

The DARS Classic at NSL 2006

by Gary Briggs

As planning commenced for NSL 2006, DARS members spent a fair amount of time thinking about contests and other fun events to complement the flying. The idea of the classic model contest had recently become popular within the club due to an event we resurrected and held at our November 2005 launch. Having a membership packed with born again rocketeers, it was pretty easy to get excited about seeing tables full of old models and hearing the stories that went along with them. It was quickly decided that the classic rocket contest would be included in the NSL events.

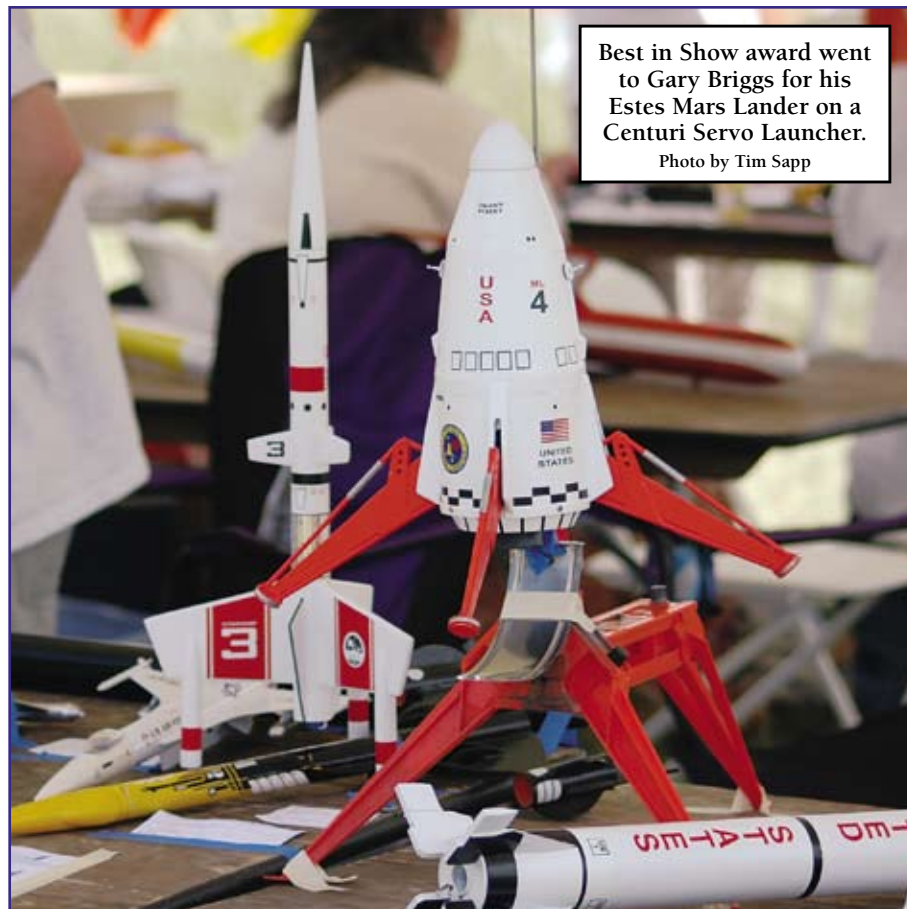
The DARS Classic at NSL was basically designed to get as many old rockets from the attics, closets, and display cases out where they could be enjoyed by as many people as possible. It was created to highlight those classic decades of model rocketry of the 60's, 70's, and 80's, and we included an open category to handle other rockets that fell outside of these decades. The main competition was based on votes from the flying public for their favorite in each of the four categories. In addition to the popular vote, contestants had the opportunity to earn bonus points for things like providing documentation showing a rocket's year of introduction, flying the rocket, or displaying the rocket with period launch gear. New for the event at NSL was an overall Best in Show award, also voted on by the public. The contest was open to originals, clones, and reissue rockets, with the original date of introduction used as the guide for the classifying the rockets into categories. The NSL edition of The Classic attracted 11 contestants with 27 models broken down as follows: 12 – 60's, 8 – 70's, 3 – 80's and 4 – Open.

In the 60's category, there was a covey of Orbital Transports from Dave Schaefer, George Sprague, and James Gartrell (with the glider signed by Vern Estes at the 2004 NARAM event hosted by DARS on the same field). Each OT took votes, but none garnered enough to place in the category. One of George Sprague's other rockets, an Astron Starlight, took third place and Blake Gartrell took second with a nicely finished Semroc/Centuri Batroc. First place in this category came down to a tie between a recently restored Mars Lander and reissue Mercury Redstone. Since they both belonged to Gary Briggs, we didn't have to

sort out a tiebreaker.

The bonus point system played a role in the outcome the 70's category. David Chapa's Quasar won by receiving one point for documented introduction date, one point for flying the rocket during the contest, and another for a period picture of the rocket with the then 12-year-old rocketeer. Josh Briggs put up a good fight in the category with his Mean Machine. He campaigned heavily throughout the day and put in a late flight, but it was only enough for second place.

In the 80's it was Dave Schaefer's beautifully finished Starship Nova. Blake Gartrell gave him a run for his money though with his Estes Sentinel.



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In Open, there was the usual interesting collection of birds. Don Magness took third with a nicely finished Big Betty that sported some very nice nose art. Ed Boyle took second with a really interesting Buck Roger's Space Ark, whose nose weight ensured it was not leaving the table due to a little wind. James Gartrell took first place with a recent classic, a Squirrel Works Interstellar Probe, which looked right at home with the 60's and 70's rockets one table over.

Best in show votes were spread pretty broadly across all the models. There were five different models with 2 votes and one with 3, which was enough to win the grand prize.



The Classic—final results

60's

- 1 Gary Briggs - Estes Mercury Redstone/Mars Lander
- 2 Blake Gartrell - Centuri Batroc
- 3 George Sprague - Estes Astron Starlight

70's

- 1 David Chapa - Centuri Quasar
- 2 Josh Briggs - Estes Mean Machine
- 3 Gary Briggs - Estes Citation Starship Vega

80's

- 1 Dave Schaefer - Estes Starship Nova
- 2 Blake Gartrell - Estes Sentinel
- 3 Peter Rentmeesters - Estes CBU87

Open

- 1 James Gartrell - Squirrel Works Interstellar Probe
- 2 Ed Boyle - Buck Rogers Space Ark
- 3 Don Magness - Quest Big Betty

Best in Show

Gary Briggs - Estes Mars Lander on a Centuri Servo Launcher

That prize went to Gary Briggs who displayed his recently restored original Estes Mars Lander sitting atop a Centuri Servo Launcher.

The event was popular among the attendees and phrases like, "I always wanted one like that," "I had one just like that one," and "I need to build one of those" were repeated many times during the day. You also saw fathers pointing out models to their sons, passing on some of the excitement these models generated in their youth.

We had our challenges with the winds and we will create some stands to keep the rockets stable at future events. In lieu of stands at this event, we did see some of the finest masking tape engineering ever witnessed. DARS expects to keep The Classic as an annual event for one of the fall launches.

Thanks go to Doug Sams, Don and Terri Magness, James Gartrell, and Josh Briggs for their help in the prep work and execution of the event. Additionally, we would like to thank the vendors who provided so generously to NSL, but specific to this contest were Thrustline Aerospace, QModeling, Hawks Hobby, and Semroc. Finally, we would like to thank the competitors for showing us some great examples of the models we grew up on.

Rockets in English Class? Of Course!

by Dr. Donna M. McDougall,
2002 Cannon Award winner.

A visitor to the high school campus was watching my students launch their rockets. "Wow!" he said enviously, "I wish my science teacher had done this." My students laughed and told him, "This is English class!"

Building and launching rockets has been part of the Senior English curriculum for several years. It is part of the science fiction unit. The students read several science fiction short stories and one novel, usually Orson Scott Card's *Ender's Game*.

This novel leads to several class discussions on such issues as the ethics of genocide, the problem of communicating with a completely alien race, and the right of humanity to ask individuals to sacrifice their lives for the benefit of the whole.

They do two essays. One is rewriting the short story "The Father Thing" from the aliens' point of view. The other is a formal letter to NASA either accepting or declining an invitation to go on the next shuttle launch. (The class is usually evenly divided between those who would love to go and those who want no part of it.)

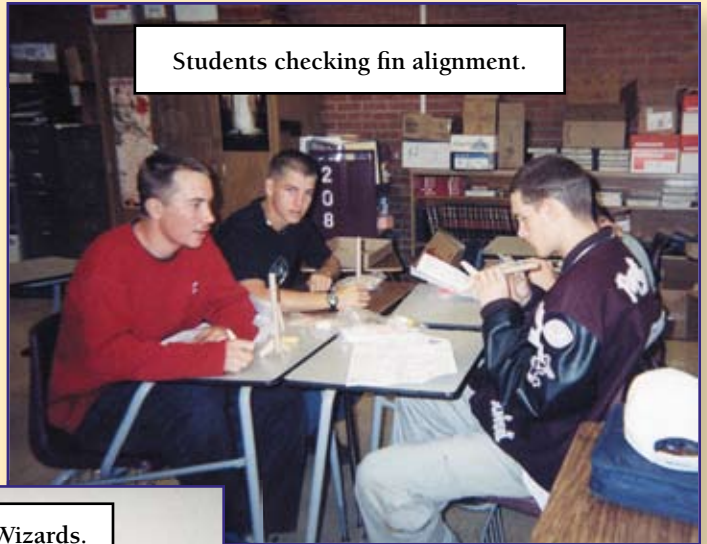
Then they build rockets. I use either Viking or Wizard kits from Estes. A kind hobby shop owner in Flagstaff supplies them at his cost.

From an English point of view, the rocket building provides training in reading and following directions. Most of my students have never before built anything with their own hands.

