

THE LEADING EDGE

Newsletter of the Northern Illinois Rocketry Association,
NAR Section #117

Volume 29, Number 2
April/May 2005

RETURN OF THE MRFF

The Midwest Regional Fun Fly has returned from its long absence of fighting the Dark Side....

MRFF is NIRA's annual two-day launch that attracts people from around the region. This year MRFF will be held June 18-19 at Bong State Recreational Area near Burlington, WI. This is a very large area and involves a very large number of rockets. Over 900 flights have been done in the past. Bring anything, bring everything.

This year's theme: Star Wars. Bring your Star Wars rockets and other related stuff to launch and show at MRFF. You can submit such rockets to the People's Choice contest. There is an adult and a youth division. Winners will be decided by the judges in both static and flight points. Static judging will be done on Saturday and flying will be done on Sunday.

Onsite Vendor! Wildman Rocketry has agreed to be our onsite vendor. Look for his wild deals at the launch!

Kitbash! Quest Aerospace is a terrific company and is donating kits for Team Kitbash this year. Each team will consist of up to 6 people. We aren't sure where we will hold the kitbash event, but it will be held Saturday either during the day on the field or after 6pm off the field. On Sunday the kits-bashed will be launched and judged. Sign up for this event and contact Adam if you would like to be a judge of this and any other event.

Raffle?!? Will we have one? We aren't certain yet. At this point we barely have enough donations to cover everything else, such as kitbash and the fun events. If you have something you wish to donate, bring it and contact Adam before submitting.

Barbeque! No one has yet volunteered to host the barbecue this year. If there is one it will be held on Saturday at 5pm.

Duty Roster: there will be 4 shifts on Saturday and 3 shifts on Sunday, each 2 hours long. Positions include LCO, Check-in/RSO, Pad Manager, Registration, and "Fun Stuff". Sign up by contacting Adam, at the club meeting, or on the field.

Registration fees:

Adult	\$10
Youth	\$8
Family	\$20
Saturday BBQ (TBA)	\$4
BBQ is \$4/person	

There are numerous hotels and motels between Burlington and Kenosha, WI. Check the yellow pages or Internet to make your reservations. Camping on site is possible. Fees and availability can vary so make sure you get your reservation in early. You can call the park at: (262) 878-5600.

Park vehicle fees:

Residents	\$20/yr	\$5/day (half for your second vehicle)
Non-Residents	\$30/yr	\$10/day (half for your second vehicle)

Camping fees (electricity extra):

Resident	\$8-10/night
Non-Resident	\$10-12/night

Check-in will close at 5pm on Saturday and 4pm on Sunday. If your rocket hasn't passed check-in by that time, it won't fly that day. MRFF is still being worked out, but we have enough to make it happen. See you all there!!! ☀

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NIRA Officers

President – Adam Elliott
Vice President – Veronica Hojek
Secretary/Treasurer – Martin Schrader
RSO – open

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Production – Lefty

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Bill Ipjan - Bob Kaplow

THE LEADING EDGE is published bimonthly by and for members of the Northern Illinois Rocketry Association (NIRA), NAR Section #117, and is dedicated to the idea that Sport Rocketry is FUN!

Articles, plans, photos, other newsletters, and news items of interest should be sent to the new editor:

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or emailed to adamnira at yahoo dot com
Photos will be returned, other material returned upon requested.

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Send membership applications (dues: \$6 per youth, \$8 per adult, \$12 per family, including a six issue subscription to the Leading Edge), non-member subscriptions (\$10 per six issues), and change of address notifications to:

Martin Schrader
0000 Street Drive

Web site: <http://www.NIRA-rocketry.org>
Email list: see website
InfoLine: coming soon



CLUB MEETING DATES

All meetings start at 7:30 pm. Bring a model for "Model of the Month." We always need volunteers for pre-meeting lectures, contact Adam Elliott if you want to schedule a date. The location is usually the Helen Plum Memorial Library, 110 Maple St, Lombard, IL

