The Upstate Rocketeer

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Your Travel Agent Recommends . . .

Two Museums in Oregon, by Jay H. King

I visited two museums in the Portland Oregon area that I'm sure would be interesting to other MARS members.

The first is the Tillamook Naval Air Station, about 40 miles west of Portland. TNAS was established in 1942. Its complement of 600 personnel and 8 K-class blimps were part of the US anti-submarine program. The blimp hanger is still standing. In 1942 metal was in short supply and the entire structure was constructed from pressure treated lumber. The structure is 1072 feet long and 296 feet wide. Just as with any "garage," the hanger has basketball hoops over the 190 foot tall doors! With over 7 acres of space under roof, there is room for 5 football fields inside. The "clear span" curved ceiling is 192 feet high. We could fly Dual Eggloft indoors in a building like this!

The hanger now houses a warbird museum. The collection is small but growing rapidly. All the planes are in immaculate condition.

The museum also leases space to the "America Lighter Than Air." ALTA is a group of entrepreneurs developing and qualifying a new design airship. One is available for inspection at the museum.

The second museum is the Oregon Museum of Science and Industry (OMSI) in metro Portland. Their premier display piece is the USS Blueback, the US Navy's last non-nuclear submarine. The Blueback appeared in "The Hunt for Red October" performing a surface breach. The submarine is moored at the museum. Most of its compartments are open for inspection.

Much of the museum is dedicated to "hands on displays". I was especially excited about the replica Gemini spacecraft and climbed into the Command Pilot's seat for a look-see. As I sat there with the blood running to my head and my legs falling asleep, I tried to imagine how it must have felt to sit on the pad for hours, waiting for fault corrections prior to liftoff. And then, I thought about sitting there for a 14 day mission. There is absolutely no room to move or stretch. Imagine two hot shot, cocky test pilot types being stuffed in a telephone booth for two weeks. It must have been a tense experience. By the way, the instrument panel included a set of controls marked "landing gear."

If you're ever in the Pacific Northwest make time for a trip to Portland, Tillamook, and the OMSI.

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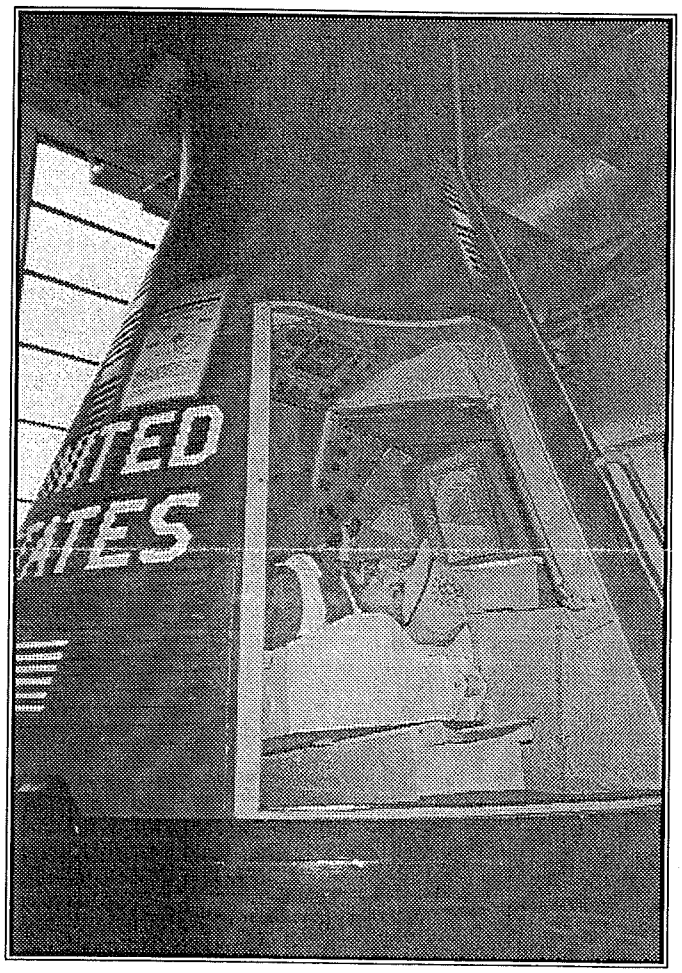

BUT HOW MANY MILES DOES IT GET TO THE GALLON?— Jay King tries the Command Pilot's seat on for size (he says it was kind of small) in a replica Gemini spacecraft at OMSI. Photo by Matthew King. ➢

Inside this Issue:

Op / Ed

Rhymes of the Range

We would like to greet a new group of readers to *Upstate Rocketeer*, the members of the Northside section in Buffalo. We have made an arrangement by which they can distribute *UR* to their members. We'll be featuring news from this exciting group very soon (hopefully, in the next issue).

This happy news is tempered with something sad. Mike O'Brien, gifted rocket designer and great guy, has resigned from the section. Mike's wife, Roberta, fell on some ice and broke her wrist just before Christmas, and Mike has had to take time off from work to help out at home. This compounds his already intense work schedule, and he relates that he "reached this decision only after much thought," and "with a sincere sense of regret." We will miss Mike and his family, and wish them well. Thank you for all your help, Mike.

One of the things we are committed to here at *UR* is to bring our readers original, timely material, both on the activities of our clubs and hobby rocketry in general. One of our features, "As the Rocketry World Turns," ably edited by Dan Wolf, *et al*, often contains material culled from Modelnet, Usenet, and other forums, electronic and otherwise. The developments in the hobby are presented as quickly as we can in a bi-monthly journal. In the interest of timeliness, we sacrificea little in the way of originality, but Dan's presentation is interesting and enjoyable. He offers his analysis of these developments, which is quite valuable. With only isolated exceptions, the rest of the material you see in *UR* is in print for the first time.

This issue, we are fortunate to have a significant contribution from rocket historian and scale maven Peter Alway. I mentioned to Peter my article on a 1/9 scale Aerobee 300 for Giant Sport Scale, and he generously responded with some scale data on one of the rounds I felt was the best to model for this event. As far as I know, this is the publication *debut* of Peter's scale data on the original NASA Aerobee 300. Thanks, Peter!

Along the same lines, we featured last year an RC plan from Kevin McKiou. However, these two submissions are exceptions to the rule: nearly all of the articles are written by our members.

I know many of you have ideas you are working on, please consider submitting something for publication. Even if you're not sure if what you have will translate well to newsletter format, please mention it to me. We might be able to think of something!

Have fun & fly 'em high!

John

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Submissions from all people are welcome. We prefer electronic form; please contact us for details. We accept photographic slides, prints, and Photo CD.

