VIEW FROM ZENITH

October 1979

The Breakthrough the Government Could Not Suppress Thermonuclear Mdroc Payloads!

Official Newsletter Of The Zenith Section Of The National Association Of Rocketry

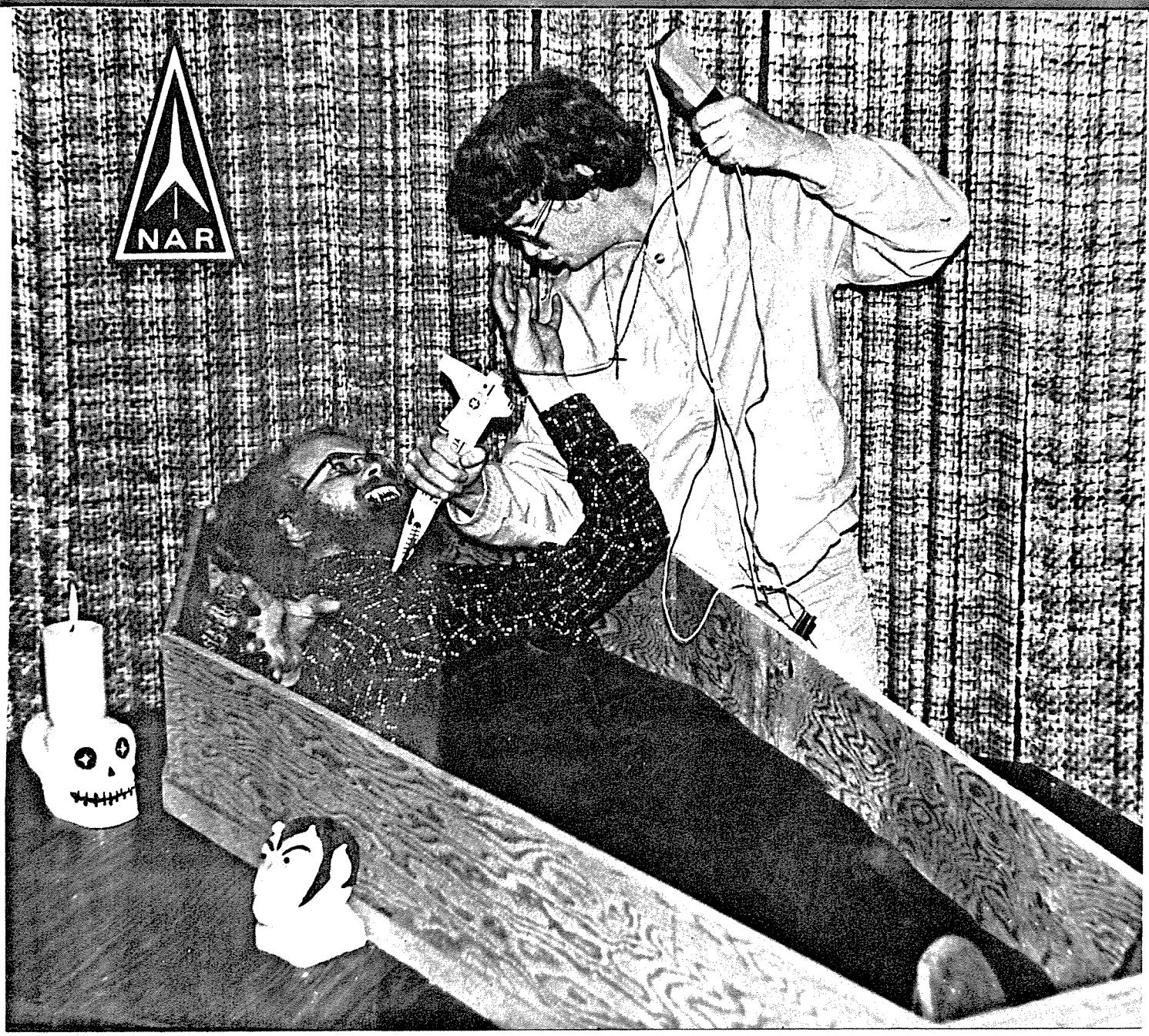


Photo Contest

Big Bird 4 R/G
Sliding Flop-Wing

NAR Administration

High Impulse
Rocket Construction

EDITOR'S SPACE

I was very disturbed by the very poor turn out of Zenith members at last month's activities, MORT and our October section meeting. It is very discouraging to put all my time into planning and running activities for you people, only to have nobody feel that they are important enough to attend. I could just bitch about it, but that would accomplish little, so I shall refrain. Instead, we will discuss the duties and obligations you have as members of Zenith. I don't mind doing work to further the cause of Zenith and the NAR, but you must do your part too, or none of it means a thing.

Your first obligation as a member is to make your wishes known (now that's easy enough, isn't it?). When it comes time to plan section activities for the next few months, speak up and let us know what you want. Scheduling activities you are not interested in is a waste of time all the way around. If you want contests, workshops or meetings, let us know how many and when you want them. Remember that this section is for YOU, and unless it makes you happy it's your job to change it.

Your second duty is to keep track of when these events are and to give a reasonable effort to attend them. We publish the section schedule every month right on the back of this newsletter so that job can't be all that hard. If there is some reason you can't make it on a certian day due to another important event (gosh, my three sisters are all getting married in a triple ceremony) let us know far enough ahead of time so that we can change the date, if possible. We realize that some things come up suddenly that you can not avoid (my house is on fire, could I call you back later?) and we understand this. This situation has not been what has been giving us trouble, however.

Lastly, remember that your fellow members are counting on YOU! Unless you do your part for the great cause of Zenith, it probably will never get done. We are all here to work together to have fun, so let's do it. We don't ask too much from any of our members, except the President, and if you think you are doing too much for the section (hard to believe) let us know and we can change things. Zenith Power! Tom

ZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZE

View From ZENITH Volume 2 Number 10 October 1979

The View From ZENITH is published monthly by Zenith section #167 of the National Association of Rocketry, a non-profit hobby organization. Any material herein may be used as long as proper credit is given to our contributors. Subscriptions: $6.00 per year, or FREE to contributors. Sorry, no giveaways hiding here this month.

