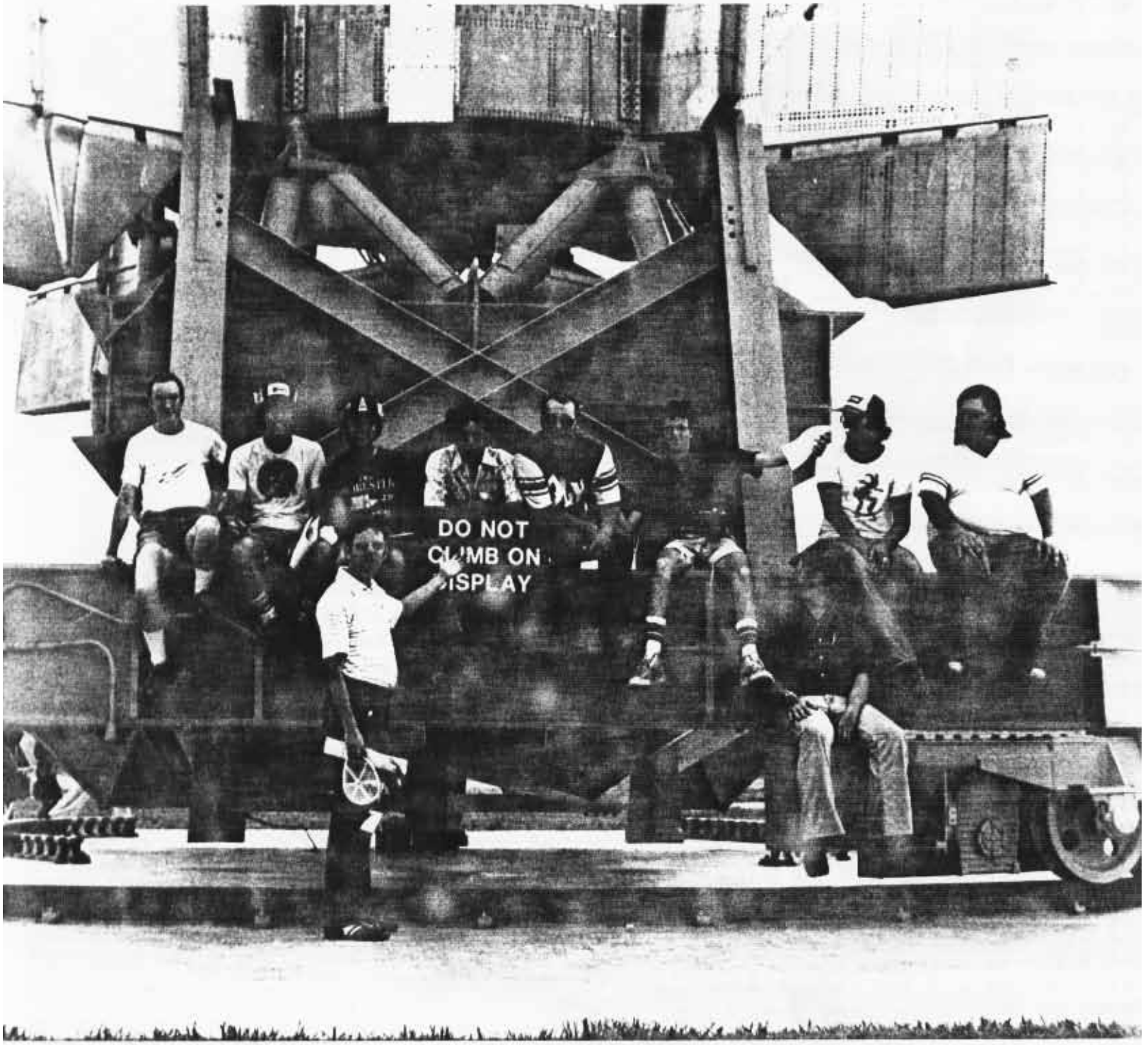
THE LEADING EDGE



WINNER OF THE 1982 LAC NEWSLETTER AWARD

NAR Top 10 as of July 1, 1983

A Division

	Name	Points	WF
1.	H. Rose	2724	12
2.	C. Robart	2203	12
3.	M. Schmitt	2196	12
4.	J. Butts	1426	10
5.	R. Lisak	1174	10
6.	H. Olson	1032	9
7.	J. Carpenter	670	8
8.	M. Fremont	661	5
9.	T. Collins	483	3
10.	T. Jensen	444	3

B Division

	Name	Points	WF
1.	K. Mizoi	2990	12
2.	D. Gugick	2122	12
3.	L. London	2043	12
4.	P. Peterson	1455	6
5.	B. Fox	853	4
6.	K. Kuczek	789	3
7.	H. Pho	774	4
8.	D. Enos	666	3
9.	M. Sykos	528	6
10.	R. Hironaka	512	4

C.Division

1.	J. Vincent	2540	12
2.	A. Nienast	2376	12
3.	J. Zingler	1929	12
4.	R. Koenn	1798	10
5.	R. Boyette	1608	9
6.	D. Bachman	1292	10
7.	R. Redd	969	7
8.	Dave Wolf	956	8
9.	Dan Wolf	693	6
10.	G. Riebesehl, Jr.	687	6

Teams

1.	Beedrin-Langfid	2952	12
2.	Zunofark Blues Band	2783	9
3.	Lou Dick	833	6
4.	Skymasters	609	3
5.	Flintstones	642	3
6.	Dilligas	480	3
7.	BG Team	462	3
7.	Fox Team	462	7
9.	Mean B Machine	459	3
10.	HHS	278	2

Sections

1.	PULSAR	17116	12
2.	NIRA	9048	12
3.	Space Coast	6910	12
4.	WWAR	6018	12
5.	ROMAR	2523	4
6.	Orange Rocketeers	2252	10
7.	WARP	1842	7
8.	NOVAAR	1775	5
9.	South Bay	1677	5
10.	LA Rocket Society	1600	5

FOR TRADE OR SALE!!!

I have a collection of plastic models, all unbuilt and some still in wrappers. Almost all of them are convertable and some are collectors items. Any or all of them can be yours for the right price. I would prefer to trade for Old, Obsolete or foreign motors, but I will accept cash. A few examples; Hawk Saturn, Revell Vostok, MPC Titan and the Aurora Pan-Am Space Clipper to name just a few of the 50+ kits I am selling. A complete list of kits is available from Ric Gaff here at NARAM or write to Ric Gaff, 331 Third St., Northfield Ill, 60093. You don't want to miss this great deal!!!

Welcome to this the expanded NARAM issue of the Leading Edge. Unlike past versions of this newsletter we don't have as much humor (for better or worse!). Basicly this is a "Best of the Leading Edge" issue. In an effort to prevent some wag commenting that "you can't have a best of... issue until you've had the best", this will remain simply the expanded NARAM issue.

Since the material in this issue comes from many different past issues, the formats will be a mixed bag. Since I'm basicly a lazy person I hope no one will mind this somewhat bizzare mixture of formats, as I have no intention of changing them all!

For those of you who are reading our newsletter for the first time, I want to remind you that this is not a normal size issue. The Leading Edge is normally 12 pages long but every bit as good as you see it here. In fact to get a real feel for tLE and NIRA you really should subscribe (just a not so subtle hint!).

Lastly I want to wish you the best of luck here at the Silver Anniversary of the NARAM (even PULSAR!!) So have fun, try not to fry, and read your Leading Edge!!

MODEL OF THE MONTH WINNERS

The Model of the Month winner for May is Jim Houge and his puesdo-scale sounding rocket. Congratulations Jim!!

The Model of the Month winner for June is Henry Veldenz and his F5 plastic model conversion. Congratulations Henry!!

COVER PHOTO

"DooDooDooDoo DooDoo". Come with Bob Kaplow into the Twilight Zone of rocketry as he flys a Happy Meal with a standard size 1/4A engine. (Yes, a standard size 1/4A!)

THE LEADING EDGE

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ETR12

The latest version of the "last" ETR came to life over the Fourth of July weekend at Bong Field. Seventeen competitors proved that the Midwest's oldest regional is still alive and well. ETR-12 was really two contests in one. All glider events were flown on Saturday, and all altitude events were flown on Sunday. Fog hampered the start of flying on both days, but in general, the weather cooperated throughout the contest.

A HG flying was ok overall. A and B Divisions didn't produce any flights of note. C Division produced a close race. Tom Pastrick had the best single flight, but couldn't back it up. Al Neinast's small swingwing glided the best in neutral air. Jedi's slide wing, refurbished from a previous NARAM, was second. This event set the tone for the rest of the glider events; don't expect any help from thermals.

B HG again saw few notable A/B efforts. C division's top three placers ended up within six seconds of one another. Bunny's "Skokie Swift" a slidewing with upside down butterfly tail was the winner followed by Al Neinast and Jim Zingler's swingwings. One of the few non-conventional models flown was Martin Huber's canard HG. Influenced by Geoff Landis' work at MIT, Martin tried twice to get the Beakers s style model to go up straight. It insisted on doing 15' diameter loops.

Mark Schmitt with his F HG before it went shread city.

The Winners! Al Neinast (C Div.), Pat Peterson (B Div.), and Mark Schmitt (A Div.).

C BG belonged to the flexies. Pat Peterson blew away his second flight to win B Division by a huge margin. Jim Zingler set a new National Record with 7:07 and a non-DT'ed bu returned flight. The Dual Egglofters Team had an "old style" flexie. It looked like a standard BG when all its surfaces deployed. Its flight was much faster than a normal flexie, but slower than a normal BG. They finished second.

F BG has been a standard ETR event for many years, and it always attracts attention. Pat Peterson, flying what has to be the ugliest booster in the world, won B Division with a flexie. Mark Schmitt gave him cause to worry when he brought out a super-strong standard glider. Alas, it wasn't strong enough and shreaded twice. Jedi George took three deep breaths and stepped up to F7's in his latest Flagship RCBG. He turned in two flawless flights to win in C. Ric Gaff's F7 parasite corkscrewed off the pad, but lived, glided down and took second. Bunny's Apteryx did stalls for the second year in a row, and was third. Jim and Al flew pivot-wing gliders in BT-101 boosters powered by composites. Both had catos. These flights were heartstoppers, tending to fall back a long way before ejection.

C Superroc saw its first two flights get tracked to the cloudbase! It was foggy! After the skies cleared, the tracking was a bit more normal. No earthshattering designs or flight here. Tom Pastrick had the best overall score. There were only a couple of DQ's here.

A Altitude proved to be a tracker's nightmare. Nearly 20% of the models got a track lost. Mottled sky and little tracking powder were blamed. The Dual Egglofters had an excellent flight here. Maybe Bob does know something about altitude events!

C Payload proved to be the modelers' nightmare. The wind started to pick up, so you were in for a long chase with parachute recovery. Jim and Al went 1-2 in C, proving once again, that if there's something to be lofted, the guys from Wisconsin sure know how.

D Eggloft was probably the worst event of the meet. Only seven altitude scores emerged out of 24 flights. This has to be a terribly costly event to make a mistake in. D's aren't cheap, but losing those CMR capsules, either to a no return or prang, is even more expensive. "I love eggloft!" Al Neinast has the best flight.

Awards were dispensed fairly quickly after the flying, due in large part to Judy Kaplow's help and no judging events. A NIRA thanks to Alan Jones' power inverter which supplied power to Bunny's TL-59/PC-100. Kits went to the "best flight of the meet" and trophies to the overall winners. Al Neinast's F50 power prang of a massive swingwing won him the prang award.

See you next year at absolutely, positively, most assuredly the last ETR!

