



# MAX-Q HARA

Newsletter of the Huntsville Area Rocketry Association

Volume 8, Number 1, Jan/Feb 1994



## Spaceweek Spring Rocket Contest Set

This scene from the 1992 launch will happen again. See page 3.

As SOAR-4 gears up to go to the pad, the lessons learned from SOAR-3 bear review. The third flight of the SOAR program made in October 1992 was not the success rocketeers want, but was the reality of the business. SOAR-3 had an ignition problem.

In the previous two launches, Wayne McCain had assembled a custom ignitor for the Vulcan motor. (The ignitor supplied by Vulcan was tossed.) Wayne took two electric

matches and wired them together in parallel. The squib on the matches surrounded a small piece of  $\text{BKNO}_3$  that was all neatly taped up. The wires ran through a cork that plugged into the nozzle just so. This arrangement worked admirably, with both motors taking off on the money. In a human move, the SOAR team deferred to an easier ignitor the next time. Wayne just used whatever came with the motor with a bit of thermalite attached. Fatal error.

When the current was put to the wire, the ignitor fired, kicking itself partially out of the motor without a proper ignition. There was enough of something hot just inside the nozzle to start combustion at the bottom of the K500-20 motor. That's not what you want.

As the smoke began to cloud around the rocket the flame train worked its way up the length of the core to complete a form of ignition. Now with a grain pattern burning that the motor wasn't designed for, the pressure built up enough to nudge the vehicle off the pad and out of the tower to about ten percent of its intended altitude. The time delay became horribly wrong, and as the motor burned out, you can guess the rest.

For what it's worth, SOAR personnel knew at once what had happened and why, but that didn't help the third mission. SOAR-4 will benefit greatly. Corrective action: use what you know works.

## Qual Launch Feb 26

The first launch of 1994 for HARA will be to support SOAR. There are currently five experiments set to go on the SOAR-4 flight in April. As part of the SOAR program, new payloads are flight qualified for the K powered vehicle by integration testing in smaller model rockets. On the upcoming Saturday the 26th, the G powered qual rockets will shake down the individual experiments from Whitesburg, Ridgecrest, Chaffee, Weatherly, and the ASFL. Teacher and students will be present to provide the payloads and watch the flights.

HARA members and anyone wanting to fly their own models, or just check out the action can come out about 10:00 am. to the usual site at the old airport and get an early start on the flying season. Rain date is March 5.

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# From the President's Pad

The recent hefty size of *Sport Rocketry* may be over. The publication, probably the main service to members by NAR, has expanded to look more like a "real" magazine and take its worthy place on newsstands with all the other hobby magazines. But the new bigness of the magazine comes from the editor having gone overboard. *Sport Rocketry's* editor, Steve Weaver seems to have spent a little more than NAR wanted him to, (even though it was his own money.) So while the accounts are being straightened out, the magazine may go a little thin. But there's another matter here about

who "runs" the magazine and to what end.

Back in the mid-eighties, *Am-Space* wasn't much more to me than a national newsletter and a corporate report. The successive editors have made a lot of progress. I was glad to see the magazine get past a few dozen pages and start to look real, and I've told Steve that. Finally there was something coming from NAR that I was impressed with and proud of, particularly to show to others to promote model rocketry. Apparently many advertisers are also impressed, given by the increasing number of ads. If we're going to have a credible hobby, we've got to have a credible publication to market it and *Sport Rocketry* is becoming that.

if *Sport Rocketry* goes professional and private, people would subscribe only to the magazine and not join NAR, since it wouldn't be a unique NAR member benefit. (It's already possible to subscribe to *High Power Rocketry* without joining Tripoli.)

It's unfortunate that the financing has gotten awkward with Steve overstepping the limits, but I applaud anyone finding a better way to make model rocketry look good. If it takes a professional program to do a professional quality job, then maybe we should consider doing it that way. Do you think that any other hobby magazine is put together on somebody's spare time? The model airplane people have *multiple* magazine titles on the stands.

We need to keep our flagship periodical dressed up. If that takes a full time man and by-laws change, let's work on it. Of course we've got to be fiscally competent, but we've also got to serve and grow our readership, and our hobby too.

