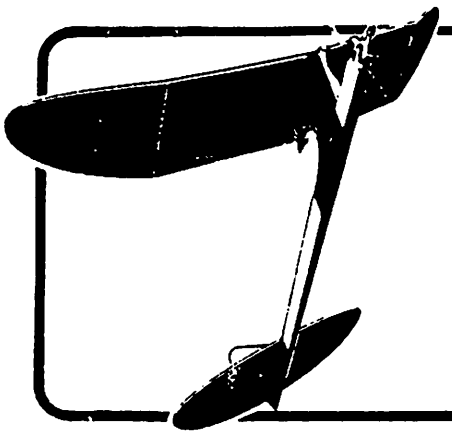


MINNEAPOLIS MODELER

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No. 241 Nov. - Dec. 1994

From The Editor's Desk or Thoughts While Glued to an EZB Wing

Congratulations to ***Jorge Triana*** for having his superb craftsmanship featured in Volume 6 of Bill Hannan's publication "Peanuts and Pistachios."..... ***Radio retrieval systems*** have really shown their worth during our recently ended outdoor season. Gary Oakins, Dick Bloomquist, and John O'Leary have used these units with great success.....I'm looking for a set of plans for a ***Cessna CR-3,*** an early racing plane. I see photos of this plane frequently, but know little about it....A couple of notes about our upcoming indoor season; Our Feb. 12th Meet has been moved back a week to Feb. 19th. Also, we have to be cleaned up, packed up, and gone by 5:30 p.m. at our Dec. 4th Meet...Due to rising costs and the rapid depletion of the club treasury the subscription rate for the Newsletter must be raised to ***$6.00/year.*** If you receive notice that your subscription has expired, submit your request for renewal and six bucks to the Editor or Treasurer.....In the ***Cosmic Coincidence Dept.*** I no sooner mention the Cessna CR-3 when it appears, in living color, on pages 91 and 92 of the Dec. '94 issue of ***Model Aviation.*** A scurce for the plans would be appreciated.....Now that you're all building frantically for the indoor season, how about doing your friendly CD a favor by double checking weights and dimensions prior to the day of the contest. Bostonians with wing chords of 3.001" drive us ***crazy!***.... Ex-MMACer ***Greg Thomas*** took second in Indoor Rubber Scale at the Lubbock Nats.... And of course, congratulations to ***Aaron Petersen*** and ***Erick Sears***, our '94 overall points champs.

Meeting Minutes Sept 9, 1994

Place: Donaldson Co.

Time: 8:10 p.m.

Present: 26 members

Treasure's Report None, everyone wanted the raffle.

Correspondence: Don Spehn received a flyer from Bill Thomas on the MECA collecto in Milwaukee WI. Don Berggren received information on the Chicago model and hobby show to be held Oct 15 & 16. Tony Saunderson is still in Seattle. Dick Bloomquist is flying in Colorado, lots of room but the landings are rough.

Old Business Some areas of the flying field have been plowed, but the good news is that grass is coming up. We are still experiencing problems with other flyers using the field with no regard for keeping the site. Gary Oakins will see Loren Hentges and relay our concerns.

New Business Clyde White is upset about having 9 official flights and only 4 recorded, this is the timers responsibility, timers to initial times recorded and flyers to check their own scores. Indoor Contest Schedule date are: Nov 13 (Trim Session), Dec 14, Jan 8, Feb 1 , Mar 12, Apr 23, All sessions 1:00--6:00 p.m. Some of the changes to the contests are: all contests to have Mini Stick, sheet No-Cal for Jan 8th and Mar 12th (non-sanction event). We are adding Catapult Glider to the Feb 12th contest and Phantom Flash to Apr 26th.

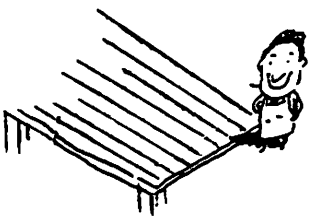
Meeting Adjourned @ 8:50.

Show and Tell A first Oakins selling a RC glider. Henry Brought 2V gel cell batteries. Don Spehn brought a die cast of a Spirit of St. Louis a cox show case series.

Dave's Project ....



