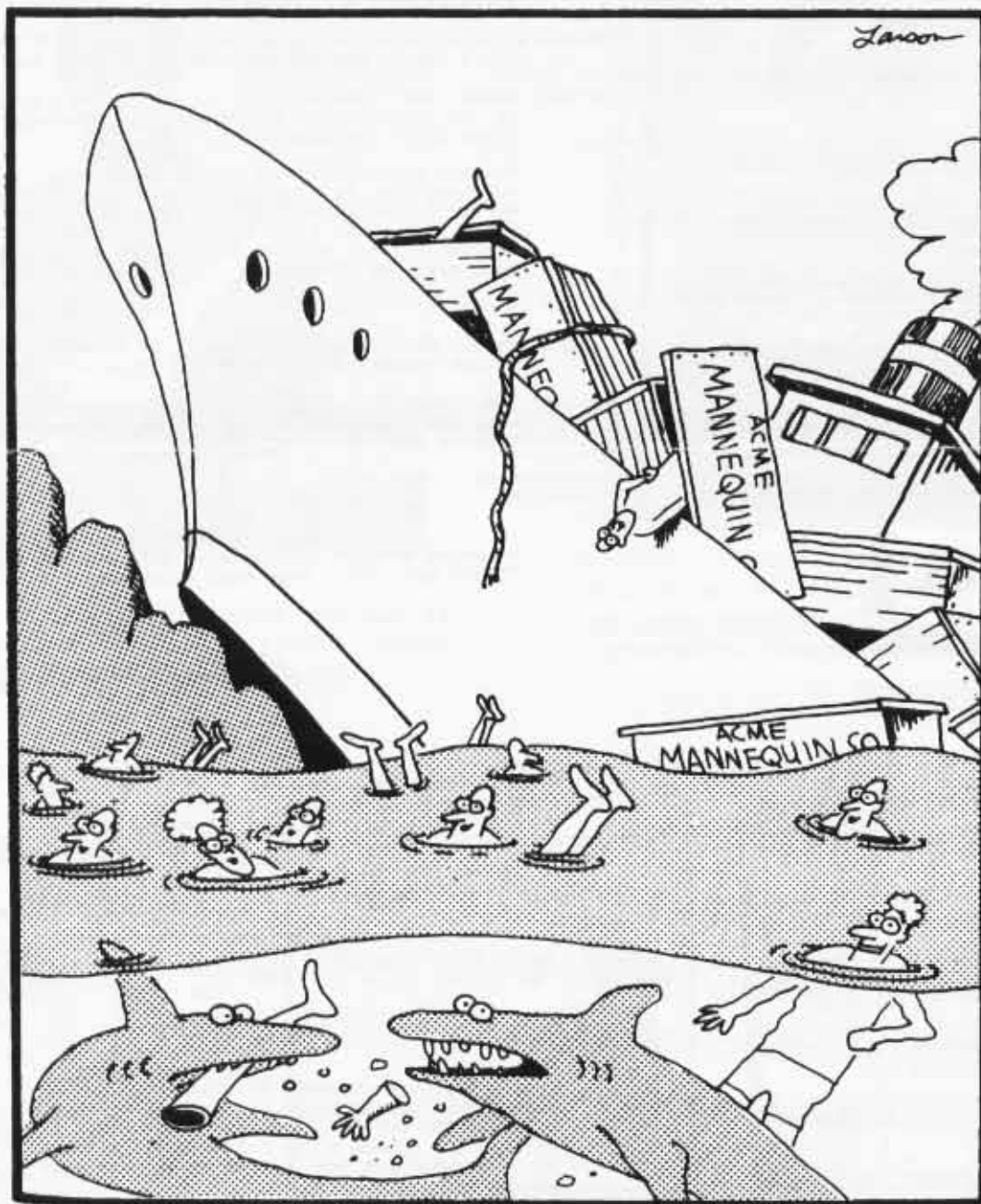


THE LEADING EDGE



"What is this? ... Some kind of cruel hoax?"

JULY / AUGUST 85 VOLUME 8 NUMBER 4

FROM YOUR FORMER EDITOR

Welcome to this "CHAD" issue of the Leading Edge. Between flying contests and winning the National Championship and losing our new editor, this issue became two months late. Rather than let the newsletter fall farther behind schedule me and Jedi-George decided we would both do an issue. He would do his first issue (number 5) as a new issue while I did number 4 as an all reprint issue. We generally don't like to do this sort of thing (and this is the first time we've had to do this) hopefully it won't be necessary to do it again.

With this issue we lose Larry Mika as editor of the Leading Edge while he continues his education at Champaign-Urbana. While Larry only did three issues as editor he did an excellent job and we wish him the best at school.

Ric Gaff

T MINUS 1

CLUB LAUNCH September 22
Ackerman Park 2:00 PM

MONTHLY CLUB MEETING Oct. 4
G.E. Civic Center 7:30PM

E.T.R. - 15 October 5-6
Regional meet Bong, Wisc.

