



max-Q HARA

Newsletter of the Huntsville Area Rocketry Association

Volume 9, Number 4, Jul/Aug 1995



Classic Contest to Change Event Process

The very afternoon of last year's *Rocket City Classic*, HARA members were together discussing ways to improve the launch. Many ideas were mentioned with the consensus that things were in fairly good shape. A new plan emerged, however, to simplify and speed the scoring process.

This year, the contest events will be held in sequence, rather than flying all events throughout the launch. The *Duration* event will be conducted from nine to ten. Then the stopwatches will be put down and the tracking stations manned for the *Altitude* event from ten to eleven. *Craftsmanship* models will be flown to qualify for the next fifteen minutes, with the rest of the time going to play *Spot landing* with the measuring tape. Prizes will be ready to award at noon.

This plan will automatically limit and define what models are uniquely in what events. In the previous less formal scheme, events were flown all open and unrestricted. A contestant could check on his flight card he was competing in both altitude and duration events for one flight, with it left up to the scoring official to decide where the points would go.

The general rules and launch procedures will still be the same. It shouldn't be difficult for range operators to adjust to the new program or too confusing for the participants. Contestants will be briefed during registration and reminded of the schedule throughout the morning by announcements of the events on the loud speaker.

HARA members should begin arriving at the old airport about 8:00 on Saturday, September 30 to start setting up the range. The calendar timing avoids a conflict with the big air show this year, which is on the following weekend.

Assignments for range duties and contest responsibilities will be discussed at the September 14 HARA meeting. Please come and enjoy the planning session. All members, family and friends are needed to help out in the operations. Besides, where else would you want to be than at Huntsville's biggest launch of the year?

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From the President's Pad

Mr. Chairman

Congratulations to Greg Warren on being appointed as the NAR Educational Chairman. (He was officially installed several months ago, but wasn't actually told about it until right before NARAM-37.) The NAR board will convene here in Huntsville this February for a full briefing and demonstration of what SEP is and how every NAR section or Tripoli prefecture can have a successful high power rocketry education program. Greg was also

declared the Tripoli education director at that board's meeting at LDRS. (It's a small rocket world.) With this new national exposure, I want everyone in HARA to reaffirm their support for Greg's work. He's done an excellent job, and we want SEP to smoothly "stage" to the next level of activity.

Old Airport Woes

Flying out at the old airport is no more but also no less congested than it has been lately, but there is an option. The RC airplane club has had a windfall in acquiring access to the former landfill for their new flying field. They are now across the street from where they were on a newly sodded and paved property. What a deal they made with city! The south end of the airport that they vacated will be cleared of its concrete to make way for a practice softball field, according to Ralph Stone of the COHPAR. That end will become available for us to fly on, if we wish, with more margin to miss the golf course and National Guard Armory. The RC people have asked if any rocketeers are going to use a radio frequency at the airport, check in with Chuck Fasmire, 539-0828, and go to the control stand for a pin.

Since most HARAns like to fly the big stuff and wait until

a launch at Greg's spacious, private Athens site to pack the car with rockets, our frequency of the airport use needs to be discussed. Where do you want the monthly launches? Think also what is best for the club, and for new members and prospects. Tell us so we can plan the schedule for next year.

Ed Recuperating

Ed Stluka is still on the road to recovery from his stroke. He has had to drop out of HARA, HALO and SOAR activities for a while, but is still interested in all that goes on. Give him a call or drop him a card to cheer him up.

Hobby Shop News

Wilson's Hobbies is out of business and has closed their doors. Recent decisions about their finances brought about the end of the shop. Fortunately, Sunbelt Hobbies has expressed a great interest in expanding into rockets. The manager wants to stock high power stuff, kits, composite motors, and whatever we request him to have. He'd like to have a big model to display in the window. Someone want to loan him one? There is also a TV there he wants to use to show video of our launches and a bulletin board eager for announcements. Go by the store on Jordan Lane and talk rockets.

