

THE LEADING EDGE

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

Volume 26, Number 5
September/October 2003

Club News and Notes

Field Search - One of the issues with MRFF (and all club launches) is the lack of a large launch site. If you know of a site that would be suitable for MRFF (50+ cars, vendors on site) or just for regular club launches, please let one of the officer know about it.

Holiday Party - NIRA usually has one Christmas get together mostly consisting of cookies, pictures, punch, and videos. No one has stepped forward to host one this year and our patriarch of the past, Mark Bundick, will not be able to this year. Any takers? Let us know.

Winter Planning - As usual our last minute policy is in full effect. The best suggested schedule for our regular club activities is as follows:

December 14 or 21 - Art Institute
January 18 - Building session, Bob Kaplow's
February 15 - suggest an event!
March 21 - launch or suggest an event!

Bob Kaplow has volunteered to host the January building session, our most popular winter event. Other activities include field trips, seminars, or just plain goofing off.

Since building sessions are usually held at a person's house we have been flexible about the date in the past. Thus most any Sunday of a month may be acceptable for those of you thinking about hosting one. The earlier you let everyone know about the offer, the sooner they can plan for it.

The Art Institute of Chicago will be hosting Aerospace Design: The Art of Engineering from NASA's Aeronautical Research. This consists of designs and models used in research going back to 1915. This will run through February 8, 2004.

General Elections Coming Up Soon!

It's time once again for everybody to shout out nominations for our general election at the January meeting. Our four elected officers are:

President - Terry House
Vice President - Cole Arntzen
Secretary/Treasurer - vacant!
RSO - David Wallis

The nominations so far include:

Todd Bavery - Secretary/Treasurer
Martin Maney - Vice President
Cole Arntzen - Vice President

All elected positions are open to nominations. Anybody can nominate anybody, including themselves. Some

people will like to submit resumes with qualification listings as well as goals for people to read in the next newsletter. The more common method is to simply shout out the name of the person at the meeting.

Traditionally voters must be present to vote. So everyone come to the January meeting!

Cole Arntzen, our current vice president, has said he feels somebody else can do a better job at the post. However he's already been re-nominated for the position.

Ken Hutchinson, our long time and wonderful Secretary/Treasurer has decided it is time to hang up the launcher. Therefore the position will be vacant unless someone replaces him in January.

The Long Shot

Three items of concern have been brought to the NIRA table recently. Planning, volunteering, and revenue. NIRA's coffers have seen nothing but negative cash flow for the past few years now. The reasons are several. Not the least of which is the newsletter you're reading at the moment. The others consist of almost a complete absence of the events we used to host each year. MRFF, Hobby Show, among others.

The hobby show is a massive advertising campaign for both the club and rocketry. This is mostly out of our hands; either they do things in our favor or they don't. If push comes to shove, alternatives should be suggested and managed.

MRFF and other big events have been missing for a handful of reasons, chief of which is total lack of volunteering to organize the event. Any location can be used, but

none will be if nobody steps up to host the event. MRFF is the most fun and rewarding event the club puts together where rocketeers can get together and do what they do best.

If you feel you can host any event, contest, meet, building session, host a class, feel free to present your idea to the club at any time. NIRA is only as strong as its members.

TARC Launches at Fermilab

Tom Pastrick, a Team America Rocketry Challenge mentor, and the Fermilab Association of Rocketry are working together to make sure their groups get their rockets off. The dates scheduled at Fermilab are:
December 6, 12-4pm
March 6, 20, 27, 28, 12-2pm
April 3 and 4, 12-2pm
Hours for TARC will be short, so be sure you're ready to go at start time.



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NIRA Officers

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This Issue's Leading Edge Staff

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Production – The Unusual Suspects

This Issue's Contributors

Cole Arntzen, Todd Bavery
Jonathan Charbonneau, Greg Cisko
Bob Klapow, Martin Schrader

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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0000 Street Drive

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

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Ken Hutchinson
0000 Street Drive

Web site: <http://www.NIRA-rocketry.org>
Email list: <http://groups.yahoo.com/group/NIRA>
InfoLine: volunteer today!



