THE UPSTATE ROCKETEER

The Official Newsletter of MARS
NAR Section #136

Volume 3, No. 1 | Published by the Monroe Astronautical Rocket Society | February, 1990

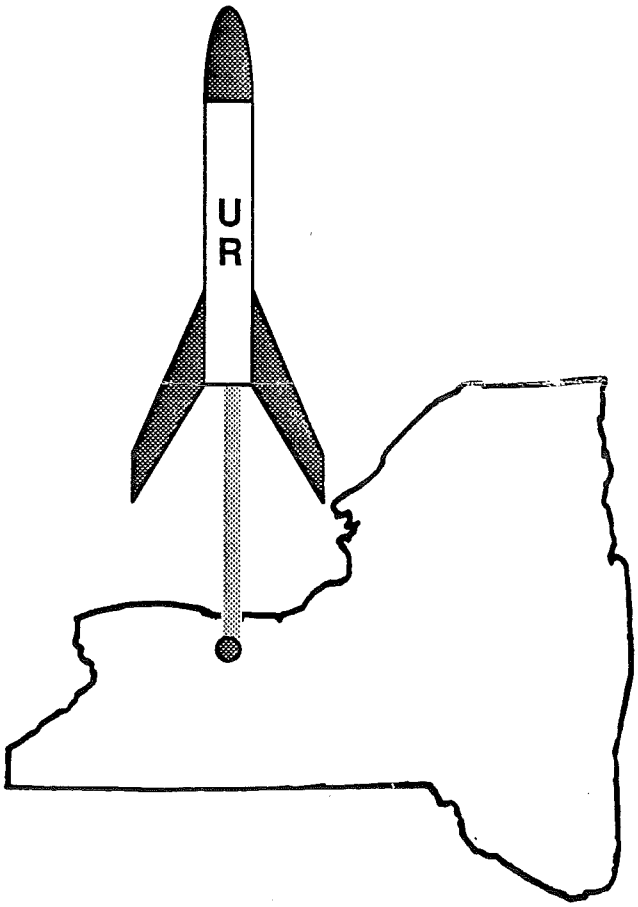


TABLE OF CONTENTS

The *Upstate Rocketeer* is published six times a year by the Monroe Astronautical Rocket Society as a service to its members and NAR members in Western and Central New York. Subscriptions are $2.50/year. The *Upstate Rocketeer* is edited by Dan Wolf. Send all comments, complaints, letters, plans, subscriptions, etc. to him at the following address:
Upstate Rocketeer
c/o Dan Wolf
235 Kislingbury St.
Rochester, NY 14613

Blowin' In the Wind

Greetings Upstate Rocketeers. Welcome to the first issue of the 1990 edition of *UR*. In this issue we finally pick up the second installment of the "Electronics in Model Rocketry" column started several months back and we also cover some competition aspects of the hobby in the form of a review of the Apogee Component line as well as a plan for a 1/2A SuperRoc model. You will probably notice that this issue is only 11 pages rather that the standard 12. There are two reasons for this. First, I didn't have any new pictures for a photo page and second, I haven't received anything from you guys in a while. If you want to see the full 12 pages each issue, please send in something. Plans, tips or how to articles are preferred but photos, kit reviews or just about anything is acceptable. Since you guys usually respond to a bribe this time I'm offering an Estes TR-11 altitude prediction technical report to the first person to submit me an article for the newsletter.

I don't know about you but with the winter being fairly mild, I have been getting the urge to go out and "punch a few up." That urge has been especially strong this winter with all of the things going on with the manufacturers. Since the RCHTA show in Chicago in November there seems to be more and more companies starting up, new product announcements, etc. Take a look at the "As the ModRoc World Turns" column this month and you will see what I'm talking about. At the hobby trade shows and in the hobby trade journals (Hobby Merchandiser, etc.) model rocketry is certainly getting a lot of attention. And while this activity is being reported in *AmSpam*, this newsletter and in other newsletters across the country, it is not geared directly to us, but rather to the hobby store owners. After several years of operating primarily via mail order, companies such as LOC, NCR, and Aerotech are now trying to market their products to the masses, via hobby stores. This is probably a necessary step for these companies to significantly grow beyond their present levels. As a consumer I hope they are successful. Although I don't have a problem with buying mail order, the convenience of walking into a local hobby store and being able to do all my model rocket shopping is one that appeals to me.

