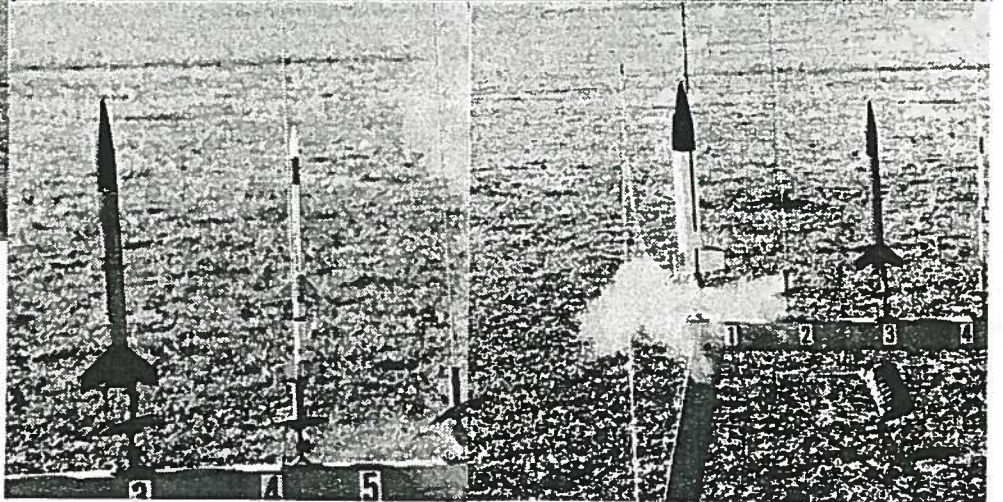
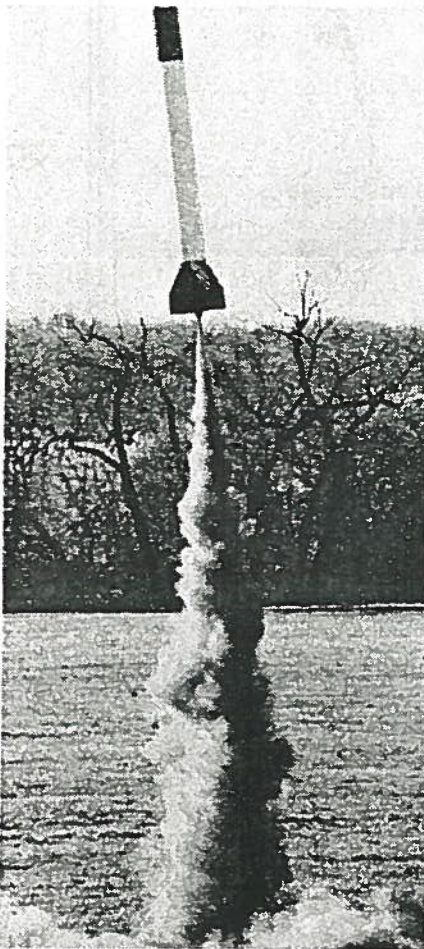


# LAUNCH RACK

Journal of New Jersey's Oldest NAR Section

ISSUE 129(62)



# The Launch Rack

The Official Publication of The  
*Garden State Spacemodeling Society*

MARCH/APRIL 1999

ISSUE 129(62)

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 payable in USD to **Arnold Klein, 2 Oneida Avenue, Rockaway, NJ 07866.**

The Editor invites and encourages all to submit articles, photographs, plans, letters to the editor, etc., for future publication. In addition to articles, the Editor welcomes and encourages constructive feedback on each an every issue. Please send all material to:

Jack Sarhage  
875 River Road  
Piscataway, NJ 08854-5549

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.

## LAUNCH WINDOW:

Anyone wishing to attend any GSSS activity should call the GSSS hotline (908) 658-9417 the morning of, to verify the event is still on. If the event is cancelled, the recording will be updated at 9AM.

**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 the adjoining fields, the RSO will 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 to privately owned, large, open fields.