## MAX-Q

VOL 8. NO 1. Jan/Feb 1994

Editor: Vince Huegele

Contributors: Greg Warren,  
Joe Robertson, Jerry Schaefer,  
Wayne McCain.

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 (six issues.) The editor welcomes any material submitted for publication. Send all items or payments to 11108 Argent Dr., Huntsville, AL 35803.

### HARA officers

President: Vince Huegele  
Vice President: Joe Robertson  
Secretary: Greg Warren  
Treasurer: Sharal Huegele

NAR address: Box 177, Altoona,  
WI 54720.

Steve's idea is that a largest, wider distributed rocket publication would expand interest and create a larger model rocketry following, and hence a larger NAR membership. The NAR Board is afraid that

## V.P.'s Corner by Joe Robertson

Yes, we get mail, we respond to it, and get more! (Of course, local people just call on the phone.) Here is a recent note showing how we support rocketry even in adjoining states.

"Dear Mr. Robertson,

Last summer I wrote to you regarding our museum's model rocketry activities and the difficulties we were having creating interest beyond the most basic level. I simply want to thank you for the responses you and other members of HARA sent. The information was of great interest and I hope it will help us stage some interesting new events this year, particularly a public launch demo / fun fly and some intermediate classes.

I also received information about SEP from Greg Warren. SEP looks like a fine program and I will be plugging it at a teacher in-service later this month, as well as at schools around the area as we do our programs.

Thanks again for the prompt help - HARA is clearly a class act!

David Hostetter, Curator, History Museum and Planetarium,  
Lafayette, Louisiana."



## SPACEWEEK MODEL ROCKET CONTEST RULES

*(HARA has developed these rules for a citywide contest. Teachers will use these rules to conduct their own school contest, then the winners will have a fly-off during Spaceweek, on March 23, that HARA will host.)*

This rocket contest shall be conducted by the school to select the top two model rocketeers. The winners will represent their school at a city championship contest during Spaceweek to be conducted by the HARA and Project LASER.

Students in grades 6-12 will be eligible. Schools and classes will determine their own registration and participation process.

The objective of the contest is for a student to launch a model rocket powered by a class "A" motor that deploys a parachute. The rocket flight will be timed. Contestants with the longest duration times win.

Required equipment: model rocket launcher, firing system with batteries, stopwatch, scoresheet, motors. Contestants provide models.

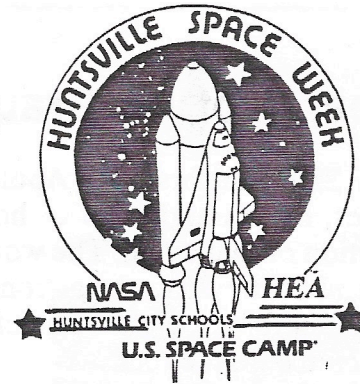
Personnel needed: adult to be contest launch director, adult to be timer and operate stopwatch, adult to be scorekeeper. An adult or responsible student can act as the firing officer to push the launch button, or the contest director can do this. All of these personnel will be together in the launch area.

Contest director will be acquainted with model rocketry and understand these rules. They shall assure correct motors are used, give clearance for students to countdown and launch, watch all launches and judge and certify the times and qualification of all flights, determine tie breakers if necessary, and in general direct all contest and launch operations.

Flying field size should be at least the open area of a softball field with preference for a football field. For best results rockets should be flown in winds less than 15 mph. All launch activities shall be conducted according to the model rocket safety code.

Rockets must be made from commercially available kits that have a proven stability and safety. Motors shall only be type "A" motors as given by NAR classification label code, (such as A8-3, A10-4T, etc), either 3/4" or 1/2" diameter size.

Rockets shall be recovered only by parachute. Rockets must descend as one connected piece as a typical model does. Descending rockets should not be caught by students, since that would reduce the time and score. If the rocket separates into multiple pieces, that flight shall be disqualified. Contestants can make two flights if desired with the combined times being their score.



If the ignitor misfires so that the rocket does not take off, the contestant will correct the problem and try to launch again. Contestants have only three misfire attempts to launch their rocket, after which they are disqualified. If the rocket ejects the motor, that flight shall be disqualified.

