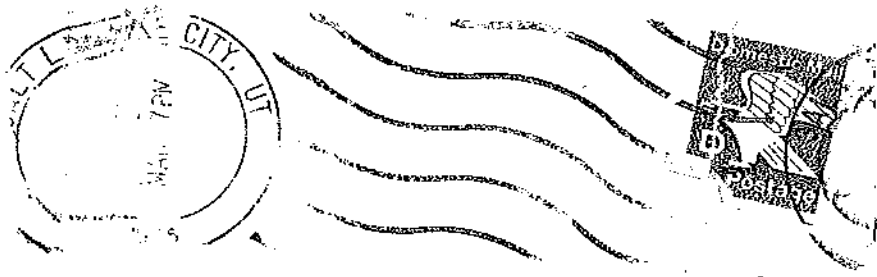
SNOAR NEWS

"New Directions In Space Modeling"



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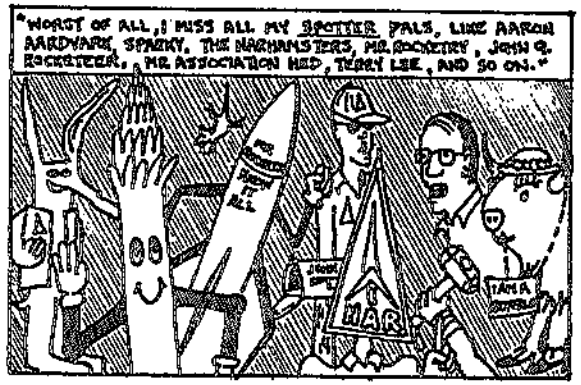
The Leader In Model Rocketry



SNOAR NEWS

THE LEADER IN SPACEMODELING

SNOAR NEWS

SPECIAL TENTH ANNIVERSARY ISSUE!!!
VOLUME 11 NUMBER 2

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COVER STORY:

SNOAR NUDES, ANYONE? That one got your attention, didn't it? Ten real beauties for ten long, hard years of publishing. Artwork by Tony "Maddog" Williams. For Tony's side of the story, see page 5.

CREDITS:

EDITORIAL DIRECTOR, PUBLISHER AND SUBSCRIPTIONS DEPARTMENT: Matt Steele, 5655 South Fallwood Dr. #31, Salt Lake City, UT 84118. **PUBLISHING FUNDS:** COURTESY NORTH COAST ROCKETRY. **ASSOCIATED EDITORS:** George "Fat Cat" Gassaway, Tony "Maddog" Williams, and Chris "Norton Freak" Pearson. **EDITORIAL STAFF:** See page 4 of this issue. SNOAR NEWS is created by MAC, the wonder word processor. This newsletter is now published RANDOMLY. Current publication plans call for eight issues this year. This is VOLUME 11, NUMBER 2. SNOAR NEWS is published by SNOAR, NAR section #337 and is the official newsletter of that club. SNOAR, SNOAR NEWS,AND IMPACT copyright ©1985, all rights reserved. SUBSCRIPTION PRICE IS STILL $7.50 IN HARD CURRENCY. (No cocaine, please).

You know, it's really too bad no one pays attention to this part of the newsletter. How do you know that we don't have anything important to say in this section? For instance, we used the term "all rights reserved", and yet, you probably don't know what that means. It means we, the editorial staff, have the right to come on in your home, play with your computer, go through your drawers, and eat anything in your refridgerator. How do you feel about that? By the way, reproduction without permission ist verboten. Sure, copyright laws are pretty much disreguarded, but just be warned: fuck with us, and you're asking for trouble. **POSTMASTER:** Why the hell are you reading down here? No wonder the Postal Service is losing money! And the rates just went up again? Go thumb through Playboy! This is a respectable publication. There's no "Forum" letters here! Go ahead! Check it out. See? I told ya so!

FROM YOUR QUITE DRUNK EDITORS:

TEN YEARS IS A LONG TIME...

As SNOAR NEWS celebrates it's tenth anniversery, I would first like to thank the people who really made it happen for so long:

Jim Gazur: Jim was the first editor of the newsletter, and the person responsible for the legacy. Jim was also responsible for the catchy name for the newsletter. It has been a name that has served well, even if it wasn't catchy or clever.

Alan Tuskes: Alan was the gifted genius that made SNOAR NEWS a unique newsletter at a time when all other newsletters looked like last year's LAC winner. With his own blend of humor and wit, SNOAR NEWS began to aquire a reputation as an unusual newsletter. It also began to gather awards.

Chris Pearson: Chris edited the newsletter for the longest period of any editor, and left no sacred cow unturned (or unburned). Under Chris's editorship, SNOAR NEWS became embroiled in a number of controversies, but both Chris and the newsletter persevered. During this time, SNOAR NEWS influenced the NAR like no newsletter ever has.

I would also like to thank Mike Nowak and Chris Johnston for all of their efforts. Mike was instrumental in supporting the newsletter in it's early days, and even today, some of his work stands as the best we've ever published. Chris Johnston, while never a full editor-in-chief, has consistantly supported the newsletter, assiting each editor in a number of ways. Without his help, SNOAR NEWS would be a vastly different newsletter.

There are a number of other people who have made SNOAR NEWS what it is today: the contributors. Below is a list of people who have been published in SNOAR NEWS; it reads as a real "Who's Who" in the hobby.