There is one problem with it however, hobby stores have to be willing to carry these other product lines. A quick look at the hobby stores in the Rochester area makes me wonder if this will happen. I have chatted with a couple of the store owners once or twice over the last year and they seem very much on the fence. The reasons they give are varied, with the biggest concern being whether or not these products will sell. The way they see it, their biggest consumers of model rocketry products are young boys around the ages of 10 to 14. Since this is the bulk of their customers they don't see them as the type to purchase $30.00 kits like Aerotech's Initiator or E, F & G motors that run $10.00 or more each. They also express concerns over the liability of selling these larger rockets and engines. I wonder about that when I see the same hobby stores selling fuse in bags hanging up right next to the Estes rocket engines.

Clearly, they do not see the big picture. They do not realize that half of Estes customers are adults (Estes did not realize this either until recently). If we want to see these products sold in our hobby stores, then we must educate the store owners. First, we must ask them about these other products. By asking them about them we do two things. First, we show them that there our other companies out there besides Estes (something I'm not sure all store owners understand), and second, that we are interested in and willing to buy these other companies products. Sometimes the store owner will offer to "order the item for you." In that case point out that you can do that yourself, but you wanted to get it now. With all the exciting new products on the way, it would be a shame to have to live with only Estes for another flying season. Having the "other guys" at the local hobby store will also show other people who once left the hobby that there is something else the hobby offers besides the Alpha, Big Bertha, and D12 engines.

(continued on page 9)

Electronics in Model Rocketry - Part II
On Board Electronics - Part A

The first installment of this series dealt with launch systems. There was not too much new or exciting there. Show up at any of the MARS club launches or contests and you will see many of the flyers there have built their own launch systems. Each one is a little different but all of them accomplish the same task.

This time we will start to cover an area that in contrast to launch systems, very few people have attempted, on board electronics or electronic payloads. Electronic payloads can become quite involved so in this issue we will discuss the various types of on board electronics. We will also look at the pluses and minuses of some of them. Next issue we will feature a construction article for a microprocessor based payload system.

In general, all electronic payloads fall into one of three categories. The first category is rocket locators, the second is on board controllers, and the third is data collectors. Let us examine each of these now.

Rocket locators date back to the early 60s. The first rocket locators were radio transmitters that operated at a frequency of 27 MHZ. This frequency can be received by a CB radio or walkie-talkie. Commercial versions appeared in the early 70s from both Estes and CMR. Estes had the Transroc and CMR the Foxmitter. Today NCR sells a transmitter for this purpose. To operate one of these units, a directional antenna is used as a "pointer" to locate the rocket containing the transmitter. Because the transmitters operate on CB radio communications channels, their power output is restricted to 100 milliwatts. There is usually no problem in receiving the signal while the rocket is airborne, but once on the ground the signal may be too weak depending upon where the rocket landed and the orientation of the antenna.

The most successful use of this type of rocket finder that I witnessed was by former MARS member Bruce Farrington. Bruce modified an Estes Transroc to use a full wave antenna. The standard antenna supplied with the Transroc was about a 10" length of wire that ran along the outside of the rocket's body tube. Bruce replaced it was a 36 foot length of wire that he coiled around a 3/16" launch rod and then after removing the rod inserted it into the rocket. The antenna wire also served as the shock cord. At ejection, the antenna wire was pulled out straight between the nose cone and the body tube resulting in a full wave antenna. When this happened, the volume of the beacon signal from the receiving walkie-talkie would increase dramatically. After several low power tests of this system, Bruce put up a 3 stage model. I will never forget the flight as we lost site of the model during the burning of the second stage. Even though the model was out of sight, we could clearly hear the third stage ignition. Bruce took off after the rocket on the back of a friends motorcycle, walkie-talkie in hand. It was quite impressive to see him return it, about a half hour later from a landing site 10 miles away!

Another type of rocket finder first appeared in the mid 70s. This is an electronic buzzer, specifically a piezoelectric buzzer. One of the first commercial versions of this was the "Banshee", sold by CNA in the mid 70s. Today, NCR sells the BEEP-1 Audio Locator. These buzzers are quite loud, usually 80 to 100 db. The buzzer is turned on prior to launch. To recover the rocket one walks to the area where it is thought to have landed and listens for the sound of the buzzer. These buzzers are fairly easy to build. A design of one using Radio Shack parts is shown in figure 1.