Timing shall begin at the first motion of the rocket and end when the rocket touches down or can no longer be seen by the timer. This includes the rocket coming to rest in a tree or on a building, or going out of sight behind them. In the case of a stopwatch malfunction or timer error, the contestant has the option of making another flight.

Timer shall report the time after each flight to scorekeeper. No launch can proceed until the timer announces they are "ready," with the stopwatch reset and in hand.

Scoresheets will be created by the scorekeeper and list the names of all contestants with two columns for flight times, one for total times. Contest director will rank scores.

Scores are determined by the time in seconds of flight of the rocket. Students with the top two scores will be declared the winners and will advance to the championship. These same rules apply to the championship contest. All contestants will get a certificate of participation and accomplishment provided by the school showing their official score.

### Sample Procedure for a Contest Flight

Check safety key is out of firing panel. (If firing system has no key, disconnect one clip from battery.)

Contestant loads their rocket on launcher.

Clear launch area.

Contestant confirms ready to launch.

Timer confirms ready to time.

Announce contestant's name as ready. Insert safety key, check continuity, give countdown and launch. Remove safety key.

When rocket lands, timer reports time to scorekeeper who records score for respective contestant on scoresheet.

Repeat for next contestant.



## In Search of von Braun

As the 25th anniversary of Apollo 11 approaches, our thoughts go to honor and recognition of that event. The world wants to remember that day, the astronauts who flew, and maybe even the name of the guy whose team built the rocket.

Or maybe not.

Wernher von Braun is certainly remembered here in Huntsville, since he helped build this town as well as the Saturn. But aside from having the Civic Center named after him, how else is he remembered, like what kind of monument is at his grave?

Now that you mention it, does anyone really know where the father of the moon rocket is buried? Funny, but it's *not* ever mentioned.

At first thought you figure, well, he lived in Huntsville where they did the moon rocket work, so wouldn't he be interred there? A good thought, but wrong.

Maybe then, he was returned to be laid to rest in his native Germany. Possibly. It didn't happen.

Hmm. This is getting tough. When he died in 1977 he was working at NASA Headquarters in D.C., so would it be there?

Yes, but that's only the beginning of the story.

In a quiet Virginia cemetery outside Alexandria lie the remains of Dr. von Braun. It was difficult to know he was buried

there, because until two years ago, the grave was totally unmarked.

Try to absorb that for a moment, that the man who lead us into space to

walk on another world would be buried in anonymity.

It's not that he wanted that or was necessarily humble in death. It's rather that our government didn't think that it was politically correct to identify the grave of this German immigrant who had been "associated" with Nazis during the war. Considering the way our world is, and how some people still feel about Arthur Rudolph, maybe it was necessary. And very sad.

The curator of the cemetery remembers von Broun's burial. (You couldn't call it a funeral.) He said it was after midnight, when a bunch of government security types came in with lights, dug the grave, lowered the coffin, then literally covered everything up (even brought their own sod) so as not to leave a trace. By law, the caretaker had to catalog the interment, and so they gave him the name of Wernher von Braun.

It wasn't until about two years ago that a marker was placed on the otherwise obscure grave. As shown in the photo, it just says "Wernher von Broun, 1912 - 1977," with the subscript, "Psalms 19:1." The Bible verse referred to is,

