

AARG!

Official Journal Of the Austin Area Rocketry Group
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March 1999

President's Corner

Alex Mericas, AARG President

In case you haven't noticed, something big is happening in Austin. A year ago the model rocket community consisted of pockets of individuals. A few Austinites flew competition rockets, but did so as members of other Texas clubs. A year later and we have a strong section that continues to grow and prosper. The "established" sections in Houston and Dallas have noticed our success and enthusiasm and have welcomed us into the Texas rocket scene.

There comes a time in any volunteer run organization that the dreaded call for participation goes out to the members. Now is such a time. But don't worry, I'll try to make it as painless as possible. I'd like each AARG member to participate in one or more of the following:

Monthly sports launches. If you haven't attended one yet, our launches are great fun. We get everything from 1/4A to G engine rockets, so don't worry if you don't have anything fancy. We have plenty of launch equipment so you don't even need a launch pad.

Meetings. I haven't scheduled one for 1999 yet, but when I do please attend. If there is a topic you want covered, let me know. The first part of 1999 will probably be devoted to build sessions; if your skills need a little help, or you want to show them off, here's your chance

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AARG Announces Local and Regional Competitions

James Duffy, AARG! Editor

The Austin Area Rocketry Group has announced that it will hold its first-ever sanctioned competitions this spring. A local event will be held on March 27, and a regional contest will follow, tentatively scheduled for June 12.

The March 20 local meet will feature the following events:

- A parachute duration (wf=7)
- Open spot landing (wf=4)
- 1/2A Super roc duration (wf=13)
- C-egg loft duration (wf=16)

A special non-sanctioned prize for craftsmanship will also be awarded, recognizing the modeler whose rockets exhibit an exceptional attention to detail.

The June event has the following events penciled in at press time:

- scale (wf=20)
- precision duration (predicted)(wf=8)
- E dual eggloft (wf=27)
- 1/4A BG (wf=18)
- A-Parachute Duration (wf=7)

Please note that these events have not yet been finalized, and remain subject to change. The assistance of AARG members in the administration and operation of both contests will be greatly appreciated. If you can help in any way, AARG Contest Director Doug English welcomes your input (dsenglish@mail.utexas.edu).

It is hoped that several "Build Sessions" will proceed the June contest, in order to assist AARG members to prepare for the regional event. If you would like to help, please contact an AARG officer!

All rocketry enthusiasts are encouraged to attend and compete. NAR or AARG membership is not required, but is encouraged. For more information as it becomes available, please visit the AARG website at <http://www.ninfinger.org/~sven/aarg/index.html>.

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President's Corner

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Competitions. Just the sound of that word used to make me sick! But after attending Hearts and Darts in Houston, I'm hooked. If you can't make the road trips to Houston or Dallas, attend our local in March or regional in June. Fly just one event and I promise you'll have a great time.

Support. Support comes in many forms. We always need help with things like launch pads, rope barriers for bigger launches, PA system, etc. But support also means providing a model for displays such as the "October Sky" promotion, or telling a friend about our club, or participating in the austin-rocketry email list. Get involved, get others involved.

Get personal. If I don't find you, come find ME. Let me know what YOU want from our club. Tell me what I'm doing well, and what stinks. I want to know every member's name and interest. I'm not doing so well on that goal, so help me out, ok? There, that wasn't so bad was it?

Eight Grade Class Hooked On Rocket Science!

Art Collard

I remember being in eighth grade, yes - a scary thought, and waiting for the science teacher to blow-up something or take us on a field trip. Well for Mrs. Stones' class of 21 8th grade science students at CCCS, Nov. 5 was one of those days. Even better, it was an intro model rocket class lecture, followed by a launch the following week. Why didn't we have model rockets back when I was growing up? Being a AARG member and part time pre-calculus teacher at CCCS, a private Christian school in south Austin, has it's advantages. The news that a teacher is a model rocketeer travels fast on the CCCS campus thus, I was asked to lecture and help hold a launch. Preparing was a challenge as the creative juices kept me up late the night before putting together a poster to teach from. The poster worked well and helped me keep the pace for the class. I found that having a plan, being flexible and making it somewhat interactive helps to keep the interest and attention span- A must for 8th graders. Using the John Glenn space shuttle flight and a Delta II Mars Pathfinder article as real life focal points put dreams and reality much closer. Most of the ohhhh's and ahhhh's came when showing off my different types of birds, recovery systems and scale modeling available. Walking through rocket prep and launch was very helpful, but the pink book and competition brought up some interesting questions.