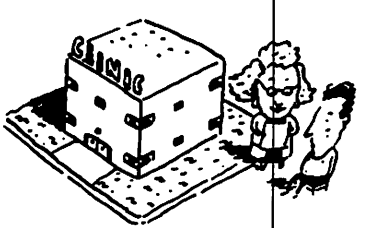
Well, I finally built a deck this summer....



It was just like building a model.



But when I held it over my head to make airplane noises ...



I hurt my back!

Meeting Minutes Oct 7, 1994

Place: Donaldson Co.

Time: 8:05 p.m.

Present: 18 members and 1 visitor

Treasure's Report Report of current costs.

Correspondence: Received the latest news from the Minnesota Assoc of Aeromodelers. Tony and the Guy Sob are alive and well in the Nov '94 Model Builder. Check out Jack O'Leary's Lanzo Duplex in the SAM speaks mag. Model Aviation will be in our Adopt-a-School program starting November.

Old Business Gary Oakins went to see Loren Hentges concerning others using the site, left a message with his wife. Aaron will be putting together a flyer with rules for the field. Denny gave a report on the cost of MMAC caps, T shirts and a new club flag, this was tabled.

New Business There was a discussion concerning cost of prizes at our meets. A motion was made by Jack O'Lear to have the Pres, Tres and Sec meet to come up with an assesment to each member, motion failed. Motion made by Don Patterson to have Pres, Tres, Sec and prize committee meet to evaluate different proposals and present them at the December meeting. Motion passed. Motion made to eliminate the cap, starting with the Indoor Meet. Dues are due. Many ideas hve been offered, so if you have an idea contact any of the officers before the Dec meeting.

Meeting Adjourned @ 9:00.

Show and Tell Jack O'Leary showed a Moffett class rubber powered design. Aaron Peterson had a variety of Spad plans. Jim Ludwig displayed holographic tape available at Axman. Also, xacto handle and blades for $1.50 good deal. Door Prizes won by Mike Spiess (Binoculars) and Jim Ludwig (Douglas M2)

1994 Outdoor Event Stats

Event	# of Times Offered	Avg # Entrants	Low/High Entry	
P-30	6	12.7	9	17
1/2 A Gas	5	11.6	8	14
A Gas	5	11.2	10	13
Nostalgia Gas	4	8.0	7	9
Embryo	5	8.0	5	10
Catapult Glider	4	7.8	5	10
Mulvihill	6	7.0	6	10
Pee-Wee 30	3	7.0	5	8
Coupe	4	6.8	4	9
BCD Comb.	5	6.8	5	8
.020 Replica	4	6.8	6	7
Hand Launch	6	6.5	3	9
O. T. Rubber	2	5.5	4	7
CO2 - Mini 6 Comb.	2	5.0	4	6
Open Scale	2	2.0	2	2
Nordic	7	1.8	1	2
Jetex	1	1.0	1	-

Open Power was offered at our "Almost Silent" Meet and drew 11 entries.

1994 Outdoor Point Totals / Season Grand Totals

	Outdoor	Indoor	T
1. ***Aaron Petersen***	225*	191	416*
2. Herman Fessler	144		144
3. Gary Oakins	98	4	102
4. Hank Liljequist	89	82	171
5. Don Spehn	77	76	153
Al Muller	77		77
7. Dave Braun	73	106	179
Joe Huettl	73		73
9. Jorge Triana	62	147	209
10. Mike Spiess	61	25	86
11. Dick Diers	53		53
12. Gary Fessler	47		47
13. Bill Rogers	44		44
14. Dell Marchant	40	24	64
15. Dennis Sussman	38		38
16. Jim Jorgensen	37	9	46
17. Bill Roush	32		32
18. Gary Crawford	27	49	76
19. Terry Taylor	25	25	50
20. John O'Leary	20	39	59
21. Jim Ladwig	19		19
22. Clyde White	18		18
Dick Zabelka	18		18
24. Pete Wilczek	13		13
25. Don Berggren	11	29	40
26. Garrett Crawford	10		10
Jim Anderson	10	57	67
Pete Owen	10	46	56
29. Ted Wlazlo	9		9
30. Bill Thomas	4		4
31. Tim Johnson	3		3
Harry Atkinson	3		3
33. Fred Switzer	2		2
34. Bob Oppegard	1	15	16
35. Dale Mendenhall	0	2	2
36. Jack Hanson	0	1	1
Harold Wachtler	0	1	1

