



# “We Got Hardware!”

## NIRA members do well at NARAM-48



by Bob Kaplow

The Kaplow family took a long 3 week road trip to the Phoenix area to compete in NARAM-48. It was almost 2000 miles



**Bob Kaplow preparing his helicopter model for its record breaking flight**

each way, plus side excursions and travel around town. On the way to NARAM, we stopped in Springfield IL to view the historic Lincoln Salem village. Then we zipped through MO, OK, TX, and NM, and in Arizona we visited the Painted Desert, Petrified Forest, Meteor Crater, and Lowell Observatory. We were among the last visitors to see where Pluto was discovered before it got demoted from planet status.

On arriving in Phoenix Thursday afternoon, we settled in, and visited some friends in the area.

The weekend sport launch was hot enough that we didn't have much energy for running around. Bob flew his usual food containers, plus a classic NCR Big Brute with a Bunny paratrooper on board. Rachel and Judy just relaxed and hid from the sun. Goddard was smart enough to stay in the air conditioned room all week. We were joined under the E-Z-Up farm by Mark and Rick from FVR,

the Timberlake family from NIRA, and Tom Beach and Joyce Guzik from NM.

Monday was Random Duration. 120 seconds, the maximum value, was randomly chosen at the contestants briefing. Rachel flew for about a minute and placed third. Bob's "T-shirt Bandit" (with Jerry Irvine's picture on it) caught a thermal and flew for over 200 seconds. Moose and Squirrel placed 4th, and NIRAs Adam Elliott placed 1st! Then we flew multi round 1/4A PD. We both had some deployment problems and finished out of the money.



**Adam Elliott and his rocket.**

Tuesday was B BG multi round and B ELD. We both flew our gliders first, as the air was pretty dead, and they took less work to prep. No one had spectacular BG flights, but Bob put up 3 consistent 2 minute flights for a first, and Rachel had 2 good flights and a red baron that managed to glide for a

second. Alas, we ran short of time, and barely had time for one ELD flight each. It took too long to prep the 57" chutes, so we both flew with 30" chutes and finished just out of the money. We did share an egg for both flights.

Wednesday was F Altitude. Rachel didn't fly the event, and Bob put up a chump change flight, a Quest Lightning with an

F20-7 that flew well and was tracked at just over 1000m. NIRAs Ian Timberlake took 4th in his only competition flight  
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Rosemont- NIRA members volunteered for the make-it take-it event at the annual iHobbyExpo at the Donald E. Stephens Convention Center. Quest Aerospace donated 1,000 Nike-K kits for our members to pass out.

Show attendees were given personal-



ized instruction on how to assemble their new rocket kits. The Nike-K kit included a plastic fin can and plastic transition section.

About 800 rocket kits were assembled, and the attendees were invited to a special post-show launch on October 29th.

It appeared that about 15 kids and their families showed up at the launch.

# Can You Help Out?

by John Hojek

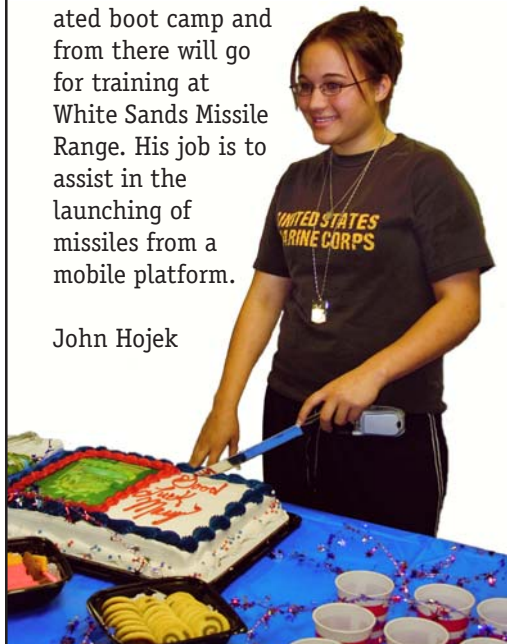
As we are about to close out another successful year at NIRA I would like to THANK all of our members who have volunteered this year. Whether it was at a launch, meeting, scout launch, or other special activity. You may not realize it, but every time you help out you make it possible for the members to enjoy another safe family activity. This year I have seen many of our junior members helping set up and take down the range. We had juniors helping out at

## Thank you

I would like to take this opportunity to Thank all NIRA members who helped give my daughter Mary a big send off at the September meeting. Mary has completed her first four weeks of training and is still happy with the decision she made to join the MARINES. She claims she has not been yelled at for anything "BIG" yet. It is amazing how quickly my little girl has grown up. She is scheduled to graduate a Marine on December 8, 2006.