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The buzz around campus on Nov. 11 was definitely rocket launch! Students had their own birds, and I brought 2 of my own. We prepared them early and organized the class into 4 parts for the launch. It was a picture perfect day and we were able to launch 6 birds. We had great help from AARG members Steve Rogers and Jerry Spoor. Steve and Jerry were LCO's, while I helped the flight observation recording team and the teacher helped the altimeter team. The last team was recovery and made a trip or two up a tree to recover a Condor glider.

Do you know of a class, Kindergarten through college, that might benefit from an AARG rocketry demonstration? If so, let the group know, and together we'll put on an unforgettable learning experience!-Ed.

Plastic Death!

Preparing for the PMC Event...

James Duffy

We've all thought about it as we prowled the aisles of our favorite hobby shops, "why don't they make a flying kit of my favorite rocket or plane?" Well, with a little bit of ingenuity, and a fair amount of luck, you can take a plastic model kit designed only to grace a shelf and make it a standout at the next AARG launch! And with Plastic Model Conversion on the slate of events at the upcoming DARS and NASA/Houston Regional events, there has never been a better time to try.

The Rules. When I first learned of the PMC event, my first thought was to take the old Skilcraft "Visible Cow" kit, complete with innards, and send it to the skies. Alas, it was not to be, at least not for competition. As AARG Section Advisor Lee James is fond of saying, "read the rule book!" The NAR Pink Book states that your candidates for conversion must be "commercially available plastic model kits of guided missiles, rocket vehicles, space vehicles, or jets whose engines are in or spaced apart to the rear of the fuselage." So your favorite P-51 kit is going to have to join my Visible Cow on the sidelines. In general, kits with fins or wings positioned toward the rear of the fuselage and with plenty of room for nose weight are your best candidates.

Building the Conversion. After you've selected a kit, you'll need to determine how to position conventional model rocket components within it. An engine mount, launch lug, recovery system must be installed to operate safely and reliably. An inexpensive kit, such as an Estes Wizard or Alpha, is a great source of conversion components. Investigate the possibility of having the engine mount rear eject with the recovery system. This will eliminate the difficulty of having the nose cone, radome, or canopy separate, simplifying the construction and finishing of your model.

Plastic Death!

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Choosing A Kit-Consider the "Mission Points" that you might be awarded when choosing a kit for PMC competition. Much like a scale contest, the judges will be looking for multi-staging, clusters, and simulated payloads. If you're modeling a Saturn V, for instance, staging from first to second to third stage will certainly impress the judges, firing the escape tower will win you the event, and landing the lunar module on the moon will gain you eternal fortune and fame. If you choose to convert an F-104 or MiG 25, a working ejection seat would be simple to do, by harnessing the ejection charge. More challenging would be to have the booster stages of a Ariane 5 or Space Shuttle stack drop off during boost. Whatever you do, remember your rocket must operate safely!

Several inexpensive kits appropriate to the PMC event are readily available at Austin Hobby Shops. Here's a short list of suggestions:

Glencoe Jupiter (Juno) 1 (\$10)-Almost perfect! Centuri ST-20 tubing fits neatly into the booster. This kit will require a fair amount of nose weight to move the center of gravity forward far enough for a safe flight. Mission Points: The tub and Explorer 1 satellite on the prototype were rotated at 500 RPM before launch. On your model, the motor and batteries could do double duty as nose weight!

Monogram 1/144 Saturn V (\$20)-Clustering, staging, and payload-this kit offers it all. This would be a remarkable achievement if done successfully, or it could be simplified to operate as an impressive single stage rocket. This kit will require a substantial amount of rework in order to fly safely. Shanghai Dragon 1/35 V2 (\$25)-A beautiful model that should be an easy conversion. Captured V2's launched at White Sands required huge amounts of weight to replace the warheads in their nose cones, and your model should be no different. This should be one of the simplest, most straightforward models to convert to flying status. You'll fall short on flight points, though, unless you bomb London or a Juarez cemetery.

