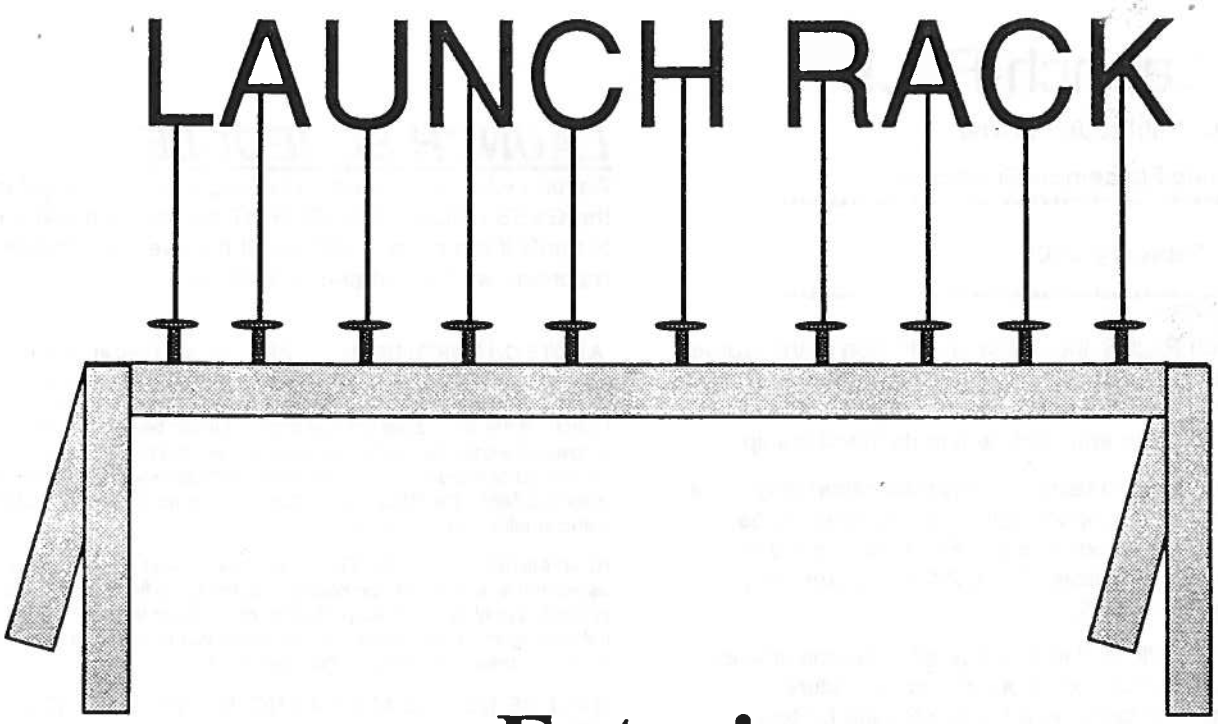
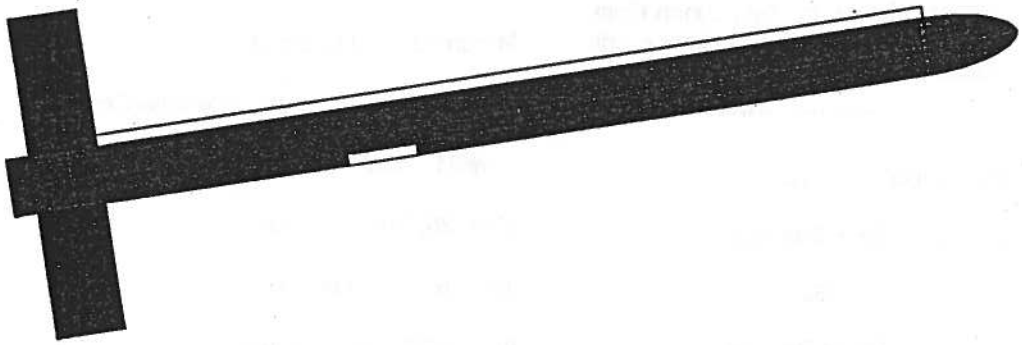
LAUNCH RACK



Extra!
GSSS-SOJAAR'S
Meet Rescheduled For
March 16



See the "Winning Streamer Duration" Model on Page 10

The Launch Rack

The Official Publication of The

Garden State Spacemodeling Society

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January – February 2003

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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 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:

Stephen and Theresa Flynn

1 Ridgeway Ave.

Blairstown, NJ 07825

e-mail: teri@eclipse.net

Visit the GSSS web site at 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.