EDITOR: Tom Beach NAR 23741
315 Common Street
Waterville MN 56096

PUBLISHER: Jerry Hanson NAR 21697

CONTRIBUTORS: John Beach
Todd Schweim
Jim Whitehead
George Cassaway
Chuck Hoffman
Mark Bundick

ZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZE

COVER PHOTO: Cover photo this month is by Zenith Humor, Inc. Need we say more?

ZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZENITHZE

THE NAR ADMINISTRATION

or "Who to Yell at When Things Go Wrong" by Marcus Bundick, VP

The NAR is a relatively small organization. It doesn't take that many people to run it, but unless those people are organized and the work divided up, things could go sour in a hurry. Lots of people were interested in the recent Trustee elestiion but from talking with them, I reached the conclusion that few NAR members really do understand how the organization works. This article attempts to describe the structure of the NAR.

The NAR is organized as a three-level hierarchy. The Board of Trustees is at the top, the officers are in the middle and the committee chairmen are on the bottom. Jobs fall into functional catagories; i.e., Contests and Records, Section Activities, etc. While the committee chairmen may seem to be "low man on the totem pole", they are relied upon heavily, as we shall see.

The 13 Trustees are equivalent to a company's Board of Directors. They are the ones ultimately responsible for the health and viability of the organization. Trustees make NAR policies, set and approve the annual budget and formulate long range plans. We're also legally responsible for the Association, so don't do anything that would cause anyone to sue the NAR. While all the Trustees are gainfully employed, nobody on the Board is independently wealthy.

The officers are elected by the Trustees and have more "day-to-day" jobs than do the other trustees. The President is the NAR's Chief Executive Officer (CEO). He attempts to keep tabs on all NAR committees and activities. He is also our chief external interface, representing the NAR in dealings with other organizations, i.e. AMA, DOT, etc. The Vice-President, just as in Washington D.C., is a "heartbeat away from the Presidency". He assists the President and attempts to keep informed on all the NAR's projects. The Secretary runs the Triennial Election, takes minutes of the Association and Trustee meetings and distributes the Quarterly Reports. The Treasurer is the NAR'S chief (and only) accountant and "payer-of-the-bills".

While a good Board and good officers help, the NAR lives or dies by its committee chairman. They could be thought of as division or plant managers. These committees see that the long-range plans and ploicies established by the Board are carried out. If a committee can't get the job done "in the trenches" the whole organization suffers. The By-Laws establish 11 standing, or permanent, committees: Nominating, Executive, Membership, Standards and Testing, Contest and Records, Liason, Section Activities, Education, Public Affairs, Publications, and NARTS. The President can also establish Special committees, such as the one which conducted the DOT tests last fall. Once a chairman has been appointed by the President and approved by the Boand, he's pretty much on his own to go and get the job done. If he needs funds for a project, he must present a report and a request for funds to the Board. He must also submit Quarterly Reports to the Secretary for distribution to the Board.

The importance of the committees can be seen by looking at two of them. The NAR's Education Committee was inactive until Pat Miller took it over in 1976. New materials for teachers and expanded advertising turned it around. The Membership Committee has floundered, however. There have been three different chairmen over a two year period and projects have never really gotten off the ground. With Jon Rains now at the helm, the committee will be improving.

What does all this mean to Joe Spacemodeler, the average NAR member? Well, if you're having a problem with a specific area of NAR activities, try contacting the appropriate Committee Chairman. See what is being done and try to provide constructive criticsm. If there's an operational problem, you'll have to reach the the officer or

continued, bottom of next page...

mort report

MINNESOTA OPEN RECORD TRIALS

Launch Anything For Fun

3

September 30, 1979

The sky was perfect for tracking, not a cloud in sight. The wind was very slight or nonexistent all afternoon. Even the weeds were co-opertating by dying out to the point where passage through the recovery area could be managed without a tribe of pygmy guides. What unusual luck! Could it be that someone forgot to tell Mother Nature that we had a launch scheduled? What could possibly happen to spoil this great day from being the best Zenith launch of the year? I'll tell you what: nobody showed up.

That was pretty poor, Ze-Knights. Since the Record Trials/LAFF launch was scheduled way back last December it isn't as if you didn't know about it, and considering this was only the fifth Zenith launch we held all Spring, Summer, and Fall, it isn't as if we are using up all of your precious time. But let us not let that spoil things...

The three Zenith rocketeers that did show up (Dan Lundquist, Tom Beach, and Jim Whitehead) spent the afternoon having fun anyway. Although the altitude range could not be set up, duration events were flown. The thermal activity was booming and even with the lack of wind Dan managed to drift a ½A parachute bird out of sight (but after being timed for over eight minutes, and still going up!). Dan flew mostly sport birds, such as four stage Maxi-Alphas (ala CHAD). Jim Whitehead flew his Nymph R/G several times, but most of the flights were unimpressive. One flight was slightly shorter than the old record (under the old Pink Book) so Jim decided to file for a record. As a result, we learned that so far no records have even been filed for under the New Pink Book (except for Jim's).

ZENITH ANNUAL PHOTO CONTEST

Yes, it's time to make those photos you took this summer pay for themselves. Send in your best pictures of any model rocketry activity and you could win the first prize of $5.00 What's this? No subscription, no old issues of the VFZ, just real money?! That's right!

Everyone can enter as many times as he wants. Any model rocketry related picture, either black and white or color, is acceptable. Be sure to include a stamped, self-addressed envelope for the return of your photos, if desired.

The winning photo (and probably several of the losers) will appear in the December issue of the View From ZENITH (if the winner is reproducable, though this is not a consideration in judging). Send Photos to Tom Beach before December 18,1979. Good Luck!

