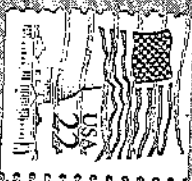
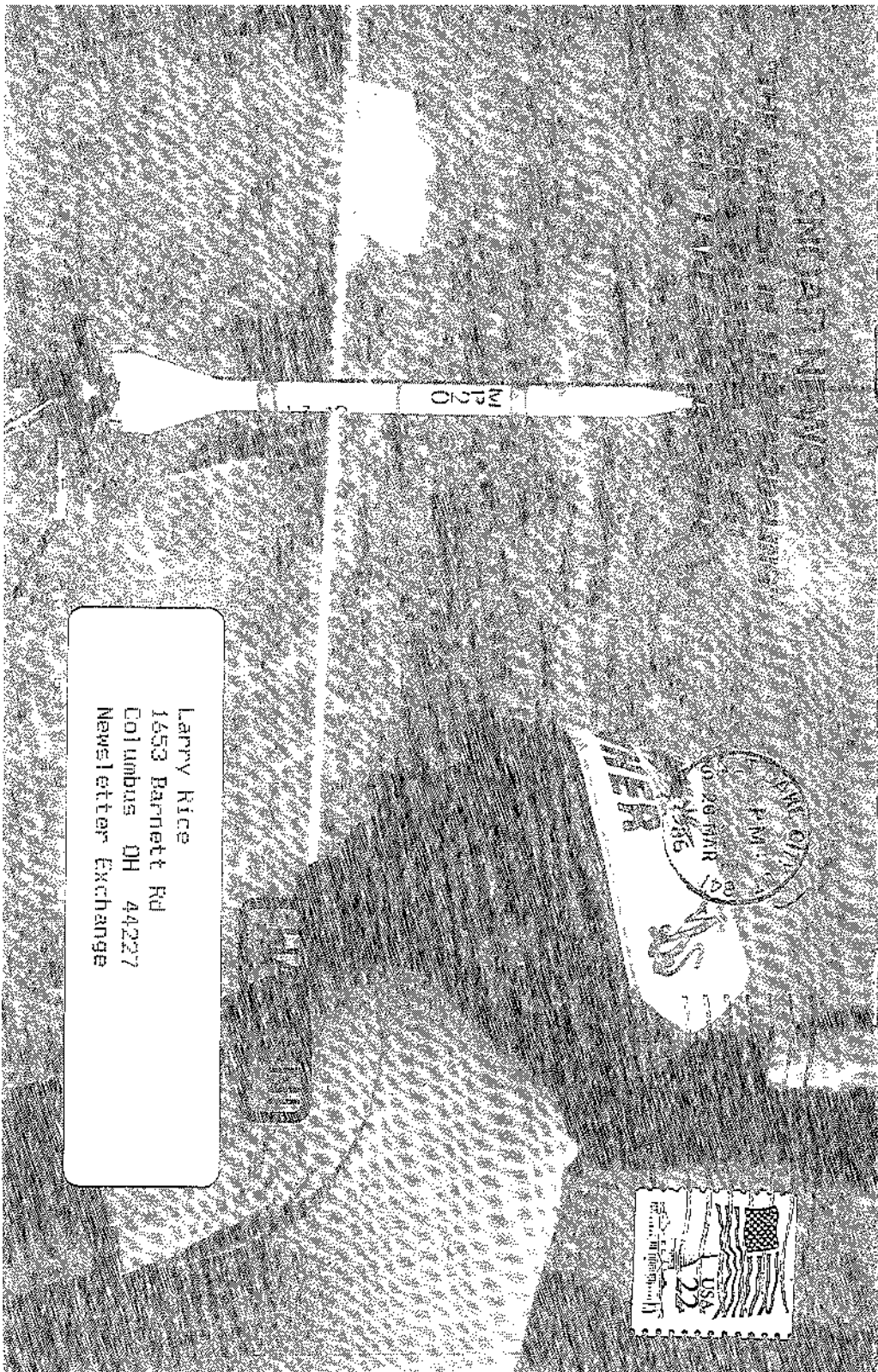


# SNOOP NEWS

March 85



Larry Rice  
1653 Barnett Rd  
Columbus OH 43227  
Newsletter Exchange



# SNOAR NEWS

March 1986  
VOLUME 12, NUMBER 2

## 1985 LAC Newsletter Award Winner

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PAGE 18 BULLSHEET: Pearson makes it legal, Georgia makes it illegal

### COVER STORY:

Anxious moments await Pavel Hovceck and the Czech team prior to the start of scale at the recent World Championships. For more on scale, see "Scale Dimensions" for a Czech BG design, consult the centerfold Back cover: A Bulgarian MP-20 scale altitude design.

### CURRENT STANDINGS:

Team Owner, Editor and Publisher: Matt Steele, 5655 South Fallwood Drive #31, Salt Lake City, Utah 84116 Head Coach, Wide Receivers Coach, Defensive End Coach, Running Backs Coach, and Editor: George Gassaway, Offensive (and I might say QUITE Offensive) Editor: Chris "Norton Freak" Pearson, Defensive Coach and "Lost in the Ozone" Editor: Tony "Mr. Maddog of Hollywood" Williams Bench Warmers, Free Agents, Walk Ons, Injured Reserves, and Retirees: Jurí Taborski, Terry "Fill in the blank" Lee, Chas and Bonnie Russell, Chris Johnston, Bob Geier, J. Pat Miller, J. Pat McCarthy, Jack Kobzeff, Ron Shultz, Debie Shultz, Mike Wagner, Wayne Hendricks, Mister Twister, Randy Kelling, Moose, J.C. McNeil, Bob Ferrante, Heidi S., Wasco Shafter, Nick and Peter Constant, Brad Bowers, Randy Redd, Gary Price, Donnie and Marie, and Gigabytes of others. Notice that Gary F. has been placed in the SNOAR *Hall of Infamy*, right next to Larry Chumlea. Get that \$25 in soon, Gary, who knows what we'll do next!

SNOAR NEWS is published SNOAR, NAR section #337, whenever Mac feels the urge. This is \*Volume 12, Number 2\* SNOAR, SNOAR NEWS, and IMPACT copyright © 1986 by the SNOAR. The big-time subscription price is now \$10.00 in HARD CURRENCY. Make your checks payable to Matt Steele. Fill it out and send it to Matt today, or we'll come visit you on the way to some meet, and bring the entire staff, and stay for weeks and weeks, and drink up everything in the house, and then.....Oh, just fill it out now, and avoid the consequences!

PUBLISHING FUNDS: COURTESY NORTH COAST ROCKETRY  
Printed in the United States of Utah.