ETR-12

A DIVISION	A RG	B HG	C BG	F BG	A Alt.	C Pay.	C SR	D El	POINTS
1. Mark Schmitt	39/ 39-1	79/ * -1	122/* -1	NG/SHR-*	195/192-2	281/329-1	753/637-1	NC/UNS-*	747
2. Howard Olson	43/NVB-2	SHR/* -*	SHR/SHR-*	***	TL/255-1	NR/* -*	611/721-2	BRK/303-1	321
3. Steve Sangerman	NVB/* -*	***	***	***	TL/NC -*	NR/TL -*	717/717-3	TL/* -*	42
4. Tom Eckles	***	***	***	***	65/NC -3	UNS/ * -*	***	SEP/* -*	18
B DIVISION									
1. Pat Peterson	NG/NG -*	SHR/76 -1	71/287-1	153/SEP-1	101/247-1	362/ * -1	CRP/723-2	SEP/CAT-*	753
2. Larry London	51/NG -1	NG/SP-*	32/* -2	UNS/NG -*	TL/209-2	TL/ * -*	SP/963-1	383/ * -1	516
3. Tony Lentini	***	***	***	***	TL/SP -*	***	***	NC/* -*	0
C DIVISION									
1. Al Neinast	89/95 -1	94/88 -2	75/141-5	55/PRG-*	***	NC/421-2	1065 -3	413/399-1	576
2. George Riebesehl, Jr.	89/82 -2	SHR/SHR-*	90/177-3	187/199-1	239/ * -4	348/NR -3	538/579-6	CAT/ * -*	423
3. Jim Zingler	33/69 -6	74/107-3	427/?? -1	RB/21 -5	TL/295-3	TL/426-1	1068 -2	NR/NR -*	399
4. Mark Bundick	89/71 -4	79/108-1	104/NG -7	RB/83 -3	184/ * -6	281/ * -4	***	UNS/ * -*	330
5. Tom Pastrick	113/48 -3	9/NG -5	101/135-4	RB/ * -*	SP/231-5	NR/ * -*	1081 -1	237/TL -3	252
6. Ric Gaff	NG/ * -*	57/90 -4	46/129-6	153/* -2	300/ * -2	NC/ * -*	433/ * -7	BRK/ * -*	165
7. Dual Egglofters	***	SEP/ * -*	213/174-2	***	UNS/309-1	TL/ * -*	680/ * -5	NC/ * -*	126
8. Tim Vaccaro	52/36 -7	***	SHR/28 -8	***	NC/129-7	238/251-5	UNS/ * -*	271/251-2	63
9. Martin Huber	86/57 -5	NVB/NVB-*	RB/NG -*	***	TL/* -*	SAF/* -*	930/938-4	NC/ * -*	21
10. Braxton Miller	***	***	***	***	TL/ * -*	***	***	SP/ * -*	0

KEY: BRK - Broken egg; CHU - No Chute; HNG - Hung on pad; LST - Lost by timers; MIS - Three misfires; NC - No close; NDP - No deployment; NG - No glide; NR - No return; NVB - Non-vertical boost; PRG - Power prang; RB - Red Baron; ROT - No rotation; SAF - Unsafe flight; SEP - Separation; SHR - Shread; SP - Spit engine; TL - Track Lost; UNS - Unstable flight

Prang of the Meet Award: Al Neinast's F50 powered swing wing power prang in F BG

SECTIONS: NIRA - 3021 WWAR - 1359

NOTE: Best SR score given where only room for one score.

Jim Zingler seems oddly pleased with his cato blasted F BG.

Pat Peterson lights his F BG DT, then kisses it for luck.

Al Neinast and the "remains" of his magnificent, huge F swing-wing BG. Prang award was a small consolation.

Larry London's bizzare "glider" made from an Estes Phoenix kit.

ETR 12

Al Neinast, the only person to win two trophies at ETR.

Bunny and Jedi dig in the swamp for RC BG parts (No, you don't normally find them there!) after Jedi's ill-fated third flight.

Something that crawled out of the swamp? Nope, just Pat Peterson's F BG booster.

THIS IS A PERKY LITTLE MODEL, ENJOY!

THE AMUSING FLYING

COFFEE POT

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 5½ x 1½. 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 ½". 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.

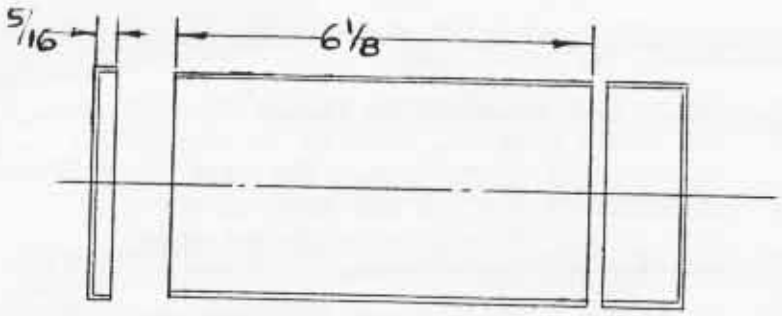


FIGURE 1

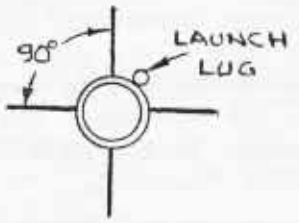


FIGURE 2

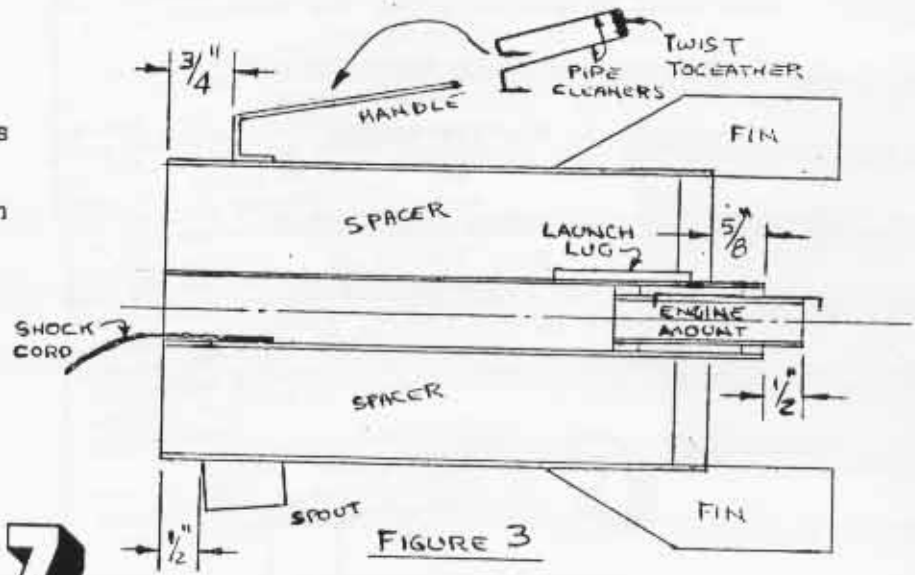


FIGURE 3

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!

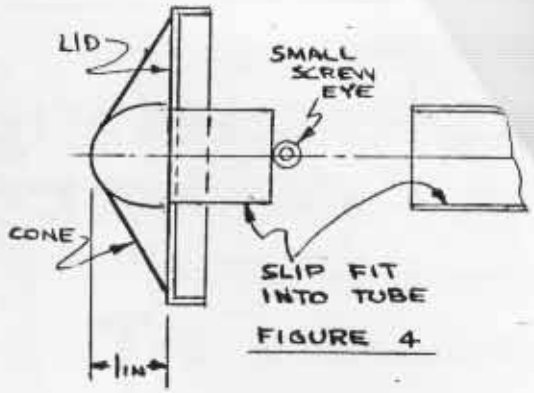


FIGURE 4

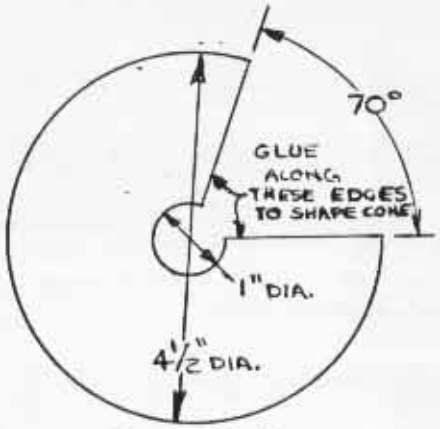
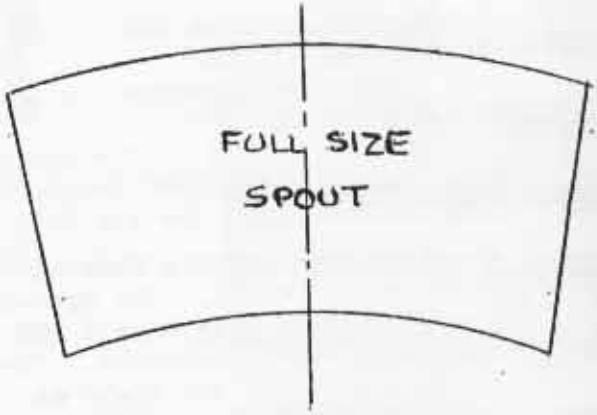
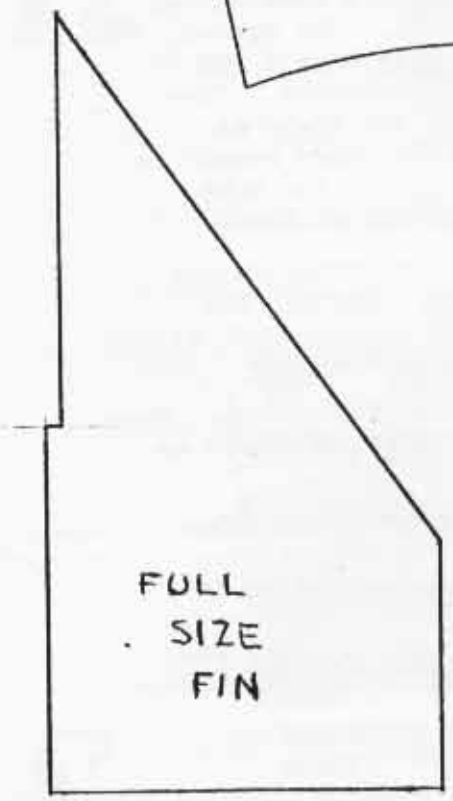


FIGURE 5





WALT SCHALK JR.

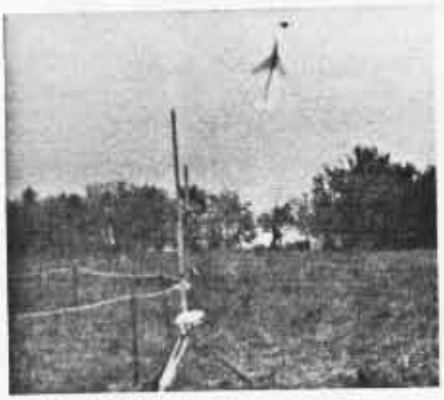
CONDOR

TEN YEARS OF ETR TERROR

"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 occured. 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 that 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



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

Mike Kalb and his Jolly Green Prang! A familar 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 fasinating motor. No other can compare with its long nine second burn and its meagar thrust levels. When the F7 second stage fired, the "model" promptly started looping around. Shades of Bernie Hiales! 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 Prankenstein-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 h ad 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.

Steve Behrends 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 boosted fine and glided well. Greg once lost his stab on Flight #1, only to replace it with a slab of ¼" 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 flopwing featured sheeted wings. After a mediocre first flight, John retrimmed and got performance more like an RC sailplane than a HL. He took a B Division first with over three minutes total time.

