

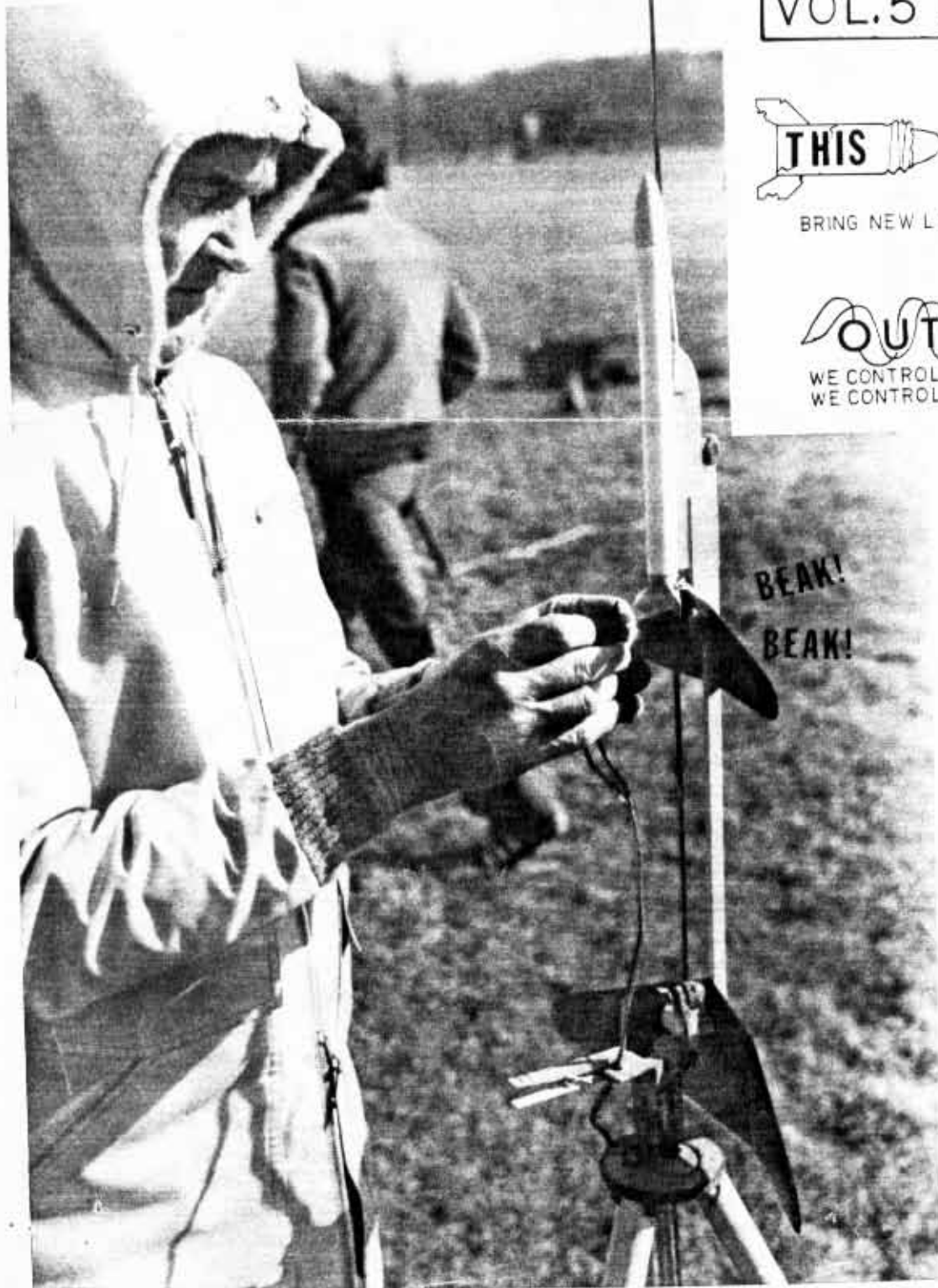
THE LEADING EDGE

MAY/JUNE 1982
VOL. 5 NO. 3

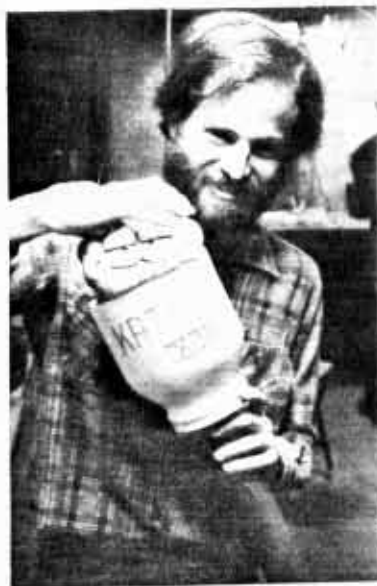
THIS OLD ROCKET

BRING NEW LIFE TO JUNKY OLD ROCKETS

OUTER LIMITS
WE CONTROL THE HORIZONTAL
WE CONTROL THE VERTICAL...USUALLY



BEAK!
BEAK!