Well, hello!

In this issue, we concentrate on high power rocketry. Included in this issue are articles and photos of recent launches, the "Grandfather of Model Rocketry's" observations on the high power sport, and the Blue Ribbon Commission's report on high power. With the announcement of LDRS-West this summer, high power rocketry seems to be gathering momentum.

Is the high power community in turmoil? From an outside observation point, it would appear so. Tripoli, trying hard to become the high power rocketry association, has undergone a massive upheaval in its leadership. The LDRS Consumer Committee is being squeezed by Tripoli in dealing with the NAR. The problems with Jerry Irvine and U.S. Rockets remain. The mixup on LDRS-5 in *High Power Rocketry* seems to have added to the confusion.

But we see this as a sorting out period that most organizations or movements go through in their early years. Turmoil is to be expected. A number of positive actions have already emerged, such as the formation of an advanced spacemodeler's group, an advanced spacemodeler manufacturer's group, and the realization by the NAR that high power Issue should be accommodated. We hope to see Tripoli and the LDRS Commission get together and sort things out together, and approach the NAR with a majority voice. We hope to see the NAR allow its members to fly high power rockets in the future without endangering their NAR membership. We hope to see the growth of the hobby, its manufacturers, and its publications.

After all, this is a transition period for high power. At its very worst, petty bickering could lead to a disorganized, disgruntled group of flyers who will want to have nothing to do with organizations. At its best, a top notch organization could emerge that would rival the NAR and AMA for power and prestige.

The next few years of turmoil will answer many questions. We need to keep a positive attitude and keep moving forward to get on where we're going.

Matt & Mac



## BOARD OF TRUSTEES 1986 WINTER MEETING

or

*"This meeting was one of those times" J. Pat Miller*

by Matt "The Man of Steele" (and now a real live trustee, too!)

The National Association of Rocketry's Winter meeting was held the weekend of 14-16 February in warm and sunny Dallas, Texas. As might be expected of a Texas meeting, big things were accomplished. It was one of the most productive sessions ever, with the Board initiating major programs and setting long range goals. Eleven of the twelve trustees were present (Howard Kuhn was absent, and Dan Meyer resigned shortly before the meeting. See the Bullsheet for more info), which is probably a record for a non-NARAM meeting. Trustees present included Pat Miller, Mark Bundick, John Worth, Vern Estes, Claud Greenlee, Scott Hunsicker, Jack Kane, C.D. Tavares, John Pursley, and the SNOAR contingent of Chas Russell and Matt Steele.

Highlights of the meeting included:

**AMERICAN SPACEMODELING COMMITTEE (John Pursley):** Perhaps the biggest news in the whole meeting was that AmSpam will go to a color cover starting in June! Who said that the good old days couldn't come back? John Pursley walked away from the meeting with an expanded budget and the full backing of the Board to continue to improve the magazine. John came into the meeting needing about 2¢ per member to cover a second class postage increase; he not only got that, he left with an additional 6¢ per member to improve the size and quality of the magazine.

**MEMBERSHIP COMMITTEE (Claud Greenlee):** As of the first of February, the NAR had 3039 members, and was still growing. This was the first time since 1972 that the membership had been as high. Most of this can be attributed to the Estes kit stuffer program. The rough breakdown of members looks like 55% Juniors, 7% Leaders, and 38% Seniors. The Membership Committee is also examining some form of membership contest to be put in place next year. Claude has also worked up a laminated cardboard poster with pockets for membership applications and self mailers. Patterned after a successful AMA program, the "NAR Hobby Shop Poster" program will go in hobby shops throughout the country.

**EDUCATION COMMITTEE (Claud Greenlee):** The NAR Educational Section program is beginning to pay off, as 41 teachers have joined the NAR as a result of the program. Estes will continue to assist the NAR in promoting the educational aspects of the hobby through various mailings and flyers.

**NARAM-28/NARCON-3 (Mark Bundick/Connie Pursley):**  
NARAM-28 is proceeding along smoothly, with most arrangements in the final approval stages. Cost of the affair is projected to be around \$150 for housing meals, banquet, and a mid-week picnic. The Door Prize program, a big hit last year, will offer even bigger prizes this year. Once again, Estes is assisting by helping with advertising and prizes. One of the bigger projects will involve a select mailing about the meet/convention to Estes's best customers in the neighboring states.

**CONTEST AND RECORDS COMMITTEE (MR. TERRY "SWAN" LEE):**  
Terry reported that Contest & Records is going well, saying that it appears that more people may compete in 1985-86 than in the past two years. The Pink Book revision committee is getting going under George Gassaway, with a goal to implement the new book for the start of the 1987-88 contest season (when 6 motors and 1500 gram model will be legal).

**LEADER ADMINISTRATIVE COUNCIL (MATT STEELE):** The LAC is alive once again, and was allocated funds to begin a revised LAC Competition Handbook to be published and stocked in NARTS. If you are interested in writing for the CHB, or want to update your old article, contact Matt. The 16-20 page AmSpam styled publication should be available in early 1987. The LAC trophy has also been repaired.

**NAR TECHNICAL SERVICES (NETTIE HUNSICKER):** NARTS will be moved to Austin, Texas, to make space available at NAR HQ for the impending computerization project. NARTS will be offering in the near future the Barber Commission report (parts of which have been published in SNOAR NEWS), a new NAR Tech Review, and several of the MIT publications that have been out of stock for some time.

**SECTION ACTIVITIES (MARK BUNDICK):** Section activities has been quite slow due to Bunny's efforts for NARAM-28 and the NAR HQ computer project. Section renewal forms went out late due to various problems, and not much is expected from Mark until this fall.

**NAR INTERNATIONAL SERVICE PROGRAMS (GERRY GREGOREK):**  
The flyoffs for the '87 Internats team will be held the Saturday following NARAM. Events will not be clear until Howard Kuhn returns from the FAI/CIAM meeting in Paris in April. Art Rose has been named team coach. No word on the USA/USSR meet until Howard goes to Paris, either.

**DOUG FROST LAWSUIT:** The Board went into Executive session to discuss its options as the lawsuit initiated by Doug Frost against the NAR for alleged personal injury comes closer to going to court.

That's the high points of three days of long, long meetings. As Pat Miller summed it up best, saying, "I must say that I have attended a lot of Board meetings during the past eight years and from time to time the Board will surprise me. This was one of those times. I believe the actions taken by the Board will prove most important in the coming years as the NAR continues its growth and progress toward the goal of 10,000 members... and the goal of re-establishing a model rocket magazine on the hobby market."