F Boost/Glide
1/2A Rocket/Glider
C Int. Streamer Duration
1/2A Altitude
Sport Scale
B HD
B Eggloft Alt.
NO STUPIDROC!!
Duration Sat. Altitude Sun.

CLUB LAUNCH October 13
Ackerman Park 2:00 PM

Gee, they must have meant business, 1984 came and went, and no But what's this arriving in the mail? Can it be? Is it really..

ETR - FIFTEEN!

Never mind what happened to ETR-14, we're calling this ETR-15 anyway

Events chosen for Ric's prang seeking movie camera:

F (Condor!) BG	B (Hummingbird) Eggloft Altitude
1/2A (Hornet) RG	1/2A Altitude
C International SD	B HD
Sport Scale	Absolutely NO ***! STUPIDROC

For all glider events: NO ***! FLEXIES! Data Reduction: Geodesic TI-59

Date: October 5-6, 1985 Regional Meet

Location: Bong field - between Kenosha and Burlington on route 142.
See the traditional map on the reverse side.

Sponsor: Northern Illinois Rocketry Assn. (NIRA) NAR section #117.

Fees: All divisions \$5.00 in advance, or \$7.50 at the contest.
You must have insurance to fly. License and insurance checked before flight cards issued. One day insurance is \$2.00/day.
There is also a \$5.00/car/day fee to enter the park.

Schedule: Duration 9-5 Saturday only. Tracking 9-1 Sunday only.
Scale turnin 5pm Saturday. Scale flights Sunday 1-3 only.

Motels, Meals, etc.: Can be found in nearby Burlington, Kenosha, or at the intersection of I94 and 142. Camping is now allowed; check in at the gate.

Rainbow Motel 733 Milwaukee Av Burlington (414) 763-2491 (\$25-36)
Budgetel Inn I94 & on Rt. 50 Kenosha (414) 857-7911 (\$18-29)
Howard Johnsons I94 & Rt. 50 Kenosha (414) 857-2311 (\$30-48)
Motel 94 Rt. 142 & I94 Kenosha (414) 859-2221 (\$20-35)
Easterday Motel Rt. 142 & I94 Kenosha (414) 859-3020 (\$??)
Bong Motel Rt. 142 & 45 Has all of 10 rooms!

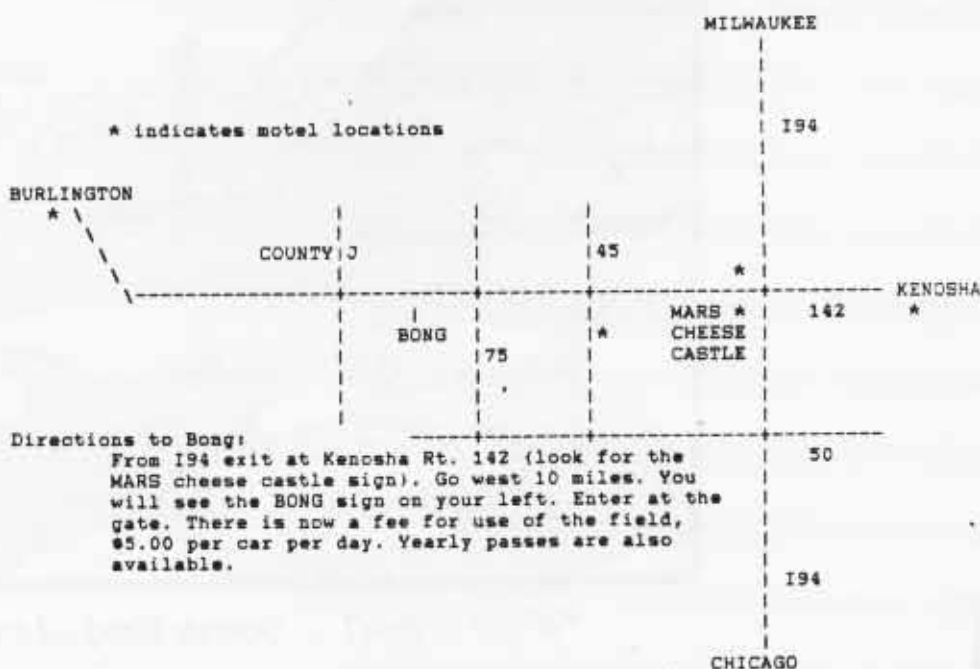
Record Attempts: Will be allowed as time permits. Sport flights too!

Launch system: Misfire Alley! You will be expected to supply your own launch systems and STOPWATCHES. Eggs will be provided.

Prizes: Yes, Virginia, there will be prizes. Trophys to first place in each age division, and more. Come and see the loot to be given away to the best modelers in the midwest.

Registration: Ric Gaff or phone: (312) 724-2975
Questions: 331 Third St. and ask for "Mr. ETR"
Etc: Northfield, IL 60093

A public service message from NIRA and KGB AREOSPACE
"These guys don't even need a basement" Productions



MODEL OF THE MONTH WINNERS



The Model of the Month Winner for May is Scott Jones and his Mirage plastic model conversion. Congratulations Scott!



The Model of the Month Winner for June is Larry Mika and his F105 plastic model conversion. Congratulations Larry!



