



# MAX-Q

# HARA

Newsletter of the Huntsville Area Rocketry Association

Volume 12, Number 2, November 1998

## Rocket City Blastoff 1998 Special Edition!



The eager participants of the first Rocket City Blastoff ready for action!

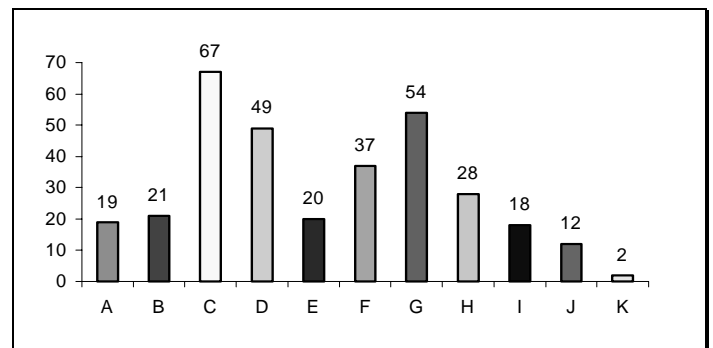
### Ardmore, AL

by Brian Day, Chuck Andrus, Vince Huegele and Mark Tygielski

It was billed as the "premier rocketry event of the Southeast in 1998", and HARA's first two day "Rocket City Blastoff" interstate rocket launch certainly lived up to all expectations. The October weather could not have been better, with temperatures in the 50's to 70's, cloudless skies, and near zero wind. Launch them straight up, stick in the biggest parachute they'll hold, and watch them settle straight back down on the launch pad!

The 1998 Rocket City Blastoff, held the weekend of October 24-25, entertained 69 registered flyers from Alabama, Tennessee, Georgia and Mississippi. If not for the Tennessee-Alabama football game, we probably would have had more! A total of

327 rocket flights were logged from Saturday morning through Sunday evening, with a motor distribution as follows:



As HARA advisor Vince Huegele says, "The only thing better than a good flight is 327 of them!"

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## **MAX-Q**

Vol. 12, No. 2 November 1998

**Editor:** Brian Day

**Contributors:** Chuck Andrus, Vince Huegele, Neal Redmond, Ronny Tipps, Mark Tygielski, Greg Warren

**MAX-Q** is the official newsletter of the Huntsville Area Rocketry Association (HARA), NAR Section 403. Subscriptions are included as part of membership dues, or available to non-members for \$10.00 per year (4 issues). Any material contained in **MAX-Q** may be used freely, so long as proper credit is given. The editor welcomes any suitable material submitted for publication.

Previews of **MAX-Q** can be found on HARA's web page located at:  
<http://hiwaay.net/~bday/hara>

Send all submissions or payments to:

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[bday@hiwaay.net](mailto:bday@hiwaay.net).

### HARA Officers

President	Brian Day
Vice President	Kevin Cornelius
Treasurer	Mark Tygielski
Adviser	Vince Huegele

## **1999 Membership Dues**

- Individual: \$12 / year
- Family: \$20 / year

(pro-rated quarterly for new members)

*Contact any club officer*

# **The President's Pad**

by Brian Day

*Well, I guess I've got a whole bunch of emotions running through me as I write this. First of all, there's exuberance as I reflect on our first Rocket City Blastoff in Ardmore. Having a suitable field to fly in is something that I'll never take for granted again, and it's great to be able to open it up to other flyers in the Southeast who aren't so blessed.*

*Then there's gratitude. Gratitude for the wonderful weather that weekend. Gratitude to the community, particularly the Bobo VFD, for providing food and drink. Gratitude for the tremendous volunteer effort put in by all of the HARA members and friends that made the Blastoff a success.*

*And that makes me feel pride - in being in an organization where you can see others freely give their time in helping the organization of a large event, in helping those less experienced to fly safely, in getting satisfaction from their efforts.*

*And of course, I feel a little guilt, since this is only the second issue of Max-Q I've been able to get out in 1998. And for that, I pray your forgiveness in this tumultuous year of personal growth and family tragedy. I will make every effort to be more timely in getting the issues to press.*

*If I don't see you at November's launch, have a great building season!*

*Now enjoy the issue, and get out there and fly!*

*- Brian*

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## **Over-Engineering?**

**During the heat of the space race in the 1960's, the U.S. National Aeronautics and Space Administration decided it needed a ball point pen to write in the zero gravity confines of its space capsules.**