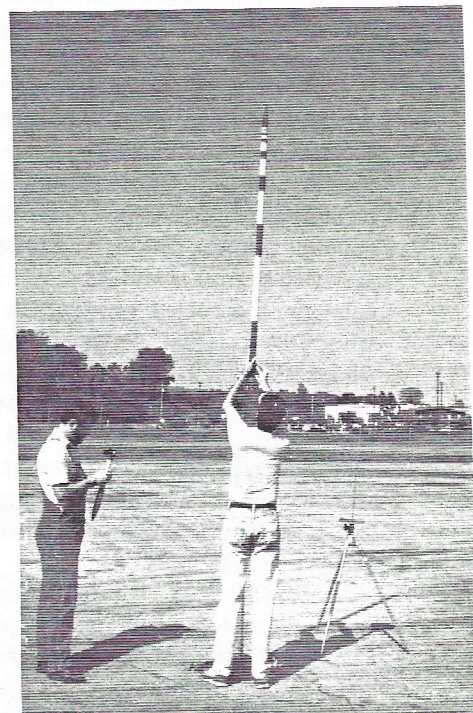
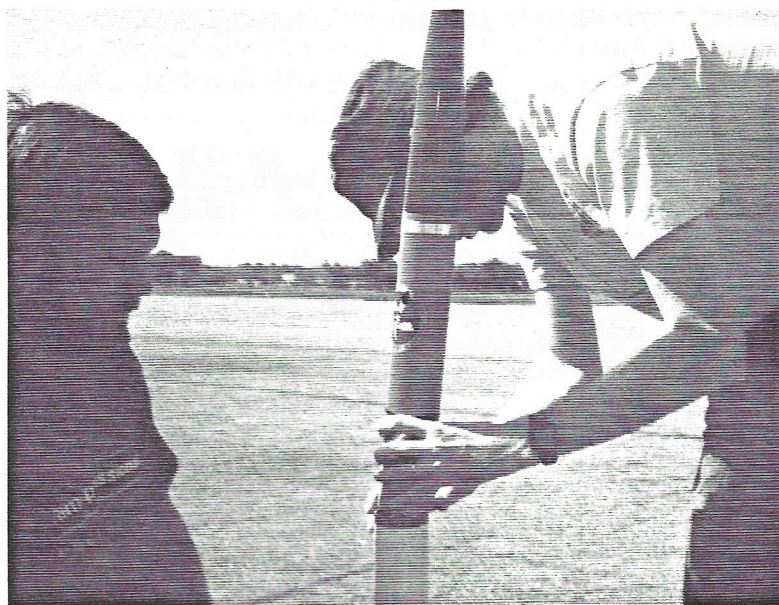
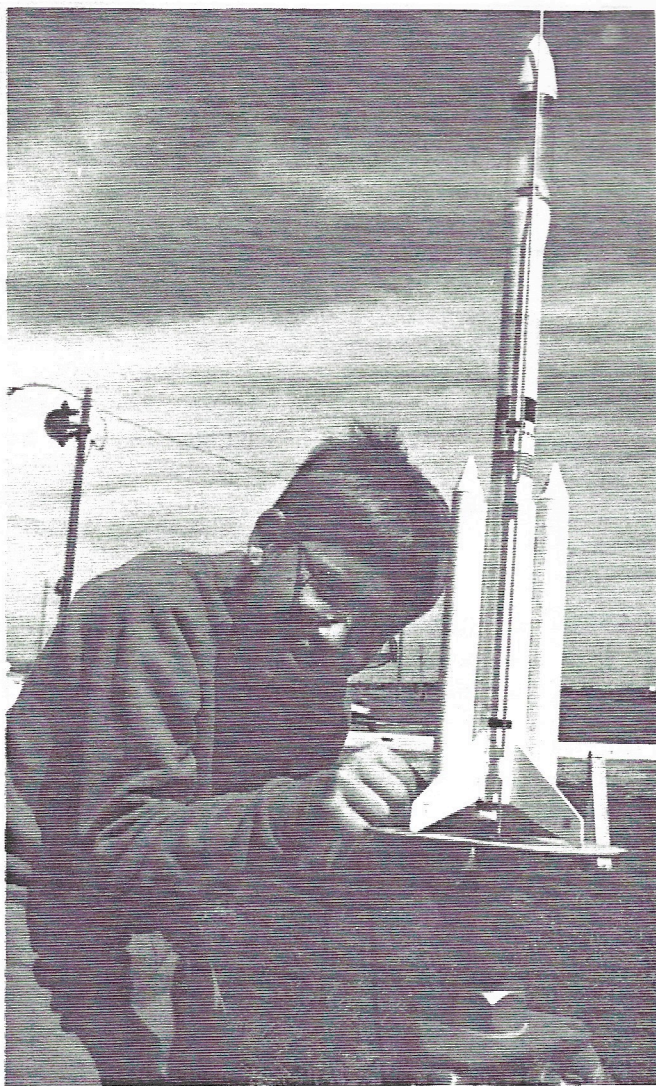
*"The heavens declare the glory of God,  
and the earth shows His handiwork."*

A monument to a man need not be exactly at a grave: George Washington and wife repose in a vault behind their house in Mt. Vernon, while the tall white spire honoring

him is on the Mall in D.C. Truly von Broun's monument is the Saturn V, the Space and Rocket Center, or maybe that hardware on the moon. Finally, at least, his grave has a marker.





