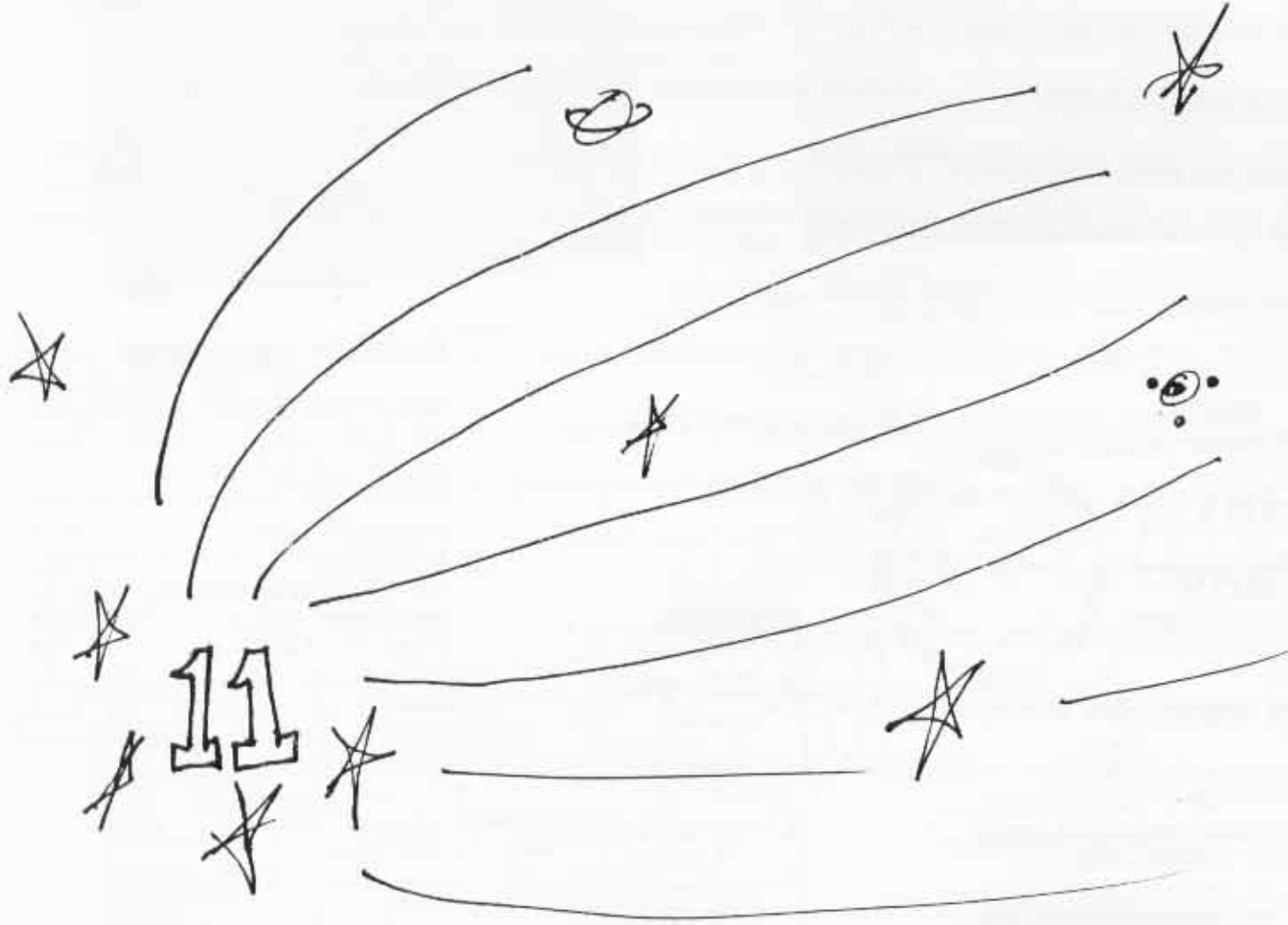




NEWSLETTER OF THE NORTHERN ILLINOIS ROCKETRY ASSOCIATION
1985 AND 1986 NAR NATIONAL SECTION CHAMPIONS

VOL. 10 NO. 1



Shooting Star 11

or, NIRA's Labor Day Tradition

T MINUS ONE

NIRA's Scheduled Events

MONTHLY MEETING - January 2, 1987, Glen Ellyn Civic Center, 7:30 PM. Don't miss the election!!! Also pay up for the trip to the Omnimax theater for **"The Dream Is Alive"**.