Several jet fighters lend themselves to the task of conversion to rocket flight, such as the US F-104, F-16, and a personal favorite, the US Navy F4D1. The problems inherent in preparing a asymmetrically shaped jet should endear your model to the judges. Note that the US F-15 and the Russian MiG 29 have the performance necessary to accelerate straight up, a possible mission points coup! The Concorde supersonic jetliner would also be a stunning conversion (although tricky to recover), and four mini engines will look great at launch!

So pick a kit, raid the parts box, break out the razor saw, read the rule book and get to work. We'll see you at the field with your creation!

Hearts & Darts '99 Contest Report

Sam Saenz, NASA/Houston Rocket Club

Sam N. Saenz

The weekend of February 5-6, 1999 marked the date of the 3rd Annual Hearts & Darts Regional Competition held at the NASA Johnson Space Center in Clear Lake, Texas. The weather was windy throughout the weekend with a very low ceiling of clouds. The temperature was in the 70's on both days. 27 individuals and 2 teams met in head to head competition launching over 160 flights. Defending State Championship Section 365, the NASA/Houston Rocket Club (NHRC) faced the toughest competition the state had to offer as the Dallas Area Rocket Society (DARS) and the Austin Area Rocket Group (AARG) converged on the site to vie for the over 15,000 contest points that were to be awarded over the two day meet..

In the A Super-roc Event, Bob Supak and Martin Rogoff manned the tracking stations with a 240 meter baseline and a geodesic data reduction system. Bob used a Compaq hand-held computer to reduce the flight data in the field and relay the information back to launch control officer Chuck Webb. Great flights were tracked as Doug English (AARG) put up a 94.7 meter flight for second place closely followed by Art Collard's (AARG) 91.7 meter flight which took third place. These great flights were completely 'blown away' as Mark Scheevel (AARG) blasted a piston assisted shot to an incredible 121.5 meter altitude to walk away with the first place in the event. James Duffy (AARG) also had a good flight of 94.7 m but his model was 5 cm short of the 100 cm maximum for the event and that cost him the second place ribbon as he had to settle for 4th place in the event. Junior entry Julia Scheevel used her Dad's piston technology to put her entry up to 127 meters and walk off with the first place ribbon. Laura James (AARG) had her model flown by proxy to 81.7 m for second place while Gib Reynolds (DARS) took third place with his 72.5 meter attempt. Unfortunately, Gib's second attempt of 104.3 meters was DQ'ed with a 'spit motor'. An honorable mention has to go to Chris Harkey for his 'on the field' construction of a super-roc entry which scored a 69 meter flight for a 6th place. Super-roc veterans Terry White and John Pursley (Jeckyll & Hyde Team) hit 110.1 meters for first place in the team division while the team of Sam N. Saenz and Bob Supak (Saenz/Supak Team) scored a paltry 81.9 meter flight for second place.

The B Streamer Duration event was dominated by the two team entries. Jeckyll & Hyde used a B7-8 Apogee Composite motor to score a first flight of 149 seconds. That model ended up getting hung in a telephone wire with an inaccessible recovery. The Saenz/Supak waited for some patches of blue sky to loft vellum models on B2-7 Apogee motors to take first place with

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Hearts & Darts '99

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a total of 270 seconds on two flights. In the senior division, Doug English (AARG) achieved a total of 209 seconds for first place, followed by Tony Reynolds' (DARS) 190 seconds and Art Collard's (AARG) 163 seconds for third place. Gib Reynolds (DARS) handily took first place in the junior division with his total of 157 seconds followed by Virginia Houk's (NHRC) 65 second total and the third place went to Robert Ferris (NHRC) with 44 seconds.

The B Egg Lofting Duration senior division went to Andy Eng (NHRC) with a total of 58 seconds while Warren Benson's (NHRC) 45 seconds took second and DARS' Steve Murphy took third with his 41 third place. In the junior division, Julia Scheevel (AARG) showed up the seniors with her 126 second total on two great flights. Chris Harkey (NHRC) took second with 35 seconds and third place went to a proxy flight for Laura James (AARG) with 20 seconds. The Saenz/Supak team overwhelmed Jeckyll & Hyde 107 seconds to 23 seconds for first and second places respectably.