****

Your Club Officers

President ..... Jack Sarhage

Vice President ..... Bob Gill

Vice President ..... Steve Pantuck

Treasurer/Secretary ..... Arnold Klein

Section Advisor ..... Bob Zabriskie

****

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 from 10:00 AM to at least 3:00 PM. It is possible that your Contest Director can get clearance to launch longer into the afternoon. All launches are on Saturdays and are at least Sport Launches. Some contests have yet to be decided.

SPECIAL NOTE FOR THIS BULLETIN:

These dates are pending approval from the Parks Department. Please call the GSSS Hotline about 2 weeks before the launch for confirmation.

March 9, 2003 Sojars/GSSS Open Meet in Swedesboro, NJ

March 16, 2003 Sojars/GSSS Open Meet Rain Date

.

March 22, 2003 Launch

April 26, 2003 Launch - Possible Contest

May 31, 2003 Launch

June 28, 2003 Launch

July 26, 2003 Launch

August 30, 2003 Launch

September 27, 2003 Launch

October 25, 2003 Launch

November 29, 2003 Launch

December 27, 2003 Launch

The Launch Rack

IN THIS ISSUE:

Urgent News Please Help Save Model Rocketry !

It has come to our attention through the Amateur Rocketry Society that shipping of Model, High Power and Amateur rocket motors has been stopped by major shippers because of iron-handed regulation of the motors by the Bureau of Alcohol, Tobacco and Firearms (ATF) inspired by changes in the explosives laws caused by the Homeland Security Act. By pushing the new HPR licensing rules too far the ATF has cause the United Parcel Service and FedEx to stop shipping rocket engines. Under current rules the shipping of black powder or shipping of engines with over 62.5 grams of ammonium perchlorate propellant- "H" engines and up, will require licensing and finger printing of the shipping personnel with acceptance requirements more severe than airport security screeners!

Our entire hobby's motor supply has been cut off and all rocketeers are going to be subject to unnecessary regulation. WE NEED YOUR HELP NOW! The members of the ARS have actually contact members of the US Senate and a bill has been drafted to adjust the Homeland Security Act to remove Ammonium Perchlorate as an explosive and give relief to shippers. Effectively, it should not only remove the strangle hold that the ATF has on the hobby but it should remove most of the unjust restrictions from our hobby. To achieve the goal of preserving this hobby we need your help in contacting your Senators showing your support for the new bill.

The Prez' Mess

"Model Rocketry is on the brink of disaster."
-G. Harry Stine
(at a 1980's Pearl River Modroc Conference)

When he said those words high-powered model rockets were just becoming available. He, like many of us were/are worried of the affects HPR will/has had on model rocketry. He also told us that if we did not police ourselves others would do it for us. Furthermore, he remarked that if we tried to start model rocketry then we would not be able to do it.

If we are to continue to have the privilege of enjoying our hobby/sport I feel we must distance us from HPR and amateur rocketry.

So, when I read "Urgent News Please Help Save Model Rocketry!" that thought came through stronger than ever.

Those of us that have been around model rocketry in New Jersey, and in GSSS, for a long time know what it takes to get a regulation changed, or in the case of the "Engine Permit," rescinded. It took over two years.

Two years? If they move so slow what's the hurry? They will not move slow with the Homeland Security Act banner being held high aloft. We don't have two years. You, we, have to act now to protect model rocketry as we know it.

Contact your Senators now!