T minus ONE



MONTHLY NIRA MEETING

May 7

Glen Ellyn Civic Center 7:30 PM

Turn-in Deadline for Phoenix models for Estes Build-up Program.

NOMID-82 CONTEST

May 8-9

Fenton, MI See Contest Calander.

MWRC-82 CONTEST

May 29-30

Bong Field, WS See Contest Calander or contact Bunny.

MONTHLY NIRA MEETING

June 4

Glen Ellyn Civic Center 7:30 PM

Results of MWRC and NOMID; Preparations for Labor Day Launch

MONTHLY NIRA LAUNCHES

Ackerman Park, Glen Ellyn.
Contact Bunny (642-9028) or
Bullet (934-1160) for exact dates and time.

RAIDERS OF THE LOST MAR

June 19-20

Ft. Wayne, IN. See Contest Calander.

NIRA finally has an operating library back, and I have been given the important job of Club Librarian. The library will be open for business at each NIRA meeting. Books may be taken out for two months. To check out a book, fill out a card with your name and the book number. Please print clearly. If you don't return the book in two months, you don't get to check out any more until the book is returned.

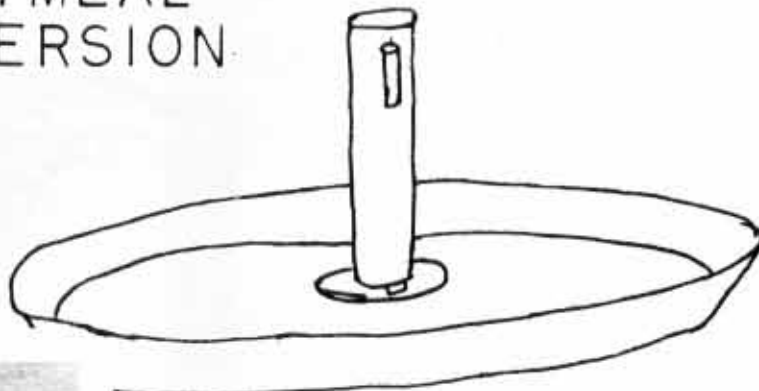
Currently, the library has materials from NASA, Estes, Centuri and other model rocket clubs. There are lots of technical reports on rocket design and flight, design manuals with plans and ideas, and outlines for R&D reports and science fair projects. We even have some old catalogues!

Club newsletter in the library can only be used at the meetings. Several club members can get you copies of plans if you ask.

If you have any questions, see me at the next meeting.

TONY LENTINI

McROCKET HAPPYMEAL CONVERSION



Inside the McRocket Happy Meal, a very simple engine tube.

R.G

After three flights, the "model" has engine deposits, but no other damage.



MODEL OF THE MONTH WINNERS



The March Model of the Month winner is Doug Hall and his Centuri Draconian Marauder



The April Model of the Month winner is Walt Schalk, Jr. and his Estes Sky-Hi.



THE LEADING EDGE

is published bimonthly by and for members of the Northern Illinois Rocketry Association (NIRA), NAR Section #117, and is dedicated to the idea that Model Rocketry is FUN! Suggestions for articles and plans are welcome. Articles, plans, other newsletters and news items of interest should be sent to the editor:

Ric Gaff
331 Third Street
Northfield, Illinois 60093

Any material in the Leading Edge may be reprinted if proper credit is given.

CONTRIBUTORS

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TOM PASTRICK
BEN ROBERTO

MANUFACTURER'S NEWS

A new company has appeared on the model rocket scene. Reaction Technology Inc. carries a full line of parts. They currently stock body tubes, nose cones, transition section, centering rings and parachutes. Their body tubes have extra thick walls for strength. They also have a full line of FSI engines. Reaction Technology will also give you a better price if you buy parts in quantity.

The only things I didn't like about the company is their ordering system. You have to give them an item number, six digits long, and a code number, five to twelve digits long, for a total of up to 18 digits. It's easy to make a mistake when you fill out an order.