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! Membership dues are \$3.00 per year and include a one year subscription to the Leading Edge. Non-member subscriptions are available for \$5.00 per year. All membership and subscription fees should be sent to: Bob Kaplow, 1628 Watford Lane, Palatine, IL 60067. Articles, plans, other newsletters and news items of interest should be sent to Larry Mika, 7965 Inglewood Court, Woodridge, IL 60517. Any material published in the Leading Edge may be reprinted by non-profit groups if proper credit is given.



Although an unexplained phenomenon, there is a place on the outskirts of Mayfield, Nebraska, where the sun does not shine.



B BEAKER 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???

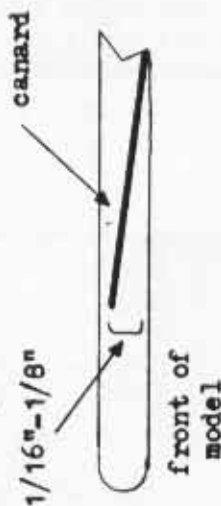
Recommended engines:

B4-2, C6-3

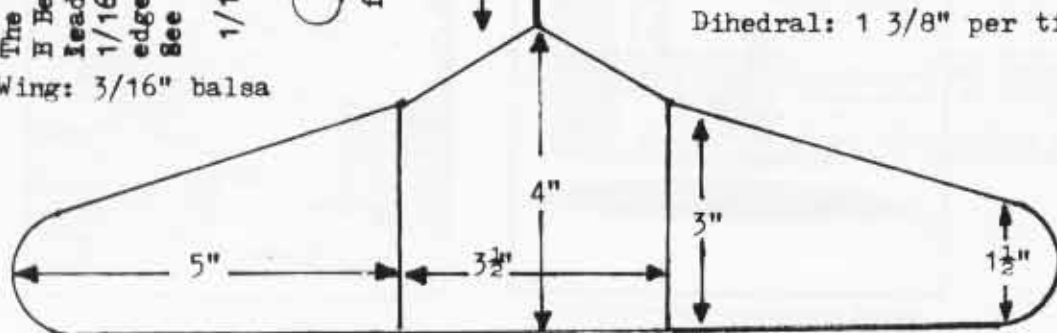
Canard:

1/8" balsa

The canard angle was omitted from the B Beakers plans last issue. The leading edge of the canard should be 1/16"-1/8" higher than the trailing edge. (Darth said to "experiment".) See diagram for details.



Wing: 3/16" balsa



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

All flying surfaces
covered with tissue.

Dihedral: 1 3/8" per tip.

Piece "X" is glued
to boom.

Pod core is covered
with 1/32" plywood

Pylon is 3/4" tall.



Rudder:
1/8" balsa



BT-20
pod

CONDOR

TEN YEARS OF ETR TERROR

Reprinted from Vol. 6 No. 2 Leading Edge

"Condor", or F powered, HG and RG have been a tradition at ETR regionals for 10 years. They have played no small part in giving ETR a "wild and crazy" reputation. ETR-2 was my first experience with Condor. I wasn't flying the event, but it was hair-raising anyway! After that, all the ETR's and crazy Condor flights seems to merge into a lump, like one big contest. I'm sorry if I get confused about exactly which ETR the following flights occurred. The main purpose of the article is to examine the serious, hilarious and memorable aspects of Condor HG flying. If I start to sound like Howard Kuhn, please stop me!

John and Mike Kalb made the biggest impression on me at ETR-2. Each one had an interesting flight. John flew a large swept wing "Thunderbird" like model. The bottoms of the wings were covered with a layer of fiberglass. John had flown this model dozens of times with four C6's. At ETR-2, he decided he needed more power. He stepped up to the Enerject F67, the most powerful motor available at the time. For that additional edge over the competition, he used a piston! The model flew great for about ten feet before it disintegrated into balsa bits (a new breakfast cereal?). No one realized then that a long and balsa-stained history had begun.

Mike's Condor, while more unusual than his dad's, shared the same fate. Green Giant frozen foods were giving away large styrofoam gliders for a promotional gimmick. A good thought, but they'd never met Mike. The glider was a "natural" Condor conversion. Mike flew it with an Estes D12 staged to



Mike Kalb and his Jolly Green Prang! A familiar sight with Condor; ETR-4.

and FSI F7. The D boosted it really nice. The model was a shoo-in to win until the F7 fired.

The FSI F7 is a fascinating motor. No other can compare with its long nine second burn and its meager thrust levels. When the F7 second stage fired, the "model" promptly started looping around. Shades of Bernie Biales! Fortunately, the glider never reached the ground while looping. It did circle a small private plane before crashing.

The model made an encore appearance two years later, somewhat refurbished. This time it flew with clustered D12's, but that didn't help. The model thrashed around a bit before it crashed, thankfully for the last time. In a fit of divine justice, it nearly creamed its Frankenstein-like creator!