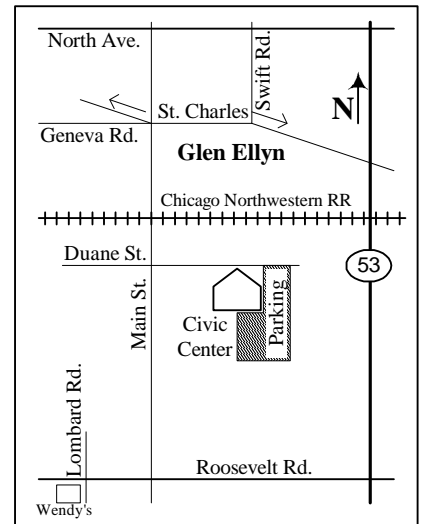
CLUB MEETING DATES

All meetings start at 7:30 pm. Bring a model for 'Model of the Month.' We always need volunteers for pre-meeting lectures, contact Rick Gaff if you want to schedule a date. The location is usually the Glen Ellyn Civic Center, 535 Duane Street (check the board in the lobby for the room number).

November 7

December 5

January - Date and location TBD.



CLUB LAUNCH DATES AND OTHER ACTIVITIES

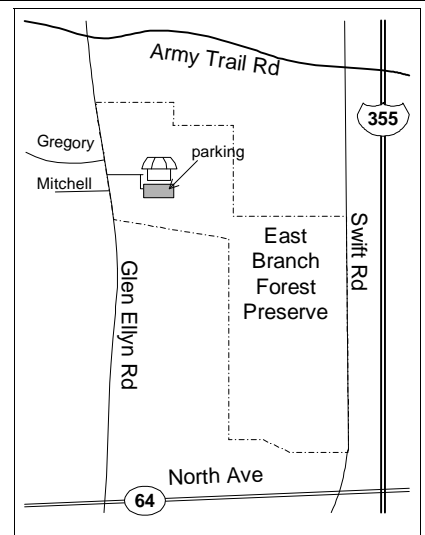
Launches are BYOL (bring your own launcher). Call the NIRA infoline for pre-launch information: there is no infoline. Volunteer today!

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!

November 16 East Branch Forest Preserve

December 14 and/or 21 Event and location TBD

January 18 Event and location TBD



Tune in to the Discovery Channel!

The Discovery Channel will be airing three hours of rocket related stuff on Sunday November 9th beginning at 7pm CST. *Wild and Weird Rockets*, *How High Can You Fly?*, and *Supersonic Speed Demons* are the three shows airing as parts of their **Rocket Challenge** series. These shows repeat at various times for those of you who miss any of them. Actual information about them is scarce but some of the material comes from Kansas where a bunch of "amateurs" are attempting various feats of propulsion and altitude. How high can an outhouse fly? Tune in Sunday to find out!

Model of the Month Winners!

Ordinarily you'd find your MOM pictures here. She's not available this month. Or last month. Or the other months you've been asking about. Don't worry, we'll get her back soon enough. Hey, a little vacation never hurt anybody. Rumor has it that several wonderful people with finely crafted models (except possibly for October) have participated and occasionally won a MOM.

Featured Site of the Month

<http://www.newtons3drocketry.com> - You too can own a flying outhouse! Check them out today.

Items of Interest

November 8 - East Aurora High school. There will be a Scouters get together and possibly a small demo launch. This is primarily a seminar for the Scout leaders. Member and Scouter Mike Ugorek will (presumably) be teaching a class on rocketry.

Last we heard they were looking for help in the form of a laptop or other device capable of playing DVDs. Other help, such as rockets for display and cool pictures are welcome.

Hours are 7am to 2pm. The high school is located at 500 Tomcat Lane in Aurora.

Anyone helping out or attending should use entrance #28, not the main entrance. Also inform any officials that you are exhibitor with the Midway. Look for Mike Koehne.

Also there is a **total lunar eclipse** that night!

December 17 - Wilbur Wright College. The college is hosting a full day of activities commemorating the first powered flight. Several youth groups will be giving demonstrations. Speakers and films can also be seen there. It all starts at 10 am in the Events Building at the college and goes until the evening. Wright College is located at 4300 N. Narragansett Ave, Chicago, 60634.

