



# MAX-Q HARA

Newsletter of the Huntsville Area Rocketry Association

Volume 8, Number 4, Aug/Sept 1994

## Classic at New Time

Now 9:00 am to Noon on Oct 1

From discussions at the planning meetings, HARA has decided to set the new time of the *Rocket City Classic* for **nine am to noon**. The time change allows an earlier announcement of winners and distribution of prizes. It will make the contest more of a "morning activity," that will free up the second half of the day for all the busy participants. Everyone has approved of the change.

The *Classic* is no longer the "all day" affair it was ten years ago when scores of modelers lined up for their only chance all year to fly on a range in a big event. The successful programs of HARA, SEP, and now Spaceweek have given both advanced and novice modelers many regular opportunities to see launches and fly rockets.

"There haven't been the large number of contestants in the *Classic* lately as there used to be, so HARA is adjusting the event accordingly," said Vince Huegele. "The spectator crowd is still large and the general support is still good."

The usual promotional advertisements will be used. "Just because the day is and hour shorter, we still need all HARA members to come out and run the range and fly rockets," said HARA V.P. Joe Robertson.

The standard positions required to run the range are needed in two shifts as follows: scorekeeper, firing officer, timer, tracking station operator (2), spot landing measurement, safety officer, pad manager, registration, concessions. Also needed are two or three judges for the craftsmanship event. Contact Joe or Vince for your preferred assignment.

**RIGHT:**

*Robert Burdine and Vince Huegele fix at misfire at last year's Rocket City Classic.*



## Science Day Set

Jayne Russell of the Academy of Science and Foreign Language (ASFL) has invited HARA to return for their Science Adventure Day. The event is from 9:00 am to 1:00 pm on Saturday, October 8. This is a week after the *Rocket City Classic*.

A classroom will be assigned to HARA to set up a display of model rocketry. Literature will be available as rocketeers get to talk to students and parents. Jayne has suggested this year we launch a few models, but the small school yard will mean small and few rockets.

The HARA show last year was well received. Joe, Greg, Dan and Vince handled the job. Much of the exhibit was SEP equipment which gave the professional impression model rocketry deserves.

All members are invited to come by and help. The Academy is on Mastin Lake Drive. What could be better than a morning of talking about rockets?

### INSIDE MAX-Q

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# From the President's Pad

We haven't said much about it this year yet, but HARA is now fifteen years old. We did a big spread in *MAX-Q* for our tenth anniversary, but we'll be low key this time. (Do you want another commemorative rocket thing?)

Originally chartered with NAR as section 403 in 1979 by Wayne McCain, the club started small and slow, and did not really come of age until 1986, when regular meetings and launches began. HARA got into the big time in 1988 when we hosted and won the NARAM. Since then the group has grown and influenced local schools and industry promoting and advancing the sport of model rocketry. We've even had international exposure with SOAR in France. And *MAX-*

*Q* has been in continuous production since its first issue in 1987.

Many modelers have come and gone in the past eight years. HARA had a peak enrollment in 1987, a dip in 1989, and a steady number since 1991.

Of the members in 1986, the only ones still on the roster today are Wayne, myself and Ed Stluka. And as some people drop out or move to other interests, new people are drawn in to maintain a steady total membership. The names and faces change, but the club and the hobby continue. Consistency and longevity are a great success in the model rocket realm, and unfortunately, uncommon.

We want to cheer George Gassaway, who was elected to the NAR board of trustees at NARAM 36 in July. There's a lot of new blood on the board now that maybe can vitalize NAR. Thanks to all the other trustees who did their time.

## RIGHT:

You'll have to write your own humorous, rocket related story to go with this caption. Like, was he class B and stored in a magazine by BATF?