The main architect for shaping (or warping) ETR's direction was Highland Park's latter day hippie, Steve Berhends. Interested in counter-cultures and radical causes, Steve kept Condon on ETR's schedule for its prang possibilities. (He also introduced the "Saturday Nite Live" activities. It was no accident that ETR was held on the Fourth of July weekend.) A universally known wildman, and sometime thorn-in-the-side of some folk, Steve's four consecutive National Championships left his building and flying skills unquestioned.

Steve's first memorable Condor was the "Eiger". Steve flew HG's named "Eiger" in several sizes. His Condor version was small, about 12"

wingspan, flown with an F7. After a first flight DQ, Stevie elected to fly it tail-first, just to watch it corkscrew into the air and add another statistic into the ETR prang records. After the predictable result, Steve set the remains on fire.

His "Beaver" was a bit more interesting. It was the first "internal parasite" flown at ETR. Plans can be found in the May 1976 issue of the Rocketeer. (Ed. Note: I'll xerox these for anyone who's interested; just let me know. - RG) The glider is a very high aspect ratio swing-wing with a single pivot. The single pivot allows the wings to lay on top of one another, and the whole mess fits into a BT-60 breakaway booster.

A crude, night-before effort, the Beaver was designed so as to just have an entry. A two-staged D12/E5 flight yielded a two minute flight and a first place at ETR 6.

Dave Cook made his mark at ETR 8. His weapon of choice was a rear-engined delta-winged model. With the ever present F7, it was unstable from the moment it left the rod. Somersaulting about the launch site, the bird hit the ground behind the launch table, scattering people everywhere. After crawling along the ground for several feet, the model flew back into the air, ran out of steam and died behind the launch tent. In its nine second life, Dave's little wonder had made three straffing passes at yours truly who was steadily recording the event on film and making his life insurance agent think twice about renewing the policy.

The prang lover's paradise (and if you've made it this far, you qualify!) had to be ETR 7. We thought ETR 7 was really going to be the last one. Honest! So we decided to go out in style by flying both Condor HG and RG! Of the twenty or so folk who entered, nearly all flew both events! While we had winners in HG, no one even managed a qualified flight in RG. Swing wings and slide wings shreaded, pranged and failed to swing or slide. When the weekend was over, the field was littered with the remains, and prang fans had stories to tell for years.



John Kalb's Condor in its' last moments; ETR-2



Steve Berhends and his "Beaver" at ETR-6

There were successful Condors at ETR, and I don't mean the obvious flukes. No one seems smart enough to try these ideas again, so you may want to look closely at these models before you tackle this year's event.

Gret "Fat Albert" Stewart and Tom Hoelle both had excellent Condors at early at ETR 4. They flew large (6" root chord) "Teen Angels", a design of Greg's that he scaled up and down for various events. Power came from two D12's and a mini. Both models boasted fine and glided well. Greg once lost his stab on Flight #1, only to replace it with a slab of $\frac{1}{4}$ " balsa for Flight #2. Tom wowed the crowd at ETR 6 with a straight boost, good transition and great glide. It was the best Condor ever at ETR at the time. Would have been a first if only the DT had worked and Tom returned the model.

John Boren came to his first ever contest, ETR 9, with "Dee Dee IV". This triple D12 powered flopping featured sheeted wings. After a mediocre first flight, John retrimmed and got performance more like an RC sailplane than a H. He took a B Division first with over three minutes total time.

Jedi George showed up at ETR 10 with a modified B HC, a Planigan Flyer. It was strapped to a large black BT-70 booster containing three D12's. A first flight DT recovery insured the win from a second flight flyaway.

Finally, an internal parasite with a bit more care in construction came out of Tom Pastrick's workshop. The "Tapeworm" went aloft in a BT-101 booster with an F100. See the plans in this issue.

Few consistent approaches to this event exist. You've gotten a look at the history of Condor in the Midwest via this article. I've always enjoyed Condor, whether it worked or not, and I suggest you give it a try sometime. It's an event where you can still make a mark as a designer. Whenever you fly Condor, let me know in advance. I'll be there with my camera, just in case (heaven forbid!) it should prang.

Ric Gaff



Mike Kalb and his infamous "Ho-Ho-Ho" Jolly Green Giant Condor with "shotgun" D12's at ETR-4



Keith Vineyard and an early Groundhog swingwing; ETR-4.



Greg "Fat Albert" Stewart makes a hasty repair on his giant Teen Angel; ETR-4



John and Mike Kalb prepare to fly Mike's Jolly Green Giant Condor



Tom Hoelle prepares to fly his giant Teen Angel off a 6' C-rail; ETR-4.



John Boren and his triple D12 flopping. Wings flopped; glider didn't. ETR-9



Jedi with an external parasite: Planigan Flyer and triple D12's.



Dave Cook's delta wing P7 Condor had one of the most unstable and frightening flights ever; ETR-8.

Tom Pastrick (R) and "Kilometers" Rohloff pose with Tom's huge swingwing Condor; ETR-9



BASIC FINISHING

YOUR MODEL'S NOT DONE UNTIL ITS FINISHED

Reprinted from the Leading Edge Vol. 6 No. 3

A lot of NIRA members come out to launches with unpainted rockets or with models given just a heavy coat of a single color. While it's always nice to get out and fly your new creation, taking a bit more time can result in a model guaranteed to turn head on NIRA's range or better yet, win your "Model of the Month" honors at our next meeting. It's not that difficult to get a good finish on your models. It takes a little patience and the few tricks of the trade we'll be outlining here.