Moving on, the next type of electronic payloads are on board controllers. By an on board controller we mean an electronic circuit that causes something to happen on the rocket during flight. The must prevalent type of these are second stage ignition systems. Sometimes modelers will use these to allow ignition of the second stage at the optimum time or for second stage ignition when direct staging isn't possible. An example of this might be a staged Saturn V. These types of devices have been

documented before so I won't discuss them in detail here. There are basically two types. One is a mercury switch system and the second is an electronic timer system. NCR publishes a technical report on these devices that is quite good. They also sell an electronic timer suitable for this purpose.

Other than the timer mentioned, there are very few active electronic payload systems available commercially. One exception of course are the radio controlled receivers and servos used in R/C boost gliders and rocket gliders. There is R&D activity in this area however as the Zunofark team has presented two fascinating reports on controlling the flight path of model rockets with an on board control system. One of their systems used photocells to control the angle of two sets of fins that caused the rocket to always fly towards the sun (on overcast days it causes it to fly straight up). A later refinement used a gimballed engine mount that was also controlled by on board circuitry and the input signals from photocells. As part of an RIT course I took a few years ago I designed a similar system using an on board 80C86 microprocessor to control fin angles. In this design, a joy stick is hung upside down in the body tube with a weight on the bottom of the stick. If the rocket is flying straight, the joy stick is at its "home" position. If the rocket veers off at an angle (i.e. weathercocking on a windy day), the signals from the joy stick are read by the microprocessor which then adjusts the fins to bring the rocket back to a vertical attitude. This design was only done on paper and has never been built or tested. This is clearly a wide open area and very little has been done to date.

The last category, data collectors, is perhaps the one that most often comes to mind when people mention electronic payloads. For years the most common type of electronic payload was a variation of the rocket transmitter mentioned above. Both the Transroc and the Foxmitter were designed to accept sensors that would allow information or data about the flight to be transmitted back to the ground. Sensors that could be connected included ones to measure spin rate, temperature, and acceleration. This process of collecting data from a rocket via a receiver (walkie-talkie or CB radio) on the ground is known as telemetry. Several problems exist with telemetry systems. First, is the problem of signal strength. As stated before, unless one has an Amateur radio license transmitter power is limited to 100 milliwatts. Second, since transmitters like the Foxmitter and Transroc use the same frequencies as CB radio, the signals are often distorted by other transmissions on the same frequency. Atmospheric conditions also influence the quality of the signal received by the walkie-talkie. Lastly, to analyze the signal received, it usually has to be recorded by a tape recorder and played back later for analysis. Usually this is done by hooking up the tape recorder to an oscilloscope or a computer. The analysis is further complicated if more than one sensor is used (measuring both acceleration and spin rate for example). Then the signal transmitted is time multiplexed. Now the signal received on the ground must be demultiplexed before it can be analyzed. With today's electronic technology, a ground receiver that demultiplexes the signal as well as converting and displaying it in "real time" could be built within a rocketeers budget but to date this has not been done.

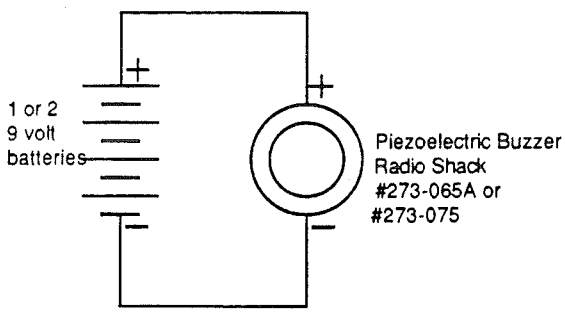
For many years, all data collectors relied on telemetry. Since the advent of low power digital electronics, and in particular microprocessors it is now possible to build electronic data collectors that collect data from on board sensors and store it in on board solid state memory. Later on the ground, the on board data collector can be removed and connected to a personal computer for data analysis. Advantages to this type of system over telemetry are that all of the problems associated with transmitting and receiving of radio signals are eliminated. In addition, if a microprocessor is used, changes in operation of the data collector can be made through writing a new program rather than redesigning and rewiring of hardware.