Sat., March 27, 1999

10:00 am - 3:00 pm  
Section Sport Launch  
and Club Meeting

Sat., April 24, 1999

10:00 am - 3:00 pm  
Section Sport Launch  
and Club Meeting

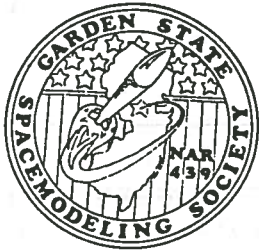
Sat., May 22, 1999

10:00 am - 3:00 pm  
Section Sport Launch  
and Club Meeting

**ALL OF THE ABOVE LAUNCHES WILL BE HELD AT NORTH BRANCH PARK**

**ON OUR COVER:** More photographs from an earlier launch by our favorite photographer, Steve Pantuck, and friend "Diane". Why not bring her to a launch so we can thank her in person. Meanwhile, thanks to you both.

**NOTE: DEADLINE FOR NEXT ISSUE IS APRIL 24**



# News From Section 439

"There is no character, howsoever good and fine, but it can be destroyed by ridicule, howsoever poor and witless. Observe the ass, for instance: his character is about perfect, he is the choicest spirit among all humbler animals, yet see what ridicule has brought him to. Instead of feeling complicated when we are called an ass, we are left in doubt"

-Mark Twain in "Pudd'nhead Wilson"

## JANUARY SPORT LAUNCH.....

There is something special about the first launch of the new year. It states that winter does not slow down model rocketry in New Jersey. And the many new rockets flown show that there is much activity in the garages, basements and at the kitchen tables throughout the state.

The first launch reaffirms that winter won't be around that much longer though February along the Mid-Atlantic can be a beast. It motivates you toward building another new "bird" or maybe repairing the one sitting on the workbench since the fall. It is now you think about trying out your "expertise" at a contest during the coming year. Ahhhh, the smell of burnt black powder does wonders for the model rocketeers soul.

But most of all I think what makes the first launch of the year special are the people that attend it. The first to arrive, as always, is Bob Zabriskie with the launch equipment so when you arrive all you have to do is fly. Ye Ole Editor and Steve Pantuck were on the scene to help him set it all up.

Long before anyone else arrived yours truly launched an out-of-production, tried and true "Ram Jet™" (Estes 1994) as both my personal and the club's first flight of the day and year. It also served as my first flight toward the "All Season Rocketeer" (ASR) award.

Bob Z. started his year off with a flying saucer

based upon "an old Centuri design". It was his ASR award flight 1, too.

Tom Whymark, NAR 9220, was on hand from Pennsylvania with several models including a new design named "Ferd's Folly". Using a cluster of four A3-4T engines the first flight was flawless. Later, on the second flight one of the four engines catoed to remind us that cold weather and solid propellant engines can create problems. Tom promises that this design will appear in a future issue of this newsletter. (*He kept his promise. Ed. Note*)

Arnie Klein was there with his "ArnieRoc" and his "Jules Memorial Roc". (Arnie lost his mother to a fire earlier in the week and I am sure you all join me in sending our condolences. Thank you for coming out during this unhappy time.)

Others at the launch were Bob Gill and another Bob, Bob Novak with several Astrocams flights one of which I believe he used as his first ASR award flight as well.. Chris Taylor and brother Matthew were there with many of Estes' RTF and E2X® rockets. Another Matthew, with father Michael Liben, had several nice flights. New rocketeer Mark Jeevaratnam braved the cold, along with Dad and a friend, to fly some newly built rockets.

The rocket and the flights most memorable to all those in attendance have to be those of Tom Morehead and his faithful helper and recovery crew Cliff (his father). Tom flew a 1/4-scale Patriot on Northstar F62 engines. The black exhaust, slow liftoff, and pleasant "pop" of the ejection charge made it an enjoyable spectator experience. At least from my angle.

And, **enjoyable** is the word that best sums up the first launch of 1999.

## CLUB MEETINGS.....

Don't forget March not only brings "The Ides" but meetings as well. They will be held between 11:30am and 12:30pm on launch days. This will allow me to get to work by 3:00pm.