# COUNTDOWN'94

*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 9:30 am Saturday mornings at the Old Airport, unless announced otherwise. Call Greg Warren for SEP launch site information.*

**SEP:** 8 Thur; HARA Meeting, 7:30pm, HATS  
17 Sat; Sport Launch, Classic Prep,  
Old Airport 10am-12, Athens SEP HP 1-3pm  
17 Sat; Plastic Model Contest at Hobbytown

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

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

**DEC:** No HARA activities. Happy Holidays!  
*For more details call Vince at 881-2904 or Joe at 721-1338.*

## MAX-Q

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**Editor:** Vince Huegele

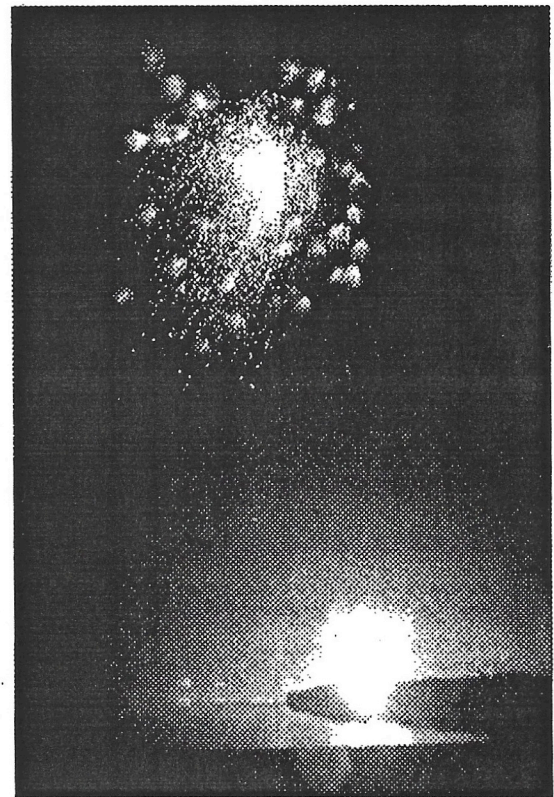
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Neal Redmond, Matt Sherrill

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## HARA officers

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

NAR address: 1311 Edgewood Dr., Altoona, WI 54720.



The Associated Press

## There goes Brian

A 12-inch shell containing the ashes of deceased fireworks maker Brian Kelly explodes over S.N.P.J., Pa., during the final night of the 25th annual Pyrotechnics Guild International convention Friday. Kelly died two weeks ago after intestinal surgery and his dying wish was to "be a big firecracker."

## HARA's High Power At Mojave

*By Neal J. Redmond*

### July 9th 1994 Launch In Mojave Desert - Aerial Acres

HARA rocketeer Neal Redmond visited Mojave while on assignment at Edwards Air Force Base, CA. The local Tripoli Mojave Prefect lead by Karl Baumann invited HARA to crank-it up (so we did!). The Air Force uses the range for low altitude (~100' AGL) supersonic flying. Take "Clay Mine Road" until the it ends and then North through desert until you see rocket plumes. This place is right in the middle of no where.

Ian Furlong (See August 1994 Black Rock Article in "High Power Rocketry") flew his Pluto on two K250 flights. Neal Redmond flew his "Carbon DAWG" (by Dangerous Dave) on a K550 and latter on a K-1100. The combined



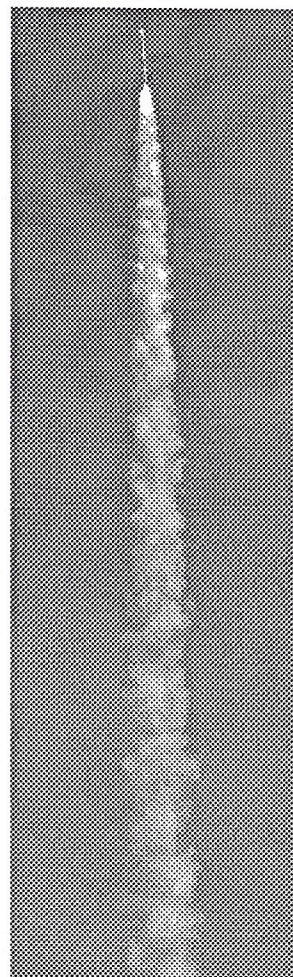
Furlong and Redmond flights set the Mojave Club record for K powered flights at Aerial Acres.

The great thing about Mojave is bare ground! Recovery is a snap:

- (1) get in the car,
- (2) check your gas & water,
- (3) put the hood ornament on line with parachute, then
- (4) wagons ho! With peak altitudes of two miles, you drive about the same distance due to wind. Early afternoon the flying stops due to wind and heat.

