



**Tech**

## Making Foam Nose Cones

**Glen Overby**

Build-it-yourself nose cones seems to be a popular topic in this newsletter.



I've built foam nose cones out of expanding foam in paper cones (difficult to do) and with a hot foam cutter. My foam cutter is a 3' of stainless steel fishing leader on a wood frame. On one end has an adjustable bolt for tightening the wire. I power it with my 10-amp battery charger on the "manual" setting. It draws about 5 amps. I tried a shorter 1' wire, but it glowed red hot -- too hot.

The first foam nose cone I made using a hot wire foam cutter was a 6" Nike Smoke cone. The overall nose cone is 3 feet long, and was made in two sections: the tip which is about a foot long and is solid. The rest of the nose cone is square blocks over a 2-inch

*Nose Cones, continued on page 5*

**Build-N-Fly**

## Level I Junior High Power Certification

*Tethys Time!*

**Caleb Boe, NAR 83769**

I got started in model rocketry in 2003 when I read G. Harry Stine's Handbook of Model Rocketry from the library. After reading it completely I just had to buy a rocket. With my birthday money from my 11th birthday I bought an Alpha III starter set. In 2004 I joined the NAR and MASA. In Sport Rocketry I read about High Power Rocketry and the new NAR Jr. High Power program. I decided that I would try for Jr. Certification as soon as I was old enough. In 2005 I asked for the book Modern High Power Rocketry 2 for Christmas. I found this book to be very informative and very helpful. I began to look at some Loc and PML kits online. I decided upon a PML Tethys for a number of reasons. The Quantum tube, quick switch motor mounts, piston ejection, and G10 fiberglass fins made the kit very durable and versatile. Also I could easily fit my arm inside of the Tethys' 4in. tube. I bought the Tethys at NARCON from Wildman Rocketry Supply.



I began construction of the rocket in May. I added motor retention, closed eyebolts, and quick-links to the rocket. The rocket went together quite well and with very few complications.

*Level I, continued on page 2*

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After construction I began to think about how I would paint it. One day I noticed a Mustang parked in my neighbor's driveway that was painted with color changing paint. That was really cool! I decided that I would try to find color changing paint for my Tethys. At Checker Auto Parts I found the paint. The product name was Dupli-Color Mirage paint. The paint was in a 3-can kit, one can of base coat, color coat, and clear coat. I bought some Dupli-Color sandable primer to prime the rocket with. After a few coats of primer I had the rocket ready to paint. First I applied several coats of the base coat. When it was dry I applied the color coat which provided the color change. After several coats of that, I applied decals marking the center of pressure and one body's diameter ahead of it. After the final clear coat, the rocket looked great.

I am also a member of 4-H and I wanted to bring an aerospace project to the Washington County Fair, so I decided to exhibit my Tethys. I brought the finished rocket to the Washington County Fair and won "grand champion". Since I got "grand champion" I won a trip to the State Fair. I was originally planning to launch my Tethys at the August MASA launch but I discovered that it was to be judged at the State fair two days later! My parents and I decided to wait until September to fly it, just in case it was to crash or get lost in corn. I brought it to the State Fair and had it judged by an American Airlines pilot. He awarded me with a purple ribbon.



After some thought and plenty of Rocksim simulations I decided to certify with an H180 medium. For my 14th birthday I asked my parents to pay for half of the 29/240 casing, and they agreed. My dad and I went to the Tripoli



launch to buy my motor. A rocketeer had some rocket stuff for sale so I bought an H180M from him. Then I bought my casing from the vendor.

The September, 23rd launch was canceled due to rain and I was quite disappointed. Near the end of the week the launch was rescheduled to September 30th.

My family and I arrived at the launch about 9:30am. After setting up my ground support equipment I started getting my Tethys ready for flight.

Mr. Erpelding helped me prep the recovery system and also witnessed the flight. Mr.