In order of appearance: Mike Nowak, Jerry Gregorek, John Fleischer, George Pantalos, Dave Gloger, John Langford, Jon Randolph, Grant Leiby, Philbert Ruppert, Steve Behrends, Grant Boyd, Mike Bergenske, Don Carlson, J. Pat Miller, Larry Chumlea, John Squirrek, Frank Peri, Mike Wagner, Chas Russell, Guppy, Bob Kaplow, Tom Grubinski, Dave Dailey, Brad Bowers, Wolf Karpinski, Mark Volpe, John Glenn (U.S. Senator), Jim Dacklas, Tom Hoelle, George Gassaway, Tony Williams, Larry Peters, Bruce Carey, John Alexander, Bob Ferrante, Doug Kushnerick, Alan Bland, Rich Cardillo, Bob Murphy, Brian Warner, Gary Crowell, Geoff Landis, Roger Johnson, Chris Flanigan, Bob Geier, Terry Lee, Carl J. Warner, Ron Schultz, Debbie Schultz, Moose Lavigne, Chuck Mund, Wayne Hendricks, and probably many others who I've overlooked.

It is not easy to keep a club newsletter going for such a long time. It

takes a lot of people and a lot of time. A lot of newsletters have folded in the past ten years, including LAC newsletter award winners The Spotter, NOVAAR Free Press, View From Zenith, WARP Launch Window, Cosmic Stepping Stone, and ZOG-43. In fact, at last count, over 35 newsletters have folded in the past 10 years. There's really only been one other person/group who has been in the newsletter business this long: Ric Gaff, who edited The Lost Trek in Ft. Wayne for a number of years, and until recently, The Leading Edge for NIRA. So, our hat's off to SNOAR, and to Ric Gaff, for ten years is a long time.

What does it all add up to? Well, through four editors, there have been ten years worth of issues and lots and lots of pages. Doug Kushnerick once said we put out even more pages each year than the Model Rocketeer. Well, perhaps not that many, but SNOAR NEWS has had more articles printed in the Model Rocketeer than any other newsletter. In this span of time, we've covered such stories as the Carlson controversy, the second coming (and going) of Harry Stine, international, national, and local contests, the rise and fall of Mark Bundick's Contest Czarship, record setting contest designs, the rise of high power rocketry, the introduction of new motors and motor technology, RC BG's, Dual Eggloft, and much, much more. We've tried to give the reader's the lighter side of things with our satire, spoofs and cartoons. And, we've been the first to tell what's going on in the fabled "Bullsheet" section.

In terms of awards, SNOAR NEWS has garnered the LAC Rockwell Trophy once and been the bridesmaid six other times. Additionally, SNOAR NEWS continues to have the largest circulation of any model rocket newsletter in publication today. All in all, it adds up to a lot of fun.

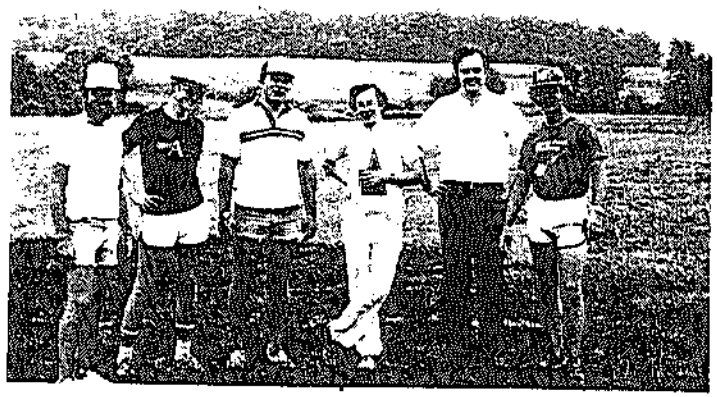
No one is sure where the next ten years will take SNOAR NEWS. You can bet we won't be sitting on our duffs, just taking it all in. If there's news out there, you'll hear about it. We'll leave the "good news only" to other publications. But,as we begin our second decade, we hope that we have set a standard for all other newsletters and magazines to follow.

Enjoy!

Matt and Mac

SNOAR REUNION AT LDRS-3

Six orginal SNOAR members gathered at LDRS-3 to fly and watch. From left to right are: Jon Randolph, Jim Gazur, Matt Steele, Chris Johnston, Mike Nowak, and Chris Pearson. Each played a large role in the success of SNOAR.



A LETTER FROM DA PREZ...

I am mildly surprised and mildly honored that SNOAR NEWS would ask me to write a brief article for the 10th anniversary issue of its publication. What can I say? SNOAR NEWS is and has been.....Well, let me just say with all due diplomacy that SNOAR NEWS is and has been SNOAR NEWS.

My first experience to the pages of this publication was in 1976 when, as a rookie Trustee, I jumped into NAR politics for the first time. Let me think back now. Hmmm, my first recollection is the Pittsburgh lawsuit...er..... my second recollection is the Phoenix lawsuit. Then there was the dual eggloft episode. Oh, yeah, I seem to remember something about a SNOAR lawsuit against the NAR. I got that one right after returning from my honeymoon.

I do remember more recently the "Dump Bunny" campaign and, of course, so does Bunny. I got an especially good chuckle out of that one since I set SNOAR NEWS up. I just waited to announce what I had known for six months that Bunny wanted to retire. And SNOAR NEWS came to NARAM with all those "Dump Bunny" buttons and pages a 'blarin'. I guess SNOAR NEWS got the last laugh with the "Dump Bunny" button carefully concealed inside the LAC Newsletter trophy. But....then again, there is the matter of the SNOAR flag of which I officially plead no knowledge thereof.

As you can see, I am not one to remember the bad things in the past. I would say in the final tally, SNOAR NEWS and I are fairly even. I sort of miss the good old days when I used to plot at night just before drifting asleep as to what I could do next to get SNOAR NEWS!

J. Patrick Miller, President, National Association of Rocketry

ABOUT THIS MONTH'S COVER....