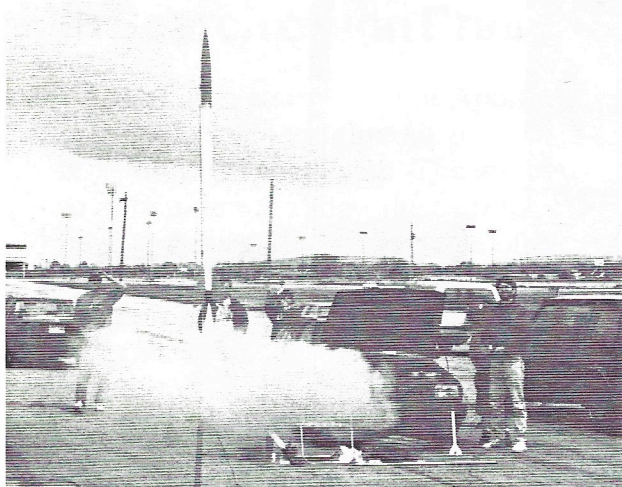


**Prep, Prep, Prep.**

*Clockwise: Matt McCain, George Gassaway, Vince Huegele, Neal Redmon, Joe Robertson, and Greg Warren fiddle with the birds to make them ready to fly.*



# COUNTDOWN '94



## All Steamed Up

by Greg Warren

After months of preparation and research, Tim Pickens has moved a little closer to realizing a launch of his steam rocket. On November 28, Tim conducted his first static "fire" of the motor near his workshop. The results were very pleasing.

With a small collection of loyal followers on hand to assist, the operation began. The LP gas tank required nearly two hours to heat the motor to the 406 degrees necessary for the static fire. For this test, the motor contained 22 pounds (10 liters) of water and was designed to release at 260 psi. Using his garage as a blockhouse, the crew stood ready with video camera running, the strip chart recorder humming away and a cautious voice giving off the countdown. At T-0 the retainer pin was dislodged from the nozzle and the super saturated steam gave out a roar. Within 1.4 seconds, the rocket produced a loud of billowing white steam similar to a shuttle liftoff.

In an instant, all that remained was the echo and an empty rocket motor nestled on its test stand. The test had been a complete success and was captured both on video and on the strip chart. The final results showed that during the 1.4 second duration, a peak thrust of 546 pounds was produced with an average thrust of 326 pounds.

Tim was satisfied with the test results, and pointed out that the actual launch tank will be heated to an even higher temperature with the same amount of water. With his data and research based on the previous work of Bob Truax, Tim also pointed out that in the Truax project (which was conducted years ago), they had to fire the motor at 200 psi because the lines and valves started leaking. But modern materials and components allow for a more precise and secure system, enabling Tim to push the limits that stopped Truax.

*HARA meetings are second Thursdays (except December) at the Huntsville Association of Technical Societies (HATS) office, Suite 29, Building 4900, University Square, (off the Boardwalk.)*

*Launches are 9:00 am Saturday mornings at the Old Airport, unless announced otherwise. Call Greg Warren for SEP launch site information.*

**FEB:** 10 Thur; HARA Meeting, 7:30pm, HATS  
26 Sat; SOAR Qual Launch 10:00am

**MAR:** 10 Thur; HARA Meeting, 7:30pm, HATS  
19 Sat; UAH SEDS Launch  
21-26 Huntsville Spaceweek  
23 Wed; Spaceweek Contest Launch  
26 Sat; Sport Launch