Estenson assembled my motor and supervised the flight. By 10:30 the Tethys was on the pad and ready to go. I was pretty nervous about this flight for a couple of reasons. First I paid for this rocket with my own money and I put a lot of time into it. Second I have never had a successful flight with a reloadable motor before! It took three tries to ignite the motor as I had a bad igniter on the first two tries. Finally on the third try it lit and lifted off, trailing white smoke as it climbed into the sky. It arced over and started to fall down. After about two seconds I was expecting a lawn dart when the ejection charge finally went off and the rocket descended safely. The rocket was inspected and sustained no damage and I was certified. It was a great feeling and a sense of relief. I would like to thank Mr. Erpelding and Mr. Estenson for all of their help.

In the future I plan on flying the Tethys a couple more times on H motors and then on I motors. I would like to fly it on the Animal Works I315 Skidmark motor sometime next year. I have always admired the Skidmark propellant in pictures. When I am 18 I plan on trying for Level 2 and maybe Level 3, some day. 🚀

## MEETING SCHEDULE

### SATURDAY, DECEMBER 9 DECEMBER HOLIDAY PARTY

Location: Buzz & Kathy McDermott's house  
Time: 6 PM to 10 PM See web site for details!

## LAUNCH SCHEDULE

**NOTE: TIMES AND LOCATIONS SUBJECT TO CHANGE!  
CHECK THE WEB SITE FOR UPDATES**

### SATURDAY, JANUARY 27

Location: White Bear Lake (tentative).  
Time: 10 AM - 2 PM  
(Misfire alley launch--bring your own launch equipment!)



Jeff Taylor

## Editor's Note

# Thank You for Your Support

## Ted Cochran

Hello, readers. This will be my last Editor's Note, at least for a little while. As *Planet* Editor for the past five years, I have edited 29 issues (the odd number occurred in 2002, when we shifted from a quarterly to a bimonthly schedule) comprising 320 pages of newsletter--that's 30 Mbytes of stuff--which is a pretty good-sized book! It would not have been possible without a steady stream of contributions from club members and readers.

My duties as NAR Trustee and Safety Committee Chairman have been increasing, and I've not had the time I used to have to devote to the *Planet*. I've decided it's time to give someone else a chance at the job.

Happily, Buzz McDermott has volunteered to take over. I know first-hand how hard it can be to gather and arrange eight to twelve pages of articles, photos, plans, drawings, and the like every other month, and I know you'll help Buzz by keeping a steady stream of submissions going his way.

Buzz will also inherit the challenge of competing for the LC Newsletter trophy, for which we have been finalists on several occasions, but have never won. Good luck, Buzz!

It will be a busy year for MASA as a club--it will be our tenth year, and we'll be hosting a national event--NARCON--for the very first time. Let's all pitch in and help out!

Ted Cochran  
*MASA Planet* Editor (retired)





NARCON 2007, marking the 50th Anniversary of the beginning of Sport Rocketry, will be held in Rochester Minnesota March 8-11. The sponsoring NAR section, is, you guessed it, MASA!

Mike Erpelding is the event director, and a small group of MASA members has already begun planning for the event. As March (early March!) draws near, we will need a lot of help! If you want to help out now, please contact Mike. Even if you can't get away for meetings, but still have time to offer, please volunteer.

If you have any ideas for events, please let us know.

Think about talks, or workshops you might give. Do you have a special interest or skill to share? Any friends or coworkers who might be interested in attending, or even giving a talk on some aspect of model rocketry or the history of space exploration?

Please plan to attend: We have a special hotel rate of \$79 at the Kahler Grand Hotel, which is a superb place to get away for a weekend. There will be lots of great talks, workshops, seminars, and panel discussions. All of the NAR Trustees will be there. Ask anyone who went to NARCON the last three years in Kenosha--it's a lot of fun!

Nose cones, continued from page 1

cardboard mailing tube. I used a hole saw to cut a hole in the center of each block for the tube, and placed wood circles on the ends as forms for the wire.