# SCALE DIMENSIONS

BY WHITT STEELE

## Prototype Selection and Data Acquisition

"Collecting scale data is a cumulative thing: often times it takes years to complete a collection" - Mike Nowak

Prototype selection is an important step in building a good scale model. What type of prototype you select will have a great deal to do with the success or failure of the resultant model. For example, a beginner picking something as complex as the Saturn-1B may have a difficult time completing the paint pattern neatly and cleanly. Similarly, if one were to choose the Convair MX-774 to model, obtaining adequate data might be next to impossible for this ancient, uncommon vehicle. If a novice were to choose a relatively straightforward vehicle like the Sandhawk or IQSY Tomahawk, the chances are much better that a clean, well constructed model would result.

There are two basic approaches to prototype selection: one can either decide on a certain prototype and then try to assemble scale data for that vehicle, or one can choose a prototype from available data. If you choose to use available data, it avoids the headaches and hassles of research, but also the rewards. Using available data also means that one can start constructing the model considerably quicker, which may be important with that contest two weeks away.

Obtaining scale data is often the hard part of building a scale model. The easiest way to get data is through publications available through the NAR. Back-issues of Model Rocketry magazine, Model Rocketeer, and American Spacemodeling contain scale data packets that have been put together specifically for scale modelers. Do note that some data is incomplete, lacking the minimum information as required by NAR and FAI scale rules, but such information can be of great use if the missing dimensional information can be obtained elsewhere. Similarly, the NARTS scale packets are even better for building scale models because the photographs are included, some in color. If you are interested in building a scale model rather than spending the time collecting the data, this is the way to go. Additionally, chances are that those are the best sources for data on those particular prototypes.

Prototypes with data available include IQSY Tomahawk, Sandhawk, Aerobee 350, Black Brant II, Black Brant III, Nike-Smoke, V-2, Saturn-V, Nike-Tomahawk, Viper, Astrobee-D, Astrobee 1500, D-Region Tomahawk, Falcon, Vostok, and Trailblazer II, plus many others.

Admittedly, getting a back-issue of Model Rocketry magazine or even some issues of the Model Rocketeer may be difficult. Fortunately, there are enough people who do have those issues that you should be able to get a photocopy of the data. Getting photographs may be more difficult, but often there are common photographs available.

Another source is from the manufacturer of a kit you may be using. CMR

has an excellent reprint of the D-Region Tomahawk data that originally appeared in Model Rocketry magazine. Estes also has limited data on some of their scale models; write their customer service department for help.

If scale data is not readily available, the next step is to find out who manufactured the prototype and write them. Often, this is a hit or miss prospect at best bet. Address your letter to the "Public Affairs Department" or similar and try to develop a contact that you can write to after that. It may take a number of letters to get exactly what you need.

Some companies have super handouts that go a long ways towards helping the modeler, but most do not. Also, increase your odds by finding out who the major sub-contractors were on the project, and write to them. Often, the motor manufacturer or the guidance section manufacturer may have had the more detailed data that you are looking for.

If you strike out with the contractors, the trail is probably pretty cold. There are a number of other places to check out though. Public Libraries often have useful information if you comb various publications for details. Books like Jane's All the World's Aircraft are valuable reference sources. You never know where useful data might appear, an article about the Jupiter-C construction in a 1950's issue of "Reynolds' Review" mentioned that the spinning "bucket" containing the upper stages was fabricated from two sheets of curved aluminum joined together with two lengthwise precision weld seams each 48" long, thus confirming the length of the cylindrical portion as 48 inches.

Another good source of information are museums. If the museum has a prototype on display, you're in luck! While you can't model the display round, you can use it as a source of dimensional data and working information for your model (just be sure you are measuring an actual vehicle and not a boilerplate or mock-up). And, don't overlook the fact that the museum may have more information in its files on the prototype you're looking for.

Getting the minimum amount of data is the key to building a good scale model. Some rocketeers have been known to amass large quantities of data, but refuse to build until they "find the diameter of the washer under the fin bolt" or some other silly detail. Chances are that you will never get that information. When you get the minimum data, start building. Be a scale builder, not a scale talker!

What are the minimum requirements for scale? The Pink Book is very clear about this - Rule 36.17.1 states that minimum allowable data consists of: overall length; diameter(s); nose length; fin length, width, and thickness (if vehicle has fins); transition lengths (if any); color pattern; and photograph. Color pattern data may be from written sources or from one or more color photographs. When you have satisfied these basic requirements you are ready to build.

That's it! That's all you need! Note that it doesn't require "aft bolt head diameter" or "forward corrugation thickness". Those are "nice to have" bits of information, but they aren't a showstopper.

Keep in mind that it is quality, not quantity that counts. Having all sorts of minute bolt detail on a Saturn-V does you no good if you plan to build a 1/300 scale model; it's just too hard to do! Even if you do obtain a lot of data, most times it contains limited information to the modeler, such as cut-away views that show internal components. That's nice, but not necessary, and in some cases it can cost you points if you confuse or distract the judges. Get the minimum amount of data required, and be sure to present it clearly. Any other data included should pertain to the round that you modeled, and to the details you were able to model. Put the rest

on a separate annex, or leave it out completely.

Also, look over the data that you have very carefully. Quite often, there is more information than meets the eye. A careful analysis of the the data should give one insight as to how the prototype was actually constructed. It may also reveal dimensions, color data, or details that were not obvious initially.

If you're new to scale modeling, the best sort of prototype to start with is a simple one. Once again, the rules favor a simple, well-constructed model over a complex, poorly done model. A quick look at the Pink Book reveals that the degree of difficulty is worth 100 points while craftsmanship is worth 300 points, in other words, craftsmanship is worth 3 times more than difficulty. As a result, a good first choice prototype is an IQSY Tomahawk, Black Brant II, Black Brant III, Sandhawk, V-2, or D-Region Tomahawk. Stay away from the more complex prototypes until you have mastered the skills necessary to build one of these simple models well.

There are a number of considerations besides difficulty level to consider when selecting a prototype. Is the model likely to fly well? This eliminates a number of prototypes with unusual aerodynamic and/or engine thrustline configurations (Snark, Matador, Navajo, Space Shuttle). Is there adequate parachute space? This factor makes the Aerobee 350 difficult to model in small scales. Will clear fins and/or noseweight be needed? Such considerations enter into modeling such prototypes as the Saturn-V, Vanguard, Delta, and Atlas. Does the model require two sizes of body tubes (Nike-Tomahawk, Aerobee 350, Aero-Hi) and are those sizes available in the scale/size you want to fly? Will the model be used in scale altitude? If so, there are factors of drag, body diameter, and inflight visibility to be examined. All of these factors should be considered when selecting a prototype. Selecting a prototype and acquiring the appropriate scale data can be one of the most difficult parts of scale modeling. Yet, with a systematic approach and a little planning, it can also be a rewarding pursuit, with many surprises. The most important step is the decision to go out and build a model. Once you do that, the rest is easy.