Editor-in-Chief: John Viggiano
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Contributors: Dan Wolf, Andy Schecter, Bill Owens, Matthew King, Jay King, Peter Alway.

Rocketeers in Upstate and Western New York are invited to join MARS. Dues are $10 per year for adults, and $5 per year for those under 18 years of age. Please see the membership form on Page 11.

Northside Rocketry Association
Information on the Northside Rocketry Association, which serves Greater Buffalo, is available from:

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As The Rocketry World Turns...

news and rumors heard 'round the hobby, by Dan Wolf and John Viggiano

Manufacturer News . . . Three different companies have built and test fired or flown hybrid motors. The three companies are Aerotech, Hypertek Propulsion, and Hybridyne Aerospace. All three companies' hybrid motors use Nitrous Oxide as the oxidizer and some type of solid grain as the fuel. Because the solid fuel core no longer contains an oxidizer such as AP or KP, it is not an explosive or flammable solid. Thus this technology may be the wave of the future as it allows motors of sizes J through M (and perhaps larger) to be shipped, owned and flown without DOT and BATF restrictions.

The nitrous oxide serves as the oxidizer and is available at any local automobile "hot rod" or "speed shop." Hypertek appears to have the early lead in bringing this technology to market, having made public demonstration launches of their motor at Tampa, Black Rock, and Hot Shot Tripoli launches. TRA members Korey Kline and Andrew Mossberg are part of the Hypertek team. Another company, Hybridyne Aerospace, demonstrated their hybrid motor with a static test firing at the November Hot Shot launch. Last but not least, Aerotech recently test flew their hybrid motor entry at El Dorado Dry Lake. The Aerotech design is pictured on the back cover of the December 1994 *High Power Rocketry* magazine. It consists of the standard Aerotech 54mm reload casing and aft closure along with an N_2O cylinder mated to the combustion chamber using a forward closure/N_2O injector.

All three of the hybrid entries are slated for introduction in 1995. Although the exact cost figures are not yet known, hints are that the motors themselves may run $200 to $400 with per flight costs less than half that of today's equivalent reload per-flight costs. Both the Tripoli Board and the NAR Board are examining this technology closely, with the NAR Board planning to discuss it at the upcoming winter board meeting in Phoenix.

LOC/Precision has announced the availability of two new transition sections. The first, with an 8° taper angle, adapts the 3" ID tubing to their 54mm engine mount tube. The second, with a taper angle of 10°, adapts their 3.9" and 3" ID tubes. Both adapters have eyelets molded in both ends, as well as guides for passing through stuffer tubes. They are priced at $10.75 and $13.50, respectively. The larger transition is the basis for a new kit, the Expediter, which has a 54mm engine mount and resembles a scaled-down Esoteric.

In other manufacturer news, Rocket Science now sells phenolic tubing that appears to be similar to the type once sold by Competition Model Rocketry. The tubing is available in 18mm, 24mm, and 29mm diameters with the 18 and 24 mm sizes coming in 24 inch lengths and the 29mm in 29 inch lengths. Lastly, the long awaited Quest X-30 Aerospace Plane is now shipping and should be found in hobby stores that carry Quest.

Saturn Press will soon be offering a full-color poster with over 150 rockets, all at a constant 1/300 scale. Most of the rockets were featured in Peter Alway's *Rockets of the World;* additions include Ariane 5, Lockheed Launch Vehicle, and the DC-X. Price will be $10 plus shipping and mailing tube for the 22" x 34" poster, with availability expected in February.

NAR News . . . The big news this month is the announcement of the National Sport Launch to be held in Amesbury, MA on Memorial Day weekend, May 26-29. Hosted by CMASS, the launch will have three full days of waivered flying on their large and open 600 acre field. Amesbury is located 35 miles north of Boston on the border with New Hampshire, close to the coast. In other NAR news, several committee chair appointments have recently been approved by the Board. They are:

(1) Tom Beach as NAR Editor of *Sport Rocketry* Magazine. The NAR's contract with Steve Weaver's new company calls for this position (see more on this below).

(2) Mark Johnson as NAR Newsletter Editor. This is the NAR newsletter that will be published on the "in-between" months to Sprockets, assuming that the Association has the money for it. It will provide more timely and up-to-date information regarding motor certifications, sport launches and contests, point standings, contest board news, etc.

(3) Jon Rains as Membership Committee Chairman. Jon takes this position over due to the sudden resignation of Steve Tracey for family medical reasons. Jon served in this capacity before during his tenure as a Trustee.

(4) Stu McNabb as Special Committee on HQ Automation Chairman. Stu has the thankless job of upgrading the NAR HQ computer system's hardware and software.

Lastly in NAR news, the process of Steve Weaver's company "taking over" *Sport Rocketry* magazine (*a la* Bruce Kelly and *HPR)* is almost complete. This should occur by the end of the year pending final approval by the Board.

Miscellaneous News . . . The new Star Trek movie *Generations* contains a scene with a rocket provided by Public Missiles powered by an Aerotech K1050 motor. Apparently Frank Uroda of Public Missiles went "on location" to help film this scene. Both Aerotech and Public Missiles appear in the credits at the end of the movie. People who attended the fall Danville launch were able to see the spent engine casing from the flight. Word is that Public Missiles may be offering the "Star Trek" rocket as a kit soon.

Of course model rocket engines have been used in movies for many years. One of the Airport movies used FSI E60s (the one with the Concorde, *Airport 77?*). Other movies that used Aerotech motors include: *Iron Eagle I, II and III, The Running Man, Delta Force II, Brotherhood of the Rose,* and *Top Gun* and newer flicks *Stargate* and *Tank Girl.*

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NARAM-37 Committee News

by Dan Wolf

The rush to get information on NARAM to *Sport Rocketry* magazine has now been completed. The NARAM information sheet/application was the last item that was sent. It followed the section profile and "Your Travel Agent Recommends..." articles sent earlier. We had hoped that the MARS section profile would appear in the next issue of the magazine, but we recently received word from their staff that there was not enough room in that issue. We are now in the process of finding out which issue the various items are to be appear in and to direct the *Sport Rocketry* editorial staff on the priority of the submissions in case something has to be left out.

Pat Finan has completed work on the logo, and the black and white version was added to the photo ready copy of the NARAM information/application sheet sent to *Sport Rocketry*. Pat also printed out a number of copies of the full color version so that we can obtain quotes from the patch vendors.