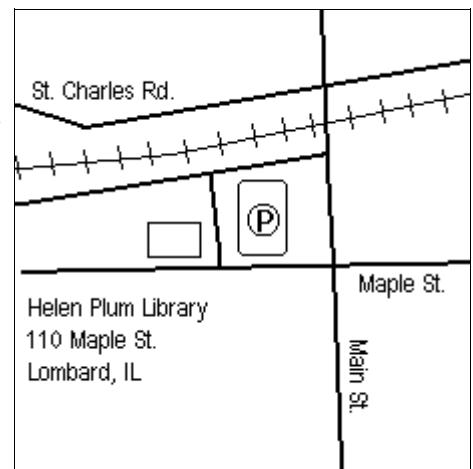
May 6

June 3

July 1

August 5

September 2



CLUB LAUNCH DATES AND OTHER ACTIVITIES

Launches are BYOL (bring your own launcher). Call the NIRA infoline for pre-launch information: there is no infoline.

As the map shows, our new launch field is the East Branch Forest Preserve but the arrangement may not be permanent! Please call/check the infoline/website before coming!

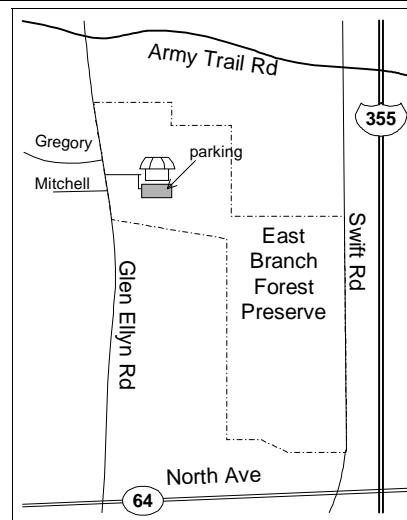
May 15

June 18-19 - MRFF! Bong St. Park, WI

July 17

August 21

September 18



Club News and Notes

RSO Needed - Bob Kaplow has decided to step down from his position as club's Range Safety Officer. Adam Elliott will be filling in for him until a new officer can be found. Contact Adam if you would like the position.

Trailer Needed - NIRA is still looking for an enclosed trailer to haul equipment, as well as people who can pull a trailer. The 5'x8' Pace American is an example of such a trailer. If you see a good deal, contact Adam right away.

NIRA Gets Room - Business room at least. The Lombard Library is gracious enough to allow NIRA to book the meeting room for six month blocks, which we will wholeheartedly do. Guess they figured out that we are serious about our business.

Website Coming Along - Our club's website, <http://www.nira-rocketry.org>, is coming along nicely and making improvements every month.

It's not quite done yet but we would like to hear from our viewers. Please feel free to contact the webmaster with any nuances, inaccuracies, misspellings, omitted items, and any other general faux pas.

Local TARC Teams a Big Success! - We don't have any details because nobody submitted anything. But we do know that some did a stellar job and are going to the nationals!!! Check out www.rocketcontest.org for (hopefully) more information.

Featured Site of the Month

<http://www.aerotech-rocketry.com>

AeroTech Re-releases E15W Single-Use Motors

AeroTech has re-released its 24mm E15W single-use model rocket motors, which have not been manufactured since October 2001.

These motors were very popular with consumers due to the fact they are the same physical size (diameter and length) as a black powder 'D' motor, but produce over twice the total impulse. The E15W also delivers more power than a black powder 'E' motor in a significantly shorter casing. They are perfect for rockets of lightweight construction as well as oversize models that need that extra bit of power.

The E15W is available in 4 and 7 second delays and in a "plugged" configuration with no delay or ejection charge. The plugged version can be used in robust rocket powered gliders such as the HobbyLab™ SR-71 Blackbird.

The E15W is defined as a "model rocket motor" and while no user certification is required, they are recommended for consumers 16 years of age or older.

The E15W can be shipped via U.S. Postal Service Parcel Post with no hazmat fee, due to the fact that the motor contains less than 30 grams of propellant. ☺

AeroTech Announces NAR Certification of F42T Econojet™, F26FJ Standard Single-Use Motors

The National Association of Rocketry's (NAR) Standards and Testing (S&T) Committee has certified two new AeroTech single-use rocket motors, the 29mm F42T Econojet™ and the 29mm F26FJ standard line.

