



# THE LEADING EDGE

Newsletter of the Northern Illinois Rocketry Association,  
NAR Section #117, The Leading Edge is now under new (mis)management!

Volume 22, Number 1  
January/February 1999

## Club News

Welcome to 1999! NIRA had a fantastic 1998, including flying from our new Green Valley field for the full year! If you missed the January meeting (and most of you, probably due to the weather), the following are the highlight.

**Elections** – The most important part of the January meeting is the election of officers for the new year. The 1998 officers are:

President – Ric Gaff  
Vice President – John Guzik  
Secretary/Treasurer – Ken Hutchinson  
RSO – Bob Kaplow

We want to thank former Vice President Steve Smith for the excellent job he did in 1998. Also, we can't forget the continuing efforts of Ric Gaff, Ken Hutchinson, and Bob Kaplow. The club would not be as fun and successful without their hard - and usually thankless - work.

**Pre-Meeting Lectures** – At the December meeting, Tom Pastrick had the excellent suggestion of having a pre-meeting lecture about a rocketry topic.

As a reward for coming up with the idea, Tom was selected to give the first lecture in January. His presentation about the construction of the Flat Kat glider was very informative and set a high standard for the lectures to follow.

Lectures have been scheduled through May (see the next page); contact Ric Gaff if you have one you want to give. The lectures are scheduled to start at 7:00, with the meeting to follow at 7:30.

**Upcoming Events** – The February building session will be held at Steve Smith's house in Naperville. There is a map on the next page; his address is 217 Waxwing Ave, Naperville. Bring your latest project to work on, or just come for the company!

In March, Bill Thiel is hosting our third building session of the year before the first club launch in April.

## Special Scout Launches

At the last few Greene Valley launches of 1998, NIRA hosted a large number of scouts. NIRA provided the field, support personnel, and launch equipment giving the scouts a great rocketry experience.

While almost everyone agrees that this is good for rocketry, and is part of our club mission, it has radically impacted the range operations at the regular club launches.

At the December meeting, 1998 NIRA Vice President Steve Smith brought up the idea of having several special 'Scout' launches during 1999. Given the large number of scouting organizations in the area participating in rocketry, many wondered if three launches would be enough.

These launches would be given to the Scouts as the dates that NIRA would be able to help large groups of scouts launch rockets, hopefully eliminating most of the congestion at normal club launches. It was agreed that this would be a good idea and would be discussed more at following meetings. The key to making this work is having enough club member show up to assist with the launch.

Mike Ugorek and Bill Thiel agreed to be 'Scout liaisons' to coordinate with the scouting troops. It was also decided that any extra expenses should be paid for by the scouts, including the fee paid to the Forest Preserve for Greene Valley. Mike and Bill said that this should not be a problem.

**MRFF 99** – Unless a better site appears soon, MRFF will be held at Bong State Park in Wisconsin this year. The date remains the same, Father's Day weekend (June 19th & 20th).

Since this site supports high power better than last year's site, hopefully Al's Hobby will be able to attend and sell their wares. As the regulations are changing, you may need a LEUP to take advantage of the high power opportunities.

**Dues Increase Reminder** – As of January 1st, NIRA is no longer the incredible deal at \$3 per person, instead it is now the outstanding deal at

\$6 per youth, \$8 per adult and the new family rate of \$12 (a family is defined as being at a single address and receives only one newsletter). Also, it was decided that a non-member subscription to the Leading Edge would be increased to \$10, even though no one currently takes advantage of this option...

This is the first dues increase ever for NIRA. Since NIRA has been around for over 30 years, hopefully it will be awhile until we have to consider the next increase.

## Editor's Notes

And so it begins.  
- Ambassador Kosh, Babylon 5

This is my first issue as editor of the Leading Edge and I've already learned a lot – but mainly that starting a new job at the same time you become editor isn't a good idea. This issue is out two weeks later than I hoped; my goal is to have the issue done so it can be in your hands by the month's launch.

I think that the every NIRA member will agree that Bob Wiersbe did an outstanding job as editor of the Leading Edge and deserves everyone's thanks! After six years (and two Rockwell Trophies), Bob deserves to take a break and launch a few rockets.

I do want to hear your suggestions, comments, and criticisms about how I'm editing the Leading Edge – after all, it's really your newsletter. As Bob has repeatedly told me, much of the success of the Leading Edge is its variety of authors and articles. The majority of articles come from club members, so send in a review of that neat (or awful) rocket you just built, the latest launch you attended, plans to the rocket you just designed (well, you get the idea). Please contact me if you have any questions about a possible article, or just write it and send it to me. Together, we can win another Rockwell trophy (or so I dream).

I'll wrap this up by thanking everyone for letting me edit the Leading Edge, it should be fun for all of us.

# T MINUS 1 - NIRA'S CALENDAR OF UPCOMING EVENTS

## CLUB LAUNCH DATES

Launches are **BYOL** (bring your own launcher). The location for our 1999 launches is the Greene Valley Forest Preserve. Call the NIRA hotline for pre-launch information: 630-483-2468 (this is a new hotline number).

**February 21** – Building session at Steve Smith's (see map).  
1 - 5 p.m., followed by dinner at a local restaurant.

**March 21** – Building session at Bill Thiel's (see map).

**April 18** – Regular club launch.

**May 16** – Regular club launch.

**June 19-20** – Midwest Regional Fun Fly (at Bong State Park, WI).

**July 18** – Regular club launch.

**August 15** – Regular club launch.

**September 19** – Regular club launch.

**October 17** – Regular club launch.

## CLUB MEETING DATES

All meetings start at 7:30 PM, with the pre-meeting lecture starting at 7:00 PM. Don't forget a model for 'Model of the Month' voting. We always need volunteers for the pre-meeting lecture, contact Ric Gaff if you want to schedule a date. The location is the Glen Ellyn Civic Center, 535 Duane Street (usually on the 3rd floor, but check the board in the lobby).

Currently scheduled meeting dates are:

**February 5** – CHAD Rocketry (Pierre Miller),

**March 5** – Rolling Body Tubes (Ric Gaff),

**April 9 (2nd Friday!)** – Parachutes (Tom Pastrick),

**May 7** – Selecting Balsa (Bob Kaplow),

**June 4** – Prang Film (Ric Gaff),

**July 9 (2nd Friday!)**

**August 6**

**September 3**

**October 1**

**November 5**

**December 3**

**THE LEADING EDGE**, published bimonthly by and for members of the Northern Illinois Rocketry Association (NIRA), NAR Section #117, is dedicated to the idea that Sport Rocketry is FUN! Articles, plans, photos, other newsletters, and news items of interest should be sent to Jeff Pleimling, 245 Superior Circle, Bartlett, IL 60103-2029 (or via email to jap@interaccess.com). Photos will be returned, other material returned upon requested.

Send membership applications (dues: \$6 per youth, \$8 per adult, \$12 per family, including a six issue subscription to the Leading Edge) and nonmember subscriptions (\$10 per six issues) to Ken Hutchinson, 84 Jefferson Lane, Cary, IL 60013.

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### STAFF

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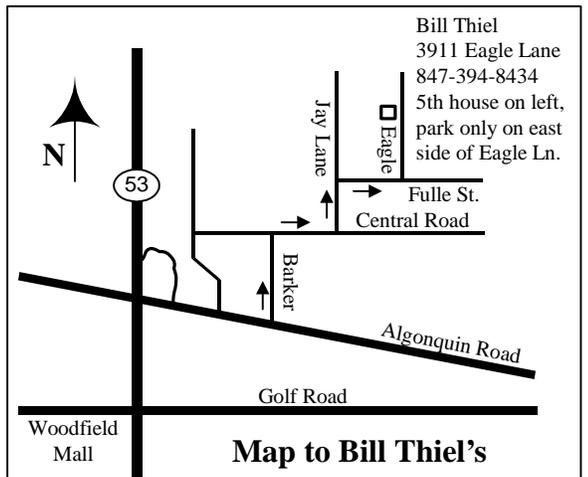
Ric Gaff – Production

### CONTRIBUTORS

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Adam Elliott, Ric Gaff, Bob Kaplow, Mark Kotolski,

Rick Kramer, Bruce Levison,



**Model of the Month Winners!** (from left to right, photos by Ric Gaff)  
**December** – Norm Dziedzic won in Adult with his Flying Dutchboy, Mark Soppet won in Youth with his Kestrel (a modified Falcon Boost Glider).  
**January** – Emil Bartholet won in Adult with his beautifully finished Terrier-Sandhawk (an out of production Estes kit). There were no youth entries...