And don't forget your "Model of the Month"!

MOVIE OUTING!!!

January 24, 1987 at the Museum of Science and Industry in Chicago.

Join the NIRA troops at 57th and Lake Shore Drive for **"The Dream Is Alive"** for the closest thing to being a passenger on the Shuttle. Pizza afterwards, maybe? contact:

Mark Bundick, 475-5048

MONTHLY MEETING - February 6, 1987 Glen Ellyn Civic Center, 7:30 PM

UPCOMING CLUB MONTHLY MEETINGS -

March 6 April 3

MASCON-87 May 8-10,
1987 UM Campus, Ann Arbor,
Michigan

A model rocket convention with great activities: workshops, tours, demos, movies and more! NIRA will attend, so make your plans now. Contact:

Huron Valley Rocket Society
2742 Beacon Hill
Ann Arbor, MI 48104
313-971-6033

LIVE BIOLOGICAL PAYLOAD ANNOUNCED

Congratulations to the Bundick household at they attempt something never before seen in the history of NIRA. Their latest construction project is expected to weigh approximately 2,700 grams at "liftoff." In response to criticism on the infamous Dual Eggloft decision, Bunny and Barb are building not one, but two of these vehicles. "Construction" is expected to be complete and launch scheduled for July 27.

A hearty NIRA congratulations to the two current and two expected Bundicks.

NAR CHAMP SECTION

NARAM-29 EVENTS!!!

1/2A Parachute Duration
C Helicopter Duration
A Streamer Duration
B Eggloft Duration
D Rocket Glide
D Eggloft Altitude
A Boost Glide (NO flexies)!!!!
Sport Scale (A Division)
Scale (B/C Division)
Research and Development
Plastic Model Conversion

Dates are August 2-7, 1987 in Orange County, CA. Visit Disneyland and win the Nats all in one trip!

SUGGESTED MWRC EVENTS

Well, folks, it's that time of year again. Yep! Time to start planning (or at least to start thinking about) MWRC!!! The following list of events, based on NARAM 29 events, has been suggested for this year's MWRC and will be voted on at the January meeting. Come to the meeting and let us know what you think!!

<u>Event</u>	<u>WF</u>
OSL	3
C HD	10
A SD	5
B ELD	7
D RG	14
D ELA	7
A BG	10
PLASTIC MODEL	10

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MODEL OF THE MONTH WINNERS !



Our Model of the Month Winner for November is Andy Recknagel with his three stage Comanche. Congratulations, Andy!



The Model of the Month Winner for December is Lawrence Bercini, our newest member, and his amazing Pumpkin Man. Congratulations, Lawrence!

THE LEADING EDGE

is published bi-monthly 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 six issue subscription to the Leading Edge. Non-member subscriptions are available for \$5.00 per six issues. All membership applications and subscriptions should be sent to Bob Kaplow, 1628 Waterford Lane, Palatine, IL 60074. Articles, plans, other newsletters, and news items of interest should be sent to Barb Bundick, Editor, 1523 Cleveland Street, Evanston, IL 60202. Any material in the Leading Edge may be reprinted if proper credit is given.



STAFF

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Publisher - Ric Gaff
Typist - Bunny

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The Millennium Falcon

by Bunny

A couple of years ago, I wanted a simple BG to fly at NIRA sport launches that didn't take long to build, was simple to prep, but flew well. I chose the ancient Estes **Falcon**, Estes' first front-engined glider. I updated the design for mini motors and changed from a balsa to spruce boom. Alas, I failed to get what I wanted.

The first three **Falcons** I built all flew away, one on a 1/2A at a Labor Day Launch. With only nine parts, including the nosecone, launch lug and body tube, the **Falcon** couldn't be simpler. My models weighed about 5-8 grams, and flew well with minimal trimming.