Jedi George showed up at ETR 10 with a modified B HL, a Flanigan 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 approches 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 flopwing. Wings flopped; glider didn't. ETR-9

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

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

Dave Cook's delta wing F7 Condor had one of the most unstable and frightening flights ever; ETR-8. ←

ROSE-A-ROC

A HELICOPTOR DURATION MODEL
FOR STANDARD ENGINES

Designed by Art Rose
Plans by "Captain Video"

Eastern competitors have been terrorized by Art Rose's HD model for a couple of years now, but no plans have appeared until now. Our spy, "Captain Video", took some measurements and notes at NARAM-24. Our design is for 18mm engines, but like the famous Rotaroc, can be scaled up or down 50% for higher and lower power events.

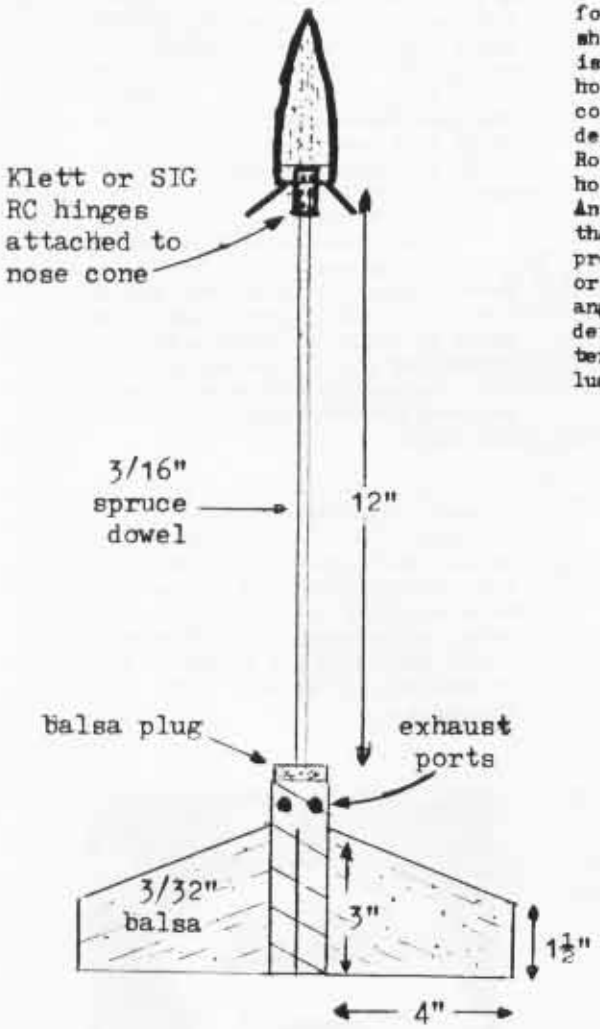
The "Rose-a-roc" improves on the Rotaroc by cutting drag. Rotor blades are cut in half, hinged with adhesive mylar and opened by shock cord rubber Hot Stuffed to the rotor. By folding the rotors completely under the nose cone, drag is cut, and the model boosts higher. Additionally, the rotors are attached to a free-wheeling nose cone. A hole is drilled completely through the nose cone, and lined with a lug. By trapping the nose cone with two pieces of launch lug glued to the 3/16" supporting dowel, the nose cone can spin, the fins stay non-spinning, and RPM goes up. NIRA members at NARAM reported the Rose-a-roc spun faster than any model on the field.

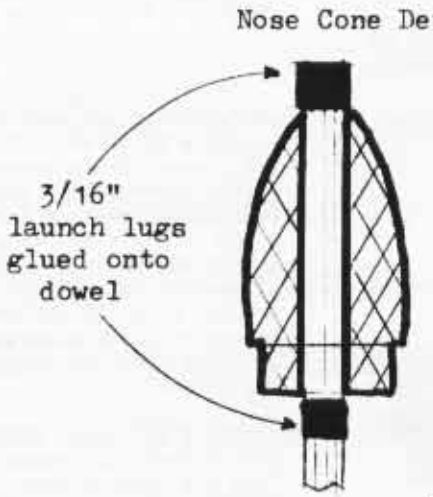
Some of the details on the model are missing. While one hook for the activation rubber band is shown on the rotor, the other hook isn't. I suspect there's a second hook on the nosecone, but can't confirm this. Also missing are the details of the dihedral stop. The Rotaroc uses part of the rubber band holder to adjust the dihedral. Here, An 1/8" sq. spruce stop attached to the root edge of the rotor would probably work here. Finally, the original plans say the pitch, or angle of attack, on the rotors is determined by the location and tension of the rubber band. Good luck adjusting this, guys!

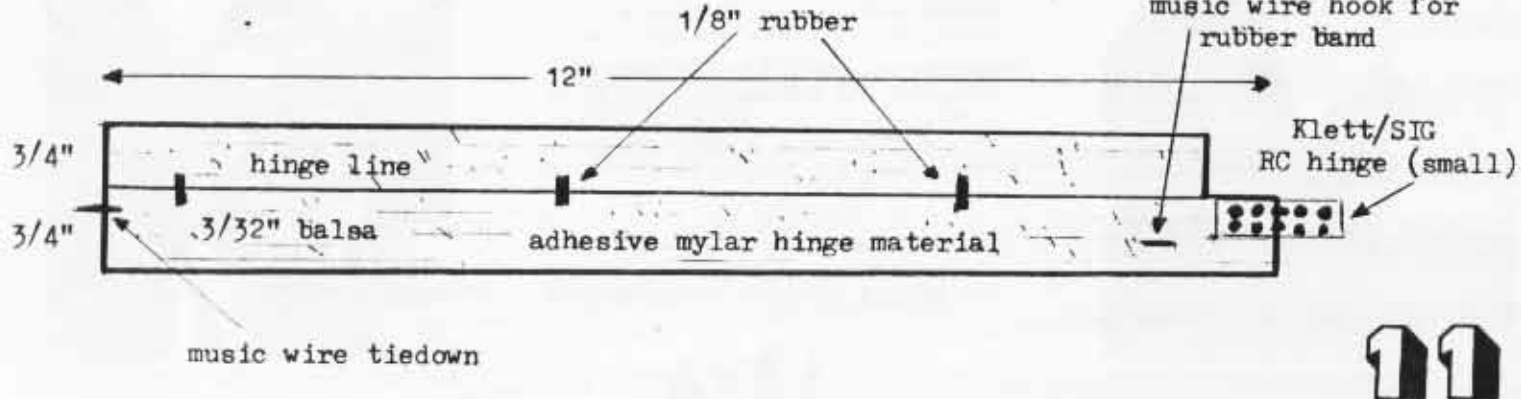
Materials used are pretty standard. You'll need some small nylon RC hinges, and a 3/16" spruce dowel. Make sure it's straight! Make sure you drill the hole through the nose cone straight; a crooked hole means RPM reducing friction.

While we're missing some of the construction details, you hard-core competitors should be able to fill those in, and start giving Art some competition in HD events. The model is as reliable as a Rotaroc, but its performance potential is higher. The construction is a bit more complicated, but the performance is worth the effort. Give Art's little bird a whirl. It's sure to turn heads on the range!

Bunny







M.W.R.C. 83
THE BONG 500

MWRC-83: The Bong 500

The Bong 500", more readily known as MWRC-83, was held over the Memorial Day weekend under cloudy Wisconsin skies. Upon arrival at Bong Field early Saturday, one could see a few clouds but otherwise pretty good weather. Surprisingly, Bong was fairly dry, not the huge mud puddle it was last year.

Most contestants chose to fly 1/2A Helicoptor first. The Don Quixote designs, which normally do well in HD, couldn't seem to operate properly. In combined A/B Division (Larry London was the only B Division Contestant), Larry London took first with a 49 second total. He flew a "Rose-a-Roc" from Leading Edge plans. The rotors are free wheeling for faster rotation. Second place went to Tim Marcy's B second flight; it was the only other qualified flight in A/B. In C Division, after Al Neinast's first flight didn't rotate, he turned in an incredible time of 72 second for first place. Dave Wolf finished second to Al with 49 seconds. He was followed by brother Dan and 39 seconds. Both flew standard Rotarocs.

Jim Zingler watches hopefully as a competitor flys.

Bunny and Beach salute a great MWRC.

Every contestant flying 1/2A RG got at least one qualified flight. It was a tough event to win. In A/B, Howard Olson scored 112 seconds with a Geoff Landis design and won. Jedi George swamped C division with a 108 second first flight and a 33 second backup from a small slidewing. Al Nienast's swing wing trailed with 124 seconds. The battle of slide wing/swing wing continues with no resolution here in the Midwest.

In B BG, Bunny Bundick hopped over C Division competition. He lost his "Skokie Swift" RG to a boomer in Flight #1, but had a backup for insurance and won. Mark Schmitt was the A/B winner with a glider of his own design, similar to a "Flanigan Flyer". Howard Olson had a nice flight with a Bunny design, the "Icarus X", but was DQ'ed for no return.

Saturday's last event was D RG. There were nine entries with but one DQ. After a cato shot Mark Schmitt's RC RG across the field in a ball of fire, he pulled out the Hot Stuff, repaired the damage, and won A/B with 70 seconds. Dave Wolf took the C Division title with a D12 powered slide pod. Al Neinast looked like a sure winner here with a 210 second first flight, but flight two using the same model power pranged! The range shut down with the judges gathering Space Systems models for examination.

Sunday showed a promise for rain as the range was set up for the day's flying. CD Bunny decided that B Altitude and C Superroc Altitude would be flown in rounds with pre-marked engines and weigh-in. All a contestant had to do after prepping was turn in his flight card and launch.

B Altitude saw many tracks lost as small two staged A models streaked into the black clouds forming overhead. Mark Schmitt had four engines purchased at the "Pat Peterson Going out of Rocketry Sale" cato. Al Neinast' fine 395 meter flight was edged out by NIRA's Henry Veldenz and 415 meters. Both flew stagged A's.

Dan Wolf forgot how to fly rockets. The nose cone is upside down!

. Superroc was the last event of morning and was plauged with ping boosts and weathercocking dels. The wind was getting tronger by the minute. The range was hit by a storm about 10 minutes after closing for lunch. Al Neinast avenged his B altitude loss with a fantastic 302 meter flight to win easily.

After the storm and lunch break, Space Systems contestants were given their launch windows, and they started prepping. Howard Olson's General Dynamics Cruise Missle had high static points and was the only entry to land in the recovery area. It won A/B by a convincing margin. Behind him was Larry London and a well finished LTV Scout from the Estes kit. Mark Schmitt's D Region Tomahawk had recovery problems, and my overweight Saturn V, after a 60 foot flight, plummetted to Earth before the three second delay was over. C Division was overrun with Mercury Redstones, as they made up 60% of the entries. Jim Zingler's won, followed by Dan Wolf's Centuri Little Joe II, Dave Wolf's Mercury Redstone and Al Neinast's Astrobee D.

The range reopened for duration flights for an hour, but high winds cancelled all flying for the day. Overall awards went to Larry London's 732 points in A/B, followed by Howard Olson and 486 points. Al Nienast continued to win in C with 576 points. He was followed by Jim Zingler and Dave Wolf. The Prang Award went to Tom Beach who drove eight hours from Iowa State University just to watch.

Bong Field improves with each visit. Picnic tables made prepping easier, and the outhouse on site looked nearly complete. The contestants thought Space Systems was too much bother, but everyone liked D RG. Look for that event and more at MWRC-84!