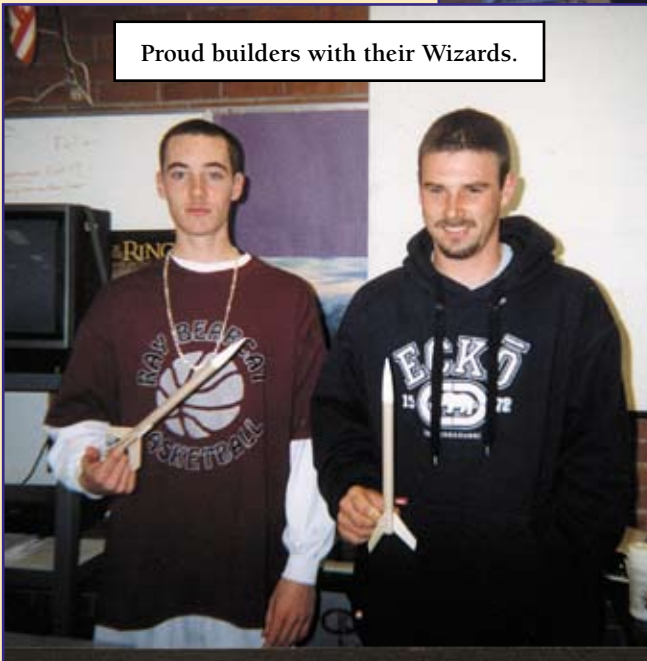
Since most of them do not really believe that their rocket will fly, the first launch is usually accompanied by shrieks.

The launch takes place on the football

Students checking fin alignment.



Proud builders with their Wizards.



field, strictly following NAR safety rules. I have never had a breach of safety and have never had any kind of accident. It usually takes two days to launch, allowing time each day to police the field for spent engines and bits of wadding.

While the application of rocket building is carefully documented in my lesson plans, the main reason for using rockets in English is simply that it is a lot of fun.

Ray High School senior English students watch the launch.



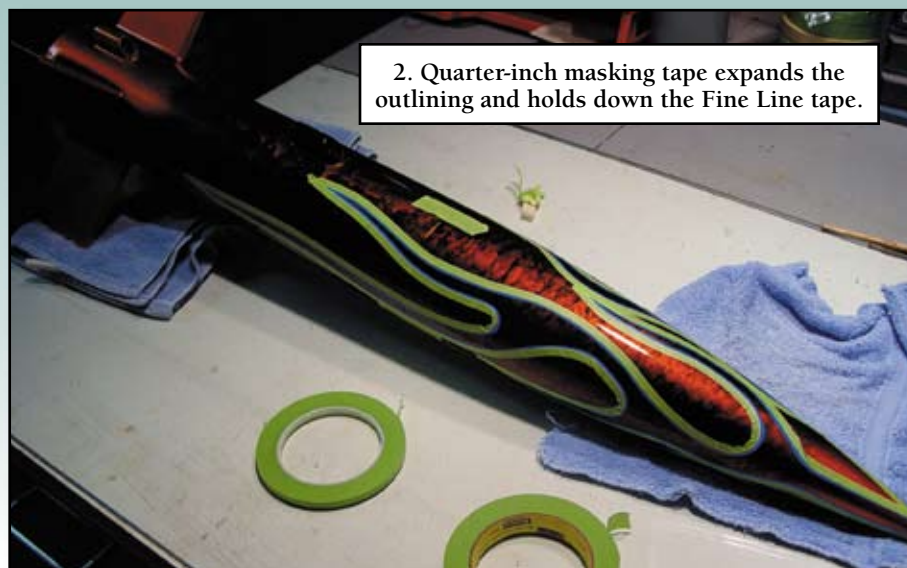


Custom Shop: MARBLIZER PAINT — PART 2

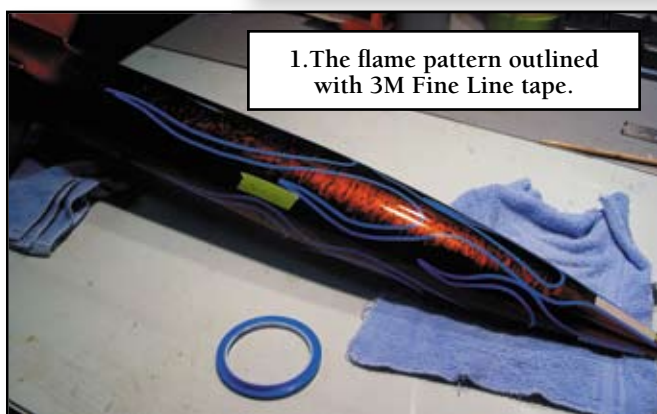
by Ed Miller NAR 45776 TRA 637

Welcome back. In part 1 of this article, which appeared in the July/August issue, I showed you how I applied the basecoats, marblizer, and candy coats to the Public Enemy Rockets Fat Boy model. This time we will apply the pearl flames and clear coat to the rocket. There are many styles of flames to choose from. If you need ideas, refer to a book called "How to Paint Flames" by Bruce Caldwell, available from MotorBooks (www.motorbooks.com).

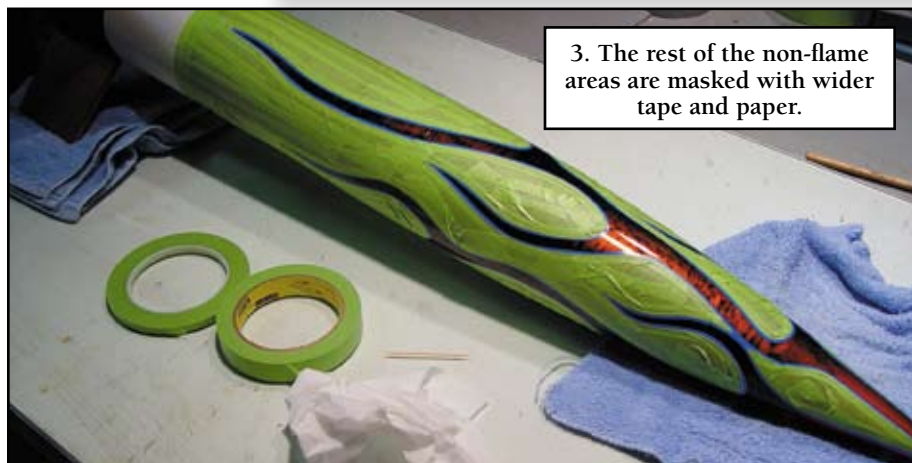
I placed the rocket on soft towels to avoid scratching the paint job from part 1. First I outlined the flame design with 1/8 inch 3M Fine Line tape. See photo 1. You should always try to make the curves smooth to get the best looking flames. If you are not pleased with the design, just peel off the tape a try again. Looking carefully at photo 1 you will notice that I used pieces of masking tape to divide the tip of the nose cone into three equal segments. These pieces of tape were there as guides



2. Quarter-inch masking tape expands the outlining and holds down the Fine Line tape.



1. The flame pattern outlined with 3M Fine Line tape.



3. The rest of the non-flame areas are masked with wider tape and paper.

while I was laying out the flame pattern, and were removed when the outlining was done. My design plan was to have the flames gently fade away as they reach the tip of the nose cone.

Next, I outlined the Fine Line tape with quarter-inch masking tape to lock the Fine Line tape in place. See photo 2. Then I filed in the balance of the exposed area with 2-inch masking tape and paper to complete the masking job as shown in photo 3. The edges of the tape were carefully burnished (rubbed down tightly to the surface) to make a leak-proof seal.

Warning: The use of automotive paint is potentially dangerous. Read, understand and follow the manufacturer's safety precautions on the container labels. Wear a spray mask with the appropriate filters. Do not spray indoors unless you have a spray booth with explosion proof exhaust fan and lighting.

The materials used for the flames are shown in photo 4. Small amounts of each color were mixed with RU-310 reducer following the manufacturer's instructions on the container labels, and put into small bottles. See photo 5. The flame areas were wiped down with a tack cloth to remove any dust. I began by spraying a thin coat



4. Materials for painting the flames.



5. The paint for the flame colors, mixed with reducer.



7. Spraying on the first flame color. Notice that the white base coat fades out before reaching the tip of the nose.

half an hour, I shaded in with the second color, PBC-64 Ultra Orange, as shown in photo 9. Then I shaded in with the third color PBC-35 Pink Pearl (see photo 10), and then shaded in the last color, PBC-65 Passion Pearl (see photo 11). I let the flames dry for half an hour, then sprayed on two coats of SG-100 Intercoat Clear mixed with RU-310 reducer over the area. The model was then allowed to dry overnight.

The next day, after the paint had dried, it was time to remove the tape and see the results of my handiwork. The masking was removed in the reverse order that it was applied. First the wide tape and paper were removed; then the quarter-inch masking tape was carefully removed; and finally the Fine Line tape was very carefully removed by pulling it back over itself. Never pull masking tape straight up away from the finish.



6. Spraying on the white base coat of the flames.

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of BC-26 white base coat over the flame area as shown in photo 6. This white base makes the pearl colors brighter. I faded the white coat away to nothing about 3 inches from the tip of the nose cone (remember, I wanted my flames to fade as they approach the tip of the nose). The white basecoat was allowed to dry for about 15 minutes, and then the PBC-32 Tangelo Pearl was sprayed on as shown in photo 7. I sprayed on enough coats at half hour intervals until full coverage was achieved (except where the paint was faded to nothing before the nose cone tip). See photo 8.

After letting the Tangelo Pearl dry for

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8. The first flame color, Tangelo Pearl, is finished.



The entire flame area was wet sanded with 1200 grit sandpaper and plenty of water until it appeared mostly dull. The rocket was then dried and wiped down with a tack cloth. I spray on two coats of SG-100 Intercoat Clear (with RU-310 Reducer) a half hour apart. The rocket then looked as shown in photo 12, and it was left to dry overnight.

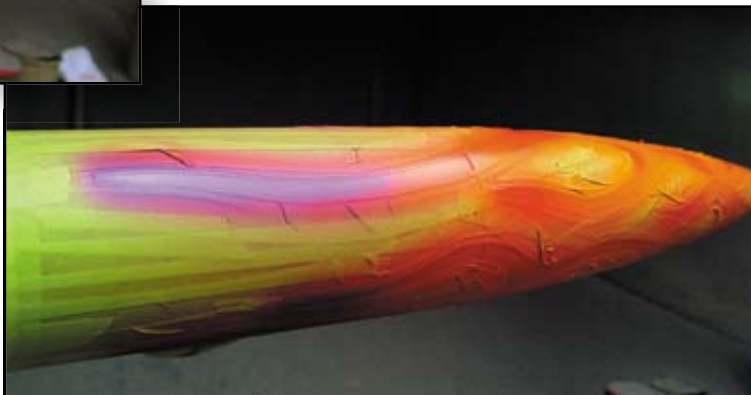
This Fat Boy, donated by Public Enemy Rockets, was won by Carl Hamilton in September 2005 in the TRA Legal Fund Raffle (see photo 16). Are you going to fly it, Carl?