Curious about their performance, I flew some **Falcons** in contests. They worked every time, but had some problems. After losing all the models I built (and getting DQ's for "no return"), I decided to revise the design, and make it bigger. Bigger models wouldn't boost as high, and would stay in sight longer.

The original **Falcon** sports 22 square inches of wing area. With B BG upcoming on my contest schedule, I decided on a 40 square inch glider. I used a formula to tell me how much larger to make all dimensions. The formula is:

Square Root of (Desired Wing Area/Current Wing Area). For my new model that meant: Square Root of (40/22) = 1.35.

All dimensions on the original **Falcon** were multiplied by 1.35 to get the new dimensions. I named the new model after my favorite spaceship, the **Millennium Falcon**.

When Barb decided to fly Shooting Star 11, and asked for BG designs, I kept things simple and passed along the **Falcon**. She did well, finishing second in C Division after thermaling away one model. My **Millennium Falcon** also thermaled away, doing over 2 minutes on an A3-4t. I couldn't back up that with a qualified flight and finished out of the money.

Both models are incredibly simple and should take no more than a couple of evenings to build. The plans show a spruce boom, but I did one model using hard balsa, 1/8 x 5/8, and it worked like a charm.

The only tricky part about these birds concerns the shim under the stab. It's got to be high enough to kick the model into a glide, but not too high. If you have too much shim the model wants to loop, and your boost altitude is cut by 50% or more. Some rudder trim can help cure that, by making the boost phase a big

barrel roll, but you should keep the shims at a minimum. Experienced BG builders and flyers can also try what I'll be experimenting with next. I'm lengthening the boom and moving the pods forward: 3/4" on the **Falcon**, and 1" on **Millennium**.

To build either bird, begin by cutting out all parts. I build two models side by side, insuring I have a backup for contests. Glue the nose cone into the body tube and set aside. Mark your wings, one for the left and one for the right. Sand an airfoil on them, with a high point at 30%. Bevel the root edges for the appropriate dihedral. Using a good double glue joint, set the wings to the correct dihedral, and set aside to dry.

Sand the pylon and stab to a symmetrical airfoil. Round all edges of the rudder except the root edges. Glue the stab on the boom, leaving the last 1/4" unglued. After the stab is dry, glue on the rudder. Make sure the rudder is aligned with the boom and is perpendicular to the stab. Mark the pod for the pylon and glue on the pylon. It's important to get the pylon on straight, too. If it's crooked, the boost will not be straight. After the

pylon has set, glue it to the front of the boom.

When that assembly is dry, get a clothespin. Clamp it to the front of the pylon/boom joint. Let the whole works rest on the edge of table or workbench, with the stab and rudder hanging over the edge. Test fit the wings to the boom. Using blocks of wood, paint bottles, etc. prop up the wings until they have equal amounts of dihedral on each side. When satisfied with this, you can glue the wing on for keeps.

After the entire glider is dry, fillet the wing/boom joint and the pod/pylon joint. Add the launch lug directly opposite the pylon. Put on two coats of clear dope, sanding after each coat. Relax and enjoy the fruits of your labors. If you're ambitious, add some Magic Marker for color: black on the bottom of the wings for visibility in the air, and bright colors, like red or orange, everywhere else. If you're really a purist, cover the thing with tissue.

To trim, point nose into the wind and toss. You'll probably need a shim, 1/16" to 1/8" under the unglued portion of the stab. Test various shim sizes until you get a nice glide. If your shim is more than 1/8", warn us before you fly. A loop or half loop is likely to result.

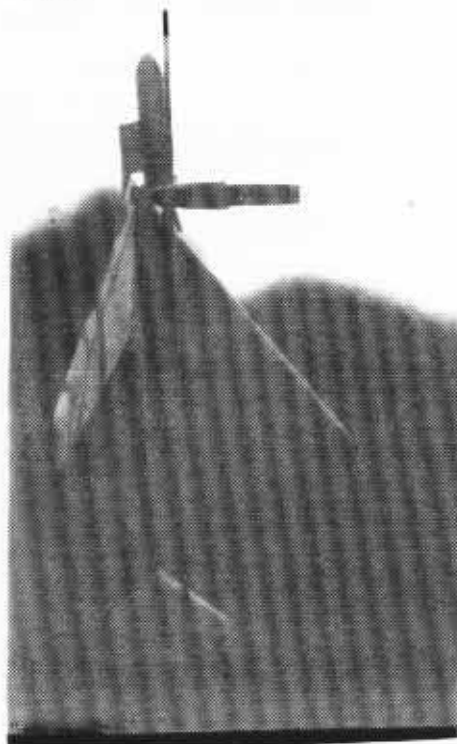
When you're ready for the first flight, prep a 1/2A3-2t or A3-4t motor and