Steve Sangerman

THE WINNERS!! Larry London in A/B Div. and Al Neinast in C Div. Congratulations, guys!

MWRC 83 RESULTS

A/B DIVISION	B RG	D RG	1/2A RG	1/2AHD	B ALT	C SR ALT	SP SYS	PTS
1. Larry London	85/UNS-*	NG/32 -2	NG/48 -2	19/30 -1	TL/155-4	1005/ -1	370.25-2	732
2. Howard Olson	NR/STR-*	***	36/76 -1	ROT/UNS-*	UNS/298-1	NEJ/414 -4	587.20-1	486
3. Mark Schmitt	49/72 -1	70/ * -1	10/28 -3	ROT/UNS-*	TL/UNS-*	UNS/UNS -*	SEP -*	432
4. Tim Marcy	43/5 -2	***	24/10 -4	8/ROT-2	288/ * -2	932/UNS -2	***	276
5. Steve Sangerman	RB/RB -*	***	***	NDP/ROT-*	SAF/250-3	782/586/-3	SAF	60
C DIVISION								
1. Al Nienast	SAF/41 -6	210/PRG-2	41/83 -2	ROT/72 -1	395/353-2	1159/ * -1	475.95-4	576
2. Jim Zingler	NG/75 -3	19/64 -5	45/26 -3	ROT/ROT-*	296/324-3	1065/ * -2	522.95-1	453
3. Dave Wolf	13/64 -4	81/140-1	34/HNG-7	30/19 -2	310/SAF-4	UNS/946 -4	491.25-3	447
4. Dan Wolf	125/SP -2	PRG/SAF-*	39/20 -6	15/22 -3	UNS/294-5	UNS/914 -6	514.10-2	294
5. Jedi Riebesehl	NG/RB -*	84/71 -3	108/33 -1	ROT/19 -5	***	***	***	264
6. Bunny Bundick	128/99 -1	78/ * -6	14/50 -5	***	UNS/ * -*	***	446.00-5	150
7. Darth Riebesehl	35/39 -4	44/92 -4	70/NG -4	***	***	***	***	108
8. Henry Veldenz	STR/STR-*	***	NG/19 -9	18/13 -4	TL/415-1	885/ * -7	***	75
9. Tom Pastrick	***	***	***	***	NC/TL -*	1013/ * -3	SAF -*	42
10. Ric Gaff	***	***	***	***	152/ * -7	926/ * -5	***	0
Bob Kaplow	SP/ * -*	***	***	***	***	***	***	0
Tim Vaccaro	NG/44 -5	***	11/16 -8	MIS/11-6	165/ * -6	SP/ * -*	***	0

SECTION TOTALS: NIRA - 1,962 UWAR - 1,515

PRANG AWARD: Tom Beach, for driving over 8 hours just to watch!

BRK-Broke Egg NC-No Close NVB-Non-vertical Boost SEP-Separation
CHU-No Chute NDP-No Deployment PRG-Prang SHR-Shread
HNG-Hung On Rod NEJ-No Ejection RB-Red Baron SP-Spit Engine
LST-Lost By Timers NG-No Glide ROT-No Rotation TL-Track Lost
MIS-Three Misfires NR-No Return SAF-Unsafe Flight UNS-Unstable

I'll huff and I'll puff and I'll ... oops! Sorry! Wrong photo! Jedi lights his DT.

Mark Schmitt inspects the damage to his RC B/G as Larry looks on.

Tom Beach; the only person to win the prang trophy without flying anything!

OOOOPPS!! Mark Schmitt's RC B/G prepares to mow the grass at Bong.

MWRC 83

Bob Kaplow questions Dan about his new R/G design, the slide boom.

The Marcy's posted for their first Regional at MWRC and did quite well.

A very laid-back "Jedi" demonstrates the "Mellow Method" of RC model airplanes flying.

Al Neinast and his trained swing-wing.

"This never happened to NASA," Steve inspects his pranged Saturn.

DESIGNING CONDORS

Al Nienast with Jim Zingler's internal parasite Condor.

Let's face it. Cramming 40+ Nt.-sec. into a model that's then supposed to glide back down isn't easy. Even with careful preparation, design and building, you may still wind up with a pile of scraps and a DQ in results. However, the joy of watching a model gracefully gliding high above after leaving the earth in a mighty roar is worth the pain. If you read on, perhaps you can be the next ETR Condor winner, bowing to the applause of fellow contestants instead of hearing the chuckle of Ric's prang seeking camera.

1. POWERPLANTS

The spring season will be the first time we'll see those new Aerotech E6 and F10 composite motors. These may be the answer to the search for a good Condor powerplant; light, reliable and one motor only. They won't be cheap, however. I've always tended toward clustered black powder motors. I've never had a problem with bad ignition, and you can taylor the motors to get a time thrust curve to your liking.

Clustered D12 will work for flexies and parasites. Standard gliders won't make it through the thrust spike, but I wonder if a larger swing-wing might not be the ticket. Terry Lee likes triple E5's; I prefer to use two of them with a D12. The increase in average thrust gets things going in the right direction to start with.

John Boren shows his Condor's power pod. Makes you shudder, don't it?

The F7 can work in Condor, but keep it light, and fly when the wind is low. If your model is too heavy, the F7 is sure to start arcing. The heavier the model, the sooner the arcing. Same thing for wind; higher winds equals more arcing. You'll need some luck here, too.

Finally, don't think you have to use all 80 Nt.-sec. allowed by the event. A successful flight with 41 Nt.-sec. is far better than a shread with 80 Nt.-sec. Adjust your total power down if you have shreading problems until you get something that works.

2. MATERIALS

Nothing but the highest quality goods should go into your Condor. If there's a weakness in them, the boost will point them out graphically. High stress areas should be reinforced with plywood, etc.

For booms and pylons, stick to spruce. The wood you want has tightly spaced grain running along its length in straight lines. Spruce with wavy, widely spaced lines is not good.

I like to increase my balsa wood weights in Condor. While I'll search for and pay more for 4 lb./ft^3. wood in Sparrow HG, I'd rather get 8 lb./ft^3. for Condor. Too many Condors are built too light. Save the weight-saving stuff for later, after you understand what forces are working on your balsa.

C grained wood will always resist warping. Warped surfaces on a Condor are a no-no, so use C grain if you have it.

Hardware sizes should be increased, too. Larger launch lugs, bigger music wire fittings and sturdier recovery systems on pods are all a must.

3. CONSTRUCTION

You can buy good wood and good engines, but building skills aren't for sale. If you've been saving up building energy, better release it for Condor.

Build it straight. Use a ruler to be sure things are lined up like you want them to be. Don't trust your eyesight alone. Use tape, rubber bands, blocks of wood or whatever to jig parts in place and keep them there while the glue dries.

Forget the Hot Stuff. I don't care what anyone says; the security of good Titebond joints or epoxy fillets pays off in Condor.

Cover it up. Tissue, and silkspan are my favorites, but I suppose Monokote is better than nothing.

4. DESIGNS

Parasites are cheap and have a good historical success rate. Any good B or C HG is a canadate for conversion to a parasite. The trick is to get a reliable mounting technique, one that keeps the glider from wobbling around during boost but allows easy pop off when the time comes. Attach your recovery system to the rear of the model so theshock of the opening can shake lose the glider.

Simple front engine models like enlarged Falcons or the old "Thunderbird" can work. Use a minimum power configuration and stregthen the wings. The big design problem here is how to recover all those ejected engines legally.

Variable Geometry seems to make life very difficult in high powered glider events. Al Neinast has both won and lost using large swing wings. Take your pick.

Scaled up models have done well. The "Teen Angel" by Fat Albert is a particular favorite here in the midwest. I'll send a copy of the plans to anyone interested for a SASE. If you want to try something new, try enlarging the "Planigan Flyer". With any enlarged design, pay attention to the pod attachment.

Flexies? Bah! Parachutes!

If you can afford it, RC seems to eliminate many Condor problems. The additional weight of the RC gear slows things down to the point where wings stay on. Exception to that is made if you chose to do aerobatics during boost. For now, these designs have a distinct edge over any other.

5. TRIMMING

Start with a neutral point calculation, then pick a CG position ahead of it to give you some reasonable stability margin. Keep adding incidence until you get a decent glide from shoulder tosses. Then take a test flight. If you try to hand-launch these monsters, you'll end up with a sore shoulder! For parasites and flexies, Condor trimming should be the same as your Sparrow trimming.

6. MISCELLANEOUS

Use a DT. I know there a pain to prep, but if it does work, you want it back, don't you? Put your name and address on the bird, too. It's cheap, costless insurance.

Take the time to draw up the plans. It doesn't h ave to be fancy, but if you don't have a DT, and no one calls to tell you they found your rocket, you'll still have some place to start from for the next version.

Talk to other HG flyers, before and after the flight. They may h ave seen something you didn't. If you shread or prang, pick up the pieces and do some analysis. You can usually determine what went wrong, and be better prepared for the next Condor outing.

Remember, real rocketeers fly Condor HG!

Bunny

"Jedi"-George and his F7 powered R/C Condor at ETR-12

SCALE BODY TUBE SELECTION GUIDE

- Commercial Body tube sizes

Diameter (in)	(cm)	Manufacturer(s)	Designati
0.175	0.444	Estes	LUG
0.375	0.952	Estes	BT3
0.541	1.374	Celestial, Estes, Centuri	BT5
0.558	1.417	CMR	RB50
0.584	1.483	CMR	RB52
0.736	1.870	Celestial, CMR, Centuri, Estes	BT20, RB74
0.752	1.910	Canaroc	100
0.766	1.946	CMR	RB77
0.890	2.261	CMR	RB90
0.920	2.337	FSI, CMR	RB92
0.950	2.413	CMR	RB95
0.976	2.479	Canaroc, Celestial, Centuri, CMR, Estes	BT50, RB98
1.000	2.540	ACE, Crown	INCH
1.170	2.972	Celestial, FSI, CMR	RB120
1.210	3.073	ACE, CMR, Crown	RB125
1.325	3.365	Celestial, Centuri, Estes	BT55
1.340	3.404	Crown, FSI	
1.637	4.158	Celestial, Estes, Centuri, FSI, Crown	BT60
1.870	4.750	ACE (egg diameter)	
2.040	5.182	Celestial, Centuri, Crown, FSI	ST20
2.217	5.631	Celestial, Centuri, Estes	BT70
2.420	6.147	ACE	
2.600	6.604	Centuri, Estes	BT80
3.938	10.003	Ace, Centuri, Estes	BT101

You are ready to start building a scale model, but it needs more than one diameter of tube. Since there are numerous body tube sizes from numerous manufacturers, how do you know which two tubes will give you the best fit with your scale factor? My "Body Tube Scale Selection" table will tell you.

The full table is a cross-reference list for all pairs of body tubes currently available to model rocketeers. To use the table, compute the ratio of diameters on teh real rocket. For example, the Aerobee 350, a favorite with Pat Peterson, has an upper stage diameter of 22.0" and a lower stage diameter of 16.5". The ratio is 22/16.5 or 1.333. Now search through the table diagonally, from upper left to lower right. We find that the Crown 1" tube and the Canaroc 100 tube give a ratio of 1.33! But you say you don't have any Canaroc tubes? Never fear; one step back shows that BT-50 and BT-20 is almost as good at 1.326. A layer of tissue or an extra heavy coat of paint can be used to fudge the tubes to an even closer match.

Building for Scale Altitude and want a smaller model? Moving back toward the upper left shows a 1.319 ratio from the CMR RB74 and RB50. That's perfect for small powered Scale Altitude. What about that monster Sport Scale bird? Moving toward the lower right, we find 1.354, close enough for Sport Scale, from the BT-70 and BT-60.