Juniors

1. ***Erick Sears***	6*	4	10*
2. Cassiday Spiess	4		4
3. Jason Fessler	3		3
4. Cody Spiess	1	3	4
5. Herb Fischer	1		1
6. Jackson Hanson		3	3

***Outdoor and Season Champs**

Fall Meet - Sept. 11,1994

1/2 A Gas (12)

				T
1. Dennis Sussman	86	90	69	245
2. Hank Liljequist	47	43		90
3. Jim Jorgensen	64			64
4. Gary Oakins	36			36

A Gas (10)

1. Al Muller	89	90	90	269
2. Gary Oakins	90	87	87	264
3. Hank Liljequist	90			90
4. Bob Oppegard	47			47

BCD Gas (5)

1. Gary Oakins	90			90

Pee-Wee 30 (5)

1. Bob Kumferman	24	58	68	= 903
2. Hank Liljequist	88	34		= 812

CO2 - Mini 6 (4)

1. Jim Ladwig	90	90	90	270
2. Aaron Petersen	70	77		147
3. Jim Anderson	33			33
4. Dave Braun	31			31

Mulvihill (8)

1. Aaron Petersen	90	90	90	270
Herm Fessler	90	90	90	270
3. John O'Leary	90			90

Coupe (7)

1. Hank Liljequist	66	90	74	230
2. Aaron Petersen	72	61	51	184
3. Bill Rogers	67	75	34	176
4. Bob Kumferman	71			71

Embryo Endurance (8)

1. Aaron Petersen	86	90	90 + 5	271
2. Herm Fessler	62	66	39 + 9	176
3. Jim Anderson	50 + 9			59
4. Hank Liljequist	30 + 9			39
5. Bill Rogers	01	02 + 5		08

A/2 Nordic (1)

1. Jorge Triana	76			76

HLG (6)

1. Dave Braun	28	29	38	95
2. Dick Diers	42	26	24	92
3. Bill Rogers	16	19	34	69
4. Tim Johnson	22	23	19	64
5. Aaron Petersen	21	14	18	53
6. Hank Liljequist	12	14	10	36

Catapult Glider (6)

1. Herman Fessler	39	90	45	174
2. Dick Diers	90	29	25	144
3. Aaron Petersen	19	19	20	58
4. Dell Marchant	11	10	11	32
5. Hank Liljequist	11	07	06	24
6. Ted Wlazlo	06	14		20

Junior Event (1)

1.Erick Sears	39	58	90	216

P-30 (13)

1. Jim Jorgensen	90	90	69	249
2. Bob Kumferman	90	47	55	192
3. Aaron Petersen	69	70	51	190
4. Herm Fessler	62	66	39	189
5. Bill Roush	57	60	55	172
6. Gary Oakins	65	58	46	169
7. Hank Liljequist	37	55	74	166
8. Terry Taylor	57	44		101
9. Ted Wlazlo	42			42



Dick Diers, Wisconsin's gift to the Minnesota free flight community, prepares to launch his catapult glider.

Das Oktoberflüg - October 9th, 1994

1/2 A Gas (14)

				T
1. Dell Marchant	120	83	120	323
2. Jim Jorgensen	53	62	81	196
3. Gary Crawford	59	60	66	185

A Gas (12)

1. Gary Oakins	120	111	71	302
2. Gary Crawford	120	88	81	289
3. Al Muller	93	53	80	226
4. Don Spehn	83			83
5. Gary Fessler	44			44

BCD Gas (8)

1. Gary Oakins	120	120	120	360
2. Don Spehn	105	120	86	311
3. Dick Bloomquist	120			120
4. Clyde White	75			75

Nostalgia Gas (8)

1. Al Muller	107	97		204

.020 Replica (7)

1. Dell Marchant	120			120

OT Rubber (4)

1. Aaron Petersen	120	120		240
2. Bob Kumferman	104	56	68	228

Mulvihill (6)

1. Aaron Petersen	120	100	120	340
2. John O'Leary	107	120	94	321
3. Bob Kumferman	84			84

Embryo Endurance (5)