We will spend most of the meeting on how to spend some of the surplus in the treasury during the rest of the year.

**WHETHER ADMITTED OR NOT WE ALL  
ARE A LITTLE BIT IRISH, THIS MONTH  
ANYWAY. HAPPY ST. PATRICK'S DAY!!**

SPECIAL REPORT.....

Bob Novak sent in information for the East Coast Hobby Show, March 13-14, 1999 at the Fort Washington (Pennsylvania) Expo Center. You can get a discount coupon worth \$2.00 by contacting; hobbyshow@aol.com.

Bob also reports that the tentative RATS dates are April 17-18, 1999.

As a follow up on his Astrocams flights he writes, "had several good flights, pictures seem to be non-existent. Only one frame may have something. We'll have to wait to see what develops. HA-HA!!!



*Plenty of Free Parking*

**1999 East Coast Hobby Show**

Fort Washington Expo Center  
Suburban Philadelphia

Saturday, March 13, 1999 and

Sunday, March 14, 1999 - 9:00am to 6:00pm

Show Office: 561 338-3177

Expo Center: 215 641-4500

\*\*\*\*\*

ROC-LIGHTNING

Manuel Mejia, Jr. has provided the model plan and says it is of the rocket used by the University of Florida to trigger lightning. They have learned that even objects like buried power lines are damaged as the lightning travels under ground. The soil is sandy so when it is struck by a lightning bolt an underground hollow tube of glass is formed. These glass tubes can stretch for many feet and are referred to as fulgurites. **This is not something to try at home.**

**SKY WATCH**

Contribution Editor: Bob Zabriskie

**MARCH**

Venus: Shines high in the West after sunset moving higher all month.

Saturn: Will pass about 2½-degrees to the left of Venus (which is much brighter) on the evening of the 19th. The crescent moon will be under the planetary duo and should be a nice configuration. Check it out.

Jupiter and Mercury: They are very low in the West at dusk and to the lower right of Venus. By month's end they are lost in the Sun's glow.

Mars: Rises around 11pm at the beginning of the month and as early as 9pm by month's end. Mars shines bright orange as it head toward a close approach in April.

Sun: Reaches the vernal equinox on the 20th at 8:46pm which is the official start of Spring in the Northern Hemisphere.

Moon Phases: Full moon on the first. Last Quarter on the 10th. New Moon on the 17th. First Quarter on the 23rd. Full moon again on the 31st which is called the Blue Moon because it is the second Full Moon in the same month.

**APRIL**

Two planets dominate the sky this month; Mars in the East and much brighter Venus in the West.

Mars: Will be at opposition on the 24th and is also coming to its every two year close approach in May. It shines fiery red orange in the Eastern sky in mid evening and moves higher all night.

Venus: Shines bright white in the West most of the evening. On the nights of the 11th through the 13th Venus will pass very close to the naked eye star cluster, Pleiades, or seven sisters.

Saturn: Very low in the West at sunset. It is lost in the Sun's glare by month's end.

Mercury and Jupiter: Not visible this month.

Moon Phases: Last quarter on the 8th, New Moon on the 15th, first quarter on 22nd and Full Moon on the 30th.

## “KitBash Korner”

By Tom Whymark, NAR #9220

This past Holiday season, I had a wonderful chance to relax and build a few rockets. In my basement, left over from my competition days, are boxes of rocket supplies. Lots of them. In addition to the parts I've collected my fare share of kits. These kits came from a variety of sources, either purchased or won at previous NARAMS, rocket conventions, or the male equivalent of a garage sale, which is attending a Hobby or Tool store, “Going Out of Business sale”. And I've got to admit I've attended a few of these. But that's another story

In one box was an old kit from MRC called the 2X2. It was a relatively simple kit. Body tube was 1.75 inches in diameter; the model is 27 inches long. It comes with a cloth parachute, has plastic fins and can be flown with either single 18mm C6-3 or a 24mm D12-7. This sport model had clean lines. It was something I could throw together in an evening, and I was looking for a simple model to build. After opening the box I decided it was time to add my creative touch to the model. So I decided to turn the 2X2 into a cluster model.