Next time we will discuss microprocessor based data collector design and a data collector based on the Intel 80C52 microprocessor will be featured.

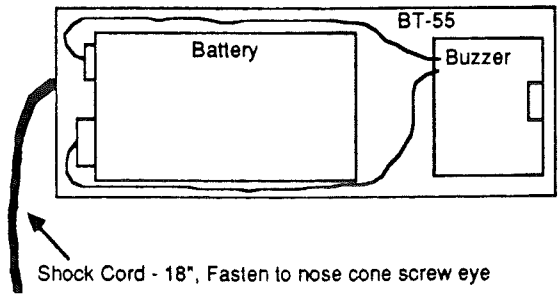
The version of this low power processor used in the design has a BASIC interpreter built in so that programs written in BASIC can be used. Any computer or terminal with an RS232 serial port can be used as a console to write programs and read data from the data collector.

In closing, it has come to my attention that there are many of you out there who are interested in building electronic payloads but have difficulty with reading of schematics. Rather than provide a tutorial or how to article on that subject here, I suggest that you go to your local library and get some books on beginning electronics. Your local Radio Shack also has books that cover this and also contain simple projects that you can build. I good first book is Radio Shacks "Getting Started in Electronics" by Forest Mims III. To follow that up, the same author has a "Mini-Notebook" series also at the Shack. I recommend these books highly before you attempt the microprocessor based data collector project in the next issue.

PIEZOELECTRIC ROCKET LOCATOR



Mounting Notes: Put above components in a 3" to 4" length of BT-55 if using one battery. If two batteries are used then use BT-60 or 5.5" length of BT-55. Glue buzzer in tube so that the "sound" end is facing out of one end of tube. Put batteries in the opposite end, taping in place. Fasten entire BT-55 or BT-60 assembly to one end of a shock cord. Fasten the other end to nose cone screw eye. Connect battery just prior to launch to save battery life. When prepping model, insert wadding and parachute first into model, then the buzzer assembly last. Radio Shack #273-065A is louder (95 db) but bigger and heavier (9.7 gms). #273-075 is lighter (4.5 gms) but not as loud (85 db). For larger rockets hook two batteries in series. One 9 volt battery weighs 34.5 grams.



MARS Meeting Report

MARS held its regular monthly meeting on Friday January 19th. Members present at the meeting were Roy Metz, David Pringle, Ferenc Roka, Jeff Ryan, and Dan Wolf. The main business of the meeting was the review of a draft of a letter to the Monroe County Department of Parks requesting use of Black Creek Park again or some other suitable county park. Several helpful suggestions were provided to modify Dan's rough draft. Ferenc provided the name of the current Director of Parks as well as letters from the previous Director granting us permission to fly their in years past. Dan will incorporate the changes and include with the letter photocopies of the above mentioned letters as well as a copy of the safety code. The letter stressed the safety record of the NAR and the NAR site owner's insurance as well as the fact that all of our club activities have adult supervision.

Dan also reported that the sanction requests have been sent in for the two contests planned at the November meeting. The information was also sent to *American Spacemodeling* for publication in the "Launch Windows" column. Look for it to appear by the February or March issue. This completed the business portion of the meeting.

After the business meeting the club viewed a portion of a video tape of NARAM 31. This tape was produced by Wishingstar Video, a professional video company. Another highlight was Roy Metz' flying beer can rockets that he brought along. These "Less Filling" birds will certainly be a eye opener at any launch and Roy said they "Taste, uh--no that's "Fly Great".

Apogee Components Review
One Modelers View

Apogee Components is a model rocket company that was started about two years ago by Ed Lacroix to help fill the void left by the departure of CMR. Since that time there have been other companies that have "popped up" that also cater to the competition modeler, most notably MARS and NCR with its competition line but Apogee was there first. I first saw the Apogee product line at NARAM 30 in August of 88. The single product sheet instead of a catalog along with some unusual nose cones and body tubes did not make a good first impression on me. In fact, the "Blackshaft" tubing looked like nothing more than the black tubing that Estes sells as tube couplers. The following spring I decided to send for the Apogee catalog anyway. The catalog changed my opinion of the products. One thing that impressed me was the "how to" section of the catalog which covered all aspects of using the Apogee components. Based on what I saw I ordered nose cones and body tubes the equivalent of BT-5 and BT-20 sizes. I also purchased some of the waferglass fin material, Kevlar shock cord, polyester tape, and Micafilm streamer material.