At the last committee meeting, the committee approved the proposed list of meeting dates for meetings from January through June. The meeting dates are 1/24, 2/24, 3/28, 4/28, 5/23, and 6/23. Also, the committee decided to replace the LeMans Start event with Team Rendezvous, as this is a good "walk up" event for the casual sport flyer and also serves as a way for newcomers to meet and talk with others. Committee members will soon be receiving a composite schedule of all of the tasks that need to be completed by NARAM. This schedule will be reviewed at the January meeting. Other agenda items for the January meeting include work on local publicity, a first look at staffing and scheduling, and initial discussions of the "ground rules" document. ➢

Club News

Reported by Bill Owens

November Meeting

A good group of veteran MARS members and new member Dave Sinon showed up at RITRC for the November 8 meeting. There were a few toys to pass around and look at, including a compact pad and a nice folding sawhorse brought by Merrell Lane, an upscale (1.7x) Estes Photon Disruptor by Bill Owens, a thick handout from Dan Wolf with BATF info and a handy Aerotech/ISP catalog with lots of good reference information. The program was brought by Ray Lewis, a 16mm film biography of Wernher von Braun from the 60's, accompanied by a projector of similar vintage! After some fiddling with the equipment, we enjoyed great footage of German and early US rocket experiments, including the disastrous first Vanguard launch attempt (which a delighted John Viggiano played back [in reverse, of course!] several times).

After the film, Dan gave a NARAM committee report, handing out minutes to the committee members present. Pat Finan showed off the finished logo and samples of several bumper sticker designs.

John announced the kickoff of a campaign to collect Tops register tapes, which can be traded in for cash to help out the NARAM fundraising effort. Tell your friends and family! Collected tapes can be given to John.

Merrell brought along some flag catalogs, and Andy volunteered that he has a friend who could do the project. John showed us a design, with the MARS logo in the center and a single star, representing the club's achievement in hosting NARAM.

Dan announced that given the difficulties we've had in getting the club launch equipment to the monthly launches, he is willing to once again take charge of it and bring it along. He'll be picking it up from John and Jeff.

The meeting was adjourned and several members retired to Oregano's for socializing, and were eventually asked to leave by the staff (only because the restaurant closes at 0100!).

November Sport Launch

MARS's last scheduled launch of 1994 was held on a beautiful day, a lucky break in the third week of November. After the disappointing weather for the FAA celebration launch early in the month, club members were granted one more nice day before the onset of the Rochester winter.

Dan Wolf brought out the club launch system, complete with fresh clips on the launcher and sturdy new tilt heads to update the aging pads. With the new FAA rules in effect, four H-powered birds took to the air, a surprising number given that the first H flight at Parma took place only 15 days earlier. Most of the flights were kept track of on club flight cards, and are grouped here by flyer in no particular order; unfortunately, some didn't make it onto the cards and are reported only by (unreliable) memory.

Ed Norris started the day on a mixed note with a nice flight on his R2-D2 with a C, but with a broken fin on recovery. His amazingly reliable Estes Tomcat had another great flight on a C6-3, and his Jayhawk did nicely on its maiden flight on a D12. Unfortunately, its career was abruptly cut short by another of the infamous Estes E15s, which took off the pad and immediately CATOed. At first it looked like another nozzle blowout, but the casing actually split from end to end and tore a hole in the tail of the rocket. Trying one more time, Ed launched his scratchbuilt giant Sentinel on a D12, and had it CATO as well, burning the inside of the body tube so severely that the paint blistered. Understandably, Ed decided to cut his losses and return to fly another day!

Mary Wolf's giant Crayon was flown again by her father, after substantial repairs to the damage caused two weeks earlier, and it did very well on a G64 reload. His LOC Graduator had a nice smoky flight on an F14, but the EOS which had arced into the pond on its last flight was again damaged, this time by an F100 CATO. Dan has now sworn off FSI motors, but we'll see how long that lasts! Fortunately his two big birds, the Electric City and Xtra Special, flew beautifully on H242 and H238 *[the first flight with a 38mm diameter engine at Parma — Ed.]* power respectively, adding to the workout received by the "community" reload hardware.

John Viggiano also got out on the high power pad with his Thunderbore Jr on an H123 for a great flight, on his and Dan's 38mm reloadable hardware. His Maniac II took off on a D12, and he also flew the Calypso on a dangerous B8, which behaved itself.

Jay King gave Gus Cost some help with his Quest HL-20 lifting body model, and then launched his own HL-20 in a rather one-sided drag race. Jay also flew his Shecter Shadowcat glider twice, and it found the glider-attracting roof of the storage building and had to be retrieved later. That's the third glider landing on the roof; fortunately all three have been recovered without damage (to the gliders or the building!). Jay's new X-ray flew nicely on an A8-3, but separated and the body core sampled slightly. We also saw the first flight of his QCR 1/2A RG.

Roger Cost had some bad luck with his Quest X-30 Aerospace Plane, which failed to eject and suffered from sudden deceleration syndrome. Such an indignity after all that effort attaching launch lugs! Gus Cost had some problems with his HL-20 as well, but with help from Jay and John it was finally able to pull off a nominal flight, and landed nose up, ready for another try.

Bill Owens brought back his Custom Engage after having it nearly fly out of the park on its last launch, and repeated with a landing way out by the road on a D12. Have to get a smaller chute for that bird! A test flight of his 3x Mosquito upscale was rather short, given the 1/2A power, but having flown, it will now have to be painted. The Nerf Rocket returned with more nose weight and turned in a respectable performance on a mini A, and his C41 4x13 cluster flew again on four A3s. A repaired Alpha III flew nominally on a B6-4.

Andy Schecter provided some entertainment with two minimum diameter, composite powered speed attempts. Amazingly, they were actually painted! Not that it helped recovery any on his first try, an 18mm diameter model called Antari-2 based on an Quest plastic fin unit and flying with the pencil-like F55-12 motor (that's right, an 18mm F!). After boost, the fins could be heard buzzing from the aerodynamic stress, but the model vanished. The second attempt, Mach Schnell, used a 24mm G110-15, but disintegrated spectacularly near the end of the boost. All of the parts were eventually recovered, and Andy has promised that it will return. The Red Headed Skypecker reached 434 feet on a D12 despite an arcing trajectory, and Et Tu Brute returned, still unpainted, on an H180.

Bud Piscini had some scale birds in his box, as usual, flying a Juno-1 and a Patriot, each on a C6, and an Iris on a B4. His Estes Condor flew again on an A10.

New member Dave Sinon and veteran Pat Finan also had a number of nice flights, but must have missed the pile of flight cards on the LCO table, so we don't have details. Dave had a classic Estes V-2, recovered from his parents' basement, which flew twice on D power. His Comanche had a great two-stage flight, and his very nice looking Broadsword went up nicely on a D as well.