MAX-Q

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Editor: Vince Huegele

Contributors: Greg Warren, Neal Redmon, Kevin Cornelius, Tim Pickens, Brian Day

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HARA officers

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

Rocket Web Browser

Compiled by Brian Day

Rocketeers are on-line big time! Check out these addresses for hot news and info on what groups are doing. NAR and Tripoli have no official home page themselves, but these progressive sections do, and connect to many more interesting rocket sites.

AeroPac Homepage -- a Tripoli Prefecture in California

"<http://www.aeropac.org/aeropac/>"

Livermore Unit of NAR - several nice pages with net pointers

<http://www.lunar.org>

The sunsite FTP Archive

"<ftp://sunsite.unc.edu/pub/archives/rec.models.rocks/>"

Tad Morgan's Rocketry page - good starting point

"<http://www.primenet.com/~tmorgan/rockets.html>"

BayNar Model Rocket Club -- NAR section in Silicon Valley.

"<http://www.digimark.net/AirAffair/baynar.html>"

MARS Homepage -- the NAR section in NY, (not the planet.)

"<http://nysernet.org/staff/billowens/mars/mars.htm>"

MIT Rocket Society

"<http://web.mit.edu/afs/athena/activity/m/mitrs/www/home.html>"

MIT R.M.R Archive

"<http://www.penninfo.upenn.edu:1962/tiserve.mit.edu/9000/322.61.html>"

SEDS HPR Page

"<http://sed.s.lpl.arizona.edu/rocket/rocket.html>"

Don Irving's Rocketry Page

"<http://www.irving.org/irving/rocketry/rocketry.htm>"

High Power Motor Sizes

"<http://work1.utsi.edu:8000/~jschmalh/motors.htm>"

East Coast Modeling Center

<http://www.peinet.pa.ca/ECMC>

Estes Industries

"<http://www.estes-rocketry.com/estes/>"

The Experimental Rocket Propulsion Society

"<http://www.lunacity.com/homepage/erps.html>"

Dangerous Dave's Composite construction

"<http://www.elite.net/~rocket/>"

Lifting Body Home Technology Page

"<http://www.phoenix.net/~rocket/rocket.html>"

University of Illinois Hybrid Project

"<http://stimp.cen.uiuc.edu/soc/isds/hybrid/>"

LIARS Homepage-- Tripoli group in Long Island

COUNTDOWN '95

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 Huntsville Airport, or at the Athens field.

SEP:

14 Thurs; HARA Meeting 7:30 pm HATS

**30 Sat; Rocket City Classic XIV
Model Contest and Exhibition**
see page one

OCT:

12 Thurs; HARA Meeting 7:30 pm HATS

28 Sat; HP Launch, Athens

NOV:

9 Thurs; HARA Meeting 7:30 pm HATS

11 Sat; Launch, Old Airport

25 Sat; HP Launch, Athens

**DEC: 9 Sat; 7:30 am Launch Marathon Start
Von Braun CC**

For more details call Vince Huegele at 881-2904 or Joe Robertson at 721-1338. Call Greg Warren, 232-0830, for Athens launch site information.

"<http://qa.pica.army.mil/~dkatz/liars.html>"

DARS Photo Gallery -- Dallas Area Rocket Society

"<http://fohnix.metronet.com/~cajun/pwhome/pwhome.htm>"

Goddard Space Flight Center Visitor Center --

"<http://marconi.gsfc.nasa.gov/vc/vc.htm>"

Redstone Arsenal Missile Command -images of ordnance.