## Custom "Bullet" by Norm Dziedzic

I went to my first RCHTA this year on the last day and ended up picking up the Bullet by Custom Rockets for a discount (It seems it costs more to ship some of the lower priced items back home than to sell them for a discount... "you got a problem wit dat?").

### Aesthetics/Appearance

Anyway, I was attracted to the bullet because it isn't just another 4 fins and a nose cone model and because of it's 24mm motor mount. The fore and aft sections of the BT-55 main body are joined by a smaller BT-50 tube which is actually an extra long Motor Mount which runs the entire length of the aft body and up into the fore body. Then this smaller section of body, approximately 6" from the rear end of the model, is bridged by four pieces of BT-20 for a nacelle appearance. A standard ogive nose cone and trapezoidal fins complete the rocket. All the pieces were clearly identified on the exploded view in the instructions. Conspicuously missing from the kit is a motor thrust block which I added to augment the supplied motor hook.

### Assembly

I started by filling the grain of the balsa fins with Elmer's Fil 'n Finish before cutting them from the die-cut sheet. This is the first time I've tried filling and sanding fins before cutting them out and I really liked the time it saved. Once filled, it's a little hard to see the die cut lines to trace with a knife but being patient I was able to remove the fins from the sheet with no mishaps.

The instructions and diagrams were straight forward but a little light on detail. For instance, when assembling the long motor mount, the locations of the 5 centering rings (CR) were given but it didn't state which side of the CR should align with the measurement. This was critical for one of the centering rings which had to align exactly with the front end of the aft body tube in a later step. I got lucky and mine fell in the proper location, but I wouldn't have relished cutting the double wood glue joint had I put the other side of the CR on the line.

The fins and 2 launch lug sections are glued directly to the body tube and located with a standard wrap type template. Although most D powered Estes models rely on lugs made for a 3/16" launch rod, the lugs supplied with the Bullet are for an 1/8" rod. The model is so light that it didn't seem to be a problem when I flew it.

While waiting for fin and launch lug fillets to dry I made my only major modification to the Custom instructions. The recommended shock cord mount

is a copy of the Estes folded paper method which I've never liked. I decided to make a combination baffle / shock cord mount which I would glue about 8" down from the front of the body tube. This consisted of a BT-55 coupler with balsa disks epoxied to either end. The balsa disks were actually two layers each (grains of each layer perpendicular) with a hole cutout on one side. When glued to the coupler, the hole on one disk was lined up with the solid section of the other disk. I attached a piece of nylon cord to the inside of the coupler with epoxy as in a LOC style shock cord mount. Then I tied one end of the supplied elastic shock cord to the nylon cord and the other to the eye-hook in the nose cone.

The nose cone itself is a translucent white/milky plastic with a hollow bottom. The eyelet is screwed to a molded-in feature along the inside wall of the nose cone. Due to the added mass here, the outside of the nose cone puckered in slightly at this point. I could have filled the depression with Bondo Spot Putty but I wanted to finish the model by the weekend and the depression wasn't that large so I skipped it.

The final part of the body assembly was to attach the nacelles or as Custom calls them, "Decoration tubes." These mount in line with the fins a bridge the gap between the fore and aft sections of body tube. These tubes seemed a little thin for outside duty so I dribbled some thin CA around the inside of the tubes to help stiffen them. I would have liked it if they would have used a thicker BT-20 to for this application but it wouldn't keep me from recommending this model.

The 18" silver mylar parachute has the shroud lines attached with stickers which I'd heard mixed reviews of on the internet. I decided to give it my own try and followed the instructions to place a loop of the shroud line on the sticker and then attach the sticker to a corner of the chute. See the flight section later in the review for what happened to the parachute.

### Finishing

I decided I liked the color scheme shown on the card in the package (besides, I already had two of the three colors) so after a few coats of



what a finish! The down sides of it are that you can't coat over it with anything and it seems to get fingerprints in it for a long while after it seems dry. The hardest part about this color scheme is that while the aft section of body and fins are gloss red, the nacelles which overlap this aft section by about 1/2" remain white. It took about an hour to mask the nacelles just right. In hind sight, it might have been easier to leave them off until after painting and then just do a little sanding of the paint to glue them on. Completing the

look were the supplied water transfer decals. Two huge "U.S. AIR FORCE" decals in black for the front section of body tube, four black "Warning / Stay Clear" decals for the nacelles (more reason to keep them white) and four white serial number decals for the red body between the fins (although I could only apply three of these due to the placement of the launch lug).

### Flight/Performance

For the first flight of my Custom Bullet I loaded it with the recommended D12-5 (the D12-3 also recommended seemed way to short of a delay for this size/weight model). I also used this flight to be the maiden voyage of a miniature audible rocket locator I have been working on. The boost was perfect and the rocket flew straight along the rod's inclination. Even the ejection on the D12, noted for it's meekness, seemed peppy and occurred very near apogee. From the ground it seemed as if the parachute hadn't opened all of the way and was sort of waving in the wind. This actually was slowing the model quite a bit. When I made it out to where it landed, there were only two of 8 shroud lines still attached with two corners of the parachute actually torn off. The locator was nowhere to be seen. What I think happened was that I had packed the locator above the parachute and during ejection, the locator slammed into the chute and caused the shroud line rip out. I found the locator about 50 ft. away from the rocket by following the high pitched sound. There was no damage to the model itself and I guess my feeling on mylar parachutes is still undecided as I think my bad payload packing was the cause of failure on this flight.

I would definitely recommend this model especially as an alternative to anyone thinking of getting the Estes Maniac. The performance is similar but in looks and style there is no comparison. The modeler can easily add a motor thrust block if desired and by testing the fit of all of the parts before applying any glue will have a great looking addition to their fleet. The Custom Bullet will be one of my 'regulars' at launches for a long time to come.

### Custom "Bullet" Specifications:

Length: 30.24" (76.8 cm)  
Diameter: 1.325" (33.7 mm)  
Weight: 2.6 oz. (73 g)  
Stages: 1  
Motor Mount: 24mm  
Recovery: 18" Mylar Parachute  
Number of Fins: 4  
Recommended Motors: D12-3, D12-5  
Retail List Price: \$11.95

primer/sand I started with the main color gloss white. The nose cone and the front 4" of the body then got a treatment of Testor's chrome. I really like the effect you can get with this paint. It does seem to need a thicker coat than normal colors but

## X-Factors for Model Rocket Up-Scales

by Mark Kotolski NAR 35707

Many people have seen my up-scale rockets at several of the past MRFF's. The cluster powered 2.6" IRIS, the Sprite with its ring tail, the Airbourne Surveillance missile, Astron Scout, Streak, Mark, and the Nike-X to name a few. All these powered by 24mm D thru F motors. I'm sure a lot of people wish they could do something of this nature also.

Well, dust off the workbench and grab a ruler and calculator. With the accompanying chart, you will be able to up-scale almost any Estes, Centuri or Quest kit using readily available Estes parts. Other companies that use Estes tubes for their products, as well as hundreds of published plans (NIRA Reprint Series) can also be up-scaled using the chart.

The neat thing about up-scaling is that you are enlarging an already stable design. By following the original instructions concerning CG and CP placements, your finished rocket will also be stable. For the most part you'll also be able to follow the same construction sequence, with needed changes to accommodate longer tubes, motor size, etc. So, let's get started.