I would also like to update NIRA on another absent member. My oldest son John who was in the Navy for four years and was discharged last October has informed us that as of two weeks ago he is now in the ARMY. He is currently in New Mexico for an abbreviated boot camp and from there will go for training at White Sands Missile Range. His job is to assist in the launching of missiles from a mobile platform.

John Hojek



MRFF also. We have had greater participation at the model of the month activities too. I am extremely happy to see all the participation by so many members.

I would ask that as we close out the year and get ready to begin a new year that you continue to help your club grow. We always need members to help out at a scout launch, hobby show, high power activities and future club launches. We will continue to need your assistance in setting the range up, gate duty and tear down. We also need members to assist in hauling the equipment back and forth from the field.

I would also like some members to step up and help us out in a serious matter. We need club members who have room at their place of business or garage or storage shed to help store some of the club equipment. Right now all the equipment is being stored at Marty Schrader's Garage and storage shed. Marty has graciously allowed us to store the equipment at no charge. However Marty would like to park his car in the garage this winter. So if any member has some extra space to store and bring out some of this equipment YOUR CLUB WOULD GREATLY APPRECIATE IT. Better yet, if you know of a small trailer that we could have donated or purchased for a low cost to store and haul the equipment please let one of the officers know. THANK YOU TO ALL CLUB MEMBERS WHO HELPED OUT THIS YEAR

## Speaking of helping...

We have scheduled the next NIRA-CON for February 17, 2007. This is a great opportunity to socialize, educate, get educated, or just get a rocket fix during the winter months. At this years NIRA-CON we will be having the Auction where you can spend the NIRA Bucks that you have been earning. I am currently working on the agenda so if you would like to participate or give a presentation please let me know ASAP.

So if you want to create a new program, show us how you make those

rockets look so nice, make them go so high, or make them from every day materials, let me know and you can be scheduled. This is a fun event so please mark your calendars and plan on attending. For all those who would like to show off their culinary expertise please feel free to make and bring a snack or goody to share. I would also like to have another club make it take it so if you would like to volunteer just let me know. I can be reached at:  
vicepresident@nira-rocketry.org

## THE LEADING EDGE

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# NARAM-48 continued

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of his first NARAM. Top flights exceeded a mile. F Altitude also generated lots of unstable rockets, cruise missiles, and prangs, including the winner of the Best MidWest Qualified Flight, Jim Brower.

Thursday was 1/2A SD and B HD. Bob flew 2 nominal SD flights, and Rachel had one nominal flight and a second flight where a wimpy ejection didn't get the streamer out. Later inspection showed that the clay cap had blown out as an intact disk, and hadn't even charred the wadding. But since it ejected the nose, it was a DQ. We were both surprised to find that we'd taken First and Second respectively. Moose and Squirrel took first in Team. For B HD Bob flew is old reliable Rotacrock 24. The first flight was about a minute, typical for the event. The second flight caught lift, and flew for 5:20, a new US record, and a first place. Rachel's model was a clone of dad's but was unstable both flights and pranged.

Friday was Scale and FF Scale. We didn't have time to build FFS models. A lot of rocketeers forgot the difference between Sport Scale and Scale, and submitted incomplete data packets. Several models were DQed or severely downgraded as a result. Rachel flew last years giant Astrobee-D to a 4th place, while Bob's rare classic Centuri IQSY Tomahawk was damaged in the scale room, then further damaged by the judge. It was never in contention anyway, but the NARAM craftsmanship arrangement showed a clear lack of respect for these models.

Two surprises came at the awards banquet. Rachel won the Gregorek award for her HD model in spite of its prang, and Bob took second in C division for the meet, just 2 points ahead of Bob Koenn in third, but well behind Chad Ring. And when we finally saw the section scores, FVR was 4th at NARAM in its first showing!