Once you get the hang of it, the chart is very easy to use. Moving along a diagonal line gives similar ratios with small models in the upper left, and big birds in the lower right. If you're building a model with three or more diameters, pick two major sizes, use the chart and write down your selection. Now recompute your tube ratio using one of the diameters from before and a new one. See if you get a good match in the table when you use the same body tube size from the first time around. You probably won't, but at least you gave it a try before you started rolling tubes

Now that you know what size tubes to use, go and BUILD that perfect scale model!

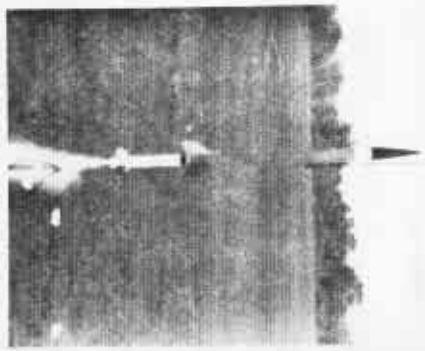
Bob Kaplow

Tube diameters (cm) and ratios (dimensionless)

Tube diameters (cm) and ratios (dimensionless)

	LUG	BT3	BT5	RB50	RB52	BT20	C100	RB77	RB90	RB92	RB95	BT50	INCH	RB120	RB125	BT55		BT60	EGG	ST20	BT70		BT80	BT10
	0.444	0.952	1.374	1.417	1.483	1.870	1.910	1.946	2.261	2.337	2.413	2.479	2.540	2.972	3.073	3.365	3.404	4.158	4.750	5.182	5.631	6.147	6.604	10.003
0.444	1.000	0.467	0.323	0.314	0.300	0.238	0.233	0.228	0.197	0.190	0.184	0.179	0.175	0.150	0.145	0.132	0.131	0.107	0.094	0.086	0.079	0.072	0.067	0.044
0.952	2.143	1.000	0.693	0.672	0.642	0.509	0.499	0.490	0.421	0.408	0.395	0.384	0.375	0.321	0.310	0.283	0.280	0.229	0.201	0.184	0.169	0.155	0.144	0.095
1.374	3.091	1.443	1.000	0.970	0.926	0.735	0.719	0.706	0.608	0.588	0.569	0.554	0.541	0.462	0.447	0.408	0.404	0.330	0.289	0.265	0.244	0.224	0.208	0.137
1.417	3.189	1.488	1.031	1.000	0.955	0.758	0.742	0.728	0.627	0.607	0.587	0.572	0.558	0.477	0.461	0.421	0.416	0.341	0.298	0.274	0.252	0.231	0.215	0.142
1.483	3.337	1.557	1.079	1.047	1.000	0.793	0.777	0.762	0.656	0.635	0.615	0.598	0.584	0.499	0.483	0.441	0.436	0.357	0.312	0.286	0.263	0.241	0.225	0.148
1.870	4.207	1.963	1.361	1.319	1.261	1.000	0.979	0.961	0.827	0.800	0.775	0.754	0.736	0.629	0.608	0.556	0.549	0.450	0.394	0.361	0.332	0.304	0.283	0.187
1.910	4.297	2.005	1.390	1.348	1.288	1.021	1.000	0.982	0.845	0.817	0.792	0.770	0.752	0.643	0.621	0.568	0.561	0.459	0.402	0.369	0.339	0.311	0.289	0.191
1.946	4.377	2.043	1.416	1.373	1.312	1.040	1.019	1.000	0.861	0.833	0.806	0.785	0.766	0.655	0.633	0.578	0.572	0.468	0.410	0.375	0.346	0.317	0.295	0.195
2.261	5.086	2.373	1.645	1.595	1.524	1.209	1.184	1.162	1.000	0.967	0.937	0.912	0.890	0.761	0.736	0.672	0.664	0.544	0.476	0.436	0.401	0.368	0.342	0.226
2.337	5.257	2.453	1.701	1.649	1.575	1.250	1.223	1.201	1.034	1.000	0.968	0.943	0.920	0.786	0.760	0.694	0.687	0.562	0.492	0.451	0.415	0.380	0.354	0.234
2.413	5.429	2.533	1.756	1.703	1.627	1.290	1.263	1.240	1.067	1.033	1.000	0.973	0.950	0.812	0.785	0.717	0.709	0.580	0.508	0.466	0.429	0.393	0.365	0.241
2.479	5.577	2.603	1.804	1.749	1.671	1.326	1.298	1.274	1.097	1.061	1.027	1.000	0.976	0.834	0.807	0.737	0.728	0.596	0.522	0.478	0.440	0.403	0.375	0.248
2.540	5.714	2.667	1.848	1.792	1.712	1.358	1.330	1.305	1.124	1.087	1.053	1.025	1.000	0.855	0.826	0.755	0.746	0.611	0.535	0.490	0.451	0.413	0.385	0.254
2.972	6.686	3.120	2.163	2.097	2.003	1.589	1.556	1.527	1.315	1.272	1.232	1.199	1.170	1.000	0.967	0.883	0.873	0.715	0.626	0.574	0.528	0.483	0.450	0.297
3.073	6.914	3.227	2.237	2.168	2.072	1.644	1.609	1.580	1.360	1.315	1.274	1.240	1.210	1.034	1.000	0.913	0.903	0.739	0.647	0.593	0.546	0.500	0.465	0.307
3.365	7.571	3.533	2.449	2.375	2.269	1.800	1.762	1.730	1.489	1.440	1.395	1.358	1.325	1.132	1.095	1.000	0.989	0.809	0.709	0.650	0.598	0.548	0.510	0.336
3.404	7.657	3.573	2.477	2.401	2.295	1.820	1.782	1.749	1.506	1.457	1.411	1.373	1.340	1.145	1.107	1.011	1.000	0.819	0.717	0.657	0.604	0.554	0.515	0.340
4.158	9.354	4.365	3.026	2.934	2.803	2.224	2.177	2.137	1.839	1.779	1.723	1.677	1.637	1.399	1.353	1.235	1.222	1.000	0.875	0.802	0.738	0.676	0.630	0.416
4.750	10.686	4.987	3.457	3.351	3.202	2.540	2.487	2.441	2.101	2.033	1.968	1.916	1.870	1.598	1.545	1.411	1.396	1.142	1.000	0.917	0.843	0.773	0.719	0.475
5.182	11.657	5.440	3.771	3.656	3.493	2.771	2.713	2.663	2.292	2.217	2.147	2.090	2.040	1.744	1.686	1.540	1.522	1.246	1.091	1.000	0.920	0.843	0.785	0.518
5.631	12.669	5.912	4.098	3.973	3.796	3.011	2.948	2.894	2.491	2.410	2.334	2.272	2.217	1.895	1.832	1.673	1.654	1.354	1.186	1.087	1.000	0.916	0.853	0.563
6.147	13.829	6.453	4.473	4.337	4.144	3.287	3.218	3.159	2.719	2.630	2.547	2.480	2.420	2.068	2.000	1.826	1.806	1.478	1.294	1.186	1.092	1.000	0.931	0.615
6.604	14.857	6.933	4.806	4.659	4.452	3.532	3.458	3.394	2.921	2.826	2.737	2.664	2.600	2.222	2.149	1.962	1.940	1.588	1.390	1.275	1.173	1.074	1.000	0.660
10.003	22.50	10.501	7.279	7.057	6.743	5.349	5.237	5.141	4.425	4.280	4.145	4.035	3.938	3.366	3.255	2.972	2.939	2.406	2.106	1.930	1.776	1.627	1.515	1.000

Tom Hoelle does'nt use commercial tubes in his Ariane he rolls his own! but for the rest of us peons Bob's guide comes in handy.



The Aerobee 350 is a classic model using more then one tube

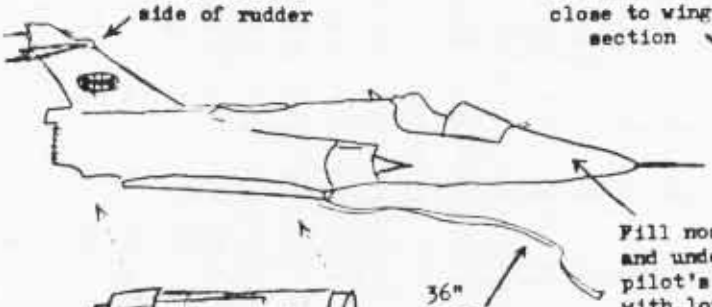
CHIROPTERA ENTERPRISES PRESENT...

THE BAT-PLANE !

PLASTIC MODEL CONVERSION FOR 1/48th SCALE MIRAGE 2000

Carve Bat-Pilot to look like Bruce here

Range Utility Belt



Glue Bat-Tail Bits on each side of rudder

36" shock cord

Fill nose area and under the pilot's seat with lots of nose weight

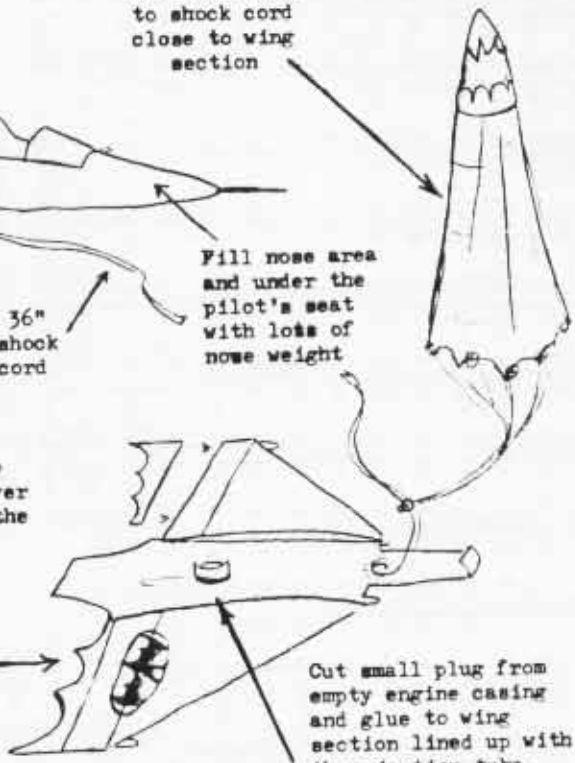
18" reinforced Bat-Chute tied to shock cord close to wing section

Bat-Tail Bits

Glue each Bat-Ski to the rear of the wing section on the bottom

Glue engine mount inside one half of the main body then join the body halves

Ejection tube should fit over the plug on the wings



Glue Bat-Tips to trailing edge of wings

Cut small plug from empty engine casing and glue to wing section lined up with the ejection tube. The plug fits into the ejection tube and holds the wing on during the boost (like a regular nose cone)

Use stand-off lugs on bottom of main body and tail cone of engine mount

Glue in nose block for BT-20

Glue short piece of BT-20 perpendicularly into engine tube for ejection gases

Bottom detail of main body

Weight from here forward

About 3.5 inches of BT-20

Masking tape

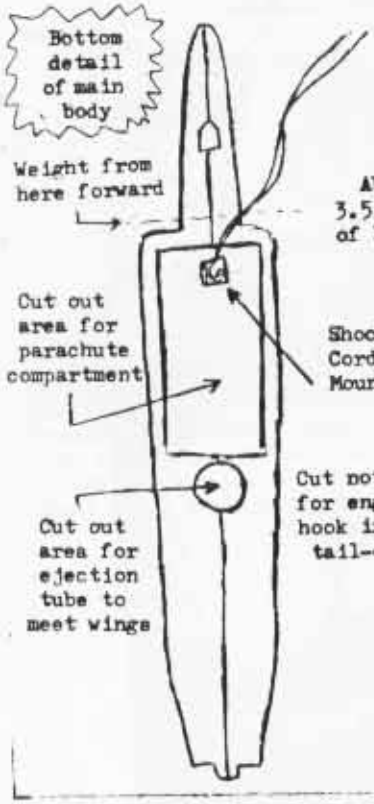
Shock Cord Mount

Cut out area for parachute compartment

Carve tail-cone to fit and glue onto tube

Cut notch for engine hook in the tail-cone

Cut out area for ejection tube to meet wings



Engine Mount Detail

Glue these edges

Bat-Tips (2) from .040 plastic sheet

Bat-Tail Bit (2)

Glue this edge

BAT- PATTERNS

Glue this edge

Bat-Ski Extra Stability Fins Make two from .04 plastic sheet

MACH ROCKETRY

Question: What do you get when you combine five rocketeers, some composite motors, a couple of cameras and a dark night? Answer: an attempt to break the sound barrier with a model rocket.