The chart is a simple guide to get you started. The left side of the chart contains Estes, Centuri and Quest body tube sizes. Across the top of the chart are listed the Estes tube sizes currently available which you will be using to make your up-scale. All the other numbers are what I call 'X-Factors'.

The x-factor is the number you will use to multiply the original dimension to get your up-scale dimension. For example, You want to build a BT80 version of the Astron Scout. The original model uses a 5" length of BT30 tube. Find the BT30 on the left side of the chart and follow it across to the BT80 column. Multiply the x-factor, 3.39 by 5" and you'll get 16.95. Unless you're a perfectionist, round off the number to 17". So you need a BT80, 17" long. The BT80 stock length is only 14.25", so you'll have to cut a 2.75" section from another tube and use a coupler to join them. I used the short section for the motor mount end, making it easy to add generous glue fillets to the

center rings before joining the tubes together.

For the fins, use the x-factor to enlarge all the dimensions. Use a protractor to determine the leading and trailing edge sweep angles. Keep in mind that angle measurements will remain the same as the original. Next, eat a box of sugar-spiked cereal and use the empty box to draw out a full size fin pattern. If your cereal comes in a bag, then card-stock file folders or poster board will have to do.

For the most part, the nose cone will be the major determination if a design can be up-scaled. Most designs use a basic ogive shape while some are more exotic. If you must enlarge a design that uses a unique nose cone, you have two choices: make it yourself or have someone else make it for you. If you don't have the facilities yourself, I would recommend contacting Balsa Machining Services (BMS). The work they do is quality stuff and very reasonably priced. You may also consider other techniques. For example, back in 1984, Estes introduced the HARPOON and TYPHOON kits. The nose cone looks like two dixie cups joined at the tops. This could easily be duplicated and enlarged by using a tube coupler for the base and shoulder and card stock shrouds to make the cone sections. There is no rule that says nose cones have to be made from wood or plastic.



**Figure 1: An octet of upscales:** from left to right Streak, Scout, Airborne Surveillance Missile, IRIS, Nike-X, Mark, Sprite, V32

If the design you chose has multiple tube diameters, don't give up hope. Most of the tube combinations work out so they are very close, but some don't. Again, unless it has to be perfect, a minor discrepancy won't matter; you just work around it with what you are able to do.

Probably the most time consuming aspect of enlarging a design is duplicating the decals, if the model is so equipped. I have been photocopying the decals from kits I've built and listed the colors for each area on the copy, just in case I ever need that information. To enlarge them, measure one of the decals, a circle, a line or whatever is easy. Use the x-factor to determine what size the new decal will be. Find a copy machine that enlarges and have at it until it is the correct size. Make several copies of the finished sheet for cutting apart.

The best method of making decals is to use Trim MonoKote. This self-stick plastic material comes in a rainbow of colors and is easy to cut and work with. Transfer the enlarged designs on the appropriate color (this should be done on the back, backwards) and cut out with a sharp xacto knife. I find that cutting this stuff using a piece of glass as a cutting surface provides smooth cuts and no tears or nicks because the blade won't cut into the glass and grab as it would on a softer surface.

The things I've mentioned so far have been the major hassle areas of the up-scales I've constructed to date. I hope the chart and the hints that I outlined provide you with the help you need, or at least the motivation to get you started.

Happy landings!!

| Up-Scaling X-Factors for Estes Tubes |      |      |       |       |       |      |
|--------------------------------------|------|------|-------|-------|-------|------|
| Estes                                | BT20 | BT50 | BT55  | BT56  | BT60  | BT80 |
| <b>Estes</b>                         |      |      |       |       |       |      |
| BT5                                  | 1.35 | 1.79 | 2.44  | 2.47  | 3.00  | 4.78 |
| BT20                                 | n/a  | 1.36 | 1.80  | 1.83  | 2.23  | 3.53 |
| BT30                                 | n/a  | 1.30 | 1.73  | 1.75  | 2.13  | 3.39 |
| BT50                                 | n/a  | n/a  | 1.36  | 1.38  | 1.69  | 2.66 |
| BT1.0                                | n/a  | n/a  | 1.325 | 1.346 | 1.637 | 2.60 |
| BT55                                 | n/a  | n/a  | n/a   | 1.02  | 1.24  | 1.96 |
| BT56                                 | n/a  | n/a  | n/a   | n/a   | 1.22  | 1.93 |
| BT60                                 | n/a  | n/a  | n/a   | n/a   | n/a   | 1.59 |
| BT1.84                               | n/a  | n/a  | n/a   | n/a   | n/a   | 1.41 |
| BT70                                 | n/a  | n/a  | n/a   | n/a   | n/a   | 1.17 |
| <b>Centuri</b>                       |      |      |       |       |       |      |
| #5                                   | 1.36 | 1.80 | 2.44  | 2.48  | 3.01  | 4.79 |
| #7                                   | n/a  | 1.29 | 1.75  | 1.77  | 2.16  | 3.43 |
| #8                                   | n/a  | 1.07 | 1.46  | 1.48  | 1.80  | 2.86 |
| #10                                  | n/a  | n/a  | 1.27  | 1.29  | 1.57  | 2.50 |
| #13                                  | n/a  | n/a  | n/a   | n/a   | 1.22  | 1.94 |
| #16                                  | n/a  | n/a  | n/a   | n/a   | n/a   | 1.59 |
| #20                                  | n/a  | n/a  | n/a   | n/a   | n/a   | 1.27 |
| <b>Quest</b>                         |      |      |       |       |       |      |
| T15                                  | 1.25 | 1.65 | 2.25  | 2.28  | 2.77  | 4.41 |
| T20                                  | n/a  | 1.24 | 1.68  | 1.71  | 2.08  | 3.30 |
| T25                                  | n/a  | n/a  | 1.35  | 1.37  | 1.66  | 2.64 |
| T30                                  | n/a  | n/a  | 1.12  | 1.14  | 1.39  | 2.20 |
| T35                                  | n/a  | n/a  | n/a   | n/a   | 1.19  | 1.89 |

## Competition Products Designed to Help You Win

[from a posting to rec.models.rockets]

The current Sport Rocketry magazine "NARAM 40 Report" mentions numerous contest successes utilizing "black poly chutes", "red Canadian plastic chutes" and (even though it's misspelled) "ultra-thin Ukrainian mylar chute".

All these products are available exclusively from Advanced Rocketry Group Ltd. and Sigma Rockets Inc. of Mississauga ON Canada.

**STREAMERS \$6.95**  
Three 120mm x 1500mm streamers (25 microns thick) with 1.8m of shroud line. Silver on one side and orange on the other. Made in Ukraine.

**PARACHUTE MATERIAL \$5.95**  
"Lavsan" silver mylar type material 50cm x 150cm, including 10m of shroud lines and shock cord. Three 50cm or one large chute can be made from this 3 micron (0.0001") thick material. Made in Ukraine.

**"THE" PARACHUTE MATERIAL \$15.00**  
Excellent quality 1/4 mil plastic material for competition parachutes. Used by members of national teams. Black material is 20" x 15 yard tube, which may be cut for a maximum width of 40". Burgundy material is a 20" x 30 yard sheet.

Also available:

**POWER TOWER** designed by Peter W. Cook \$9.95  
Simple device used to support igniter leads up to the engine pod of a B/G or R/G. Prevents leads from catching on the model's tail at liftoff, and provides a measure of stability on the pad in windy conditions.

**CARBON FIBRE \$8.95/yard**  
Russian carbon fibre cloth. Unidirectional, 2.2 oz/sq yd, 8.5" width. Good for lay-ups and as a source of tow for reinforcing spars, etc.

If paying in US funds, all quoted prices include postage. US orders must arrive pre-paid. Canadian orders will be as quoted plus shipping and applicable taxes.

