162) **November-December 2012**

"It's Been a Very Good Year"

All in all is has been a very good year for GSSS. Most of the Sport Launches went off as well as the Fun Tests to add a little spice to you model rocketry.

We promised you six (6) issues even though this one is later than originally planned for. But we hope you enjoy it and the other five (5) issues.

Membership grew by 14. As of December 1 there were 41 on our roster. And we hope they will renew their membership; speaking of which…as each issue advised your membership expires December 31, 2012. **So if you have not, and while it is fresh in your mind why not renew today.**

One of the rewarding things to see is how many of you stepped in when needed to make sure planned events went… well as planned.

Special thanks to **Jim Zindle, Mickey Spain, Joseph** and **Jenna Dunay** for coming to bat when it really counted.

While in this appreciative mode we need to thank our President **Arnie Klein** better known as your Launch Control officer on launch days for bring the equipment necessary to get those model rockets off the ground. And when landing in one of the trees getting it back on the ground.

While thinking about the year **Jim Zindle** present his report on the November 24th Sport Launch.

A Launch to be Thankful For

Sometimes Mother Nature graces us with perfect flying weather. For our November launch, not so much. Watching the weather leading up to launch day, it looked as though we'd be in for a nice late November launch. A great opportunity to chase rockets and work off those extra Thanksgiving pounds. The forecast ultimately deteriorated and we ended up with a quite chilly day with winds gusting up to the NAR safety limit of 20 MPH. Be it the weather or the fact it was a holiday weekend, turnout was correspondingly light.

Our rock and loyal president **Arnie** was there waiting to see who if anyone would be flying anything before setting up the gear. The following hardy souls ultimately showed up and a couple even put a rocket in the air: **Peter Nein** and his son **Alex,** Me **(Jim Zindle), Greg Ventura** and his son **Gideon, Jose Andrade-Cora** from our home vendor, Heavenly Hobbies, and a newcomer and his son all the way from that small town of Jersey City. *(Sorry we did not get their names.—Ed Note)*

A Launch to be Thankful For continued…

With high winds and a biting chill, flights were minimal. Due to low turnout and unfavorable flying conditions, the scheduled Fun Tests were unable to be held. We couldn't all travel the distance to the launch without putting something in the air though, so here are some flight highlights:

Peter Nein's "*Golden Pancake*" rear-deploy Big Bertha inspired rocket, like the Phoenix, rose from the ashes of a recent crash and took flight again. It drifted nearly back to Milltown Rd and was a good reminder just how breezy it was.

I **(Jim Zindle)** boldly put up a scratch built rocket on a D12-5 and a 12" chute. Only thanks to a tangled chute did that chase not go too far.
One last flight of a well worn *Baby Bertha* using a large nylon streamer for recovery rounded out the day.

Thanks to the stiff breezes**, Arnie** set an unofficial record for the longest saucer recovery ever at North Branch Park. It landed quite far down range, carried on the winds. Always the great mentor, **Arnie** provided great guidance and advice to our father and son visitors from Jersey City. They got at least 3 rockets in the air.

With a thickening overcast adding to the chill, and winds increasing, we all called it a day by noon. Though Mother Nature didn't grace us with good flying weather this month, we were thankful not to lose any rockets. We'll be back in force come December!

Congratulations to GSSS' newest Level I certified High Power rocketeer. On Nov. 10 **Peter Nei**n successfully flew his *LOC Precision R2* on an H motor to achieve this NAR Level. The *R2* is the sport scale version of the Russian/Canadian longer bodied WWII German *V2* rocket.

*(Again thank you **Jim Zindle** for your report and your willingness to help out. These are the kinds of members we really need. Ed. Note)*

President's Message

Written by Arnie Klein

The Revised Safety Code

In August of this year a revised NAR Model Rocket Code will be implemented. The revisited code (See attached) says that for any engines "E" to "G" there must be minimum launch site dimensions of 1000 feet. I decided to check on our site dimensions (see attached map) and it turns out that depending on how you measure it we do meet the minimum dimensions for a "G" level engine. The old code required that things be measured to the nearest occupied building, but this requirement has been dropped, also one could measure things from one corner of the field, and still meet the requirements because it does not talk to the distance from the launch pad. This club requires that all launches stay in the park whatever the engine size, and we will continue this rule regardless of the NAR code.