Pat had one of the most interesting two-stage flights in recent memory on a scale model of a Soviet missile (SA-7?); the first stage hung up on the launch rod, but the staging worked and the upper stage took off normally. Unfortunately the delay was too long for a single stage flight and it pranged. His Uppulse flew, but only one E15 lit (perhaps this was lucky; who knows, the other one might have CATOed!). Unfortunately his very impressive Astrobee-D suffered a nozzle failure on a 29mm reload, but his Block II Shadow fared better on an F12.

With no club launches scheduled for December, now's the time to finish all those projects you have scattered around the workshop (you didn't have anything else to do this time of year, right?) for January's launch. Remember, the theme is new rockets, so let's see what you've been hiding away all summer. . . .

December Meeting

Ray, Dan, Andy, John, Bill, Pat and Ferenc welcomed guests Hugh and Nancy for the last MARS meeting of 1994. Hugh is the manager of the World of Science store at the Rochester Museum and Science Center, and is working on increasing rocketry awareness through the store.

The program was Dan's great videotape of the last two club launches, the monthly launch on November 20 and the impromptu get together on December 3. For those who had missed one or the other it was great to be able to see the envelope-pushing flights, including more H motors, Andy's minimum diameter F and G flights and G Maniac, as well as the usual assortment of interesting happenings. Just listening to the club members ooh and aah was a lot of fun!

Committee reports were a little sparse, but Dan announced that he was ready to begin accepting registration forms and money for NARAM-37, Pat has the patch design ready (and it looks great!), and the launch equipment is coming along. Due to proximity to the holidays the December NARAM committee meeting is canceled, and the group will resume work in January with a new schedule of tasks.

John announced that the New Year's Day launch will be our first Parma event with a waiver, good for 8 pounds launch weight (3650g mass), 12 ounces propellant (342g), 8000 feet (2460m), I impulse. We already have one member planning an I launch, so be sure to come even if it's only to watch!

The Tops register tape collection program is off to a slow start with only $700 out of the $40,000 we want to collect by April 1, so tell your friends and family to save those tapes! Collected tapes can be given to John.

Given the low turnout for the meeting, the elections which had been scheduled were put off until January; be sure to come to the meeting if you want to vote. John also reminded us that the club charter is up for renewal, and we need five insured members; your insurance expires at the end of the year, and all it takes is a call to NAR HQ to renew it.

John showed off the prototype NARAM World Wide Web server text he has written up, which will be placed online by Bill. Once the server is available, anyone on the Internet *[well, anyone with one of them newfangled web clients — Ed.]* will be able to get detailed information about the NARAM schedule and events, directions to the field, registration forms, things to do and see and many other tidbits.

Ferenc showed off some very nice photographic Christmas cards made with the MARS flag design; he's going to send them to vendors as a reminder that we'll be hosting NARAM next year. ➢

The Last Minute Launch

by Andy Schecter

[Editor's Note: The following article is a little, um, shall we say, different? Nevertheless, it is a comprehensive and very enjoyable account of the unscheduled 3 December sport launch.]

Question: What do you do when they tell you at 9 AM Saturday that there's a club launch at noon?

Answer #1: Find another club that gives you more notice of upcoming launches.

Wrong!!

Answer #2: Send a friend to the launch in your place.

Wrong !!

Answer #3: You frantically search the house for tubular objects that might accept rocket engines, throw them in the car, and hightail it out to Parma for the Last Minute Launch!

Correctamundo!!

Believe it or not, this happened to me on Saturday, December 3. All eight attendees had a great launch, rushing to take advantage of what could have been the last nice-weather weekend of the year, and a nearly wind-free afternoon. But there's a problem: Because Bill Owens (MARS's answer to Walter Cronkite) was not in attendance, no one kept track of flights for the launch article. And then for some unknown reason, after the launch was over, I foolishly volunteered to write the article.

So this is what happened . . . sort of. If memory fails me here or there, please forgive. I fear I'll go down as MARS's answer to Maury Povich.

Patrick Finan successfully flew his Non-Standard ARM on a D12-3; meanwhile John Viggiano kept mumbling something about his Non-Standard LEG. He tried to show it to us, but we were too busy to notice. Pat flew his cool-looking 2-stage Russian SA12 on a couple C's and it was great. But then the Grim Reaper reached out and Pat's beautiful G-64 powered Astrobee-D booster did not deploy its chute. It streamlined in from a great height, making a sickening noise as it destroyed John's car.

Well, it didn't really destroy John's car . . . . Actually, it didn't come close to John's car. . . .

(I was just testing to see if anyone reads these launch articles. . . .)

Meanwhile, back to reality: the Astrobee booster merely dug a hole in the ground, while the upper section deployed its chute as usual.

Pat pretended to accept his bad luck bravely, but my ten bucks says he'll be crying to his shrink about it for weeks. Meanwhile, he went on to fly the upper section as the "Astrohog" on an F-12 Black Jack, in what he called a "low altitude exhibition of precision landing skills." (Pat's practicing for his next job, which will be Spin Doctor for a major political campaign).

He twice flew his "Tomcatski," which is a commie version of an Estes Tomcat, red stars and all. On a couple of C5-3's the model boosted well and glided in fast, landing both times without damage. He also flew his modified Pathfinder for a high flight and his "Little Orange Thing" on a B4-2.

Our President and Editor, the Honorable John Viggiano, was on hand to fly a few: first was his "contest modified" Turbocopter on an A8-5. One could say that it "explored the limits of stability" as it weaved through the air intriguingly. But we chose to say, "it needs more modification."

John then flew his Quest Nike Smoke on a B6-4. This color-coordinated model has a beautiful orange chute which matches the fins perfectly for that "designer" look. (We do try to look our best at MARS launches). John "Maniac" Viggiano also flew his Estes Maniac with a C6-5 for a uncharacteristically sane flight.

Dan Wolf provided lots of entertainment with his selection of Large Dan's Rocket Ships. His Initiator flew well on an F40 reload, but when the chute didn't open, a hard landing caused the fins to pop out. Dan just plans to pop 'em back in: Aerotech kits are fun! He then flew his beautiful Laser-X scaleup on an F25-6, and this was a perfect flight except those toothpicks on the tips of the fins keep breaking off upon landing. It was OK though—since this was the Last Minute Launch, no one had time to pack food, so no one needed a toothpick! Not even John!

