

# LAUNCH RACK

January - February 2001 Issue # 137

**Journal of New Jersey's Oldest NAR Section**



# The Launch Rack

The Official Publication of The  
Garden State Spacemodeling Society

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**JAN/FEB 2001**  
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The Launch Rack is the official publication of the Garden State Spacemodeling Society (Section 439 of the National Association of Rocketry) and is published for the enlightenment and entertainment of its membership.

Others interested in receiving this publication may do so for the annual subscription rate of \$7.50 for 6 issues. Overseas subscriptions are \$17.50. Please send this money in USD to **Arnold Klein, 2 Oneida Avenue, Rockaway, NJ 07866.**

The new Editors invite and encourage all to submit articles, photos, plans letters to the editor, etc., for future publication. In addition to articles, etc., the Editors welcome and encourage feedback on each and every issue. Please send material to:

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Visit the GSSS web site at [www.robnee.com/gsss/](http://www.robnee.com/gsss/)

As an added note, we especially welcome e-mail attachments in ASCII (.txt), MS Works, or Adobe format as well as digital graphics and digital photos. Photos that work well when converted to black and white would be the best.

Non-copyrighted material published in The Launch Rack may be used by other publications provided proper credit is given to the original author and this newsletter.

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## Your Club Officers

President ..... Jack Sarhage  
Vice President ..... Bob Gill  
Vice President ..... Steve Pantuck  
Treasurer/Secretary ..... Arnold Klein  
Section Advisor ..... Bob Zabriskie

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## LAUNCH SCHEDULE

Anyone wishing to attend any GSSS activity should call the GSSS Hotline 908-658-9417 the morning of the event to verify if the event is still on. If the event is canceled, the recording will be updated at 9:00 am.

**A NOTE ON NORTH BRANCH PARK.** Please keep in mind that the park and weather conditions dictate what we allow to fly. Just because a rocket is under the one pound limit, do not assume it is an automatic launch. If the RSO does not feel the model can be safely flown or recovered within the park's boundaries, it will not be flown regardless of the weight or impulse. If some other activity shows up and starts using adjoining fields, the RSO may reduce impulse for all flights. So bring some small stuff just in case.

**REMEMBER, WE SHARE THE PARK.** We do not pay a fee and most of us are not a resident of that county. Rocket flying fields in New Jersey are in short supply, and we are protective of the fields we have. If you're unhappy with this limitation, then we invite you to help us in gaining legal access of privately owned, large, open fields.

**UNLESS NOTED ALL LAUNCHES WILL BE HELD AT NORTH BRANCH PARK.**

**Those with \*\*, Events to be determined.**

### Saturday, March 31, 2001

Sport launch 10:00 am to 3:00 PM

### Saturday, April 28, 2001 \*\*

Sport launch 10:00 am to 3:00 PM

Possible competition.

### Saturday, May 19, 2001 \*\*

Sport launch 10:00 am to 3:00 PM

Possible competition.

### Saturday, June 23, 2001 \*\*

Sport launch 10:00 am to 3:00 PM

Possible competition.

### Saturday, July 28, 2001 \*\*

Sport launch 10:00 am to 3:00 PM

### Saturday, August 25, 2001 \*\*

Sport launch 10:00 am to 3:00 PM

# The Launch Rack

**Saturday, September 29, 2001 \*\***

Sport launch 10:00 am to 3:00 PM

**Saturday, October 27, 2001 \*\***

Sport launch 10:00 am to 3:00 PM

**Saturday, November 24, 2001**

Sport launch 10:00 am to 3:00 PM

**Saturday, December 29, 2001**

Sport launch 10:00 am to 3:00 PM

## IN THIS ISSUE:

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Simple Helicopter Duration- Upgrade Your Skywinder

## ON THE COVER:

*Your official launch site awaits you for an exciting new millennium of flying. Be there with your new projects. Photo by Theresa Flynn.*

### Meet the "New" Editors

This winter Stephen E. and Theresa Flynn dared to volunteer to take over editing The Launch Rack for at least 6 issues this year. That would have them creating a new issue approximately every 2 months. Theresa has taken the title Assistant Editor and Stephen, Editor.