NAR Model Rocket Safety Code
(Effective August 2012)

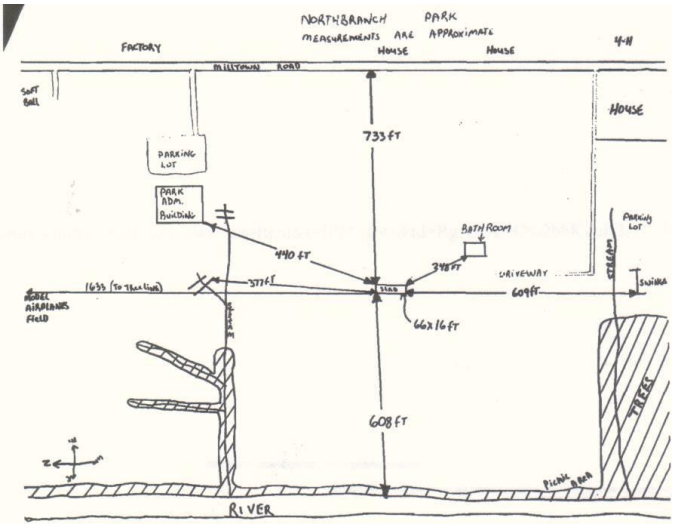
1. **Materials.** I will only use lightweight, non-metal parts for the nose, body, and fins of my rocket.
2. **Motors**. I will use only certified, commercially-made model rocket motors, and will not tamper with these motors or use them for any purposes except those recommended by the manufacturer.
3. **Ignition System**. I will launch my rockets with an electrical launch system and electrical motor igniters. My launch system will have a safety interlock in series with the launch switch, and will use a launch switch that return to the "off" position when released.
4. **Misfires**. If my rocket does not launch when I press the button of my electrical launch system, I will remove the launcher's safety interlock or disconnect its battery, and will

wait 60 seconds after the last launch attempt before allowing anyone to approach the rocket.

5. **Launch Safety**. I will use a countdown before launch, and will ensure that everyone is paying attention and is a safe distance of at least 15 feet away when I launch rockets with D motors or smaller, and 30 feet when I launch larger rockets. If I am uncertain about the safety or stability of an untested rocket, I will check the stability before flight and will fly it only after warning spectators and clearing them away to a safe distance. When conducting a simultaneous launch of more than ten rockets I will observe a safe distance of 1.5 times the maximum expected altitude of any launched rocket.
6. **Launcher.** I will launch my rocket from a launch rod, tower, or rail that is pointed to within 30-degrees of the vertical to ensure that the rocket flies nearly straight up, and I will use a blast deflector to prevent the motor's exhaust from hitting the ground. To prevent accidental eye injury, I will place launchers so that the end of the launch rod is above eye level or will cap the end of the rod when it is not in use.
7. **Size.** My model rocket will not weigh more than 1,500 grams (53 ounces) at liftoff and will not contain more than 125 grams (4.4 ounces) of propellant or320 N-sec (71.9 pound-seconds) of total impulse.
8. **Flight Safety**. I will not launch my rocket at targets, into clouds, or near airplanes, and will not put flammable or explosive payload in my rocket.
9. **Launch Site**. I will launch my rockets outdoors, in an open area at least as large as shown in the accompanying table, and in safe weather conditions with wind speeds no greater than 20 miles per hour. I will ensure that there is no dry grass close to the launch pad, and that the launch site does not present risk of grass fires.
10. **Recovery System**. I will use a recovery system such as a streamer or parachute in my rocket so that it returns safely and undamaged and can be flown again, and I will use only flame-resistant or fireproof recovery system wadding in my rocket.
11. **Recovery Safety**. I will not attempt to recover my rocket from power lines, tall trees, or other dangerous places

LAUNCH SITE DIMENSIONS

Installed Total Impulse (N-sec)	Equivalent Motor Type	Minimum Site Dimensions (ft.)
0.00--1.25	1/4A, 1/2A	50
1.26--2.50	A	100
2.51--5.00	B	200
5.01--10.00	C	400
10.01--20.00	D	500
20.01--40.00	E	1,000
40.01--80.00	F	1,000
80.01--160.00	G	1,000
160.01--320.00	Two Gs	1,500



Countdown 5-4-3-2-1…

(A Calendar of Upcoming Events)

Note: The following dates are tentative. Watch for updates in the newsletter and on our Website.