tape a 6-8" strip of crepe paper, 1" wide on to the motor. Wind the crepe around the motor and fit it into the body tube.

Make sure the fit is snug enough so the motor doesn't drop out while the glider is on the pad. Install an igniter. Put the model on the rod, and hook up the clips. Make sure that your clips aren't going to catch the **Falcon** on the way up.

Watch the model in boost and see if you need more boost trimming. Don't hang around the pad too long; your **Falcon** will be gently circling downwind, and you best go and retrieve it.

Have fun with this 20 year old design and its updated cousin. They really are simple, but competitive BG's.



Barb Bundick's Falcon.

NORTHWESTERN UNIVERSITY
DEPARTMENT OF EDUCATION
Adult Rocketry Classes

- 1101: How to Convert Your Room to a Sawdust Pit
- 1105: Fly Your Way to Social Ridicule
- 1108: The Joys of Exhaust Crud
- 1110: 1000 Other Uses for Your Ignitor
- 1114: Eggloft Yourself to Regularity
- 300-1: High Fiber Competition
- 300-7: Packaging and Selling Thermals
- 300-8: Creative Sunburn
- 300-9: Sex Without Rocketry
- 300-10: Spray Paint Your Pet
- G109: The Primal Prang
- G111: Exorcism and Wet Sneakers
- G112: Ego Gratification Through Smoke and Flame
- G115: Sinus Drainage on the Range
- H201: Club Newsletters for the Indigent
- H202: You and Your Deflector Plate
- H203: Career Opportunities in Cold Power
- H204: How to Draw Body Tubes
- M400: Self Actualization Through CA Adhesives
- M405: Understanding Your Range Box

ENROLLMENT FORM

Name: _____

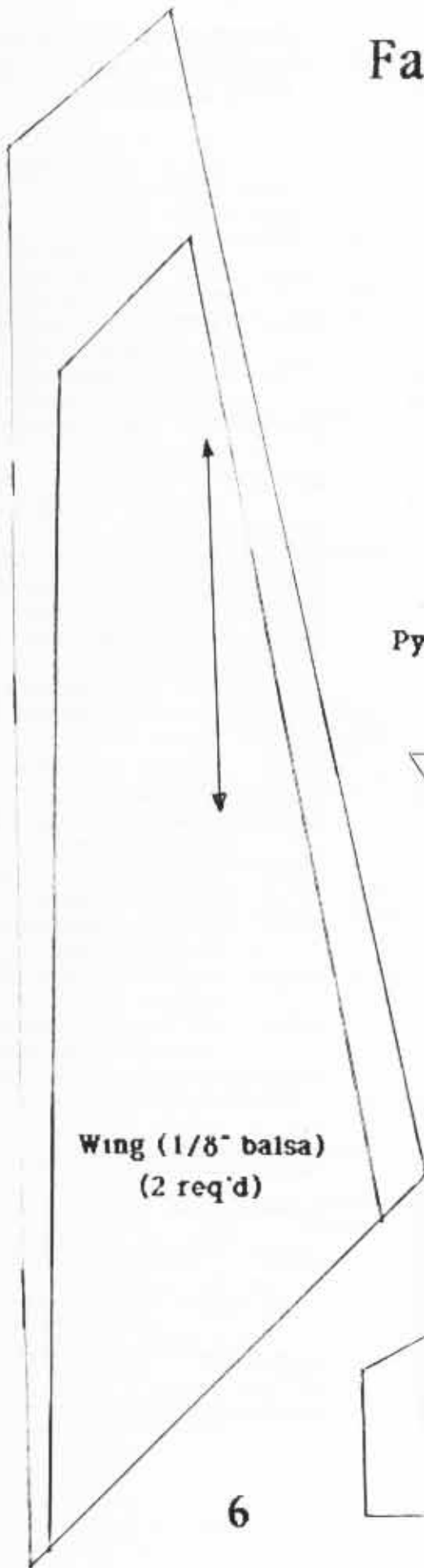
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Millennium Falcon and Falcon Patterns

drafted by Bunny



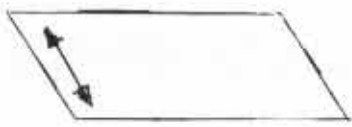
Wing (1/8" balsa)
(2 req'd)