Locals don't surf, but they like to "feel" their missiles launch. Only 60 feet of launch cord between you and a live K-Motor, well it's very exciting. Neal made a contribution to the Club so you don't have to hide behind the cars anymore. Karl says the new launch system is now operational so wimps can launch too!

Many thanks to Karl Baumann (AEROTEC) dealer, the Mojave Tripoli, and four wheel drive local recovery team Charles Schumacher and Joe Gessaroli.



**Above left:** Neal racks the Carbon Dawg.

**Right:** Screaming like a scalded dog!

**Left:** Neal and Joe ready with the Dawg on a K1100.

## Moon Memory Mania

The modelers of north Alabama remembered the first manned lunar landing on Saturday, July 23 with an afternoon and evening rocket launch. Greg Warren continues to have good ideas, and flying rockets as the day cools off was another one.

The week had been a succession of commemorative Apollo 11 events starting with the parade and concert in downtown Huntsville the previous Saturday the 16th corresponding to the mission launch. But Kennedy's complete goal of "returning a man safely to Earth." was not realized until crew splashed down on July 23.

On Wednesday, the anniversary day of the landing, activities focused at the Marshall Space Flight Center. With dignitaries present, a bust of Wernher von Braun was unveiled in the office building plaza now named for him. Later, the department heads of the Saturn project assembled in the auditorium to recollect stories of the glory days. Half of the staff was from the Peenemunde team, and the discussion in German accents recaptured a feeling of Marshall's lost past. The host of the MSFC alumni league who assembled the presentation set a chair with a nameplate for Arthur Rudolph, who had directed the Saturn V program.

NASA and contractor employees had a picnic at the center Saturday morning, but that afternoon the field in Athens was taken by the model rocket people to celebrate in their own way. The weather and air were good; the dust and ticks were bad.



Neal Redmon had his *Corona* ready to set an Alabama impulse record with a K550 core motor and four H110 outboards to be airstarted. The bird had flown well in Danville in this configuration. But a bug got into the internal ignition system of the rocket and the H motors started on the pad way before the K did. Neal had better luck with his *Carbon Dawg* on an I reloadable. He also flew a *Patriot* and an *ARM*.

Kevin Cornelous had a trunkful of Aerotech and LOC models that kept the pads busy. He made a good dozen E, F, and G flights. Joe Robertson cranked off several models from his collection. Dan Coon was there working on his *Tsunami*. Greg fired a *Phoenix*, *Viking*, and a *Patriot*. Several teachers and parents brought out kids to watch and fly their rockets. A number of adult modelers came to investigate the high power scene.

Vince Huegele finally had his scratchbuilt *V-2* painted and flew it on an F25-6. He shot a *Mean Machine* on a D12 and then an Estes E15 which worked well. A foam shuttle orbiter boosted on the *Machine* and entertained the crowd gliding down. Then he flew an old *Terrordactyl* glider. Vince "retired" an old model with a F10-4 motor that burns for seven seconds. After several minutes of leisurely descent, the rocket's orange chute went over the treeline into rocket heaven.

Tim Pickens had brought out his steam rocket for another flight. With only thirty seconds left in the count, a seal began leaking and the pad was enveloped in a steam cloud as the chamber lost its pressure. The drama and realism were very impressive. Undaunted, Tim



recycled his procedure to tank up and try again, but when the ejection charge suddenly fired on the pad before launch, Tim was daunted enough to pack up for the day.

After a break for evening refreshment, Greg set up the TV on the range table for a video viewing of Apollo footage. At the end of the tape, Vince's *Saturn V* was launched followed by his *Eliminator* on an F50-5 Silver Streak. Then Kevin's *Mirage* took off into the sunset.

Stars were coming out in the summer sky as car lights were turned on to pick up the range and keep the cows away. A large orange ball rose over the horizon in the east as a final statement to these proceedings. The Moon is still there, and we are still here.

## PHOTOS

*Opposite page:* Lots of rockets lie in wait. *Right:* Neal and Greg assist Terry Thompson get certified for high power. *Below:* Neal and his *Corona* have together seen the icy cornfield of Danville, Illinois, and the sweltering pasture of Athens, Ala.