Theresa has been building and flying rockets since 1982. She enjoys sport flying, the Internet, and the travel associated with attending NAR events.

Two Stephens live at the Flynn household Stephen(E) and Stephen(W) (to express it as an array). Stephen(E) is your Editor, a dinosaur, who has been flying rockets since 1972. He left competition rocketry in the early 1980's only to be a "born again rocketeer" in the 1990's. He is addicted to NAR competition (are you surprised?), high power rocketry (now TRA level 1) and computer science.

Stephen(W) leaves for college this fall. He has two national records and is looking to certifying High Power levels 1 and 2 when he turns 18.

To round out the household is Emily, the most active part of the Hyperspace Team with Stephen(E) and a sport flyer and Daniel, an avid competitor and sport flyer.

Don't let this new surge of volunteerism let you think that we want to own this newsletter for our own purposes or, that you can just sit back and let us wrack our brains to come up with each issue. The Launch Rack is your bulletin! It is the official publication of the GSSS - YOUR CLUB. Please send us your thoughts, writings, plans, etc. We need them to put out YOUR NEWSLETTER.

## NARAM IN NEW YORK!

For those of you who don't know NARAM is the National Association of Rocketry Annual Meet. Many events from fun flying to serious competition take place, also, lectures from manufacturers and information sessions with members of the NAR. There is an awards banquet at the end which is usually a very nice meal with, of course, awards for the year being given out. Members of the NAR can also certify for high power rocketry flying (HPR) at this meet. A different excuse for a vacation that is also a good time!

This year NARAM 43 is in Geneseo, NY. The events start on Friday, August 3rd, with registration at the Ramada Inn and possible level II written exam. Saturday, August 4th, sees sport flying and registration at the field. Sunday, August 5th, has the important "turn in" of the sport scale, and, research and development entries. Monday, August 6th, features 1/2A Boost Glider and 1/2A Flex Wing Glider along with the NAR Annual meeting and NAR Town meeting. Tuesday, August 7th, includes A Streamer duration and D Helicopter Duration and in the evening, NAR benefit auction. Wednesday, August 8th, has A Altitude and B Super Roc Altitude. Later, Research and Development (R&D) presentations(part 1) along with competitor's forum and manufacturer's forum. Thursday, August 9th, includes C Eggloft Altitude and in the evening Research and Development presentations(part II) and Sport Scale viewing. Friday, August 10th, features Sport Scale and sport flying at the field with the awards banquet later in the day. Remember, this info is the latest but can be subject to change! For the latest updates on the Internet go to <http://www.naram43.com>. The above stated info is from that site.

The hotel this year is the Ramada Inn in Henrietta, NY with a negotiated rate of \$62.00 plus applicable taxes per room per night. Staying over is suggested. Reservations recommended.

Any GSSS NAR members can compete at this national meet. You can attend for a few days or stay the entire week. There's a great chance your editors will be going, look for our Launch Rack Press badges. (haha)

# Launch Rack

## Competition

Competition rocketry provides the extra challenge many rocketeers may not get from their regular hobby, work, life, etc. The competition is a challenge to building skills, design skills and, sometimes, athletic ability. After awhile, you run out of unique sport kits to build and repetitively fly. With competition building and flying, you can make your best effort to fly the longest in the air (duration events), fly the highest (altitude) or build the best crafted, most accurate representation of a real NASA research rocket (scale) that attempts to fly like the real thing (scale mission points). It is one of the most rewarding things to see one of your designs pushing the limits of performance- blossoming its large, ultra thin mil parachute and hanging in the sky for a long duration flight on a small 1/2A engine.

By competing in nationally sanctioned events (such as the GSSS Fun Test Section meets) you gain national points for yourself, your club and, possibly, your team. The point standings are for the contest year and are published by the NAR. The top point scorers may be also be referenced at the NAR website, [www.nar.org](http://www.nar.org). The contest year ends with the national championships called the National Association of Rocketry annual meet or NARAM for short. At NARAM the top sections, teams and individuals are awarded trophies based on points accumulated during the year as well as at NARAM.

Besides competition, you can challenge the established national records. You can do this in any event where records are kept at any NAR sanctioned contest that is performing similar events. If a contest is officially flying 1/2A Parachute Duration you may ask to fly a record attempt in other duration events. All the records are established for each engine power class (1/4 A through G engine (where appropriate)) and are also shown at the NAR website.