Advanced Rocketry Group Ltd.  
Sigma Rockets Inc.  
130 Matheson Blvd. East Unit 10  
Mississauga ON Canada  
L4Z 1Y6

Also, check out <http://webhome.idirect.com/~andrewi/Home.htm> for our Online Catalogue and Information Centre.

Andrew Ihnatowycz  
HPR Manager - Advanced Rocketry Group Ltd  
President -- Sigma Rockets Inc.

## Discontinued Estes Products

Rumors about the rockets to be discontinued this year by Estes have been flying faster than an Alpha on an E engine (well, an Aerotech E engine...).

The following items have been discontinued:

- 1757 Nova Payloader Educator Pack
- 1758 Tornado Educator Pack
- 1759 Scrambler Educator Pack
- 1960 Nova Payloader
- 2004 Tornado
- 2008 Yellow Jacket
- 2070 Bail-Out
- 2078 Omloid
- 2086 Tomcat
- 2097 Manta
- 2103 Star Wars X-Wing
- 2115 SRX
- 2124 F22 Air Superiority
- 2152 Zenix SSRV

If you've ever wanted one of these kits, it's probably time to buy one (or several). The price of discontinued kits continues to rise, but having a kit or two from the above list (verified by several sources) in your stockpile probably won't make you as rich as Bill Gates.

The following items have **not** been discontinued, but are listed as temporarily unavailable:

- 1665 D12-0
- 1812 Ionizer RTF SS
- 1813 Astrocam RTF SS
- 1814 Recon RTF SS
- 1817 Stardust RTF SS
- 1818 Missile Command RTF SS
- 1824 Code Red RTF SS
- 2075 A.R.V. Condor
- 2092 Mongoose
- 2116 Sweet Vee
- 2122 Intruder/Invader
- 2157 Apollo 11 Saturn V

## CHAOS-1

by Adam Elliott, Contest Director

| Set Duration (35 Sec)   |      |         |
|-------------------------|------|---------|
| C Division              |      |         |
| Name                    | Time | Score   |
| 1. Adam Elliott         | 32   | 8.6     |
| 2. Bill Theil           | 26   | 25.7    |
| 3. Jonathan Charbonneau | 25   | 28.6    |
| 4. Bill Piva            | 24   | 31.4    |
| 5. Tom Pastrick         | 23   | 34.3    |
| 6. Joel Mengarelli      | 17   | 51.4    |
| 7. Tim Johnson          | 3    | 91.4 DQ |

On October 18, 1998, several rocketeers converged on Greene Valley Forest Preserve to find quite a nice day. It had rained the days before and it was still a little damp, but a nice day.

The special feature of this month's launch was the holding of CHAOS-1. Your Friendly Contest Director once again rose to the challenge of hosting a nice little contest for our club. We won't bore you with the details, but eight flyers caught the competition bug and went all out for it.

Some of the models drifted with the wind over the path and into the newly created lake from the night before. Two even landed in this little tree that was already under three feet of water. In fact the whole side was under three feet of water. Fortunately Your Friendly Contest Director has real long legs that kept his hips above it all.

| 1/2A Parachute Duration |        |        |       |
|-------------------------|--------|--------|-------|
| B & C Division          |        |        |       |
| Name                    | Time 1 | Time 2 | Score |
| 1. Tim Johnson          | 31     | 28     | 59    |
| 2. Bill Theil           | 38     | 6      | 44    |
| 3. Ken McCallum (pend)  | 18     | 14     | 32    |
| 4. Jonathan Charbonneau | 8      | 11     | 19    |
| 5. Tom Pastrick         | 8      | -      | 8     |

### A Boost Glider Duration

| C Division      |        |        |       |
|-----------------|--------|--------|-------|
| Name            | Time 1 | Time 2 | Score |
| 1. Adam Elliott | 37     | 15     | 51    |
| 2. Tom Pastrick | 5      | 31     | 36    |
| 3. Bill Theil   | 8      | -      | 8     |

Getting out to the tree was the easiest part. Only about 40 yards. Then he had to climb the thing, which wasn't easy since he couldn't even get close to his own rocket high in the branches. After several attempts, he decided to wade up and down the lot looking for other people's birds. An Estes Sidewinder was

found floating around with one fin missing. It was on the bottom and the white glue had given out! Three others were recovered, including Bill Theil's glider for a return!

After some humdrum, Tom Pastrick was gallant enough to lend his loooong launcher cord to benefit the recovery of the remaining model. After several attempts an exhausted contest director returned home with the prize and a smile.

The next contest, COSMOS-2 will be held in March or April depending on conditions. And look for a really big possible regional meet at MRFF-99!!!! Really big! Really big!

| CHAOS-1 Meet Results    |         |
|-------------------------|---------|
| Name                    | NAR Pts |
| 1. Adam Elliot          | 260     |
| 2. Bill Thiel           | 162     |
| 3. Tom Pastrick         | 138     |
| 4. Tim Johnson          | 78      |
| 5. Jonathan Charbanneau | 60      |
| 6. Ken McCallum         |         |
| 7. Bill/Dan Piva        |         |
| 8. Joel Mengarelli      | 8       |

## Maxi Sprite

by Bob Kaplow (NAR 18L)

The original Astron Sprite was part of my collection since it was first introduced in 1967 as a Free Kit. It used the Series III "shorty" motors, shortened 18mm motors that were the ancestors of today's mini motors. It was also tumble recovery, although as I recall it more often than not ejected the motor and ended up with featherweight recovery.

I built my first scaleup Sprite after acquiring a piece of LOC 7.5" tube and trying to figure out what to do with it. It was based on LOC 2.2" tube and the Estes BNC-70?? balsa cone, and had a 29mm motor mount. This was not quite scale, and left me seriously short of space for a chute, requiring the nose cone to be hollowed out. I also made the serious mistake of using SIG Lite-Ply for the

fins. While this is usable for centering rings on this sized model, fins made from it break on almost every flight. The model made 27 flights over the past 10 years, with many fin repairs, before meeting its end on an old FSI D20 that had lost its ejection charge.

I had been wanting to build a new Sprite, and this was my excuse. This one was a bit bigger, using BT-80, which also makes it closer to scale. I also cut back from a 29mm to a 24mm MMT to leave more room for a recovery system. This is the resulting Maxi Sprite.

Construction is pretty typical for a model rocket, except for the tail ring. Yellow carpenter's glue, 30 minute epoxy, or CA can be used for most of this rocket. My Maxi Sprite was finished in MonoKote, and it is my preference to cover all the parts before assembly. I then cut away the covering where fins get glued to the tube, etc.

Start with the motor mount. I used a standard Estes motor hook protruding 6mm past the end of the motor tube, but of course Kaplow Klips would be even better. I custom cut centering rings, but suitable plywood rings should be available from LOC. Glue one ring to each end of the MMT, recessed about 6mm. Then glue the MMT into the BT-80 so that the end of the MMT is even with the end of the body tube.

The shock cord mount is next. I used about 20cm of 100# test kevlar cord to make a LOC style attachment just in front of the forward centering ring. Fold the kevlar cord in half, and then tie an overhand knot about in the middle. Tie two more overhand knots near each end, then fray the last bit of each end. Tape the cord in place, and cover the back end including all three knots with a good puddle of 30 minute epoxy and allow to cure overnight.

When dry, take the elastic shock cord and double over one end about 10cm and tie an overhand knot in the doubled cord. Loop one end thru the kevlar mount, then thread the end of the shock cord thru the elastic loop and pull it tight on to the kevlar. This forms a solid mount that can be removed to replace a worn cord. Now tie the other end to the nose cone, or make another loop and use a kite rated snap swivel to attach the chute and the shock cord to the nose cone. I built an 18" reinforced mylar chute for my model, but you can use nylon or plastic if you prefer.

The fins get glued to the rocket in the usual manner. Take care to get them all straight and even. Allow the glue to dry completely. Now set the rocket on its fins on a flat surface, and test fit the tail ring over the fins. It should be snug but not so tight as to deform the ring.