<http://www.tdc.redstone.army.mil>

For postings on rec.models.rockets newsgroup

"news:rec.models.rockets"

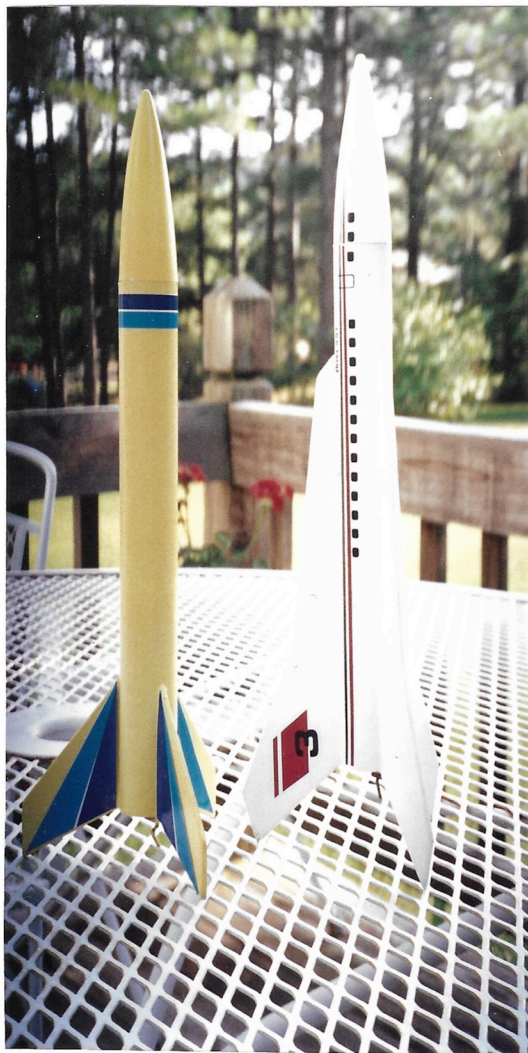
We want to know the Email addresses of all MAX-Q readers and HARA members. Send us yours! Our list so far is:

vince.huegele@msfc.nasa.gov

brian.day@msfc.nasa.gov or bday@iquest.com

joe_robertson@instalit.com

HARA is building a homepage soon to be hosted by HATS. The next MAX-Q may enter cyberspace!



Ideas for Development

ABOVE

The Rubbermaid shoe rack can serve much better racking rockets. This structure can hold, display, and transport models of several sizes at the same time.

LEFT

Kitbashing the Astra. Advanced modelers can jazz up a beginners kit by adding fairings to the fins along with exotic decals. Be creative and customize!

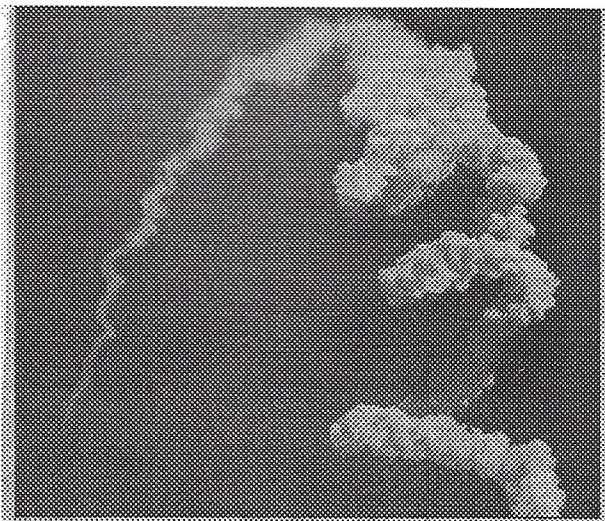


BELOW

Crayon Scale. These are not the Orion rockets, but scratchbuilt jobs made out of the various size crayon banks. The 1' long, 2.6" diameter bird has clear fins. The 8" tall, 2" diameter puppy uses a Quest Tracer/Viper/Delta fin unit for stability. A Tracer model is shown for comparison.

TV Viewing Note

Be on alert for the National Geographic Explorer on TBS this fall. A special on Back Yard Rocketeers will air possibly on Sunday, September 17, 8:00 pm CDT. This program will feature footage of the Spears launch shot at Manchester this January. Check local listings and set the VCR.



A Lockheed Martin rocket was destroyed Tuesday about two and a half minutes into its flight at Vandenberg Air Force Base, Calif.