1. Aaron Petersen	64	73	120 + 5	262
2. Mike Spiess	76	60	120 + 5	261
3. Joe Huettl	88	52	71 + 9	220
4. Herm Fessler	46	93	04 + 9	152

A/1 - A/2 (2)

1. Herm Fessler	104	120		224
2. Hank Liljequist	19			19

HLG (8)

1. Dave Braun	29	45	120	194
2. Garrett Crawford	26	43	104	169
3. Joe Huettl	30	30	40	100
4. Dick Diers	30	25	20	75
5. Don Spehn	16	16	31	46
6. Aaron Petersen	13	16	13	42
7. Hank Liljequist	04	14		18
8. Gary Crawford	14			14

Catapult Glider (10)

1. Herm Fessler	84	42	26	152
2. Dick Diers	84	34	25	143
3. Don Spehn	27	29	40	96
4. Aaron Petersen	21	41	27	89
5. Gary Crawford	35	34	17	86
6. Dave Braun	28	19	30	77
Garrett Crawford	29	24	24	77
8. Ted Wlazlo	11	11	10	32
9. Hank Liljequist	03	03	23	29

P-30 (11)

1. Gary Oakins	88	96	120	304
2. Joe Huettl	89	58	120	267
3. Aaron Petersen	77	97	80	254
4. Jim Jorgensen	105	85	55	245
5. Bob Kumferman	120	60	42	222
6. Hank Liljequist	48			48

There were several reasons why this meet was run with maxes set at two minutes (Cat. 3), but none of these reasons seemed to make much sense at contest's end. No ifs, ands, or buts, this meet should have had maxes reduced to 90 seconds. My apologies to those who were inconvenienced.

DB

RUBBER BAND (cont'd.)

...20 turns per inch of untensioned motor. So! for a 46" motor, something like 920 turns will be the upper winding target. The resultant torque generated is often in excess of 80 inch-ounces and is the key factor in ensuring satisfactory flight. Exceeding a torque level for which a model has been trimmed can cause deadly flight problems such as looping or power stalling. Both maximum turns and torque may vary from motor to motor so be prepared to modify the upper winding target as the process develops. With the propeller disconnected from the front hook and placed conveniently near to the model nose, together with a six inch rod or screwdriver, the motor is pulled through the winding tube and connected to the extension rod/torque meter and winder. Let's say the target is 900 turns???

Commence by zeroing the turns counter, taking up the motor slack and **gently** winding on a few clockwise turns, walking slowly backwards away from the model while continuing to wind on about 50 turns until the motor is stretched out 3 or 4 times its original length.

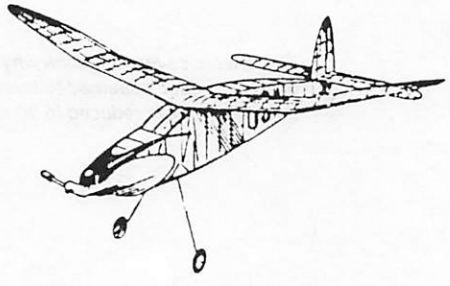
This means that for a 46" motor, the winder/winding extension rod is now 16-20 feet from the model's nose and everything has come under very considerable tension! (It is interesting to note at this point that any spectators who may be watching always take two involuntary steps away from the model in a nervous gesture of self preservation!).This is a rich luxury denied to the modeller who remains directly aligned with the whole shebang for the next few minutes, and who may feel it is an appropriate time to offer quiet prayers to a chosen Savior! Without pausing, the motor is slowly wound up until half (450) of the target turns have been delivered and continued by winding on the remaining 450 turns while walking slowly in towards the model, judging the motor hook's arrival at the nose with the last few of the 900 target turns. The motor is as hard as iron and glistening with expelled rubber lubricant! Checking the torque meter will reveal if the desired torque has been achieved and backing-off a few turns will reduce the torque to a safe level if required. Deep breathing is generally a good idea at this point!