Glue the ring in place to the three fin tips. I used several rolls of 1/2" masking tape to prop the ring off the workbench the proper distance while the glue dries. Then glue the fin caps over the ring and fin tip. Fillet the fin-root and fin-ring joints well.

I used a piece of 10mm Apogee/Totally Tubular tubing for the scaled up launch lug. That leaves me with the smallest rocket I've seen that uses a 3/8" lug. If you want to put a 3/16 lug or a piece of Tubular T-2 inside the 10mm tube, go ahead, but I've found that it isn't necessary even when using a 3/16 rod.

Prepping and flying this rocket is pretty normal, with one simple precaution: be sure the clip leads go UNDER the fin ring! The model flies on D12-3s, and should do fine on just about any 24x70 expendable or reload with a short delay. With an adapter, the model should even fly on C6-3s.

## Estes "Big Daddy"

by Rick Kramer

If you were one of the countless rocketeers that enjoyed the thick walled body tube, the through the tube fin attachments, and the heft and feel of the Estes "Fat Boy," you will absolutely go crazy over the "Big Daddy." This rocket has all of the above and more.

The "Big Daddy" is a three inch diameter model with four fins and a very impressive nose cone (looks like a North Coast 3"). The kit went together in little over an hour using CA and Insta-set accelerator. It could take much longer if you use the recommended yellow glue.

I upgraded the shock cord to 54 inches of 1/2 inch elastic and replaced the plastic parachute with an 18 inch rip-stop nylon chute. The shoulder of the nose cone is so deep that if you modify this kit like this, there is barely enough room left for a couple of squares of recovery wadding. There is room to put a square of wadding in the engine tube in front of the motor.

This rocket flies on 24 mm "D" engines and it appears to be perfect for Greene Valley. I have three other rockets in my arsenal of a similar size and "D" power and they all turn in great flights at club launches.

This rocket can easily be upgraded to 29 mm "F" power by replacing the paper centering rings with

### Estes "Big Daddy" Specifications:

Length: 19 inches  
Diameter: 3 inches  
Weight: 5.3 ounces  
Stages: 1  
Motor Mount: 24 mm  
Recovery: 24 inch plastic parachute  
Number of Fins: 4  
Recommended Motors: D12-3, D12-5  
Maximum Altitude: 350 feet  
Retail List Price: \$19.99

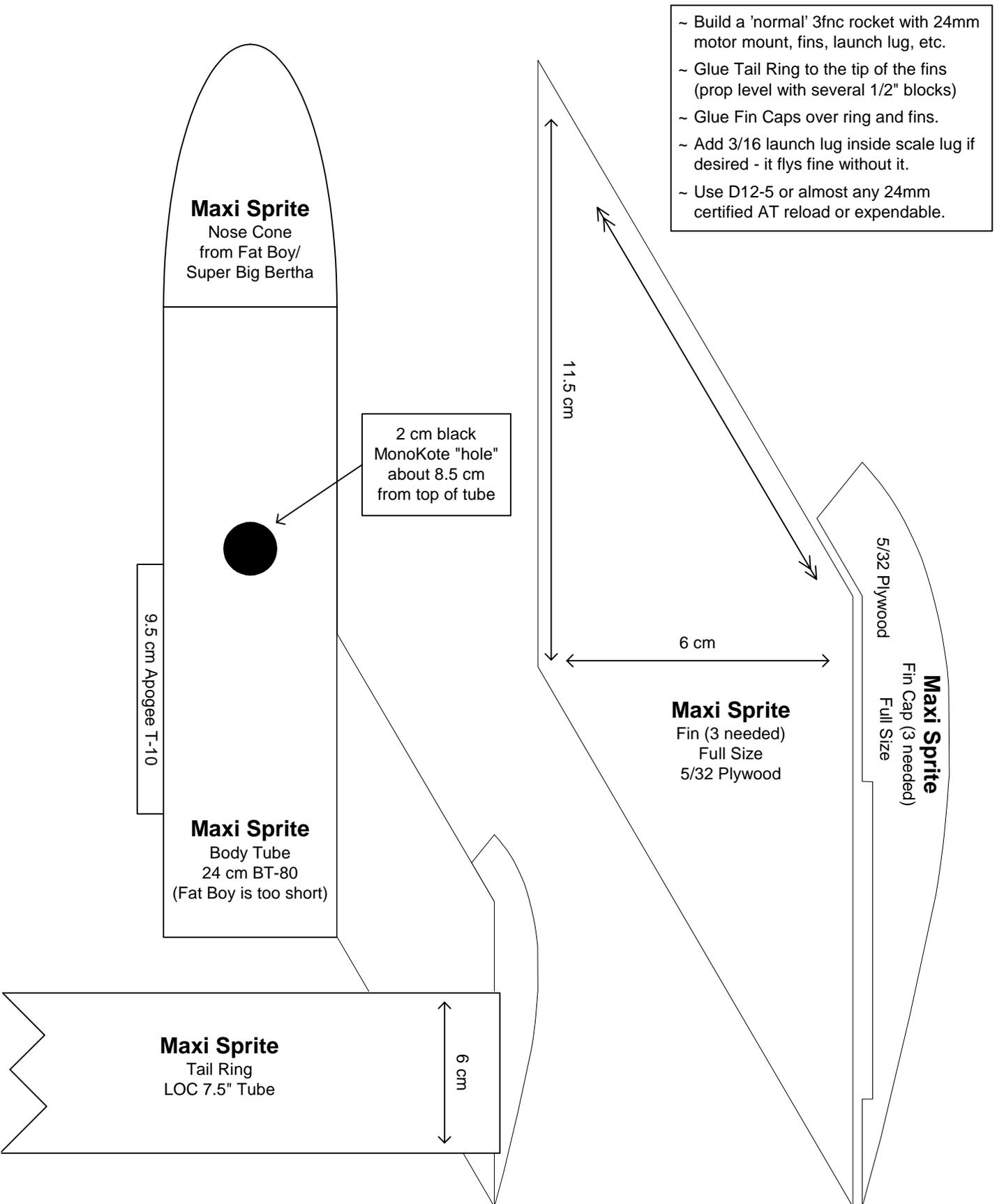
plywood rings and substituting LOC Precision 29 mm tubing for the engine mount. If we had a field as big as the AMA site in Muncie, Indiana I'd even be tempted to launch "Big Daddy" with a G-35 or 40.

This kit retails for \$19.99 and you can get a 20% discount at Timeless Hobbies in Wheaton by showing your NIRA Membership Card and requesting a "Club Discount."

I can't wait to fly "Big Daddy" at the April Club Launch. I may build a Mid-Power version by then anyway.



# Maxi Sprite a 3.4X scaleup of the Astron Sprite by Bob Kaplow (NAR 18L)



## Ablative Blast Deflectors by Bruce Levison

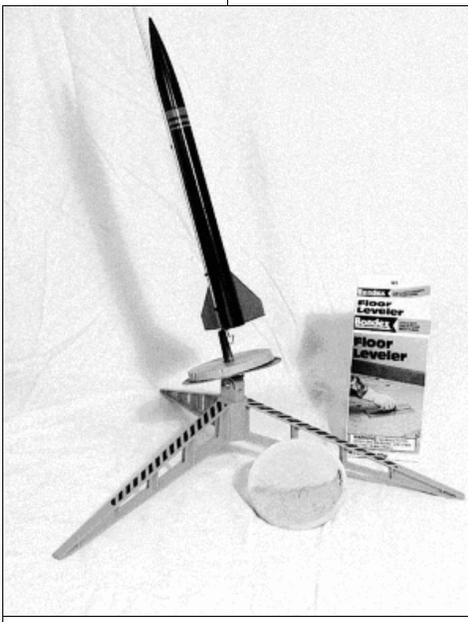
Here is an idea for ablative blast shields or an ablative coating that can be applied to any existing blast deflector. Floor leveler, the gray colored kind, which contains Portland cement and lime, makes an excellent material for use as a blast shield or as a coating over an existing blast deflector. This material is intended to be used for filling and leveling voids and cracks in wood or concrete floors, but its chemical composition makes it an ideal fire proof and energy absorbing medium to use at the base of a model rocket launch pad.