(above) 9. Shading with the second flame color, Ultra Orange.

(left) 10. Shading with the third flame color, Pink Pearl.

(below) 11. Final flame shading with Passion Pink.

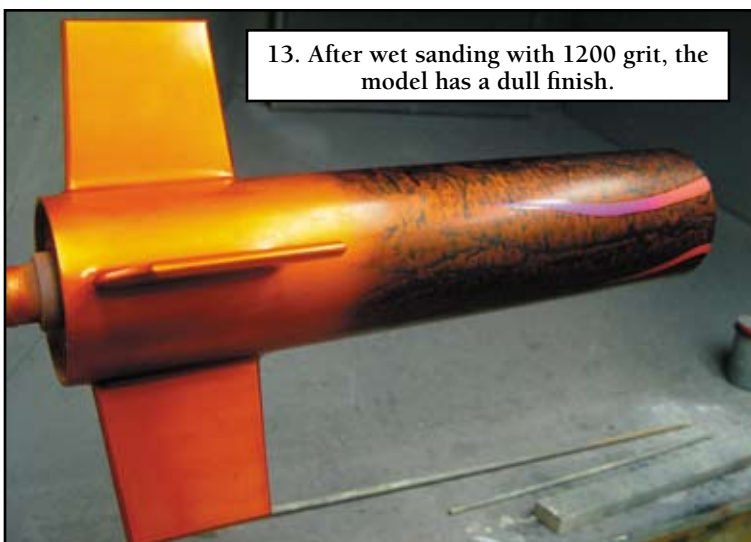


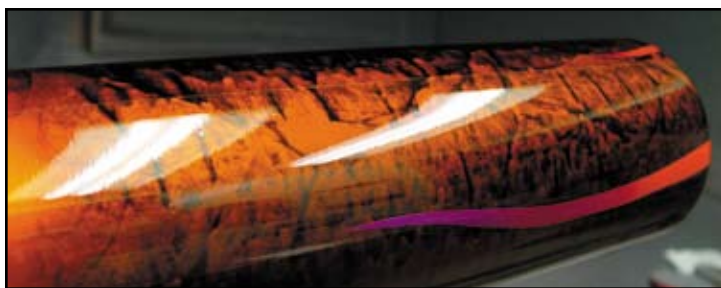
12. After carefully removing the tape, we see the finished flames!



In preparation for applying the clear coat, the entire rocket was wet sanded with 1200 grit sandpaper and water, then dried and wiped with a tack cloth. At this point the finish has the dull look seen in photo 13, and it is ready for the final clear. I mixed some House of Kolor UFC-35 Ultra Flo Klear with Ku-150 catalyst and RU-310 reducer, following the manufacturer's directions on the container label. Two coats were sprayed on 15 minutes apart. I allowed the rocket to dry undisturbed for 48 hours before handling it. See photo 14. Wow, look at those reflections. The complete finished rocket is shown in photo 15.

13. After wet sanding with 1200 grit, the model has a dull finish.





14. After two clear coats, the beautiful shine!



15. The finished Fat Boy: Marblized, candied, flaming, and clear coated.



16. Carl Hamilton, proud winner of the Fat Boy.

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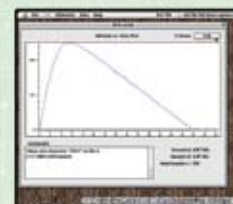
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MODULAR

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The Rocouno is an example of a rocket assembled using modular-mechanical method.

by Riccardo Paleari NAR 85185
and Cristiano Casonati NAR 85186

A model rocket is a flying vehicle that must withstand, during the short time of the burning motor propellant, a series of events, some of these very hard and impulsive. A model rocket is the result of the joining of several parts of wood, cardboard, plastics, and even composite materials. The traditional way to join these parts is to glue them all together in the manner the kit manufacturer suggests in the building instructions. Once you have a rocket finished, totally glued, there is no way to modify it without cutting tubes and removing and regluing parts. Moreover, in the event of damage after a flight, this is also the only way to repair the rocket.

We developed a different method of building model rockets, first in our own ways, and then, after we met, in a common direction. We started building model rockets that had some new characteristics by studying the construction of machines, real airplanes, and real rockets. Using screws and bolts for joining parts of the vehicle, we are now developing the construction of flying machines that don't use glue for joining tubes, airframes, fins, and other structural parts. The modular-mechanical construction offers a series of interesting features:

- we can strip down any part of the rocket, even internal parts, for repairing or inspection
- we can modify a rocket by replacing a damaged part or a structural part for diverse flight configurations
- we can modify the rocket, even its structural parts, for new missions or payloads
- we can modify the flight profile of the rocket, even with equal payloads, by replacing fins to obtain a more favourable CG-CP configuration

- we can develop a rocket by future replacement of structural parts with better components as they become available onto the market or through advances in our development program.

So, the vehicle becomes a real rocket machine, which permits more scientific experiments and promotes a fuller comprehension of the flight dynamics, design, and the construction of the vehicle. Modular-mechanical construction provides a deeper experience for the rocketeer as designer and builder. The rocketeer acquires the skill to design and build even more complex rockets, using new materials and systems.

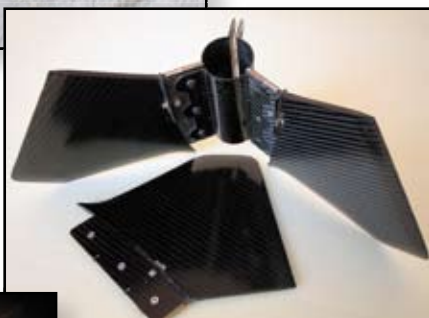
On the converse side, a rocket built with modular-mechanical techniques is more delicate and will require maintenance and care. But this happens in the real rocketry and is the price to pay for gaining more experience. Gluing the parts of a commercial model rocket kit together is easier and faster than using modular-mechanical techniques. The finished traditional rocket has few final sub-assemblies, only two or three (usually the airframe with the fins, and the nose-payload section), and the rocket is very strong. This is because the adhesives penetrate into the fibers of the materials, making very strong joints (but a permanent configuration that is not easily modified). The strength of traditional rocket construction allows such models to accommodate even very powerful HPR motors.

The rocketeer who wants to design and build new and original rockets often understands that commercial kits are very limited when it comes to experimenting with different designs. Thus, he starts to modify the kit. First he wants to give the rocket a different appearance with different fins, or by adding/removing parts of the airframe; but he also wants to conduct experiments



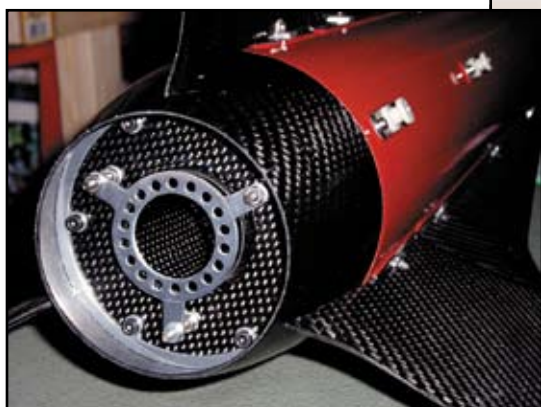
(above) The Roccouno model disassembled into its components.

(right) Detail view of the Roccouno's fin assembly. The Roccouno makes extensive use of composite materials.



(left) The tail of the Roccouno model. The rocket features positive motor retention and rail buttons for launch.

(below) The shock cord mount of the Roccouno is located in the fin area. The mount features a spring-loaded shock absorber.



that require larger or smaller payload sections and nosecones. Sooner or later he thinks of using a wider variety of motors, even in clusters. This leads to designing diverse motor mounts to accommodate rocket motors of various diameters.

It becomes evident that gluing parts together is a limitation to model rocket experimentation. It is impossible to try all the modifications listed above in a model built with glues (without building several rockets to incorporate the different elements). The construction of an original rocket requires diverse detachable elements that

must be joined to the others with screws and bolts. This is the first step toward the mechanical construction of a real flying rocket machine.

A rocket built with mechanical-modular techniques can incorporate a virtually endless series of elements. Every single component of the airframe, or structural part, can be replaced or re-

paired or modified, and joined in the proper place by screws (and so: glueless). This permits the study of every component of the vehicle and the repair or replacement of only those that fail or perform poorly. The vehicle can be totally disassembled into elemental parts. Experimentation can concentrate on modifying just the parts of the system that are least effective that need replacement. This is the way the great companies build real space vehicles and this is defined as "developing the vehicle."

Developing our own vehicle can open infinite possibilities, and we can modify our rocket so that it becomes, after every little change, a little bit better than it was previously. Naturally, this happens after a long period of experimentation, and after several years of "developing." Each of us acquires his personal experience and becomes a unique model rocketeer, with a fantastic and wide vision of designing and building.

A simple way to try out the techniques of mechanical-modular construction is to start by modifying a commercial kit. We

THAT SEVEN-D'S ROCKET

It's High Power, Dude!

That Seven-D's Rocket, featured in the July/August issue, requires an FAA waiver and Level 1 High Power Certification to fly when fully loaded. Any rocket containing more than 125 grams of propellant is a High Power Rocket, by definition, and you must adhere to the High Power Safety Code when flying it. With one D12-5 and six D11-P motors, That Seven-D's Rocket contains 168.1 grams of propellant, so it is a "complex" high power rocket and you must launch it from a minimum personnel distance of 200 feet.

You can get within the legal limits for Large Model Rockets by launching it with one D12-5 and *four* D11-P motors (a total of 119.1 grams of propellant), but flying it still requires FAA notification (although not a waiver).