Holding the winder securely in the right hand (for right handers),gentle sliding of the winding tube from inside the model all the way up the extension rod towards the winder cleverly exposes the motor hook just poking an inch or so from the fuselage nose! Again, left handed, pick up and insert the nearby six inch rod or screwdriver through the motor hook and grasp both motor and rod very firmly indeed! Assume that life itself is dependent upon this grip! Now! Discarding to the fall of gravity the disconnected winding rod, winder and tube, pick up the propeller mechanism which lays nearby (doesn't it?) and with the right hand, fiddle its hook onto the motor hook ...and engage the free-wheeling clutch or other mechanisms to prevent the motor releasing all its power in an instantaneous "shaft run" that can **totally destroy** anything within reach! Ensuring that the propeller noseblock is correctly inserted into the model's nose, and using the left hand to prevent the propeller from rotating, remove the stout metal rod which restrained the model in the winding jig and with both hands steady the airplane against the breeze which **always** gusts at this exact time.

The moment draws near! Checking rigging angles, nothing is mis-aligned at nose, wing, tail or fin; setting the dethermalizer, walking to the designated launch area, simultaneously sensing the strength and direction of the breeze, patiently awaiting the remote but detectable puff of warmer air that signals a passing thermal. Bending knees and spine to touch wheels and sub-fin on the tarmac, releasing propeller micro-seconds before letting go the fuselage while facing the breeze head on, the model is freed to demonstrate the world's greatest aerodynamic experience!

The Vintage Wakefield screams silently upwards, spiraling in right-handed flight, almost vertical for about 10 seconds; then, with climb angle gradually reducing, continues inexorably upwards for another minute to become a mere dot in the sky as the power of the rubber motor exhausts itself through the 18" diameter propeller, with blades large enough to hide a newborn baby's arms! Now the model airplane mutates into a soaring buzzard, wings outstretched, floating higher on currents of warm air and would, if not checked, shortly meet the same God prayed to only minutes earlier! But trickery is at hand. Time passes! Then, by lighted fuse and burned rubber band, or by clockwork motor from a child's toy, the dethermalizer is triggered and the soaring buzzard is reduced to an aerodynamic enigma! A model airplane that cannot fly, yet, will not crash like a bag of hammers, emulating a graceful sycamore seed which slowly turns and gently falls through the rising currents to alight undamaged on mother earth.

Gratefully retrieved, the Vintage Wakefield returns to the winding jig to re-absorb the latent power of the rubber motor and try once more for freedom! All this from 4 ozs. of pure rubber, a few sticks of balsa wood, some wire, tissue and silk, a little patience, a measure of courage and the conviction that all aeromodellers will someday become truly liberated and join "The Crazy Rubber Band".



"THE CRAZY RUBBER BAND"

by Ramon Alban SAM-35/1066

It has been said, People who fly 8 oz. Vintage Wakefields on full power are wired to the moon! To illustrate the point, this brief examination of the techniques involved in the preparation, treatment and (ab)use of rubber motors may encourage readers to join "The Crazy Rubber Band" in pursuit of aerodynamic perfection!

Two 8 oz. Vintage Wakefields are referenced in this essay. The "New Look" by Jacques Morisset, Champion of France in 1950, and the legendary 1949 "Voodoo" by Ron Warring, perhaps the greatest British Wakefield flier of the post war period. The motors used to power the reproductions of these two models consist of 14 strands of 1/4" Tan FAI rubber strip with a total weight in the region of 3.5 to 4 ozs. But how is this determined?

A useful approximation for calculating the unwound length of a Vintage Wakefield motor is to multiply the distance between propeller hook and motor peg by 1.5. So! For the "new Look", where hook-to-peg distance is approx. 31", a motor length of 46" is indicated (ie: 31 X 1.5=46). The shorter hook-to-peg length of the "Voodoo" requires a 36" motor. The weight of rubber and the number of strands needed to power a model efficiently is partly determined by the finished airframe weight. Generally, for an 8 oz. Wakefield, the airframe weight is in the range 4.5 to 5.5 ozs. and motor weight 3.5 to 4 ozs. A 12 strand motor is usually sufficient to produce good flight performance, but for heavier airframes, more rubber with 14 or even 16 strands may be required. A fully trimmed Wakefield will climb for the whole of it's motor run, if not, the number of strands should be increased. Once a model is trimmed for a particular motor weight, it is vital to make up all new motors to the same weight otherwise the center of gravity and trim of the model is affected. Maintaining the same motor weight and number of strands incurs small but unimportant variations in length for motors made up from different batches of rubber.