To get a free catalogue, write:

Reaction Technology Inc.
P. O. Box 27224
Cincinnati, OH 45227

Bullet Bob reported on some Estes items of interest. You can order a 14.2" piece of BT-80 tubing; Part number 30433 sells for \$1.50. Also, you may be able to special order longer tubing from Estes. Lengths up to three feet or so are possible. See Bob for details on how to special order these tubes.

Bob Kaplow found some standard (18mm dia.) motors from FSI recently. A local hobby shop carried A6-3, B6-4 and C6-5 types. The prices were less than comparable Estes engines. NAR members should note that these motors are not yet Safety Certified, and their use by NAR members may void your insurance and membership! Motors tested at the MIT convention ran a bit hot, but otherwise worked OK. A call to Lonnie indicated he hopes to submit the motors for formal testing very shortly.



"How the hell has ACMEE TOYS licked a problem that we've been working on for seven months?"

CONTEST CALENDAR

NOMID-82 May 8-9, 1982

Events: E El Alt., D SD, B RG, D HD,
C BG, $\frac{1}{2}$ A BG, Sp. Scale.

Contact: Mike Zienkiewicz
28811 Sutherland
Warren, MI 48093

MWRC-82 May 29-30, 1982
Bong Field, WS

Events: D Alt., C EL Alt., B RG,
B Int. BG, C HD, $\frac{1}{2}$ A Int. SD,
PSL, Space Systems

Contact: Mark Bundick
1925 N. Hudson
Chicago, IL 60614
(312-642-9028)

Raiders of the Lost MAR June 19-20,
Fort Wayne, IN

Events: $\frac{1}{2}$ A Alt., C EL Alt., $\frac{1}{2}$ A Int. SD,
 $\frac{1}{2}$ A Int. BG, $\frac{1}{2}$ A RG, A BG, PM,
Sport Scale

Contact: Tom Hoelle
2009 Emma Avenue
Ft. Wayne, IN 46908
(219-422-2751)

ETR-12 (may be the last one!) July 3-4
Bong Field, WS

Events: A Alt., C SR Alt., C PL,
D EL Alt., A RG, B RG, C BG, F BG

Contact: Bob Kaplow
1628 Waterford Lane
Palatine, IL 60067
(312-934-1160)

ALPHA DRACO DATA

Interested in Sport Scale data? Tired of the same old rockets? The 82-3 issue of the Midwest Rocketeer has data on the Alpha Draco. This two staged, solid propelled missile was developed by McDonnell-Douglas in the 1950's. The AD data consists of 12 pages of drawings, photos and color data. It isn't accurate enough for Scale, but it looks good for Sport Scale. The Midwest Rocketeer is available from:

Midwest Rocketeer
c/o Chuck Hoffman
Route 3, Box 149H
Medford, WS 54451

Back issues are 60¢ each. Tell Chuck you read about it in the Leading Edge.



BRING NEW LIFE TO JUNKY OLD ROCKETS

Last time we left off at fins and tank shroud attachment. Again, I ran into some unexpected problems, and shifted to a slightly different technique. I Hot-Stuffed the eight shroud patterns to the fins. Next I used Titebond to attach the fins to the body. The shrouds were cut slightly oversized. When the fins were dry, I used gap filling Hot-Stuff to tack the rear edge of the shroud down. I cut off the excess, and spread some more gap filling Hot-Stuff to make sure everything was down tight. I then proceeded to attach the shrouds to the individual tanks.

Unfortunately, even with the excess shroud material, I was left with gaps. Out came the Plastic Wood again. It filled the gaps nicely. Since this application was a bit more accessible than the gaps between the tanks, I was able to sand down the material to a very fine finish. I strongly suggest you try this inexpensive filler for those big gaping holes.



Now I moved up the model. I put on my new spruce fittings on the antenna plates. I didn't measure the location of these small parts. Instead, I worked on only one part at a time. Cut it off, use the reject to pattern the new piece, then attach the new one with Hot Stuff and move to the next. If you can work in this fashion, you may be able to skip taking lots of location measurements as I suggested last time.