In the A Rocket Glider event, Steve Murphy (DARS) garnered 110 seconds on his two flights while Tony Reynolds made a second place run at Steve with 91 seconds. Any Eng (NHRC) pulled in third place with a total of 60 seconds. In the junior division, Mirriah Benson (NHRC) took first place with 13 seconds while Gib Reynolds (DARS) took second place with 6 seconds.

The Saenz/Supak Team got shut down to second place when the Jeckyll & Hyde team put up two good flights totaling 66 seconds to their 14 second attempts.

The Sport Scale Event was judged by Contest Director Sam N. Saenz. The 10 senior division entries along with the 4 junior entries and two team entries were placed on display at the Holiday Inn where they were judged Saturday night. Members of all three sections came by for a viewing of the excellent models after the group had supper at Fuddrucker's restaurant. The models were fantastic. Mark Scheevel's (AARG) Aerobee 150A in peanut scale was absolutely flawless. This two stage beauty took first place in the static scoring as well as the flight-mission scoring. Steve Murphy's (DARS) fantastic two-stage WAC-Corporal beat out AARG President Alex Mericas' WAC Corporal by a mere 3 points for second and third places. James Duffy's Little Joe II came to the flight-mission portion of the event in second place, but a fouled chute, damaged tower and wobbling flight cost him points and he dropped into 6th place. The WAC Corporals were both fantastic to look at and flights to watch. Both used open gap staging and performed flawlessly. The booster sections on both models were so well balanced that their glide recovery systems outperformed most of the rocket glider entries. In the junior division, Gib Reynolds

took first place while Julia Scheevel's (AARG) Nike Smoke took second and Mirriah Benson's (NHRC) Black Brant took third place. In the team division, Jeckyll & Hyde entered a world-class Mercury Redstone model on a 3 inch body tube scale. The model even had a guidance system. Unfortunately, the high wind factor on Sunday prevented the team from flying their model and the Saenz/Supak team overtook them with their Black Brant entry for first place.

In the overall winner categories, Steve Murphy (DARS) took the senior division first place; Mark Scheevel (AARG) second place and Andy Eng (NHRC) third place. In the junior division, Gib Reynolds (DARS) took first place, Julia Scheevel (NHRC) took second and NHRC's Mirriah Benson took the third place trophy. When the dust has settled between the two team entries, the Saenz/Supak team had garnered 1992 points for first place while the Jeckyll & Hyde team walked away with 1488 points. The section totals found the host section NASA/Houston Rocket Club as the leader with 6,708 points, Austin Area Rocket Group had 5,235 points and the Dallas Area Rocket Society took 3,268 points.

Special thanks go to Bob and Sheila Supak, Chuck Webb, Arthur Yee, Andy Eng and Martin Rogoff for the many hours they put in to make this the largest Texas event since NARAM was here many years ago. Thanks also go out to other NHRC club members who stopped by to assist in the timing and other tasks involved in putting on this quality event. The next event will be held April 24-25, 1999 and that will be the Texas State Championships.

AARG Web Resources

AARG Homepage

www.ninfinger.org/~sven/aarg/index.html

Sven Knudson's Model Rocketry Website

www.ninfinger.org

Rocketry Online

www.rocketryonline.com

NAR Homepage

www.nar.org

Hobbylinc

www.hobbylinc.com

NASA

www.jsc.nasa.gov

European Space Agency

www.esa.org

(AARG) Nike Smoke took second and Mirriah Benson's

Product Review: The Balsa Machining Service Gold Medalist Tower

Steven Rogers, AARG Vice-President

This is one of a series of articles that will help you determine the right kind of launcher(s) for you. If you're like me, you've had an uncountable number of plastic launchers over the years. My first one was the Centuri Servo Launcher. I had to convert it to a 6v lantern battery just to get the first rocket off the ground, but it served me well for many years. Eventually, the plastic became brittle, however, and it began to break apart. Such has been the pattern with all my plastic launchers.

Time was when you had the choice between the three legged Estes tripod, or the three legged Estes tripod with black stripes. In the past few years, however, there have been a whole field of new entries into the launcher market. My latest plastic platform, an Aerotech Mantis Initiator Pad is beginning to break down (helped a couple of "D" CATOs) so I began to consider what I would do about a replacement.