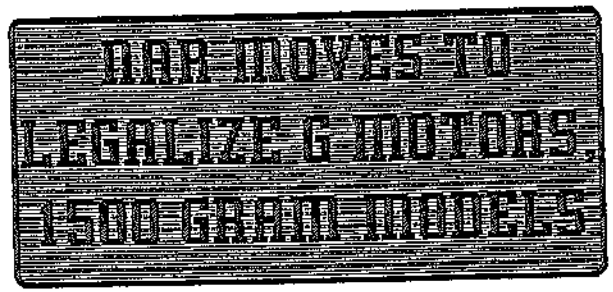
Mr. Maddog of Hollywood explains: Not long ago, I was approached by SNOAR NEWS Executive Editor and Master Programmer of the Holy Word Processor at the Center of the Known Universe, one Matt Steele, to do a "T&A" cover illustration for the Tenth Anniversary issue. I graciously declined, saying, "No, no, no, no, I don't do that smut no more." And quickly forgot about it.

Soon thereafter, I was confronted by a licensed represenative of the SNOAR "family" who suggested that it would be in my best interest to produce such a cover. Again, I rejected the assignment and proceeded to express my views concerning the postitive role of women in today's enlightened society, the exploitative perpetuation of derogatory dangers of sexual sterotypes, and the inherent sociological dangers of presenting "soft core" pornography in leading model rocket periodicals.

And, while I suspected that much of my argument went over said represenative's head (not unlike Scott Dixon's L1780 powered flight went over the heads of the LDRS-3 participants), I must admit that his rebuttal was swift, suscinct, concise, and sleazily articulate: "Da Management wants da cover by Friday...OR ELSE!"

So, call me insensitive, if you will, to the advancement of female rights. Denounce me, if you must, for crimes against decency in NAR section publications. I'll understand. But.....

I was only following orders.



SPACE MODELING: WHAT'S AHEAD?

BY MATT STEELE

The recent NAR Board of Trustees meeting has produced a historic committment to high power rocketry, and the expansion of the scope of the hobby as we know it. At the February meeting in Washington, DC, the Board voted to:

* Increase the model rocket weight limit to 1500 grams (3.3 lbs).
* Allow model rocket motors up to 62.5 grams of propellant (to allow the motors to be DOT Class 3 Toy Propellant devices).
* Allow motors up to a full G class (160 n-sec).
* Allow model rockets to carry up to 125 grams of propellant (i.e. 2 G motors).
* Establish a minimum burn time table for model rocket motors to safely limit burnout velocities, average thrust and model kinetic energies.
* Change the safety code to a two part code, with a more stringent code for models 30 n-sec or greater. Changes include a 10 meter minimum launch distance, and a one minute misfire wait.
* Limit the sales of E, F and G motors to those individuals 18 years old or older in an attempt to insure adult supervision of such activities. This was not intended to restrict people under 18 from flying high power motors, but to insure that their use is supervised.
* Pursue these changes through the appropriate regulatory agencies, including the National Fire Protection Association (NFPA), the FAA, and the FAI.
* Continue the dialog with the High Power Consumer Group (headed by Bob Geier, Chuck Mund, Chris Johnston and Jim Dunlap) to determine appropriate programs for those modelers who wish to fly models larger than allowed by the new guidelines.

This is clearly the most signifcant step the hobby has taken since it's inception. It must be understood that this is only the first step in the process. In April, Harry Stine and Dane Boles will address the NFPA on these proposed changes in attempt to get them to change their code. This

code governs model rocket activities in 45 states. If that is successful, then the FAA will be petitioned to change their regulations so that notification will not be necessary. Additionally, the United States will propose similar changes to the FAI this year that may change the scope of space modeling on an international level.

It is anticipated that it will take five years to fully impliment all of these changes. Don't despair, though, as it should be possible for NAR members to fly large models within a year. The question of additional insurance and other legal factors need to be considered before the high power program can be put in place.

As a result of these sweeping changes, model rocketry and space modeling in the late 1980's and early 1990's promises to be a very exciting time. As NAR membership continues to grow, and the space shuttle continues to gather interest, spacemodeling should expand and diversify. There are a number of areas in the hobby that seem to be ready to grow at a high rate, especially with the new horizons that have been opened for experimentation.

Gliders seem to offer the largest area for expansion, and will no doubt evolve closely along the lines of the AMA programs. In the late 70's and early 80's, model rocketeers finally developed the technology to fly high power boost gliders. Radio control became widely available to model rocketeers for the first time, and revolutionized the high power glider events. With the increased weight limits, all sorts of new types of gliders should appear. For example, who will be the winner of the first G BG competition???

Radio Control gliders are just beginning to catch on, but in later years, RC should be an integral part of the hobby. Currently, radio control is used to guide fast boosting, slow gliding models to hunt and find thermals. The end result is maximum duration. This area will continue to grow, and one whole branch of the hobby will constitute a large portion of people who talk of thermal cores, transition altitudes, and complex airfoils. Radio control will also develop into other areas, no doubt closely paralleling AMA Pattern and FAI satiplane flying. In the foreseeable future, pilots will be logging "flight plans" with panels of judges who will alocate points on the basis of flight manuevers. All those loops, dives, and spirals that the RC flyers do now for fun will someday be part of the competition. Perhaps the most interesting application of Pattern RC BG will be controlled manuevers on boost. If you think that this is a joke, I ask you to consider again! At Lakehurst during the World Championships, Guppy flew a demonstration of what could be done under power. After launch, Guppy rolled the model 90 degrees crisply, then another 90 degrees, and twice more, for a perfect four part 360 degree roll during boost. The entire time, the model continued it's arrow straight boost up. As if that wasn't enough, Bob Parks flew a "Cuban Eight" manuever on boost at the World Championships in Poland. On F7 power, Bob boosted the model up to about 100 meters, then looped it wide to the left, brought it straigth up again, looped it wide to the right, and brought it straight up again, all before engine burnout. The result was a fantastic sideways figure 8, traced out by the F7's smoky exhaust! It was an incredible sight! Future RC Pattern BG's will no doubt bear little resemblance to today's duration birds. Instead, the model will probably use 6 or even 7 channels to operate ailerons, flaps, spoilers, drag brakes, drop pods, landing gear, parachute

systems, and such. Radio control spot landing will also be a popular event. Radio Control looks to be an expanding part of the spacemodeling hobby, especially with the introduction of the Aerotech end burners, which are well suited for radio control models.