**After considerable research and development, the Astronaut Pen was developed at a cost of about \$1 million U.S. The pen worked and also enjoyed some modest success as a novelty item back here on Earth.**

**The Soviet Union, faced with the same problem, used a pencil.**

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**HARA would like to welcome the following new members:**

- |   |                                   |
|---|-----------------------------------|
| • <b>Cliff Chism</b>                    | • <b>Joe Conti</b>                |
| • <b>Mike, Drew &amp; Tyler Davis</b>   | • <b>Allen Dunn</b>               |
| • <b>Todd, Eddie &amp; Kyla Lumpkin</b> | • <b>Ronald &amp; Greg Tipps</b>  |
| • <b>Frank &amp; Jessica Macewicz</b>   | • <b>Mike Williams</b>            |
| • <b>Elliott Troncalli</b>              | • <b>Oscar &amp; Scott Valent</b> |

# What's in a Range Box

by Chuck Andrus

When I was preparing my stuff to take to Birmingham last September for Sodfest '97, being the novice to HP rocketry I am, I asked Brian and Greg and some of the others what I should bring. The common reply was "Bring whatever you think you might need." In the infinite wisdom of the veterans, I did just that, and spent all day Saturday borrowing everything I really needed to launch. I had all the essentials...rockets, .....uh.....a cooler with some ice.....and toys for my boy to entertain all the other kids with. Brian Day and Mark Tygielski lent me igniters (I brought AeroTech's, but quickly abandoned them.....), o'ring grease, paper towels...the list goes on and on. Between the two, they actually deserve the credit for my level 1 cert. flight that day. I have never seen a more selfless group than the folks I have come in contact with since I joined HARA. For the newcomers to HARA, joining was the single best move you could have made. For the vets, thanks for making us feel welcome, and for the priceless advice and assistance. I'll do my best to give something in return.

Well, enough warm and fuzzy stuff. Back to the matter at hand!

The HARA schedule looks a little bleak for the winter (though I still "burn" a couple every chance I get), so I thought I'd use some spare time to compile a list of stuff so I will be more prepared for "Sodfest '98." I must give complete credit for this article to all HARA members for their contributions. I solicited input for this article and was overwhelmed with suggestions ranging from "toothpicks to mix epoxy" to "a Winnebago....no explanation needed." I'll venture to guess there are an endless number of items that are nice to have in a field box, but for us newbies, I'll keep the list to "Must have...at least." Brian hit the nail on the head when he said his range box is "an evolving organism in its own right." Seems like I always discover something I wish I had with me every time I go "burn" a few.

Well, the polls are in. After a long and furious debate, and much weeding and sorting, I've managed to compile a list of "Must have's" for the "Ultimate Field Box." (no Neal, I didn't include carbon fiber plating in the list.....).

I'll start with the box itself, or should I say boxes? Most everyone has said they have several boxes, with each containing a different category of supplies, tools, etc. (i.e., igniters in one box, motors in another). The type of box(es) selected depends on your cash flow, and what you plan to put in it. I purchased a rather large box at Lowe's that has a built in seat. It also has two different sized trays to accommodate a wide range of materials. Fishing tackle boxes are useful, with many small trays to keep small parts separate. Rubbermaid makes a huge assortment of boxes, trays, and containers to accommodate most anything you wish to carry around. Just keep your eyes open at Wal-Mart and Lowe's, and you'll see hundreds of containers and boxes to fill most any requirement you can dream up.

Now...the necessities, according to HARA, in random order.

## General supplies

1. Note pad and pen/pencil (to write down stuff you wish you had with you, etc)
2. Waterless hand cleaner
3. Paper towels
4. Baby Wipes
5. Sun screen (SPF 10,000.....ever see sunburn "blisters?")
6. Hat ("Wider is better")
7. Water / Ice!
8. Shade! (a canopy will make you very popular!)
9. Food!
10. Water rocket (my 3 yr. old boy was an excuse to get one)
11. Camera (even a cheapo will capture that look on Mark's face after he CATO's)
12. Portable radio (so Mark can hear the Alabama game)
13. Book (great during rain delays)

## Spare rocket parts

1. Parachute (Estes 'chutes disappear/fry all the time!)
2. Press on labels for repairs to parachutes
3. Launch lugs
4. Spare reloadable motor closures
5. Shock cord
6. Black powder and measure

## Tools

1. Adhesives (5 minute epoxy, CA,)
2. Tape (1/2 " and 2" masking, scotch, packing and duct tape)
3. Sandpaper/Scotchbrite/Steel wool pads
4. Leatherman/Swiss army knife
5. Tweezers
6. Scissors
7. Hobby knife
8. Radio Shack Teflon grease (for o'rings and anything else)
9. WD-40 (for launch rods, etc)
10. Tray with a lip (like the top of a container, to prevent loss of reloadable motor parts )
11. Bottle brush (for cleaning reload casings)
12. Toolbox (hammers, screwdrivers, hack saw, needle nose pliers, wire cutters...)