++++++++++++++++++++++++++++++++++++

Michael Anderson
David Brown
Kalpana Chawla
Laurel Clark
Rick Husband
William McCool
Ilan Ramon

In the March 2003 issue of U. S. Naval Institutes' *Proceedings,* John Byron, commander of Naval Ordnance Test unit at Cape Canaveral asked, "Is Manned Space Flight Worth It?" Just ask the crew of the *Columbia.*

Jack

The Launch Rack

Here is some more background info on the effort to save rocketry:

Senator Mike Enzi is one of the main Senators developing the bill to correct the Homeland Security Act. Model Rocketry Needs EVERYONE who reads this article to either FAX or CALL their US Senator to express their support for this bill. The rest of this article is from the website and covers details about the specifics in the bill and **WHAT YOU NEED TO DO TO SAVE MODEL AND HIGH POWER ROCKETRY.**

A letter was sent to the Director of the ATFE, Mr. Bradley Buckles, by Senator Mike Enzi. The letter states that the ATFE has misclassified APCP as an explosive. Quoting from the Senator's letter to Mr. Buckles, "Congress defined an explosive as any chemical mixture or device whose primary or common purpose is to function by explosion. I am told that the ATF claims that the primary or common purpose of a rocket propellant (i.e., ammonium perchlorate composite propellant) is to explode. A rocket propellant is not designed or intended to explode.".

Senator Enzi and his staff has been working with us to get regulatory relief from the Safe Explosives Act since a few days after its passage. In late December, it was learned that a "technical corrections" bill was going to be passed by the Congress in 2003 to fix problems created by the Homeland Security Act. It was decided that this would be the bill to fix the problems created for rocketry via a rocketry exemption to be added to the Safe Explosives Act contained in the Homeland Security Act.

The exemption will work the same way as the current exemption for black powder, fuses and other items when used in antique firearms and devices. The rocketry exemption will only apply when the following materials are used in rockets which are neither designed nor redesigned for use as a weapon. The exemption would be added to Section 845 of the Safe Explosives Act. A definition for rocket propellant would be added to Section 841.

Proposed Exempted Materials From ATF Permits:

- 2 lbs of commercially manufactured black powder (2 cans)
- Safety and pyrotechnic fuses
- Quick and slow matches
- Electric matches
- Igniters
- Rocket propellant

Definition: "Rocket propellant" means any material, chemical, or chemical mixture consisting of fuel and oxidizer that provides thrust to a rocket or generates hot, high pressure gas for doing work in the actuation of various power or mechanical devices.

Helpful Hints On Your Letters & Phone Calls

There are two primary themes that should be emphasized in your letter and phone call. First, an exemption for rocketry from ATF permits and licenses needs to be moved up on the Senate calendar. Second, requiring people in hobby rocketry to get ATF permits is excessive regulation and counter productive to the interests of the country.

To make things easier for you, we have compiled a list of points you may want to include in your letter. You may have additional points to make and that is fine. The important thing is that the letter reflects your thinking, which is why we have not included a form letter. Put some thought into it and write a letter using your own words. The following are specific points you may want including in your letter and phone call.

The Launch Rack

When you talk to the staffer, please be polite and do not shout on the phone. It is easy to get emotional on this issue, but losing your cool doesn't help them understand the problem. Go over the points included in your letter and answer their questions to the best of your ability. Be honest and direct. Don't threaten to not vote for him if he doesn't help you out. Don't be offended that you are talking to a staffer and not the Senator. The staffers are more important than you realize. I can assure you your message will be directly relayed to the Senator.

List of Senators For Launch Rack Readers

Below is a list of the mailing addresses, phone numbers and fax numbers for each Senator.