We stayed in Phoenix for 3 more days, visiting the Heard museum, the Desert Botanical Garden, Science Center, and Zoo. Those out door trips were as

brutal as the flying field, and Phoenix rush hour is almost as bad as Chicago.

Tuesday morning we finally hit the road, and went to see the Grand Canyon. It's impossible to describe the first time you see this natural wonder. We spent several hours along the south rim. At



**Rachel Kaplow with her helicopter model that won the Gregorek award**

the east end were a bunch of condors cliff diving and soaring in the air currents. We spent Tuesday night in Winslow Arizona, and Wednesday morning we were "Standing on the Corner". Then we headed off to New Mexico where we visited one of Judy's retired Harper colleagues in Santa Fe, and then on to the offices of Sport Rocketry in White Rock. Joyce was at a conference in England, flying direct from NARAM in Phoenix, but Tom is always entertaining. Their home is an interesting mix of ockets, cacti, and a grand piano.

From there we headed home in 2 long days of driving, through CO, NE, and IA, stopping in Newton IA at the Maytag Cheese shop. Alas it was too late to stop a bit east in Montezuma and visit Sig as well. By the time we got home, we'd logged almost exactly 5000 miles on our 2001 "Space" Odyssey.

## TARC achievements

**Tom Pastrick**

At the Team America Rocketry Challenge, a Team from Cicero, IL poses with Astronaut Buzz Aldrin (the second person to step onto the Moon).

In their first year in this nationwide competition, made a good Qualification Attempt, and was in the top 100 schools in this country. Their luck ran out in the

Finals flight, their onboard fresh egg broke, and they were disqualified.

As in the previous 3 years, the Finals were held at the same field that was also had a NARAM. Located about 35 miles from Washington, DC, the field is



in a grassy picturesque area at The Plains, Virginia.

Up to the deadline, a total of 10 Teams in Illinois made their Qualification Flights at NIRA's East Branch Field, 5 of them, Oregon, 2 Teams from Park Ridge, Rockford, Cicero, had scores that got them to the Finals. At the Finals, the Boy Scout Team from Oregon, IL placed 6th and came away with \$3,000 for the Scouts and another \$1,000 for their Pack. This was the first time that any Team placed in the top 10 and came home with some money.

Park Ridge Team #2, and Rockford received an invitation to make a proposal to NASA to build a science experiment and design and build a rocket to take it to 1 mile high. Park Ridge's Proposal, over 60 pages, was accepted by NASA. NASA must have been extremely impressed with their Proposal which included a careful budget, to give them an unprecedented invitation to submit a Proposal again next year without needing the TARC Finals.

Prior to TARC, NASA gave out only 6 Student Launch Initiatives (SLI) per year. With the second year of TARC, NASA has been giving out 25 SLIs to the top 25 at the Finals. NASA is very impressed with the TARC program encouraging students to go into science and engineering careers.



# Confused Stages- #38

**Jonathan Charbonneau**

An 'M' powered pyramid takes off and curise missiles. The roar of the engine is higher in pitch than common sense says it would be. An Extreme 38 takes off on a Blue Thunder™ "I" engine, flies straight up, and the roar of its engine drops in pitch by more than an octave as it ascends.

"How is it that the "I" is dropping in pitch when the "M" didn't?" exclaims Bill, rocketeer who plays alto and tenor sax. "And, how did the "I" get lower in pitch than the "M", period?" he adds.

Others, who also play musical instruments are likewise stumped by the above. They all expected the "M" to be

pressed, raising the apparent pitch of the sound. As a source recedes, the sound waves are stretched out, lowering the apparent pitch. The faster speed of the source's motion, the greater the effect.

The "M" powered pyramid is a draggy model, flying slow, hence the apparent pitch of the "M" is nearby that of the M's true pitch. Likewise, with the Saturn V model on the D12-3. The Extreme 38 on the "I" and the Black Brant II on the D12-7 are higher performing models that fly faster, hence the greater drop in apparent pitch of the

observer and moving source, the equation is-

$$f' = f \left[ \frac{v}{v \pm v'} \right]$$

f' = frequency heard by observer (apparent frequency)

f = source frequency (actual frequency)

v = speed of sound in air

v' = speed of source

Frequency is measured in cycles per second or hertz.