## Electronics

1. Extra set of all batteries you intend to use
2. Multimeter (two are better than one)
3. Different sizes of wire.
4. Altimeter
5. Igniters (good ones can really save the day)
6. Launch controller (Ya' never know...)
7. DC test light
8. Alligator clips

At any given HARA launch, someone will have whatever else you might need. All you have to do is ask (and a lot of times, you don't even have to do that). Most importantly, bring yourself and anyone else you can drag along. You can't launch if you're not there!

# Rocket City Blastoff! Coverage

(continued from page 1)

The Bobo (Alabama) Volunteer Fire Department provided food and refreshments for the enthusiastic crowd, in addition to the occasional need for fire protection. Larry Smith from Rocket Science (Lexington, SC) braved the Atlanta rush hour traffic on Friday afternoon to set up a booth at the range Saturday and Sunday, providing the fliers with an unending supply of motors and hardware.

Highlights of the event included HARA's "Patriot Explorer I", a 1/2-scale Patriot missile, making its maiden flight on an AeroTech K550-MW to 1986 feet (see feature article on page ?).

Randy DeArman, a rocketeer from the Birmingham area, said of the Blastoff, "The one thing that stands out is the organization of the club. They have a nice field, the hot food and coffee were good on a chilly morning and the porta-lets were clean (ed. note: everyone's got their priorities!) They had plenty of pads and a good launch rate too. I will be going back and hopefully I'll get to make a weekend of it next time."

Rick Cavett came over from Mississippi for a busy weekend of flying, using a PML Tethys with an H128 to certify to Level I on Saturday, then a quite memorable flight with a J350 to nail down Level II on Sunday (the red tracking chalk really helped on that one, Rick!) Rick's son, Thomas, got some action of his own with a nicely crafted AeroTech HV-ARCAS on G motors.

A few fliers got their first experiences with the Hypertek hybrid motor system, under the watchful eye of Hypertek veteran and dealer Oscar Valent. Oscar had a few anomalies with the system on Saturday, which seem to have been caused by a weak battery in the launch system. Brian Day's 4-inch "Hy-Tek", a scratch-built booster modified to accept the Hypertek motor, twice flew flawlessly on Hypertek J250 motors to over 2500 feet. Chuck Andrus' latest creation, "HyperActive", a modular 4-inch 13-pound Hypertek Hammerhead-ready beast of wound fiberglass also put on an impressive show. Detailed to Chuck's exacting standards, the rocket lived up to its name with a blistering J-300 flight. A 440cc I310 Hypertek-powered flight of a Kev-Lar and fiberglass reinforced PML Tethys was logged to 1800' by Chuck as well on Sunday. The rocket, used at the Birmingham TRA launch in 1997 to secure Level 1 credentials, has seen a lot of changes over the last year, including an airframe



Chuck Andrus' "HyperActive"

extension, a dual deployment electronics bay, and now a Hybrid installation. What more can one ask of an airframe?

Brian also flew his venerable LOC Magnum on an AeroTech J275-MW air-starting 2 F20's for effect.

Don Renfroe came up with some original creations, including the "Bamboo Blaster", a D-powered rocket made from real bamboo.

Other notable flights included George Gassaway's latest scale model of the Space Shuttle, a full shuttle stack complete with detachable SRB's, external tank (all of which descend on dual parachutes), a "staged" OMS engine burn after main engine burnout, and of course an incredibly trimmed R/C shuttle glider which flies better than the real thing. George flew the shuttle 4 or 5 times - all spectacular flights.

Todd Lumpkin certified to Level I with a beautifully upscaled Maniac on an H128-MW. Congratulations, Todd! Now you're allowed to start spending the big bucks!! Neal Redmond flew his 4" flagship, the "Fiber Dawg", on a variety of I and J motors, proving once again that if you build them the way Neal does, you don't need no steenkin' parachute! Johnnie Paul flew a nicely detailed NCR Archer on an I161 for a beautiful flight (pictured at right), and Rich Gramly again glided his Bomarc over the top on G75 motors.