New Lockheed commercial rocket destroyed after launch

The Associated Press

VANDENBERG AIR FORCE BASE, Calif. — A new type of commercial rocket carrying a \$3 million satellite went haywire 2½ minutes after takeoff and was blown up in the sky over the Pacific Ocean.

"It was pitching up way too high," said Maj. Billy Birdwell, a spokesman for the Air Force, which gave the self-destruct order Tuesday for the \$16 million Lockheed Martin booster. The rocket parts fell in the ocean and there were no injuries.

The launch had been delayed for

three weeks due to mechanical problems that arose during tests on the launch pad.

"It's a very severe disappointment to us," said Don Baene, a spokesman for Lockheed's rocket program. "We spent 2½ years developing this rocket. We thought we had a perfect vehicle this week."

Baene said the rocket was ordered to self-destruct at 484,000 feet after it began zigzagging as it climbed.

"We don't have any idea what went wrong," Baene said. He said the company must analyze piles of signal data received from the rock-

et.

The two-stage rocket, powered by solid fuel, was designed to carry payloads weighing up to one into low Earth orbit.

The payload was a 300-pc GEMstar communications satellite owned by CTA Inc. of Rockville, Md., and built by CTA Space Systems in McLean, Va. It had been expected to orbit for five years.

The Lockheed Launch Vehicle called LLV-1, is designed as a low-cost commercial booster system. The company has an agreement with the Air Force to launch many as 10 of the rockets over years.



HARA at LDRS

Neal Redmon, shown here with his rebuilt *Carbon Dawg*, journeyed with Greg Warren to Nevada for the Tripoli National Launch and annual "Fireballs" firings. Later, the event described above occurred, similar, but not associated with "Balls". Neal and Greg's rockets did fine.

We made the papers! The article below recently appeared in the Huntsville Times. Hybrids are here!

Rocket group to test custom-built motor

From staff reports

Space enthusiasts and students were scheduled to test fire a custom-built rocket motor today in northeast Madison County.

With its Project HALO, the Huntsville Alabama L5 Society hopes to be the first grass-roots organization to launch a rocket into space. The goals of the project are to make space accessible and af-

fordable to students and space hobbyists of all ages.

HALO stands for High Altitude Lift Off, a reference to the concept of launching a rocket from a balloon. Dr. James Van Allen used balloon-launched rockets in the 1950s to study the upper atmosphere until more powerful ground-launched rockets were available and the method was abandoned.

The small rocket motor to be fired at 2 p.m. today will be

strapped down to a test stand. The site is about a mile from Sharps Cove Road.

The local club already has tested the balloon needed for a launch, as well as the radio controls and tracking needed.

The club already has conducted three subscale motor tests. The 200-pound-thrust motor uses hybrid rocket technology — solid fuel consisting primarily of asphalt fuel and nitrous oxide for the oxidizer.

Estes Industries Rocket Plan No. 28

AUGIE II

ONE PIECE - TWO STAGE ROCKET

Published as a service to its customers by Estes Industries, Inc., Box 227, Penrose, Colorado.