To start with, take your time in the basic construction. If you drip glue all over your body tube, or don't cut out your fins straight, no amount of careful paint work will hide those mistakes. Use only the amount of glue necessary, and watch where it goes. If you do get some Titebond or Elmers where you shouldn't, don't despair. Get a damp paper towel and wipe it up before it sets. A damp towel won't harm your model and will clean things up nicely. If you're using epoxy, thinner will work the same trick.

Your model will look much better if you fill in the seams of the body tube. Two ways exists for doing this. The traditional way is to paint repeated coats of sanding sealer onto the seams until you get everything filled in. A faster way would be to use some putty to fill it in. Most scale model builders suggest you use Squadron Shop "Green Putty". You can buy it at Squadron Shop's store at North and 83, or in

other hobby stores around Chicagoland. Use only the amount you need to fill in the gap, and don't try to do the entire seam at once. Work a little bit at a time and don't hurry. "Green Putty" dries hard as a brick, and you'd rather be flying than sanding, wouldn't you?

When your assembly is finished, and you've filled in the seams (or chosen to ignore them), give the model a through going over. Any larger gaps or holes can be filled in with more putty or some spackle (!). Sand the entire model lightly with some 320 or 400 grit sandpaper. Carefully wipe the model down with a dry rag or tack cloth. Then get ready for the "patience" part.

Sanding sealer is a must to fill in balsa grain. You can buy commercial sanding sealer, or make your own. To make sealer, take some baby powder (just like that you powder your chutes with) and mix it with dope thinner. When you get a fairly large amount mixed in, mix in enough dope to thicken the mixture. Viola! Instant sanding sealer! Brush the sealer on in a fairly heavy coat and let it dry thoroughly. Sand nearly all of the first coat off. You aren't trying to build up a thick layer of goop all over your model. You're trying to fill in the low spots. Repeat the procedure with progressively thinner coats and lighter sandings. When you're satisfied, you can quit. Perfectionists have gone through as many as eight coats of this torture!

A potentially faster approach may be epoxy paint. I used this on the original "This Old Rocket", and found it to fill in grain faster than you could say "I'm out of sandpaper, Mom." It added a lot of weight, and the paint isn't cheap, but if you're in a hurry, it may be the ticket.

Another fast way to fill in those nasty fins is to simply rub in some baby powder into the fins, then paint on clear dope. I've used this method more than the home-brew sanding sealer, and like it a lot. Try both before you stick to any one method.

After you're perfectly satisfied with your surface, try one last look at the bird. Hold it up to the light at different angles and you'll quickly see where the surface imperfections are. A base coat of paint will also help point out bad spots. Silver paint is particularly good for showing up flaws. Light gray, flat white or rust are also good base colors.

If you're spray painting, put paint on in light, even coats. Don't try to cover everything at once. When painting a multiple color paint job, start with the lightest color first. They're the easiest to cover up later. If your bird is going to be yellow, blue and black, paint it in that order.

When masking, be careful. Masking tape is pretty sticky stuff, particularly with enamel paints like Testors. Try reducing its stickiness by tearing off a piece of tape and sticking it to your pants leg a couple of times before you stick it to the rocket. I've also been told drafting tape, sold in artist supply shops, is good for masking purposes. In all cases your base coat should be thoroughly dry before you try to mask. Krylon paints are particularly fast drying. Testors will take at least a day to dry out, so beware!



Decals, if applied, should follow the kit instructions. I don't use any fancy "decal setting solutions". These chemicals are supposed to make decals go around curves and irregularities a lot better. Model rockets don't have that many sharp surfaces, so I'll save my money, thank you. Blot off any excess water after the decals' application. A coat of clear, either Clearcoat or Dulcoate, will help hold things in place.

When taking the birdie out to the field, have some paper towels around to clean it off after the flight. The only really tough substance to clean up is "tracking powder", powered chalk used in tracking events. Jedi George conquered that with a heavy Windex spraying, something that shouldn't hurt if you put on that clear finishing coat. Otherwise, a little water and some elbow grease should fix up any stains from the field.

Hope this has provided you with some hints towards better looking rockets. Let's see your special creation flying at the NIRA range this summer, especially at Labor Day!