The order arrived quickly and just in time to prepare for "The Trouble With Tribbles" Regional in May of 89. The first rockets I built were for B Streamer Duration. In building these models I followed the procedures outlined in the Apogee catalog pretty much to the letter. I was impressed at how quickly and easily one can put together a model with these materials. In the past I had built my B Streamer models with CMR body tubes and nose cones and with plywood or balsa fins. The finishing time to get CMR tubes and wood fins to a "glass finish" is much longer than for the Apogee materials. The main reason for this is to get the Blackshaft tubes and Waferglass fins to a smooth finish only requires sanding. No seam filling, grain filling, etc. with sanding sealer or clear dope or whatever. Using cyanoacrylate glues, it is possible to build a competitive model in less than a hour. In fact, I found the most time consuming process in building the B Streamer birds was in ironing the accordion folds in the Micafilm streamer. Another time saving step for competition models is that since the tubes and nose cones are already black, no painting is necessary. Plans for the rockets I built were featured in the July 89 *UR*.

OK, enough about how easy it was to put them together, how did they perform in competition? Well, first let me state that the most important factor in competition is reliability. This is really crucial in the popular multi-round events where normally at least three qualified flights are needed to place high. As I analyzed my flights from the previous contest season I realized that this was an area where I could use some improvement. In 7 contests in Streamer Duration , I had at least one separation in 4 of the contests (5 times in 20 flights). In most of those contests I used tracing paper streamers. Most of the separations were caused by the streamer tearing off but occasionally it was due to a broken shock cord. In those 7 contests I finished 2nd 3 times, 3rd twice, and I did not place twice. Starting with the "Trouble With Tribbles" Regional last May I flew primarily Apogee component models with Micafilm streamers. In the 5 contests I flew with them I had no separations or disqualifications of any kind in Streamer Duration (12 of 12 qualified flights). In those 5 contests I placed 1st twice, 2nd twice and third once, a significant improvement. Ok, so they improved my reliability. The next question was, ignoring disqualifications, did the actual duration times increase? In looking at B Streamer only, my average time using my old CMR component models was 108.67 seconds per flight (maxes counted as 180). The models built with Apogee components averaged 113.67 seconds per flight. Of course these numbers are over flights flown on several different days, different weather conditions, etc. so it may not be fair to compare them. Based on the above however, I have become an "Apogee convert" and will continue to use these materials for my SD and PD birds. The main reason for this improved reliability

I believe is in the strength and durability of the Kevlar shock cord, as well as the techniques outlined in the catalog for streamer attachment and engine retainment. It should be pointed out that these techniques do not necessarily require Apogee materials, although it doesn't hurt.

Of all the items that Apogee sells, none has been more criticized than the tubes. The tubes are a phenolic impregnated material. This results in a much stiffer but more brittle tube than the standard Estes tubes. The tubes although stronger, do not have much elasticity. They do not crimp, they crack. This causes problems in two areas. First, it is very easy to crack these tubes when inserting an engine, particularly if you try to friction fit it. Second, they have been known to shatter at ejection if the engine has a strong ejection charge (this is normally a problem only with composite motors). Given these characteristics, the Blackshaft tubes are not a general purpose replacement for standard body tubes. Of course this is offset by the fact that they do sand down to a glass smooth finish and require no painting. Also, the fact that they are available in a 30" length along with their stiffness makes them great tubes for the upper portion of SuperRoc birds.

One of the reasons that CMR body tubes were popular in their day was that they were thinner than the Estes and Centuri equivalent sized tubes (Estes tubes seem to be thinner now than they were then) and thus resulted in lighter models. I was curious if the Apogee tubes had this advantage. Below is a table comparing **catalog** weights for 18" lengths of body tubes from Estes and Apogee.

Tube Type	Estes	Apogee
BT-5/PT-1318	6.2 gms	6 gms
BT-20/PT-1818	8.2 gms	9 gms
BT-50/PT-2418	10.7 gms	12 gms

According to catalog data there is very little difference in weight between the two. For the B SD birds I built, going by catalog weights, the difference would be less than 1 gram since the body tube was only 9" in length. Note however that going by the catalogs, the Estes tube is lighter. However, since the Apogee tubes are sanded and also since they don't need to be painted, they may end up being lighter. To examine this, and also to verify the catalog weights, I took 3 sets of sanded and unsanded Apogee Series 18 tubes and weighed them along with standard Estes BT-20 tubes. The table below summarizes the results.