Another detail I thought I'd have trouble with was an area directly below the fins. The Estes kit used a paper wrapper with corrugations pressed into it. The corrugations were very fine, about 1/16" wide spaced 1/64" apart. I started to replace this damaged part with balsa strips, but found a better idea in my hobby shop. Model railroad guys build their own cars out of scribed plastic sheet. I found some in a scale that was a dead ringer for the Estes paper version. I cut a strip of the material and wrapped it around the tub, Hot Stuffing as I went along. I still have to cut smaller pieces to fit between the fins, but that's small potatoes compared to cutting lots of balsa strips.

There wasn't any way to avoid cutting lots of balsa strips for the upper S IV-B corrugations. I used 1/32" balsa, cut to the width of the paper corrugations. I Hot-Stuffed one end of the strip down, cut it off to the proper length, and finished Hot-Stuffing it down. I also cut out small squares for various raised panels and tunnels.

I now tackled the Apollo capsule. I cut a template for the capsule shape from the old capsule, then raided the parts supply box for a TA-6070 adapter. The original capsule was built of smaller balsa parts and paper shrouds. I had a kit for the capsule but decided to try and build my own. Remember, if you can find replacement parts for your "This Old Rocket", you can save time.



The adapter was made of very hard, close-grained balsa. It was extremely difficult to carve. I tried to center a $\frac{1}{4}$ " dowel into the adapter so I could spin it in my drill. The combination of hard wood and a slightly off-center dowel made that impossible. I went back to hand carving and sanding, and ended up with a fairly good outline. Next, I got some $\frac{1}{32}$ " balsa and cut various pieces to simulate the protective cover on the capsule. These were Hot Stuffed to the carved adapter. Finally, I used a twist drill and some $\frac{1}{16}$ " i.d. aluminum tubing to simulate the escape tower supports. The $\frac{1}{16}$ " doweling of my planned escape tower would fit right into these. I could even press-fit the tower into place for flight removal.

I found $\frac{1}{16}$ " dowels in the old Hobby shop. I drew the pattern for the tower from the old one, and cut the doweling to length. I notched the side pieces to get a better fit between parts. Hot Stuff didn't much like the hardwood, so I reinforced the joints with Titebond. I built two halves, intending to mount them on the capsule and complete the tower for perfect alignment as it was mounted on the model.

I was still stuck for an idea on building the nozzles, but hopefully I'll have it licked by the time our next issue rolls around. Next issue, we'll reveal our secret finishing technique and complete our restoration of "This Old Rocket". Don't miss it!



NEXT ISSUE

MWRC COVERAGE
THIS OLD ROCKET
REUSABLE IGNITOR

Jedi George's previous article outlined a good, inexpensive way to start flying RC EG's. I took a different route and spent a little less. I used a Futaba FP-3S three channel system with S-20 servos. The S-20's are as small as Ace micros and weigh 25 grams each. You also don't have to build them. The receiver weighed in at 45 grams. The total system went for \$115.

I also used a "Flagship" design, but modified the fuselage to fit my equipment. The balsa box was as wide as my receiver. This left plenty of room for my servos. I could even get at them for removal or maintenance. I also made the first tapered section of the "Flagship" fuselage $4\frac{1}{2}$ " inches long, not $3\frac{1}{2}$ ". This extra length prevents excessive warping when you build the triangular section of the fuselage. For the rest of my major construction and radio installation, I followed the steps outlined in Phil Barnes' article in the Model Rocketeer.

To help trim out the model, I didn't glue my wing in place right away. Instead, attach the wing with rubber bands, and try some test glides. If the model stalls, move the wing back. If it dives, move the wing forward. When satisfied with this, trim the model so it goes in a straight line. These two trim adjustments will help out lots when you get around to the boost.

Some other tips I found very useful for a beginning RC pilot are:

- (1) Build your model strong. You are just trying to learn with this model, not set world records. I even glued $\frac{1}{64}$ " plywood on my fuselage.
- (2) Consider building two models at once. Keep the second one in reserve and modify it as necessary after you're finished with Model #1.
- (3) Use Hot Stuff, Hot Stuff Super T and microballoons to keep weight down during construction.

Ben Roberto
17 Carla Lane
Scottsburg, IN 47170

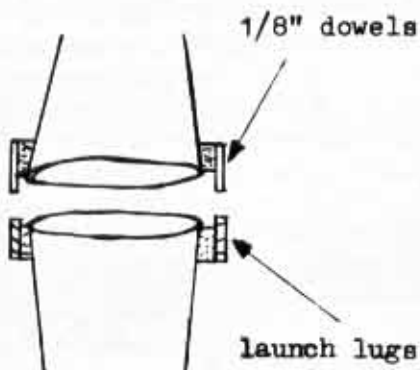
OUTER LIMITS

WE CONTROL THE HORIZONTAL
WE CONTROL THE VERTICAL...USUALLY

At NARAM-23, New York's Mike Liss brought a strange looking bird to the range. Upon seeing a horrid mix of fiber fins, tubes and paper cups glued end to end, another rocketeer murmured, "What is that?" I calmly replied, "That's a Moondipper."