#### Aerospace Address Listing:

Aerojet Liquid Rocket Company  
P.O. Box 1322  
Sacramento, CA 95873

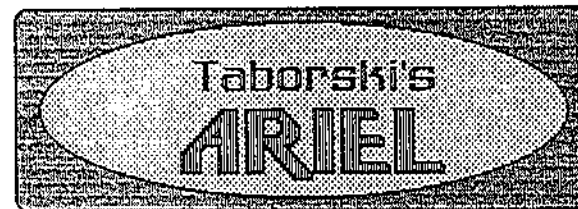
Aerobee 150, Aerobee 170, Aerobee 200, Aerobee 350,  
Astrobee-D, Astrobee-F, Niro, Super Chief, Super Chief 2

Air Force Museum  
Wright-Patterson AFB  
Dayton, OH 45433

V-2, Natter, Bomarc, Aerobee HI, Atlas, Genie, X-15

Atlantic Research Corporation  
Pine Ridge Plant  
P.O. Box 38  
Gainesville, VA 22065  
Iris, Arcas

*Continued on Page 18*



In this month's centerfold are the plans for the Czechoslovakian boost glider "Ariel". It is unique in a number of ways, and it points out the differences between Eastern European and US schools of design. The glider is designed for A B6 (FAI Class S4A), and features the standard European fixed pod concept. Note the interesting method of combining the auto-elevator and the engine casing/recovery streamer. The model also incorporates a different style "drop weight" dethermalizer than common seen in the US. The "Ariel" is designed to fly on the Adast A1.2-3, but should work well on the Estes A3-2T.

If you have any doubts about the designer's credibility, note that Juri Taborshi has been dominant in world class competition over the past years. In the past two world championships, he has won two individual gold medals and a silver!

To build this bird, take the plan and enlarge it 64% on a good copier. Most copiers have this as a standard feature. If that's not possible, send \$1 to ye olde editor, and he'll see to it you get a full size plan.

Try building one! You might be surprised!

## QUOTABLE QUOTES

*Overheard at the recent  
Board of Trustees meeting...*

"Manning! You're back!"

Chris Tavares, referring to former NAR President Manning Butterworth, to Scott Hunsicker after a pointless discussion.

"Register rocket engines and only criminals will have rocket engines."

Chris Tavares

"Does that mean we have to potty train another Trustee?"

J. Pat Miller, commenting on Dan Meyer's resignation

"We still cut our balsa strips one at a time"

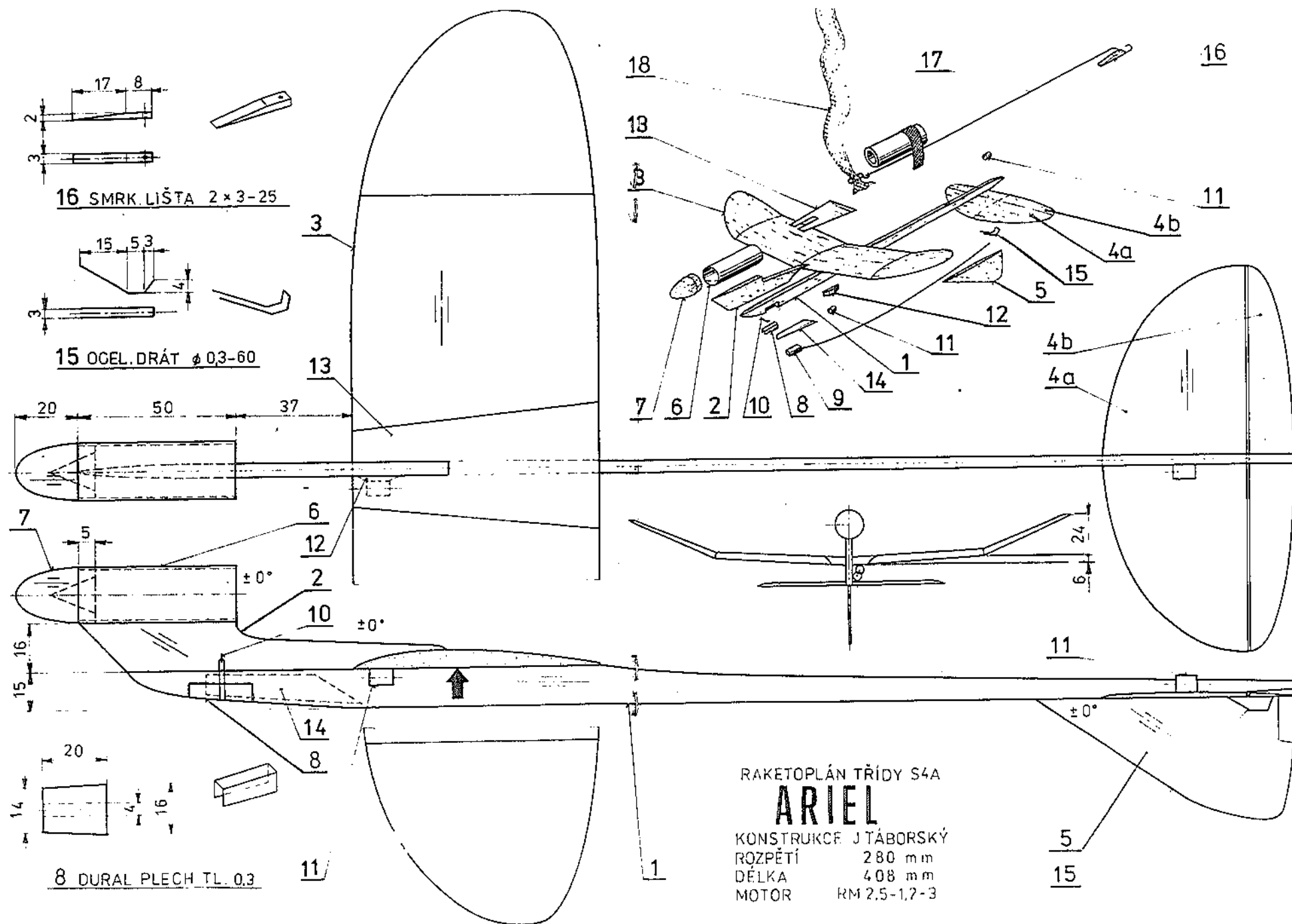
Chris Tavares, again

"What about a swimsuit issue?"