Ronald and Allen Dunn came up from Birmingham with their usual works of art, including some nicely finished (and huge) Public Enemy kits, and a great looking scratch-built full scale ARCAS. The ARCAS performed as well as its namesake, gliding to apogee after a boost from an I211-MW. For the maiden flight of the 6" dia. by 117" tall Ultra Performer, Ronald selected a J-800. The fast, yet picture perfect boost was dashed when the parachute ejection charge fired, but the canopy never quite made it to the airstream. A valuable lesson learned, as the rocket bounced on impact, sending Ronald back to the drawing board. Sorry Ron!



Ronald and Allen Dunn stuff a bear load in their full-scale ARCAS

The SoAR and TARA crowd from Atlanta brought a trailerload of cool rockets. It was great meeting a bunch of them for the first time. TARA members Tonya and Jamey Jenkins flew their "LRD-D-1" on an H242 (*pictured at right*), the "One Funny Mosquito" (also on an H242), "Phobos" on a Kosdon H255 and an AT H238, and "Certainly Two" on a J275. Unfortunately, the J motor blew by the delay for a shred, but the rest were near perfect flights. Tonya's impressively finished upscale Mosquito is laminated with comic strips, and sports a unique string-wrapped nose cone.

Several flyers also made the trek from the Nashville area. Perry and Clayton Lancaster flew their 4" orange THoY Phoenix, suitably named "The Great Pumpkin", about a million times on I motors. A few repairs in their motel room Saturday night put the aptly renamed "Bionic Pumpkin" back into action, after about a dozen hard landings and the resultant fatigued airframe. Clayton's Estes Silver Comet logged its umpteenth D flight on Sunday as well, in spite of a few rough landings. Jason Yount also flew a nicely done Minnie Magg, and Mike Toelle brought his assortment of technically inspired models.



Perry Lancaster's "Great Pumpkin", powered by an I161W

Vince Huegele had better luck shooting pictures (his other hobby) than rockets. His red PML Explorer flew perfectly on a F25-4 and a G33-7, but his R&D Aerobee Hi had a recovery separation after a beautiful ascent on a H112. The wooden centering ring that the shock cord was anchored to had broken. "The anchor was still securely epoxied to a piece of plywood," Vince said. "How often do you see a wooden bulkhead be the failure point?" If that was caused by too much ejection charge, his LOC-4 on a G40 came down unopened by probably not enough. Vince promised to always measure the powder in single use motors from now on. "You can't fix the delay time, but you can check the amount of powder."



Bad motors bit the back end of two of Vince's other rockets. An F10-4 and an E30-7 blew off their nozzles and split their casings during ignition. The propellant never fully lit so there was no flaming display, just the torn tails of two models still on the rod. "It's interesting when single use motors disassemble themselves into kits," Vince said.

As the lift-off pictures on the web site show, Vince had success with his camera project. A motor driven (4 fps) Nikon with manual remote control was set on a tripod low to the ground about ten feet away from a pad. The 28mm lens had a polarize to darken the blue sky. The sunny day easily allowed the AS 400 film to be shot at 1/2000 second. With a restless finger on the shutter release, Vince had to time the camera operation with sputter ignitors and hesitant motors, and he only got one chance per rack set of rockets. The patience and persistence paid off in achieving launch pictures with a professional touch.

APS, Countdown Hobbies, LOC/Precision, Public Enemy, Public Missiles, Rocketman and several HARA members all contributed a generous assortment of prizes to the weekend's raffles, and put yet a bigger smile on a lot of faces!



Neal Redmond's "Fiber Dawg" rides a J350

# Patriot Explorer I

## Highlights Rocket City Blastoff!

By: Chuck Andrus, Ardmore, AL  
 photos by Neal Redmond  
 (text reprinted from www.rocketryonline.com)



The air-defense crew (Phillip Burroughs and Vince Huegele) is ready

All eyes are on pad number eleven as the countdown commences. 5, 4, 3, 2, 1, ignition! The K550 instantly barks to life, raising the 1/2 scale Patriot on a column of smoke and flame. A roaring echo can be heard from the distant tree line as the missile travels to apogee against a cloudless blue sky, 2000 feet above the range. A brief coast and then a healthy "ka-woom" as the recovery system springs into action, gently lowering the vehicle under a pair of flawless canopies. A textbook launch of Patriot Explorer I, the culmination of a truly cooperative effort by several members of the Huntsville Area Rocketry Association.