Jan. 26 - "Challenger" Memorial Launch
Feb 23 - Sport Launch
Mar 30 – Sport Launch
Apr 27 – Sport Launch (B Streamer Duration)
May 25 – "Molly Brown" Local Contest
Jun 29 – Sport Launch
Jul 27 – Sport Launch (1/2A Boost-Glider Duration)
Aug 31 – Sport Launch (A Cluster Duration)
Sep 29 – Sport Launch (Open Spot Landing)
Oct 26 – Sport Launch
Nov 30 – Sport Launch
Dec 28 – Sport Launch

The Fun Test Event for April is an event flown at NARAM-55 in 2013. For those that may be planning to attend.

Though it has been awhile GSSS will sponsor a Local Contest on May 25th **" The Molly Brown".**

Events to be flown are; 1/4A Helicopter Duration**, A Parachute Duration, B Streamer Duration** and Open Spot Landing.

Entry Fees:

Division A (7-13 years old) **Free**
Division B (14 through 18 years old) **$5.00**
Division C (19 years old and older) **$8.00**
Division T (Registered NAR Teams)

Note: You must be an NAR Member with a valid membership card to compete in this event.

** NARAM-55 Events

Why the "Molly Brown"? Maybe you can tell use what the space related name was selected for the contest.

Welcome to Our New and Renewing Members

We end the year on another positive note by welcoming **Michael** and **Benjamin Freedman,** from Jericho, NY. Not wanting to wait until the last minute **Edward Fitch** and **Charles Franklin** have renewed their dues for 2013. The GSSS Board Thanks you!

The Launch Rack
c/o Jack Sarhage
24 Canterbury Court
Piscataway, NJ 08854

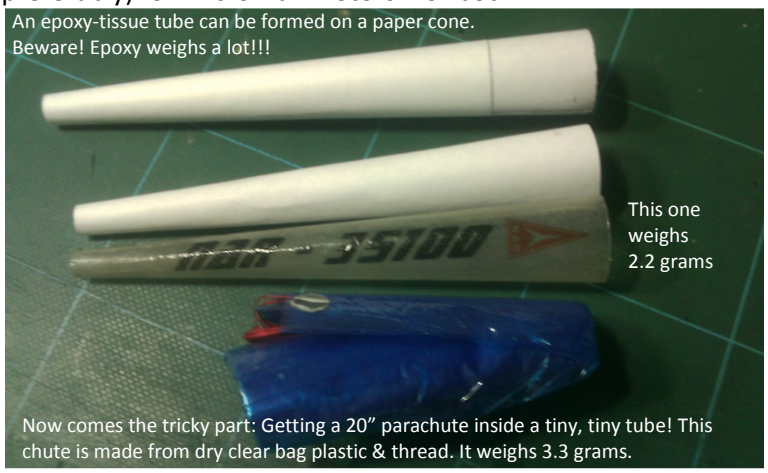
Send in your Dues for 2013

Getting the Competitive *Edge* in 1/8A Parachute Duration

By: Dr. Bob Kreutz

OK, First Off, if you're going to fly a MicroMax model in a COMPETITION, build it LIGHT! A 1/8A impulse motor does not have a lot of "oomph" so every fraction of a gram counts when you are building one! As a matter of fact, when I built my □□□□□, the heaviest part was the *parachute!* So make sure you have a gram scale handy that can register 1/10ths of a gram. Here are some ideas and strategies to keep in mind if you're flying 1/8A Parachute Duration (applicable to other events as well!).

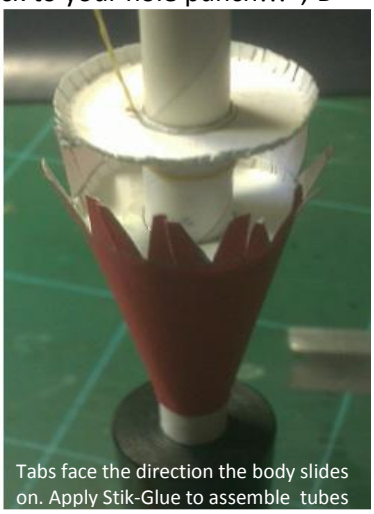
No launch lugs – although light in nature, launch lugs are going to add up to 30% of the total drag on the model. Just get rid of them and plan to fly your model either out of a tower built for the model, or a piston launcher (floating head preferably) for MicroMax motors – or both.