American Spacemodeling Editor John Pursley

## NEW LOTS OF CRAFTS CATALOG!

Yessiree, those lovable folks at LOC have brought out their 1986 catalog that features a color cover and scads of new high power kits. For a



16 SMRK LIŠTA 2×3-25

15 OCEL. DRÁT  $\phi$  0.3-60

8 DURAL PLECH TL. 0.3

RAKETOPLÁN TRÍDY S4A

**ARIEL**

KONSTRUKCE J. TÁBORSKÝ  
 ROZPĚTÍ 280 mm  
 DÉLKA 408 mm  
 MOTOR RM 2.5-1.2-3

# The Ultimate High Power Launch System

by Chris "Norton Freak" Pearson

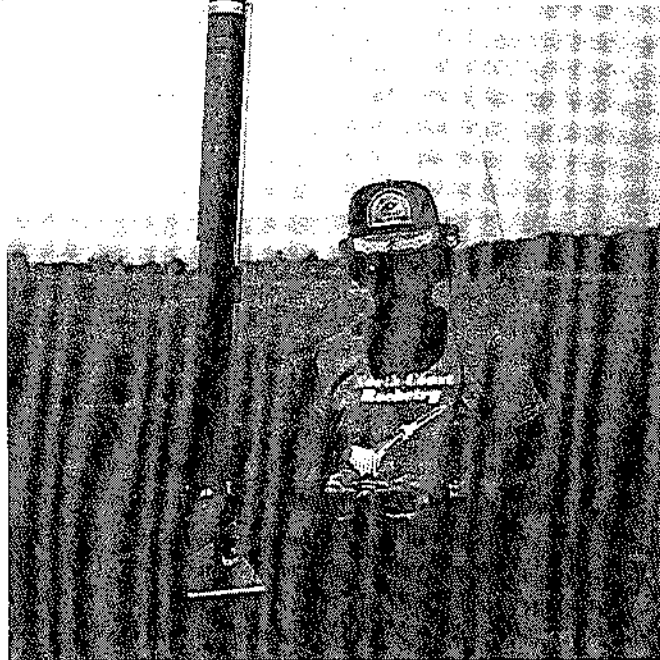
One of the big problems that one encounters when getting into high-power rocketry is that there is an astounding lack of ground support equipment available for you to use. Most of the time you are stuck with modified model rocket stuff, or you have to buy someone else's idea of what is needed. One of the few manufacturers of after-market launch systems, A&A Engineering, has nice launching systems, but they are more suited for the model rocket type of rockets. Their firing leads are not long enough, and have a hard time igniting even one Aerotech type ignitor. In addition, they are somewhat expensive.

One of the problems that we had at LDRS was that many people would not bring their own launching systems. We later discovered it was because most of them did not have a system suitable for launching the larger scale high-power rockets being built and flown today (Ever try flying an F powered model from a 1/8" rod? Not too smart.....). One rocket at LDRS-4 was flown from a 1 inch diameter conduit pipe, 10 feet in length!

So, unless you are a machinist and an electronics engineer, you are stuck. After building my system, a lot of people came up to me at past LDRS's and asked me for a plan for it. After selling my old system and building a new one, I decided to document the plans for the launchers, both the regular relay system and the stand-alone system, and make it available for people who want a system of their own.

Below: Chris's  
Replica 2650.

launcher and his G10 powered NCR



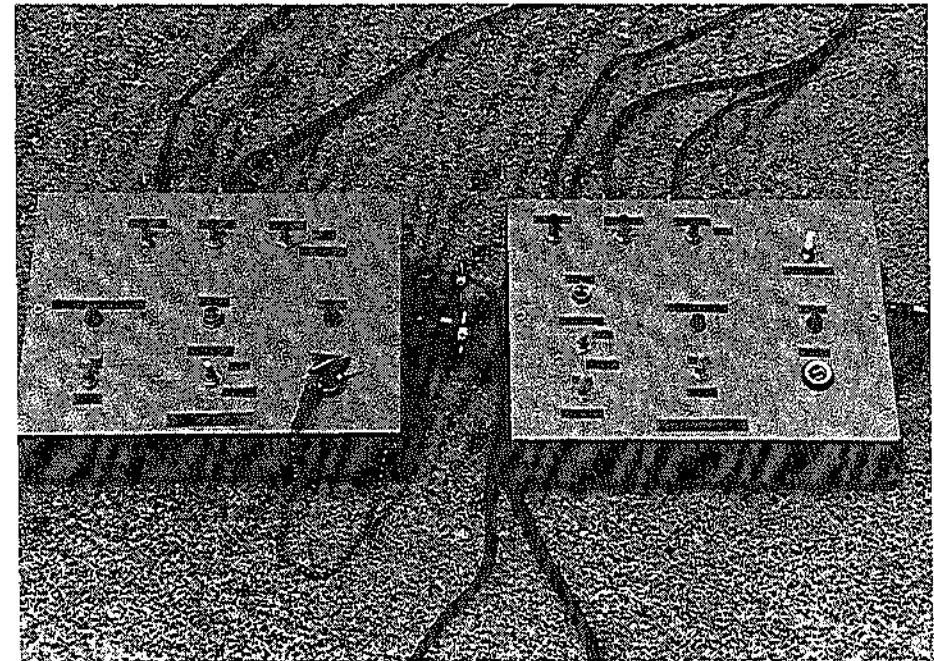
The launcher is constructed with simplicity in mind. With the exception of the audible continuity circuit, there are no active electronics in the launcher (No CMOS circuitry to burn out on the range). The audible circuitry comes completely pre-built from Radio Shack, and requires only that it be installed in the box.

Unfortunately, the original hand-held push-button came from a West German X-Ray machine and was provided courtesy of John Fleischer, formerly of Picker Corp., and is generally unavailable. Check with a serious electronics supply company for a suitable hand-held button; the Switchcraft Company lists a 3.5" long SPDT pushbutton #ED-309 in their catalog, for about \$4.50. When the hand-held button is inserted into the controller, it overrides the push-button in the box.

A good semi-cheap tripod can be bought from Radio Shack, in the form of a television antenna roof mount (3 Ft. Tripod Mount #15-516/\$14.95 or 5 Ft. Tripod Mount #15-517/\$23.95). They come in 3 and 5 foot sizes, can be easily modified to hold a launch rod, and can be staked to the ground. One drawback is that the rod would have to be removed to place the rocket on it or base would have to be tilted over.