Now I have been involved with model rockets since 1965. In the late 1960's I flew the Estes Ranger, a three engine 18mm cluster. Back in those days of ignition of one motor was not given, let alone the ignition of three. However given a strong battery, some skill and a little luck, one could get all three B motors to ignite

Over the years there have been advances in igniter design. Some were from commercial sources like the Centuri “Sure Shot” or the Aerotech “Copper Head”. Others were advance by modelers who used flash bulbs to ignite fast burning thermalite fuse. However, one of the best innovations wasn't with the igniter, but instead was with a plug, which was designed to hold the igniter in place. The Estes engine plug dramatically increased ignition reliability.

With the 2X2 kit in hand, I decided it was time for some good old fashion kitbashing. I decided

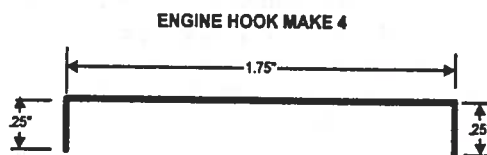
to modify the 2X2 into a 4 motor (13mm) cluster.

### Modifications to the Kit:

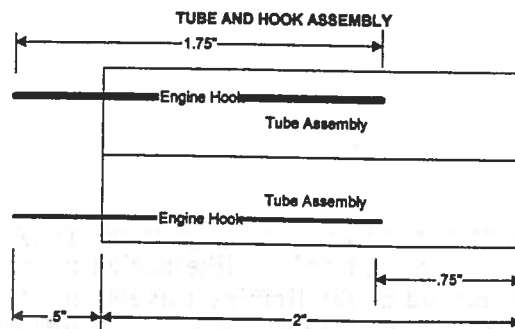
I modified the recovery system by adding a three-foot extension of elastic to the Kevlar shock cord. I threw some clay about a 1/8<sup>th</sup> of an ounce into the nose cone for added stability. Ignoring the motor the rest of the kit went together as stated in the instructions.

Now for the fun stuff, the motor assembly. I decided to make the motor assembly industrial strength, with an emphasis on ease of motor change. For strength I decided to use both 13mm and 14mm tubes. Cut four 2” sections of each tube, and glue the 13mm inside the 14mm tube. Place two 14mm tubes side by side on a flat surface and glue them together. Do the same with the other two tubes. When dry, place one pair on top of the other, and glue the pairs together.

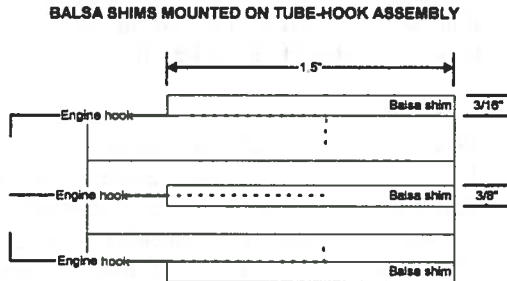
Now make 4 engine hooks. Get thin piano wire (.05” diameter), cut four 2.25” inch sections. Using wire cutters and two pairs of pliers bend the wire into the hook shape as shown below.



Make sure your 13mm "A" engine fits inside the hook. Poke a hole 3/4" from the top of the engine assembly. Mount a hook into each of the tubes. See figure below.