NAR Administration, cont.

committee chairman in charge of the operation. If you've got a long-range project in mind or have a question or objection to NAR policy, contact your Trustee. One is assigned to each region: Northeast-Jay Apt, Southland-Chris Tavares, Mid-America-Bunny, Southwest-Pat Miller, Mountian-Vern Estes, Pacific-Chris Flanigan. Finally, if you can't figure out who to contact, write President Miller. He'll know who to yell at.

Working as an NAR volenteer, be it at the local or national level, can involve a lot of time and effort. There will be complaints about what was done and what was not, but each volenteer I know seems to find some source of satisfaction in his work. The next time you think "The NAR should do this or that", consider volenteering for the job yourself. Remember, Uncle Pat wants you!!!

BUILD BIG BIRD 4 Sliding-Flop Wing Rocket Glider

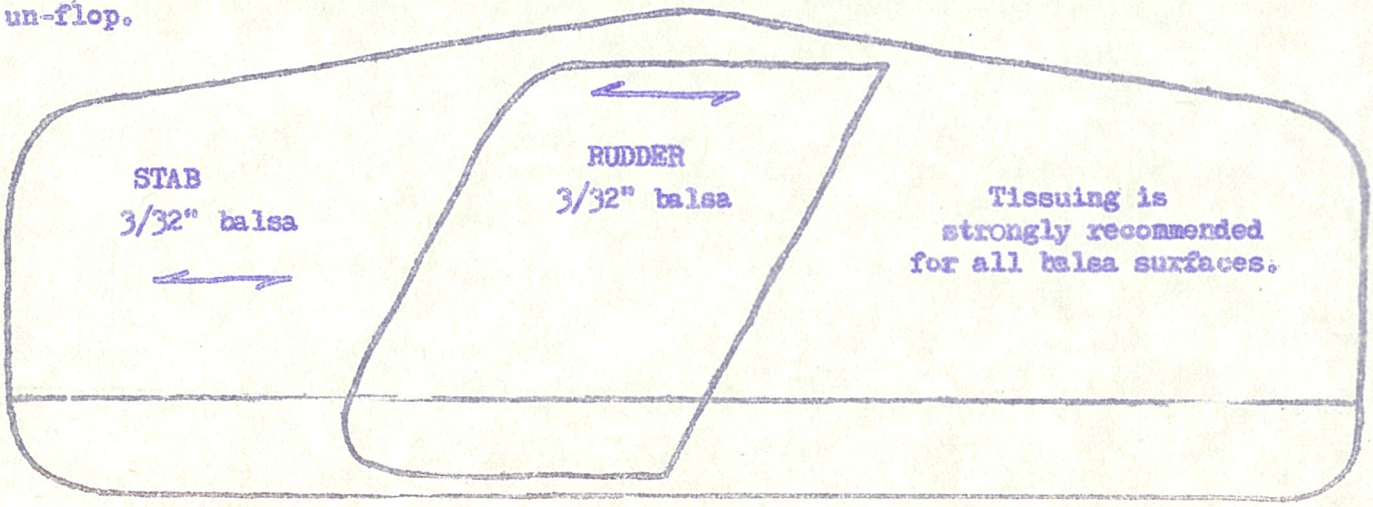
The following explainations and identification letters refer to the drawing on the next page. The Big Bird 4 is designed for C engine rocket glider duration and can easily be used for D engine R/G with the addition of mini-engine to edge the total impulse above 10 N-sec. The Big Bird is a challanging design to build and to fly. One must take care to construct the wing actuation mechanism correctly and test it for reliability. Although a combination slide-wing and flop-wing should be very unreliable due to actuation problems, I have only had one Big Bird suffer that fate, and the cause of that failure has been eliminated from this version. The other Big Birds have been ruined by diving (the first one; simply a matter of poor trim) and have flown away (as happened at Shooting Star).

Views "A" and "B" on the next page are top and side views of the bird in ¼ scale. The boom of the glider (a) is made of quarter inch square spruce or basswood. The pop pod (b) is made of 2.75" of BT-20 tube with a balsa cone. The base of the cone and front of the tube are gouged and cut to provide for ejection gas ports(c). Use an engine hook on the model to be safe, and use at least a two inch long launch lug on the pod. For D power, glue a short piece of BT-5 on top of the pod and ignite the cluster (C6-3/½A3-2t minimum total impulse) with flash bulbs.

The wing slides on the boom on a plywood box. Construct the box from 1/32" plywood using double glue joints and clamping the assembly during drying. The wing box slides forward and is stopped by masking tape (e) around the boom at glide position (f). The wing is held in unflopped condition at (g) during boost.

The hinge is shown in "C". The wing panels are held together with monokote, both on the bottom and between them. Rub some glue into the end grain where the wing panels meet to give the monokote a good surface to adhere to. Bend hooks out of piano wire (two for each wing) and epoxy them on the high points of the wings about an inch in from the joint (i). A rubber band (j) opens the wings when released.

Views "D" (side view) and "E" (bottom view) show full size details of the wing actuation system. Make the release pin (k) from about six inches of piano wire and epoxy it to the rudder as shown. Also make the wing rear stop (l) from wire and epoxy it to the boom. Epoxy the release pin and rear wing stop together; this holds the pin in line. The pin fits through holes in two plywood pieces (m) glued to the bottom of the sliding box. Two short pieces of piano wire embedded into the wing tips are held in place by the release pin, keeping the wings folded in during boost (n). Flop the wings in, then slide the assembly back so the pin (k) passes through the plywood pieces (m) and holds down the wing tip pins (n). The sliding box is pulled forward by a rubber band stretched from hook (o) to the notch in the boom (p). The wing is held in boost position by tying a thread to loop (q), passing it back around (l), forward and through loop (r), and through the ejection port a few times, then tied to the boom, pod, or engine hook. When the ejection burns the thread, the wings slide forward and un-flop.