WAC CORPORAL

SPORT SCALE MODEL
BY TOM PASTRICK

COLORS

GLOSS WHITE

H BLACK-AS MARKED

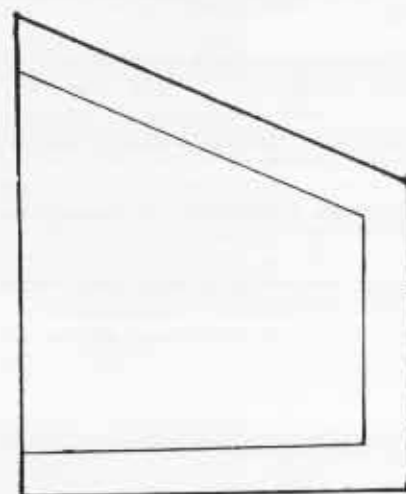
SILVER-ONE FIN

BNC-55AC

16" BT-55

$\frac{1}{2}$ OZ NOSE
WEIGHT

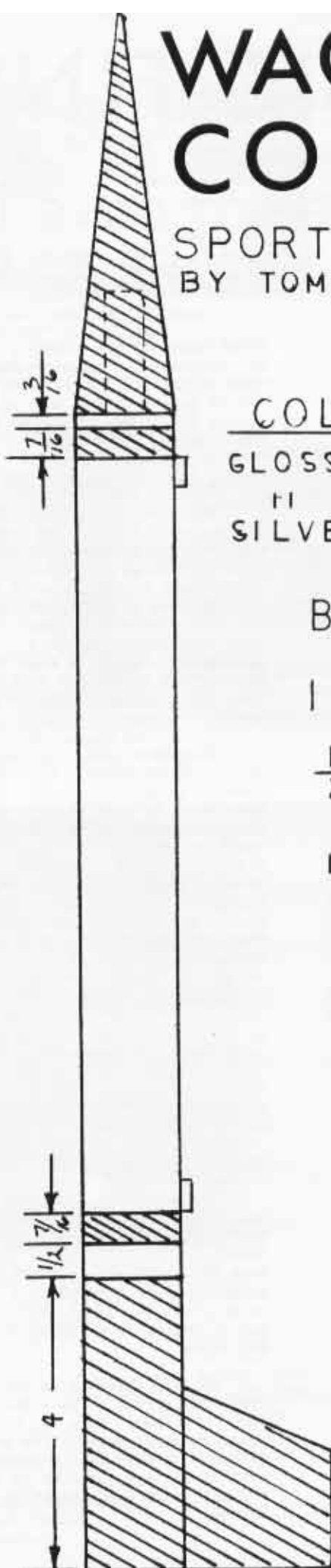
12" CHUTE



FULL SIZE
PATTERN

$\frac{1}{8}$ " BALSA

$\frac{1}{2}$ SIZE



THIS IS A PERKY LITTLE MODEL, ENJOY!

THE AMUSING FLYING **COFFEE POT**



Reprinted from the Leading Edge Vol. 5 No. 2

PARTS LIST

one pound oatmeal box
6 3/4" BT-50 body tube
EM-2050 engine mount
1/16" cardboard or balsa
.030 clear plastic
one nosecone, rounded
one small screw eye
18" shock cord
18" Estes parachute kit
launch lug, 2" long
two black pipe cleaners

1. Cut off the bottom of the oatmeal box, leaving it 6 1/8" long. Trim the overhang from the lid to 5/16".
2. Cut four tube spacers from either balsa or cardboard. The spacers are 5 1/2" x 1 1/2". Grain should run along the short dimension. Glue these spacers to the BT-50 as shown in Figure 2. They should be flush with the end of the tube. Glue on a launch lug as shown.
3. Assemble the engine mount as per kit instructions. Install the mount so the end of the BT-20 sticks out 1/2". See Figure 3.
4. Assemble the shock cord mount. When dry, install it into the BT-50 as shown in Figure 3.
5. If needed, fillet the body tube-spacer joints. When the entire BT-50 assembly is dry, slide it into the oatmeal box and test the fit. Trim the spacers until you get a sliding fit. Glue into place.