Dodd, Christopher - (D - CT)
448 RUSSELL SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-2823 (202) 228-1683 Fax

Lieberman, Joseph - (D - CT)
706 HART SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-4041 (202) 224-9750 Fax

Mikulski, Barbara - (D - MD)
709 HART SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-4654 (202) 224-8858 Fax

Sarbanes, Paul - (D - MD)
309 HART SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-4524 (202) 224-1651 Fax

Corzine, Jon - (D - NJ)
502 HART SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-4744 (202) 228-2197 Fax

Lautenberg, Frank - (D - NJ)
825A HART SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-3224 (202) 228-4054 Fax

Clinton, Hillary - (D - NY)
476 RUSSELL SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-4451 (202) 228-0282 Fax

Schumer, Charles - (D - NY)
313 HART SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-6542 (202) 228-3027 Fax

Santorum, Rick - (R - PA)
120 RUSSELL SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-6324 (202) 228-0604 Fax

Specter, Arlen - (R - PA)
711 HART SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-4254 (202) 228-1229 Fax

Allen, George - (R - VA)
204 RUSSELL SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-4024 (202) 224-5432 Fax

Warner, John - (R - VA)
225 RUSSELL SENATE OFFICE BUILDING WASHINGTON DC 20510
(202) 224-2023 (202) 224-6295 Fax

The Launch Rack

Must include this one: 11)You can contact Senator Mike Enzi or Candice Cotton (224 - 3424) on Senator Enzi's staff to further discuss this issue.

12) Thank him for taking the time to read your letter (or listen to you on the phone.)

How To Send Your Letter

FAX your letter to your two Senators. Do not mail or send it to their local offices. It will not reach the key staff people in Washington, if you do. If you only mail your letter and do not FAX it, it will probably arrive about three to four weeks after you mail it to their office. That is too late. All mail is screened for chemicals and other substances in Washington. This slows down an already slow system. **FAX your letter!!!**

Sample Letter Format

We have included a sample letter below to give you some idea of how to layout your letter. The example below is for Senator Murkowski. Of course, you will address your letters to the two Senators for your state. A complete list of Senators by state along with addresses and phone/fax numbers is listed on this web page.

February 24, 2003

Senator Lisa Murkowski
322 Hart Senate Office Building
Washington, D.C. 20510

Dear Senator Murkowski,

BODY OF LETTER

Sincerely,

Your name
Your address
Your phone number where you can be reached during the day

Making Your Phone Call

Most of you probably have not called your Senator before so here are some pointers. First, identify yourself and where you live. Tell them the subject of your call - hobby rocketry exemption from the Homeland Security Act. You will not be speaking directly to your Senator. The information you have provided will allow them to route your call to the appropriate staffer.
If the staffer is not there and you get voice mail, do not hang up. Leave your name, where you live, daytime phone number and what you are calling about. They will get back to you. An example message could be: "This is Mike Nelson in Sacramento, California. My phone number is (xxx) xxx-xxxx. I'm calling about provisions in the new Homeland Security Act that require me to get an ATF permit, background check, fingerprints and be photographed. I think this is excessive to engage in a hobby. It is my understanding that these requirements are due to a misinterpretation by the ATF of the Congress's intent when they passed the Homeland Security Act. Would you please call me as soon as possible so I can talk about this in more detail. Thank you. Again, this is Mike Nelson in Sacramento at (xxx) xxx-xxxx.

The Launch Rack

Points To Include in Your Letter and Phone Call

1) The Homeland Security Act places severe restrictions on hobby and consumer rocketry that I do not believe Congress intended to impose.

2) The foundation of the problem originates from the ATF's misinterpretation of what constitutes an explosive by putting a common rocket propellant, ammonium perchlorate composite propellant (APCP), on the ATF Explosives List.

3) Congress defined an explosive as any chemical mixture or device whose primary or common purpose is to function by explosion. Clearly, the primary or common function of a rocket propellant is not to explode. If it was, then consumers would be disappointed when their rocket motors do not explode upon ignition and NASA would stop payment to contractors when their rockets do not explode on the pad. Of course, this is ridiculous. In reality, a rocket propellant is not designed or intended to explode and the ATF's decision to claim a rocket propellant as an explosive is simply wrong.