6



Falcon Boom - 3/32 x 3/16 x 10 1/2 spruce
Millennium Boom - 1/8 x 1/4 x 13 3/8 spruce
Body Tube - 1 3/4" of RB-52
1" Launch Lug

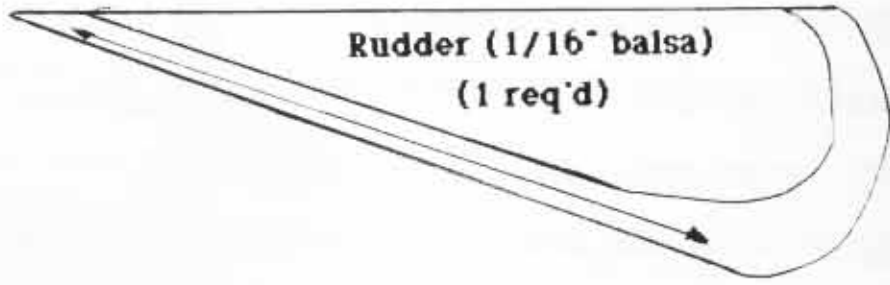
Pylon (1/8" balsa)
(1 req'd)



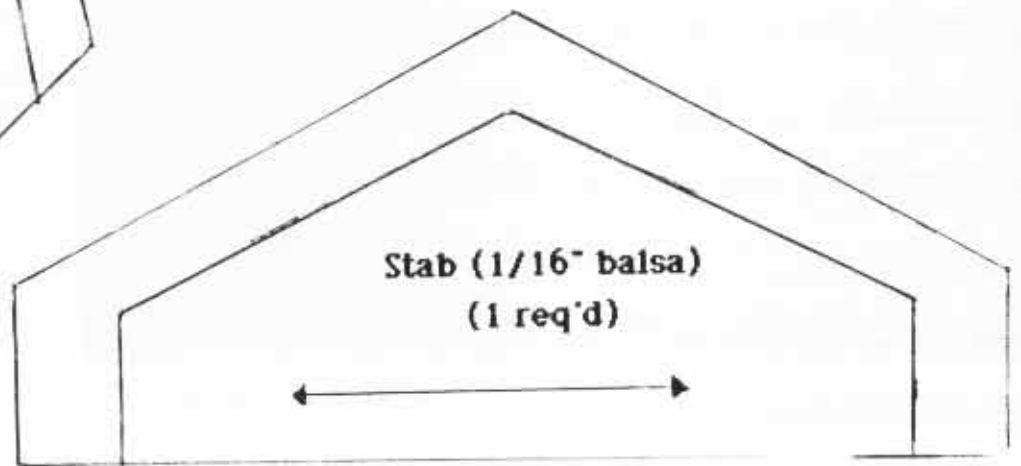
Dihedral

Falcon - 1 1/4" each tip
Millennium - 1 1/2" each tip

Arrows indicate grain direction.



Rudder (1/16" balsa)
(1 req'd)



Stab (1/16" balsa)
(1 req'd)