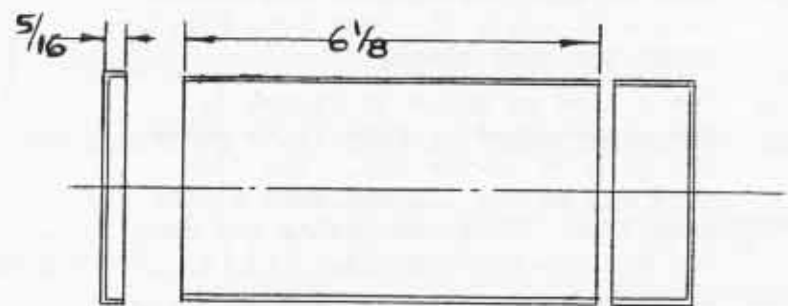


FIGURE 1

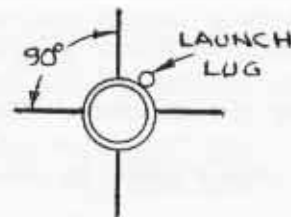


FIGURE 2

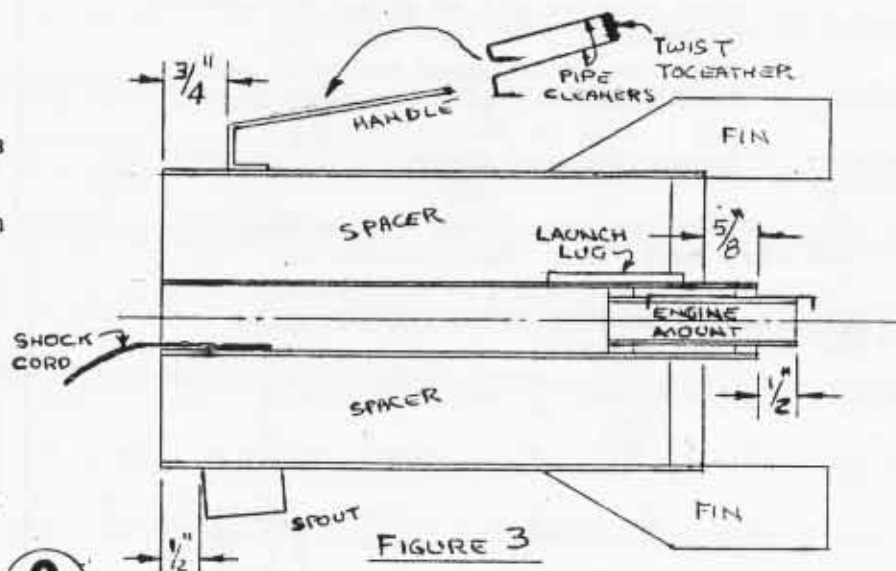
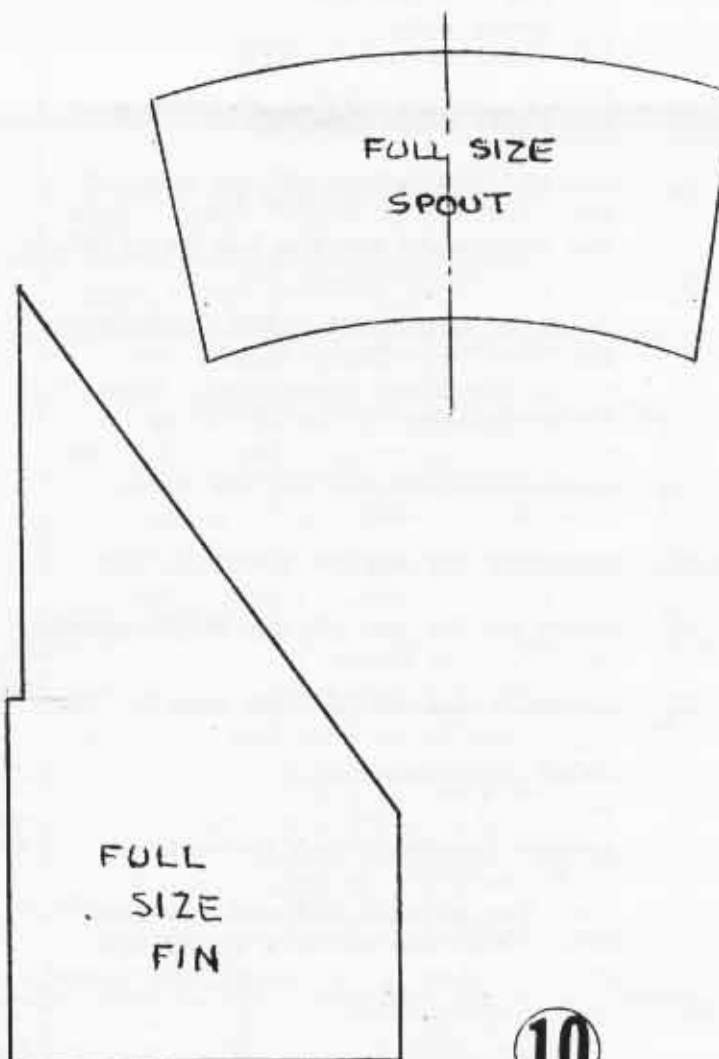
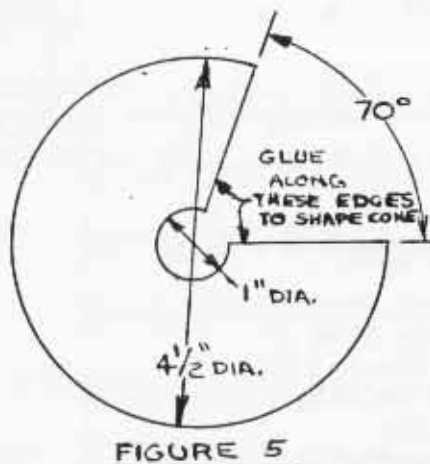
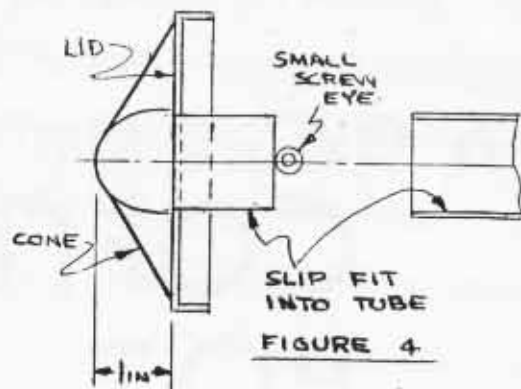