Large engine technology will also be an integral part of the hobby as it grows in the upcomming years. High power altitude models will continue to grow in popularity, and the average model rocket will be larger in size. The introduction of small, light, yet powerful composite motors, combined with the advent of high strength materials, will result in the common perception that these rockets are much more than "toys".

Sophistcated electronic packages, including microprocessors,will become more and more prominent as the size of electronic components continues to shrink. Boosted dart technology will improve as a method of sending payloads skywards. Real time video is now possible with new, lightweight cameras and power packs, which will make the Cineroc a true antique. Imagine viewing burnout from a clustered G model as it happens! (Imagine looking at the leaves as your expensive camera lands in a tree!!!)

Eggloft ing will continue to be popular, especially with the addition of the eggloft duration events. The introduction of smaller, more reliable composite engines has made the return of dual eggloft as a contest event a more realistic possibility. Many clubs are flying an unofficial event called Multiple Eggloft, in which the altitude of the model is multiplied by the number of eggs sucessfully recovered to determine the winner. Up to five eggs have been launched sucessfully in one model under the 453 gram weight limit! With the continued emphasis on safety, it is quite possible that this event will also be added to the Pink Book. How many eggs will fit into a 1500 gram model? A dozen?

Scale should also see an increase in popularity, and will really benefit from the weight limit increases. For the first time, scale will be comparable to the big birds that the model airplane guys fly. Full size Super Loki Darts and Arcas's will be possible, and the level of detailing should be breathtaking. Flights should also be breathtaking, as such large models will be able to use radio control to add considerable realism. RC flight, in-flight spin motors, staging, and a number of other "tricks " will now be possible. For the past few NARAMs, there have been a number of outstanding models in the younger age divsions. As these modelers move into the older age divisions, the models should grow larger and more complex. Additionally, the Sport Scale event has added a great number of scale modelers to the hobby's ranks, and some of these models will rival Scale models in terms of being impressive. The added emphasis will be on flight simulation and flight points, and models will be required to fly like the real thing in order to get maximum flight points.

Other areas that we may see growth in include the emphasis of research and development, static spacemodeling, electronic dethermalizers, and improved materials techniques. The use of fiberglass, Kevlar, graphite, polyurethane, and vacuum-formed plastic will continue to become commonplace. Plastic model will be open to a number of conversions that were overweight before. For example, the Revell 1/32 F14 kit will now be legal for conversion.

There is no telling what will happen, but the future looks bright. It's all up to you readers out there,to decide what's going to the hobby next. Remember, the sky's the limit!

NAR BOARD MEETS IN WASHINGTON D.C.

OR

"I CAME ALL THIS WAY TO SPEND SIX HOURS WITH JON RAINS?"

BY
BOB "NO NICKNAME" GEIER

This year, the February meeting of the NAR Board of Trustees was held at the AMA Headquarters near Washington, D.C. , instead of its customary location in Chicago. As represenatives from the LDRS High Power Consumer Group, Chuck "Mr. Supersonic" Mund and I were invited to attend. So we travelled the many miles from Massachusetts and New Jersey to meet for breakfast early Saturday morning (Feb 16) at the Dulles Mariot where the Board was staying.

Having met with J. Pat and Co. at breakfast, we proceeded to AMA headquarters in Reston, VA for the meeting. The only way to describe the building is amazing! Offices and conference rooms are situated around a three and a half story central shaft, which is filled with airplanes of all shapes, sizes, and colors, suspended in giant mobiles from the ceiling. The variety ranged from a 1/4 scale replica of the "Spirit of St. Louis" to small balsa and tissue rubber powered planes. There were no rockets to be seen, though John ("Nice airplane, Tom) Worth claimed they had one somewhere.

The meeting began with committee reports around 9AM. Bunny reported that section activities were down across the board - fewer sections, fewer demos, fewer contests with less competitors. (Ed note: Could it be that the Section Activity Chairman is not doing his job, as recent evidence suggests? Hmmm...) Though the drop is not incredibly large, it is worrisome. Certainly it is time for the old guard of the hobby to pay more attention to recruiting younger members and scheduling events that will hold their interest.

The Board spent over an hour discussing assorted gimmick programs, like $5 off the section charter fee for sections that hold contests, to curb the current trend. It's a cute idea, but it doesn't address the need for dedicated senior volunteers. In addition to such plans, a rather detailed plan targeted for Civil Air Patrol squadrons was proposed by Bunny. In essence, it amounts to giving CAP squadrons section-like things to do with official NAR certificates, with the long range goal being to make NAR sections out of them. The board approved the program, and considered repackaging it later for Boy Scouts and teachers.

After this, one of the AMA people came and gave a brief presentation on

the AMA hobby shop membership sign-up stations which had netted them over 2500 new members in the past year. The program, which consists of sending out applications and a little stand-up dispenser for hobby shops, looked interesting, but was expensive.

The Board went on to discuss contests, with Scott Hunsicker and Charlie Sykos spending some time on the subject of whether Charlie had paid the NAR $90 for something akin to doughnuts at NARAM, and how many times he had paid the NAR, and through whom.