Moving up in power, (or should I say impulse, thank you, John), Dan impulsively loaded a G75 Black Jack into his Extra-Special, and tried to master the art of "road landing." This highly skilled event must be flown at a site like Parma that has acres of moist, soft, grass with a narrow asphalt road through the middle. The object is to land on the road and crack one fin off cleanly. It's not easy, but years of contest experience paid off as Dan succeeded perfectly. Bravo, Dan!

Next, Dan flew his sexy upscale Stilleto second stage on an H128 reload. It drifted a long way, and when it landed in the pond Dan frantically tore off his clothes and dove in after it. Maybe. Or maybe it just missed the pond, and Dan didn't dive in. I'm not gonna tell you; you'll have to ask him. Nice flight, anyway.

Ferenc Róka was on hand to roka'n'roll us with his vast assortment of new and vintage birds. Would you believe launch #152 for his Estes Alpha III? Ferenc-ly, I didn't believe it, but Ferenc looked me straight in the eye, so I guess he was telling the truth. Then he told me that it was launch #50 for his Estes "Missile Toe." Do you think he was "Pulling My Leg?" Ferenc then ordered his Vassal into action, along with his Quest Astra 1, Tracer, Estes Screaming Eagle, and MRC Mach V. For some reason his FSI F100-6 in a LOC Onyx did not cato, but zoomed off the pad with a load roar. His Estes V-3 sported an X-form chute which spun steadily, just like Patrick. Lastly, Ferenc launched his Vaughn Bros. Spudnik, which thudniked back onto the parking lot safely. Ferenc reports that he launched a rocket in every month of the year, which is an accomplishment if you think back to last winter's weather. Must have froze his "fins" off!

Now Ken, Robin, and Daniel Kalleta left a little early, and missed the post-launch bull session. Our rapidly fading memo-

ries think that they flew an ARV Condor, Estes Rampage, and a Super Shot, but we're not sure of the details. Is that right, folks?

Finally, yours truly cobbled together a few launches, starting with a Quest Icarus and then a Maniac on a D12-5. The Maniac flight went very high, but with those unusually calm skies it would have been crazy not to try for more! Since I had taken Bill Owens's advice and built the Maniac with a 29mm motor mount, I asked Dan Wolf whether I should "motivate" it the second time with an Estes E15 or an Aerotech G40. It took Dan several nanoseconds, but when he answered "definitely G40!", I had to agree. After stuffing the G40-10 in there, we were treated to an *insanely* high flight of an Estes Maniac. For a minute there, I thought I might have "lost it," but the streamer brought it down only 150 yards away from the pad. After flying the tricky Meadowlark two stager and having the upper stage fail to ignite, I considered another Mach 1 attempt, this time with a Kosdon O-10000 motor. But I couldn't seem to find the motor in my rangebox, and then Dan reminded me that we didn't have a waiver anyway. So I had to settle for the Aerotech Tomahawk on a G80-10. The Adept altimeter registered 2177 feet, and I'm glad the rocket just missed the pond; like Dan, I would have gone swimming to recover that altimeter!

Well, there's the article, folks. If I left you out, it's 'cause you weren't there! You gotta fly rockets to get your name in print!

Thanks to the men and women of MARS for another fun launch! ➢

Product Review: Shadowcat with Parasite Glider"

from Schecter Rockets

Shecter Rockets is one of the smaller vendors of model rocket kits and supplies *[although they've got one of the best names!—Andy]*. This is one of the more interesting kits in the Shecter catalog featuring the "Shadowcat," a 24 mm diameter, single stage model using 18mm engines to lift a modified hand launch glider as a parasite. It's a Skill Level 2 enterprise.

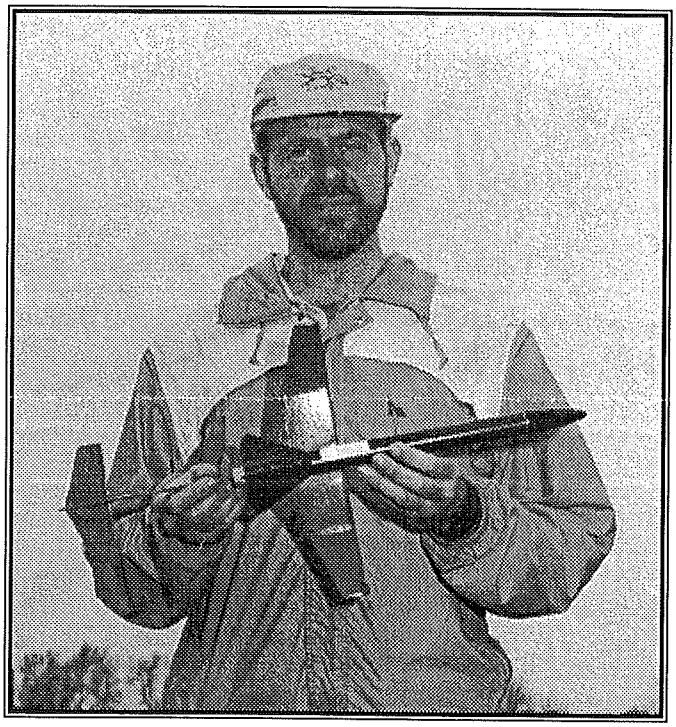
The kit components are first rate, including a birch nose cone, smooth-surface spiral kraft paper tube (available in 36" lengths if ordered separately) and tight-grained balsa stock. All this strength does make for a heavy model. Don't expect to place at a regional with this one. It is, however, flashy and reliable and a good "heavy weather" flyer. Fred's glider attachment method is unique using two parallel launch lugs on the booster and two 1/8" dowels on the glider for a sturdy and reliable hook. The glider's stab rests against the booster's fins making the entire assembly fairly rigid. Unlike many conventional pop pod gliders this one will not blow off the booster on the pad.

The instructions leave many details to the builder. Those with less experience should set this one aside until they've built some simpler projects or have guidance from another modeler.

Construction techniques are straight forward. Look out while sanding the glider wings, which are mounted in reverse of conventional design. The wing, stab and vertical fin all sweep forward. I found I had to check the drawings often to insure I didn't sand the wrong side or edge. The wing came precut in two pieces. After rough sanding, I glued them together at the root. Then I balanced the center line on the edge of a ruler to sand them to an even balance.

No engineer ever left a design stock. I changed the shock cord paper anchor attachment to the Quest type with a kevlar line through the engine mount. The fin alignment lines on the mounting guide were uneven. I used the tube marking guide in the Estes catalog design manual.

Such a heavy model would not be expected to turn in record breaking times so I decided to completely finish it for sport and demo flying. Four coats of sanding sealer did a proper job of filling the surfaces. The booster was painted red and the glider yellow.