FIGURE 3

6. Shape the nosecone to resemble a coffee pot perculator knob. You can carve your own or modify a commercial nosecone. Make a hole in the center of the lid just large enough to accept the smaller diameter of the knob. Glue into place. See Figure 4.
7. The spout can be made from cardboard or clear plastic. See the full sized layout. Roll the spout into shape and glue to the pot as shown in Figure 3.
8. Spray paint the lid and container with dull aluminum paint. This is important for realism. You may want to seal the oatmeal box with a couple of coats of clear dope first. Paint the knob black.
9. Cut a disk as shown in Figure 5. Use clear plastic, form it to shape, and glue it to the lid. The disk must fit on the lid and knob at the same time. This cone helps cut drag and improve performance.
10. Twist the pipe cleaners together and bend to a handle shape. Glue to the pot. See Figure 3.
11. Use the full size layout and cut four (4) fins from clear plastic. Glue the fins to the pot in the same spots as the spacers. The fins are attached to the outside with epoxy. See Figure 3.
12. Assemble the parachute. Tie all the recovery system parts together and you're done!

NOTE: The fins, handle and plastic nose disk must be put on after the pot is painted. If done properly, the glue dries clear and will not be noticable. Also remember to put a hole in the lid so the launch rod can clear.

The "Coffee Pot" was flown with a C6-3 and flew just fine. Many thanks to Bunny, Bullet and Ric for suggestions. Good luck with your latest model, good to the last flight!



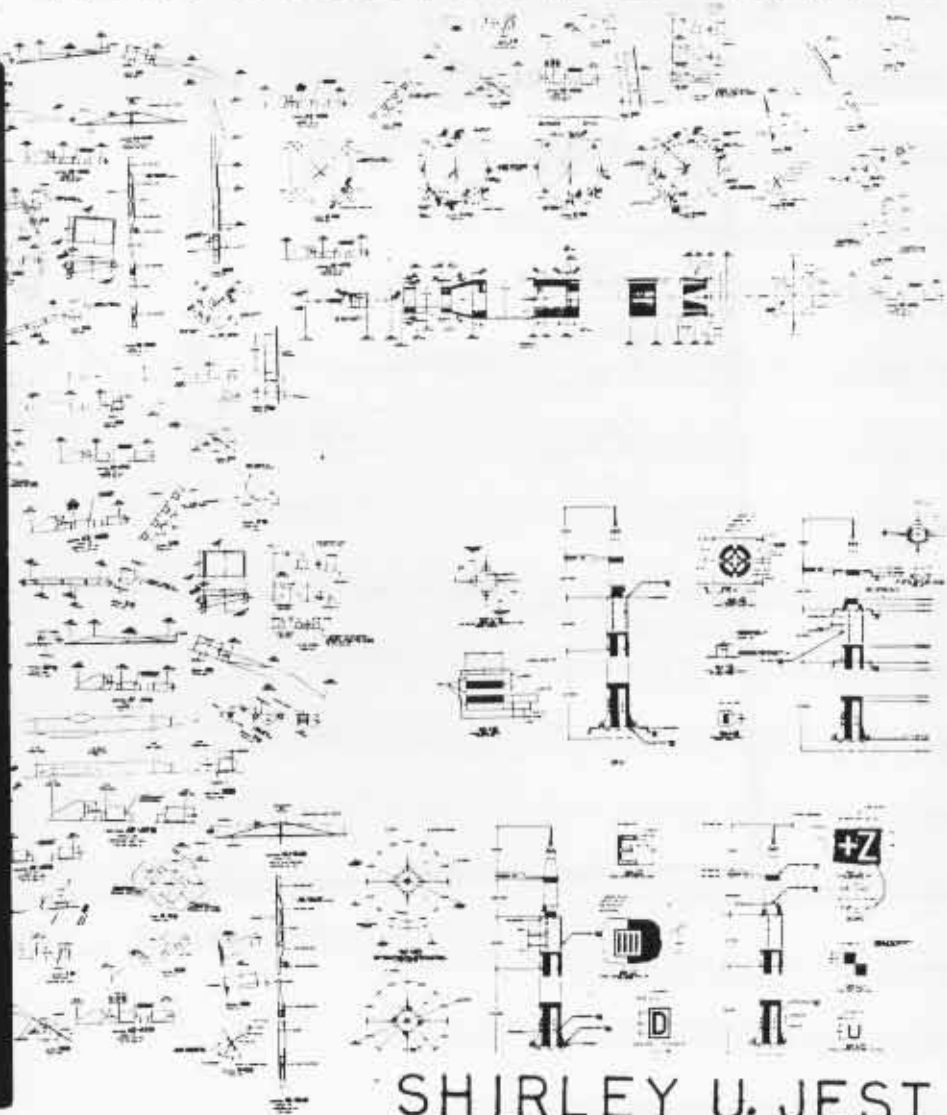


BOXING SATURN

SATURN V DATA

Reprinted from the Leading Edge NARAM-24 issue

DATA COURTESY OF NARTS



SHIRLEY U. JEST

ROUTAGE

V

AIR

49

RICHARD GAFF
331 THIRD ST.
NORTHFIELD IL 60093