Howard Kuhn then began his FAI-CIAM report by explaining that he made re-election as CIAM committee chairman by a one vote margin. No one knew if this meant a continued challenge to his leadership (previous elections were unanimous) or whether it was a one-time event (Ed note: They probably all wanted a good-looking blonde for a translator like Howard had at the last World Champs). After some discussion, Howard passed around a sample of the new European 6 mm engine which had brought about a new FAI ruling on minimum body diameter. (See the Jan/Feb issue of SNOAR NEWS for more details.). In addition, CIAM has decided to separate the flexwing and fixed wing glider events since they felt it was too easy to max repeatedly with flexies.

At this point, Charlie and Howard got going at each other, as Charlie questioned the FAI legality of splitting flexwing events without going through the provisional event status, and Howard steadfastly refusing to tell Charlie how they were going to measure the model's length for the new 18mm half body diameter ruling (nose to fin tip, nose to body end, nose to engine base, or what???). In the midst of the fracas, the meeting adjourned for lunch at the local Pizza Hut/ McDonald's, where Claude Greenlee provided amusing tales of life as a sergeant in the reserves.

After lunch, the meeting reconvened for Trip Barber's presentation of the Blue Ribbon Commission's report on the safety of G motors. The results were essentially what anyone with some high power experience would expect. In the words of Mr. Supersonic, "you can kill someone with a D, but a G isn't much more dangerous than an F." The report was quite impressive, and some of the findings were quite interesting.

Analysis was done by computer modeling, engine tests, flight tests, and impact experiments. All of the dangers of rocket flying were considered, from the kinetic energy of impact, aircraft exposure by altitude, to the structural failure caused by high velocities and accelerations, and the tipoff danger of low-acceleration takeoffs.

The commission concluded that it is very hard to hit an airplane if you were trying (1/10,000), and practically impossible if you're not. Even then, as worst case airplane hit (ingestion by a jet engine) shouldn't cause serious engine damage. Furthermore, most rocket structural failures occur as high altitude fin shreds, which pose little danger.

One interesting result of the report was based on an analysis by Geoff Landis. The danger of hitting some one due to launcher tip off was essentially not worsened by people standing closer to the pad. Proximity to the launcher only increased the noise level and the possibility of exposure to burning propellant from a casing rupture.

By far the most interesting (and amusing) of the results were the impact tests done by Trip. Rockets of varying composition nose sections were fired down 20 meters of guide wires into targets like plate glass, plywood, and a dead turkey. It turned out that with a C engine, virtually no

damage was done by any nose cone. Everything, however, penetrated the turkey (Squawkill). With a D engine, balsa and the CMR vac-formed plastic nose cones did no damage, except to the turkey (Squawkill Squawkill), but hardwood and injection plastics penetrated glass, plywood, and sheet steel. F motors wouldn't even stay on the guide wires, though they did have one with a balsa nose cone that snapped a support 2x4 it hit, and imbedded itself in a nearby tree.

After Trip's report, the Board went into closed executive session for over three hours. That gave us plenty of time to examine (bolt by bolt, in fact) the many models hanging in the AMA building. We even managed to find the one rocket, as delta winged BG brick labeled the "Mach Schnell" which Terry "Coswan" Lee identified it as a NARAM-9 bird flown by Clyde Howard. That was well before my time.

The meeting picked up again after dinner, and promptly went into another two and a half hour closed session. Chuck, Jon Rains, and myself spent much of the time tracking down a matrix printer. Jon fell asleep, and Chuck and I stared yet again at the all-too-familar model exhibit.

The results of the Board's marathon session were significant, with the highlights reported elsewhere in this issue. Some of the safety code changes include prohibition of targets in the air, flying through clouds, or in 35 mph winds, and requiring a countdown. My notes fail me as to whether hardwood nose cones were prohibited, so keep that possibility in mind until the oficial minutes appear.

After all of that was done, Chuck and I presented the LDRS commission's proposal to the board, asking for an eventual merger of high power rocketry (H motors and above) with the NAR. After a short discussion, the Board agreed unanaimously to continue the dialog with high power rocketeers by forming a commission, much like the Blue Ribbon Commission, to discuss our proposal. Since this was exactly what we had hoped for, we were pleased with the Board's new openess towards high power users.

At 11 PM, the discussion turned to Howard's FAI report. The possibility of the USA/USSR dual meets was discussed. The Soviets want a you-pay-for-us, we-pay for-you arrangement since they can't get money out of the country. Pat had ideas for financing, but needed to know specifics that Howard couldn't give. Prospects for a US World Championships are a little more tenuous, as none of the Europeans want to spend the bucks to come over here if they can find a European host country, and several have volunteered. Pat was irked, so Howard said he'd keep pushing.

The meeting adjourned at about 12:30 AM that night. I wasn't crazy or dedicated enough to stay for the second day, as I had to get back to school. The Board meeting was certainly productive, and it looks as though things may be progressing for both the high power flyers, and the NAR.

QUTOABLE QUOTE FROM THE MEETING:

"I misused my position. Shoot me! Shoot me!" Mark Bundick

(That's what we've contended all along. Do we get the first shot??)

HOW TO TRIM CONVENTIONAL BOOST/GLIDERS

BY TONY WILLIAMS

In the past, we have presented our favorite methods for adjusting flex-wing B/G's for optimum performance. This time around we have something for all you "balsa butchers" out there.....

Proper trim starts with careful wood selection. All balsa for the flying surfaces should be as light, strong, uniform, and warp-free as possible (and considering current balsa prices, this isn't asking too much!).

The same applies to construction techniques: build it light and strong. Any variances in airfoil, warps, or misalignments should be corrected before trying the methods described below.