National Hobby Show 2003

The annual National Hobby Show in Rosemont this year went well. What was there for it anyways. Due to a wildly different date, September instead of October, and a slumping economy attendance by vendors and manufacturers was rather sparse. Really, the place was a ghost town. Worst of all there was no Make-and-Take booth for NIRA to staff and several hundred people to get the educational excitement of building a model rocket in 20 minutes. On top of all that, rumor has it that Las Vegas is trying very hard to steal the show away from Chicago.

Nevertheless, Toria House and Mary Hojeck organized a NIRA booth for all to see. With posters, videos, pictures, and an amazing assortment of old rockets provided by club members.

Balsa Machining Service was on hand with their large line of gliders and parts assortments. As well as their venerable example of the Starship Vincta.

A new Canadian model rocket company called Sunward Model Aerospace was there showing off at least seven kits. These are all about 24-30 inches long. However most

of them are jet plane inspired designs, thus giving them a wingspan as well. These are very cool looking kits with engine pods and such. One seems to mention some sort of special effect device. Whatever the case all their rockets fly on B and C motors and come with the same canopied nosecone.

Lee Piester, founder of Centuri Engineering, stopped by the booth and had a nice discussion.

This year was great, but we all hope to back to top form next year.

September '03 Motor Usage By Martin Schrader

1/4 A	1
A	29
B	49
C	36
D	21
E	4
F	5
G	3
Whipit	1

Several multi-stage rockets were flown with one triple D12 to a double C6!

The Whipit was a "human powered" boost glider launched by Superman. He claims it doesn't require Newtons, but he fueled up on Portillo's after the launch, so it takes some energy!

Meeting Place

NIRA needs a new place to hold it's monthly business meetings. The old place, which we've been using for decades, is raising their rates to ridiculously high prices. So high, in fact, that one year would pretty much empty the treasury. This is obviously not a good situation.

A handful of alternatives have been presented and offered. These fall into two categories: public and private. The private places have such things as very cheap fees (even free!) and full A/V services included. Among other things, like covered parking.

However there are those that feel a more civic approach would be a good thing for the club. They also feel such places would bring more exposure and encourage people to show up. To this end, the Lombard Library is our best alternative so far. The rent is nil, the room is comfortable, and location is barely different from Glen Ellyn. The only disadvantage is the long walk (think rain) from the parking area to the building.

The floor is still open to other opportunities. Rest assured, we will be meeting in a new place by early next year. Submit your locations today.

Confused Stages – Stage 34 by Jonathan Charbonneau

Chanute Air Force Base¹, summer 1993; a large blue rocket is on a pad ready to be launched on a G80-10T and a cluster of 3 F7's. Countdown proceeds and spectators watch in anticipation. At the moment of ignition, the F7's ignite but the rocket just sits there, hissing and bellowing smoke. Apparently the G80 has misfired. Nine seconds later the F7's burn out and everybody starts cheering and booing, thinking it's over. Just then, the G80 decides to perform after all with a loud roar, ripping out of the engine mount and spinning into the air after dislodging the nose cone.

Peoria, IL; a rocket is about to take off on an H engine. A weak hiss is heard for a few seconds followed by lazy pop on which the nose cone goes up an inch. Laughter breaks out among the spectators.

Video at Kaplow's; a rocket takes off on a cluster of Silver Streak² engines. One of the engines CATOs and kicks out of its mount. upon coming free, it spins, throwing out sparks from both ends. The tape was rewound to observe this in slow motion.

Bong State Park, WI; at MRFF 2000, as red rocket takes off on a composite engine. The recovery device didn't deploy. Not even the nose cone separated. The rocket streamlines in. When it hits the ground, it does one bounce and comes to a rest in an upright position as if ready to blast off again. Chuckles and laughter explodes everywhere.

Community Park, Lisle, spring 1996; a large black rocket with a white nose and called "Mother" is about to be launched on an F50-4T engine. At ignition the nose cone pops off and everyone's disappointed because it failed. I too, was disappointed because I was video taping the launch. I turned off my camera naturally thinking that's it. This turned out to be a big mistake...

You may be wondering what was the mistake in turning off my camera after the nose cone popped. Before (or shall I say "concert B4") I answer, here's a trivia question: What is common about each of the above mentioned flight attempts, "Mother" included? "Failure is NOT an option!"³ Be sure you've thunk before you claim you're stumped.⁴

(Continued on page 4)

FOR SALE: this spot!!! We gladly accept dilithium crystals in bulk. Contact our bureaucracy today.