A 0.25-inch thick layer of floor leveler is enough to protect any launch surface from being burnt or heat warped by a standard model rocket engine blast. This material absorbs the energy in the hot high-pressure engine exhaust by gradually eroding away (ablating). An F engine melts away about a 0.06" deep by 0.5" wide depression into the surface of the fully cured product.

I have only used the Bondex brand (Item No. 59004, RPM Bondex International, Inc. 3616 Scarlet Oak Blvd., St. Louis, MO 63122) floor leveler, mixed with concrete adhesive and bonder for this application. Apply a skirt of masking tape around the outer edge of the round metal deflector plate on a standard blast shield. Cast 0.25" thick layer of gray floor leveler, prepared according to the instructions on its container, into the mold formed by the blast shield and tape. Alternatively, (figure 1) cast a 0.25" thick slab of floor leveler in an old plastic dish or container, wait until the material cures, remove the slab from the mold, and drill or file down as needed to fit your launch pad; the cost is only a few dollars each at the most.

Using gray floor leveler and the top of an empty two or three liter plastic soft drink bottle as a mold you can produce a high quality 4 to 5 inch diameter parabolic blast deflector (figure 2).

A scissors was used to cut the top off of a three liter PETE soft drink bottle at the transition line between the top and the straight side of the bottle. The screw top was left on the bottle to provide a stable base for standing this bottom half of the mold on. The neck of the bottle was sealed on the inside with a disk



**Figure 1. A Standard Launch Pad Equipped With an Ablative Blast Plate**

Finished blast plate shown in place on a commercial launch pad. Foreground shows half filled mold that was used for this plate, the background shows box of the casting material.

of masking tape to complete the parabolic end of the mold. Instead of tape, soft wax or modeling clay could be used to build up the point of this end of the mold.

The top of the mold was made by cutting the neck off of a two liter bottle and sealing the resulting opening in the top of the bottle with masking tape. The bottom half of the mold (the top portion of the three liter bottle) was filled halfway with floor lever mix, and the top of the mold (from the two liter bottle) was pressed down into the wet floor leveler slurry and secured down with tape (to the bottom of the mold) to form a casting that had an approximate 0.25" thickness all the way around. The material was allowed to cure overnight whereupon the top of the mold was removed from the casting.

For added mechanical support, the convex side in the casting was filled about three quarters full with a thick paste of the white floor leveler, the kind that contains plaster of Paris. A one liter plastic soft drink bottle that was built up with masking tape into the shape of a flat topped cone was used to mold a conical depression center of this white backing layer before it hardened. As before the top of the mold was held in with tape and the assembly was allowed to cure overnight.

The top of the mold (one liter bottle) was pulled out and the bottom of the mold (three liter bottle) was removed by slitting it with a razor blade. Any pits or air pockets on the surface of the cone were filled with additional gray floor leveler slurry, and again the assembly was left to harden overnight.

The parabolic profile of the shield was touched up using a course file. The bottom of the shield was ground flat by grinding against a slab of rough concrete. A 0.19" or 0.25" inch hole was drilled through the top point of the casting to accommodate a launch rod.



**Figure 2. Parabolic and Fluted Ablative Blast Deflectors**  
Left side of picture shows the blast deflector molds. Right side of picture shows finished parabolic and fluted blast deflectors. The underside of cast deflector shown in the middle of this picture.

Using a similar technique on the bottom of the three liter bottle a fluted blast shield can be produced. For the two liter size mold a 4 inch diameter egg shaped Styrofoam ball was purchased, wrapped in plastic wrap, and used for the top or fist inner mold for the gray floor leveler. The pointed end of the egg was used with the top of the 2 liter bottle mold and the rounded end of the egg used with the bottom part of the 2 liter bottle mold. The one liter bottle was again used to mold the final conical shape on the inside of the shields with the white floor leveler.

These blast deflectors were extensively tested at several events (this years ECOF for one) with 20 or more flights of various engine and model rocket weight combinations. The blast shields display only minor pitting; the black exhaust streaks being easily removed from their surfaces with a scrub brush and water.

Both the parabolic and fluted designs kept the exhaust blast from reaching the ground. I also noticed a lot less exhaust residue on the outside of the rockets that were flown off of these deflectors, their parabolic shape provides the best angle for deflecting the engine exhaust away from both the ground and the model during lift-off.

These blast shields are electrically non-conductive so the micro clips for the engine igniter can be placed in direct contact with the top of the blast shield. The fluted design also provides convenient barriers for keeping the clips separated. The surface of these blast deflectors can be reconditioned by filling any large pits with additional gray floor leveler, or by returning the part to a mold that is partially filled with a slurry of freshly prepared leveler material and waiting until it cures.

## Confused Stages – Stage 8

by Jonathan Charbonneau

This stage is all about clusters and how to get maximum reliability with them.

The biggest problem is getting all the engines to ignite at the same time. It can be done if everything is done right. To begin with, a strong power supply is needed. It must put out 12 volts with 2x amperes of current, where x equals the minimum current required to fire one igniter. Next, the ignition system must be extra robust. Use thicker wire.

When connecting the ignition wires to the igniters, always, always, always connect them in **parallel**. "Why?", you ask. If they are connected in series, the burning of any one igniter will cut off the current flow to the others and the rocket will take off with only one engine thrusting. In parallel, each igniter has its own direct connection to the battery. When an igniter fires, just the current to that igniter is cut off. The others will still receive current until they too fire. (See illustration below.) Unfortunately, with a parallel circuit, a bad igniter may go unnoticed because it is only necessary for any one to conduct for the controller to show continuity.

Fortunately, there is a way to verify that all connections are good. Care to guess what it is? If you guessed an ohmmeter, you're absolutely right. Here's how to use an ohmmeter:

1. Set the scale selector for milliohms.
2. Before installing igniters, check each one with the ohmmeter. If it reads infinity, the igniter is bad. If it reads zero, the igniter is shorted. A finite, non-zero reading means the igniter is good. Record each good reading.
3. After installing the igniters and connecting the ignition system, be sure to clips are touching neither one another nor the blast deflector. Be sure they aren't touching the rod either. Connect the ohmmeter to the main ignition wires and note the reading. If this reading is equal to reciprocal of the sum of the reciprocals of the resistance of each igniter alone, you're in luck. If it is higher, you've got a bad connection somewhere. If it is lower, you've got a short somewhere.

**Extremely important**, do **not** ever mix igniter types. All igniters used in a cluster should be the **same type** and have the same resistance. If you mix different igniters, e.g. Estes and Quest, or Starfire and electric match, you're asking for trouble. They should also be the same lengths.

Balance of thrust is another important matter. The thrust must be evenly balanced around the centerline of the rocket. Else the rocket will go unstable. Keep all engines as close to center-

line as possible, just in case one of them fails to ignite. Some rocketeers use a canted engine configuration to improve stability in the event of not all engines firing.

Finally, if a rocket is to be powered by a **heteropyro** cluster, do **not** attempt to ignite **all** engines at once. Simultaneous ignition of all engines should only be attempted with **homopyro** clusters. A homopyro cluster is a cluster in which all engines have the same propellant formulation. If all engines are black powder or all White Lightning, for instance, the cluster is homopyro. If any engine in the cluster has a different propellant formulation, it's a heteropyro cluster. To successfully fly a heteropyro cluster, the engine or engine with the slowest ignition must be ignited first and everything else airstarted.