Rules for the events are kept in the NAR's Sporting Code book (a.k.a. the Pink Book) that is free to all new members or may be seen online. Please note that the events are based on you crafting you own rockets. You can enter kits that you have built but do not enter those that are totally pre-made by the manufacturer such as the Redi-Rocs.

The competition year starts on July 1 each year and ends on June 30 with the exception of NARAM which is held after the close of the competition year. Contests are held by clubs or individuals and sanctioned by the NAR with results sent to the NAR where points gained by the competitors, teams and sections are registered. Any new national records are also registered. Each sanctioned contest has a Contest Factor (CF) depending on the size of the contest. Each club may only fly up to a total of 12 CF each year plus the NARAM.

Contests and Factors are arranged by size as follows:

	CF
Section Meet	1
Local Meet	1
Open Meet	2
Regional Meet	3.

This means that a club such as GSSS may decide to enter any combination of sanctioned meets hosted by GSSS, an individual NAR member or other clubs as long as the sum of the CF's of the contests does not go over 12. This idea will be covered further in another article in this bulletin.

Each contest has events that are flown for first through four place. The number of events flown at a meet is dependent on the size of the contest. Any event listed in the NAR Sporting Code may be flown in a contest as long as the event can safely be flown at the field hosting the event and the event has been listed in the contest sanction form sent in before the meet. This means that the events must be planned in advance and registered with NAR before the day of the contest. Record attempts are an exception and may be made on events not officially in the contest.

So as not to have to explain the entire NAR Sporting Code, events pertinent to NARAM and, perhaps to other contests shall be explained. These events will also tend to be flown at other contests this year (perhaps as a practice for NARAM). They are usually published by their abbreviations which follow each category below. Each event is broken out by engine class- 1/4A Engine, 1/2A Engine, A Engine, B Engine, ... up to G Engine (the engine class being flown at NARAM precedes the abbreviation below). Rockets may only use one class for each event (except in events like Sport Scale).

### Durations Events

Flights are timed by stopwatch from first motion off of launch pad to landing or until the model flies out of sight.

#### Streamer Duration (A SD)

This event almost anyone can try. The rocket must be recovered by a streamer that has to be at least 5 times longer in length than it is in width. One string attaches the streamer to the rocket. The string must be attached to the streamer at one point at one end of the streamer. The rocket may not separate into more than one piece.

#### Boost Glider (1/2A BG)

This event is for gliders boosted vertically by a rocket or rocket pod where the glider separates from the rocket or the engine ejects (a streamer must be attached to the engine). Only the glider part is timed. Glider wings can be moveable but must made of solid materials (no flex wings).

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## **Flex Wing Glider (1/2A FW)**

This event is for flexible wing gliders (like foldable hang gliders) boosted vertically by a rocket or rocket pod where the glider and the rocket, rocket pod or engine (with a streamer attached), separate and land separately. Only the glider part is timed.

## **Helicopter Duration (D HD)**

In this event the rocket must recover by rotating like a helicopter. The rocket may not separate into more than one piece.

## **Altitude Events -**

Flights are tracked by two or three tracking scopes to peak altitude or ejection. Altitude is calculated by the judges from distance and angle measurements. To get tracked, rockets should fly as close to vertical as possible and should eject a tracking powder- chalk dust, talcum powder, etc. Your local building supply store may have chalk dust used in making lines.

### **Editor's note,**

*Since altitude events require such as setup, some clubs tend to fly duration events instead. Perhaps duration events similar to altitude events could be flown by the GSSS so that members could get practice with similar rockets before NARAM. For example, C Eggloft Duration could be flown at a GSSS meet in preparation for C Eggloft Altitude at NARAM.*

## **Altitude (A·ALT)**

Simple- fly a rocket to the highest altitude.

## **Eggloft Altitude (C ELA)**

Fly a Grade A Large egg to the highest altitude and recover it without breaking or cracking it. The egg must be fully enclosed in a payload section or capsule and the capsule only opened after the flight in front of a contest official.