Shooting Star 11

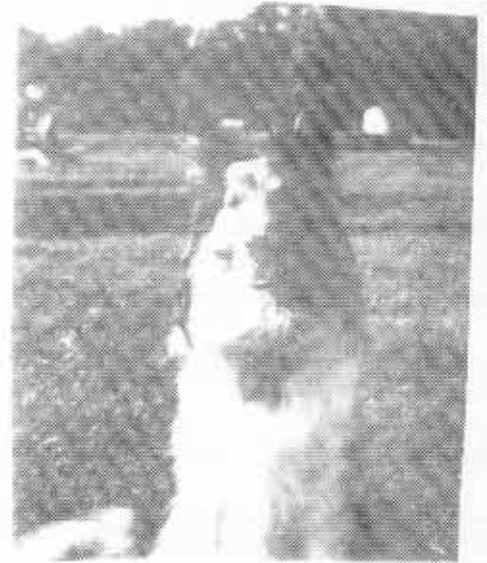
or, NIRA's Labor Day Tradition

Nine NIRAites made the annual trek north to Tomah for WWAR's annual contest. Eight events tempted the contestants while WWAR's new launch site presented some other challenges. The VA Hospital golf course worked, despite a narrow width, a brisk breeze, a few errant golfers and a multitude of trees. Had wind directions been different, recovery would have been a definite problem. The grounds were fenced on the closest border with a cornfield just beyond the fence. Fortunately, all models went the other direction.

Open Spot Landing kicked off the meet's flying. The target was

placed 300 feet downwind and a little off to one side of the rangehead. Tom Beach managed a respectable 59' 6" to win in C, but Don the Younger took top contest honors with a 37' 8" performance in A. Most models were simple sport birds with standard engines.

1/2 A International PD saw some good flying done by lots of people. Maybe not having to recover the model had something to do with it. There were bursts of thermal activity that some lucky fliers capitalized on. Joyce Guzik, flying as an individual, took top honors in C with a 5:06 total. Tom Beach wasn't far behind for second. Both flew your



standard cannon toddler rocket: some 13mm tubing, a nosecone and three fins. Barb Bundick was typical of the also-rans. Her first flight was 15 sec. short of a max, and she scored a max in Round #2. A third flight DQ pushed her out of the top spot. (Drat! -Barb) Problems included no deployment and ejected engines.

1/2 A International SD followed with similar models. There seems to be a lot more variation in streamer materials these days. The meet's only tie occurred in this event putting Don Linder and CD Jim Zingler in a dual first place. Don flew his mysterious, irreplaceable shopping bag material while Jim stuck with Micafilm. Both were 10 sec. short of maxing out, but due to lack of time, a flyoff round never transpired.



Shooting Star 11, the "Change" in the Camp Change. Daily with the NIRAites.

B Egg Duration makes for interesting flights. The models are pretty heavy, and you'd better get the chute out quickly or be prepared to "make mayonnaise." Tom Beach and the Dual Egglofters fought it out here. Tom used George Gassaway's **Two Minute Egg**, featuring a tapered paper shroud to reduce drag and increase parachute storage area. Bullet went with his **Parsec**, another tapered design, but of balsa. Beach squeaked out an 11 second win on his second flight. Both used large (+36") chutes, almost a necessity in this event.

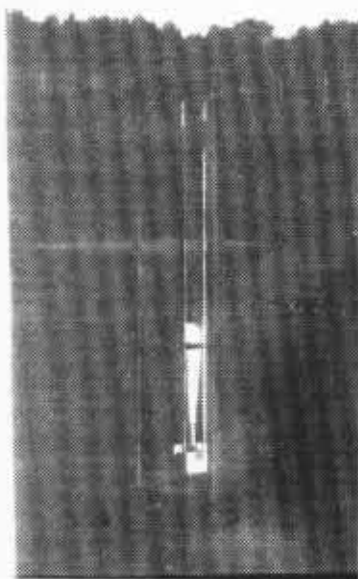


"I'll just sit down until you're ready, Mr. Range Safety Officer."

A Superroc Duration promised some wild time, what with the breeze whipping rockets around and all. The top finishers in C all were over 300 length points (i.e., 150 CM rockets). It seems the Midwest flyers never go to the lengths that folks back East do. Recovery was always by big chutes. Jim Zingler flew the highest and straightest and beat out the Dual Egglofters.



Barb Bundick, fearless editor, attempts another PD flight at her first contest.



Tom Beach's winning **Two Minute Egg** takes off.



Jody Hansen flies Superroc.



CHAD rocketry at its best. Jedi and Tom flew this amazing "Tasmanian Devil" through a cato and two crashes.



Bullet Bob prepares to do battle in Eggloft Duration.