The biggest problem cutting the nose cone was keeping the foam cutter straight along the forms. If one side got even a little bit ahead of the other,

the center of the nose cone would get cut shallow. I ruined my first try that way. On my second attempt, I (mostly) held the hot wire stationary and rotated the cone. This was easier with a smaller cone. This only works for conical nose cones, and I wanted to build other types of cones.

I had given up on cutting foam when I found Brad Vatsaas' web page describing how he built the "Happy Birthday Party Napkin Rocket of the Apocalypse" at: <http://www.vatsaas.org/rtv/arsenal/bradrocs/napkin/napkinrocket.aspx>. I wasn't into the apocalypse stuff, but I liked the way he was cutting foam. So I tried it for myself with pretty good results.

I made a simple cutting jig out of two boards that I



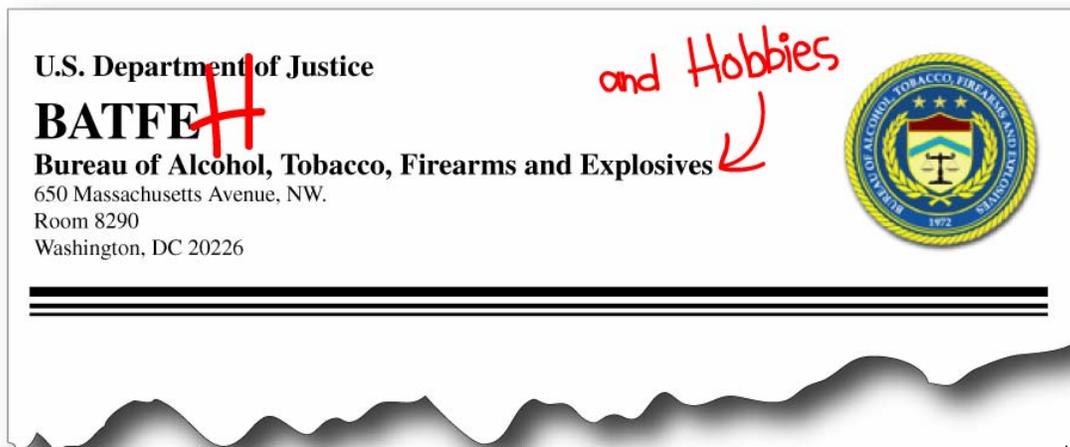
Photos by Glen Overby

clamp cardboard forms to. The nose cone is rotated on a pointed dowel in the center of the jig. Note that the dowel is offset in front of the vertical arms, to allow me some adjustment room for the forms. The toughest part is getting the body tube shoulder cut to exactly the right diameter.

After cutting to a rough shape, I sand the cone to form with coarse sandpaper, then fiberglass it for strength and to provide a surface that's easier to finish.

Wood glue does an adequate job of holding Styrofoam together, but I wouldn't trust just that for a flight. I've always fiberglassed the nose cones for structure and finish, since the foam is porous and doesn't finish well.

Cutting this pink foam causes it to give off a foul-smelling gas. I *always* wear a respirator (not a dust mask, but the type with filter canisters).



Jeff Taylor

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<http://www.mn-rocketry.net/masa/>

**MASA's 2006 OFFICERS:**

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<b>Stuart Lenz</b>	<b>Vice President</b>
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<b>Ted Cochran</b>	<b>MASA Planet Editor</b>
<b>Russ Durkee</b>	<b>Founding President</b>

Submissions may be made to the editor at: [masa.planet@mn-rocketry.net](mailto:masa.planet@mn-rocketry.net). (Volunteer quickly, lest you be asked to edit the Planet!)

**If your email address, U.S. Mail address, or phone number changes:** Please send notice of your change to [masa@mn-rocketry.net](mailto:masa@mn-rocketry.net). Include your name, old email address, and new address. We depend on email for communicating important information. When an email address starts "bouncing", we lose contact with you.

**Notable Flights**

Caleb Boe, Level 1 certification (see page 1)

**Parting Shot**



Glen Overby

*Alan Estenson's It's the Great Pumpkin Rocket, Charlie Brown, starts a hauntingly beautiful flight on an I211.*



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