The Shadowcat with Parasite Glider, from Schecter Rockets, features dual glider hooks made from 3mm doweling. ➢

The first flight was on a breezy day. The B6-2 made a straight boost and clean separation at apogee. The glider made a clean transition and headed well down range. A later flight on a quieter day with an A8-3 didn't turn in much duration but it was sufficient for the transition and a short glide. Just the thing for a demo flight or a small field. This model can be counted on to work reliably and not get away. It is perfect for sport and demonstration or contest qualification.

Shecter Rockets
20505 E. Clear Springs Court
Walnut, CA 91789-3887
Catalog: $0.50

Tell Fred you read about it in the *Upstate Rocketeer*.

Jay H. King ➢

Scale Project: 1/9 Scale Aerobee 300, Flight 6.01 UI

John Viggiano

NARAM-37 will feature Giant Sport Scale for most competitors. This event requires a rocket at least one meter in length, or at least 10cm in diameter or girth. It is not necessary to fulfill both these conditions in order to qualify; you can satisfy one but not the other and still be qualified.

Aerobee 300 flight 6.01 UI flew from Fort Churchill, Manitoba, on 16 March 1960. Its payload was an electrostatic probe for measuring the ion density and electron temperatures in the ionosphere. The payload consisted of two large spherical electrodes separated by a narrow cylinder, bearing a striking resemblance to a dumbbell. This type of probe was used on several later flights. The rocket's instruments and the payload both performed quite well.

The purpose of this article is to suggest something cool to fly in this event. Based on Peter Alway's 1/9 scale Aerobee Hi plans which appeared in the June, 1989 issue of *American Spacemodeling* the 300 is over one meter in length in this scale. People fondly remember the 1/15 scale Estes kit of long ago; here's something quite like it (a different round with better colors) in a larger size.

I strongly recommend you obtain Peter's article and his book *Rockets of the World*. This article will focus on the differences between the Hi and the 300, as well as on how to take advantage of a newer tube to make a more accurate model. Some of the dimensions are different for these two rounds, so I have provided a table of lengths for the body tubes, and a set of specifications for the balsa turnings compatible with Balsa Machining Service's protocol.

Since Peter's article first appeared, Quest 35mm OD tubing has become available. This permits a more-true-to-scale booster. I redrew the Booster Front End transition (using handwritten Postscript, of course!) for the larger diameter Quest tubing. The other patterns (fins, booster struts, conduits) can be used from Peter's article with no modification. Of course, if you want to build the booster from BT-55, you can build it exactly as described in Peter's article.

Body Tubes:

Quest T-35 Booster Casing	137mm (5 3/8")
Beefy-60 Ring at top of Booster	8mm (5/16")
Beefy-60 - Main Body Tube	563mm (22 3/16")
(one 18" length, plus 106mm (4 3/16") piece)	
RB-90 Sparrow Casing	126mm (5")
BT-20 Payload Housing	83mm (3 1/4")
BT-20 Engine Mounts	2 x 70mm (2 x 2 3/4 ")
BT-55 Shim Tube	25mm (1")

Balsa Turnings:

Sparrow Base Cone: BMS Shape 4, Size Category 4

Large OD (Q):	1.655"
Length (L):	1.484"
Shoulder Length:	1.181"
Large ID (I):	1.593"
Small ID (T):	0.844"
Small OD (U):	0.886"

Payload Transition: BMS Shape 4, Size Category 2

Large OD (Q):	0.886"
Length (L):	1.810"
Shoulder Length:	0.591"
Large ID (I):	0.844"
Small ID (T):	0.708"
Small OD (U):	0.795"

Nose Cone: BMS Shape 1, Size Category 2

Large OD (Q):	0.736"
Length (L):	2.698"
Shoulder Length:	0.591"
Large ID (I):	0.708"
Small ID (T):	N/A
Small OD (U):	N/A

If you have BMS fabricate your balsa turnings, you'll need to perform some customization. Trim 3mm (1/8") from the tip of the nose cone and round the tip. Round the shoulder of the smaller end of the smaller transition section slightly; the adapter on the prototype is slightly rounded. You only need to remove about two body tube thicknesses worth, so go slowly.

Through-the-wall fins are recommended for the booster. It tends to land hard, and the fins should be attached as firmly as possible. The booster fins should be made from plywood, as their root edges extend below the aft end of the booster tube. The scale data for this round has no documentation on the antennae mounted on the second stage fins, so you might want to leave them off.

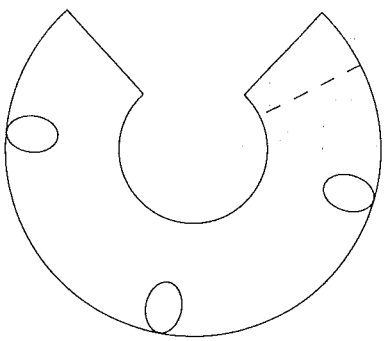
A slice of BT-55 is used to shim the forward end of the booster tube. Install a slice an inch or so long so it is nearly flush with the forward end. (It should stick out about 1/16" to support the Booster Front End shroud.) Do this immediately after installing the Booster Engine Mount. You will need this shim ring in order to perform the next step.

I know of no ready-made ring to center an Estes BT-5 inside a Quest T-35. Instead, glue a BT-5 to BT-55 centering ring from the Estes Multipurpose Set inside the BT-55 shim tube. The BT-5 should extend 15mm (5/8") out the forward end of the Quest T-35 tube.

The Booster Reinforcing Ring, made from a BT-50 to BT-55 centering ring, will need to have the strut notches cut a little deeper to compensate for the thickness of the shim tube.

The three-finned Aerobee 300 is prettier than the four-finned 300A (the fins are shaped differently), and the NASA rounds, in factory primer, were nicer looking than the Air Force round depicted on the following pages. Flight 6.01 UI, and its inch-longer follow-on, 6.02 UI, were arguably the best-looking of all the Aerobees.