A Moondipper is any model rocket whose airframe is made of paper or styrofoam cups glued top-to-top and bottom-to-bottom. To my knowledge, the first Moondipper was built in March 1969. The father of my best rocketry buddy glued a bunch of foam cups to the payload section of an old Estes Cobra. The entire model stood six feet tall. Its first flight was powered by a C6-5. Upon ignition, the model hung on the pad, tore the launch lug off, and lurched from the rod. Flying in a shallow arc, it made its way toward the edge of our field and into a large oak. With an "explosion" of styrofoam, the tree was instantly decorated in white, looking like some kind of op art Christmas tree. We all laughed until we were sick.

Some months later, I showed up with Moondipper II. This monstrosity was eight feet tall and featured corrugated cardboard fins. It also had an unusual feature at the separation point. I used 1/8" dowels and launch lugs to fasten the wide ends of two cups together. (see sketch below)



THE MOON DIPPER

All this high technology was in vain. The standard D13 blow-through turned the bird into a smoldering lump. After that, the project was shelved for two years.

A new Moondipper returned in 1971. The "Dixie Cup Special", so named because of the brand of paper cups used, flew at a Hornet's Nest section launch. This model was only 24" long, and didn't use core tubes like previous designs. While on the range, the launch lugs came off. We quickly built a tower consisting of three launch rods stuck in the ground. The "DCS" was now ready. Two members stood ready with fire extinguishers. (Pessimists!) The flimsy adapter rings I made did not hold the engine mount in place. The assembly shot up through the tail section, shattered it and lodged in the nose. The nose section was only marginally stable. It snaked all around the field at six feet before dropping to the ground to be trampled and attacked with fire extinguishers.

Undaunted, I came to the next launch with Moondipper III. Like #II it used cardboard fins and 7 feet of cups. It was slightly underpowered with a C, but lifted off majestically. Peaking at 100', it popped two 36" chrome mylar chutes and descended slowly, the top section orbiting the bottom. A complete success!!!



I flew #III several times, but decided to end it all in October 1973. I rigged the bird for an F100. The final flight scattered styrofoam all over the blue. The intact tail section followed a perfect ballistic arc into a ravine. We left the poor bird buried in 10" of Carolina clay.

By the way, Mike Liss' bird didn't fly either!