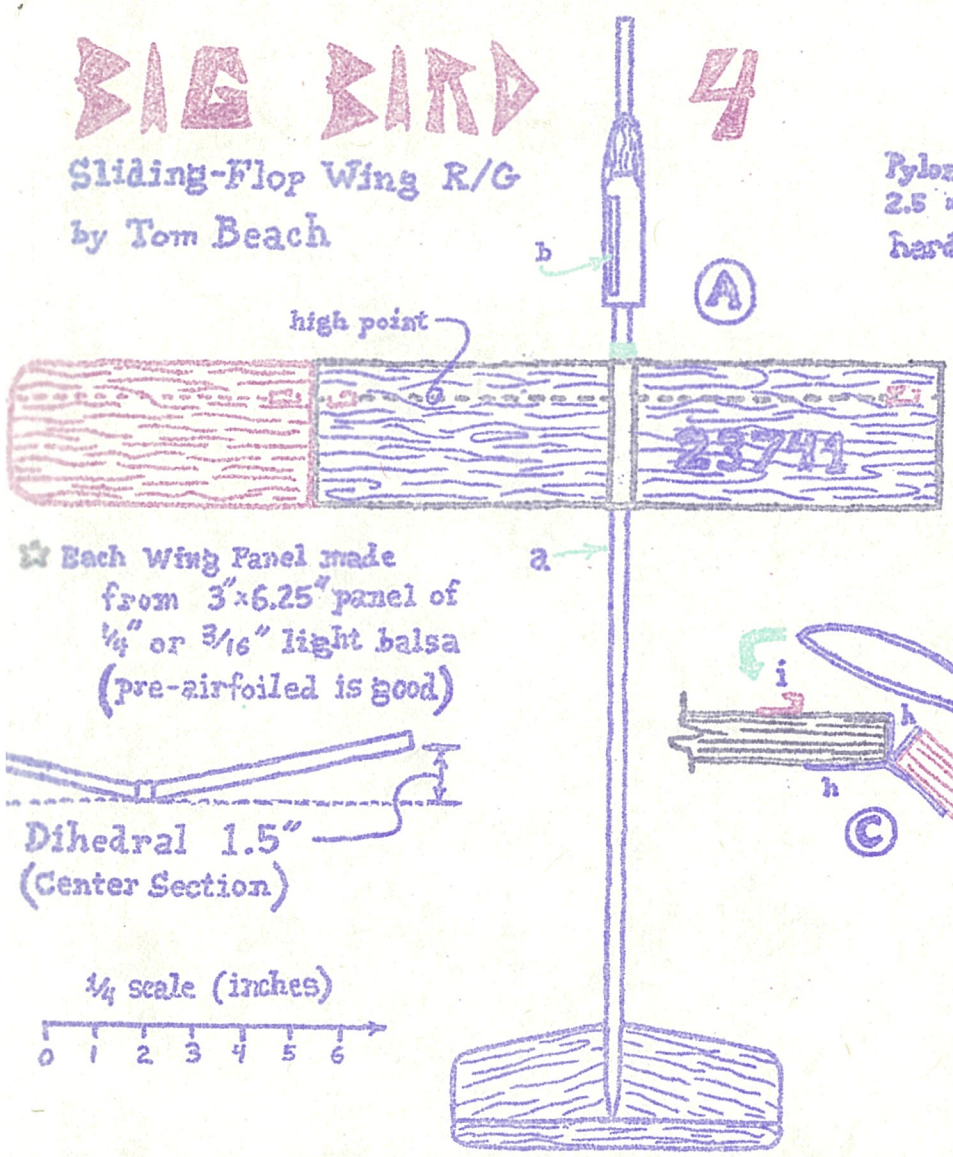
BIG BIRD

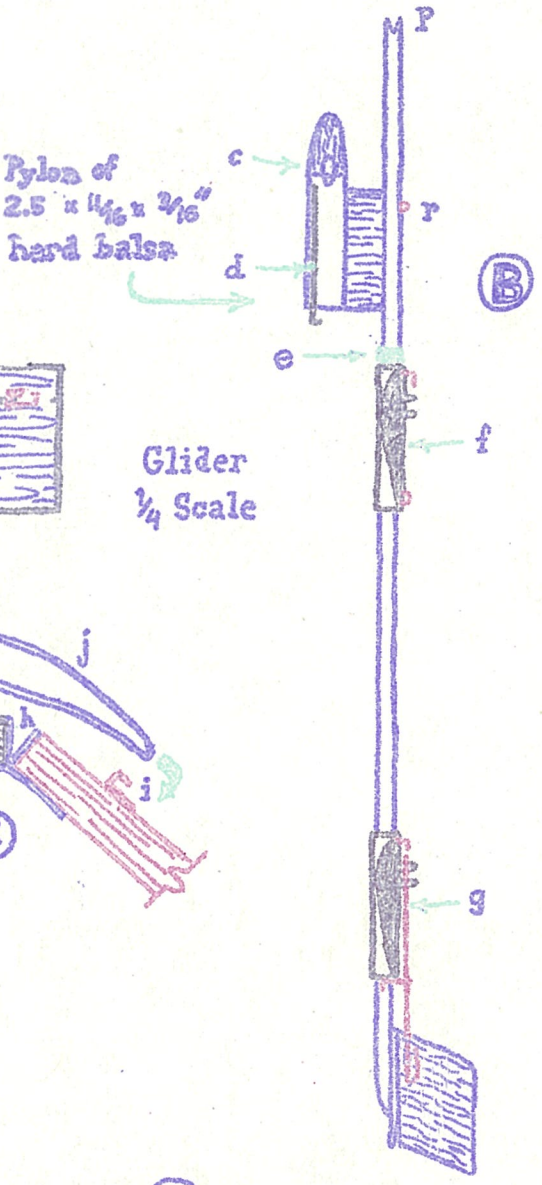
4

5

Sliding-Flop Wing R/G

by Tom Beach



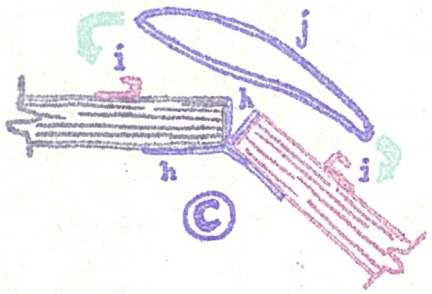


Pylon of
2.5" x 1 1/16" x 3/16"
hard balsa

Glider
1/4 Scale

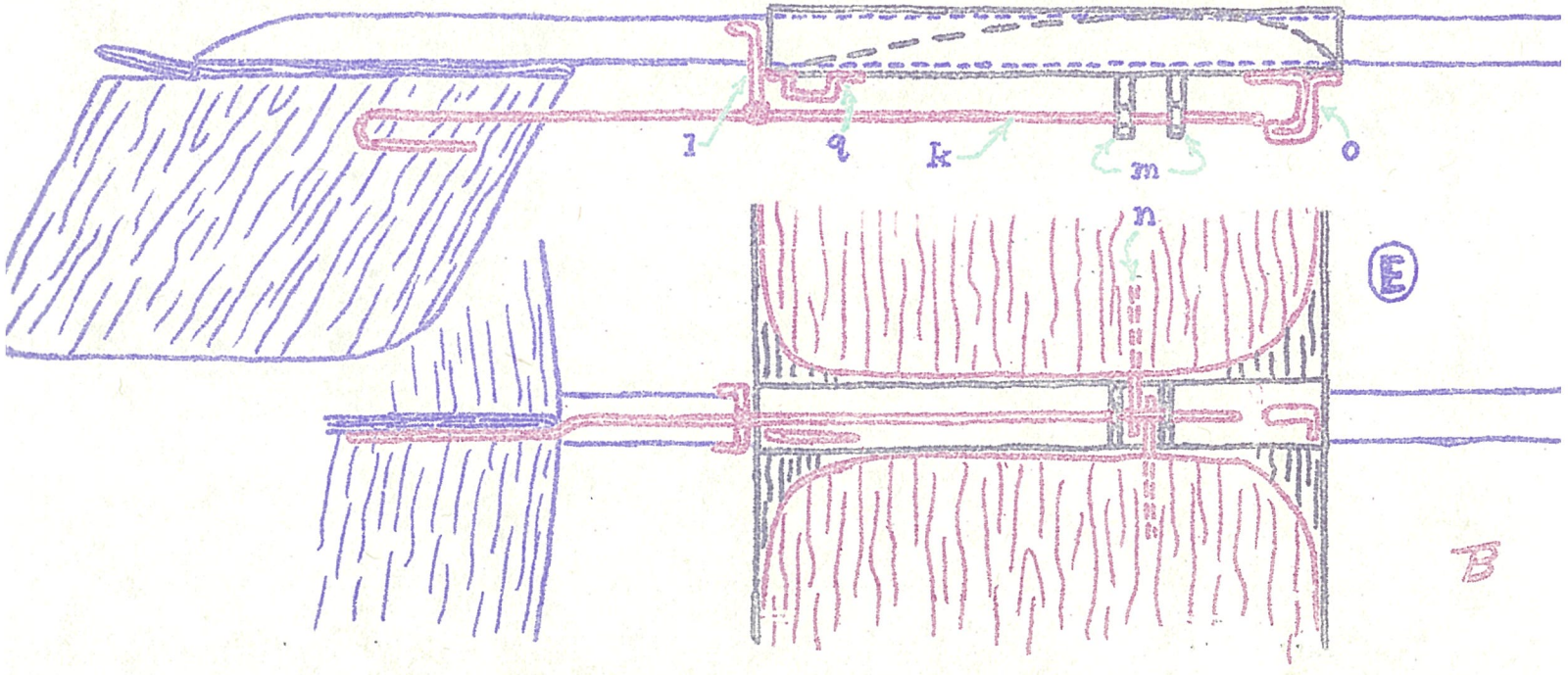
☆ Each Wing Panel made from 3"×6.25" panel of 1/4" or 3/16" light balsa (pre-airfoiled is good)

Dihedral 1.5"
(Center Section)



1/4 scale (inches)

D Full Size



B

HIGH IMPULSE ROCKETRY

CONSTRUCTION

The most common failure that occurs with high impulse rockets is structural failure, and this makes construction of the big models our most important topic. The fact is, you just can't get away with building your F67 bird the way you have built all your "little stuff". Building techniques and materials that work fine for D engines often fail disasterously when you up your impulse. Nobody likes to see unstable models with F engines burning pinwheels overhead (it is one of the few things in model rocketry that can be down right dangerous), so listen up while we talk a bit about building the big ones.

You might not think the larger models have to take abuse that is <u>that</u> much greater than what your smaller birds take. After all, even EAC rocketeers can handle a D engine without too many failures, and the F motors are only four times as strong. Well, think again. Increasing a model's impulse by a factor of two or three can easily cause it to reach speeds four times faster than the little stuff flies. The aerodynamic drag at such speeds is <u>sixteen</u> <u>times</u> what the low power birds put up with. Keeping a model together under such loads calls for strong construction, and special materials and techniques can help a lot.

Let's start with the body tube. Do you remember John Beach's E30 altitude bird or Donald Miller's Maxi-Calypso (with the Mini-Max engine)? Rocket boosts real nice, gains velocity and altitude rapidly, and suddenly collapses and disintegrates into tiny pieces. These were cases where the forces acting on the body tubes of the model were simply too strong for the tubes to take. The solution: build your high power birds out of tubing stronger than the kind Estes makes. High strength tubing is available from Flight Systems Inc, and from Ace Rocket Company, in lengths up to three feet. These tubes are constructed of paper as are normal tubes, but they are thicker, and some have special smooth outer layers that help reduce drag. Build your engine mount particularly strong, especially with somthing like an F100. Wrap a shoulder of 3/8" wide tape around the rear of the engine to a thickness of at least 1/32" and you won't have to worry about shoving your engine block forward. Friction fit the motor in securely with masking tape (even if you have an engine hook) to prevent having to watch a death dive from 3000 feet up. Nasty. Keep in mind that high power motors can get very HOT during operation, and that composite engines stay hot for quite awhile after burnout. This is very important if you are using the engines in minimum diameter body tubes. The heat from the engine can easily bubble your paint job or even soften your glue joints and cause failures.