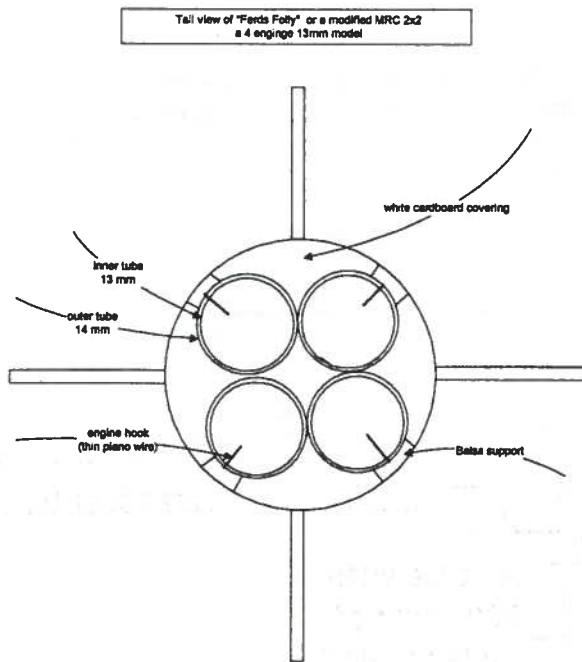


Next step is to cut 4 balsa shims (1 1/2" long x 3/8" wide, out of 3/16" basis). Glue the shims to each tube so they partially cover the hooks. See diagram below.



Check to see how the assembly slides into the tail of the rocket. Sand the balsa shims as needed. The finished assembly is now ready, to be mounted. Slide the motor assembly into the tail of the rocket, up to the edge of the shims. The 4 tubes should stick out 1/2" of the main airframe.

Finally, the tail of the model must be plugged. Using lightweight cardboard (i.e. from a cereal box) make a covering to plug all openings. Once in place spread a layer of glue to seal the cover in place. The final view of the bottom should look like the diagram below.



**Very Very Very Important:**

Make sure the back end is sealed. Failure to do so will allow the ejection charge to escape out the tail instead of deploying the parachute. If this happens the rocket will crash. To test if the bottom of the model is properly sealed; conduct the following test. Install 4 motors in the rocket, take off the nose cone and parachute; put the model to your mouth and blow. If the bottom leaks, find the hole and plug it.

**Flying:**

I flew the model three times at the January launch. The first two flights were with 4 A3-4T motors, and the third was with 4 A10-3T. The first two flights were flawless. This motor produces a nice liftoff, lots of smoke and just the right amount of delay. On the third flight one of the A10-3t cato'ed moments after the ignition. The cato caused minor damage, which I've since repaired. The model remains flyable, and I'm looking forward to the next sport launch, when I'll try A10-3T again.

**Ignition of all 4 motors is the key to success:**

Place an Estes igniter in each motor. Using the igniter plug, secure the igniter in place. Once in place carefully remove the white paper tape from each of the four igniters. Take one lead from each motor and twist the leads together. Take the second lead from each motor and twist them together into a second bundle. Make this action doesn't cause any individual igniter to break or short out. Place the model on the pad. Attached one clip to one of the twisted wire bundle, attach the other clip to the other wire bundle, and your ready to go.