## SUMMER SHOTS

Summer launch attendance at the old airport has varied from lean to lush, replete with prospective members.

July had only four cars show up even though the air was good. But that launch was the week after the holiday, and all the special Apollo 11 events were coming up. (See Moon Story, page 4.) It could have been rocketeers were sated with fire and smoke from fireworks celebrations.

Half of the attendees were modelers interested in the club and "those big rockets." HARA members talked and demonstrated what composite motors can do, sending the visitors off to browse the hobby stores and study the catalogs.

The steady 8 mph wind on the August date was pleasant for being out, but took models downrange at a good clip. Rocketeers cut back on their motor size and number of flights so to keep their rockets.

Al Clark flew a home-brew design with a special spatter paint scheme. His *Mean Machine* went up well, but a fin caught the parachute and the long body did an impromptu glide back to earth. The other streamer recovered models landed in the wind better, right in the launch area.

Joe Robertson fired a two stage bird, a mini-*Patriot* which he recovered from a phone line, his *Delta Clipper* and some other Quest models.

Neal Redmond fired some small rockets in the wind for he and Melissa to chase. He had made repairs on his large 'Cluster R' *ARM* and brought the model out for show.



Vince Huegele had a new crayon converted model from a very small crayola bank to test fly well. After Joe's good DC-X flight, he fired his *Clipper* model on its maiden voyage. His other small models were being taken to

the fence by the wind, the lucky ones in the air. One rocket gained mileage on the ground dragged along by the wind on the chute until the leading edge of the body tube was chewed up.

Tim Bennett came down from Tennessee to make several flights on *Bertha* size rockets. Greg Warren brought out daughter Jessica and launched her in the air using "big arms" recovery. New HARA member Craig Presson came out to his first launch to watch and enjoy.



### Getting Bombed at the Armament Museum

The Naval Armament Museum in Fort Walton, Florida is a showplace for rocketry that any modeler will enjoy.

The museum traces the history of U.S. bomb development through the military research center and gunnery range at Eglin AFB there in Fort Walton. It was here Dolittle's squadron practiced for attacks on Tokyo, and the crew of *Enola Gay* trained for their special historic mission. Smart bombs were first tested at Eglin before they were applied in Vietnam and later in the Persian Gulf. Ordinance, guidance, and countermeasures are this center's strengths.

The exhibit hall holds dozens of inert bombs and delivery systems. Target drones are also shown for inspection, vividly decorated in International Orange. Full size *Falcon*, *Sparrow*, *Firebee*, and a variety of *ARM* missiles are here. There's even a full size "fat man!"

Outside a B-52 and an SR-71 cover the lawn, along with other vintage bombers and fighters. A *Bomarcand Hound Dog* missile are on display for the touching.

Allow at least two hours of your vacation time to visit this attraction, or take half a day to absorb every detail. Bring your camera, and a notebook and tape measure if you're in to scale model building. Admission is free and it's open every day.

# PUBLIC MISSILES LTD

## EXPLORER

by Vince Huegele

After building several Aerotech and LOC kits, I picked up the Public Missiles *Explorer* on my trip to Danville. I got this \$45 rocket because I wanted to build a model using the unique materials these kits have to get a better finishing job.

The instructions with the kit are the sparsest I've ever read. Everything is given on just a single page, so you need to already know how to build this kind of bird. On the other hand, it's basically engine mount - fins - recovery system anyway. As such, I'm writing my own directions here.

The unique materials in these kits require a different kind of finishing technique. With rough grain wood and paper, you have to smooth out and fill in a rough surface for the paint to look nice. With these smooth components, you have to roughen them for them to take paint, or even glue. The phenolic fins have to be scuffed along the root edges, or believe it or not, the epoxy will not stick.

Begin by following the hints for construction in

the engine mount. I inserted a fin through its slot and applied epoxy to attach the fin's root edge to the engine tube. The slots are very precisely cut in the body and work like a jig so the fin fits well and correctly. I repeated this with the other two fins. Then I lobbed on the epoxy for fin fillets on the engine mount and on the *inside* of the body tube. With the fins securely connected to the airframe from the inside, the external fillets could be neatly applied more for appearance. Finally, I spackled the aft ring and glued it in directly up against the fin edges for additional support.