(Continued from page 3)

Answer: Each of the flight attempts mentioned at the start of this stage had done something *unanticipated*. The unexpected thing about "Mother" is the "failure" wasn't a failure at all. Just after I turned off my camera a model rocket, powered by an A engine, took off from inside "Mother". This was totally *unexpected*.

The Estes "Cato" is a model rocket that flies on a booster engine and upon burnout, it blows into pieces to simulate a catastrophic failure, or CATO as it is called, hence the name "Cato". A spectator who isn't familiar with this kit won't expect it to blow apart.

It's an undeniable fact that the unexpected is the biggest attention getter, and that's what this stage is all about.

For those who take cameras to launches, always have your camera ready, don't do a Jimmy Olsen⁵, "a photographer eats with camera, a photographer sleeps with his camera."⁶ You never know when something really worth getting on camera comes up. Buy extra film/video tapes/memory cards and extra batteries. Always be prepared. At launches "expect the unexpected."⁷

For Fliers Only

Do you want to really wow everybody at a launch? Here's the secret. Design a rocket to do the unexpected. One example is the "Mother" concept. Bob Wiersbe did an article in The Leading Edge about this yester millennium. Another is to build a rocket that appears to be single stage, but is actually two staged and lead the spectators to believe it will fly on one engine. When it flies the unexpected upper stage will get their attention. For another idea, see stage 17 of this series.

For High Power Fliers Only

Take a single stage flying scale rocket of a two stage real rocket. Stage it electronically and lead the spectators to believe it's single staged.

Another idea is equip a large rocket with a cluster mount. Put small engines that are too weak to budge the rocket in the outboard mounts, load the center mount with an engine strong enough to easily handle the gross weight of the rocket on its own. Lead the spectators to believe it will fly on only one engine. Ignite the ineffective engines first. The spectators will think the rocket got hung up on the pad as it hisses and smokes. Wait 'til these engines have finished including ejection delay.

(Remember to plug outboard mounts and/or remove the ejection charges from the outboard engines). When everybody starts thinking it is over and cheer/boo, ignite the big engine. Barring a misfire, this will be a Jawdropper.⁸

Keep them flying and always follow the NAR safety codes at all times.

Notes:

1. Former name of Rantoul Aviation Center in Rantoul, IL
2. Silver Streak is a trademark of Rocketflight, Inc.
3. Quotation spoken by mission controller in Houston during Apollo 13 mission.
4. Rip off from an old nursery rhyme.
5. Photographer for the "Daily Planet" newspaper for which Clark Kent is a reporter. Jimmy Olsen, "Daily Planet", and Clark Kent are trademarks of DC Comics.
6. Quotation by Perry White, editor of the "Daily Planet" in *Superman III*, 1983.
7. Quotation by Batman in *Batman & Superman cartoon circa 1990s*.
8. Rip-off of *Jawbreakers* A) a brand of hard gumball B) a balloon busting shark game sold to 1976.

Watch The Grass Grow Launch Report

By Cole

WTGG 2003 was a really good launch. With moderate temperatures, gentle winds and spotless clear blue skies we could not have asked for better weather. At dinner last night we counted all of the launch cards and got a total of 157 flights. We had a nice mix of HPR and Low Power. From 1/2A through K and 1 stage through 3 stage and clusters.

From what I saw there were minimal losses. A couple of very interesting flights and some very interesting recoveries. There were the usual early and late ejections, and the associated results. I did not see any CATOs but I might have missed that. Then there was the unique landing of a big rocket right across the top of a ~40 foot tall silo. We all said that couldn't be done again, and it wasn't but the next flight, same bird, headed right back to that silo like it had a homing beacon. This time it nearly landed on the roof of the house next to the silo, instead landing in the front yard I believe.

There were plenty of soybean field recoveries, better than eight foot tall "rocket eating corn", but not by as much as you might think. Soybeans have a built-in defense mechanism that makes them almost as bad as the corn to walk through. At least you can see your way out of them. Interesting feature of soybeans: as you walk through them they untie your shoes, no matter how many knots you put in the laces! We should thank mother nature for not mak-

ing eight foot tall soybean plants, or at least thank the farmers for not growing them :-). Those would be far worse than corn!

