MINNEAPOLIS MODELER

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Number 231 **March - April 1993**

MEETINGS

MARCH 5, 1993 MONTHLY MEETING at the Donaldson Co., 1400 West 94th Street, Bloomington, at 8:00 PM.

APRIL 2, 1993 MONTHLY MEETING, same as above.

WINTER CONTESTS AND OTHER STUFF

FEBRUARY 28, the annual HLG Challenge at Medicine Lake. OUTDOOR.
MARCH 13, Fun Fly at the St. Peter Armory. INDOOR, about 45'.
MARCH 22, Fun Fly at the Burnsville HS gym, 5-10 PM.

The last remaining Mpls MAC Indoor Contest.....
Flying site:
St. Thomas Acadamy
949 Mendota Heights Road
Mendota Heights, MN.

April 18, 1993

• BOB PECK MEMORIAL •

Dale Mendenhall C.D. 535-2976

Events: Peanut Scale
Walnut Scale
No-Cal Scale
Bostonian
Penny Plane
Easy B
Catapult Glider
Hand-Launch Glider (J) (S/O)
Junior Rubber (J)

1993 OUTDOOR CONTESTS...PRELIMINARY SCHEDULE

MAY 30	Aeronuts Spring O.T.	Bong
JUNE 3-6	NFFS/AMA Indoor Champs/Nats	Johnson City, TN
26-27	FAI Invitationals	Bong

JULY 10-11	FAC Meet	Geneseo, NY
17-25	AMA RC and UC Nats	Lawrenceville, IL
AUG. 1	Bong Eagles Meet	Bong
15	Midwestern States Champs	Bong
29	Aeronuts Fall O.T.	Bong
SEPT. 1-5	NFFS Outdoor Champs, AMA FF Nats, Nos. Gas, SAM 57 O.T., FAC.	Muncie, IN
18-19	CIA Regional	Muncie, IN
OCT. 2-3	Tri County Meet	Lawrenceville, IL
12-15	SAM Champs	Taft, CA

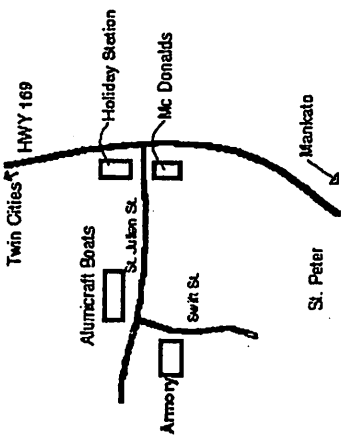
Indoor Free Flight Fun Fly
St Peter National Guard Armory

March 13 1993
12:00 noon to 4:00 pm

Tables available

Beginners Welcome

Many experienced flyers will be there to help.
Rubber powered models of 24" or smaller are flown indoors.
So bring a plane and a friend and have some fun.
If you have no plane come and see what indoor flying is all about.
You'll be glad you did.



Sponsored By
Mankato Model Soaring Society

"OAKIE'S ORACLES" or "THE PREZ SAYS"

Holy cow! It's almost the first of March. As usual the winter is almost shot and yours truly has done very little building. I should spend as much time building as I do in the fish house trying to catch the elusive sunfish. It won't be long and we'll be at the sod farm trimming our new planes.

I received a Christmas card from our good friend Tony Saunderson. He writes that he checked the Chinese calendar and '93 is the year of the GYSOB. Therefore, he plans to "stomp our buts" with his GYSOB. Such whimsical dreams are usually confined to the young. Oh well, dream on Tony.

We have had two flying sessions at the Metrodome, Jan. 14 and Jan. 28. We (MMAC) had the entire dome to ourselves on the 14th, as Harry Garish had no program for the youngsters this winter. Jack O'Leary, Pete,Aaron, Don Patterson, Craig Lamatsch, Greg Stewart, Jorge, and myself enjoyed an evening of flying. Greg flew a couple of RC (a four letter word) ships; an electric and a glider. They were flying well until his frequency got jammed. Aaron had a fleet of about seven planes. All flew great. Jorge's new walnut was flying flawlessly. Pet's electric powered plane was flying three minute flights. Good time was had by all.