The F42T uses AeroTech's fast burning Blue Thunder™ propellant, and the F26FJ uses AeroTech's fast Black Jack™ propellant also known as Black Max™.

The F26-6, 9FJ and F42-4, 8T will work with several AeroTech rocket kits.

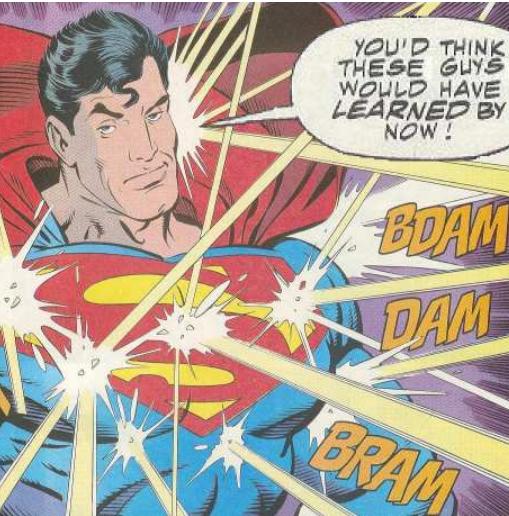
The F42T and F26FJ are defined as "model rocket motors" and while no user certification is required, they are recommended for consumers 16 years of age or older.

The F42T can be shipped via U.S. Postal Service Parcel Post with no hazmat fee, due to the fact that the motors contain less than 30 grams of propellant each. AeroTech's dealers and distributors have been notified of the new motors' pending certification and production and motors should be available for purchase by consumers in mid-May. ☺

Confused Stages - Stage 37 Uncensored The Sound, The Word, The Cape By Jonathan Charbonneau

A rocket is seen taking off in TV. The roar of its engines is heard from the moment of ignition. A hobby rocketeer plays a video he shot himself of a real rocket launch at a rocket club meeting. On the video, the rocket takes off, but it is not until T+10 seconds (that's 10 seconds after lift-off) that the sound of the rocket's engines igniting is heard. All the kids in attendance cry "what's wrong with the sound?"

Care to guess what is, or shall I say, which is wrong? Get ready for a shock. It's the launch on TV that was altered. If you were to directly observe the launch of a real rocket at the Cape it will take about 10 seconds from the moment of ignition to hear the engines roar.



A villain fires a gun at an innocent person and Superman overtakes the bullet from behind the villain. If you were the one being shot at, what would you hear first, the gun's bang or the sound of the bullet bouncing off of Superman? Well you're in for another shocker. First, you'll hear 3 sounds, not 2, and not in the order you'd expect. The three sounds are two loud sounds and a not so loud sound between the loud ones. Second, the gun's bang is the last sound you'll hear. The sound of the bullet bouncing off of Superman will be heard before the gun's bang in spite of the gun having gone bang before the bullet started its travel. "How can the sound of the bullet bouncing off of Superman be heard before the gun's bang when the gun went bang first," you ask.

The answer is in the speed of sound. Sound travels about 1/5 of a mile in one second. The bullet is traveling faster than sound and therefore leads ahead of the gun's bang. Superman is still faster than the bullet, of course. The result: sound of bullet bouncing off of Superman has a spatial head start greater than the gun's bang's chronological head start times the speed of sound. This allows the sound of the bullet to reach the observer before the gun's bang. The first sound heard by the observer is the sonic boom from Superman breaking the sound barrier to overtake the bullet.

From the above, it is clear that when a sound is produced is not the only variable affecting when a person or any observer, whether person, animal, or machine, hears it. Due to the finite speed of sound, there's always a lag between the moment the sound is produced and the moment it is heard. This lag is equal to the distance between the source and observer divided by the speed of sound. When directly observing a rocket launch at the Cape, the roughly 10 second lag from seeing the rocket's engines ignite and hearing it is because the distance between the rocket and observer is 2 miles. Two miles divided by 1/5 mile per second is 10 seconds. It takes that much time for the sound of the rocket's engine to travel from the rocket to the observer. Light is faster than sound. This is also why in a fireworks display there's a perceptible lapse of time between seeing a firework explode and hearing the explosion. Same with lightning and thunder in a thunderstorm. The thunderclap is heard after the lightning flash is seen. You can make a fairly accurate approximation of how far a bolt of lightning is by counting the seconds between the flash and the thunder. Each second is about 1/5 of a mile. The farther away the source, the longer the sound lags behind the light.