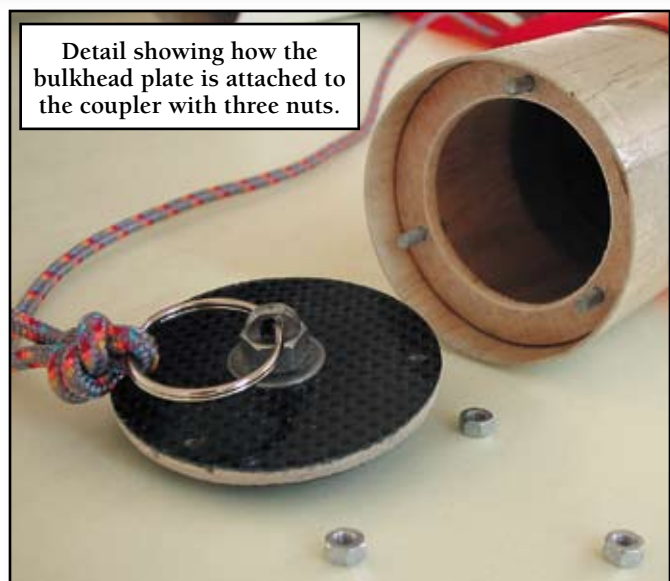


(above) An Arcas model constructed with modular-mechanical techniques.
The Arcas, disassembled to show its internal construction.

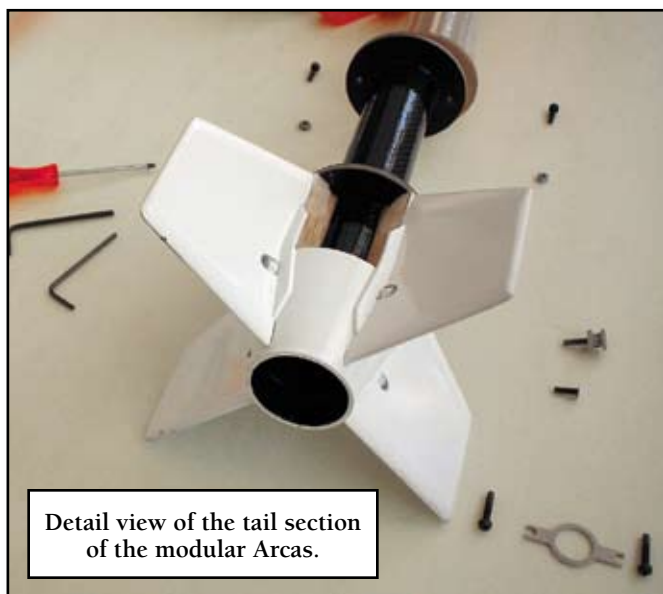
can modify it to allow the motor mount to be removed from the airframe. This system enables us to observe the effects of the thermal stresses of motors and ejection charges on the motor mount and stuffer tube (if present). It is very interesting and—this is a gift!—we can note if the motor mount suffers any damage after every or few flights. This is an invaluable experience.

Another advantage is the fact that it is simple to replace a damaged or burned shock cord. And in the case of a zipper in the airframe tube, we can replace only the tube with a new one, conserving the remaining parts (and not buying additional parts).

Screws passing through the tubes and penetrating into the bulkheads (which are built with thicker wood or other materials) are easy to extract to allow replacement of parts—much better



Detail showing how the bulkhead plate is attached to the coupler with three nuts.



Detail view of the tail section of the modular Arcas.

than having to cut part of a glued tube or glued motor mount.

Modular-mechanical construction results in a vehicle that is more readily modified and better supports even small experimental upgrades compared to a similar model assembled with adhesive. But the rocketeer's spirit that chooses to embrace this concept demonstrates the desire to know its "machine" in every single part—studying, planning, and constructing to a very deep level. Moreover, in our modern era we are fortunate to have composite materials available that help us remarkably in the modular construction—but that is a topic for a future article.

For more information, see our web sites: Riccardo Paleari NAR 85185 at <www.web.tiscali.it/paleair/> and Cristiano Casonati NAR 85186 at <www.criscaso.com>.



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RX-250-LPN

Indonesia's RX-250-LPN Sounding Rocket

by Peter Alway

Indonesia's space program dates back to the early 1960's after the US and USSR launched the first satellites, moon probes, and humans into space. In 1963, Indonesia's Astronautics Committee, composed of military, scientific, and educational leaders, found that the world's fourth most populous nation lagged far behind not only the developed world, but even behind other third world countries. Much to the committee's consternation, Indonesia had been a blank spot on the map during the International Geophysical year of 1957-1958. By November, the committee had sparked two significant results. First, the military, working with the Bandung Institute of Technology, began work on the PRIMA rocket project. Second, a presidential decree created the National Institute of Aeronautics and Space, abbreviated LAPAN.

On August 14, 1964, the PRIMA project bore fruit with the launch of the Kartika-I research rocket. In the following years, Indonesia worked with Japan to launch sci-

entific payloads on Japanese Kappa rockets from Indonesian soil.

By the late 1960's, LAPAN embarked on an effort to use space for practical applications. On July 8, 1976, an American Delta rocket launched Indonesia's first satellite, Palapa A, into orbit. This Hughes-built communications satellite linked the scattered islands of Indonesia with 12 radio transponders capable of carrying more than 5000 phone channels or 12 television channels. More Palapa satellites followed.

LAPAN resumed sounding rocket work in the 1980's, creating the RX- series of rockets. The smallest Indonesian rocket is the RX-75—the number indicating the diameter in millimeters. Next is the two-stage RX-150/150-LPN, lofting 15-30 kg (33-66 lb) to 60 km (35 mi). The largest, the two-stage RX-250/250-LPN can carry 30-60 kg (66-130 lb) payload to an altitude of 120 km (70 mi). Between these is RX-250-LPN, a single-stage rocket capable of lifting 30-60 kg (66-130 lb) of scientific instruments to an altitude of 70 km (40 mi).

LAPAN's Space Technology Division began work on the RX-250-LPN in 1984. The

solid propellant rocket burns HTBP composite propellant (a propellant also favored by American rocketeers) configured for a dual-thrust burn. The motor provides an initial high-thrust blast to kick the rocket off the pad, followed by a gentle burn to maximize performance. The first RX-250-LPN lifted off in 1987. The rocket has carried flight dynamics instruments to monitor the rocket's performance, meteorological instruments, and radio equipment for a band piping-digipeater experiment—the basis of a proposed Indonesian microsatellite. The rockets depicted here bear insignia commemorating the 50th anniversary of Indonesia's independence, in August of 1995. Another RX-250-LPN, carrying a digipeater flew in October of 2000.

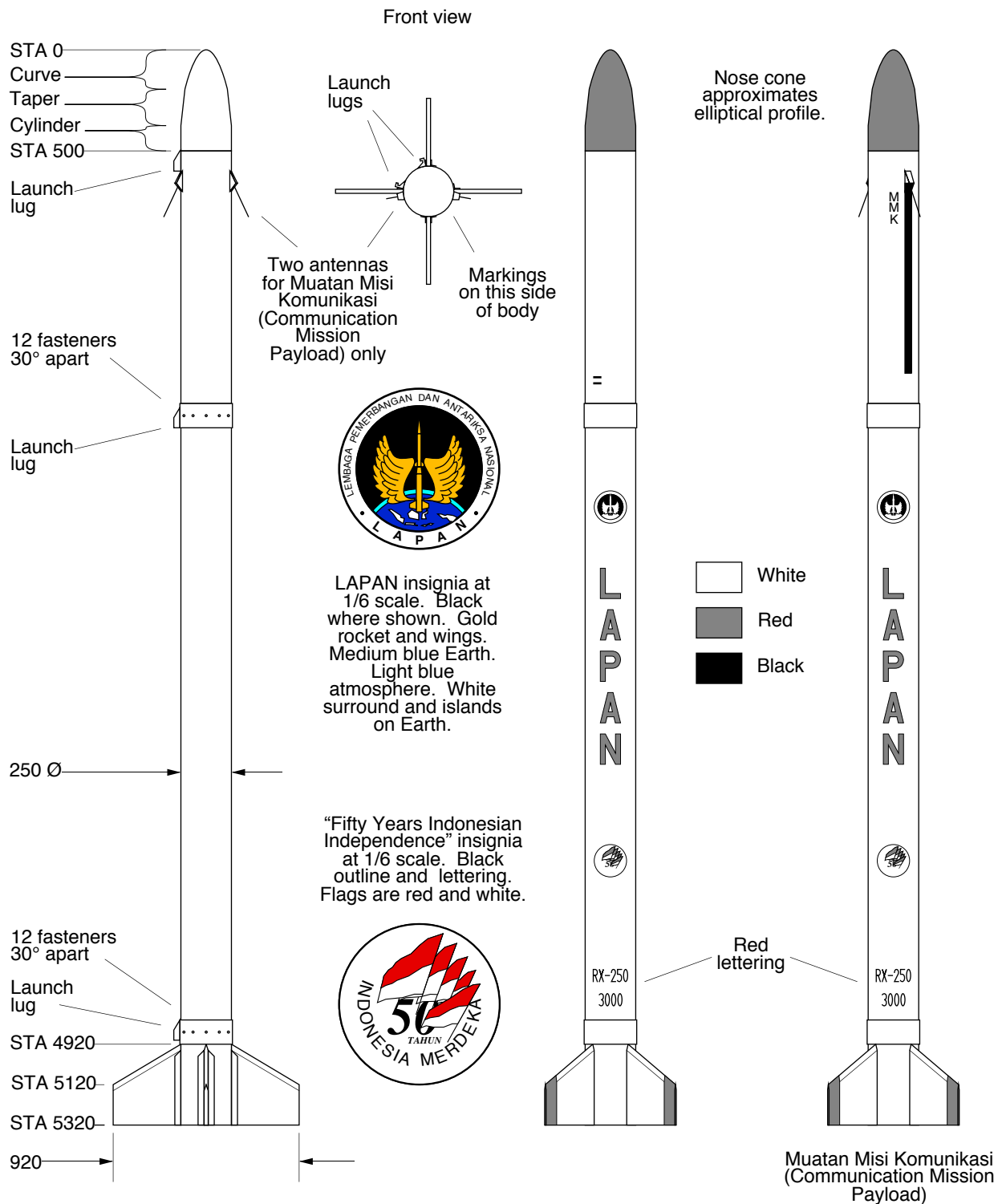
In 1999, the situation in East Timor led the US to embargo exports of military equipment to Indonesia (relations have improved since—the US lifted the ban late in 2005). In response, Indonesia began efforts to create its own missiles. Advances in sounding rocket propulsion and missile propulsion are often interchangeable, so LAPAN set about to move Indonesian rocket technology forward in general.