Tube Type	Average Weight
Apogee Series 18 Unsanded	8.3 gms
Apogee Series 18 Sanded	7.6 gms
Estes BT-20	7.7 gms

According to the scale, the unfinished weight of the Apogee tube was slightly more than the Estes tube but as expected, the finished or sanded Apogee tube weighed almost exactly the same as the Estes BT-20. Given the ease in finishing the Apogee tubes this would seem to favor them for competition use.

The Apogee nose cones are quite different than the old CMR cones. Although both have a parabolic shape but their length to width ratios are different. The Apogee cones are more pointy as they have a 3:1 ratio while the old CMR cones were 2:1. To me the CMR cones seem better as their shape seems closer to the nose shape of subsonic jet planes that fly at about the same speed (Assuming Boeing and McDonald Douglas got it right). I don't have any mathematical evidence to support this theory however. Also, the Apogee cones are made of thicker plastic than the CMR ones were. I weighed these also and found the BT-20 sized Apogee cone (2.4 gms.) to weight .5 grams more than the CMR cone (1.9 gms). An unfinished Estes BNC-20B comes in at around 1.4 grams without the screw eye.

The Waferglass fin material is a joy to use after years of filling grain in plywood and balsa fins. It is like using plastic fins but is much stiffer. Although a little bit tough to sand, a set of fins can be cut, airfoiled and sanded to a smooth finish in about 20 minutes.

In conclusion, what Apogee Components is selling is not a bunch of model rocket components as the name suggests but a **system** of parts and procedures that together can help the average competition flyer to improve performance and reliability in most

duration and altitude events. They have definitely improved mine. Ultimately however, the value of these products will be proven in local, open and regional competitions throughout the next few years.

Mars Meeting Notice

The next MARS club meeting is scheduled for Friday, February 16th at 7:30 PM at Dan Wolf's house. This is an important meeting as the 1990 officers will be elected, selected, volunteered, or whatever. This is also the time when we collect dues and recharter the club for another year. If you want to be included on the club roster for the coming year please plan on attending. Also, the infamous Pittsburgh prang film will be shown. Don't miss it.

As the ModRoc World Turns...
(News and rumors heard 'round the hobby)

Manufacturers News... The big news is that **Estes** has been sold. As you may recall, American Magnetics in a takeover bid aquired Damon, Estes parent company about a year ago. Primarily interested in Damon's drug and pharmaceutical businesses, American Magnetics has had a "For Sale" sign in front of the Penrose plant for some time. Estes (including Hi-Flyer) was sold to a company made up of partners Peter W. Smith (A Chicago investment firm) and TCW Capital. The purchase price was 43.6 million dollars of which 41.3 million was paid in cash. It was reported that the management at Estes will be allowed to invest (i.e. partial ownership) in the company. General consensus is that this is a good move for all concerned. For the employees at Estes, the uncertainty of their future is over. For Estes management, it is a new start with a vested interest in increasing company revenues. For "the rest of us" it hopefully means new products, more innovation, etc. as Estes management tries to do grow and expand the company. The new General Manager at Estes is Robert Buroker, previously Vice President of Operations. He takes the place of former G.M. John Capella who retired.

Meantime, its business as usual at Estes as the 1990 catalog is now out. Estes seems to be slowing shifting its product line to bigger birds. The biggest disappointment is the dropping of the Jupiter C kit. It was one of their nicer scale models. Several other scale models were dropped also. More next time.

Last time we mentioned that the new **Aerotech** Mantis launcher and Initiator kit were introduced at the RCHTA show in November. Since then we received a "press kit" from Bob Sanford of Aerotech that included color brochures of the new products along with a catalog order form and press release. Here is some more info on the line. The Initiator is your basic "first HPR kit". It is a 39" long, 2.5" diameter model featuring "through the wall" fin mounting via a pre-slotted body tube and fin alignment rings on the engine mount. Other features are plywood fins, an ejection baffle, a 30" cloth parachute and self adhesive decals. The launch pad is a scale like launcher of molded plastic with four aluminum legs that give it a wide foot print. The launch rod swings down for easy loading of those large rockets on its 5 foot long 1/4" diameter rod. The launcher also accommodates 1/8 and 3/16 rods. The "Access Launch Controller" uses the "Access" card instead of a safety key to arm the pad. The card "pops out" after launching for extra safety.