4) While the ATF's interpretation was wrong, it did not create a crisis until passage of the Homeland Security Act. Before passage, users could buy explosives within their State of residence without an ATF permit. They bought rocket motors from in-state dealers and amateurs could make and use their own rocket motors within their state of residence. Black powder used for parachute ejection charges could also be purchased from in-state dealers without an ATF permit. The Homeland Security Act eliminated that option with the new requirement that user's must have an ATF permit to buy explosives within their state of residence.

5) Under the new law, the hobbyist will have to obtain an ATF permit to buy a consumer rocket motor. Amateurs making their own rocket motors will have to obtain an ATF permit to transport a rocket motor from where they made it to where they will fly it. Even the simplest permit under the law will require the hobbyist to be subjected to a background check by the ATF, which includes fingerprints, photographs and interviews.

6) The law also requires permit holders to keep records that can be inspected by ATF agents. Since these records will most likely be kept in the permit holder's home, it will open their home to a visit by the ATF.

7) The Homeland Security Act gives faceless bureaucrats in the ATF the power to decide who participates in a harmless hobby and who doesn't. The response by many Americans to these new restrictions will be to drop out of rocketry rather than come under the thumb of the ATF. This would destroy small businesses, jobs, and educational "hands on" rocketry programs.

8) At the end of February, consumers will have to start applying for ATF permits to meet the May deadline for having their permits. Many hobbyists will start dropping out rather than apply for the permits. We only have a couple of weeks to get the law changed to provide an exemption for rocketry.

9) Due to the Safe Explosives Act, United Parcel Service has dropped shipment of rocket motors used by consumers. Rocket motor dealers, most of which are small businesses, are not able to ship motors in a way that is affordable to consumers. These business will be forced to close their doors unless immediate relief is provide by the US Congress.

10) We are asking for an exemption in the Homeland Security Act so that the materials and chemicals used in consumer rocketry would be exempt from ATF permits or licenses.

The Launch Rack

Important Correction On Zeppelin Hobbies

One of your GSSS Editors was reading the latest edition of the Sojars newsletter... and he found a partially false article saying that Zeppelin was not selling high power engines anymore. Since I was quite distressed by this news I called Zeppelin Hobbies and talked to the proprietor. I asked about his current situation with selling High Power Rocket (HPR) engines and found out that he was only stopping the sale of all engines that required magazine storage. To we who usually define our efforts in HPR as activities in the "lower end" of HPR, the reloadable H, I and J engines, there will be no change in Zeppelin's sales. The "Easy Access" motors will still be sold. The change only affects the "Restricted Access" motors – those non-reload H, I and J powered motors and all K, L and M motors that are considered as requiring specially licensed storage area. Of course this is all contingent on the ability of the manufacturers to ship more motors to him due to the current situation with the homeland security act (see other article)...

Contest Update 2003:

NARAM - Evansville Indiana

For more information see the NARAM Website:

Events:
1/4A Boost Glider
A Helicopter Duration
A Altitude
B Parachute Duration (multi-round)
C Super Roc
E Streamer Duration
F Dual Egg Loft (pending approval, may change to D)
Open Spot Landing
Peanut Sport Scale
Plastic Model Conversion
R&D (special awards, NOT for NARAM points)

Upcoming Regionals Meets:

Reach for the Sky XV May 3-4 near Pittsburgh

ECRM-30 May 17-18 in Maryland by NARHAMS

NOVAAR regional June 21-22 in Virginia

GSSS/Sojars Contests:

March 9 - Spring Challenge 3
Location Sojars large new sod farm field in Swedesboro, NJ. Both a NAR contest and a Funtest. Trophies for top A, B and top C Division. Rain date March 16.

Events	WF
B Rocket Glider	21
C Super Roc Duration	15
B Streamer Duration	9
Random Duration	10

We have yet to decide the contest year so perhaps the club can meet on future contests at the March launches. If someone would like to fly the "How Low Can You Go" meet but does not have the engines, we could either pool our remaining engines or change the engine classes before a March 23 deadline. In other words, your CD wants your input by the end of day of the March 22 launch even if it is cancelled.