In late May and early June of 2005 this work came to fruition with a series of rocket launches from Garut, West Java. Local fishermen, ordered off the waters for a couple days for the trials, treated the launch campaign as a festive occasion, fascinated by the preparations and taking pride in their country's advances in rocketry. LAPAN trucked in nine rockets for the occasion, including two new larger-diameter rockets. Also among these rockets was an improved version of the RX-250.

The new RX-250 featured a thinner, lighter casing for better performance. LAPAN launched two of these in June to evaluate their performance and to compare it to computer predictions. Another RX-250 flew in December of 2005. Photos of the 2005 rockets show a conical nose replacing the roughly elliptical nosecone of the 1995 rockets shown here.

RX-250-LPN SPECS.

Launch weight	300 kg (660 lb)
Payload weight	30-60 kg (66-132 lb)
Thrust	52,000 N (11,700 lb)
Duration	6 sec
Total impulse	310,000 N-sec (70,000 lb-sec)
NAR designation	R 52,000
Length	5.32 m (17 ft 5 1/2 in)
Diameter	25 cm (9.8 in)



RX-250-LPN
1/30 scale
Dimensions in millimeters
© 2000 Peter Alway

Sources:
"RX-250-LPN" LAPAN data sheet.
"RX-250/250" LAPAN data sheet.
Photographs provided by Laurens Samosir of LAPAN
LAPAN web site <http://www.lapan.go.id>

AeroTech Consumer Aerospace

At the recent LDRS event in Amarillo, Texas, AeroTech introduced several new products to the rocketry community, including the Electronic Forward Closure™, or EFC. The EFC is a timer-based electronic recovery system deployment module that attaches to the top of any RMS™ 29mm, 38mm, or 54mm reloadable rocket motor. It includes a reusable glow-plug ejection charge ignition system that eliminates the need for electric matches and similar one-time use devices commonly employed with other electronic deployment systems. A robust anodized aluminum housing protects the unit from mechanical shock and exposure to ejection charge residue, and an integral ejection charge holder retains up to 3 grams of black powder. Easy to set up and use, it was flown at LDRS in Joe Danjou's LOC Minie-Magt™ using an AeroTech H999N-P for propul-



sion. After a perfect 0.33-second boost and pre-set 8-second time delay, the EFC deployed the parachute at apogee. The EFC may be programmed to deliver a time delay of one to over 6,000 seconds from motor burnout, in one-second increments.

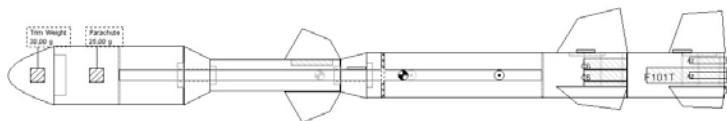
New motor forward closures were released that adapt the EFC-1 to the various size high-power RMS motor casings, including an extended version for the long-burn 54mm reloads. Part no. EFC29-1 is the 29mm closure (\$24.95), EFC38-1 is the 38mm Closure (\$39.95), EFC54-1 is the standard length 54mm closure (\$53.95) and EFC54-2 is the extended length 54mm closure (\$69.95). An avionics combo pack (EFC-CP) is also being offered that includes the EFC-1 and one each of all the motor closures for \$339.95 suggested retail, a savings on nearly \$20. As a bonus feature, all of the EFC motor closures were designed to eliminate the need for the delay O-ring and forward delay spacer, simplifying motor assembly. Along with the EFC hardware products, AeroTech

introduced an ejection charge kit 12-pack (part no. ECK-1, \$5.95), which includes 12 each 1.4 gram ejection charges and 1/2" diameter vinyl caps designed to fit the EFC's ejection charge holder. The EFC unit alone is priced at \$169.95.

Also released at LDRS-25 were a number of new RMS rocket motor reload kits: The 38/120 Warp-9 G339N-P (\$19.95), the 38/600 Black Max I305FJ-M (\$45.95), the 38/1080 Black Max J575FJ-M (\$76.95), the 75/7680 White Lightning M1850W-P (\$379.95) and the 98/2560 Warp-9 K1999N-P (\$209.95). Finally, new hardware was released for these and other upcoming RMS reload kits. The 75/1280 case (\$149.95) and motor (\$273.95) are intended for several new single-grain 75mm reload kits that will be released later in 2006. The 75/7680 case (\$364.95) and motor (\$464.95) are designed for use with the M1850W-P motor, also introduced at LDRS-25. The 75/7680 case and motor both include a new forward seal disk, which is also available separately (\$29.95).

For more information, contact: AeroTech Consumer Aerospace, 2113 W. 850

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Web: www.aerotech-rocketry.com

Sirius Rocketry

Sirius Rocketry has released low and mid-power versions of its new "Interrogator" design, which was displayed prominently at NARCON 2006. The BT-55 18mm version is just under 20" long, while the BT-60 24mm 1.35X upscale measures 27". The smaller Interrogator weighs about 2 ounces, with the larger rocket tipping the scales at twice that weight, depending on glues and paints used. Both versions feature a unique "straddled fin" configuration, a lariat Kevlar™ shock cord mount, strong and highly visible Mylar™ parachutes, and three sheets of highly detailed full-color waterslide decals. The 18mm Interrogator also incorporates a unique method of laminating balsa fins for easier finishing and additional strength with minimal added weight.

Recommended motors for the smaller rocket are A8-3 (for the first flight, but a little wimpy for this reviewer's tastes), B6-4, and C6-5. Mid-power motors are C11-3, D12-5, AT E15-7, RMS E18-7, and RMS F12-5, and the larger model also requires a 3/16" launch rod. The Interrogator's skill level is rated at 3 out of a possible 5. The 18mm Interrogator retails for \$20.95, while the bigger 24mm rocket goes for \$32.49.

For more information: Sirius Rocketry, LLC, 1549 Collins St., Neenah, WI 54956.
Web: www.siriusrocketry.com



Briefly noted...

"Manufacturers' News" received a brief note announcing a new rocketry electronics manufacturer, AAA Rocketry Electronics. We'll be publishing a more complete overview of this new company in a future issue, but readers are encouraged to visit this new firm's website at: www.aaarocketryelectronics.com. Also, Tim VanMilligan has sent a prototype altimeter designed for smaller rockets for us to test, and we'll be reporting on that in the next few months.

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NAR Sanctioned Competitions:

Mountain Region

Date: October 21 & 22

Location: Rush Valley, UT

Event: UFO (UROC FALL OPEN)

Class of Event: Regional Meet

Contest Events: A PD, B SD, B HD, B BG, OSL, F/F Scale

Sponsor: UROC (Utah Rocket Club)

Contact: Bruce Bell vicepresident@uroc.org
801.250.5868

Waiver: 10,000AGL

Notes: Flying will be from 9am both days; Scale turn-in by 5pm Saturday. Sport flights, all motor classes with high and low-power pads. Vendors on-site. Spectators welcome. For further info and directions check <http://www.uroc.org>.

Northeast Region

Date: Aug 19-20

Location: Johnstown, NY

Event: Whitcavitch 20

Class of Event: Regional Meet

Contest Events: Ran Dur, 1/2A SD (MR), B HD, B ELD, Sport Scale

Sponsor: ASTRE

Contact: Alex DeMarco alex.demarco@suny.edu

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Waiver: Large Model Rocket notification only

Notes: <http://www.astre471.org/regional>

Date: Oct 7 & 8

Location: Prospect, PA

Event: Steel City Smoke Trail 6

Class of Event: Regional

Contest Events: A PAY, A BG, B HD, F FW

Sponsor: PSC, NAR 473

Contact: Rod Schafer 724-845-7439

rschafer@alltel.net

Notes: See the PSC website at <http://www.psc473.org> for more details. Sport flights up to G power.

Host Hotel – Super 8 Motel – South of Butler, PA
(724-287-8888)

Date: Oct 7 & 8

Location: Cincinnati

Event: Flying Pig Open III

Class of Event: Open

Contest Events: A SA, 1/8A SRD, 1/4A RGD

Sponsor: QUARK NAR Section 624

Contact: Chan Stevens chanstevens@fuse.net

513.263.0927

Notes: See <http://www.quarkers.org> for more information.

Sport Launches and Club Events:

Mid-America Region

Date: 3rd Saturday of the month (except Dec)

Location: Kansas City, MO

Event: KCAR Monthly Sport Launches

Sponsor: KCAR

Contact: Dave Lucas NUSPACGOD@YAHOO.COM
913-856-4363

Waiver: 6,000 AGL

Notes: Our monthly sport launches start 9 am and run till 5pm. Flying fees for the day are \$5 for non-members and \$3 for members. Contact David Lucas NLT 24 hours prior to launch if you intend to fly HPR. Please visit the clubs website. <http://www.angelfire.com/mo2/kcar>

Date: 2nd and 4th Saturdays of each month

Location: Champaign, IL

Sponsor: CIA #527

Contact: Jonathan Sivier jsivier@uiuc.edu
217-359-8225

Waiver: 3250 AGL

Notes: We normally launch at Dodds Park in Champaign from noon to 6 pm. The maximum motor size there is H. Occasionally we will hold high power launches at an alternate site with a waiver to 10000 MSL. Our launches are open to everyone. <http://www.prairienet.org/cia/>

Date: Oct 28

Location: Ellinwood, KS

Event: KOSMO Night Launch

Sponsor: KOSMO, NAR Section 427

Contact: Duane Lanterman rocketsandracing@cox.net
(620)793-7491

Notes: Launch site is the Ellinwood City Airport, 1.5 miles NW of Ellinwood, Kansas. FAR 101.22 limits of 3.3 lbs max takeoff weight. Flying will start at 4 00 PM. All rockets launched after sunset must have a light source visible throughout the flight.

Date: Nov 12

Location: Wichita, KS

Event: Micro-Rocket Fun Fly

Sponsor: KOSMO, NAR Section 427

Contact: Mark Johnson mark.s.johnson@att.net
(316)733-4804

Notes: Flying site TBA, please contact launch director. Flying starts 2 00 PM, supper to follow. Launches limited to Micro-Max motors.