I came home with all of my rockets minus a payload section with nosecone from my Quasar. The rocket separated at about 3000 feet. Darn TN came untied from the payload section bulkhead eye bolt (obviously a preventable failure :-). Both pieces came down probably within 50 feet of each other of the south side of the woods. I wandered through the field there for a good 20 minutes and I was about to give-up when I smelled that familiar smell that the inside of a high-power rocket has after flight. I was right at the border between soybeans and woods. I stopped and looked around a bit, made a few passes back and forth sniffing the air like a dog (no comments please). I did not smell it again but as I scanned the woods I saw it! It was about 15 feet away into the woods, actually a briar made up of 5 foot tall grass, shrubbery and trees. The rocket was laying top facing me on the top of some bushes and grass at about 5 feet high. It was presenting only the open top of the tube so it presented no side view of the airframe to spot the color. That is the second time I have recovered one of my rockets at Harvard by smell! I looked for the payload section for another ten minutes but figured that was an acceptable loss. I have the sustainer with casing so I'm 95% happy.

Overall WTGG 2003 was a fun launch. Thanks Todd for accepting the task of pulling it together!

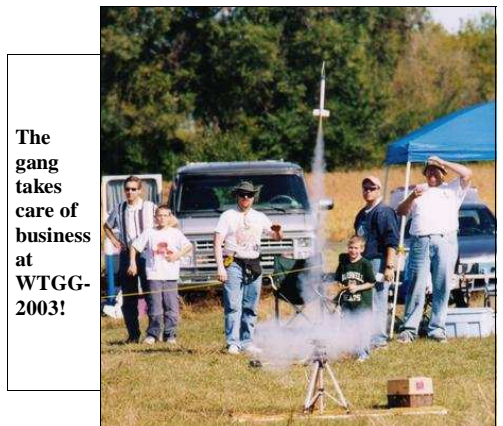
Thanks also to Ken for coordinating with Beaver Run. I met Joe when I arrived in the morning, nice guy!

Rick Gaff and Bob Kaplow made the drive up with no rockets to launch and spent most of the day as LCO or advisers. That's a real contribution, thanks guys!

Dean Roth brought his rail for us to use just in case and we did use it, thanks Dean! I have your rail and connector and will bring it to Bong next week.

Others like Conrad were there early and helped setup and take down the range, thanks to everyone else that helped make the day successful.

We need to try to do this more often!



The gang takes care of business at WTGG-2003!

Mike Fisher has done it again. I had the privilege of purchasing the very first Galaxy made for sale. Let me start by telling you that my Level 2 certification flight was perfect. Not only did the rocket perform great on a J415, the flight was memorable from every aspect. From the tip of the rocket to the unique fins and aluminum nozzle, completed this model is quite impressive.

The Galaxy was not only a challenging rocket to build it was a lot of fun. To start, the buying experience of selecting and ordering through Binder Design was incredible. Knowing that I wanted to buy the Galaxy, Mike allowed me to be the first to see the web page and place the order. The packaging was done with care. Everything was wrapped individually and all of the parts were in place and in excellent condition. The 11 page instruction manual with illustrations was very well thought out and easy to follow, including the Rocksim file that was e-mailed. The website is very well thought out and the and very easy to order a number of different kits and supplies. This website is the best kept secret in Rocketry, the buying experience alone scores a 5*****. Mike Fisher, the owner of Binder Design answered all of my questions on e-mail or on the phone. He was very assessable.

Kit specifications:

Designed for the advanced builder and sport flyer, the Galaxy is a 4" dia. High Power Rocket with a retro look. Comes with unique aluminum nozzle, aluminum motor retainer, and rail buttons! Fly it on an H or I for your level one certification, then stick a J or K motor in it for your level two flight and watch it scream.

DIAMETER: 4.0"
Length: 71"
Motor Mount: 54mm
PARACHUTE: 60", X-Form
RECOMMENDED MOTORS:
38mm: H242T, I161W, I211W,
I300T, I195J, I284W, I435T,
J350W, J570*
54mm: J180T, J275W, J460T,
J415W, K550W*

(*) Indicates that this model can fly on these high thrust motors, only if expert modeling techniques are utilized and 30 minute epoxy is used throughout construction.