STEP ONE (Static Balance): Start to trim the glider in pitch (Figure 1) by balancing it at its proper Center of Gravity (This will sometimes be indicated on the plan, but usually you'll have to "guesstimate" it -- Try the middle of the wing root chord and work from there). To accomplish this add weight to the nose and/or remove weight from the rear by gently sanding the "tail feathers". The flat bottom of the wing should now be near horizontal.

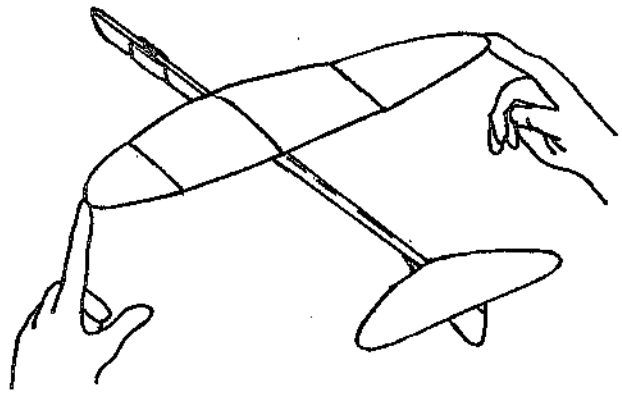


FIGURE 1

Next balance the glider in roll (Figure 2) by holding the glider's nose and tail between two fingertips. It will usually turn "belly up". Remove weight from the lower (heavier) wing tip with light sanding.

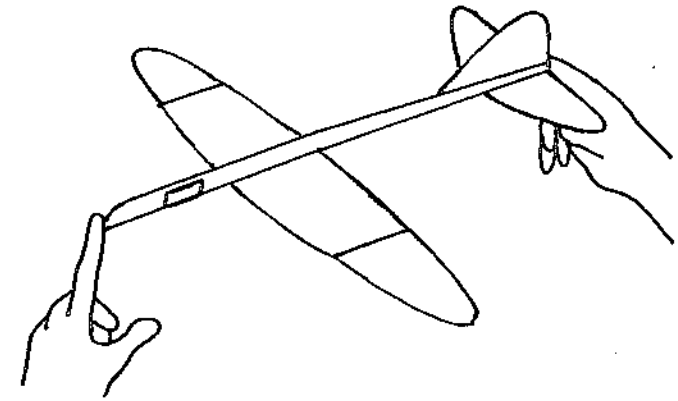


FIGURE 2

STEP TWO (Shoulder Toss): Locate a large flat grassy area and wait for a calm day before you start chucking your new glider around. Flying in the early morning or late afternoon will help. Grab the glider just below the trailing edge of the wing, lift it to shoulder level, and give it a slow push into the wind at about the glide speed you expect. If all is right, it should glide straight for at least 20 to 30 feet.

Repeat shoulder toss and adjust the glider for a smooth glide with a definite tendency to circle to the left (reverse this if you are left-handed). Determine turn with rudder adjustments (bend the back edge by breathing heavily on the surfaces while applying firm, but gentle pressure; or crack and glue in place). Correct stalls or dives with the elevator edge bent up or down and/or with small additions or deletions of noseweight.

STEP THREE (Full Power Hand Launch): This step takes practice, so don't be discouraged by your first few launches. Hold the glider as shown (Figure 3).

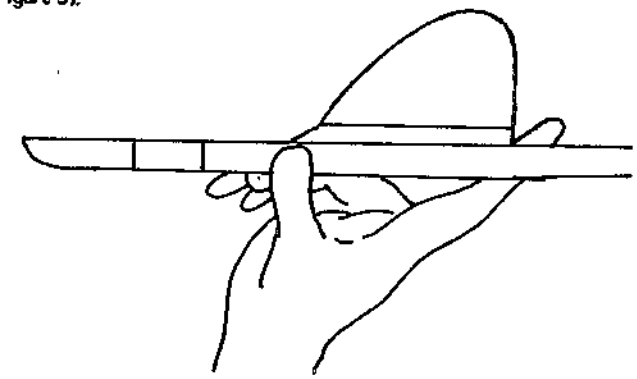


FIGURE 3

Using a sort of "three-quarters sidearm" motion, throw the glider with a "lifting" motion so that it turns away from you in a tight clockwise turn and recovers into its glide with little loss of altitude. (Again, Lefties, remember to reverse these directions.) If it goes too much to the right and does not climb, add left rudder. If it goes too much to the left, add "up aileron" to the trailing edge of the right wing (This is called "washout")

Making appropriate adjustments from this point on is part of the art of Hand Launch Glider flying. Every glider is a bit eccentric and requires special twists and bends to achieve that "perfect" trim. Don't be afraid to experiment with the various elevator-rudder-aileron trim combinations. Remember these basic rules and you can't go too far wrong:

RUDDER controls turn in climb and glide, but is more effective in climb.

ELEVATOR controls stalls and dives (or loops and climb) and is effective at any speed.

NOSE WEIGHT also controls stalls and dives but has little effect on the climb.

UP AILERON in the right wing keeps the left wing up in the climb and helps the glider resist spins during glide (makes the glider turn more flat rather than banking) — more effective at high speeds.

STABILIZER TILT (achieved when attaching the stab or by twisting the fuselage boom) is effective for making the glider turn toward the high wing tip in glide, but does not affect boost.