Martin Huber, NIRA's spy at MIT, (now at Stanford University) has been interested in researching supersonic model rocket flight. While taking a short vacation this summer, Martin rounded up the NIRA gang to help him out. It turned out to be very educational.

The principle behind figuring out how fast a rocket flew is fairly simple. You photograph the model during boost while spinning a slotted disc in frount of the camera lens. You know how fast the disc is spining. When you look at the picture, you see a seris of light flashes. These are the sections of exhaust visible when the disc wasn't blocking the camera's view. You measure the distance between them, you know the time between slots in the disc, and volia! Division gives you the rate at any point. All you have to do is get past the magic 700+ MPH mark and you're done.

What it meant for the launch crew was setting up cameras, spinning discs, measuring distances, finding walkie-talkies for communications, and preparing models. And a lot of that was done before dark.

The first flight was an E20 powered Big Bertha. No, sadly, Big Bertha won't go supersonic. This was just a test flight. We discovered that even with the tracking light installed in the model, finding them after dark is close to impossible. Next up was Bullet Bob with a slick F67 model. He shreaded the fins about 100 feet up. The team was 0 for 2.

Martin had two models ready, an F67 model he felt sure would make it past the sound barrier, and an F40 ship that was marginal. Both flights went up OK, never to be seen again, and were photograhped. Since then, Martin has reduced the data, and . . . YES! His F67 model did indeed go supersonic.

The whole effort was interesting. It showed me what a serious R&D effort takes.

The entire effort was interesting. It showed me what a really serious R&D project takes. It also jogged my memory; I hadn't flown rockets at night since 1971. Night flying is a real hassle, and not worth considering unless you have some special project in mind (like supersonic flight!) Congratulations to Martin on a neat project!

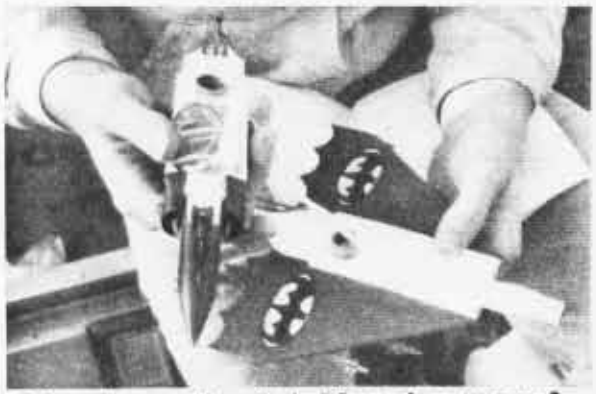
A new constellation? NEIN! Proof of supersonic speed: Martin's F67 flight

Martin, Bunny and Geoff Landis at the model and motor weigh-in

Continued on Page Nine

BAT-PLANE PHOTO'S

John Beach's Bat-Plane Mirage in its entirity.



John shows the Bat-Plane's unusual ejection system. Neat!!!

MACH ROCKETRY

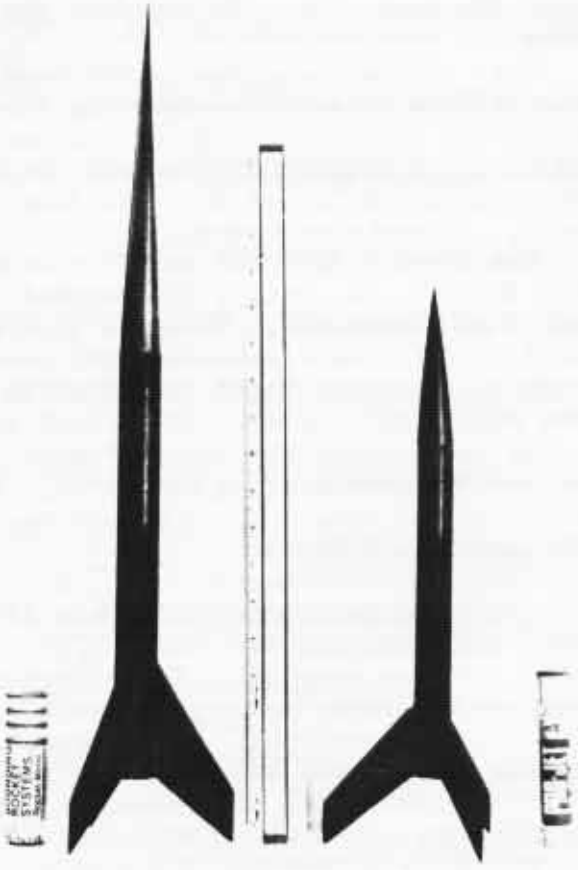
Bob Kaplow and his Supersonic Clone

Martin Huber with the larger of his two supersonic models

MARK BUNDICK

Front view: tracking camera and spinning disc strobe.

Bob Kaplow's F67 shread



Martin's F67 model (left) and F40 bird (right)

OUTER LIMITS

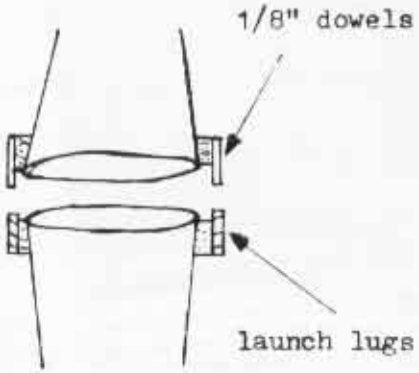
WE CONTROL THE HORIZONTAL
WE CONTROL THE VERTICAL...USUALLY

THE MOON DIPPER

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 murmered, "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 featured at the separation point. I used 1/8" dowels and launch lugs to fasten the wide ends of two cups together. (see sketch below)



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.

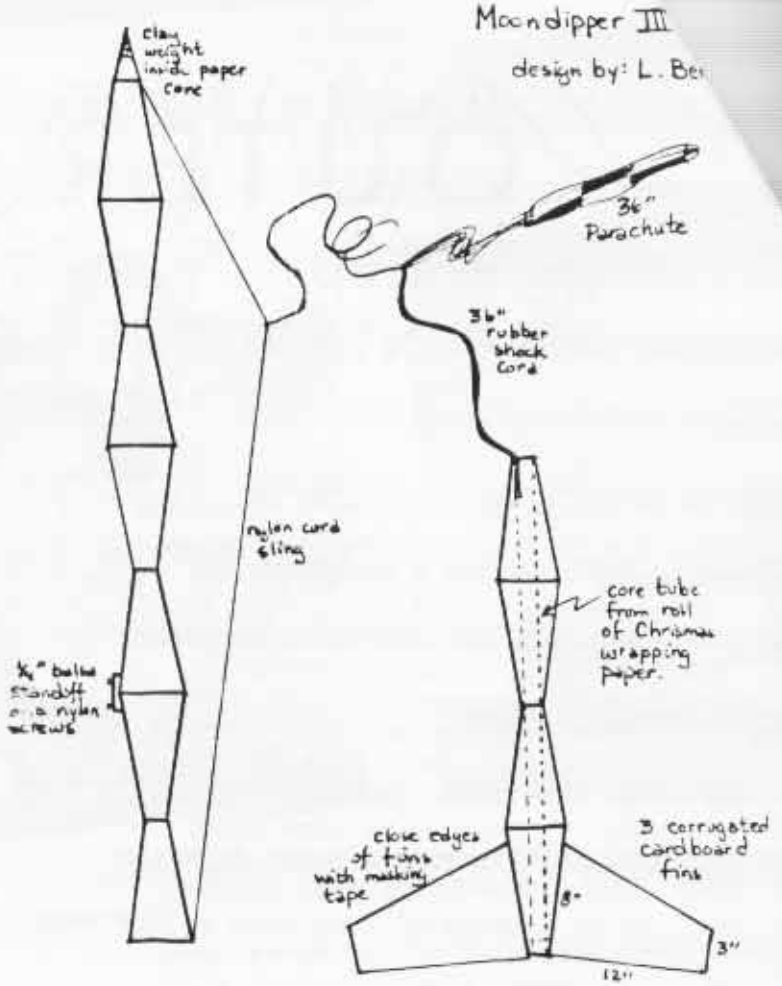
A new Moondipper returned in 1971. The "Dixie Cup Special", so named because of the brand of paper cups used, flew at a Hornet's Nest section launch. This model was only 24" long, and didn't use core tubes like previous designs. While on the range, the launch lugs came off. we quickly built a tower consisting 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!!!

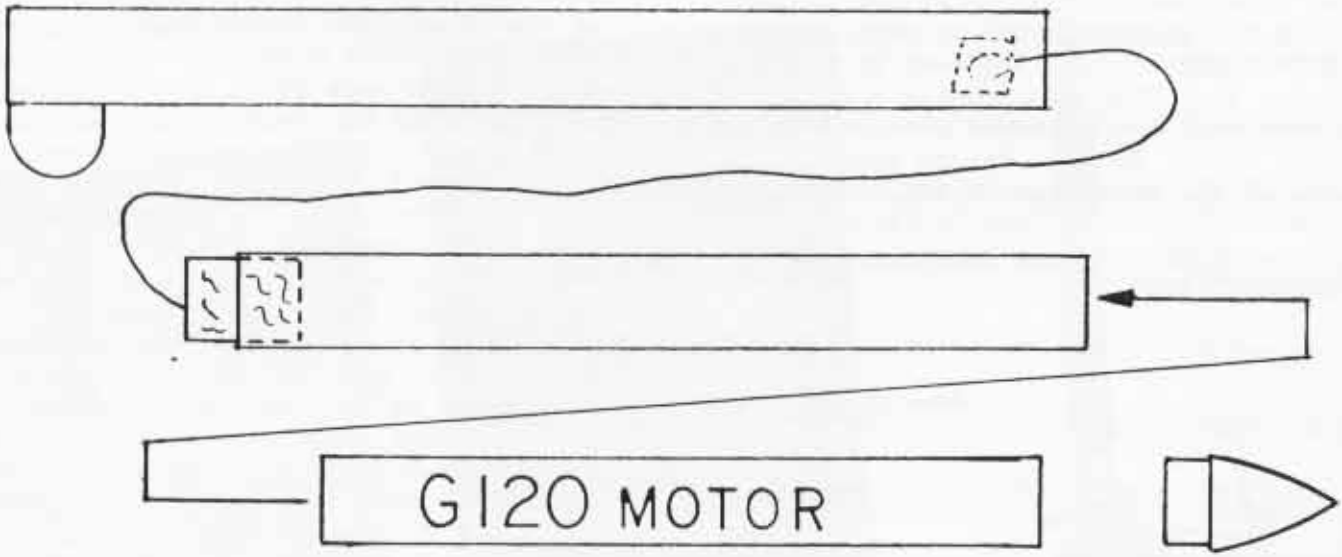
I flew #III several times, but decided to end it all in October 1973. I rigged the bird for an F100. The final flight scattered styrofoam all over the blue. The intact tail section followed a perfect ballistic arc into a ravine. We left the poor bird buried in 10" of Carolina clay.