Build vs. Buy

Your first thoughts will probably be "Can't I build something cheaper and better than I can buy?". Whenever I consider a launcher, this is always the bottom line. Generally, if you have the skills to build a rocket, you can build a fine launcher. Metalworking and other specialty issues aside, the build vs. buy question boils down to a trade-off between time and money - and only you can strike that balance. But to weigh that trade-off you need to be aware of the values available in launchers today.

Types of Launchers

There are three basic launcher schemes: a standard rod, a rail with custom attachments, and a tower with guide rails. Each of these has its place, and comes in a variety of sizes. The classic rod can't be beat for ease of use. The rod and lug concept is used with rockets as small as the Mosquito all the way up to large high power models. The rail concept is designed to solve two potential problems with rod: reduce the drag of the attachment point, and make it stronger. Typically, the rail is a "C" shape and the attachments are bolt heads that run inside the rail. This is a very strong and low-drag solution that is often used in high-power rockets. There are many variations on the shape of the rail and the interlocking piece that attaches to the rocket, but the basic scheme is the same. The tower concept uses guides to eliminate the rocket attachment altogether. This is ideal when the weight or drag of a launch lug is undesirable - typically NAR competition rockets, or supersonic flights.

I have yet to find the holy grail of launchers that will accommodate a full range of rockets. If you fly a variety of rockets, you'll probably need to find a range of launchers that will serve your needs. If you plan on flying NAR competition rockets, you certainly will want to include some kind of tower in your launcher arsenal. If you're in the market for a tower launcher, you'll want to consider the BMS Gold Medalist.

Medalist Design and Materials

The Gold Medalist Tower is an all-aluminum 48 inch tower that can accommodate rockets with up to a 7 inch fin span. The tower has three supports so it really is practical only for rockets with three fins. The tower is silver and bronze anodized, making for a really sharp presentation, as well as what should be a very hard and durable finish. The tower has no launch angle adjustment, but this is not particularly a disadvantage given its purpose.

All parts come pre-drilled making assembly a matter of putting together the various parts with a nutdriver and screwdriver. The tower guides are held in place by friction, so there is no loosening or tightening involved in changing between rocket sizes. Small fiber washers between moving parts provide just the right amount of static friction to hold the rods in place yet allow smooth adjustment. The tower legs are held in place by hand-tightened wing nuts and can slide up alongside the tower for storage.

There is nothing particularly complex about the tower, but it is very well designed and executed. The quality of workmanship in my unit was outstanding and everything went together perfectly. The only defect I found was one missing 6x32 nylon nut which I replaced for a few pennies from the hardware store - the easiest solution. They really should consider throwing in a few extras of these to ensure that you never come up short.

If you are considering a tower for NAR competition flying or sport speed or altitude, the Gold Medalist Tower from BMS represents an excellent value. The quality of workmanship in the product would require many hours of hand work to duplicate, let alone the materials cost. I plan to add mounting brackets for a small launch rod onto the side of the launcher to increase its versatility.

Next, I'll be looking at rod launchers to go beyond the Estes tripod and Aerotech Mantis. A couple of candidate launchers that look really interesting are:

The Slider Pad from Holverson Designs

The Quad-Pod launch pad from Impulse Aerospace

Stay tuned for more launcher reviews as funds for research accumulate!

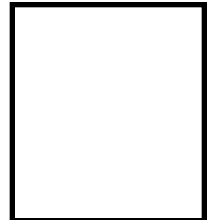
If you fly a variety of rockets, you'll probably need to

Upcoming Austin Area Rocketry Group Events:

March 13	Monthly Sport Launch	8 am 'til 12 pm Old Settler's Park, Round Rock
March 13	AARG Membership Meeting	12 pm Double Dave's Pizza, Round Rock
March 27	AARG Local Competition	Old Settler's Park, Round Rock
April 10	Monthly Sport Launch	8 am 'til 12 pm Old Settler's Park, Round Rock
April 24-25	NASA/Houston Rocket Club	Texas State Championship Johnson Space Center, Houston
May 29-30	Dallas Area Rocket Society	TexRegional Dallas
June 12	AARG Regional Competition	Old Settler's Park, Round Rock
July 20	30th Anniversary of Apollo	11 Landing Mare Tranquillitatis, Moon
August 7-13	NARAM 41	Allegheny Township, PA

AARG!

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Please Rush to Resident Rocket Geek!