If you can easily recognize the

lower in pitch than the "I" because the "M" is much bigger than the "I" and in music, bigger instruments are lower pitched than smaller instruments.

Later, a drag race is run between a 1/100th scale Saturn V on a D12-3 and a Black Brant II on a D12-7. As the rockets ascend, the D12-7's roar drops in pitch noticeably while the D12-3 hardly drops in pitch. The musicians cry, "That's impossible!" believing that a D12 is a D12 and all D12's should sound the same.

Can you figure out what's going on here? And, as if that wasn't enough, Syed bets his life that the "I" powered Extreme 38 has busted mach, in spite of no sonic boom; basing or shall I say basing his bet on the drop in pitch of the engine's roar. All the other musicians swear, "You're crazy!" to Syed and bet he's wrong. Can you figure out who's the fool? Think about these before, or shall I say Concert "B4" reading further.

The preceding is a couple examples of a common phenomenon called the doppler effect. Chances are you've experienced this more times than you can count. Whenever a train passes by, it sounds lower after it passes by than it did before passing by. As a source approaches, the sound waves are com-

engine.

On the question of who's the fool, if you guessed Syed to be the fool, I'm sorry to say that you're wrong. The Extreme 38 did bust mach. The reason no sonic boom was heard is because the rocket was already receding from the observer when it reached and busted mach. The victim in the shooting in stage 37 heard the sonic boom of superman because he or she was in front and Superman was approaching while busting mach.

The Doppler effect can be used to determine the speed of motion of the source of a sound. For a stationary

interval between or shall I say Concert "B"tween the engines true pitch and the apparent drop in pitch, the frequency ratio can be determined and hence, the speed of the rocket in mach can be calculated. This was how Syed deduced that the Extreme 38 had busted mach. When a source is receded at the speed of sound, the apparent pitch is exactly one octave lower than the actual pitch. Less than one octave, subsonic; over one octave, supersonic.

Feel free to see at a meeting if you would like to learn more. I recommend that everybody give music a try. It's fun and you can learn something.

For music buffs, frequency rations are related to intervals. These ratios are as follows:

Major second	(whole step)	8 to 9
Perfect fourth	(2-½ steps)	3 to 4
Perfect fifth	(3½ steps)	2 to 3
Perfect octave	(12 half steps)	1 to 2
Major ninth	(octave + whole step)	4 to 9
Perfect eleventh	(octave + fourth)	3 to 8
Perfect twelfth	(octave + fifth)	1 to 3
Perfect fifteenth	(2 octaves)	1 to 4

this is not an all inclusive list.

## Allison Butler wins 4H Rocketry Award

Allison Butler entered her Princess II rocket in the Kendall County 4H Fair. She won first place in the Aerospace category. The rocket was a modified Estes Baby Bertha.

Part of the competition included an interview with the judge about the



various parts of the model rocket. Allison's experience with building rockets for NIRA's rocket of the month competition really helped her out with the interview phase of the competition. Most of the older kids didn't have the experience of having built a lot of rockets, so many of them weren't familiar with all of the component names.

Allison and her Dad initially joined NIRA as part of Allison's work for 4H.

## It's Renewal Time Again

**Marty Schrader**

Starting in January 2007 NIRA is converting to an Annual Membership Renewal program where all memberships are due NO LATER THAN the first meeting of the year.

We are including in this newsletter a copy of the application form to be completed and returned with your check as soon as possible. The application can be turned in to Marty Schrader at the meetings or through the mail. They cannot however be turned in at the field due to Forest Preserve restrictions.

Please keep in mind that your accumulated NIRA Bucks for 2006 will be lost if you allow your membership to lapse. You will be wanting those NIRA Bucks come Saturday, February 17, when

we have the auction at the 2007 NIRACon.

In the event you would like to include an additional donation to the club treasury or to any of the programs we have going it would be greatly appreciated. Thank you.

## Recent meetings

### Need a custom body tube?

NIRA members have been very busy lately. Our September meeting included a presentation by Rick Gaff on making custom body tubes.