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ASSEMBLY

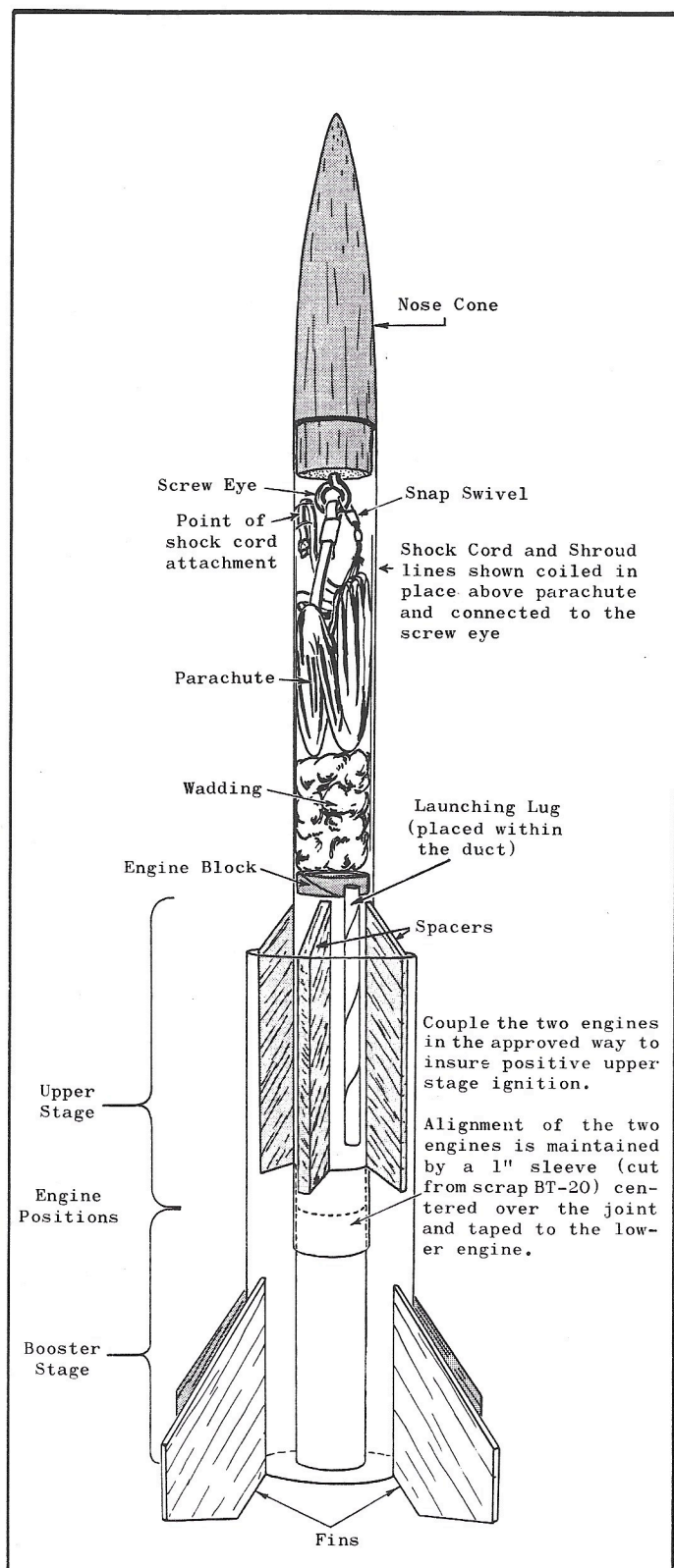
Augie II is a novelty rocket combining techniques of multi-staging and ducted propulsion. The Augie II takes off in a conventional manner, but after stage separation the upper stage engine fires down through the lower body tube, accelerating the gases in the tube and drawing in more air through the front of the tube. Since the lower stage consists only of an engine, there is only one piece to recover after the flight.

The first step in building the Augie II is to cut the body tubes to length, cut out the fins and make the four spacers. After marking the upper body tube the spacers are glued to it and the assembly is set aside to dry. Next the fins are glued to the lower body tube. The launching lug is glued to the upper body tube between two of the spacers.

To install the engine block first mark an empty engine casing 1/2 inch from one end. Using your little finger or a brush, smear glue around the inside of the upper tube about 2" from the spacer end. Insert the engine block into the tube and push it forward with the engine casing until the mark is even with the end of the tube (so only 1/2" of the casing projects from the end of the body). Remove the casing immediately.