A handy-dandy way to determine altitude with a single tracker, one with elevation only, is to also use the sound of the ejection. At ejection lock the tracker and time how long the sound of the ejection charge lags behind ejection, as you'll see the ejection first, then hear it later. Multiply this time in seconds by 1000 feet and again by the sine of your elevation angle to get the rocket's altitude in feet. Multiply the time by 300 meters and again by the sine of your elevation angle to find out how many meters high the rocket was at ejection. This is not as accurate as the two-station elevation and azimuth method, but will give you a ball-park figure. ☺

Models of the Months



Over on the left, Marty Schrader won in February with his **Slug**, a mostly scratch-built design. He was probably the only entrant.

Way on the right Joe took March honors with his **Tres**, a Flis Kits clone. He beat out three other entrants. There were no youth entries.

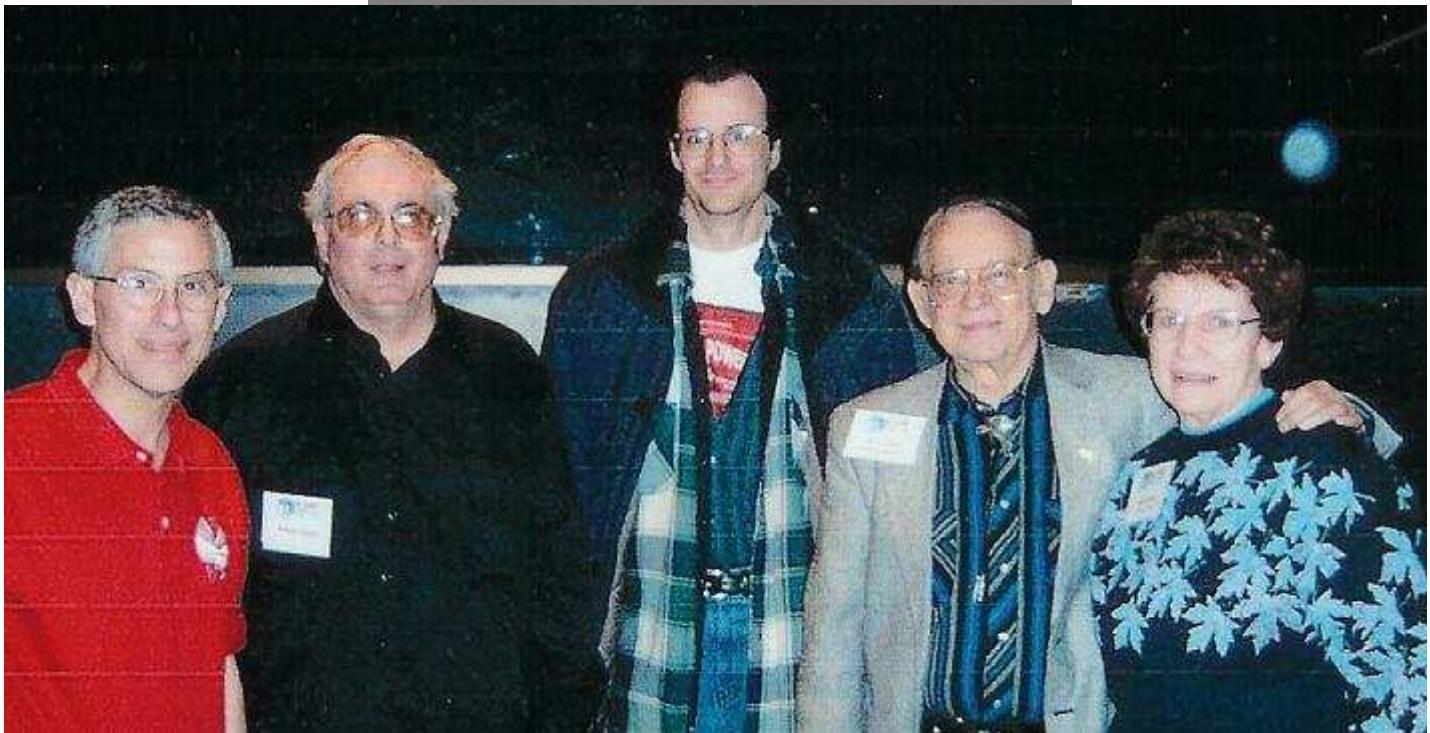