One thing you must be very careful of is the corrosive nature of the composite motor exhaust. My Radio Shack pad was ruined after one flying season because I neglected to clean it off after each launch. A good idea would be to paint it with epoxy or high-heat paint or to wipe it off with WD-40 or some other light cleansing oil after each launch session. If you

Below: Relay launch system is shown. System includes several redundant safety systems, key interlock for power, dual continuity systems (both flashbulb and electric match safe), and 125 feet of cable between the controller and launcher.



have a steel type of launch rod, you must steel wool the rod after each session and wipe it in heavy oil to keep it from rusting (Even cleaning a stainless steel rod with steel wool would be a good idea). A good method of storing launch rods is in a piece of PVC pipe, 2" in diameter, slightly longer than the length of the rods used, with a cap on each end (an all-plastic fishing rod transport tube may also be suitable). This enables one to heavily coat the rods with oil to prevent rust, or even to fill the pipe with oil if desired. Make sure that you clean the threads of two-piece rods thoroughly and squirt some oil into the tapped section.

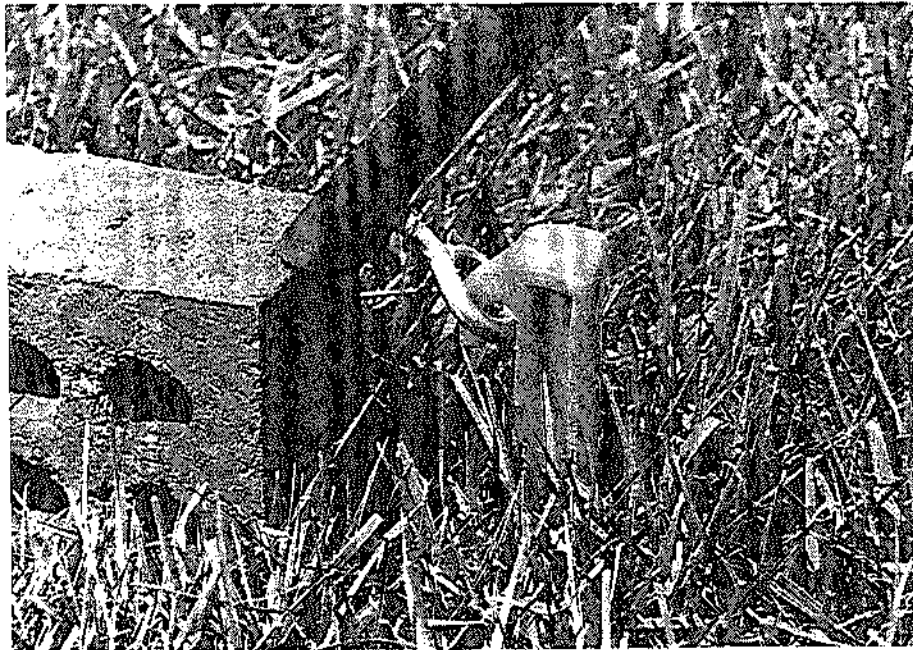
It is a good idea for some rockets to have the launch pad secured to the ground to prevent launcher tilting during take-off (A definite possibility with some of the 10 pound and heavier rockets). This can be done with the plastic type of stakes available from hardware or army surplus stores. Stay away from the camping stores, as you will pay a premium price for them there. Drive the stakes into the ground with your heel or a soft-faced hammer (Do not use a steel hammer or axe as they will more often than not damage the stakes).

All machining of the launch system rod support and launch rod can be done by a local machine shop. Often you can get a good deal if you let them know what you're doing with the machined parts.

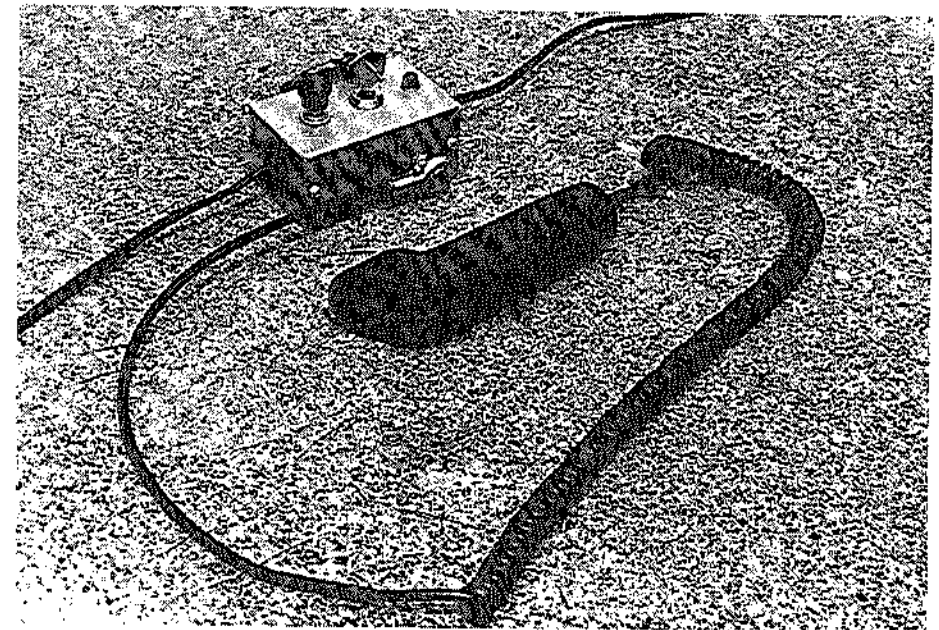
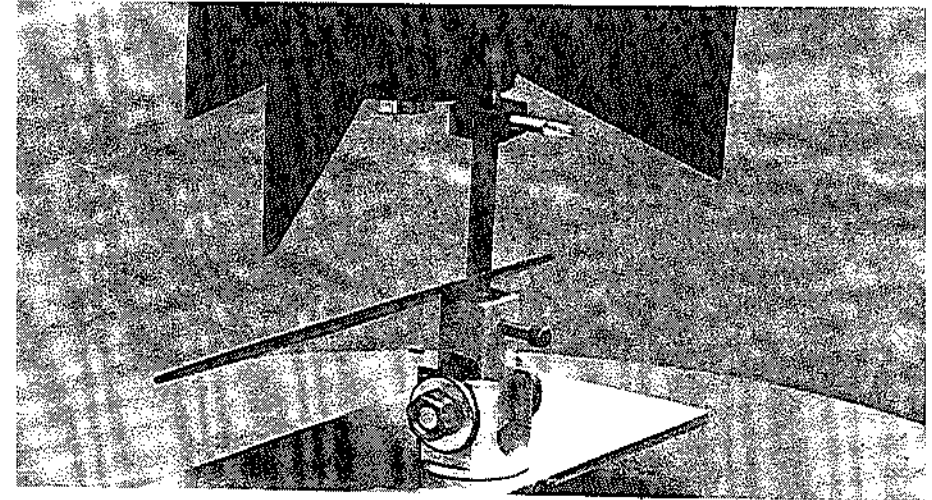
A good source of launch rods and pads is Sam Phillips (11351 Dale, Warren, MI 48089). Super strong launch pads and 2-piece rods as well as deflectors and rod supports are available from him for reasonable prices. Please contact him for details.