Proposed Contest
April – How Low Can You Go 2003
This proposed contest is a resurrection of a GSSS contest of old. Perhaps we can have funtest prizes and/or trophies?

Proposed Events	WF	
1/4A Boost Glider	18	(Preparation for NARAM?)
C Eggloft Duration	16	(B Eggloft is just too low)
1/4A Super Roc Duration	13	
1/2A Streamer Duration	8	(In case we run out of 1/4A's)
Spot Landing	4	(The spot should be relatively close to the launcher to go with the theme)

A Plea from the Space Age

It is the morning of the Columbia disaster and not too soon to write a memorial to those Astronauts who gave their lives to the furtherence of the world's science and technology. The mission of the seven astronauts was to conduct over 80 scientific experiments but the horrible end of their mission may have shown a larger situation than any of the individual experiments revealed. The Shuttle Columbia was an old ship, over 20 years old. One can't help but wonder whether this was a factor. While we may never precisely be able to see how the disaster happened, and so, whether its age was a factor, we can see that, obviously, some situation developed that could not be handled by the current NASA facilities.

One can't expect that the situation at NASA is so enabled as to be able to be "state of the art". With budget cuts that have called into question the ability to maintain the International Space Station and the use of aged spacecraft and facilities without any kind of replacement in sight, it doesn't look like there was any effort our government to keep the space program alive.* The last Shuttle made, Endeavor, was built with spare parts. And with every attempt at cutting budgets, one has to wonder what features of the Space Program would directly or indirectly get compromised. Political "scientists" in the Federal Government have blindly cut budgets on the hard sciences. At the same time, management in NASA have removed some of the redundancy features that have caused failure in the un-manned missions to Mars*.

There was a combined government and private effort to build a replacement to the Shuttle. A "contest" was held amongst contractors to develop much of the same functionality of the Shuttle without the expense and inefficiencies incurred with the current Shuttle. A replacement was even chosen. This program was cancelled about 2 years ago by the current administration in Washington. Our own current government stopped the necessary progress that could have encouraged development of safer technologies even before completion of the replacement to the Shuttle.

So that the astronauts who gave their lives to the space program do not die in vain, and so that the health and safety of the astronauts on the International Space Station and further Shuttle missions are not compromised, one must look to increase the space budget and space efforts. The U.S. and its partners dedicated themselves to the International Space Station and they should never turn away.

* For example, one of the Mars probes was off because the measurement units assumed by one of the computer programs was wrong. Had enough checking and rechecking and proving were performed in test modes, a multi-million dollar probe would not have "disappeared" when it approached Mars too closely.

The Launch Rack

Winning Streamer Duration

By Stephen E. Flynn

I can only hope that these tips are useful if there is a future of Model Rocketry.

Back in the 1970's a set of strategies were developed to allow a rocket to use various physical effects in descent to maximize flight time mainly for Streamer Duration. While further studies were made in later years on further improving Streamer Duration designs (and I welcome more articles on the subject) the basic ideas presented do fairly well. These design methods can also be used for other duration events involving parachutes.

The methods for maximizing duration through the design of the rocket are roughly shown in the accompanying drawing. Note that this diagram was created using MS Powerpoint so it is rather crude when showing the streamer and screw-eye, etc. The main points covered here for developing winning Streamer Duration models deal with the shock cord and the streamer.

First, not the use of an external shock cord. Instead of mounting a shock cord inside the body tube where the mount can get in the way or mounting the cord to the thrust ring where it can cause problems for the wadding and wear out faster, tie the shock cord through a hole or notch in the bottom of the fin and put glue over the knot and the hole so that the fin and shock cord are firmly in place. Note that the cord can't be the thick elastic because that causes too much drag. Use Kevlar or perhaps other fire-resistant line and make the length at least 3 times the length of the body tube. Note that Kevlar gets brittle when gluing with Super Glue (CA Glue) so use yellow carpenters glue or epoxy. Of course you can make the glue over the cord and knot part of the fin fillet if you are careful.