Lastly, I scraped some primer off the body and glued on the brass 1/4" launch lug. Use a dab of epoxy to tack it in place, then liberally fillet the joint. All that's left is to tie on the shock cord and parachute, which is best done after painting. The fabric parachute has a center spill hole cut out.

The nose cone is the same blow molded plastic ogive familiar to Aerotech models. I washed it off in the sink with detergent and gave it a good rinse. While it was still wet, I wiped it with a cotton ball moistened with isopropyl (rubbing alcohol). All of this is to remove the film residual from its manufacture so it will, yes, take the paint better.

*[Greg Warren suggests you go further and use a heat gun to warm the plastic and drive off additional contaminants. But don't use a propane torch. The isopropyl fumes will create*

*a shish kabob you don't want.]*

As soon as the alcohol had evaporated, I hit the cone with its first dusting of primer. This particular cone had a bad seam in it that couldn't be helped much with shaving and sanding. After the priming cycle, I applied several thin coats and one heavy of flat black enamel to finish the nose.

I wanted to paint this bird a bright "sports car" red, but the only paint that was the color I liked was Pactra polyurethane. This formula also needs a rough surface to bond to because it peels off easily. I put on the last coat of primer to make the whole airframe solid white and then went over everything with 240 sandpaper. The paint went on okay, but I see why it's generally not recommended for rockets. It takes a long time to dry and has a soft skin. Next time, I'll only use enamel. Finally, I accented the fins and made a roll pattern with black monocoat. It looks good; I'll let you know how it flies.



the PM catalog. Finishing of the body tube is actually the first step. The groove on these tubes is big, but that makes it easier to fill. I used a plastic knife to smooth in the spackling. White Krylon primer covered the body along with the buffing sequence of the appropriate sandpaper grades.

Next, the piston strap must be anchored to the engine mount. All Public Missiles kits come with piston ejection, which is more a more reliable recovery technique with large diameter tubes. The strap connects to the piston that then connects to a long length of elastic shock cord on its way to the parachute and nose cone. This strap is tight fabric like a car seat belt. It cannot be attached to the inside body wall because the piston must have a clean cylinder to slide in.

Rather than attaching both plywood centering rings to the 29mm engine mount and then inserting it into the body, I only glued on the fore ring with the piston anchor. I slipped the back ring on the tube and glued the fore ring up in the body. Then I could remove the aft ring to access around

# CUB CAMP BUILDS AND FLIES

by Matthew G. Sherrill  
Cubmaster NAR#51452

Model rocketry was introduced to a group of scouts and parents this summer at the Muscle Shoals and Lauderdale Districts joint effort Cub Scout Day Camp in Lauderdale county. It was held July 14-16 on the Boy Scouts of America's Camp Westmoreland Reservation on Shoals creek.

The scouts varied in age from 6 to 16 and ranked from tiger to tenderfoot. The Boy scouts served as patrol leaders to keep the younger ones together.

The scouts were split into 4 patrols each having a unique name. The youngest patrols were made of first and second graders called the Beaver and Sharks. The third and fourth graders were the Crocodiles and the fifth and sixth graders made up the Fox patrol.

I knew there would be about fifty scouts present, so I chose a model rocket kit that would be easy to assemble and require little detailing. The Estes Alpha 3 met my requirements because of its pre-colored parts and one piece fin unit.

The camp had sessions of crafts, first aid, BB gun shooting, lima bean wrist shooting, and rocketry. Each session lasted an hour except mine, which lasted two hours.

My first session was with the Fox patrol. They were able to build their models pretty fast. Some of them had already built and flown a model rocket, but even for them it was a lot of fun.

Vince Huegele came to our first camp day. Having done a good bit more building sessions than me, his skills helped the scouts right on along with each assembly stage.

The second session was with the Crocodile patrol. My son, Lee, was in that session and was my assistant. He helped it go along smoothly because of his knowledge on rocket building he learned before when he and I built rockets together.