NCR will have wiring diagrams and parts lists for both the relay system and the stagger launch system available in the future.

**Below: Detail of leg showing eye hook and stake used for securing it for positive support.**



**Below: Launcher details.** A large circular plate is used for protection for rest of launcher from corrosive exhaust gases and as a place to hold items while rocket is being prepped. Plate is made of 1/4" peg board material, painted black. Auxiliary blast deflector made from 3/16" hard steel and painted with high-temperature auto exhaust system paint. Rocket support is shown on launch rod, made from 1/2" steel block, bored to accept a 1/2" launch rod, and tapped to accept a 1/4-20 thumb screw. The launch rod is 7/16" stainless steel, 9 feet long. It consists of two 4.5' long sections bored and tapped to screw together. The launcher base is an old view camera tripod, rebuilt and painted with high-temperature paint. Paint was oven-cured to assure resistance to exhaust corrosion. The model shown is an NCR Galactic Prestige.

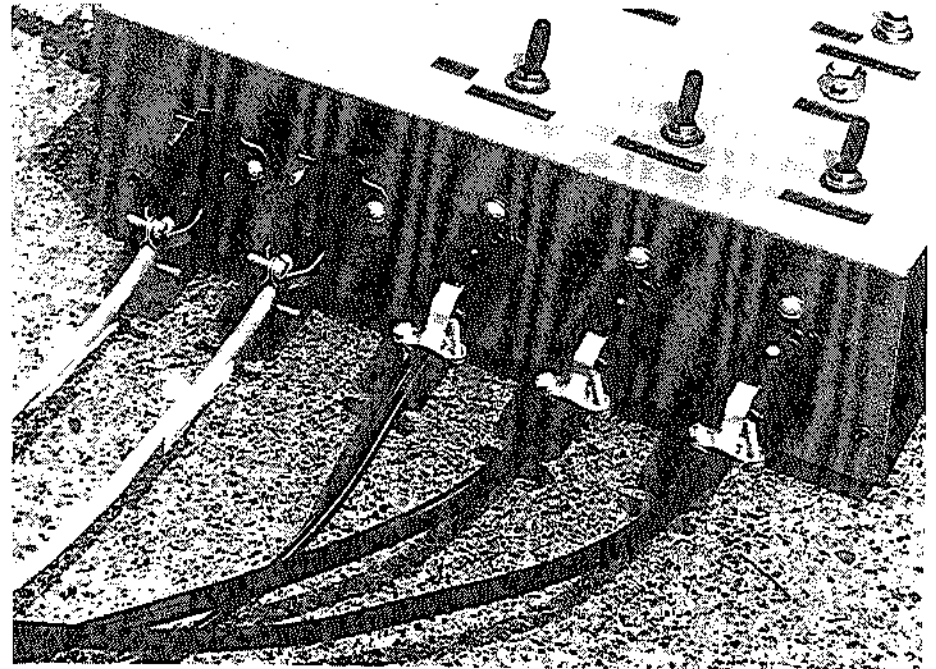
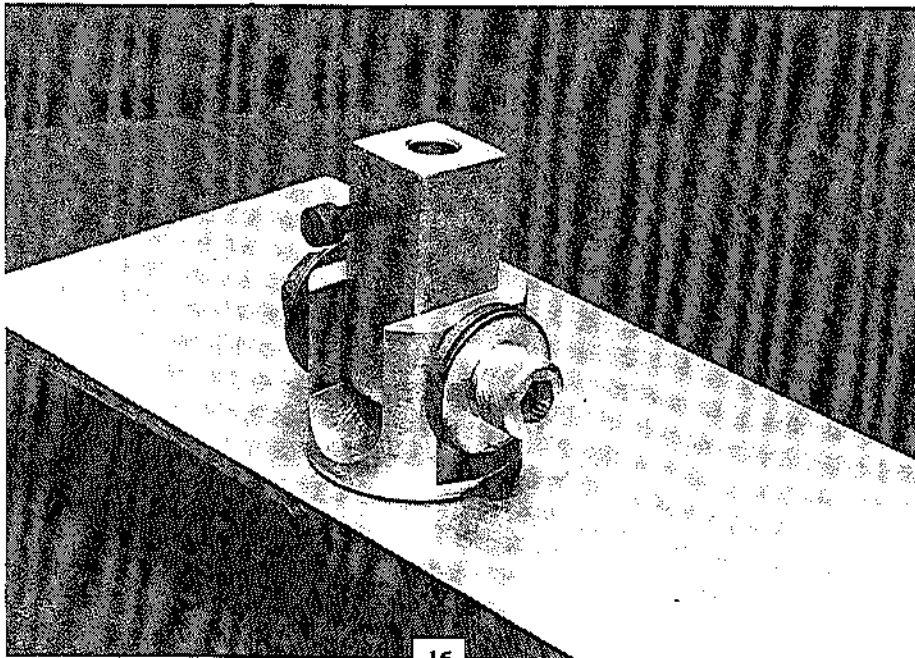