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

Lawrence Bercini



VAGARY A G120 PAYLOAD MODEL



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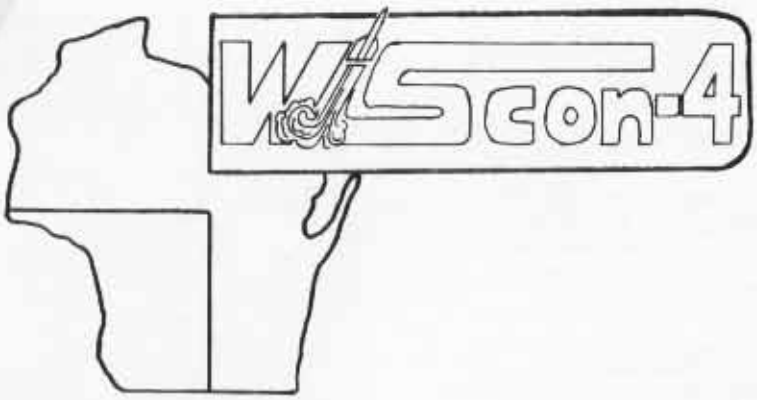
BY SHIRLEY U JEST



The Incredible Shrinking Bob K.!!! Every detail of Chuck Hoffman's minature Bob Kaplow is included, right down to the "Dual Eggloft Forever" T-shirt.

WISCON-4, the Midwest's finest spacemodeling convention, was held on the weekend of March 26 at the University of Wisconsin in La Crosse. Modelers from all over Wisconsin and Illinois came to the UW campus to participate in the first WISCON held in several years.

Early Saturday morning, participants began to arrive at the dining hall that served the convention. When they checked in, they received packets crammed with manufacturer's catalogs, technical reports and convention information. After everyone got a chance to meet with old friends, the conventioneers sat down to listen to Al Nienast give his keynote speech. Al welcomed everyone to the convention and told how pleased he was with the hobby today.

After Al's short speech, the workshops got underway. Mark Bundick started with his "General Competition" discussion. Bunny's talk was aimed at the novice competitor. He gave explanations of the models to fly, the workings of a meet, how to find out how good you really are, and how to improve. Next Bob Kaplow gave a workshop on "Computer Rocketry". He showed several of his rocketry programs, including stability calculations and altitude prediction. Bob's was the last workshop of the morning, and the convention broke for lunch. The cafeteria was across the hall, making meals very convenient.

Al Nienast shows the proper way to swing wing during his discussion group.

Bunny gives an exciting talk on Plastic Model Conversion. He brought numerous examples.

After refueling, things continued with Al Neinast's "Gliders". Al explained the workings of swingwings and showed the proper way to trim gliders. He also covered the use of floresent colors to give the best visibility. He passed out plans for his "King Bee" and "Pink Pelican" gliders. Bunny followed with "Plastic Model". He explained how to plan, build and finish winning plastic model conversions. He also stressed the importance of a "Wizmo" box full of small parts used to spruce up a model. To impress the judges, turn in your model with a display stand, "documentation" and notes on the conversion difficulties you had.

Dr. Chuck Hosler brought out his home-brewed engine thrust stand. It used a game controller attached to an Apple II computer and was featured in the Model Rocketeer recently. "Jedi" George Riebesehl closed out the day's discussions with his RC BG group. He showed construction techniques used to build RC BG's and brought examples of older models. He also showed how to install radio gear and how to fly the RC BG once you've built one. George now prefers the Tower Hobbies 500 radio system over his ACE RC/Cannon system. The Tower model has more features and is more reliable.

After dinner, the participants took their seats for the famous WISCON auction. WWAR lead off by dumping most of their club "collection". It included some nice old engines, two Saturn V's and other "stuff". The exahusted and enriched WWAR stepped aside to let Ric Gaff take over. The bidding for his engine collection was slow and furious betwwen Tom Pastrick and Chuck Hoffman. The final bid for the old and obselete engines went to Chuck Hoffman at $21!!! The last person up was Bob Kaplow, who tried to dump the NIRA kits on consignment from Mr. Godron. Bob had little success. After the bidding was over, the group was treated to Ric's finest prang and Star Trek films.

Sunday sent lots of participants to Mrs. D's Donut Shop for breakfast. The launch site for original design flights was dusted with new snow, and it was cold and windy. Most of the flights were flawless. The egg in Al Neinast's eggloft duration model didn't break, and Chuck Hoffman's 3C cluster Kaplowlofter, compled with 1/32 scale Bob Kaplow in the nose had a perfect boost. High winds threatened to carry Chuck's model anb Bob across town. But the day was saved when Bunny hopped into his Honda and successfully chased down the model. The only prang, out of five flights total, was Tom Pastrick's swept forward, canard BG. A looping flight carried the beautifully finished model to a downrange planting.

Everyone returned to the cafeteria for lunch and the Trustees Open Forum. Bunny discussed the recent Trustees meeting in Houston. Topics included a possible salary raise for Doris Mayer at NAR HQ to cover Social Security payments, Rocketeer sales in hobby shops, and NAR policy on G motor usage. Warren Miller followed Bunny with an explanation of the services of the newly formed ARA, American Rocketry Association. Warren explained the the ARA was interested in promoting high-powered rocketry, including G motors.

WISCON-4

Steve Sangerman and his combination Ugly Rocket and divining rod.

Scott Zingler presented the convention awards. In A Division Ugly Rocket, Steve Sangerman won with his mixture of body tubes and model ship parts. The C Division title went to Ric Gaff's 7-Up bottles and balsa. Ric is unbeaten in Ugly Rocket contests!!! The Original Design competition was taken by Chuck Hoffman's Kaplowlofter. The model vaguely resembled the "Discovery" from the film "2001". Only two models were entered in Static Sport Scale. Jim Zingler's well done Mercury Redstone took first over Chuck Hoffman's scratch built Alpha Dreco. In the photo contest, Chuck's framed mirror with superimposed Star Destroyer conversion won out over Ric Gaff's spark spitting superroc. R&D saw Bunny's report on turbulators win since it was the only entry.

The final item on the convention schedule was a planetarium show held in UW's planetarium. A brief demonstration of the theater's star presentation capabilities was followed by a show on the Space Shuttle. NIRA then packed up and headed back to Chicago, dodging snow showers all the way.

The turnout for WISCON was depressing. Only 25 participants attended, and NIRA only sent six persons. WWAR suspects this is because WISCON has been dormant the past few years, and they didn't have time to get as much publicity as they hoped. They are certain things will improve next year. Those of us who attended WISCON-4 cannot wait for WISCON-5. Make sure you attend this great rocketry experience for the novice and experienced modeler alike.

STEVE

Tom Pastrick and his forward swept-wing glider for Original Design. A very colorful entry.

Ric Gaff with his Ugly Rocket entry, "No caffine; never had it; never will."

Dr. Hosler demonstrates how his inexpensive thrust stand works.

Bob Allen and his Ugly Rocket. Gag me with a spoon!!!

Bunny and Bob enjoy a good laugh after the recovery of the Kaplowlofter.

Al Nienast and his original design entry, an Eggloft Duration model.

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

4"

7"

2"

Canard:

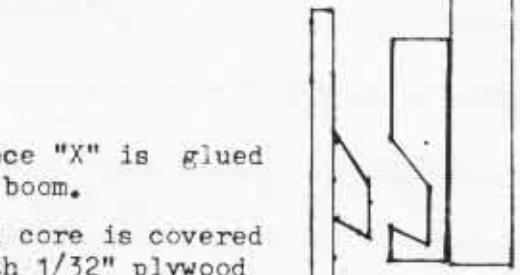
1/8" balsa

Piece "X" is glued to boom.

Pod core is covered with 1/32" plywood

Pylon is 3/4" tall.

ET-20 pod



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

8"

All flying surfaces covered with tissue.

B BEAKERS NOTE: CANARD ANGLE

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.

canard

1/16"-1/8"

front of model

Dihedral: 1 3/8" per tip.

Wing: 3/16" balsa

4"

5"

3½"

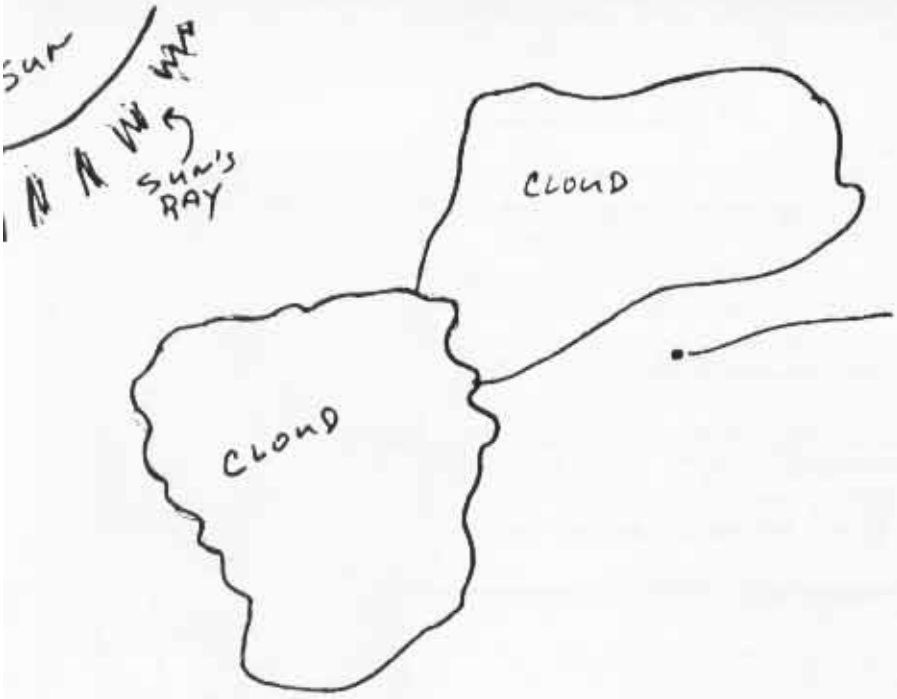
3"

1½"

Rudder:
1/8" balsa

2"

1½"



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RAY

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747

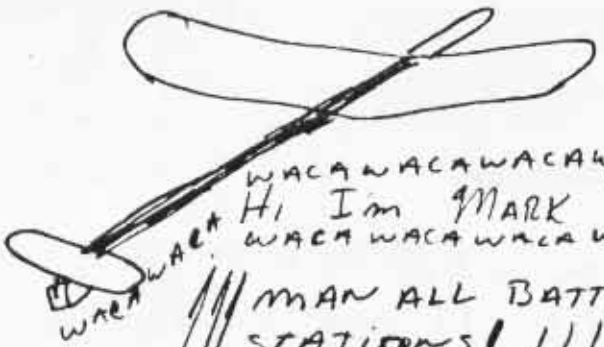
SOMETHING I DIDN'T DRAW.