Lawrence Bercini

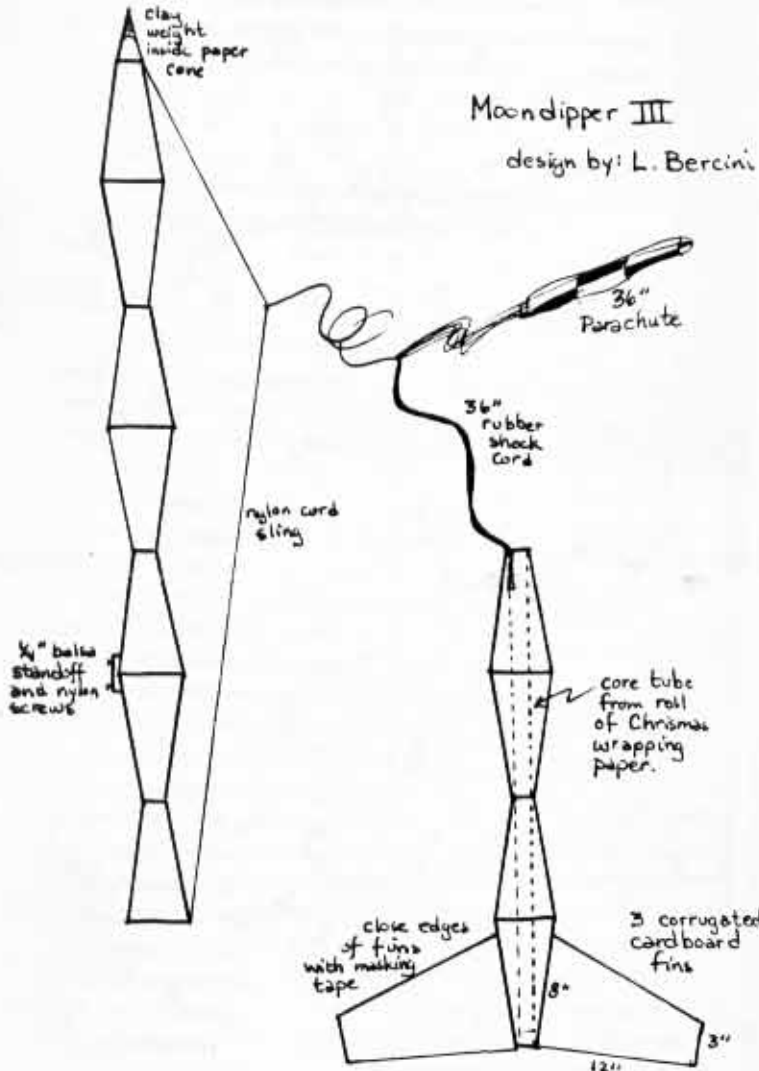


PHOTO CAPTION MARCH BUILDING SESS.

- 1 Wayne Schalk puts the finishing touches on his Centuri UFO.
- 2 Walt, Wayne and Bob discussing kitbashing possibilities.
- 3 Bunny demonstrates how to add a durable spruce leading edge to a glider wing.
- 4 Tom Pastrick, attired in his formal shirt, studies a recent Midwest Rocketeer.
- 5 Walt Schalk Jr. examines Tony "Please Don't Squeeze the Rocket" Lentini's Bathroom Tissue oddroc.
- 6 Tom Pastrick lends Bob Fountain a hand with his rotaroc model.
- 7 Tony "Please Don't Squeeze the Rocket" Lentini's Bathroom Tissue oddroc.

MARCH CLUB LAUNCH

- 1 Walt Schalk Jr. launches What? An oddroc perhaps?
- 2 Tommy P and his swingwing.
- 3 Wayne Schalk and his Rubic's Cube oddroc before its test flight.
- 4 . . . and after.
- 5 Larry London flew an F7 powered McBuzz Bomb.
- 6 Gaff's flying "Spaceship Happy Meal" McRocket surprised everyone by flying great.
- 7 Bob Burkhead's "Satellite Killer" just before it committed suicide.

COVER PHOTOS

George "Darth" Reibesehl prepares to fly his "Death Star" Beaker at a club launch.

Bob "Kat-kicker" Kaplow kindly helps Garfield into the Katlofter XIII.

MARCH
BUILDING
SESSION



NIRA MEMBERSHIP LIST ADDITIONS

BACK ISSUES AVAILABLE

Missing some of our great, even classic Leading Edge issues? Here's your chance to complete your library! Price is only 20¢, so send your order to the editor today. First come, first served!

- Vol. 3, No. 5 - Sept./Oct. '80*
- Vol. 3, No. 6 - Nov./Dec. '80
- Vol. 4, No. 1 - Jan./Feb. '81
- Vol. 4, No. 2 - Mar./Apr. '81
- Vol. 4, No. 3 - May/June '81
- Vol. 4, No. 4 - July/Aug. '81
- Vol. 4, No. 5 - Sept./Oct. '81
- Vol. 4, No. 6 - Nov./Dec. '81
- Vol. 5, No. 1 - Jan./Feb. '82
- Vol. 5, No. 2 - Mar./Apr. '82

* Copy of a copy; text is OK, but photos washed out.

Welcome these new members:

Chuck Copeland
1725 Mountain Court
Deerfield, IL 60015
945-5280

Jim Killin
300 Larch
Elmhurst, IL 60125
833-7011

Renewals omitted from the last list:

Pat Peterson
RR1, 1840 South Roselle Road
Schaumburg, IL 60172
529-3037

Tom Ewoldt
1382 Terry Road
Glendale Heights, IL 60137
469-6557

Members are reminded that only a few club patches are left. See Bob Kaplow.

MARCH CLUB LAUNCH

NIRA opened up the 1982 flying season on March 28, 1982, at Ackerman Park. The weather wasn't ideal for rockets, windy and chilly, but for March in Chicagoland, it wasn't bad. A fair number of NIRA members turned out, but they were the usual crowd. Hopefully, attendance will pick up at future launches.