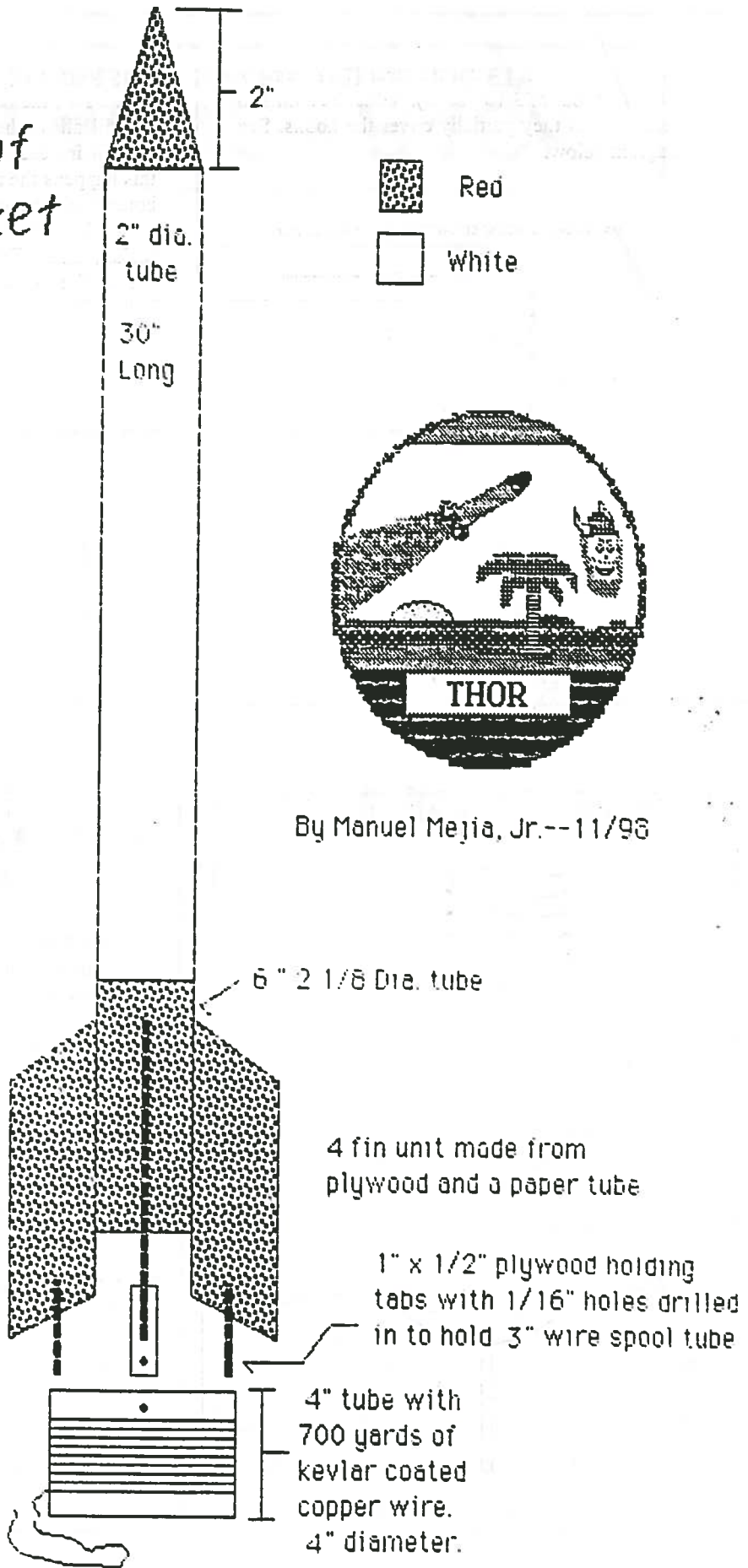
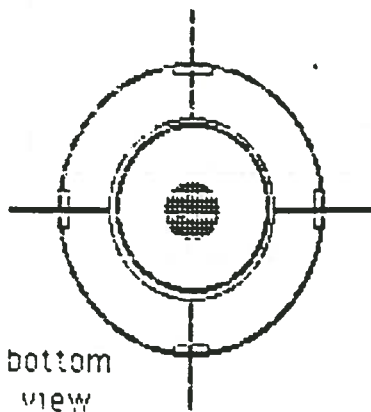
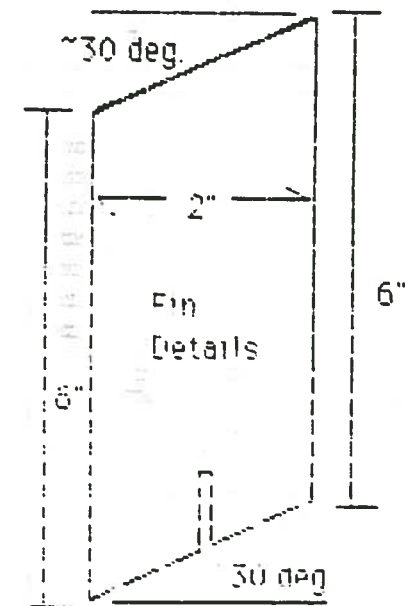
Happy flying!

**Recommended engines:**

- 4 - A 3-4T
- 4 - A 10-3T

# University of Florida Rocket for Use in Triggering Lightning

Motor Type:  
Aerotech™ type  
"F" class motors



07030X3554 03

# 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 Zabriskie  
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