Special thanks to Peter Alway for the Scale Data on pages 9 and 10. ➢

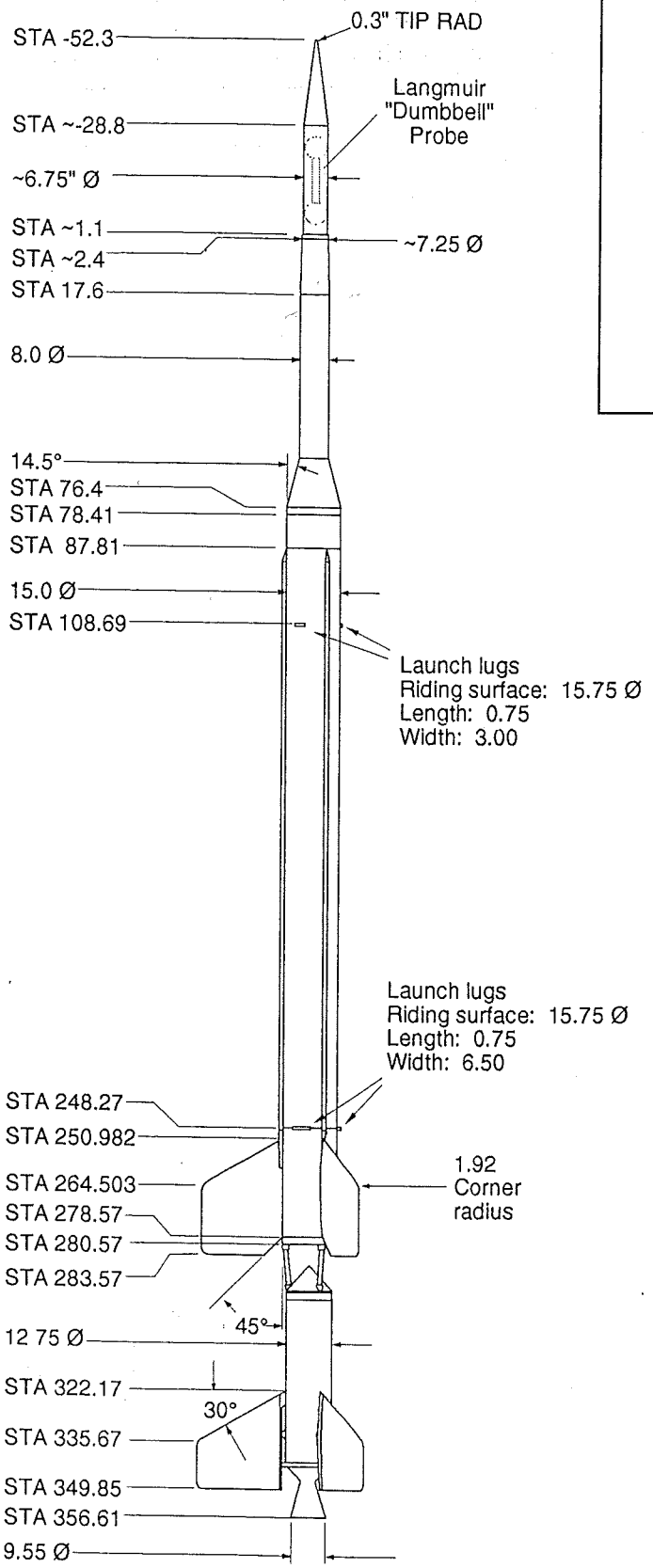


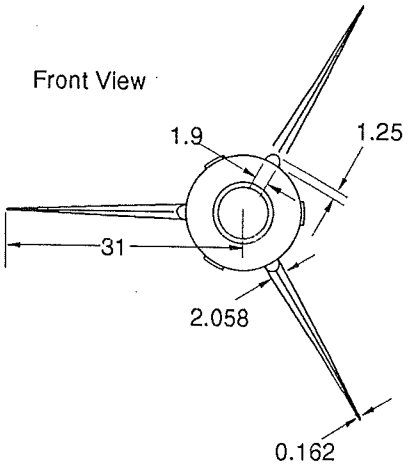
Booster Front End Pattern — For use with Quest T-35 Tubing.

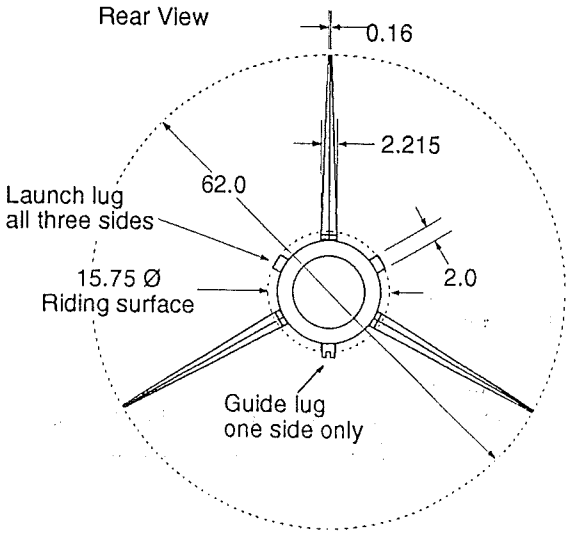
Aerobee 300

NASA Flight 6.02
University of Michigan Langmuir Probe
1/50 scale
Dimensions in inches

Sources:
Aerobee 150 Configuration Outline Aerojet General/Space General drawing, 8-27-65.
Outline Drawing Aerobee 150, Aerojet General/Space General drawing, 9-24-68.
Compendium of Aerobee Sounding Rocket Flights, NASA TR-226.
Sounding Rocket Study of Eighteen Vehicles, Vought Astronautics, 1961.
"Dumbell Ejection Nose Cone Assembly," University of Michigan drawing provided by John Caldwell.







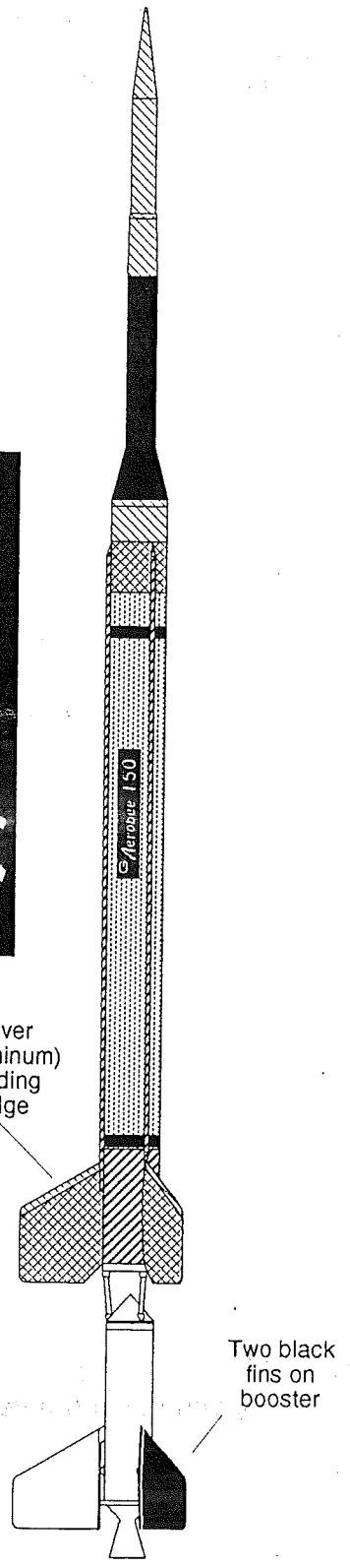
Aerobee 300

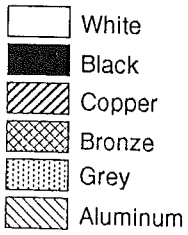
NASA Flight 6.02
Air Force Flight AA 10.02
Colors
1/50 scale