The fins of your high power model must be very strong, and though it is possible to get away with balsa, I strongly suggest you use stronger materials. You will notice that "strong" was the key word in that last sentence, and I mean it. The fins of the big birds are both larger and thicker (generally) than what little birds use, and this gives the monstrous drag forces a real nice handle to pull on. Always use proper airfoil and finishing techniques on these fins, even if you skip this on your small birds. A fin with a glass smooth finish and good airfoil is a lot harder to rip off than a rough surface, square edged fin because the drag forces just can't get as good a grip on it. It is not uncommon to see a rocketeer try and send his model a mile up, only to leave his fins behind at 200 feet. The extra work will pay off. Use standard tear drop airfoil (rounded leading edge, sharp trailing edge) unless you are planning to go supersonic (great fun) in which case you should use a

double wedge airfoil. A good fin material is aircraft plywood, at least 1/32" in thickness minimum. Plywood is both strong and easy to finish, although it is not as easy to cut and airfoil as balsa. If you want something <u>really</u> strong, order a sheet of Composite Dynamics fiberglass-epoxy fin material. This stuff has to be cut with a hack saw and airfoiled with a file, and I suspect it is just slightly less dangerous than metal fins (use it if you like, but I'm not going to watch). You would be wasting your nice strong body tube and fins if you didn't glue them together properly, so make sure to use double glue joints and good fillets. Epoxy is the glue I would suggest using, and go extra heavy on the fillets since these both reduce drag and hold your fins on tight. The FSI method of punching holes in the body tube along the line you will glue the fin to so that the glue fills them in to form "glue rivets", is also suggested.

The recovery system of your high powered model will have to take a lot of stress too due to the heavier weights and higher opening speeds. Use a nylon parachute from FSI or Ace and definely use a shock cord stronger than good old Estes stuff. Mount the shock cord very strongly into the model. The old Enerjet and Mini-max models used thin steel cable anchored to the models engine mount rings to hold their shock cords in place, and this is not over-doing it. If you use plastic chutes be sure to reinforce them by running some of the shroudlines all the way over the top of the chute.

Make sure that the nose cone or payload section of the model fits snugly in place or its inertia will cause it to separate during the violent decelleration after burnout (not to mention the Lovelace effect that could suck it off with its negative drag force during boost).

A special word should be said about flying a high impulse model that you are not sure is stable: DON'T. You aren't a baby now, and you don't go around testing your models stability by flying it. Use TIR-33 or swing test the thing before you stick a F 100 in it.

Well, what do you think? Do you want to get into the world of building high power models? If so, here's a few suggestions about where to start. Flight Systems Inc models are designed to take a lot of punishment, and you can learn a lot by building a few of them. These models have strong tubes, hardwood nose cones (sometimes), plywood fins, and good recovery systems. Another good choice are the LASOR kits from SSRS, which are designed to take the force of an F67, so you know they are strong. If you are really impressed with BIG models, you could start by converting the Estes Maxi V2, Honest John, or Maxi-Alpha to fly with large motors. If you decide on the latter suggestion, keep a few points in mind. The Estes kits are not designed to take power of an F engine and you will have to alter their construction somewhat. First, do not use the cardboard centering rings in the kits without some reinforcement (better yet, buy the conversion kits for these models from FSI. The Honest John conversion kit will convert the Maxi-Alpha. The Honest John itself can't legally be converted to F100's due to the weight limit, but it will convert to E or F composite power). Replace the shock cords with quarter inch sewing elastic and use a nylon chute (the price may seem high, but they last a long time). Be sure to glue to fins on very securely...we have heard of V2 fins popping off during boost by an F100. If you launch these heavier models (or any heavy rocket) with some of the low initial thrust composite engines, especially the E20, use at least five feet or more of launch rod that is 3/16" or 1/4" in diameter. This is a good precaution to follow when launching any high power model.

High impulse rocketry is an expensive hobby, but learning to build your models correctly can save you a lot of time and money by preventing needless waste (and also preventing needless hazard).

Future articles on "High Impulse Rocketry" will be written if you request a specific topic (or submit an article yourself!). See you then. Do it on Impulse!!

IMPULSEIMPULSEIMPULSEIMPULSEIMPULSEIMPULSEIMPULSEIMPULSEIMPULSEIMPULSEIMPULSEIMPULSE!

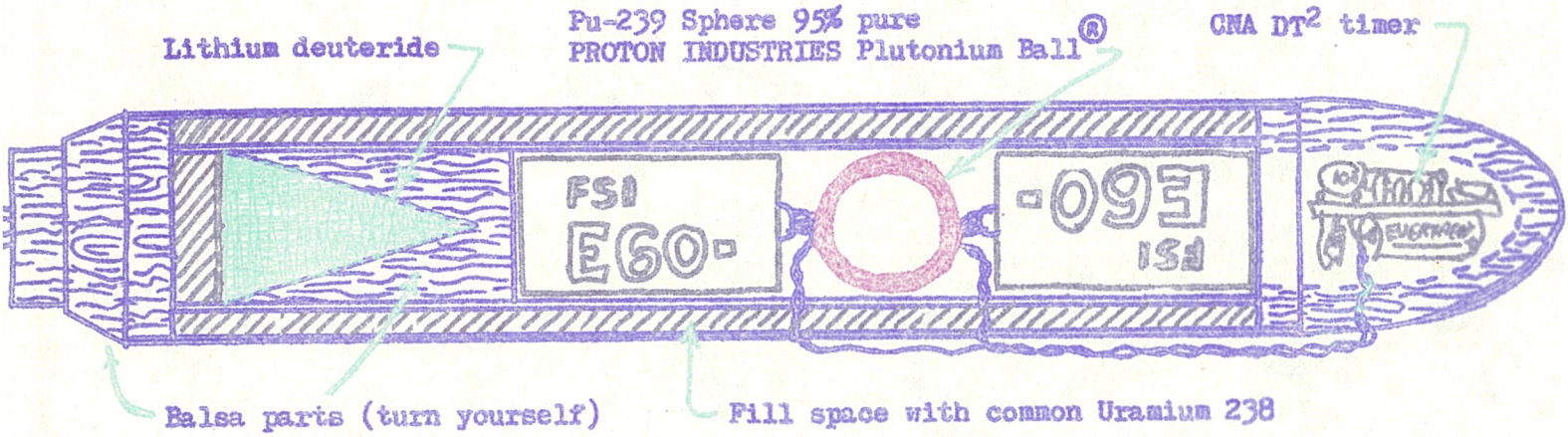
THE FIRST AMENDMENT TRIUMPHS! Almost EXCLUSIVE!
This article was originally scheduled to be published in the April issue of the "PROGRESSIVE ROCKETEER" (a little known newsletter from Wisconsin) but both the United States Government and the NAR Board of Trustees banned its publication for reasons of "national security" and "self-protection", respectively. But we did not stand for that! We fought the case all the way to the men's room in the Washington Monument, and the ban was lifted. So now it can be read... How to Construct Your Very Own Thermonuclear Modroc Payload!!!