We stopped halfway through the second session for lunch. When all the boys finished eating and picking up trash, we held a water balloon contest. When the building session resumed, we found the army tents we were working under had become very hot from the sun shining down on them. We had already rolled up and tied



all the flaps and doors up to keep us cool, but the breeze could hardly be noticed.

Vince and I talked to the scouts about safety the whole time. They could really relate to how a mistake on the ground could mean the difference between getting their rocket back or not. When Vince mentioned anything about the space shuttle, he had their undivided attention.

For the third session both of the younger patrols, Beavers and Sharks, had been combined. What a misfortune for Vince and I in the afternoon heat. All together they totaled 21 first and second graders. This was almost overwhelming. We had to take several water breaks during that last session of the afternoon. The little cubs didn't want to take the breaks, but I think they needed them more than the adults did. It was a chore to get those little rascals to put their rockets down. When that session ended, I sat down and drew up a new schedule for the next two days to put the younger scouts in the first session of the day.

You know, it's amazing how much glue 55 cub scouts can go through in a day's time. I had to send someone during lunch to the store for an extra bottle of glue just in case.

We used the fastest drying type carpenter's wood glue.

Vince was only there for the first day, but he had been such a big help that we made do from then on without him. The scouts breezed through the remaining assemblies on Wednesday. We even flew a couple of rockets to in the afternoon to kill some time.

The third day would be the final test. We prepared and flew 55 models on A8-3 engines in a small field surrounded by trees. Only one rocket fell prey to a ferocious rocket eating loblolly pine. The others were spared.

Because of the constant wind changes, I had to weathercock each rocket carefully. A few models came down right between trees and were never snagged.

Next year I hope we can build a model that is a little more challenging, like the original Alpha. Teaching kids how to do something is a whole lot of fun. There aren't many things more enjoyable than watching a kid (big or small) going after a model rocket descending on a parachute.



*For twelve years HARA has successfully operated a big contest. The orderly activity comes from planning and proper procedures. What's a modeler suppose to do when they come out to fly? What are the club members doing at the different stations? How does it work? Here are the instructions handed out to contestants each year for you to review and preparation of the upcoming event. Each step corresponds to the diagram number on the opposite page.*

## **An INTRODUCTION to**

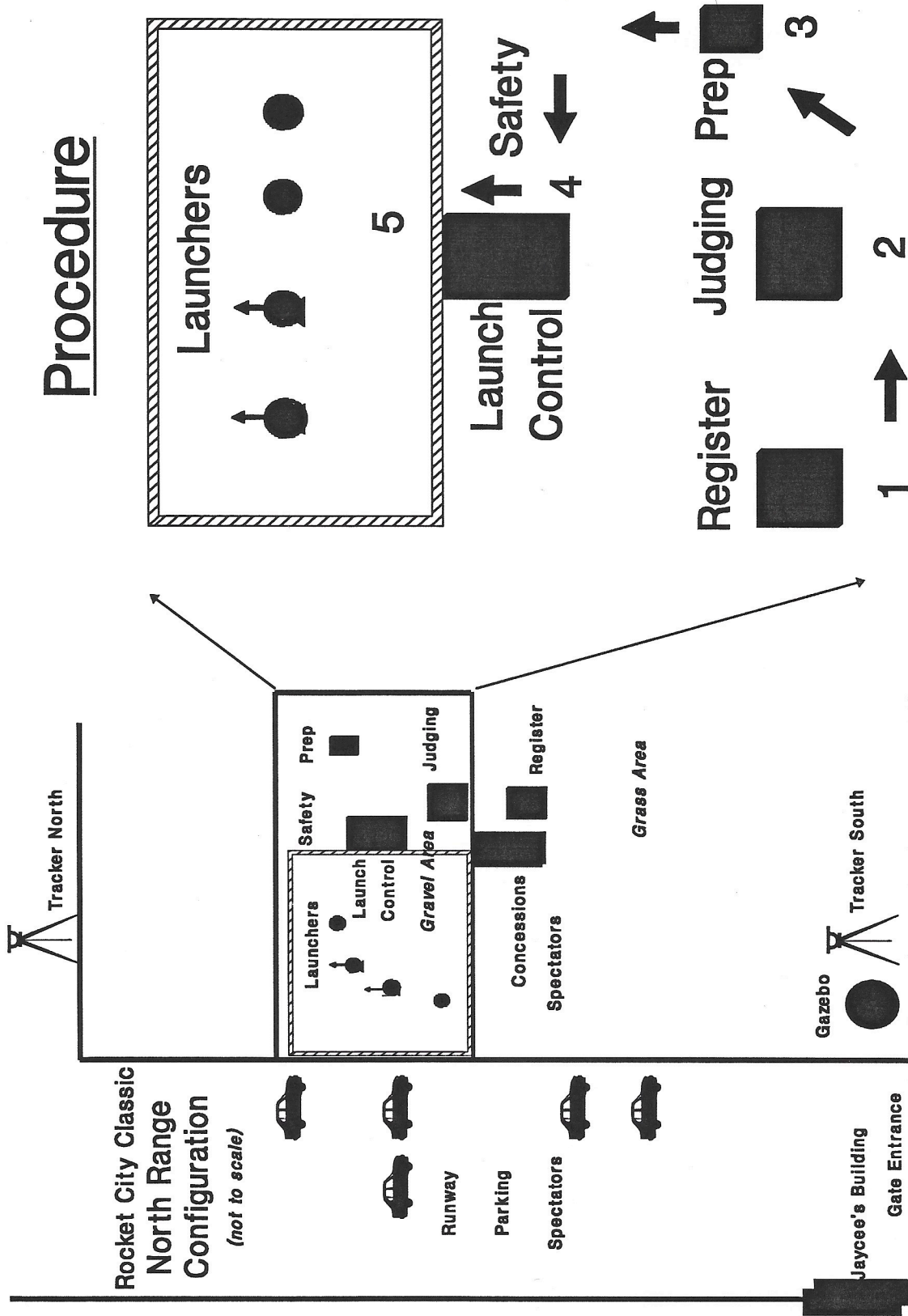
# **The Rocket City Classic Model Rocket Contest.**