Materials: The only true "tube" you will use is the short motor tube for the MicroMax motor (T2Plus from BMS or Flis). You do NOT need a thrust ring – motor tape will prevent the motor from thrusting through the model. The body wall can be made from a number of materials, lighter the better. They include Vellum or Tracing Paper, Printer Paper, Graph Paper, Epoxy coated Tissue Paper. The technique is simple: curl it or roll it and connect the edges with stick glue. Centering rings are made from Index Card Paper – but it is too heavy to make the competition body tube out of. Remember, these are not models meant to last a great number of flights, 3 or 4 at the most, but just like in FAI International competition, you only need maximum performance for the flights in the event. When it is done, so is the model.

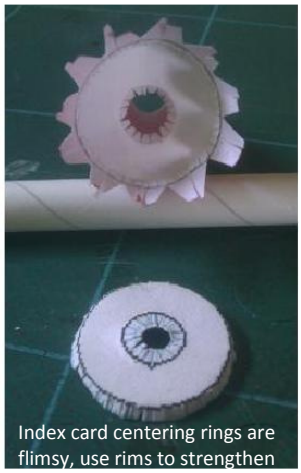
Parachutes: 2 problems – weight and folding. There are 2 materials that suit micro-impulse motors, ¼ Mil Mylar and Dry Cleaner Bag Polyethylene. Everything else seems heavy and inefficient. Unfortunately, Mylar is stiff and relies on the folds to "spring open" to deploy the chute. This requires the user to NOT fold the material tightly and it becomes problematic when trying to stuff a large chute in such a small MMX tube. On the other hand, Polyethylene sticks to itself especially in humid weather and requires talcing or baby powder to insure it opens. Shrouds add weight too – use sewing thread, the lightest you can find – but use more of them! Increasing the shroud number to 12 to 16 reduces air spillage from the chute and keeps it aloft longer. Use a round chute – mine is made from dry cleaner bags, 12 shrouds. I use silver mylar tape to connect shrouds to the canopy, punched out round with a hole punch (put the tape on wax paper first before punching, or it will just stick to your hole punch!!! ;-D


I used a long T2 tube to center the T2+ motor tube, transition and centering ring.


Tabs face the direction the body slides on. Apply Stik-Glue to assemble tubes

Nose Cone: Make your own. If you are going to use a balsa cone, sand it as smooth as you can using auto body sandpaper down to 2000 grit (it is made even finer!) and color if you must, with magic marker. No sealant, no paint, they both add weight. Then, hollow out the nose with a Dremel tool to further reduce the weight. The parachute will be all the nose weight you need. As an alternative and if it is available to you, you can make a 1/2oz fiberglass nose or a vacuformed nose made of thin 0.030" styrene.


Forms & Molds used for making nose cones


Index card centering rings are flimsy, use rims to strengthen

Lastly: *Practice, Practice, Practice.* Never show up at a competition with a model or design you have never flown before. Make a boilerplate model and get a few flights in on it to work out the bugs and any quirks, the model may have.

Need a 1/8A PD Model for NARAM?

Scan this page into your computer to change graphics, colors and add your NAR Number in a Paint program, then print and cut-out.

Tower Launch These Models

BNC-5Q or similar

BNC-20A or similar

Roll Paper Body into Tubes on BT-5 and BT-20

Tempest/Hurricane Index Card Centering Rings

Engine Block is Unnecessary

Piston Launch the SURGE

BNC-20AZ or similar

2.5 - 3.0ft Flis Kits SLK-16 Kevlar Shock Cord

SURGE (Hollow) Nose Shoulder

Masking Tape Wrap to Center

2" T2Plus Motor Tube

Full Size Fin (Make 3)

1/64" Ply or lite Balsa

2.8g

2.2g

Flood Area with Black for Tempest

Flood Area with Red for Hurricane

Trim Here for Tempest

Add your own graphics once page is scanned into computer!

Use 20" - 12 Shroud Dry Clean Bag Chute

Downsize the TEMPEST PD Model from an earlier Launch Rack

or Try a Reduced FAI S3 PD Model Design

or Even a Streamlined EggLofter Design

By:
Dr. Bob Kreutz