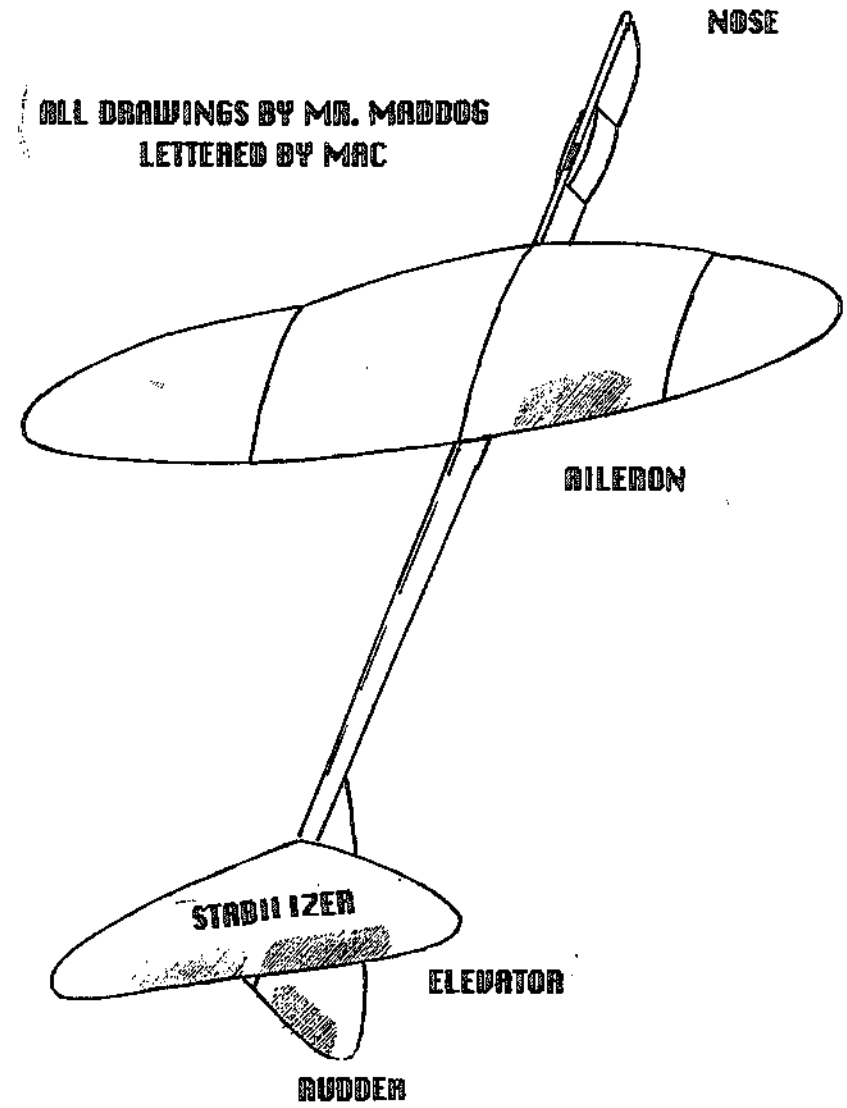
A minimum of a dozen good hard hand launches is recommended for obtaining good glide trim. The more the better.

STEP FOUR (Powered Flight): If you've done everything right so far, powered flight shouldn't be much of a problem. Most erratic boosts can be "tamed" by adding noseweight to the pod, by using a longer pod, or lengthening the pod pylon (For severe cases, try two or even all three methods!). Problems normally associated with boost (poor transition, death dives, etc.) have probably been taken care of in the hand launch sessions. Also, if you have enough rudder warp, the glider will roll during boosts and that will help even out any pitching tendency during boost (Many large boost and rocket gliders must have rudder warp or they may not boost properly)

That's it! Good luck and good flying!

BASIC GLIDER TRIM AREAS

THESE AREAS ARE MOST OFTEN USED IN TRIMMING A GLIDER



HIGHLIGHTS IN SNOAR HISTORY

The following is a list of honors, awards, and happenings that have accumulated over the years:

1974:

* SNOAR forms from the remains of the North Royalton Rocket Society and other area clubs.

1975:

* SNOAR NEWS first appears, with Jim Gazur as editor.
* Jim Gazur takes the B Division Reserve Champ at NARAM-17.
* Alan Tuskes takes over editing and publishing SNOAR NEWS.

1976:

* Alan Tuskes sets record for most engines clustered in one model (25).
* Philbert places in Plastic Model at NARAM-18.
* Honorable Mention, LAC Newsletter Trophy, SNOAR NEWS.

1977:

* Chris Pearson takes over as editor of SNOAR NEWS.
* Nowak/Steele Team becomes Team Reserve Champs at NARAM-19.
* Larry Chumlea becomes A Division Reserve Champ at NARAM-19.
* Honorable Mention, LAC Newsletter Trophy, SNOAR NEWS.

1978:

* PS'N Team (Pearson, Steele & Nowak) become SNOAR's first National Championship Team at NARAM-20.
* Honorable Mention, LAC Newsletter Trophy, SNOAR NEWS.
* John Squirrek becomes the second SNOAR member in two years to be the A Division Reserve Champ at NARAM-20.
* SNOAR is Reserve Champ section.

1979:

* PS'N Team takes Reserve Championship Team at NARAM-21.
* Bob Ferrante is third overall in A Division at NARAM-21.
* Honorable Mention, LAC Newsletter Trophy, SNOAR NEWS.
* KentCon '79 is hosted by SNOAR, Matt Steele and Mike Wagner, Chairmen.
* SNOAR is third in the nation in section standings.

1980:

* Zunofark Team (Johnston, Gassaway, Steele) wins Team National Championship at NARAM-22.
* Bob Ferrante wins the A Division National Championship.
* SNOAR NEWS is awarded the LAC Newsletter Trophy.

* SNOAR is Reserve Section Champ.
* SNOAR hosts KentCon '80, Matt Steele and Mike Wagner, Chairmen.

1981:

* Zunofark Team (Steele, Gassaway) wins Team National Championship at NARAM-23.
* Honorable Mention, LAC Newsletter Trophy, SNOAR NEWS.
* SNOAR hosts KentCon '81, Mike Wagner, Chairman.