The flying session on the 28th had Aaron's school kids as well as a group from Tim Johnson's school. Thanks to all who helped the youngsters trim and

fly their airplanes. Sorry I was late, had to work to keep the social security checks comming for our senior members. Understand there were many successful flights.

At least twenty three atta boys to Aaron Petersen for all the work he's done designing and building planes for the kids. He has spent countless hours helping same build and trim the models. Well done Aaron!

The main reason Aaron became involved in FF was to encourage his children to build models. I'm not sure how his kids are doing but Aaron sure got hooked by the FF bug. You're a great addition to our club.

It's a real delight to see the large attendance at our club meetings. I remember back in the late '70's when a good turn out would be 8-10 members. Many of our members are retired and have ample time to build and attend meetings.

I talked to Dick Bloomquist in late Jan. He too is retired and is really enjoying himself. He reports to have 4 to 5 airplanes in various stages of construction. He is also trying his hand at the bunt system. Look out power boys, Bloomquist will be ready this spring.

Hope to see everyone on Medicine Lake, Sun. 28, Feb. This is our annual hand launch glider fling. I will NOT be running engines this year. I received enough stitches last year.

See you at the meeting.

Gary

Meeting Minutes: 8 Jan 93 Place: Donaldson Co. Time: 8:19 pm

Members Present: 28

The President displayed a Christmas card from Tony Saunderson.
The President read a letter from Greg Stewart to AMA protesting many of the proposed Free Flight rule changes.
Mr. Hentges has once again very generously given us permission to fly on his farm in 1993.
The Secretary will write a letter to Mr. Peterson about our contest dates, when we most likely would need to retrieve on his property.
The President and the membership thanked Herman Fessler for the Christmas party at his house.
The Secretary announced that he and Jack O'Leary are in the process of forming a Flying Aces Club squadron. More info to follow.
The outdoor contest schedule was approved. Dates and events are similar to last year: 23 May, 12-13 June, 18 July, 8 Aug, 12 Sep, 10 Oct, 24 Oct. It was decided to combine CO2 and MINI-6 electric on 2 dates, rules to follow. More catapult events will be held. A-1 and A-2 glider event combined. It was voted to drop MMAC Scale from the schedule. The new FAC club will organize some events along those lines, and announcements will be made in the newsletter.

Herman Fessler showed us the Gollywock he built to replace the one he lost last season. Jim Ladwig showed us some foam/balsa ROG's of his own design. Jack O'Leary displayed a 1.4X Phantom Flash with a Micro-4 electric motor, also a homemade 12:1 winder. Aaron Petersen showed us a small all-balsa slip-together rubber model of his own design called the KWIKBIRD. Also a new Island Flyer and a re-covered 3-year-old Flying Aces Moth.

Meeting Minutes: 5 Feb 93 Place: Donaldson Co. Time: 7:50 pm

Members Present: 32

There will be no Apache Mall Show this year.
The FCC is threatening to goof up the RC frequency picture.

Proposed MINI-6 rules and Flying Aces info will be in the newsletter.
Don Spehn told of a letter he got from Ed Riley.
The HLG/Catapult Fling is still on for 28 Feb at Medicine Lake.

MMAC INDOOR FUN FLY AT BURNSVILLE HS GYM ON SAT., 20 March, 5 - 10 p.m.

Mike Spiess announced that he has secured the St. Peter (MN) National Guard Armory for an MMAC Fun Fly on Sat., 13 March, noon - 4 pm. Details and map in the next newsletter.
Mr. Switzer presented an award poster to the President.
Herman Fessler displayed a new blue-white walnut GeeBee Y.

Norm Janzen very ably auctioneered the annual Auction, which netted the Treasury $290.
P.S. The Secretary thanked all those who assisted students flying in the Metrodome on 28 January. Very good turnout of MMAC stalwarts. Kids were from Richfield JHS (Tim Johnson) and from MMAC's Adopted St. Paul Open School (Pete Owen, Wendell Carroll, Mac Hewitt, and Aaron Petersen). The session was a big success.