Kit included cut and sanded 3/16" aircraft quality plywood fins, high strength airframe tube and couplers, centering rings, bulkhead plate, high quality hardware package, 54 mm motor tube, plastic nose, computer designed and cut vinyl decals. A 60" premium nylon parachute was included.

Galaxy

Binder Design
Fisher Series premium kit
By Todd Bavery NAR # 80794

Construction:

With the instruction manual being very thorough, all you need to be able to do is read left to right. The longest part of this project was the building of the aft section. The fin can assembly allowed for the building of great internal fillets, the slower I went produced terrific results. As the instructions



tell you, the care that you take during these steps will insure a well built and solid rocket. A hand sander and Dremel came in very handy.

I used a Slim Line motor retainer that was included with the kit. I am sold on these, and plan on using them in all future rockets. Sleek, easy, strong and better than masking tape. Planning on using motor ejection, I stayed away from the optional avionics kit. I now know I am ready for electronics. It will save me a lot of walking.

I took my time and made sure that the rocket was going to be solid. I wanted to have it able to use a K550W. So I built it strong. The rocket weighed in at 4.0 lbs. loaded and ready to go.

Finishing:

I had built this stock, so my intentions were to finish it exactly as it showed in the instructions. After sanding and prep, I applied two coats of primer followed by three coats of finishing paint. I used chrome paint for the entire rocket. The Nose cone tip was finished in red gloss paint. Binder provided excellent decals to finish the rocket and gives it a great look. Since this was the first Galaxy ever sold, Mike provided to me a decal #1.

Flight:

My level 2 certification flight was set for a Tripoli Launch in Walcott IA. There were 5 NAR levels 2 or higher certified flyers. What was great is they all helped me in some way in preparing for the flight. The day was about as perfect as you could have. Very low winds out of the northwest at less than 5 miles per hour. Having obtained my LEUP earlier this summer and just passing the test for Illinois explosives.

I was ready for my first 54MM, J415 motor. Having built the motor and installed into the Rocket, I was ready to pack the recovery system. Using motor ejection, and a single 'chute, I know that it was going to be a little risking. But the weather that day convinced me that I was going to be fine. Rocksim had the rocket reaching apogee at 6273 feet. With no electronics on board, this was going to be a basic launch.

Back to the launch. As a mentioned the rocket is quite impressive when finished, and I believe this was to be the only Level 2 launch of the day. So it got a little of attention. The rocket was loaded on an extreme rail, and we were reading to go. The wind was at about 5 miles an hour out of the

North West. I adjusted the angle of the pad to take advantage of the wind and to try to keep the rocket out of the corn field.

3, 2, 1 Lift off, the rocket lifted off the pad. It looked great. Straight as an arrow with no wobbling whatsoever. The Galaxy climbed and took all that the J415 would give her. With everyone watching we saw the separation and chute deploy. As I watched the rocket descend. I told myself that next time I would be using electronics and dual deployment. At 6300 feet, there was a little more wind. I also think that the 60" chute, allowed for more drift than I would have preferred.

Recovery:

With the chute fully deployed with the rocket appearing in good shape. With the Rocket drifting off of the recovery area. I thought to myself, here we go again walking corn rows. I quickly got up on the roof of my van, along with a set of binoculars. The Galaxy drifted toward the adjacent farm house. I was able to get a great line of sight. After an hour and 20 minutes I was able to locate the Galaxy.

Other than a little dirt and mud. The rocket was in perfect condition. When I returned to the launch area, people were first surprised that I was able to find it. And second amazed that the rocket went as high as it did and landed without a scratch. It is my personal belief that it was one of the more memorable flights of the day.

Summary:

If you are looking for a rocket that you will not only have fun building, watching it scream off of the launch pad is even better. This is a rocket that if you follow the instructions, it will be ready to fly.

I can't wait to see what Mike comes up with next in his "Fisher Premium" series of kits.



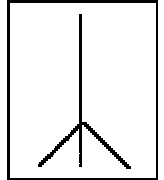
Todd Bavery's Galaxy ready to go! See article page 5.



Two really cool launch pictures from WTGG 2003! Launch report page 4.
Photos by Norm Hayen.



Adam Elliott, Editor
54321 Rocket Way
Zoom Zoom



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If it says Membership Expired or Membership Expiring this will be your last newsletter!