## **Super Roc Altitude (B SRA)**

This event is scored by multiplying the length of the rocket (in centimeters) by the altitude that the rocket flew (in meters). Each engine class has a different minimum and maximum length for the rocket. For example, B Engine Super Roc Altitude requires that a rocket be at least 100 centimeters in length. The maximum measured length of the rocket may be 200 centimeters. The rocket may actually be longer but that is the maximum score. If a 200 cm. rocket flew 100 meters, the score would be  $200 \times 100 = 20,000$ .

## **Other Events -**

### **Research & Development (R&D)**

The contestant presents a project to judges on rocketry related research or development of something new in the hobby. This event has a great weighting factor which means that all contestants who place in this event gain many points for their efforts. Please see the NAR Sporting Code for further info.

### **Sport Scale (SpSc)**

Build a model of a real sounding rocket or space shot, etc. and provide a drawing, photo and color scheme documentation of what the actual rocket looked like and you have a sport scale entry. The entry is judged for craftsmanship in making the model look like the real rocket. Make the model fly like the real rocket and get added score for mission points. Points are subtracted for flight damage.

This event also has a great weighting factor which means that all contestants who place in this event gain many points for their efforts. Please see the NAR Sporting Code for further info. NAR scale judging sheets can also be obtained to show how the event is scored.

### **Editor's note,**

*If you are interested in building a particular model, I may be able to "scrounge up" some scale data. Please let me know well in advance. A good scale model takes a long time to build.*

### **Spot Landing -**

This is not a NARAM event this year but it must be mentioned as a simple contest for all ages. The judges mark a spot on the ground and the contestants must fly their rockets so as to get their rockets closest to the spot. The entry closest to the spot wins. Measuring is in meters from the spot to the nose of the rocket. Rockets must land within 50 meters of the spot for the contestant to place.

### **Different events:**

Open Spot Landing - any rocket recovery,

Streamer Spot Landing - rocket must land by streamer at least 25 mm by 300 mm in size.

Parachute Spot Landing - rocket must land by parachute at least 15 cm square or 15 cm diameter.

The rocket must not separate into more than one piece. Only one flight is permitted per contestant.

This has been a short description of the contest events for club members who would like to try competition. Anyone between the ages of 7 and 120 is welcome to bring a rocket to the

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~~NAR contest~~, join the NAR on the field and fly in the ~~contest~~ on the same day.

## Proposed GSSS Contests

Since the GSSS is an NAR section, all NAR members in the club may fly in club section meets or compete against members of other sections or independent members representing the GSSS in local, open, regional and NARAM meets (up to a competition factor of 12 CF).

Your new volunteer editor has also volunteered to be the Contest Director for 3 meets this contest year, ending June 30. Bob Zabriskie has suggested that the meets get held starting with the April launch. That makes for NAR contests at April, May and June GSSS launches. As Contest Director I'm taking it upon myself to propose the type and events for the meets.

Let's now look at the full year of contests. One contest factor was already used last July for a Section meet, leaving 11 CF left. Some of our members go to Allentown, PA to represent the GSSS in the RAMTECH regional meet (we should all try to go this year, its not far away.). A regional meet uses 3 CF leaving 8 CF remaining. Since regional meets are larger contests than section or open meets they are usually held on one weekend. Since the GSSS field is only reserved for one day each month, the club could sponsor any combination of section and open meets. Since there is room for 3 meets, a maximum of 3 open meets may be flow. Open meets are worth 2 CF each. It appears that there are two options to the kinds of meets the GSSS could hold:

Option 1: 2 Open Meets and  
1 Section Meet

Using 5 CF out of 8, leaving 3 CF for competing in a Regional meet somewhere else in our area.

Option 2: 3 Open Meets

Using 6 CF out of 8, leaving 2 CF for competing in an Open meet somewhere else in our area.

**Please notify the Editor/CD if you have attended or intend to fly any other contests representing as a GSSS member. This will affect our schedule since we can't go over 12 CF.**

**Now here's is the part where your Editor needs your feedback.** All people who would like to compete should respond to this proposal via letter or e-mail. Since both options involve Open meets, I am proposing events for two Open meets for the April and May launches. The June Open or Section meet can be planned later (no later than May- the NAR Contest Board has to be notified of each contest at least 30 days in advance (120 days in advance for it to be published nationally)). Note that each event has

a different Weighting Factor (WF) and Open meets allow a maximum of 60 WF (See the NAR Sporting Code). The more events you fly, up to 60 WF, the more points you get.