)))))) INDOOR (FLYING SCALE) TRIM ((((((

This article was originally written for England's "SAM 35 Yearbook #4" by the late Peanut impresario, BUTCH HADLAND.

Doc Martin reprinted article in "HANGAR PILOT", & "Topics" passed it on in Issue # 2, November, 1987. We've re-typed it this time as the poor quality of the original reprints didn't do the article justice.



"INDOOR TRIM"
by Butch Hadland



My flying scale models have been very successful in the past, mainly due I think, to my previous free flight duration experience. Other contributory factors are flying competitively in the United States, membership of the Flying Aces Club, and letters to and from across the "pond" to my bosum pal "Doc" Martin of the Miami Indoor Modelers Association. Of course, watching and listening to other scale modellers is also a superb pastime for furthering one's information and experience libraries.

I should stress that the following is my way of trimming and flying. You may have other ideas, but I can guarantee that my way will get your models flying sat isfactorily, and that's what it's all about.

The main difference between indoor and outdoor flying is that indoor we don't glide! The whole flight is "power on", although towards the end of the flight the propeller is in a "no-man's land" condition: that is to say that thrust and drag just about cancel each other out, so "powered glide" maybe the correct phraseology. Another factor to be considered is that in calm indoor conditions the model does not become unstabilised by changes in air speed, as can happen outdoor with gusts and general turbulence, so that generally a scale-sized stab will suffice. To overcome the small stab syndrome I usually locate my C.G.s far further forward than usual. This effectively lengthens the tail moment and makes the stab more effective. I use this technique on all my models, both rubber and CO-2 and have found it to be safe and pretty-well foolproof.

My high-wing types (rubber) are flown either left or right depending on the type of competition entered! If the model is to be judged for "SMAE flight" then I fly right. This involves a straight take-off, and as the torque dies off, the model settles into right-hand cruise and eventual descent. The model's trim follows:

1. Slight wash-in (1 Deg.), right-hand wingtip.
2. 2 - 3 deg. downthrust.
3. Right rudder, 2 - 3 deg.
4. Slight up elevator to counter (6).
5. Corresponding wash-out, left-hand wingtip.
6. C.G. position approximately 10 - 15% form L.E..

Incidentally, most of my models are built with separate elevators and rudders. The weight penalty is negligible, but the control that can be effected on the model is immeasurable. I don't like Sellotape or masking tape trim tabs.

Flying high-wing models left is very exciting. Take-off is usually followed by a very tight left-hand turn, gradually widening out until the model assumes circles of wall-banging proportions; Ok outdoors, but frowned upon indoors.

High-wing rubber: FLY SAFE, FLY RIGHT!

My low-wing rubber ships, on the other hand, always fly left. Flying right against torque is suicidal and should be avoided at all costs. My current stable of low-wingers includes a Heinkel HE 100 V8 (the 1939 world speed record holder), a Mew Gull, and Howard Hughes' H.1. in short wing configuration. All utilize the same trim & all fly really well (all are Peanuts). The set-up is:

1. 1/8 in. - 3/16 in. wash-in, left-hand wingtip.
2. 1/16 in. - 1/8 in. wash-out, right-hand wingtip.
3. 2 - 3 deg. left rudder.
4. Forward C.G. (10 - 12%).
5. Up elevator (1/16 in. - 3/32 in.).