PROTON INDUSTRIES, INC TECHNICAL REPORT NO. 2

BUILD YOUR OWN THERMONUCLEAR MODROC PAYLOAD

by Mr. Compton Scatter, B.S. PROTON INDUSTRIES Chief Engine Designer

The construction and use of this design for your very own thermonuclear modroc payload is fairly easy, but I would have to call it at least a skill level 7 project. The materials are fairly common, and all of parts can be purchased for under $30. The most dangerous componants of the payload (the E60 engines and the Plutonium sphere) are available from manufacturers, so the device is very safe to construct. The diagram below shows how the device is made:

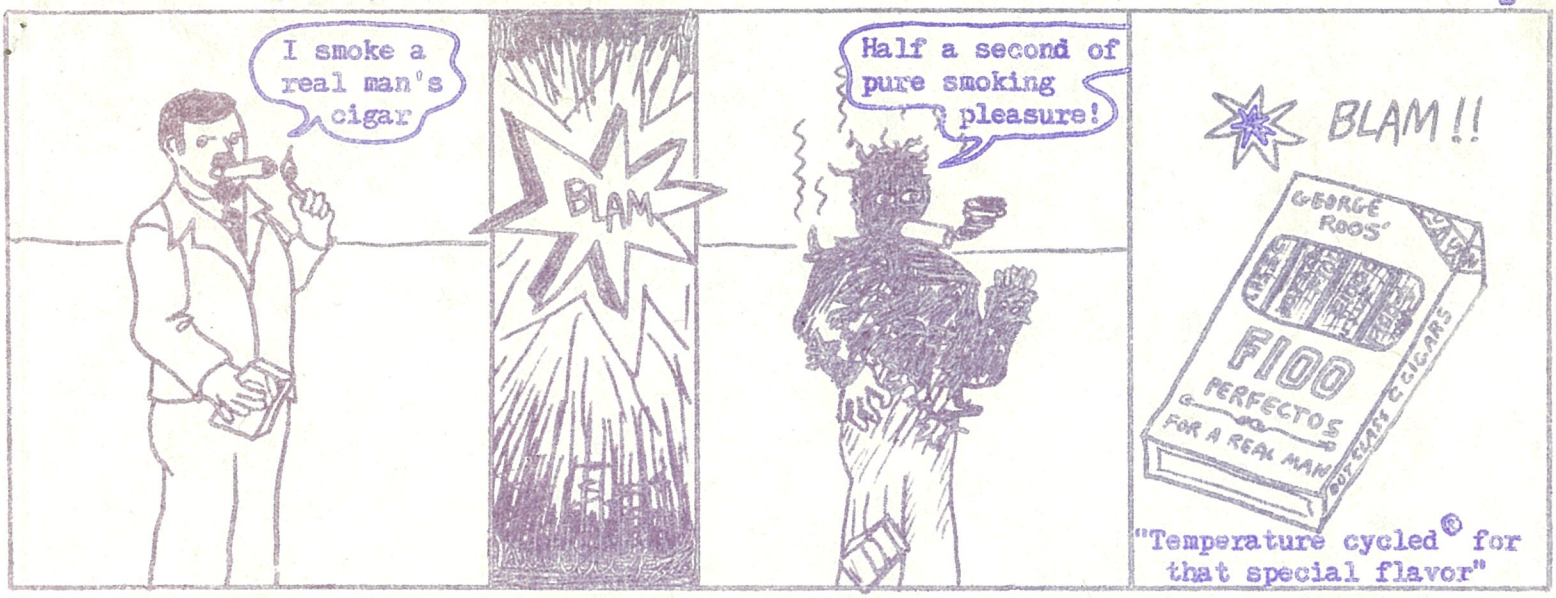


The E60 engines must be specially prepared for use by temperature cycling them in a hot range box or car trunk for three days.

The operation of the device goes as follows: After the payload has been descending under its parachute for an appropriate time (to allow for drifting down range) the timer flashes the two flashbulbs, igniting the E60's. The E60's will explode immediately (normal operation) and the force of the blasts will crush the Plutonium sphere, causing a chain reaction of fission. The high energy gamma and X rays of the fission blast are reflected and focused onto the Lithium 6-Deuteride which instantly forms Tritium and Deuterium, resulting in a fusion reaction as the fuel is compressed. The high energy neutrons from the fusion reaction stream outward and cause fission reactions in the U-238 cass. Although the U-238 is usually not fissionable, these neutrons are are of such high energy that it will fission, adding a nice blast to end the show. For those of you in the "Save the Buildings" League, you may substitute Titanium for the U-238 and the resulting neutron blast will not harm buildings.

Now, I know what the safety code says about "explosive payloads" and metal parts, but this device is all right since I can assure you that they didn't have devices like this in mind.

ZENITHHUMORISREALLYSTRANGEANDWEKNOWITBUTWHATDOYOUEXPECTFROMUSFOOLSANYHAYGOODBYFORNOW!