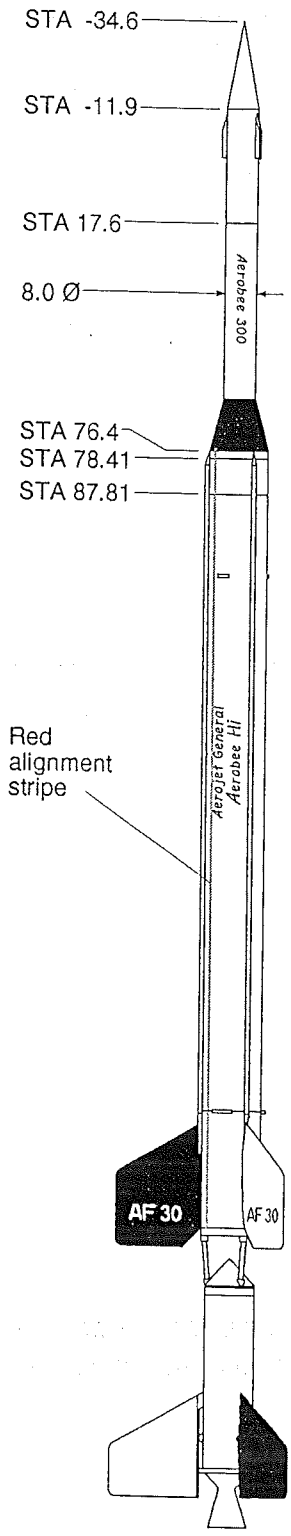
Sources:
NASA Photo 65-H-819 (and color version from Aerojet Tech Systems).
Aerobee 150 on display in National Air and Space Museum.
Aerobee 150 on display at Wallops Island Visitors Center.
Outline Drawing Aerobee 150, Space General drawing, 9-24-68.
University of Michigan Space Physics Research Laboratory photo.

NASA Flight 6.02

Air Force Flight AA 10.02







Who Am I?

Last issue's mystery guest was Jeff Ryan. Jeff's wife's uncle-in-law was the only one to guess correctly, so the prize goes to Jeff.

This month's "Who Am I" mystery challenger:

My first rocket was an Estes Skyhook, which I flew on an A, a B and a C in succession. I lost it on this third flight. I think I made this first flight in 1968.

The Estes Terrier-Sandhawk is my favorite currently-available kit. My favorite kit of all time is the Estes Orbital Transport, and my favorite scale kit is the Saturn V. The Aerotech H128 and H180 reloads top my list of favorite engines, and the Aerotech G42 is my favorite engine from the past.

My favorite competition event is Sport Scale. It's hard for me to think of a contest event I don't like.

Rockets of the World, by Peter Alway, is my favorite rocketry-related book. Sharing ideas and techniques is what I enjoy most about the hobby, and receiving an ovation for my first Sport Scale flight is my proudest accomplishment. My pet peeve is the level of regulation, and if I could change anything about Rocketry, I would have it be less obscure and more mainstream.

Who Am I?

The first person to notify John (at 475-2792 or 359-3869) of this issue's Mystery Guest wins a prize.

➢

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- ❑ Newsletter
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- ❑ Contest & Records
- ❑ Equipment
- ❑ Technical Publications

Please check all areas of interest below:

- ❑ Amateur Radio
- ❑ Boost Gliders
- ❑ Building Workshops
- ❑ Computers
- ❑ Contests
- ❑ Electronics
- ❑ High Impulse Rocketry
- ❑ Photography
- ❑ Plastic Modeling
- ❑ Radio Control
- ❑ Rocket Collectibles
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- ❑ Social Events
- ❑ Video
- ❑ Writing
- ❑ Other _____

How did you hear about MARS? _____

Dues are $10 per calendar year for adults, $5 a year for Juniors / Leaders (under 18 years). Please make checks payable to: Ferenc Róka / MARS, and mail completed application to:

Patrick Finan, Membership Chair
144 S. Fitzhugh Street, Apt. 5
Rochester, NY 14608

or bring it to the next club function. Welcome to MARS!

Upstate Rocketry Calendar of Events

Rocketry related events in the Upstate New York area, or of interest to rocket enthusiasts of this area, are listed below.

17 February, MARS Club Meeting, 7:00 PM
Regular club meeting. Note special day (Friday).

19 February, Building Session, 2:00, RITRC.
Have fun while getting ready for the flying season.

24 February, NARAM Committee Meeting, 7:00PM
Those who wish to be involved with NARAM-37 are invited to attend.

14 March, MARS Club Meeting, 7:00 PM

19 March, Sport Launch, Parma Corners Park, 1:00 PM

28 March, NARAM Committee Meeting, 7:00 PM

8 April, Sport Launch, Parma Corners Park, 2:00 PM

11 April, MARS Club Meeting, 7:00 PM

28 April, NARAM Committee Meeting, 7:00

29 - 30 April, ECRM XXII Regional Meet, Maryland
An upstate NY contingent is planning to go.

22 - 28 July 1995, NARAM 37, Geneseo, NY, The Nats. Events: 1/2 A Altitude, 1/2 A Parachute Duration, A Boost Glide, A Flex Wing (Multi-Round), C Streamer, C Eggloft, D Super Roc, Giant Sport Scale (Div. B, C, T), Peanut Sport Scale (Div. A), Open Spot Landing, Research & Development. There will be a separate range just for sport flying. Join us for a week of rocket flying fun!
Contact: Dan Wolf, 458-3848.

MARS Meetings are normally held the 2nd Tuesday of the month at 7:00 PM at the RIT Research Corporation, 75 Highpower Road, Henrietta. MARS Sport Launches are normally on the 3rd Sunday of the month at 2:00 PM at Parma Corners Park, Route 259, Parma. Contact John Viggiano at 359 - 3869 for more information on these club functions.

Upstate Rocketeer
c/o John Viggiano
35 Mickens Bend
West Henrietta, NY 14586