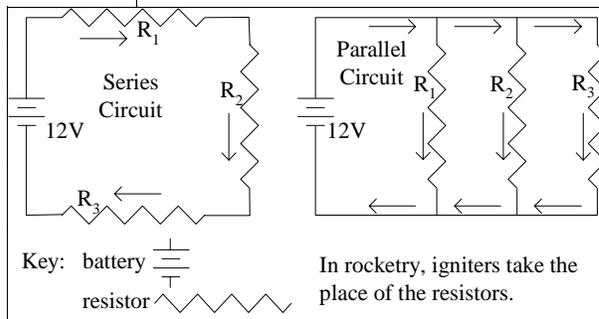
Hierarchy of ignition for heteropyro cluster:

Ignite **large** engines before **small** engines.

For engines of the same size, the following apply:

1. Black Jack
2. White Lightning
3. Blue Thunder/Tracer/Fast White Lightning
4. Black Powder.

Ignite engines nearest to the top of the list first and airstart all others.



If the heteropyro cluster involves a hybrid engine, the hybrid must be ignited first, if Hyper-tech, with the other engines airstarted off of its exhaust. If the hybrid is Aerotech, it must be airstarted, unless it is the main engine.

Altimeter ejection is strongly recommended where possible with high power clusters.

Superman's Words of Wisdom:

1. Don't rush; pay attention to what you're doing.
2. Seek advice and assistance when in doubt.
3. **Always follow the safety code.**

### Example: 3 engine cluster

Resistance of each igniter is 15 milliohms,

$$R_1 = R_2 = R_3 = 15 \text{ mohms}$$

$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$\frac{1}{R_T} = \frac{1}{15} + \frac{1}{15} + \frac{1}{15} = \frac{3}{15} \text{ mohms}$$

$$R_T = \frac{15}{3} \text{ mohms} = 5 \text{ mohms}$$

If ohmmeter at pad reads zero, there's a short. If it reads 7mohm, there's a bad connection at one of the igniters. If it reads 5mohm, you're okay

## Panel Cautions Shuttle Upgrades

NASA should carefully consider any planned upgrades to its space shuttle fleet, particularly those designed to extend the life of the fleet beyond 2012, a panel reported.

A report by the Committee on Space Shuttle Upgrades of the National Research Council said NASA should seek more input from industry on the types of upgrades needed to improve the safety of the shuttle fleet and, if necessary, extend the orbiter's lifetime.

However, the panel said NASA should forego any planned shuttle upgrades that would extend the lifetime of the fleet beyond 2012 until a decision is made whether to develop and/or use a replacement vehicle, like the proposed VentureStar single-stage reusable launch vehicle. Such a decision should be made by the end of 2000, the panel said.

The panel agreed in general with NASA's proposed upgrades to the shuttle, which are divided into three groups. The first group, Phase II, deals with "combating obsolescence" and safety upgrades, including an improved launch control system and additional protection from micrometeorites and orbital debris. (Phase I was defined as in-progress or completed upgrades for safety and space station work.) Such upgrades are in progress or under study and expected to cost \$10-50 million.

Phase III upgrades are designed to enhance the shuttle's capability without fundamental changes to the shuttle's configuration. They include improved auxiliary power units, engine nozzles, avionics, landing gear, fuel cells, cooling system, and maneuvering thrusters. Such projects are currently only under study and expected to cost in the tens to hundreds of millions of dollars.

Phase IV upgrades would enhance shuttle capability with significant changes in the shuttle's configuration. These proposals include improved solid-fuel boosters (SRBs) or replacing the SRBs with liquid-fuel flyback reusable boosters. Such upgrades would cost over a billion dollars but could significantly enhance the performance and lifetime of the shuttle fleet.

Any proposed change that increases the launch rate, like the liquid-fuel flyback boosters, should be approached with caution, the panel recommended. "The space agency should not consider design upgrades to increase the number of missions unless NASA can demonstrate that other government agencies, researchers, and commercial enterprises would take advantage of the added manned flights," the panel reported, noting that additional shuttle launches could "unfairly compete" with commercial launches.

The panel was chaired by Bryan O'Connor, the former deputy associate administrator for NASA's Office of Space Flight. The report was funded by NASA.

## NARAM-41 Update

[from a posting to rec.models.rockets]

The NARAM-41 website has been updated with some new information. The announcement of the 2 Fun Events and Old Rocketeers Reunion activities is posted. Stop by and check it out!! More info will be coming in Feb.

With winter set in now, it is time to start building your competition and sport models for that one full week in the summer that features nothing but ROCKETS !!!

There is a change in the NARAM-41 website URL address. The correct URL is <http://www.nb.net/~rockets/naram41/naram41.html>

Fly'em High,

Rod Schafer

Contest Director, NARAM-41

## National Sports Launch Update

[from ScaleRoc mailing list posts]

### Greg Burke, the Event Director, reports:

The people at Super Sod in Perry, GA. where the NSL '99 was supposed to be backed out on us, but have no fear HARA is here!

The kind folks with HARA have agreed to let us hold the NSL at their Ardmore, AL. field.

The field is a cow pasture that's about 1/2 mile by 1 mile wide (350 acres), and is only about a 30-45 minute drive from Huntsville, AL.

Look for updates on the NSL webpage: <http://www.soar571.com/nsl99.html>

### George Gassaway adds:

[This is] on the Tennessee/Alabama state line (mile or so south of State Line Road).

This is about 15-20 miles east of the Saturn-IB Rest stop area on I-65. The date is Memorial Day weekend, May 29th, 30th, and 31st.

## New Pink Book Available

Mark Bundick, NAR President, wrote on rec.models.rockets November 19th, 1998:

"A new printed copy of the Pink Book is now available at NAR HQ. For a variety of cost and production reasons, we have returned to the "old" 5 1/2 x 8 1/2 format last printed in the early 90's. These books should easily fit into your range box, and will be quite compact.

"Members who want or need a new copy can contact NAR HQ and request one simply by emailing your name, NAR number and address to [nar-hq@nar.org](mailto:nar-hq@nar.org)."

Tom Lyon, Chairman NAR Contest & Records Committee, added:

"[It] Contains corrections to mistakes made in the '95 printing (by Matt Steele) and contains all the rules changes per the '97 NRP."

## Seattle Rocket Works Closes

Michael Park, owner of Seattle Rocket Works, wrote the following message to rec.models.rockets on December 14th, 1998:

"Seattle Rocket Works is closing, effective immediately.

"Just wanted to say "Thank you" to all our r.m.r. customers: thank you for your business, thank you for the nice things you said about our products, thank you for the 'buying frenzy' (remember that?) -- now go fly a rocket before I get all misty."



Evidently, a very busy Real Life has once again interfered with our hobby.

Even though Michael hasn't ruled out reopening SRW at a later date, it seems to be a good time to start hoarding the kits!

## Mars Movie in the Works

TV movie about the first private human mission to Mars is being prepared, Variety reported January 6. "The Martian Race" is being written by Gregory Benford (author of "Cosm" and "In the Ocean of Night", among other books) and Michael Cassutt (author of "Missing Man").

Production company Mandalay Television Pictures said no network deal has yet been reached, but the company hopes to have the movie ready by December, when the Mars Polar Lander touches down on the Red Planet.

The producers and writers plan "scrupulous scientific accuracy" for the movie, including working with NASA's Mars Exploration Office.

## Central Illinois Aerospace Presents NARCON '99

Join the National Association of Rocketry (NAR) and the Central Illinois Aerospace (CIA) (NAR section #527) in Champaign-Urbana, Illinois for NARCON '99, the National Convention of Sport Rocketry!

NARCON '99, running from March 26 through 28 at the Springer Cultural Center in Champaign, will feature clinics on such topics as scale modeling, high-power rocketry, radio control, rocket construction and finishing, competition, reloadable and hybrid motor use, club leadership, computers and electronics and recovery systems, with programs suitable for rocketeers of beginning, intermediate and advanced experience levels; manufacturers' displays and demos; seminars on government regulations; and guest speakers from the University of Illinois' Aeronautical and Astronautical Engineering Department.