Down below, a youth entry!!! In April, Ryan Perryman stands tall as he is the proud owner of an **Estes E2X** model kit. Decorated in patriotic fashion. The short guy next to him is Adam Elliott who entered his **Delta Dummie** and took home the adult recognition. This is his original Delta and was built as a test-bed. The subsequent two have already won Model of the Month and this completes the theme with a win with all three!!!

In May, Marty Schrader once again won with his **Sound Decision**. Another scratch built, this one features five fins and a lot of surface finishing. Will we see it fly, Marty?

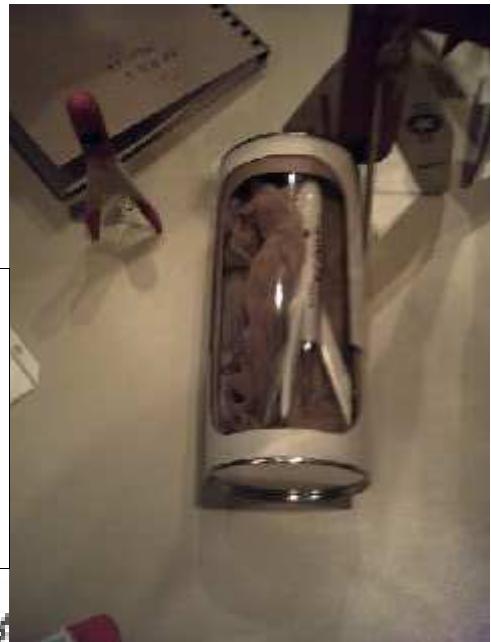


NARCON '05 - Kenosha, Wisconsin



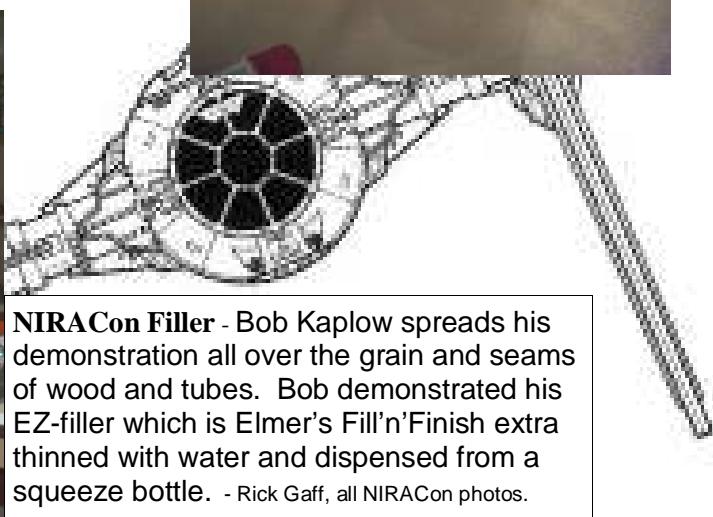
Smiling faces at NARCON '05.

NIRA's favorite astronaut Jay Apt stands on the left of club members Bill Ipjan and Adam Elliott. On the right are Vern and Gleda Estes, two of the most wonderful people you could hope to meet. Just some of the great people wandering around at NARCON '05. -Bill Ipjan photo.