Another item that Aerotech introduced is their new Copperhead igniter line. These igniters are a single one piece design rather than the traditional two wire type. These igniters are being offered in sizes for Aerotech motors as well as for standard Estes A through D sized engines. These "replacement" igniters are reasonably priced.

Also, in the February, 1990 issue of *Hobby Merchandiser* announced the remainder of their new kit line (available Real Soon Now). Of particular interest are three scale kits including a 56" ARCAS, a 42" ISQY Tomahawk and a 6 foot tall Astrobee-D. Wow!

In other manufacturers news we

recently received a catalog/price sheet from another company with products geared toward competition. Ken Brown's **Qualified Competition Rockets** offers kits for almost every Pink Book event at reasonable prices. Included on the price sheet were kits for PD, SD, B/G, R/G, Egglofting (single and dual), Helicopter, PMC as well as Bi-wing and Tri-wing B/Gs. For more info write to: Kenneth Brown, 7021 Forest View Drive, Springfield, VA 22150.

Still yet another company, this one Canadian sent us a catalog sheet. **Advanced Rocketry Group LTD** offers plans for several Soviet scale and competition models as well as a drawing of the ARIANE-1. They are also offering plastic material for competition chutes and body tube/nose cones of several of the Black Brant models. Write to: Advanced Rocketry Group LTD, PO Box 1271 Postal Station "B" Mississauga, ON Canada L4Y4G2

LOC/Precision has introduced some new products. Among them are a launch controller, an all metal launcher, an audio beeper and a series of model rocketry computer programs written by Chuck Rogers.

Tripoli Rocketry Association News... Tripoli has shown signs of life in the last few months. Two issues of the Tripolitan as well as a membership directory have been mailed to the membership in recent weeks. The TRA now has insurance coverage for its "Tripoli Sanctioned" launches, a key item in obtaining launch sites for these large birds. Another important step for TRA is that it has also started its class B motor certification testing process. The goal is to allow only Tripoli certified motors to be used at TRA sanctioned launches by summer of 1991. Also, the new Tripoli membership/confirmation cards are a more professional looking printed card in a bright red color.

Miscellaneous News.... In other news, as reported in the January issue of *American Spacemodeling*, there is a new newsletter devoted to scale modeling. In the first issue there are four large drawings, two of the Nike Hercules, and one each of the Little Joe and WAC Corporal. There is an article on the Little Joe as well.

Subscriptions to the newsletter are $8.00 per year. Send them to:

Ronald Goforth
11647 Sagemeadow Lane
Houston, TX 77089

Blowin' In the Wind (cont. from page 2)

I received a nice surprise in the mail the other day in the form of several model rocketry video tapes. Merrell Lane of Niagara Falls sent an interesting collection of ModRoc videos including the Rocketry Reminicences video from the Old Rocketeers Renunion at NARAM 31. This video includes film to video transfers of several "classic" movies including the Pittsburgh Prang film, NARAM 5, NARAM 11, NARAM 17 and others. Merrell also sent along his own videos taken at NARAM 31 and some he took at the Air Force Museum in Dayton, Ohio showing the Aerobee-Hi, Strike, Bulpup SAM-3, Falcon, Geni, Standard as well as several aircraft. Thanks, Merrell, they are great! Merrell is still interested in forming a NAR section in Western New York. We have a lot of subscribers over there. How about getting together with Merrell and giving it a go?

Lastly, I have a few miscellaneous items before I'm done. First, the letter to the Monroe County Parks Department requesting the use of Black Creek Park was mailed out at the end of January. No reply to date. Second, the sanctions for the May and June contests are back already. Third, the next Tripoli Sanctioned high power launch east of the Mississippi, Dansville Dare has been tentatively scheduled for April 21st and 22nd. The flying field is located just off I-74, at the Indiana-Illinois state line.