A rubber motor really needs to be "brokenin" before it can deliver full power on maximum turns, and a good way is to prestretch it to 4 or 5 times its natural length for about 10 minutes while wetting it thoroughly with **diluted** rubber lubricant (eg:green soap/glycerine/water mixture) which will penetrate right into the micro-structure of the rubber. This pre-stretching process calls for a pair of strong builder's hooks securely fixed to **substantial** supports, and is best carried out prior to pre-tensioning. Also, the exercise will demonstrate the immense power involved in dealing with these motors, and demands great care to avoid damage and/or personal injury! **A foretaste of rigors yet to come!**

A Vintage Wakefield motor is pre-tensioned (braided) to ensure it distributes itself **evenly** between motor hook and rear peg after it unwinds. There are several methods of braiding, but an easy way when making up a 12 strand motor is to produce **two** 6 strand loops to the calculated length, joined together with a bobbin fixed to a secure anchor point (**please**, not a door knob!). Wind clockwise half the tensioning turns onto each half motor before bringing the two free ends together with a motor hook. The full 12 strand motor is then lightly wound and allowed to unwind to produce a neatly braided motor. A 14 strand motor is similarly made, but one of the loops being of 8 strands cut to the correct length.

A simple estimate for the correct number of tensioning turns is to multiply the **untensioned** length by 2.6. So! For a 31" motor, 80 pre-tensioning turns will be needed (ie: 31 X 2.6=80), 40 on each half. Similarly, for a 46" motor a total of 120 pre-tensioning turns are required, although, to equalize the tensioning effect on 14 strands, it is necessary to slightly **reduce** the number of turns on the 8 strand portion to (say) 55, and wind the remaining 65 turns on the 6 strand portion!

A complex alternative is to **individually** pre-wind each pair of strands using a long jig made up with an anchor point at one end, and 7 more cup-hooks at the other end. So! For the 46", 14 strand example above, 60 turns (Yes! Think about it?) are required for each pair of strands. All the pre-wound pairs are then brought to the motor hook and (again) the whole motor lightly wound and unwound to produce a delightful "Rastafarian" braided effect. A distinct advantage of this method of pre-tensioning is that the motor generally distributes itself more evenly between motor hook and rear peg after it unwinds with less risk of bunching and center of gravity shift.

WAKEFIELD

When the time comes to generate **full power** and efficiency from a Vintage Wakefield motor, then winding to maximum turns requires a keen appreciation of the forces involved: strong equipment, considerable attention to detail, and a total lack of **fear!** The days, models are mounted in a strong winding jig secured to terra-firma by guy ropes. A stout metal rod passes through a hollow rear motor peg restrains the fuselage whose frontend is horizontally supported by a fork extension to the jig. A winding tube encloses the motor, preventing damage to the model in the event of motor breakage, and involves clever use of an extension winding rod (often incorporating a Torque Meter) facilitating removal of the tube prior to flight. A strong winder can be made from a modified double-geared handdrill with a grip handle and cam-operated counter! **Be warned!** It is wise to doublecheck the soundness of all hooks and connections!

In preparation for winding **any** rubber motor, it is important to know the maximum number of turns and the associated torque it will produce in order to bring about a safe flight. A reasonable "maximum turns" guide for 14 strands of 1/4" Tan FAI rubber is about →



JAMES DRUMMOND, SISTER M. AQUINAS, JACK O'LEARY, ROBERT MAAG AND JOHN LAFORGE
With model planes including "Liddle Lamsey Divey" held by Robert Maag

St. Paul Mn. -- 1943 Current MMACer Jack O'Leary visits St. Paul with Sr. Aquinas and fellow Aeronautics students for a weekend of in-service teaching an demonstrations. The class was lead by Carl Goldberg. The group came down from Ironwood Michigan where Sr. Aquinas was the Science and Aeronautics instructor. Articles regarding her skills were published in the Sat. Evening Post and Look Magazine. She went on to get her Ph.d. and teach at Notre Dame "Little Lamsey Divey" is a Goldberg design.