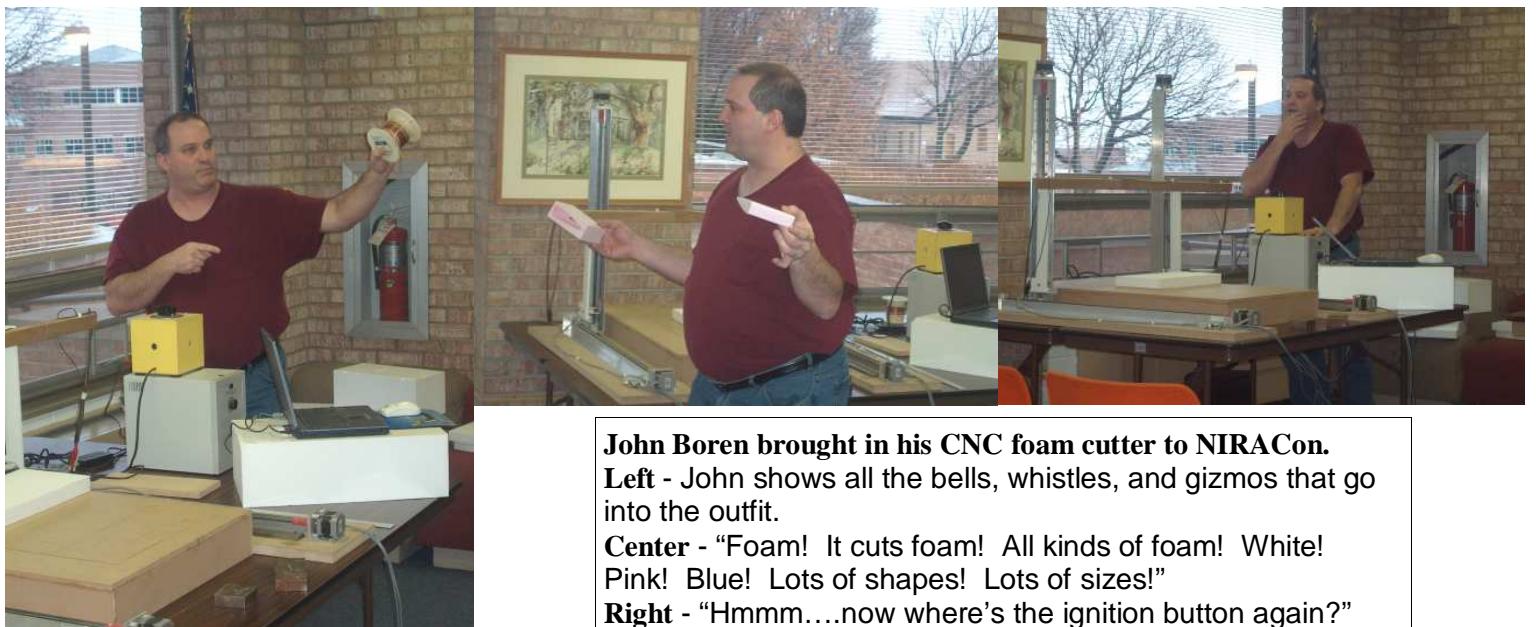


Real space rocket seen at NARCON '05

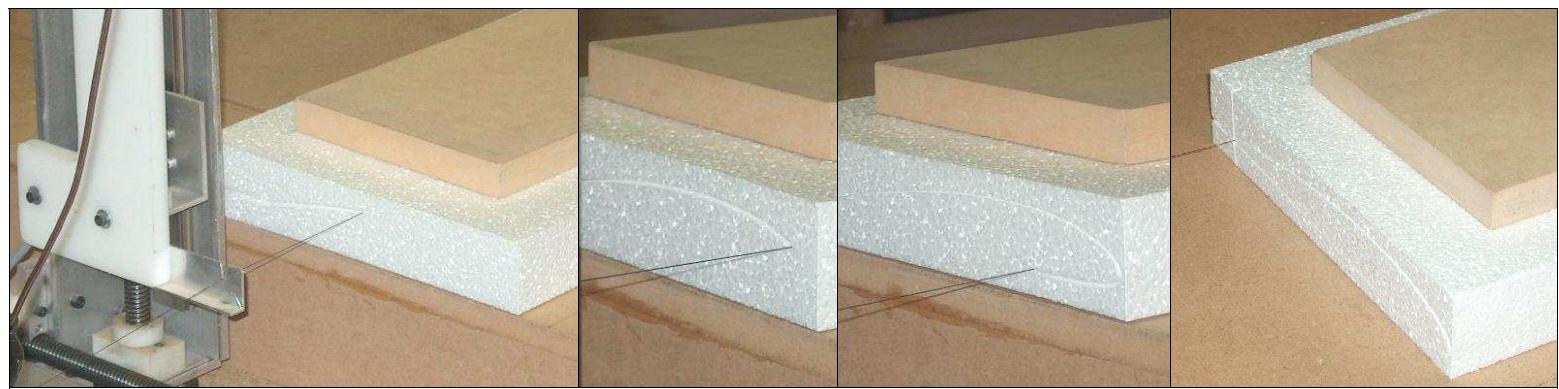
To the right is an original Estes Scout from Vern's personal collection. The rocket was placed in a canister and flown to space on the Shuttle by Jay Apt. It might have even been to MIR, the space station. Try as we might, we can't keep all the details straight on such a fun and fact filled weekend! This rocket has traveled at speeds of 17-24K miles per hour! Try that with an old Estes kit! - Bob Kaplow photo.



NIRACON Filler - Bob Kaplow spreads his demonstration all over the grain and seams of wood and tubes. Bob demonstrated his EZ-filler which is Elmer's Fill'n'Finish extra thinned with water and dispensed from a squeeze bottle. - Rick Gaff, all NIRACon photos.