DUST SPECK

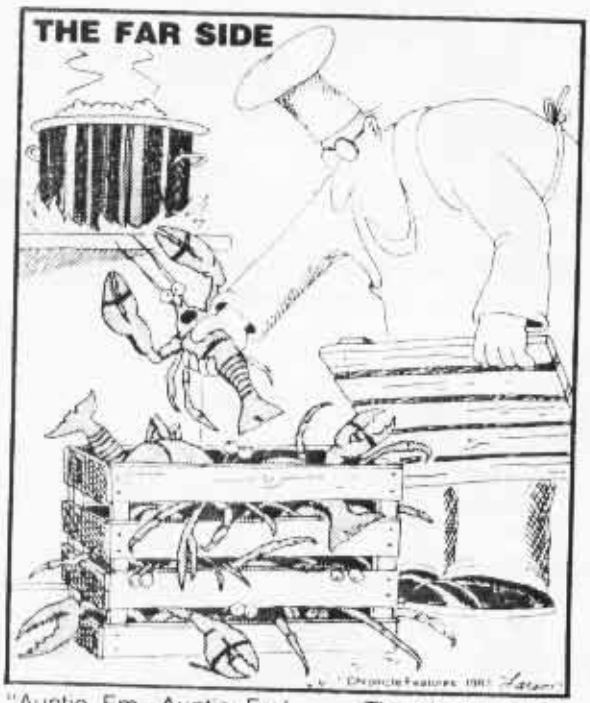
HOPELESSLY BEFUDDLED TRACKERS

RAY'S SON

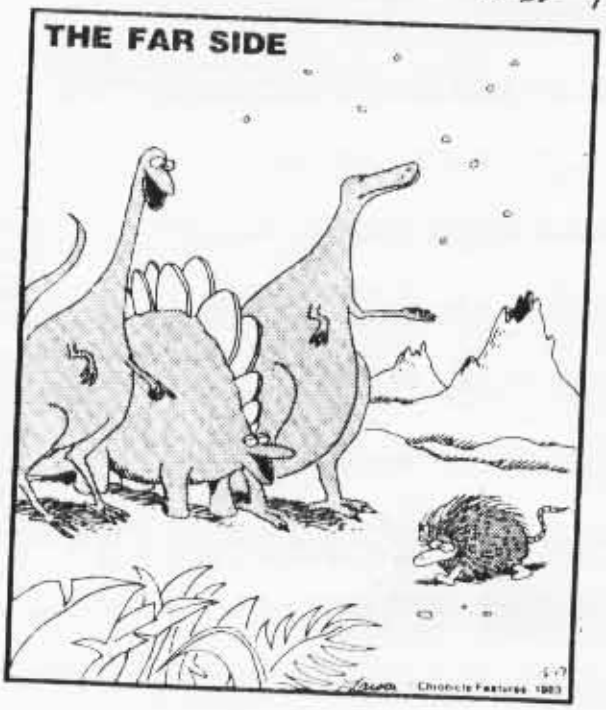
SORE NECK

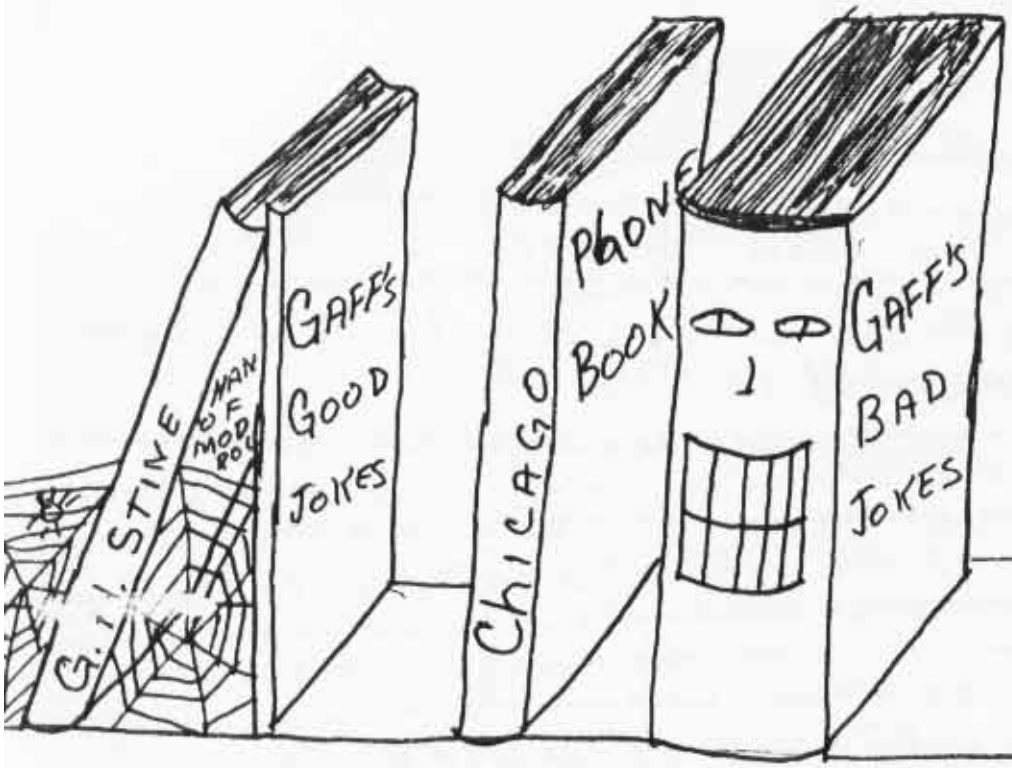


WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA
HI IM MARK BUNDICK'S PULSE RC SHIP
WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA
/// MAN ALL BATTLE STATIONS! MAN ALL BATTLE-
STATIONS! ///
WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA
AND I WANT TO TELL YOU /// SECURE ALL HATCHES! SECURE ALL HATCHES!
WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA
ABOUT THE TERRIFIC VIEW UP HERE /// PREPARE TO DIVE! PREPARE TO
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
WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA
TOY AND CARD SHOP /// DIVE! DIVE! DIVE! //// 476 MAIN ST
WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA
IT'S A REAL NICE PLACE AND HEY! WAIT A MIN! IM NOT A
WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA
SUB, IM A GLIDER RRRR RRRR RR
WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA WACA



"Auntie Em, Auntie Em! . . . There's no place like home! . . . There's no place like home."





Hiya, Hiya, Hiya,
I'm HERE TO TELL
YOU ABOUT A GREAT
Hobby STORE-
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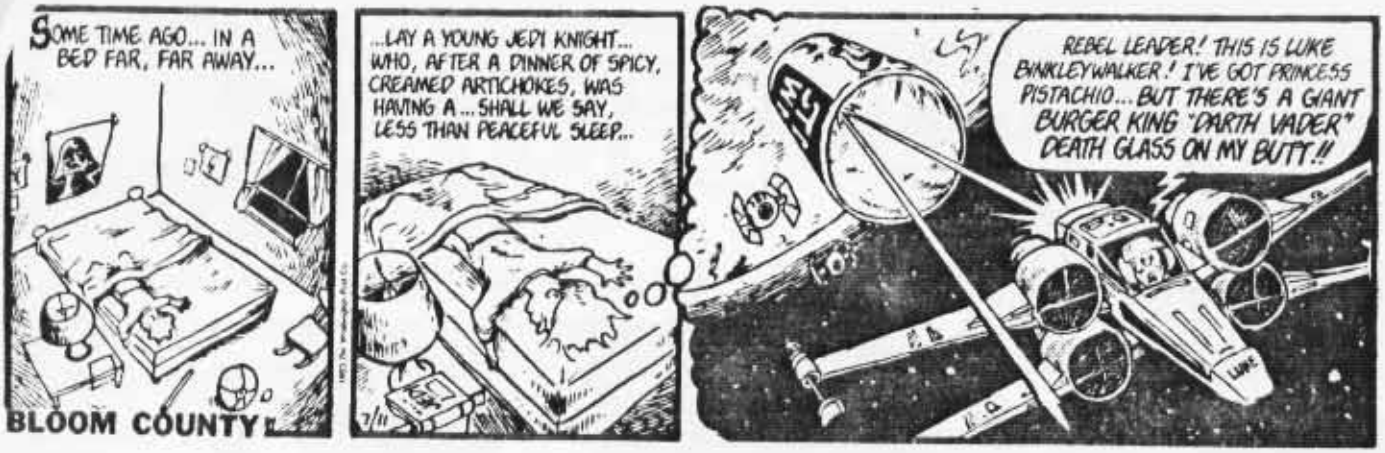
AND CARD SHOP
476 MAIN ST IN
GLEN ELLYN, NATCH.
A REAL NICE PLACE.

OH, by THE WAY, A FEW
FRIENDS ARE THROWING
GAFF A "NECKTIE PARTY"
YOUR All INVITED.

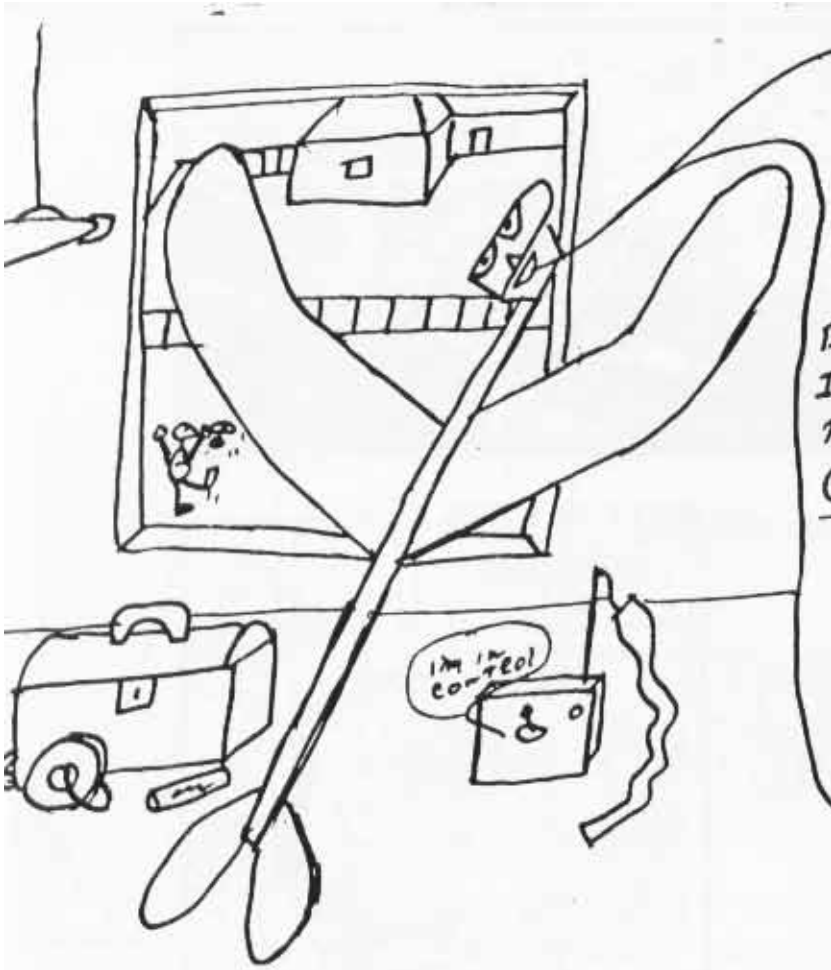
"BE HONEST, HAVE YOU EVER FLOWN A KITE BEFORE?"

"Did I say anything about it being a flying model?"

TRAVELS WITH TOM



"A cola for the kid and two caffeines for us."



HI THERE!

I'm GEORGE RIEBESEHL JR'S RC BG, GEORGE WOULD HAVE BEEN HERE himself BUT HE'S Busy MOLESTING GROUND HOGS, SO I'LL TELL you ABOUT A GREAT PLACE TO buy ROCKET supplies - GLEN ELLYN TOY AND CARD SHOP AT 476 MAIN ST.

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