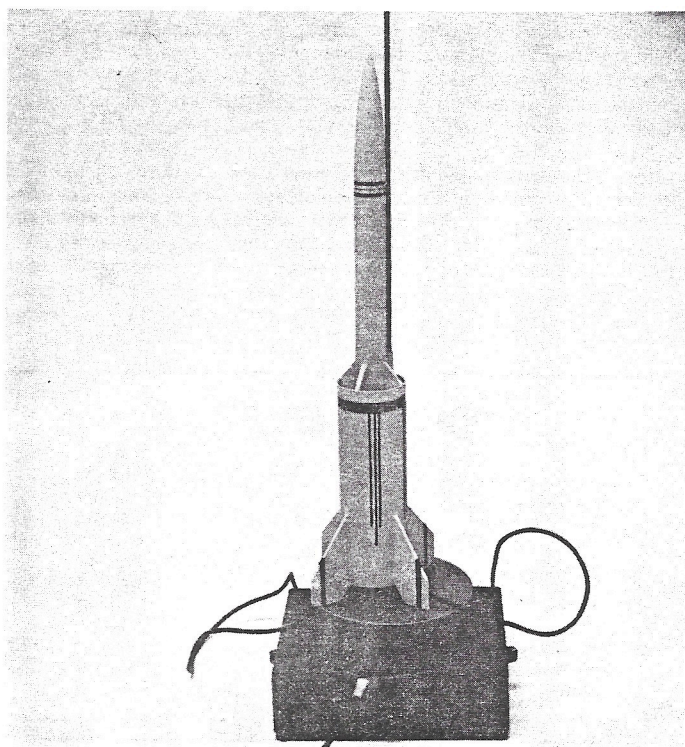
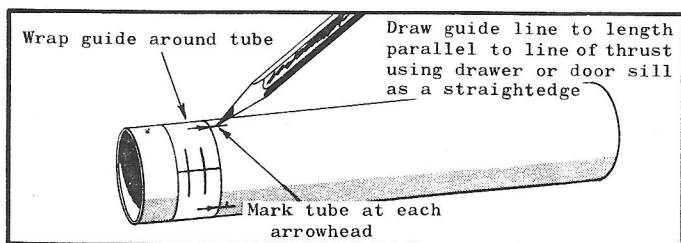
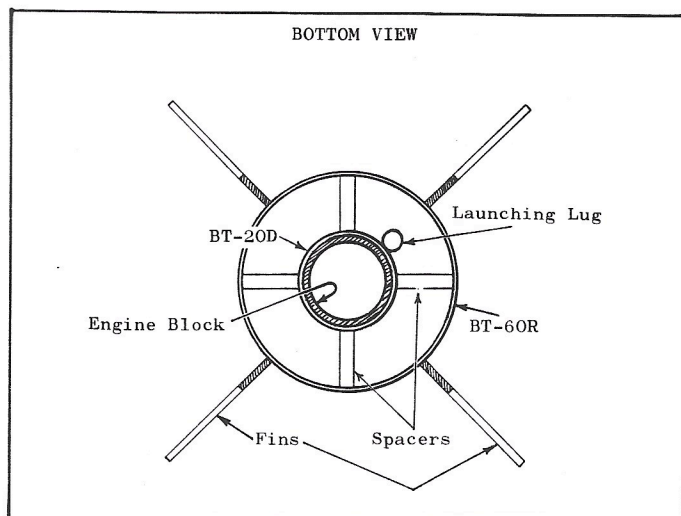
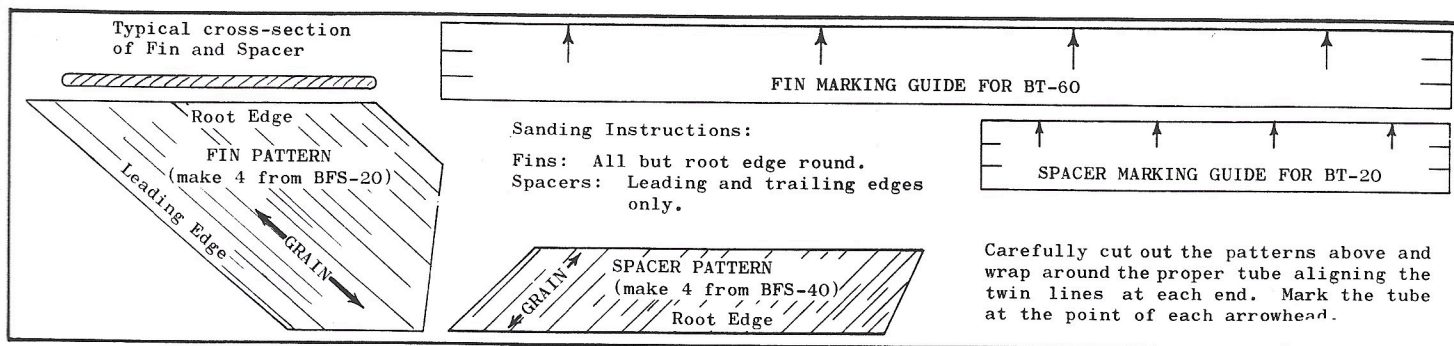
Check the fit of the spacers in the forward end of the lower tube. If they are too tight sand them carefully and evenly until a smooth, snug fit is achieved. If the spacers are loose apply a line of glue along the tip of each, let dry and check for fit again. Position the upper body tube at the forward end of the lower body and mark the lower tube at each of the four spacers. Remove the upper tube and apply a 2" long line of glue to the inside of the lower tube at each of the marks so the glue runs straight back from the mark. Slide the rear of the upper body into the front of the lower body so the spacers are halfway between the glue lines and rotate the upper tube to bring all four spacers into contact with the glue. Sight down the two tubes from the bottom and adjust them so they are aligned perfectly. Set the unit aside to dry.