Mountain Region

Date: Third Saturday every month

Location: Pueblo, CO

Event: Model Rocket Day

Sponsor: Southern Colorado Rocketeers NAR Section #632

Contact: Jason Unwin 719-942-3125 jbu@piopc.net

Notes: Flights start at 9 AM and are held at the Lake Pueblo State Park RC Plane Field on north shore of Lake Pueblo State Park.. Please no rockets over 3.3 lbs total weight. Model Rocket Launches open to the public, NAR and Tripoli members. <http://www.pwam.org/rocketclub/>

Date: First Sunday and third Saturday every month

Location: Lakewood, CO

Event: C.R.A.S.H. Sport Launches

Sponsor: Colorado Rocketry Association of Space Hobbyists (CRASH), NAR 482

Contact: Bruce Markielewski at 303-781-2310

or email markielewski@purplemtn.com

Notes: Colorado Rocketry Association of Space Hobbyists (C.R.A.S.H.) Sport launches are held year round on the first Sunday and Third

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Launch Windows

Saturday of each month at Bear Creek Lake Park in Lakewood, CO. The Sunday launches start at 12:00, and the Saturday launches start at 10:00 AM. Flights are limited to 3.3 lbs. liftoff weight and 125 gm. Propellant weight. Everyone is welcome to participate. For more information, see <http://www.geocities.com/narcrash>

Date: First and/or Second Saturday of every month

Location: Pawnee National Grasslands, CO

Event: Regular Club Launch

Sponsor: Northern Colorado Rocketry Club, NAR565/TRA 72

Contact: Joe Hinton at iflyrockets@yahoo.com

Waiver: 12,000 ft AGL at Atlas, 20,000 ft AGL at North

Notes: NCR has two excellent launch sites. NCR's North site is 150 square miles of gently rolling prairie, has a 20,000 ft AGL waiver, NCR uses this site for 1/4A thru O powered flights on second Saturdays, spring thru fall. NCR's Atlas site has a paved road and concrete launch pad in 4 square miles of treeless land. The area is conducive to launching 1/4A thru J motors, or K motors with advanced notice. NCR uses the Atlas site on the first Saturdays and mostly during the winter. See <http://www.ncrocketry.org>

Date: Second and Fourth Saturdays of every month

Location: Colorado Springs, CO

Event: COSROCS Sport Launches

Sponsor: Colorado Springs Rocket Society (COSROCS) NAR Section 515

Contact: Warren Layfield 719-332-6800

or 719-237-4375. Section515@Juno.Com

Notes: Colorado Springs Rocket Society (COSROCS) hosts two open public launches every month, year-round. Second Saturday launch is at Challenger Middle School for model rockets under 1 lb. Fourth Saturday launch is at the Preble Ranch in Peyton for large model rockets under 3.3 lbs. Both launches start at 9:00am. There are no launch fees. Please visit our website for further information and directions - <http://www.cosrocs.org>

Date: Second Saturday of the Month

Location: Pueblo, CO

Event: Model Rocket Building "Make and Take"

Sponsor: Estes Industries, Pueblo Weisbrod Aircraft Museum, and Southern Colorado Rocketeers NAR Section 632

Contact: Jason Unwin jbu@piopc.net (719) 942-3125

Notes: Building starts at 9 AM. Cost is \$3 museum admission for persons aged 10 years and greater. \$6 for three rocket motors. Participants build a simple skill level 1 kit. This is a build only session. Flying is on the following Saturday at the clubs launch site. <http://www.pwam.org/rocketclub/>

Date: Every 3rd Weekend

Location: Rush Valley, UT

Event: UROC Monthly Sport Launch

Sponsor: Utah Rocket Club (UROC)

Contact: Bruce Bell bruce@bcns.com 801-250-7058

Waiver: 15000 AGL

Notes: Sport flying on one or both days, 3rd weekend each month depending on weather (check website to see if "go/no-go" on launch and directions to site). All motor classes (A-N) with 15000 AGL. Low and high-power pads. Non-members of UROC pay only \$5 launch fee for day. All ages welcome. <http://www.uroc.org>

Northeast Region

Date: Second and fifth Sunday every month

Location: Mantua, OH & Tallmadge, OH

Sponsor: Mantua Township Missile Agency (MTMA), NAR 606

Contact: Email Tod Hilty at blankreg@apk.net or Mark Recktenwald at m_reckt@raex.com

Waiver: Determined prior to specific launch date.

Notes: MTMA Monthly Launch. The Mantua Township Missile Agency holds launches in the

northeastern Ohio area. Our gatherings are informal, family-oriented "rocket-picnics". Most of us have children and they are encouraged to participate. Range open from 10:00am to 4:00pm. See the MTMA website (<http://web.raex.com/~markndeb/rockets/mtma/>) for informal section contests, rain dates, maps and other information.

Date: Third weekend every month; Raindate following weekend

Location: Cherryfield, ME or Deblois, ME

Sponsor: Pinetree Rocketry, NAR 561 & Tripoli Cherryfield, TRA 107

Contact: Richard Willey at 207-546-2677 or email.rwilley@nemaine.com, Michael Dow at 207-546-2578 or email.mdw@midmaine.com

Waiver: 8,000 ft. standard, 15,000 ft. Memorial and Labor Day launches.

Notes: E.O. Morse Field, Cherryfield, ME.(primary field) and "Airstrip", Deblois, ME.(secondary field). Please call or email for field conditions and directions. Downeast weather is fickle at best. We can support A-M power. Visit our website: http://www.tripoli.org/tra_me/maine.html

Date: Sept 23, Oct 28, Nov 25, Dec 30, Jan 27

Location: Raritan, NJ

Sponsor: Garden State Spacemodeling Society (GSSS), NAR 439

Contact: Jack Sarhage 732-317-2951; gssshq@optionline.net

Notes: Monthly sport launch is at North Branch Park. NAR Model Rocket Safety Code applies. All model rockets must land within confines of park. Those wishing to launch rockets with over 20 N-sec must show proof of insurance and will be allowed at discretion of RSO. Fun events: Sept—Ping Pong ball duration; Oct—Olde Tyme Model Rockets; Nov—Sport Scale; Dec—Holiday Decorated rockets. See <http://www.robnee.com/gsss> for cancellations.

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NARTS NEWS

*Look to NARTS for
technical documents, logo
items and so much more!*

Our new "smoke"-colored **short sleeve golf shirts** are flying off the shelves. These Port Authority brand shirts come from the same supplier as our long-sleeve denim shirts and have the NAR logo and wording embroidered over the pocket. Larger sizes are available up to 3XL. Pictures are worth a thousand words, so check them out at www.nar.org/narts in the New Products category.

Also new to NARTS are the first revision of the **NAR member sticker** in many years, replacing the white inside-window sticker. These new sticky-backed full-color stickers will be given to new members and can be purchased from NARTS. See an image of the sticker in the NARTS catalog online!

In the enjoyed-every-bit category, I cannot say enough good things about Neil Davis' book, **Rockets Over Alaska**. The book is a first person narrative of the birth of the Poker Flat Research Range outside Fairbanks Alaska, where Neil founded the high-latitude scientific rocket launch facility. The personal, up-close aspect of this story really makes it come alive for the reader. Copies of the book from NARTS come with Neil's autograph and a bookmark made from a swatch of parachute material from a Poker Flat rocket that went into space.

NARTS was at NARAM again this year. With items ranging from hats to sport plans, from shirts to bumper stickers, NARTS was proud to support the NAR's premiere competition event. The next national event is NARCON, and after last year's first-ever attendance there, we will be doing everything we can to attend the next one!

Launch Windows

Please send your schedules to: **Bruce Canino**, 107 Clayton Road, Williamstown, NJ 08094
E-mail: launchwindows@NAR.org

Date: First Sunday Every Month
Location: Ottsville, PA
Sponsor: Philadelphia Area Rocketry Association (PARA), NAR 520
Contact: Chuck Arkens at 215-855-5599 or email ChuckROC@AOL.com
Waiver: 8,000 ft. MSL.
Notes: See <http://www.PARA520.org> for details and up to the minute information.

Date: Second Saturday of the month, April through November
Location: Nicholson, PA
Sponsor: NorthEastern Pennsylvania Rocketry Association (NEPRA)
Contact: Drake Damerau monel@sprynet.com 570-586-8302
Waiver: 17,000 MSL / 15,700 AGL
Notes: NEPRA Sport Launches. We have over 40 launch pads including 1/8" rods up to 1/2" rods and rails to accommodate all rail buttons. We now have a complete hybrid launch system for launching virtually any hybrid system. We have food and porta potties at all our launches. Please call or see the website for more information. <http://www.nepa.com>

Date: Second weekend of the month April - October
Location: Essex Junction, VT
Sponsor: Champlain Region Model Rocket Club
Contact: David Jones davidjones@mac.com (802) 899-3697
Waiver: 5000' AGL
Notes: Model and high power facilities. Launch times TBD. <http://www.cmrc.org>

Date: First and Third weekend every month
Location: Cleveland, OH
Event: Year 2005 Sport Launches
Sponsor: Tri-City Sky Busters, NAR #535 &

Northern Ohio Tripoli Rocketry Assoc. (NOTRA), TRA #003
Contact: Les Kramer Phoenix@SkyBusters.org (216) 941-4554
Waiver: 2,500 FT/AGL or 5,200 FT/AGL depending on field
Notes: HyperTEK, RATT Works and Black Sky & Xtreme Rail equipped, L1 & L2, Certs, up to "L" motors. Check web site for additional info at <http://www.SkyBusters.org>

Date: Sep10, Nov. 12, Dec. 10
Location: Prospect, PA
Sponsor: PSC, NAR 473
Contact: John Pace donpace@zbzoom.net 724-742-8692
Notes: Monthly Sport Launches. See the PSC's website at <http://www.psc473.org> for more details.

Date: Check webpage
Location: Deptford, NJ
Sponsor: SoJARS Section 593
Contact: Barry Berman therocketdoc@comcast.net 856-464-0275
Waiver: LMR only 3000 ft
Notes: The South Jersey Area Rocketry Society invites rocketeers of all ages and skill levels to join us at our monthly sport launches at Gloucester County College. Families and newcomers to rocketry are welcomed enthusiastically. Large field can accommodate up to E impulse. (We also hold several launches each year at a local farm where we can accommodate up to G impulse.) Check <http://www.sojars.org> for dates and times.