**APR:** 14 Thur; HARA Meeting, 7:30pm, HATS  
9 Sat; Sport Launch  
16 Sat; SEP Launch  
23 Sat; SEP Launch

**MAY:** 10,11; TABES, VB Civic Center  
12 Thur; HARA Meeting, 7:30pm, HATS  
14 Sat; Sport Launch

**JUN:** 9 Thur; HARA Meeting, 7:30pm, HATS  
11 Sat; Sport Launch

**JUL:** 14 Thur; HARA Meeting, 7:30pm, HATS  
9 Sat; Sport Launch  
27 Apollo 11 Anniversary Launch

**AUG:** 11 Thur; HARA Meeting, 7:30pm, HATS  
14 Sat; Sport Launch

**SEP:** 8 Thur; HARA Meeting, 7:30pm, HATS  
18 Sat; Sport Launch, Classic Prep

**OCT:** 1 Sat; Rocket City Classic XIII, 9-12  
13 Thur; HARA Meeting, 7:30pm, HATS

**NOV:** 5 Sat; Sport Launch  
10 Thur; HARA Meeting, 7:30pm, HATS

**DEC:** No HARA activities.

*Some scheduled events subject to change.*

*For more details call Vince at 881-2904 or Joe at 721-1338.*

The launch vehicle is under construction and although no definite launch date has been set as of yet, the experiment promises to be an exciting (and very loud) one, to say the least.



## New Product Information

### Glenco Hobbies

Plastic kits of the Jupiter-C/Juno-1 [1/48 scale] and the Explorer-1 [1/6] have been available from Glenco for a few years now, but they have released more goodies. Early concepts from von Braun are on the market. The three stage ferry rocket [1/288] to transport items to space station orbit, and a lunar lander space ship [1/72] come from the Collier's series. There is also the nuclear space station [1/300] and a Mars retriever rocket [1/72]. All kits are under \$10. See your local store.

### Estes Catalog 1994

Last year, Estes reformatted their catalog with completely new layouts, photos, and most importantly, new rocket kits. It was exciting then, but the 1994 edition is the about the same 63 pages. The trick is to find what's new at all.

The Star Wars models are back from the late seventies: *X-wing* and *Tie* fighters, and *R2D2*. (Scale him up Tripoli!) There are some new novelty kits with helicopter and parasite glider effects that look nice, and of course the *Strato Blaster* RC glider. A new body tube fin marking guide is available.

The "E" motors are added to the engine page, and remember they're only two per pack. There's a price jump here. A pack of "C" motors is now over \$5.00. The "D" motor pack is up .50.

A welcome addition to the catalog is a pull out technical manual. Estes had this twenty years ago and it was a classic reference. Now, with new color graphics, they have a modern primer on model rock-

etry that is excellent for explaining technical matters and assembly details of the hobby. We needed this! In the fine print, it says "revised by Thomas Beach and Joyce Guzik," who are reknown in NAR - rocketry education circles.

Although there's not much new this year, it's okay because of the big change and expansion in 1993. There's still plenty of kits we haven't built yet and want to from Estes.

### Tech Brief : Greg's Motor Selection Reference

Keeping up with which motor goes in what rocket can be an easy task if you have only a couple of models, and a catalog handy to look them up. But what happens when you have a wide selection of models and no catalog? Or a scratchbuilt model that flew really well on "some motor" about year ago, but which motor was it? In some cases it may not be critical if your ejection charge is activated a couple of seconds early or late. At other times, two seconds one way or the other can mean the difference between a stripped parachute or a devastating impact.

To avoid this problem, some people use data cards and keep them in their range boxes. But data cards can get lost. I write the motor information on the tube coupler shoulder or nose cone shoulder. That way, the information is always available, and the data can't be confused with motor specifics pertaining to another rocket. In addition to the particular motor, I also put tally marks beside each motor for every flight. This is a great way of keeping up with your preferred motor per model and how many times the rocket has been up.

# HARA

## Dues Time!

**Renew now for 1994!**

**Continue to enjoy the privileges!**

**HARA Membership Application/Renewal**

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

NAR Number \_\_\_\_\_

**Dues are \$10.00 /year, payable to HARA**

**Send to: 11108 Argent Dr., Huntsville, Al 35803**

### TOP TEN REASONS FOR (RE) JOINING HARA :

10. Meet exciting people, and have them meet you.
9. Your inner child says to.
8. Glory, honor, respect, duty.
7. It's so educational!
6. Lose weight, live longer, be healthier, feel better.
5. Burn things and blow stuff up.
4. Only rocket club within 300 miles.
3. We understand your needs.
2. What's \$10 these days, anyway?
1. Only aerospace activity left in Huntsville.