## **INSTRUCTIONS**

1. Upon arriving at the contest, each contestant should report directly to the registration table to get a registration form. Fill out the form and pay the \$3.00 per PERSON entry fee, which will allow the contestant to launch as many rockets as desired. Flight cards are obtained from the registration table upon completing and returning the registration form. Cards should be filled out by the contestant at that time. The contestant must have a flight card for EACH contest flight regardless of how many rockets are entered or how many times they are flown.
2. If the contestant wishes to enter their rockets in the *Scale / Craftsmanship* category, they should go to the judging table with the rocket and flight card, otherwise proceed to [3.] Judging for these categories will be done BEFORE the model is launched. Officials will judge each model as it is submitted and then return the model and card to the contestant for flight preparation.
3. Prepare your model for flight (a prep table is available.) Models must be completely prepped with ignitors, checked for wadding and parachutes, and be ready to launch before going on to the safety check. If you need assistance in prepping or repairing your models, alert one of the HARA members in the yellow T-shirts.
4. The next step is the safety inspection. If there are a number of contestants waiting, please form an orderly line at the table. The safety inspection is for your benefit and required. The Range Safety Officer will inspect ALL rockets in order to assure they comply with the *Model Rocket Safety Code* for construction, type of engine, recovery system, weight, and stability. Rockets that fail these standards will not be launched.
5. After completing the safety inspection, proceed to the control table and present your flight card for the rocket you are flying to the launch control officer. A new flight card must be presented for EACH contest flight of a rocket. You will then receive a launcher assignment.
6. Go to the launcher, load your rocket on the launch rod and attach the ignitor clips. Contestants MUST be accompanied by a launch officer when in the launch area, otherwise, this area must be kept clear. After launch, the contestant must recover their own rocket. In the case of a misfire, the contestant must remove the rocket from the launcher, take the corrective action, and then report back to the launch officer for a new launcher assignment.

Results will be tabulated and announced at the end of the contest. All flights must be made before the range closes at *noon*.

# Procedure



M

A

X

Q



**Army Tactical Missile System  
(ATACMS)**  
Surface to Surface  
Length: 13'  
Diameter: 2'  
Range: 60 miles

**Huntsville Area Rocketry Association  
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