Insert the screw eye into the nose cone, remove it, squirt glue into the hole and reinsert the screw eye. Assemble the parachute as shown and attach a snap swivel to the free end of the shroud lines. Cut two slits in the upper body, 3/4" and 1" from the front of the tube, the one directly over the other. Cave in the section between the slits and hook the end of the shock



Parts List

1	Balsa Nose Cone	Part Number	BNC-20N
1	Body Tube	"	BT-20D
1	Body Tube	"	BT-60R
1	Sheet Balsa Fin Stock	"	BFS-20
1	" " Fin Stock	"	BFS-40
1	Paper Engine Block	"	EB-20A
1	Screw Eye	"	SE-2
1	Shock Cord	"	SC-1
1	Parachute Kit	"	PK-12
1	Snap Swivel	"	SV-12
1	Launching Lug	"	LL-1B



cord through from the inside. Apply glue to the shock cord and to the cut edges of the tube and press the caved-in section back out so it matches the original curve of the tube. Tie the free end of the shock cord to the screw eye in the nose cone.

Apply a coat of high-heat aluminum paint to the inside of the lower body tube. The outside of the rocket should be painted with a high visibility color such as fluorescent orange, cerise, etc.

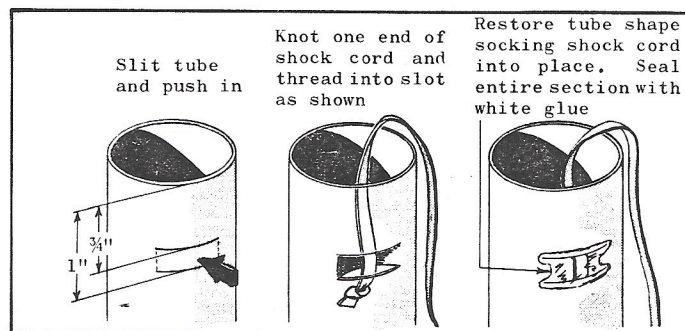
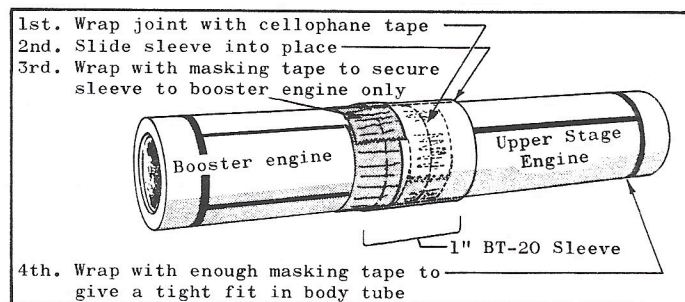
Flying the Augie II

The engines recommended for use in the Augie II are the B 3-0 for the booster and the 1/2A.8-2, A.8-3 and B.8-4 for the upper stage. Place the nozzle end of the upper stage engine against the top end of the booster engine and wrap a layer of cellophane tape around the joint. Check to be sure the engines are in the proper relative positions.