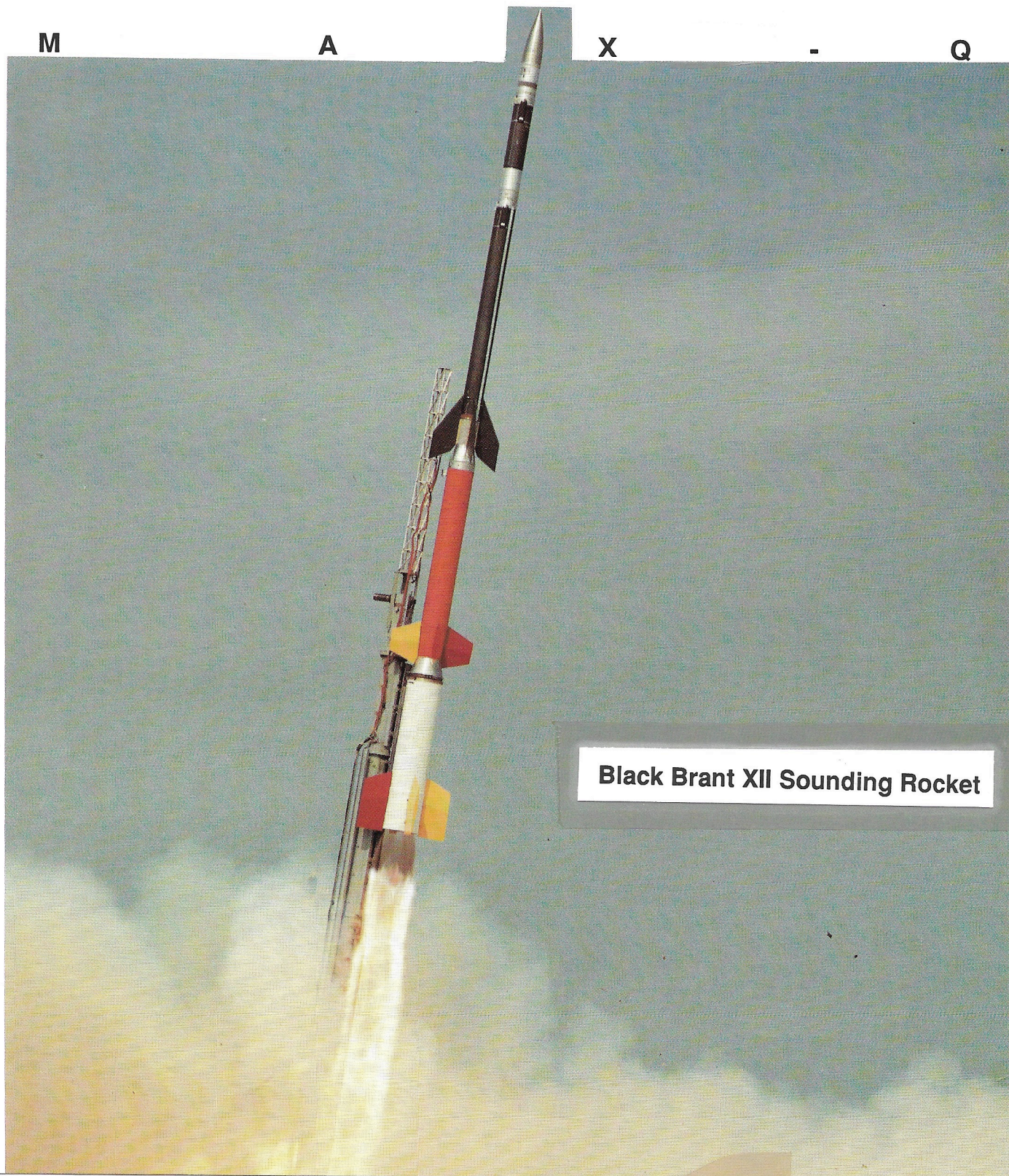
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**Black Brant XII Sounding Rocket**

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11108 Argent Drive  
Huntsville, Alabama 35803**

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