## Proposed Meets

### April 21, 2001 Spring Challenge 2

Events:	<u>WF</u>
Streamer Spot Landing	4
1/4A Engine Streamer Duration	7
A Engine Streamer Duration	8
1/2A Engine Boost Glider Duration	17
C Engine Helicopter Duration	22
Total 58	

The GSSS could sponsor prizes such as scale model kits and egglofting kits for use in the May contest.

### May 18 & 19, 2001 FunTest Open 2001

Events:	<u>WF</u>
A Engine Streamer Duration	8
B Super Roc Duration	14
C Engine Eggloft Duration	16
Sport Scale	20
Total 58	

Scale models could be submitted for judging starting in the evening of May 18 to facilitate judging. No flying would occur until May 19. Two more scale judges would be needed, no experience necessary.

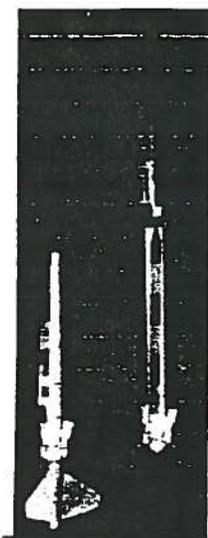
The GSSS can challenge clubs from southern NJ, eastern PA, and NY to compete with us. Last time we had independent flyers competing with the GSSS.

All of the above contest and event information is just proposed until the application deadline for sanctioning the meet which is 30 days before the meet is scheduled to be held. Give the editor 2 extra days to get the info. together for mailing.

## DEADLINES FOR RECEIVING YOUR FEEDBACK

April 28 Contest- **March 27 deadline**

May 18,19 Contest- **April 16 deadline**



### **Upgrade the Estes Skywinder™**

The Estes helicopter rocket kit is a simple kit for Helicopter Duration events. It may not perform as efficiently as other designs but it should place or at least gain flight points at small contests. Here is a way to make it a little more efficient by replacing the tail section and using less clay in the nose cone. By replacing the Estes tail section with a regular paper and balsa tail section and refraining from adding one ounce of clay to the nose cone, you can remove two ounces of weight from the model and it will be stable and should outperform the original model in contest flying.

Besides performance, reliability can be increased on both the original model and the upgraded version by using CA glue (super glue, Krazy Glue™, etc) instead of plastic cement when gluing together the plastic parts. Some Skywinders fall apart on the first flight when plastic cement is used.

To build the upgraded version, build the part above the rotor mount and the also the rotor mount as per the kit instructions (except for 1 oz of clay mentioned above). Then replace the black plastic fin unit with a three fin balsa and paper fin unit and the axle part (under the rotor mount) with a centering ring assembly to connect to the upper body tube from the kit.

Then engine tube should be big enough to hold a an C6 (18 mm diameter) motor (Estes BT-20 tube) or a tube slightly larger (19 mm diameter) to more easily hold an Apogee D10 or Aerotech D13 engine. **NOTE! THIS HAS NOT YET BEEN TESTED ON A D ENGINE** so please be careful to reinforce the model for D engine power. The original model has been flown successfully on an Estes C6-3. It may be tested on a D motor in the next few months. The engine tube must be long enough to hold the centering rings, engine (sticking out about 1/2 inch) and fins.

The 3 fins should be 1/8 inch balsa built to at least the size of the template on the next page. They must have fillets to allow a 1 inch launch lug to be mounted as high as the surface of the nose cone. A 1/4 inch length of launch lug must be mounted on the nose cone with CA glue, in line with the launch lug on the fin.