The oddroc trend continues at NIRA, and a large number of them showed up at this launch. Both Ric Gaff and Larry London had McDonald's "Happy Meal" conversions. Larry's appeared more of a "sad meal" in the wake of an F7 flight. It bounced around the ground in typical F7 fashion. Ric had more success flying with B8's and C6's. The model flew like a Centuri UFO, but with a much slower descent. Walt Schalk once again had his Coffee Pot out, and son Wayne flew a Rubik's Cube. The pot worked great, but the cube was unstable after it ripped off the stabilizing legs.

Bob Kaplow brought out some altitude models to test, but it was his gliders that got all the attention. A small, fixed pod $\frac{1}{2}$ A BG boosted great, but was slightly out of trim. A $\frac{1}{2}$ A Flexwing blew away in strong winds. The model was so small, it was difficult to tell if the flexie was gliding, but the "experts" agreed it seemed to work well. Pat Peterson also lost a flexie, a $\frac{1}{2}$ A version.

Other gliders included Tom Patrick's ancient Space Plane (which worked) and his Eagle (which straffed the launch site and crashed). George Riebesehl Sr. flew new Beakers. A B engine version worked great, but the A engine model spiraled in. Jedi George spent the afternoon hand launching a model and found some spotty thermals.

A few kit models also took off, but those crazy oddrocs and new gliders dominated Glen Elly's skies. Let's see more people out with more models at the next launch.



PAT. PETERSON


LAKE R BY DARTH RIEBESEHL

George Sr. showed up with this version of a Beakers a couple of NIRA meetings ago. The Riebesehl factory favors increasing the size of the canard and using less incidence to get a better glide. If you've seen George's flights you know it works. The plan shows some beefed-up wood sizes; George designed the model for C's but experts didn't think the model at the meeting could hack it. The pod design is new, and gets rid of the "my-boom-is-too-small-for-Piece-X" problem. Just build the pod like the front of a regular BG boom. Pod sides of plywood insure a sturdy model. I'd also recommend spruce for the boom. It's strong, and as high as this baby will get, you don't have to worry about weight. Anyone got an idea as to how to build at Beakers RG???

Recommended engines:
B4-2, C6-3

6/1/60

Canard:
1/8" balsa

All flying surfaces
covered with tissue.

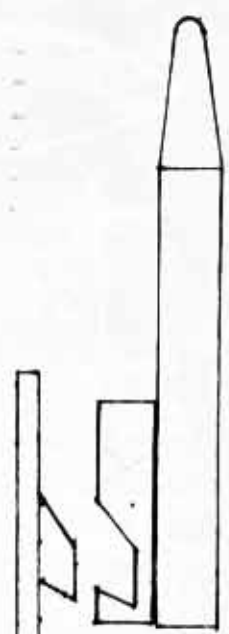
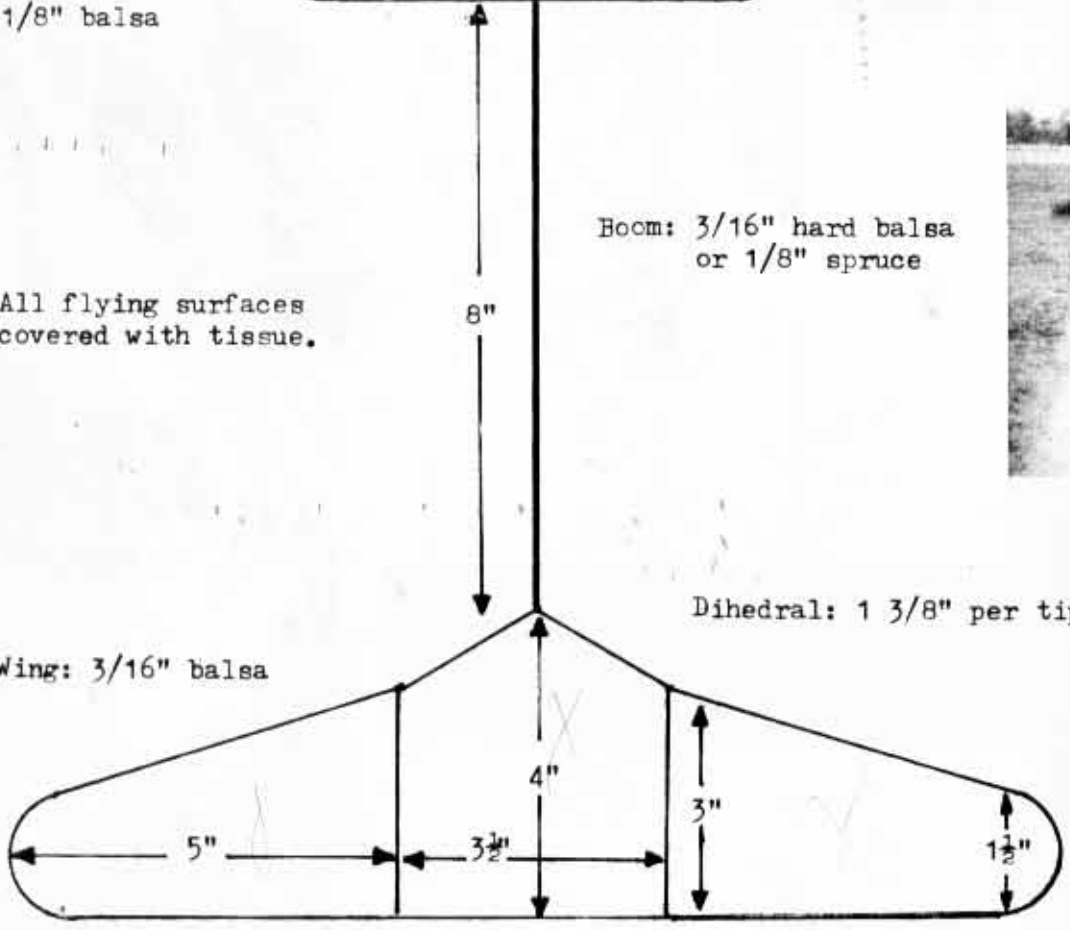
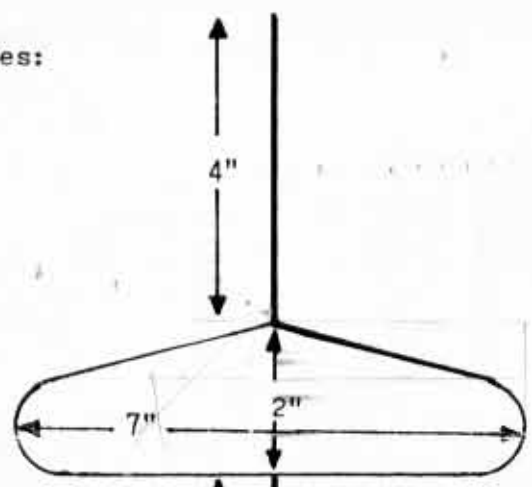
Wing: 3/16" balsa