1982:

* Zunofark Team (Steele, Gassaway) wins Team Reserve Championship at NARAM-24.
* KentCon '82 hosted by SNOAR, Mike Wagner, chairman.
* LDRS-1 held, sponsored by SNOAR and Chris Pearson.

1983:

* Zunofark Blues Band Team (Steele, Gassaway, McCarthy) wins Team Reserve Championship at NARAM-25.

LDRS-2 is held, hosted by SNOAR and Chris Pearson.

1984:

* Zunofark Team (Steele, Gassaway) wins Team National Championship at NARAM-26.
* Honorable Mention, LAC Newsletter Trophy, SNOAR NEWS.
* LDRS-3 is held, sponsored by SNOAR and Chris Pearson.

1985:

* Who knows???

WHAT'S IT ADD UP TO?

5 National Champions

7 Reserve Champions

2 Section Reserve Championships

1 LAC Newsletter Trophy

6 Honorable Mentions, LAC Newsletter Trophy

AND A WHOLE LOT OF FUN!!!

QUOTABLE QUOTES... THE BEST OF!

These are some of the gems that SNOAR NEWS has brought to light in the past years. Some are serious, some are humorous, but all are sure to bring a reaction. After all, that's one of the things that has made us unique!

"What good is model rocketry if it doesn't get you laid?" Jim Backlas

"What the National Association of Rocketry doesn't need is another one of G.Harry Stine's 'facist' programs!" Elaine Sadowski at PittCon-12.

"It's time that the NAR leadership get their act together. It's time that the Board act upon problems instead of ignoring them or engaging in petty bickering over trivial items." Don Carlson, in his ill-fated editorial that led to his resignation as editor of the Model Rocketeer.

"You can all go fry ice!" G. Harry Stine at NARAM-19.

"Just don't stand there with your hands in your pockets, go on and fly some rockets!" Matt Steele speaking to John Alexander at any meet.

"Who flew the G??" Mark Bundick, at the NARAM-22 inquisition.

"No. Now it's time to vote on whether or not we are going to vote."
Jay Apt, at the 1979 Trustee Meeting

"Model rocketeers often greet each other with open hands to show they still have all their fingers and thumbs."
Houston Post reporting on NARAM-21.

"How many bunnies does it make to make a SNOAR flag???? Just one!"
SNOAR

"If you print that, I'll cut your balls off!" Jeff Flygare, Estes Rep.

"I had more control in one direction than another!"
Mark Bundick after pranging a pulse RC BG at NARAM-23.

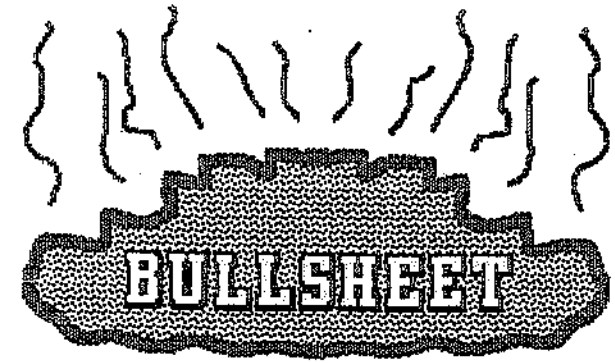
"Shit, man, I live for this!" Scott Dixon at LDRS-2.

"Madel Rahketry behn bery, bery goot to me" Mr. Maddog Williams.

"And now it's Miller time!" Matt "The Man of" Steele.

"If we didn't bitch, who would?" SNOAR NEWS motto.

"Until the next lawsuit, keep 'em flyin!" Man of Steele and Norton Freak.



The dates for LDRS-4 have been set, so start making those plane and motel reservations now! THE rocketry get-together of the year will be held on July 13-14, 1985 at the usual field in Medina, Ohio. This year's edition promises to be as exciting as the last three, as Meteor 7 will return for an encore, and Meteor 8 is under construction as well. Make plans to come to the place where it all got started, and participate in a big way. Contact Chris Pearson for more details at: 37541 Grove Ave #202, Willoughby, OH 44094. LDRS-4 will be presented by SNOAR and North Coast Rocketry.

Experimental Rocket Systems is working on another big bird, this time being a 3" diameter Astrobee F for big motors. The sport scale model is about 102" long. The Astrobee F is subtly different than the Astrobee D, so this could be an interesting model to add to your collection when the weight limit goes up. No word on a release date or price yet.

Quick! Run out to Radio Shack right now, while there's time, and buy this! The name of the item is a "Continutity and Tone Generator Chassis" and it's a great continutiy check for custom launch systems. AND....it only costs $1.99 !!! So, run out and buy it, and if you can't make it work, wait and we'll tell you how to do it in an upcoming issue. Come on, you can part with $1.99.

It's just like the old days, as the first Top Ten list has come out, and SNOAR is number two in the section point standings with 1729 pts on 4 weighing factors. How did this happen, you ask? Well, SNOAR flyers George Gassaway and Matt Steele are currently number one and two in the country in C division standings. Also chipping in points is the Honorable Carl J. Warner, who is currently 11th. While we don't expect these standings to hold, it does look nice!

Current events for SNOAR include MIDCON '85, set for April 12, 13, and 14 in Warren, Mich...uh, that state up North (you guys were losers, again. And to BYU, too!). Cost will be $65 per room for the convention, which includes lodging at the Midway Motor Lodge. A $25 cash prize will be given for the best "rocket video" (MTV watch out! And they thought they were kidding about launching a rocket to take over their satellite!). Topics for the convention seminars include RC BG and High Power Clustering. For more info, contact GLAR HQ, 11351 Dale, Warren, MI 48089.