Build the Axle/Connector assembly is like building an engine mount- one tube in the middle with centering rings around the outside to fit it in the body tube. Use a piece of mini-engine (13 mm diameter) tubing with at least 7 centering rings butted up against each other to form the Axle/Connector as follows:

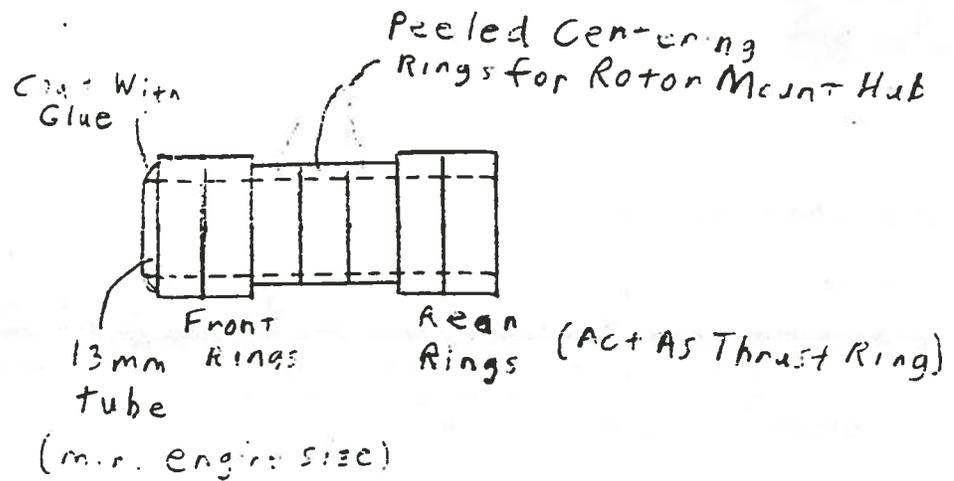
Two rings get connected to the engine tube.

Three rings follow the bottom two. The rings must be peeled so that the rotor mount fits over them like an axle. They may be coated with model airplane dope to make sure that the rotor mount rotates freely.

The top two rings attach to the body of the rocket.

Finally the Axle/Connector assembly end rings and tube should be fire proofed with yellow wood glue or epoxy glue before it is attached to the body or fin unit. The upper and lower body tubes should act to block the rotor mount from moving up and down while still allowing it to spin freely.

Please let the Editor know if you try modifying the Skywinder. We may publish the results of further tests in future issues.



## Spring Challenge, June 2000 – Results

*Editor's Note- Here is a good example of a GSSS NAR contest. The Spring Challenge was an Open Meet involving GSSS members vs. NAR members from NJ and PA flying independent of any club. It was held last year in Andover, NJ. Since this article was submitted after the final Launch Rack was published last year, it was never published except via e-mail.*

The first day started with a challenge- the wind. Since each modeler's first flight had to be spot landing (no practice flights allowed) and no one wanted to waste half of the day waiting for the wind to die down, each spot landing flight was flown with the risk of getting blown far from the spot.

The afternoon brought on calmer winds and the majority of the flights. With spot landing completed, parachutes blossomed for C Engine Eggloft Duration, D Engine Super Roc duration and 1/4 A Parachute Duration. There was only one contestant for Flexwing Duration so that event could not be flown. Chris Taylor flew the most flights of the day. Not only did he fly the contest events but also the fun events- 1/8 A (Micro Maxx) Streamer Duration and 1/8A Boost Glider Duration. He competed against the Hyperspace Team in Streamer Duration but was unopposed in Boost Glider. He kept flying Boost Glide after his official flights and clocked an amazing 60 second flight (on a Micro Maxx!). Tom Moorehead flew some great F62 powered fun flights as well as spot landing.

For lunch Theresa Flynn fired up a barbecue and we were treated to hot dogs, hamburgers, s'mores and vegetarian hot dogs and hamburgers.

A reunion of the old Sussex County Aeronautical Rocket Society (SCARS NAR Section 316) club was attempted with James Hand, Bill Dole and me (Stephen E. Flynn, the older) showing up.

Sunday afternoon was as beautiful as Saturday afternoon. The day saw Stephen W. Flynn (son), Daniel Flynn and the Hyperspace team flying their final flights. On this day the national record was broken (it has not yet been published) for D Engine Super Roc Duration with the Hyperspace team getting 18000 points. The record has yet to be published but should be on the NAR website soon.

Official meet results are as follows. Some age/team divisions were combined in order allow more competition. Normal divisions are- A, age 7 to 14, B, age 15 to 18, C, age 19 and up, T, team

Divisions were CT = C div. + Team div.      CTA = C div. + Team div. + A div.  
 AB = A div. + B div.                      BCT = B div. + C div. + Team div.