Note now the position of the shock cord on the body when the streamer deploys. The shock cord must also get glued to the body tube up to where the center of gravity is on deployment of the streamer. The rocket body with must hang perpendicular to the fall so that the body acts to slow the decent. To build this, you need a spent engine casing, the completed body with fins and some masking tape. With the cord attached to the fin and the spent engine in the body, tape the cord to the body until and try to balance the body pependicular to the cord. Mark the balance point, a.k.a. the center of gravity of the body at deployment and glue the cord to that point. You can also fillet the cord up to that point to smooth out the aerodynamics.

Now consider the nose cone of the rocket. Of course it should be made of light materials. A screw-eye is o.k. but a loop of Kevlar or nylon will also work with the lighter QCR plastic cones or Apogee cones. To connect the shock cord to the nose, a rubber band should be used to absorb the shock.

With the rocket designed, we come to the matter of the streamer attachment. By NAR rules for Streamer Duration it has to have at least a 5 to 1 length to width ratio and be attached at only one point to the rocket by a string. The string can only be attached at one end of the streamer to one point on the rocket. The usual attachment point is the screw eye or cord loop representing the screw eye. NOTE that the shock cord is attached to the rocket at two points – the body and the nose cone so attachment there is not allowed. The attachment of the string to the streamer can be made by a long piece of tape at the corner of the streamer so that a maximum "flutter" occurs, causing more drag to slow descent.

The streamer itself can be made of paper, plastic or mylar. The thinner the material, the more streamer can be packed into the model, the slower the descent. Note that the streamer has to be rectangular but not necessarily smooth. It can be crepe paper or folded into pleats.

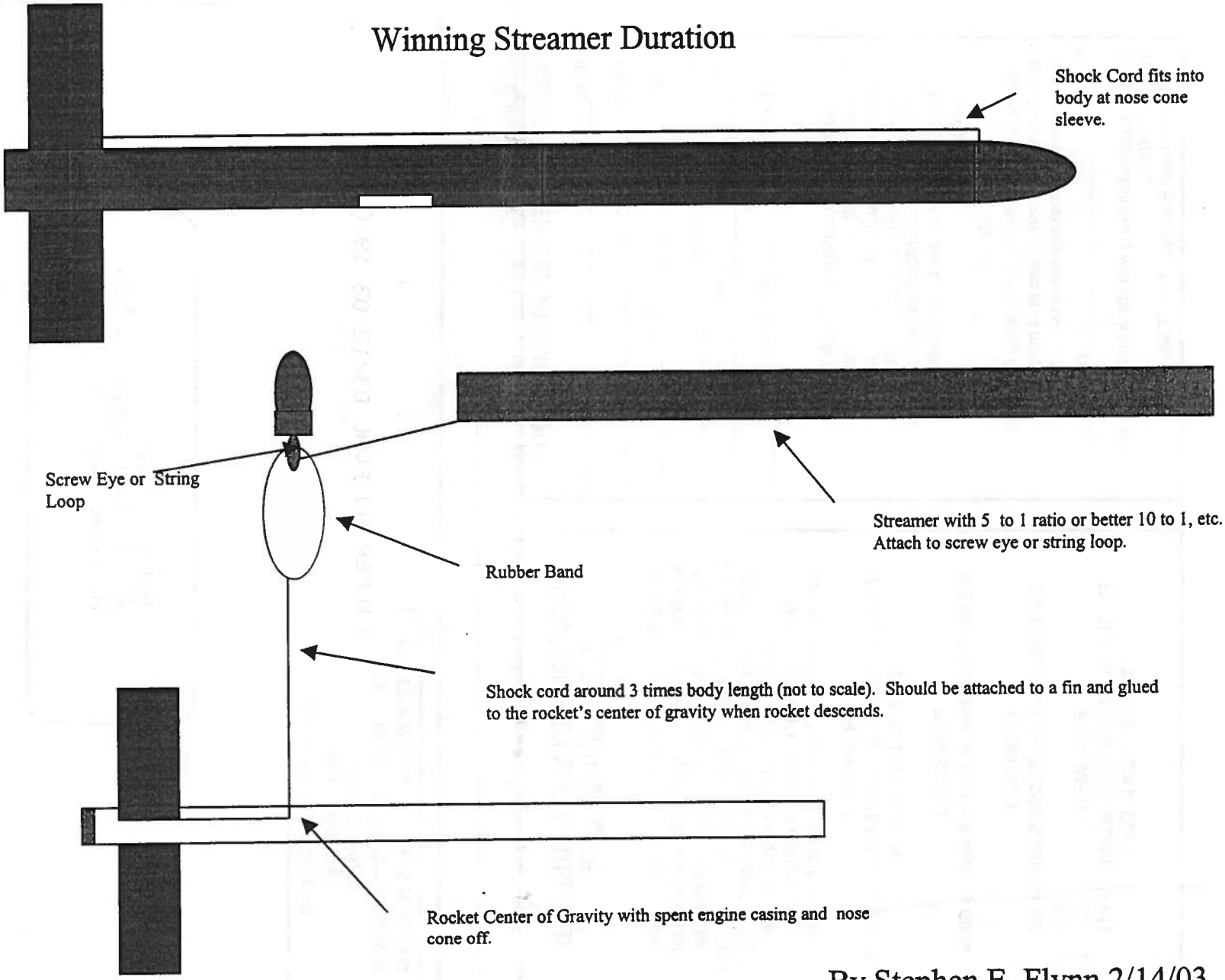
When packing the rocket, push a good amount of wading using a wide dowel into the tube. The fold or role up the streamer and slip it into the tube. It should not pack tightly into the tube or else the engine will eject or the body tube may burst at ejection. Next make spool the shock cord and pack it above the streamer or actually tuck some of the cord into the shock cord. Of course the shock cord gets run next to the nose cone shoulder to go into the body tube so it may help to sand or notch the shoulder to keep it from jamming.