Piece "X" is glued
to boom.
Pod core is covered
with 1/32" plywood
Pylon is 3/4" tall.

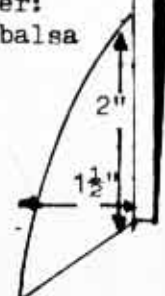
Boom: 3/16" hard balsa
or 1/8" spruce

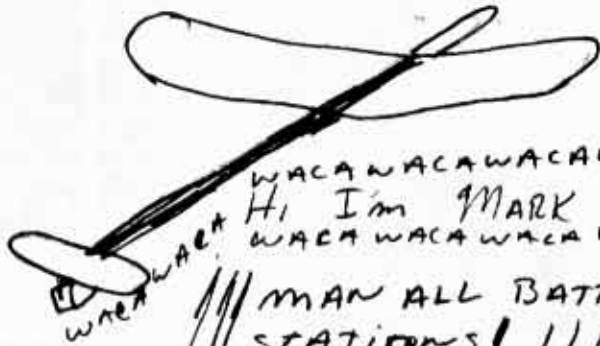
Dihedral: 1 3/8" per tip.

Rudder:
1/8" balsa



BT-20
pod





WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA
Hi I'm MARK BUNDICK'S pulse RC ship
WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA

MAN ALL BATTLE STATIONS! MAN ALL BATTLE-
STATIONS! |||

WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA
AND I WANT TO TELL YOU ||| SECURE ALL HATCHES! SECURE ALL HATCHES!
WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA
ABOUT THE TERRIFIC VIEW UP HERE ||| PREPARE TO DIVE! PREPARE TO
WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA
DIVE! ||| NO I MEAN I WANT TO TELL YOU ABOUT THE GLEN ELLYN
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TOY AND CARD SHOP ||| DIVE! DIVE! DIVE! ||| 476 MAIN ST
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SUB, I'M A GLIDER RRRR RRRR RRRR RRRR RRRR RRRR RRRR RRRR RRRR RRRR RRRR RRRR
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WAC!

RIC GAFF
331 THIRD ST.
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60093