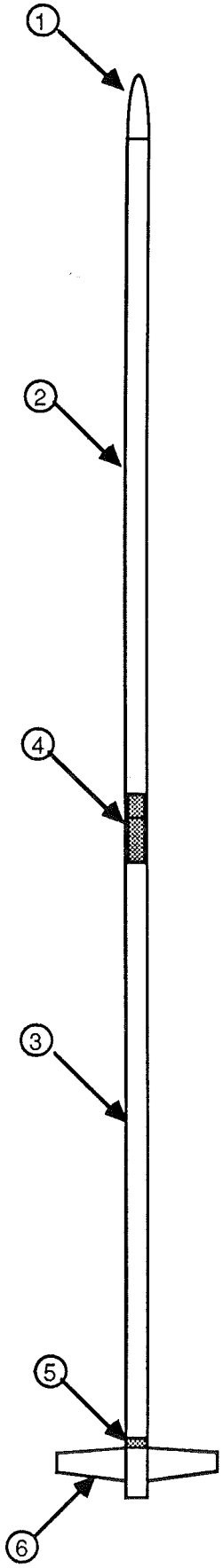
If you are interested in seeing or flying some Class "B" powered rockets (motors size "H" and above) there is a group from Rochester that is planning on attending. If interested, let me know. Lastly, for the "Flying Elf" in the last issue I use an 18" chute and a B6-4 engine.

Until next time,

Dan

Dan

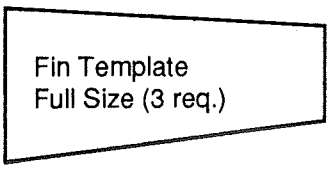
1/2 A SuperRoc Plan



This rocket is designed to be flown in 1/2A SuperRoc. In this event the total score is a combination of the duration of the flight and the length of the model. For 1/2A, a "maximum" length (Length beyond which no additional points are awarded) is 100 centimeters. This particular design achives the maximum length. It is built of entirely Apogee parts. For maximum performance, an external shock cord harness should be made such that on descent the two halves of the rocket hang horizontally. Use as large a chute as your packing abilities and the weather conditions permit. Launch from a tower using a1/2A3-2T engine.

Parts List

1. Nose Cone - Apogee PNC 13
2. Upper Body Tube - Apogee PT-1318
3. Lower Body Tube - Apogee PT-1330 (Cut to 20" length)
4. Tube Coupler - Apogee AC-13
5. Engine Block - Apogee EB-13
6. Fins - Make from Apogee Waferglass material, GBS 15
7. Shock Cord - Apgee Kevlar Cord - KSL-50 (8 ft.)
8. Chute - user preference



EVENTS CALENDAR

Model rocketry related events in the Upstate New York Area of general interest to spacemodelers of this area are listed below.

February 16th, 7:30 PM. MARS February Club Meeting. Regular club meeting of MARS, NAR Section #136. Agenda includes annual officer elections and club rechartering. Held at Dan Wolf's house, 235 Kislingbury St. Rochester, NY. For further info contact Dan @ 458-3848.

March 16th, 7:30 PM. MARS March Club Meeting. Regular club meeting of MARS, NAR Section #136. Held at Dan Wolf's house, 235 Kislingbury St. Rochester, NY. For further info contact Dan @ 458-3848.

April 22nd, 2:00 PM. MARS Sport Launch. Date Tentative. Location: Videk, Farmington, NY. 1/4 mile south of New York Thruway Exit 44 at corner of Rt. 332 and Collet Road. General fun fly and club gathering. Come on out and join us.

May 20, 12:00 Noon, UPSTATE II Local Meet. Location: Videk, Farmington, NY. 1/4 mile south of New York Thruway Exit 44 at corner of Rt. 332 and Collet Road. Events: B Eggloft Duration, 1/2A Superoc Duration, A Streamer Duration, 1/2A Boost/Glide Duration, 1/2A Helicopter Duration, Random Duration. Contact: Dan Wolf 458-3848.

June 24, 12:00 Noon, "The Killer Bees Move North" Open Meet. Location: Videk, Farmington, NY. 1/4 mile south of New York Thruway Exit 44 at corner of Rt. 332 and Collet Road. Events: B Streamer Duration, B Eggloft Duration, B Boost/Glide Duration, B Helicopter Duration, Random Duration, Sport Scale. Contact: Dan Wolf 458-3848.

THE UPSTATE ROCKETEER
c/o Dan Wolf
235 Kislingbury St.
Rochester, NY 14613