For extra stage separation reliability cut off a 1" piece of BT-20 or BT-30 and center it exactly on the joint between the engines. Wrap a layer of masking tape around the edge of the tube section and the booster engine to hold the tube in place.

Install an igniter in the booster engine. Wrap the upper engine with masking tape so it will make a tight friction fit in the upper body tube. Insert the engine unit into the rocket until the forward end of the upper stage engine rests against the engine block.

Pack flameproof recovery wadding into the upper body tube from the top so the wadding rests against the engine block and extends forward in the tube for 1-1/4" to 1-1/2". Hook the snap swivel on the parachute onto the screw eye on the nose cone. Fold the parachute, insert it into the tube, pack the shroud lines and shock cord in over it and slide the nose cone into place.



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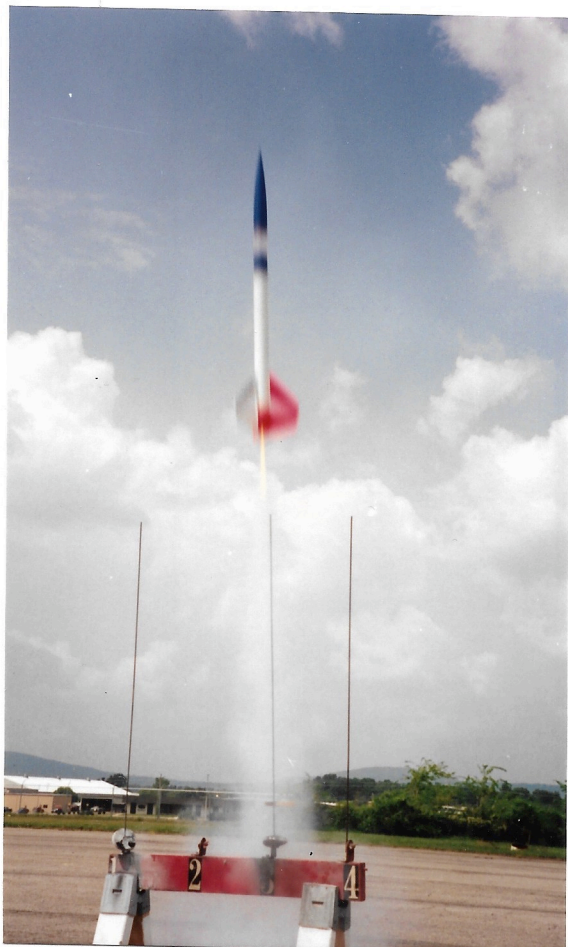
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Rocket Launch!



The Huntsville Area Rocketry Association (HARA) presents
the 14th annual

Rocket City Classic

Model Rocket Contest and Exhibition

Saturday, September 30, 1995

9:00 a.m. - noon

Old Huntsville Airport, North End

Prizes Awarded! All Ages Eligible!

Contestant Range Fee: \$3.00 Spectators Free!

Events:

Maximum Duration : Longest flight time from launch
to landing

Maximum Altitude : Any type model that goes the
highest

Craftsmanship/Scale : Best assembly, realism,
painting and finishing of a model

Spot Landing : Landing closest to a marked Spot

National Association of Rocketry (NAR) safety rules enforced.
All rockets must be approved by Range Safety Officer before
launch. All models will be launched from HARA firing range
under controlled conditions

Huntsville Area Rocketry Association
11108 Argent Drive
Huntsville, Alabama 35803

Return Requested

First Class Delivery to