You've waited so long, but it is finally coming...
IN THE DECEMBER ISSUE...

ACTION! ADVENTURE! DRAMA! CONTROVERSY! THRILLS! EXCITEMENT! SEX! Well, maybe no sex

Z.H. Inc. Don't Miss This One!

RANDOM ACCESS "I". 10

MAXI-ALPHA MONEY- Zenith section has received 12 Maxi-Alpha III's from Estes to be built by mid-December. For doing so, we get $60. Well, not really $60, we really get $60 worth of Estes gift certificates, but let's not be trivial. There will be a special workshop to build all these models in November (see the schedule). The Maxi-Alpha III is one of those new all-plastic-and-pre-colored-parts wonders that is so big at Estes nowadays, and if we get enough people to show up at the workshop we should be able to get the things built in no time (we may do all the work with our eyes shut, just to make it tough).

FREE BACK ISSUE DEPARTMENT- If you look on the bottom of page one of the September VFZ you will see that I promised to send a free back issue of the View From ZENITH to the first person who told me they read the offer. Well, the wide awake rocketeers from the AAR (Annapolis Association of Rocketry) were the first to contact me, so they get the issue. The boys from the RAC (Regional Aerospace Cooperate) were even more awake and spotted a mistake in numbering of the issues, so we will send them a back issue also. Who says we don't try to please everyone? By the way, I never claimed to be able to count...integrate power series, maybe, but count, no. You think any of this gets proof read before you see it? Think again.

CAUTION!!!- Warning, the Censor General of the NAR has determined that reading the words "Get Your Rockets Off!" in CNA advertisements may be hazardous to the mental well-being of "A" divisioners. Really, did you hear the story about the NAR President who made the motion that no more ads for the Rocketeer be accepted from CNA until the G*Y*R*O expression was deleted? Pretty silly story, huh? Well, it isn't a story, but it is awful silly. Grow up, please.

IN THE MAIL- Along with several checks for $4.00 and assorted newsletters, we got two really nice issues of newsletters you may be interested in.

The "IMPACT Journal of MODEL ROCKETRY" (you doesn't have to call it "IMPACT"...You can call it "MODROC ENQUIRER" or youse can call it "ROCKET MODELER" or youse can call it "IMPACT Journal of MODEL ROCKETRY", but you doesn't have to call it "IMPACT") from the NARCS boys in Alabama is a particularly nice issue. NARAM coverage, THREE plans for competition models, a portable continuity checker, the strange humor of Tony Williams and George Gassaway, and E and F engine stats are a few of the things in the issue. And don't think we didn't notice the line "published bi-monthly" on page 2. We intend on holding you boys to your word! If you want a great newsletter, send $3.00 of incentive (a year's subscription of 6 issues) to: IMPACT, PO Box 5712, Homewood AL 35209.

The October issue of "SNOAR NEWS", last year's second place winner of the LAC award (actually our co-winner), features NARAM coverage (and photos), details of Bernard Biales "9 seconds of Terror" Eagle RC B/G flight, the kidnapped "SPOTTER" characters, and various irreverent but entertaining ramblings from the editors. If you are not a trustee or mentally unstable A divisioner, an 8 issue subscription is $4.00 from: SNOAR NEWS, Matt Steele, 2888 Station Road, Medina OH 44256.

I really pity those LAC judges.

SPOTTER FEVER- I finally got to see two old "SPOTTERS" and was quite impressed with this 1976 LAC award winner. I noticed that Doug Kushneriek predicted the end of the world to be August, 1976 (an obvious error). My own calculations indicate that the end of the Universe (and the world, of course) will not occur before NARAM 22, but is likely to happen shortly thereafter. Make plans to get good seats now!

****

***SECTION SCHEDULE *** SECTION SCHEDULE *** ZENITH!

****

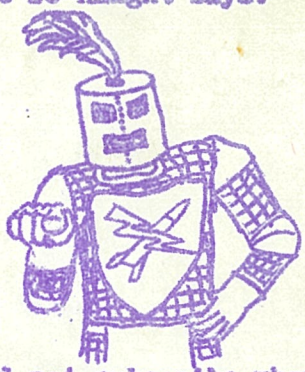
NOVEMBER 11	Workshop	Maxi-Alpha IIIs
NOVEMBER 15	Meeting	Lots of planning
DECEMBER 20	Meeting	

Meetings are held at 7:00 pm in the basement of the Mankato Law Enforcement Center

The workshop will be held Sunday at 2:00 in the basement of the LEC. Build Maxi-Alpha IIIs and whatever else you have time for (which will depend on how many people we get to show up).

****

The Ze-Knight says:

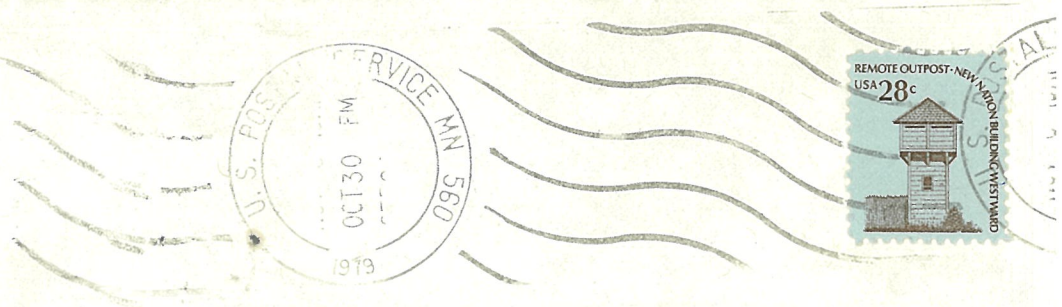


So, Ye did not subscribe when the rate was only $4.00? Ye shall have one last chance! Get your big bucks in before November 20 and it will only cost $4.00! A mere pittance!

View From

ZENITH

315 Common Street
Waterville MN 56096



Subscription backlog

∞

CHRIS TAVARES

8468 FALLING LEAF ROAD

SPRINGFIELD VA 22153