A BG was a tough event, given the wind and spotty thermals. Al Nienast and the Dual Egglofters tied for first with 2:15 totals. Bullet flew his small fixed pod gliders off a piston for a little extra altitude. Barb Bundick took third, 10 second behind, when her **Falcon** blew off its pod on Flight #2, but glided (sort of) anyway. The Chump Change Team of Gaffer and Bunny flew a nice **Millennium Falcon** away on a first flight boomer, but DQ'd their second flight to finish out of the money.



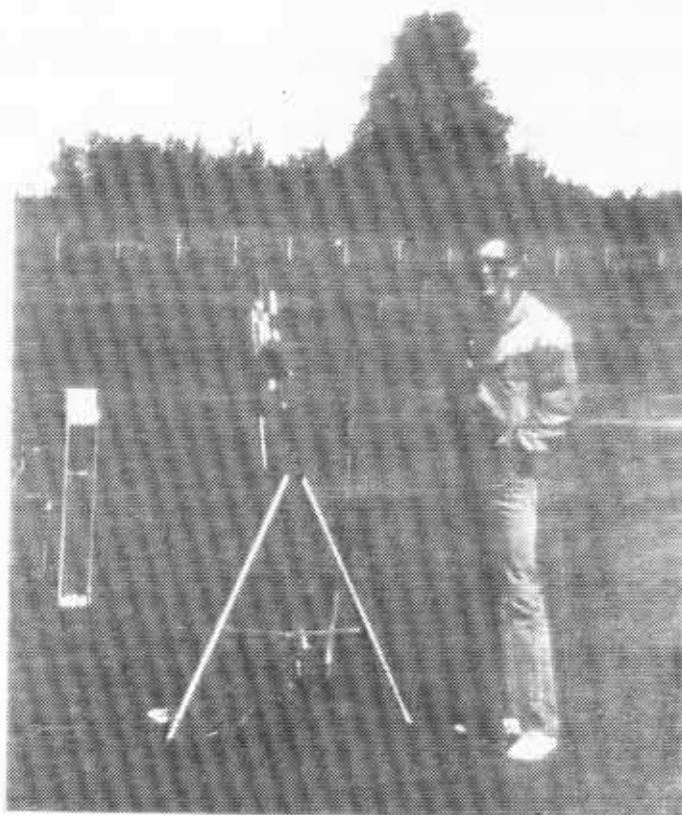
Don "the Elder" Linder affectionately pinches the wing of his RG.

The Mandy moved up to the Division and found some...
 ...

A RG was equally tough. It was a victory of sorts for swing wings, with Jim and Al going 2-3. Tom Beach won with your standard slide wing. There were only 7 DQ's in the event, with at least one of those being a no return. This event is getting too tame.

Overall results saw Don the Younger win A (1,338 points) and Jody Hansen (1,488 points) win B. Neither was a surprising win. The tough battle in C left Tom Beach on top with 1,272 points and Jim Zingler second at 807 points. NIRA bested all sections and started its defense of a National Championship with 4,941 points.

It was another fine contest for WWAR. It was super to see Uncle Al back out on the field, too, after his recovery from heart surgery. Hope to see you next year when Shooting Star 12 rolls around. See you in Tomah.



Jedi George, looking to Yugoslavia, readies yet another RC BG test flight.



They flew separately, but still a team of sorts.



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with range operations.

"It's me, behind those flip-down Foster Grants!" Tom Beach sneaks up on his competition in the check-in line.

**OFFICIAL MAIL BALLOT
1987 NIRA OFFICERS**

Please note that there have been some changes since the December meeting. If you plan to be at the January meeting, you don't need to use this ballot. If you can't make the meeting, ballots must be in Bob Kaplow's hot little hands no later than Friday, January 2, in order to be counted.

PRESIDENT

Ric Gaff

VICE-PRESIDENT

Lawrence Bercini
 Don "the Elder" Linder

SECRETARY TREASURER

"Bullet Bob" Kaplow

Additional nominations may be made at the January meeting.

THE LEADING EDGE
c/o Bob Kaplow
1628 Waterford Lane
Palatine, IL 60074



SEASON'S
GREETINGS!

from the

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AND CARD SHOP