Vince observes as Patriot Explorer I takes off

launch and recover the project at the "Rocket City Blastoff." The partially assembled PML Patriot, which had been abandoned by the now defunct "Explorer" post of students at MSFC, obviously needed major reconstruction to accommodate the motors necessary to lift the soon to be 23 lb. behemoth to a safe altitude. Brian Day stepped forward without hesitation to take on the logistics of the project, and to manage the construction and finish of the airframe. Mark Tygielski sounded off with his donation of motor support hardware, while Chuck Andrus was called upon for

selection and donation of the recovery system. Numerous other HARA members donated materials, time and expertise to make this a huge cooperative effort. It was a real "group" effort!

During the planning and construction, much was learned by all participants. However, the most important lesson came to fruition as we all watched the Patriot Explorer I, the largest rocket fired at the Rocket City Blast Off, touch down without a scratch. Stick together... and all things are possible. Something tells me that might be what Vince had in mind when he set this problem before the club to solve... or maybe he just had a rocket that needed to fly on a K?



On its way!

### The team:

Vince Huegele	kit acquisition, consultant
Brian Day	logistics, construction, painting
Chuck Andrus	recovery
Mark Tygielski	motor hardware
HARA	everything else

### The stats:

Length	97"
Diameter	7.5"
Lift-off weight	23 lb.
Powered by	AeroTech K550-MW
Electronics	Adept ALTS2 altimeter
Booster recovery	10' Mil-spec parachute
Payload recovery	6' Mil-spec parachute
Altitude	1986'

Launched on the first day of HARA's "Rocket City Blastoff", the Patriot challenged HARA members to work together to solve a variety of problems as a team. Several months ago, former HARA president Vince Huegele threw down the gauntlet, daring fellow HARA members to construct, finish,



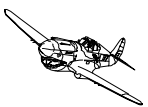
Vince Huegele and Brian Day prepare PE-I for launch

H & S Hobbies has moved! They are now located in the shopping center on the east side of Jordan Lane, just south of Holmes Avenue.





## R/C HOBBIES



3303 Meridian St.  
539-1347



Rockets  
Cars

Trains  
Plastic Models

10% Additional Discount to HARA Members



*Editor's note:*

*In order to reduce mailing expenses, HARA would like to hand out as many issues of **Max-Q** as possible at meetings and launches. **Max-Q** will also be available on the **HARA** web page in Adobe PDF format. If you would like your name removed from the postal mailing list, please let the editor know.*

*Thanks,  
- Brian*



Todd and Eddie Lumpkin with their upscaled "Maniac"

**“Being the last man on the moon  
is a very dubious honor.”**

**-- Astronaut Gene Cernan**

### HARA Membership Application

Date \_\_\_\_\_

*Annual Dues: individual membership \$12.00; family membership \$20.00 (pro-rated quarterly)*

Name: \_\_\_\_\_  
 Address \_\_\_\_\_  
 City, ST ZIP \_\_\_\_\_  
 email address? \_\_\_\_\_

Phone: \_\_\_\_\_ NAR Member? Y N # \_\_\_\_\_ Insured? Y N  
 Age (if under 18) \_\_\_\_\_ TRA Member? Y N # \_\_\_\_\_

Send to: **HARA**  
 1120 Pratt Avenue  
 Huntsville, AL 35801

Ph: (256) 536-0508



**Brian Day's Magnum, powered by a J275,  
takes off at the Rocket City Blastoff  
(photo: Huegele)**

**Huntsville Area Rocketry Association  
1120 Pratt Avenue  
Huntsville, AL 35801**

*Return Requested*

## **COUNTDOWN '98**

11/21	Final scheduled launch of 1998 HPR and Model Rocket Open Range 8,000 ft (AGL) FAA waiver Ardmore, AL - 10:00 AM
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\* All launches subject to weather and field availability.



### **New T-shirt Order!**

HARA will be making a new T-shirt order in early 1999. The new shirts will have a similar design to last years (pictured at left), with a different color scheme (probably yellow and black on a green shirt). We will also try to get shirts with pockets. Prices and other details will be announced when available.

*First Class Delivery to:*