Sometimes you need a tube size that isn't commercially available, and Rick showed us how to 'roll your own.' This is an especially useful technique for large body tube sizes.



### Airbrushing anyone?

Pat Butler demonstrated how to use an airbrush to paint your rocket. He showed us how to use acrylic paints and how quickly acrylic paints dry when using a hair dryer. This allows you to paint your entire rocket, even with multiple colors, in only an hour or two.

### Boost gliders are always fun

NIRA member Marty "boost glider" Schrader talked about the various types of boost gliders that are available. He brought some of his own models for our group to look at. Marty can usually be seen with his latest creations at NIRA's monthly launches.

## Considerations for 2007

**Bill Ipjan**

Since this is the last newsletter for 2007 I would like to point out some items that I believe need to be taken up by the club and the new officers in 2007.

- 1) Up to date membership list with correct member information
  - 2) More than 1 name on NIRA'S bank account
  - 3) A means to communicate with members from the launch sight
  - 4) Finding another launch sight - one that can also be used for HPR- that way we can have launches when East Branch is unavailable
  - 5) Having 2 years worth of launch dates on the web sight in order to help with planning of scout launches
  - 6) Having a scout/outreach committee who would be in charge of scheduling, planning, staffing, and setting up the rules for these kind of launches
  - 7) Having a HPR committee to schedule, plan, and staff HPR activities
  - 8) Look at a change in bylaws to have club elections at the last meeting of the year with new officers to begin on first Friday in January
  - 9) Find a way to have a bimonthly newsletter published
  - 10) Having a organized competition at every other launch
  - 11) Come up with some kind of fun raising events to increase the club treasury so that the club can update equipment, sponsor winter activities, and fund activities like the Youth Model Rocket Challenge
  - 12) Find a way that officers and club members can upload pictures, videos, and information to the NIRA site.
- I hope everybody has a great holiday and I hope to see you at the next meeting.



**Tidbits**

➤ The next NIRA monthly meeting will be on December 8th rather than December 1st because the library is having their own event on our usual meeting day.

➤ NIRA-CON is on February 17th (Saturday) from 9-5pm. It will be only for one-day because of scheduling issues at the library. Stay tuned for more information, or attend the next few meetings for more details.

➤ The NIRA elections are coming up in January. All officer positions will be open as of January 5, 2007. Anyone who is interested in volunteering for an officer position is encouraged to apply. You can contact any of the current board members for details. It should be noted that your President and Vice-President had promised to serve only one term each.

➤ Just a reminder that our monthly meetings now start run from 7:00pm

➤ We can always use material for the newsletter. It would be great if the newsletter were to become a good reference source that people could refer to in the future. If we load it up with plans, stories about NIRA, people stories, etc. then it will be a useful resource on our web site. Won't you please consider contributing to the newsletter? Even if you give a short presentation at a NIRA meeting, it would be useful if you could also provide a written summary for the next issue of the newsletter. There's too much going on for me to be able to write stories about everything that is happening in our club. We can always use great rocket photos too. Consider taking a few 'build' pictures or pictures from our next NIRA launch. I want to make this newsletter something that the members look forward to receiving. But the quality is really dependent upon the material we get for publication.

# NIRA Membership Application

**Print out this application. Enclose a \$6.00 check for a youth membership (below 18 years of age), \$8 for an adult individual membership, or \$12 for a family membership. Make checks payable to "NIRA" and mail to:**

**Marty Schrader  
NIRA Secretary/Treasurer  
ON107 Cottonwood Drive  
Wheaton, IL 60187-3972**

**NOTE: A family membership is only sent a single copy of "The Leading Edge."**

**Name:** \_\_\_\_\_

**Street** \_\_\_\_\_

**City** \_\_\_\_\_

**State** \_\_\_\_\_ **Zip Code** \_\_\_\_\_

**Home Phone** \_\_\_\_\_ **Work Phone** \_\_\_\_\_

**Email address** \_\_\_\_\_

**NAR #** \_\_\_\_\_ **TRA #:** \_\_\_\_\_

**Type of membership:**

**Individual** \_\_\_\_\_ **Youth** \_\_\_\_\_ **Family** \_\_\_\_\_

**Family members:**

\_\_\_\_\_

\_\_\_\_\_