Events planned include a kitbash, an NAR sanctioned Research and Development competition, an open craftsmanship contest (bring your best rocket to show off), an NAR town-meeting, a building session for beginning rocketeers, door prize giveaways, a trip to a planetarium, our famous Sunday Brunch and a waived launch (motors through H allowed).

Included in the registration fee for the entire weekend will be a NARCON notebook including lecture notes of the presentations.

### Registration and Fees

Registration for NARCON is \$25 per person; T-shirts \$12. Per day rates are: \$5 for Friday, \$15 for Saturday and \$10 for Sunday. Conference notes will be \$5 extra for those not registering for the entire weekend. You can register and pay at the door.

Room rates at the Howard Johnson are \$48.00 per night for a regular room. Make hotel reservations by calling them directly at 217/359-1601 by March 12.

### Locations

Springer Cultural Center - 301 N. Randolph, Champaign, IL

William M. Staerke Planetarium - Parkland College

Howard Johnson - 1505 N. Neil, Champaign, IL

For more information about NARCON '99, contact Jonathan Sivier at [j-sivier@uiuc.edu](mailto:j-sivier@uiuc.edu) or by phone at 217/359-8225.

If you are interested in being a presenter at the conference contact Conference Director Greg Smith at [gd-smith@uiuc.edu](mailto:gd-smith@uiuc.edu) or by phone at 217/352-9655.

If you would like to have a vendor display at the conference contact CIA Vice President Chris Deem at [chrisdeem@net66.com](mailto:chrisdeem@net66.com) or by phone at 217/356-9808.

This is a preliminary announcement. More details will be announced as they become available. If you would like to be added to the list of people to receive future updates contact Jonathan Sivier at [j-sivier@uiuc.edu](mailto:j-sivier@uiuc.edu).

Central Illinois Aerospace is Champaign-Urbana's model rocketry club, affiliated with the Champaign Park District, the National Association of Rocketry (Section 527) and the Tripoli Rocketry Association (Prefecture 59).

## Update on ATF regulatory scene

January 21, 1999 (ROL Newswire) -- Recent updates in the regulatory issue seem to indicate there will be some relief for a class of rocket motors marketed by AeroTech as "Easy Access™". These reloadable motors, consisting of propellant components of 62.5 grams have caused some controversy among flyers over their legality under new legislation effectuated on December 22, 1998.

As it turns out, as evidenced by both a letter to AeroTech from the ATF and an ATF Field Memorandum, the original exclusion of these previously protected classes of explosives were left off the regulatory changes completely by accident. What follows is the full text of the ATF Memorandum:

DEPARTMENT OF THE TREASURY  
BUREAU OF ALCOHOL, TOBACCO AND FIREARMS  
WASHINGTON, DC 20226

JAN 5, 1999

MEMORANDUM TO: All Division Directors  
THRU: Assistant Director (Field Operations)  
FROM: Assistant Director (Firearms, Explosives and Arson)  
SUBJECT: Exemptions under 27 CFR 55.141

On August 24, 1998, the Bureau of Alcohol, Tobacco, and Firearms (ATF) published a final rule. Treasury decision, T.D. ATF-400: Notice No. 841, in the Federal Register amending 27 CFR Part 55. The final rule, which becomes effective December 22, 1998, amended 27 CFR 55.141 (a) (7), which lists low explosives exempted from regulation. The final rule was not supposed to change which low explosives were exempted. However, ATF failed to list in the final rule all the low explosives that were meant to be exempted from regulation. Consequently, as of December 22, 1998, items such as toy plastic and paper caps, explosive auto alarms, and toy model rockets will be subject to regulation under Part 55. We are currently taking steps to correct the oversight by amending 27 CFR 55.141 (a) (7) to include all low explosives that were meant to be exempted from regulation under 27 CFR Part 55.

In the interim, no enforcement action is to be taken regarding the importation, distribution, and storage of the following explosives;

1. Fireworks classified as UN0336, UN0337, UN0431, or UN0432 explosives by the U.S. Department of Transportation at 49 CFR 172.101 and generally known as "consumer fireworks" or "articles pyrotechnic."
2. Model rocket motors classified by the U.S. Department of Transportation at 49 CFR 172.101 as UN0349, UN0351, UN0471, NA0276, or NA0323; consisting of ammonium perchlorate composite propellant, black powder, or other similar low explosives; containing no more than 62.5 grams propellant weight; and designed as single use motors or as reload kits.
3. Other low explosives classified by the U.S. Department of Transportation at 49 CFR 172.101 as NA0337, UN0336, and UN0337.

Please ensure that this information is disseminated to all field personnel.

If there are any questions about which explosives are to be treated as exempted under 27 CFR 55.141 (a) (7), please contact the Public Safety Branch at 202-927-8690.

Jimmy Wooten

In a letter dated January 11, 1999 to Gary Rosenfield, President of AeroTech, Michael Bouchard, Chief of the Arson and Explosives Programs Division for the ATF stated:

"As noted in your letter, the final rule included a revision of 27 CFR 55.141(a)(7). The revision of 22 CFR 55.141(a)(7) did not include UN numbers for model rocket motors that were previously exempted from regulation under 27 CFR Part 55. Since it was not the intent of the final rule to regulate these items, please be advised we are in the process of amending the regulations to reflect this exemption."

A full copy of the letter (57k) is available here in Adobe PDF format. As stated in the ATF Field Memo above, the ATF has instructed their field force that "no enforcement action is to be taken regarding the importation, distribution, and storage" of products that fall under the UN classification UN0351, which is what the Easy Access™ products are classified as under DOT Exemption 10996. This memo is effective during the "interim" period as ATF seeks to amend the final regulations.

Early next month, hobby leaders of the various rocketry organizations meet with ATF officials in Washington to discuss the regulatory environment as it pertains to rocketry. It is anticipated the ATF will have a response to this issue at that time.

## Heard on the Street

(with apologies to the Wall Street Journal)

**Welcome to the Club!** – Eliezer Appleton, Walter Berkowicz, Brian J. Biegel, Larry J. Biegel, Grant Brennecke, Michael Chrystof, Ken DiGiulio, David Dornblaser, Matthew Duckworth, Cory Giacalone, Gene Hernandez, Cal Jestice, Joseph Kubal, Theodore Lannert, Gypsy Martine-Tetzloff, Maya Martine-Tetzloff, Nathaniel Martine-Tetzloff, Mitch McClain, Tyler Mendoza, Karl J. Mohr III, Chris Read, Dan Rose, David Schmitz, Jim Vaccarello, and Mario N. Zamudio have joined NIRA in recent months. Welcome!

**Extended Mir Stay** – Russian cosmonaut Sergei Avdeyev will likely spend an extra three months on Mir, Reuters reported January 5. Avdeyev will remain on Mir because the next crew to come to Mir, scheduled for launch in February or March, will include two guest cosmonauts, leaving room on the Soyuz capsule for only one replacement cosmonaut.

**A Rotten Day in Space History** – As we approach the 30th anniversary of Neil Armstrong becoming the first man to walk on the moon, there is another day we need to remember:

On December 14th, 1972, (26 years ago!) Gene Cernan became the last person to set foot on the moon. "Being the last man on the Moon is a very dubious honor" - Gene Cernan.

Waiting and ready  
Humanity stands fueled and explosive  
As a rocket would  
Waiting to fly  
And so one would soar  
Making the journey  
With a trail of fire  
Streaked along the pale blue face  
Of time and sky  
And some would disappear  
Swallowed up by vaster horizons  
And some would glare  
In the violent beauty of flame  
To burn in remembrance  
Was this flight worth the fire?  
Worth the falling?  
Or was it safer to wait  
Protected from uncertainty  
Upon the launchpad  
With the ability  
But lacking the spark?  
I would say  
The flight is the key  
For we find that  
One day  
It is more dangerous to lie dormant in safety  
Then to fly free through existence

—Julia Barrett (daughter of John Barrett)

This may be your last newsletter! Check your label for the expiration date.  
If it says Membership Expired or Membership Expiring, this will be your last newsletter!

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Tim Peckham