Overall Place	Contestant	Events								
		Spot Landing Meters	1/4A Parachute Dur. Place	C Eggloft Dur. Seconds	D Super Roc Dur. Place	NAR Points				
1 <sup>st</sup>	Hyperspace Team	37.821	2 <sup>nd</sup> CT	12	2 <sup>nd</sup> CT	31	1 <sup>st</sup> CTA	18000	1 <sup>st</sup> BCT	772
2 <sup>nd</sup>	Chris Taylor	7.468	1 <sup>st</sup> CT	47	1 <sup>st</sup> CT	19	2 <sup>nd</sup> CTA	6300	2 <sup>nd</sup> BCT	604
3 <sup>rd</sup>	Daniel Flynn	32.721	1 <sup>st</sup> AB	11	1 <sup>st</sup> AB	9	3 <sup>rd</sup> CTA			348
4 <sup>th</sup>	Stephen W Flynn	90.328	FP AB	9	2 <sup>nd</sup> AB					92
5 <sup>th</sup>	Thomas Moorhead	49.555	3 <sup>rd</sup> CT							32

Fun Events (non-sanctioned)- Chris Taylor took first in 1/8A Streamer Duration with Hyperspace disqualifying due to a lost nose cone. Only Chris Taylor flew 1/8A Boost Glider with no other competitors.

### Notes:

FP stands for Flight Points – it means that this flight did not place.

Spot Landing is scored by who is closest to a spot.

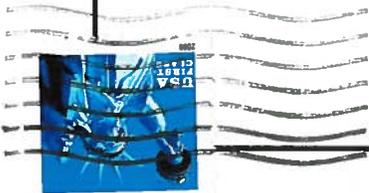
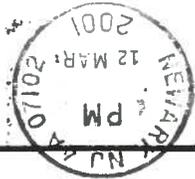
This was a successful open meet. It scored 1152 points for the GSSS section. I would like to thank all those who attended. It appears that a fun time was had by all. This is an inspiration for future Challenge meets.

**NEWSLETTER OF NEW JERSEY'S SPACE MODELING SOCIETY**  
**THE LAUNCH RACK**

Robert Nee  
 222 Willow Avenue - #2A  
 Hoboken NJ 07030

TO:

GARDEN STATE SPACE MODELING  
 SOCIETY -- NAR SECTION #439  
 Robert Zabrskie  
 3 Peachtree Road  
 Basking Ridge, NJ 07920



**GSSS MEMBERSHIP APPLICATION**

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_  
 Zip \_\_\_\_\_ Birthdate \_\_\_\_\_  
 Phone Number \_\_\_\_\_  
 NAR number \_\_\_\_\_ GSSS number \_\_\_\_\_

**Membership Category (Check One)**

- Junior (Under 16) ..... \$5.00
- Leader (16 through 20) ..... \$7.00
- Senior (21 or over) ..... \$10.00
- Family Plan (Deduct \$2.00 for each additional family member, only one Launch Rack will be sent.)

I pledge to abide by the NAR/HIA Safety Code and GSSS Constitution and Bylaws in all my non-professional rocketry activities.

Signed \_\_\_\_\_ Date \_\_\_\_\_

Send this application along with check for dues payable to: **Arnold Klein**,  
 2 Oneida ave Rockaway N.J. 07866

**DIRECTIONS TO NORTH BRANCH PARK LAUNCH SITE**

North Branch Park is very near the traffic circle junction of NJ Routes 22, 28, 202, and 206, near Somerville. Follow 202 South from the circle for 2 miles, past Ortho Pharmaceutical and Harris Corp, under railroad trestle marked "4H is Tops", to right turn onto Milltown Road. Make first left after firehouse and 4H Center on right; follow path to open field. Monthly launches from 10-4.

**FROM NORTH**

NJ Turnpike South to Exit 10, 287 North to Exit 13, 202/206 South to Circle

**FROM SOUTH**

202 North to Milltown Rd.; or 206 North to Circle

**FROM EAST**

287 North to Exit 13, 202/206 South to Circle

**FROM WEST**

Rt. 78 or Rt. 80 East to 287 South to Exit 13, 202/206 South to Circle