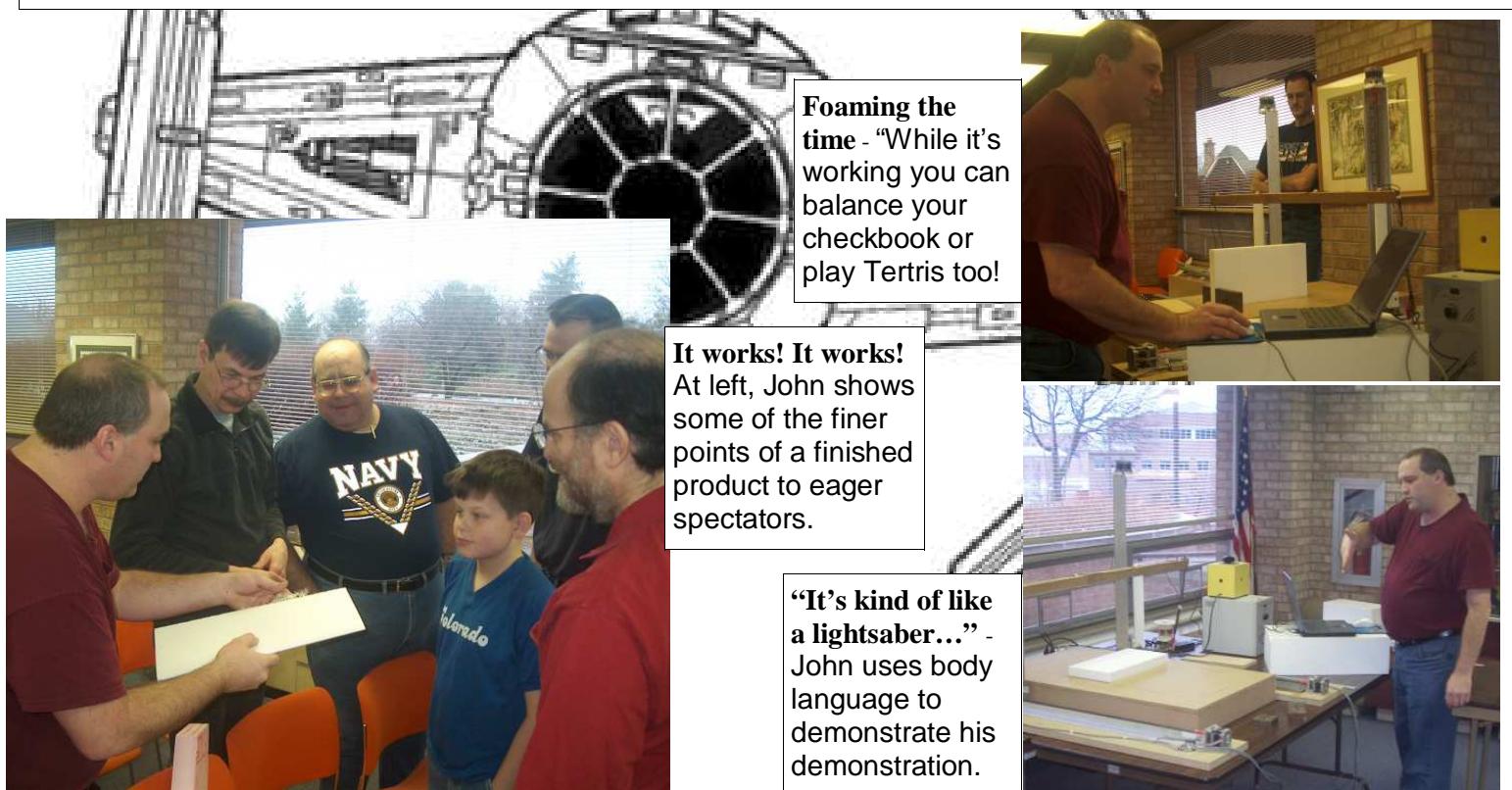


John Boren brought in his CNC foam cutter to NIRACon.
Left - John shows all the bells, whistles, and gizmos that go into the outfit.
Center - "Foam! It cuts foam! All kinds of foam! White! Pink! Blue! Lots of shapes! Lots of sizes!"
Right - "Hmmm....now where's the ignition button again?"



Cutting an airfoil: This is how it's done:

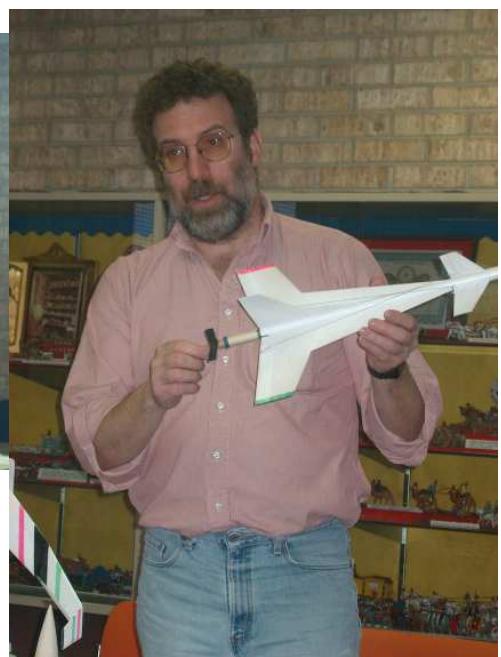
It starts by going uuuupppppp.....and then arouuunnnddd.....and baaaaccckkk.....and finally back to the beginning.



Foaming the time - "While it's working you can balance your checkbook or play Tetris too!"

It works! It works!
At left, John shows some of the finer points of a finished product to eager spectators.

"It's kind of like a lightsaber..." - John uses body language to demonstrate his demonstration.



Left and above: "Now this stuff is heavy, folks." Marty explains the qualities of sheet foam (the pre-made kind). This is sometimes paper-backed.
Right: a sheet-foam pop-pod boost-glider.



Flying foam! - More rear-ejection pop-pod boost-gliders of varying degrees of complexity. Marty says that some of them have flown!

Oh so THAT'S how they do that! John and the gang still having fun with the CNC foam cutting machine.



MUFF '05

The Return

*I've been away
for a while, But now I'm
the fun you remember
is back in full force!*

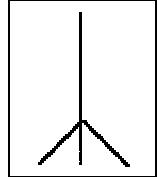
See front page for details.



I'm so proud!
John Boren shows
some of his creations
he made with his
CNC foam cutting
machine at NIRACon.
See pages 5-7 for
details.



Adam Elliott, Editor
Millennium Falcon
Corellia Yards



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