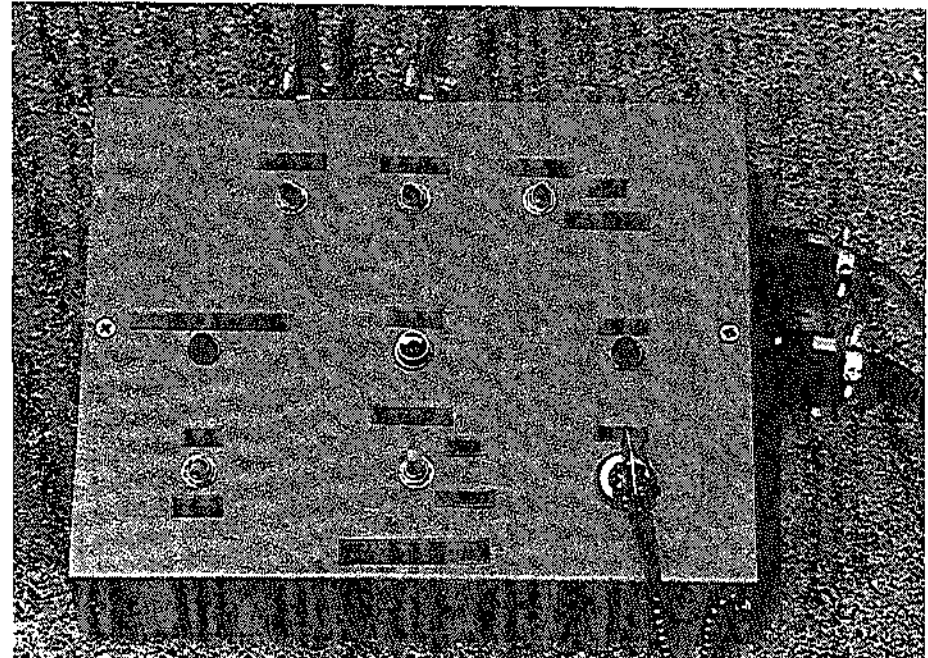


Above: Chris explains his system to Bill Barber and Ed Tindell at LDRS-4.

Below: The launch rod pivot was machined out of a single billet of aircraft aluminum. All screws are cap type.



Rear of stagger system is shown. Cinch-Jones plugs allow quick change of clip leads if damaged, and allow longer leads to be substituted when necessary. Long plugs are for the first-motion switches.



## SCALE DIMENSIONS (Continued from page 8)

Bristol Aerospace

Winnipeg, Canada

Black Brant 2, Black Brant 3A & B, Black Brant 4A & B,  
Black Brant 5B & C, Black Brant 6, Black Brant IX, Black Brant X

Brunswick Corporation

3333 Harbor Blvd.

Costa Mesa, CA 92626

Argo D-4 Javelin, Athena, Athena-H, Athena-M, Honest John/Nike,  
Honest John/Nike/Nike, Nike Apache, Nike Cajun, Percheron A-1 &  
B-1, Percheron D, Trailblazer II

Sandia Laboratories

Public Information Division, P.O. Box 3431

Albuquerque, NM 88002

Sandhawk, Terrier-Sandhawk, Dualhawk, Strypl 7R, Tater

Department of the Army, Commanding General

Attn: Information Office

USAMICOM,

Redstone Arsenal, AL 35809

Nike Hercules, Sparta, Redstone, Corporal, Sergeant, Pershing 1a,  
Pershing II, Patriot, Chapparal, Hawk, Lance

Department of the Army, Commanding General

Attn: Information Office

White Sands Missile Range, NM 88002

Little Joe II, Astrobee 1500, Astrobee D, Astrobee F, Aerobee  
150, Aerobee 170, Aerobee 350, Nike Smoke, Arles 1 & 2

Department of the Navy

Naval Ordnance Systems Command

Washington, DC 20306

Astrobee 1500, Astrobee D, Astrobee F, Aerobee 150, Aerobee  
170, Aerobee 350, Nike Smoke, Arles 1 & 2, Super Chief 1&2,  
Nike Smoke, Nike Cajun, Nike Apache, Black Brant 5B

NASA-Goddard Spaceflight Center

Greenbelt, MD 20771

Astrobee 1500, Astrobee D, Astrobee F, Aerobee 150, Aerobee  
170, Aerobee 350, Nike Smoke, Nike Tomahawk

NASA-John F. Kennedy Space Center

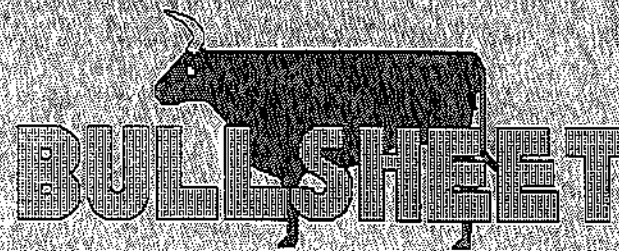
Cape Kennedy, FL 32899

Saturn 1, 1B & V, Titan 3C, 3E, and 34D, Delta, Mercury Redstone,  
Mercury Atlas, Atlas, Gemini-Titan

NASA-Wallops Public Affairs Office

Wallops Island, VA 23337

Astrobee 1500, Astrobee D&F, Aerobee 150, 170, & 350, Nike  
Smoke, Nike Tomahawk, D Region Tomahawk, Javelin, Athena,  
Nike Cajun, Super Loki Dart, Black Brant 2, 3, 4, 5, 6, IX, X



LDRS-WEST HAS BEEN canceled AT EL DORADO! Arrangements to get the required FAA waiver failed, despite the hard work of Gary and Melodi Rosenfeld, so they are pursuing the possibility of hosting the event elsewhere. LDRS-5, in Medina, OH, is still scheduled for August 1-3, 1986.

Well, the walls are starting to tumble down! Yes, Chris Pearson is going to get married! He's engaged to Heidi, after all these years, with a wedding date in 1987. Congratulations and best wishes!

Rocketry illegal in Georgia? Seems so, at least for a while in the past month. The state Fire Marshall shut down the hobby, raided retail outlets, confiscated model rocket products, and issued misdemeanor citations to the retailers, because the Georgia Attorney General determined that model rockets are class C fireworks, and cannot be sold. Estes and the NAR immediately teamed up and worked with the Georgia legislature to create a new bill to change the law. The new bill passed, so now the updated NFPA standards are the law.

Dan Meyer has resigned as a NAR Trustee; Ed Muccio of Kentucky has been nominated to fill his place. Ed has been in the hobby a long time, attending NARAM-4 and 5. It looks as though he will be a real asset to the Board.

Pat Millier has moved; his new address is: 2518 Ridgcrest, Garland, TX 75041. Drop Pat a line and let him know what's going on.

Here's the Top Competitors in the NAR as of Feb. 10, 1986:

	Name	Section	CF	Points
<b>A Division:</b>				
1	Don Linder	117	5	1620
2	Sammy Wood	205	4	814
<b>B Division:</b>				
1	Tim Marcy	117	5	2336
2	Dan Mulholland	205	6	1358
<b>C Division:</b>				
1	George Gassaway	306	5	2458
2	Lawrence Bercini	461	5	1578
<b>Teams:</b>				
1	Drug Team	117	5	1504
2	Odd Couple Team	IND	3	1254
<b>Sections:</b>				
1	NIRA	117	5	8208
2	NOVAAR	205	4	6114

Names of note in the top 10: (in C Division) Carl J. Warner #4 (929) and Matt Steele #7 (792).