Of course getting optimal altitude by having sleek paint jobs and efficient, aligned fins also helps get the maximum altitude so as to help maximize the duration. DO NOT use the fin shape shown in the drawing these are there due to your author's laziness in composition. Optimal fin shapes are a separate topic. At one time, in some 1970's MIT studies, symmetric elliptical or trapezoidal fins were shown as more efficient than other shapes. Again, I invite others for updating this information in future articles.

One way to also get an advantage at duration contests is to use a piston launcher to get more use of you motor's exhaust using a "champagne bottle" effect like a cork popping from the top. It has been approximated that a 10% boost in performance can be achieved that way. Piston launchers are a topic within themselves and shall not be covered in this article.

Another way to get the performance boost is to use a launcher that makes launch lugs unnecessary. Launch lugs provide extra friction drag on the model and should be made as small as possible when needed on a competition model. To replace the need for a launch lug one could be a piston launcher, tower launcher or pop-lug. Tower launchers are basically three or four poles (based on the number of fins that the rocket has) at least 3 feet long like a launch rod, that hold the rocket between them. The rocket must be free to slide up the tower while being held from going sideways for take-off. Pop-lugs basically keep the launch lug on the launcher while the rocket pops off the launch lug at the end of the launch rod. Tape is put on the top of the rod to hold the pop-lug piece on the rod when the rocket separates from the lug. Metal hooks or body tube pieces are used to hold the launch lug firm on the rocket before separation. Trying these methods can provide another new dimension to your rocketry experience.

Winning Streamer Duration



By Stephen E. Flynn 2/14/03

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 Millstown 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 Millstown 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

GARDEN STATE SPACEMODELING
SOCIETY -- NAR SECTION #439
Robert Zabriskie
3 Peachtree Road
Basking Ridge, NJ 07920

KILMER NJ P&DC 03/12/03 19:03

TO:

ROBERT NEE
222 WILLOW AVENUE - #2A
HOBOKEN, NJ 07030

THE LAUNCH RACK

NEWSLETTER OF NEW JERSEY'S SPACEMODELING SOCIETY

07030+3667 03