Date: Third Saturday of the month until May 2006
Location: Sterling, CT
Sponsor: CATO (581)
Contact: Al Gloer president@catorockets.org




860.563.1717
Waiver: 6K AGL
Notes: Each launch may have a local meet plus a club specific non-sanctioned contest. Time is 9:45-3:00 <http://www.catorockets.org/events.html>

Date: Saturdays Except Sep 24th, Oct 7th, Nov 4th, Nov 18th
Location: Hurley, NY
Sponsor: CTRA/NARCONN, Inc.
Contact: Robert Hilton robertahilton1964@yahoo.com
Waiver: 5,000 AGL
Notes: Please check the launch schedule at http://citra-narconn.org/launch_dates/launch_dates.htm if questionable weather. Scouts and all rocketeers welcome! High-power projects are also flown at our events and we welcome you. CTRA/NARCONN is a local model rocket club encompassing Connecticut, New York, New Jersey, Massachusetts and throughout New England. We are a TRA prefecture and NAR section. It's a wealth of fun, great learning exposure and fun for all ages. Lectures, demonstrations can be arranged on request.

Date: Sep 9 & 10, Oct 21 & 22
Location: Cobleskill, NY
Sponsor: CTRA/NARCONN, Inc.
Contact: Robert Hilton robertahilton1964@yahoo.com
Waiver: 5,000 AGL
Notes: Please check the launch schedule at http://citra-narconn.org/launch_dates/launch_dates.htm. See notes for CTRA/NARCONN launch listing above this one.

Date: Second Saturday each month, March to December
Location: Tallmadge or Mantua, OH

NAR BACK ISSUES - 28 Years of Rocketry

 <small>Journal of the National Association of Rocketry</small>	1973	Photocopies available			1974	JUN	SEP	1975	AUG	1976	MAR	SEP	OCT
	Nov	1977	JAN	FEB	MAR	JUN	JUL	AUG	SEPT	1978	FEB	MAR	
	MAY	JUL	AUG	SEP	1979	DEC	1980	JUL	OCT	NOV	DEC		
	1981	JAN	MAR	APR	MAY	JUN	AUG	SEP	OCT	DEC	1982	SEP	
	OCT	NOV	DEC	1983	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	
	SEP	OCT	NOV	DEC	1984	JAN	FEB	MAR	APR	MAY	JUN	JUL	
 <small>Published by the American Space Modeling Society</small>	1984	OCT	NOV	1985	MAR	1986	FEB	MAR	OCT	NOV	DEC		
	1987	FEB	MAR	APR	JUN	JUL	SEP	OCT	NOV	DEC	1988	FEB	
	MAR	APR	JUL	AUG	SEP	OCT	NOV	DEC	1989	JAN	FEB	MAR	
	APR	MAY	JUN	AUG	SEP	OCT	NOV	1990	JAN	FEB	MAR	APR	
	JUN	SEPT/OCT	NOV/DEC	1991	JAN/FEB	MAR/APR	NOV/DEC	1992	MAY/JUN	JUL/AUG	NARAM	NOV/DEC	
	1993	MAY/JUN	NOV/DEC	1994	NOV/DEC	1995	JAN/FEB	FALL	HOLIDAY	1996	MAR/APR	SUMMER	
 <small>Published by the National Association of Rocketry</small>	1996	SEP/OCT	HOLIDAY	NOV/DEC	1997	MAY/JUNE	JULY/AUG	SEPT/OCT	NOV/DEC	1998	NONE AVAILABLE		
	1999	MAY/JUNE	JULY/AUG	2000	JUL/AUG	NOV/DEC	2001	JUL/AUG	NOV/DEC	2002	JAN/FEB	MAR/APR	
	MAY/JUNE	JULY/AUG	SEPT/OCT	NOV/DEC	2003	JAN/FEB	MAR/APR	MAY/JUNE	JULY/AUG	SEPT/OCT	NOV/DEC		

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Sponsor: Mantua Township Missile Agency (MTMA), NAR 606

Contact: Tod Hilty hiltyt@adelphia=2Enet
330-274-8709

Waiver: 1800 ft AGL

Notes: Our gatherings are informal, family-oriented "rocket-picnics". Most of us have children and they are encouraged to participate. Range open from 10 00am to 3 00pm. See the MTMA website (<http://mtma.x3fusion.com/>) for informal, section contests, rain dates, maps and other information.

Date: Sep 9, 10, 23, 24; Oct 7, 8, 21, 22
Location: West Chester, OH

Sponsor: Queen City Area Rocket Klub (QUARK), Section 624

Contact: Dave Russell rocketsilo@cinci.rr.com
513.575.3989

Waiver: 4500 Ft AGL

Notes: QUARK flies at Voice Of America Park in West Chester, OH, just north of Cincinnati proper. 8700 Tylersville Road is the address, but the entrance is off of Cox Road. Field is 1 square mile supporting up to K motors. Flying is 9am to 6pm. Onsite vendor: Merlin Missiles. Standard rods up to 3/8" and 1" rails—Bring anything else you need. HPR certs supported at all launches. Cancellations/delays are posted to our Yahoo group, quarkers. Public is welcome. Non-members \$1 launch fee daily.

Pacific Region

Date: Sep 9, Oct 14, Nov 10-12 (ROCStock XXIV), Dec 9

Location: Lucerne Valley, CA

Sponsor: Rocketry Organization of California — ROC

Contact: ROC Board board@rocstock.org
909-646-9126

Waiver: 5300 AGL, with higher windows available

Notes: ROC hosts monthly model and high-power rocket launches at Lucerne Dry Lake bed, outside of the Victorville/Hesperia/Apple Valley area. In June and Nov., ROC hosts ROCStock, a three-day regional launch event that brings together thousands of rocketeers. Launches are free to ROC members (membership is \$60/year), and \$10/day for non-members. Spectators welcome for free. NAR/TRA HP cert is available at every launch. Porta-potties and launch pads are provided. See <http://www.rocstock.org> for details.

Date: Multiple dates, see web page

Location: Livermore, CA

Event: TARC & Club launches. Special events always welcome.

Sponsor: Livermore Unit of National Association of Rocketry, sect# 534

Contact: David Raimondi d.raimondi@sbcglobal.net
408.742.5173

Waiver: 1500 ft

Notes: <http://www.LUNAR.org>

Date: Oct 13-15 2006

Location: Brothers, OR

Event: Brothers, Oregon launches

Sponsor: OregonRocketry (NAR 555)

Contact: John Roberts jpr602@mac.com
541.344.2009

Waiver: 20,000 AGL

Notes: Up to N impulse. Waiver 20,000 AGL with windows to 35,000. EX on Friday (May, July, Oct), Sunday (June), all weekend (August). Certifications. Primitive camping. Vendors. Full info on website.

Date: Sep 16-17

Location: Dayton, WA

Event: Rolling Thunder 12

Sponsor: Blue Mountain Rocketeers NAR # 615

Contact: Tim Quigg
bluemountainrocketeers@yahoo.com
509-520-9773

Waiver: 5000 ft AGL

Notes: Odd-Roc theme launch. On site-rocket and food vendor, over-night on-site camping. 24 pads supporting model, mid-power and high power flights up to "I" impulse. Level 1 and 2 certifications and testing available. No membership dues or pad fees! <http://www.bmr615.org>

Date: Oct 9, 2006

Location: Sheridan, OR

Event: Fillible's Folly

Class of Event: Sports Launch

Sponsor: OregonRocketry (NAR 555)

Contact: John Roberts jpr602@mac.com
541.344.2009

Waiver: 4500 AGL (pending)

Notes: Impulses up to K. Night launch on Saturday. Vendors. Toilets and primitive camping on site. See website for full info.
<http://www.oregonrocketry.com>

Date: Nov 10-12, 2006

Location: Lucerne Dry Lake, Lucerne Valley, CA

Event: ROCStock XXIV

Sponsor: Rocketry Organization of California

Contact: Dok Hanson use www.rocstock.org

contact form 310-851-9277

Notes: 3-day Sport Launch, all welcome. Check out <http://www.rocstock.org/rocstock.html> for further details and information.

Southland Region

Date: Second Thursday every month

Location: Teays Valley, WV

Event: Club Meeting

Sponsor: West Virginia Society of Amateur Rocketry (WVSOAR), NAR 564

Contact: Jerry Myers at 304-586-4200 and Doug Moore at 304-727-6813

Notes: See website at: <http://wvsoar.org>

Date: Third Saturday every month

Location: Tampa, FL

Sponsor: Tampa/Hillsborough Organization of Rocketry (THOR), NAR 598

Contact: Manuel Mejia, Jr., P.O. Box301, Astatula, FL 34705 email sfkeesuv@yahoo.com

Notes: See our web site at <http://www.modelrocketry.cjb.net> for details.

Date: Saturday following 2nd Thursday every month
Location: Rio Grande, OH OR Buffalo, WV. See website for details.

Sponsor: West Virginia Society of Amateur Rocketry (WVSOAR), NAR 564

Contact: Jerry Myers at 304-586-4200 and Doug Moore at 304-727-6813 after 6:30 PM.

Waiver: 10,000 ft. MSL.

Notes: Level H/I and J/K/L certification possible. Please call Jerry to confirm each launch's status, especially if you plan to certify. See website at: <http://wvsoar.org>

Date: Third Saturday each month

Location: Middletown, MD

Sponsor: NAR Headquarters Astromodeling Section (NARHAMS), NAR 139

Contact: Jim Filler zog139@yahoo.com
301-524-4447

Notes: Sport launches are typically 10 am - 4 pm with a NOTAM in effect for up to 3.3 lbs. See website at <http://www.narhams.org> for any changes and special events. Up to G impulse allowed. Supports Team America launches.

Date: Second Saturday every month

Location: Shelby Farms (Memphis, TN)

Sponsor: Mid-South Rocket Society (MSRS), NAR 550

Contact: Burton Holyfield blholyfield@earthlink.net



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E-mail: launchwindows@NAR.org

901-937-8262

Waiver: 6,000 ft. AGL.

Notes: Activities: Demo and sport launches; high power rocketry; on-line forums; educational activities. Meetings held after launches. Launches 10:00 - 4:00, NW corner of Walnut Grove and Farm Road Level 2 certification; flights to J. <http://www.midsouthrockets.com>

Date: Last Sunday every month

Location: Springdale, AR

Sponsor: Northwest Arkansas Rocket Society (NWARS), NAR 634

Contact: Mark Morley at 501-643-2261 or email mmorley@comp.uark.edu

Notes: Sport Launches at J. O. Kelley Middle School on US-412 in Springdale just West of AR-265. See web site at <http://fly.to/NWARS> for details.

Date: Last Saturday of each month (Feb-Nov)

Location: Ardmore, AL

Sponsor: HARA-NAR 403

Contact: Charles Pierce e-mail: president@hararocketry.org 256-772-2061

Waiver: 10,000'

Notes: Sport launches. Micromaxx thru M welcome, however, pre-coordination for L and M flights is requested. HARA launches are family events. Please see our web page at www.hararocketry.org for launch times and maps.

Date: First Sunday of every Month

Location: Greenbelt, MD

Sponsor: NARHAMS

Contact: Jennifer Ash-Poole

jpoole@cablespeed.com 410-674-6262

Notes: Public launches from 1-3 pm at NASA Goddard Space Flight Center. Field is small, so D powered or less, and no two staged models. Please check the NARHAMS website



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(<http://www.narhams.org/>) in case of cancellation due to heightened security.

Date: First Saturday of every month

Location: Nike Park in Isle of Wight, VA

Sponsor: South Eastern Virginia Rocketry Association Sect #621

Contact: Mike Verbeek
mjverbeek@transystems.com

Waiver: 3950' AGL

Notes: We launch on the first Saturday of every month at Nike Park in Isle of Wight in Hampton Roads. Rain date is the following Sunday. Visit us at <http://www.sevra.org>

Date: Third Saturday of Each Month

Location: Simpsonville, SC

Sponsor: PARSeC Rocketry

Contact: Neal Montgomery parsecpres@yahoo.com 864.299.7160

Notes: Launch fee \$5 for member, \$10 for non-member. Launch fee covers entire family. First time flyers fly free. A to G motors. 15 position LP system. Several MP pads. Rods up to 1/2 inch and standard rail available. More info available at <http://www.parsecrocketry.com> and at <http://groups.yahoo.com/group/PARSeCRocketry/>

Date: Every third Saturday

Location: Newington, GA

Sponsor: Savannah Hilton-Head Area Rocketry Club

Contact: Chuck Walden waldonia@hotmail.com 912-727-4417

Waiver: 10,000 ft AGL

Notes: Sport launches. <http://www.flysharc.org>

Date: Weekend of the Second Sunday except for April, July, September, and November

Location: Orangeburg, SC

Sponsor: ROSCO NAR Section 648

Contact: Bobby Weatherford advisor@roscoweb.org 803-456-3001

Waiver: 10,000 ft. AGL

Notes: Sport launches. Flights over 2560Ns (L motor or better) or of a complex nature must have prior approval from Eric Brenner (Prefect, prefect@tripolisc.org) or Bobby Weatherford (Senior Advisor, advisor@roscoweb.org). Don't plan flights with expected altitude above 9,000ft. Contact either address above for additional rules or to arrange for certifications (please let us know the date & time you plan on your certification flight). <http://www.roscoweb.org>

Date: Third Sunday of each Month

Location: Richmond, VA

Sponsor: Vikings Rocket Society - NAR Section 203

Contact: Tom Lyon vikingsnar203@aol.com (804) 321-7072

Waiver: 5,000 AGL

Notes: Join us for our regularly scheduled launch

on the third Sunday of each month from 1:00 PM to 4:00 PM at Hanover County's Pole Green Park (weather permitting). Check our website for directions and details of upcoming events. All TARC teams welcome for practice/qualifying flights. <http://www.vikingsrocketsociety.org>

Date: Third Saturday of Every Month

Location: Birmingham, AL

Sponsor: Birmingham Rocket Boys (BRB - 665)

Contact: Ron Witherspoon president@birminghamrocketboys.com 205-925-2027

Waiver: 10,000

Notes: Sport launches. Micromaxx thru K welcome, however, pre-coordination for J and up flights is appreciated. BRB launches are family events. Please see our web page at <http://www.birminghamrocketboys.com> for launch times, locations and maps. All TARC teams welcome for practice/qualifying flights. Level 1 & 2 certifications available.

Date: Sep 9, Oct 7, Nov 4, Dec 2

Location: Samson, AL

Sponsor: Southeast Alabama Rocketry Society 572

Contact: Greg Lane LaneKG@gmail.com 850 763-8242

Waiver: 10K AGL

Notes: Sport launches. <http://www.sears572.com>

Date: Fourth Saturday of each month

Location: Roswell, GA

Sponsor: Southern Area Rocketry (SoAR) #571

Contact: Roy Green comments@soar571.com 770.569.9263

Notes: Sport launches are held at Garrard Landing Park on Holcomb Bridge Rd. Check our web site for any last minute changes <http://www.soar571.com>.

Date: Fourth Saturday of Every Month

Location: Birmingham, AL

Sponsor: Phoenix Missile Works (BRB - 682)

Contact: Phillip Cotton pcotton@uab.edu 205-814-3692

Waiver: 15,000 MSL

Notes: HPR, Sport launches, education. Friendly, family-oriented Section. Check the PMR web page for monthly launch dates, times, site location and directions to flying field. Current waivers to 15,000' MSL. L1 & L2 Certifications. L3 possible with advanced notice. <http://www.pmwonline.org>

Date: Third Saturday of each month (except Dec)

Location: Palm Bay, FL

Sponsor: Spaceport Rocketry Association (SRA)

Contact: Gary Dahlke rocket1@palmnet.net 321-634-5102

Waiver: 10,000 ft. AGL

Notes: Informal altitude competitions held

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each month for club records only. Requires commercially manufactured altimeter. Altitude categories available A through O. See website for details. Launches held in expansive undeveloped area of Palm Bay. <http://www.spaceportrocketry.org>

Date: Sep 24

Location: 80 miles SE of Nashville TN; 8 miles E of Manchester TN, TN

Sponsor: Music City Missile Club (MC2 #589, Nashville TN)

Contact: Lance Baxter, President
baxter5@charter.net 931.461.4247

Waiver: 14K AGL

Notes: Monthly sport launch. We split launch duty every other month with the fine folks of the Huntsville Area Rocketry Association (HARA #403, Huntsville AL) - check out www.mc2rocketry.org or www.hararocketry.org for launch details!

Southwest Region

Date: First Saturday every month

Location: Las Cruces, NM

Sponsor: Fellowship of Las Cruces Area Rocketry Enthusiasts (FLARE), NAR 577 & Tripoli Las Cruces, TRA 102

Contact: Jim Basler at jbasler@zianet.com

Notes: Model rocket facilities. Launching starts at 9:00 AM. FAR 101 notification to the FAA - 3.3 pound max. weight. Monthly club meeting following the launch. See the FLARE website for details at <http://www.shootthesky.org>

Date: Fourth Saturday every month

Location: Las Cruces, NM

Sponsor: Fellowship of Las Cruces Area Rocketry Enthusiasts (FLARE), NAR 577 & Tripoli Las Cruces, TRA 102

Contact: Denzil Burnam at 505-526-9298 or email dburnam@zianet.com

Waiver: 10,000 ft. MSL.

Notes: High power rocket launch starting at 9:00 AM. A tour western launch site. TRA insurance requirements apply. Call-in windows to 35,000' MSL. See the FLARE website for details at <http://www.shootthesky.org>

Date: Third Saturday every month

Location: Alamogordo, NM

Sponsor: Spaceport Model Rocket Association (SMRA), NAR 488 & Tripoli White Sands, TRA 61

Contact: Hugh Malcolm, 1619 La Luz Pl., Alamogordo, NM 88310. Phone: 505-434-5441, e-mail: mdsalamo@zianet.com

Waiver: 8,763 ft. AGL.

Notes: Model and high power facilities. Launching starts at 9:00 AM. Also come to the Regional Sport Launch, Thunder in the Desert, every Fathers Day weekend. Launching from 8:00 until 2:00.

Date: First Saturday of Each Month

Location: Hutto or Granger, TX (Austin Metro Area)

Sponsor: Austin Area Rocketry Group (AARG), NAR 585

Contact: David Urban E-mail: urban@austin.rr.com

Waiver: Varies by launch location; please consult the AARG website for latest information

Notes: Come fly with the Austin Area Rocketry Group at our seasonal launch sites near Hutto and Granger. Flying begins at 9:00 AM; launch locations may change depending on season. For up-to-date info, visit the AARG website at <http://www.aarg.org>

Date: First and Third Saturday of every month.

Location: Johnson Space Center, Houston, TX

Sponsor: NASA/Houston Rocket Club, NAR #365,

TRA#2

Contact: Warren Benson- warren@prodigy.net

Notes: No waiver, model rockets to FAA notice limits only-3.3 lbs total weight and 125 grams total propellant weight (small H motors). Membership in the NHRC is required to gain admittance to the JSC launch site. High Power launches are held at other venues outside the Houston area. Please see our website at <http://www.nhrc.homestead.com> for more information and membership application.

Date: Third Sunday of the Month (2nd Sunday in Dec)

Location: Espanola, NM

Sponsor: Zia Spacemodelers NAR 517

Contact: Thomas Beach thomasbeach@mindspring.com 505-672-0249

Notes: Sport launch time 1:30 to 5:00 PM. See web site (<http://www.mouser.org/zia/launches>) for map and details. K motor limit. TARC flights welcome!

Date: The 3rd Saturday of every month

Location: San Antonio, TX

Sponsor: Alamo Rocketeers, NAR #661

Contact: Art Applewhite rocket877@aol.com (210) 566-3516

Notes: Model Rocket Launch at Gillespie Farms. Everyone is invited. Children of all ages welcome. No launch fees. No membership or experience is required. See the Alamo Rocketeers website for a map to Gillespie Farms and up to date information. No waiver. http://www.geocities.com/alamo_rocketeers

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