More on page 7

FLYING ACES SQUADRON

by Aaron Petersen

A number of MMAC members have expressed strong interest in forming a Flying Aces Club squadron as a special interest group within the MMAC -- not as a separate entity. Jack O'Leary and I have more or less agreed to do some of the preliminary work. To participate, all you need do is send $9 to Flying Aces GHQ, c/o Lin Reichel, 3301 Cindy Lane, Erie, PA 16506. This will make you an FAC member and bring you the national newsletter six times a year. I have come up with a rough draft of a tentative logo. We need to decide what to call ourselves. I myself am partial either to Red Pine Raiders or Escadrille du Nord. The MMAC membership has voted to turn all outdoor scale contest activity over to the FAC squadron, so we need to decide what we'd like to do in that regard. We do have to agree to follow the FAC rules, especially in their spirit and intent. I have copies of the rules for 50¢, or you can get them from FAC GHQ. Some events that would be handy for us right off: FAC Rubber Scale, FAC Power Scale, FAC Old Time Rubber. One idea I have is to make it open-ended and to fly official flights whenever good opportunities arise at regular MMAC contests, or afterwards. Weather can of course be a repressive factor with scale models. An event doesn't necessarily have to be completed on a given day. Official flights can be flown whenever one has a timer willing to certify results. Or we can have an FAC meet sometime in combination with an MMAC fun fly. Whatever. The important thing is to have fun and to keep things as simple as possible, I think. None of this should be in any way threatening to the integrity of the MMAC itself; in my view it can work to strengthen us. Why not? One more thing -- I think all FAC fliers ought to be AMA members, for obvious reasons. Perhaps whatever "meetings" we feel are necessary can be held on MMAC meeting nights, same place. That will help to keep them short and to the point. I view the Flying Aces Club more as a great idea than as an organization. For organization, we've got the good old MMAC, the mother of all modeling clubs for miles around.

PROPOSED MINI-6 ELECTRIC RULES (TO BE FLOWN COMBINED WITH CO2)

Power: one stock, unaltered HiLine MINI-6 electric motor, with battery no stronger than 3 cells X 110 mah.
Two-minute max, hand launch.
Official flight = 40 sec. or more.
Six attempts for 3 officials.
High 3-flight total wins.
Add one minute to the max for each flyoff flight.
All flyoff flights official.
(All basic flight rules same as for CO2.)



INDOOR MEET RESULTS Jan. 10, 1993

PEANUT SCALE (9)

			SCALE	FLIGHT	TOTAL
1.	Jorge Triana	Clipped Monocoupe	52.5	57.0	109.5
2.	Barrie Taylor	Waterman Gosling	53	48.8	101.8
3.	Don Berggren	Ganagobie	52	42.4	94.4
4.	Jim Anderson	Ord Hume	55	38.1	93.1
5.	Gary Oakins	Lacey M.10	49	35.8	84.8
6.	Aaron Petersen	Ord Hume 7	52	31.1	83.1
7.	Hank Liljequist	Fike	52	16.2	68.2
8.	Terry Taylor	Cougar	44	20.4	64.4
9.	Harold Wachtler	Lacey M.10	31	18.0	48.0

WALNUT SCALE (6)

1.	Jorge Triana	Miss Grand Rapids	56.5	60.0	116.5
2.	Jim Anderson	Baby Ace	54	35.1	89.1
3.	Dave Braun	Skyfarer	48	33.0	81.0
4.	Hank Liljequist	Piper Vagabond	52	19.5	71.5
5.	Dell Marchant	Allied Sport	44	25.7	69.7
6.	Aaron Petersen	Ord Hume 7	54	12.5	66.5

EASY B (4)

1.	Barrie Taylor	3:26
2.	Dave Edmonson	2:00.6
3.	Hank Liljequist	2:00.0
4.	Bob Oppegard	1:44

PENNYPLANE (4)

1.	Dave Edmonson	4:00
2.	Barrie Taylor	3:50
3.	Aaron Petersen	3:34
4.	Jorge Triana	3:27

BOSTONIAN (13)

1.	Aaron Petersen	68.2
2.	Pete Owen	57.0
3.	Dell Marchant	55.6
4.	Jorge Triana	50.6
5.	Dave Braun	50.4
6.	Hank Liljequist	48.5
7.	Jack O'Leary	48.0
8.	Dave Edmonson	47.8
9.	Bob Botha	42.9
10.	Gary Oakins	41.6
11.	Denny Sussman	32.9
12.	Jim Anderson	20.7

JUNIOR RUBBER (3)

1.	Cody Spiess	23.6
2.	Jon Edmonson	23.0

NO-CAL SCALE (8)

1.	Barrie Taylor	172.0
2.	Fred Switzer	79.5
3.	Dave Braun	78.0
4.	Jim Anderson	73.2
5.	Don Berggren	67.0
6.	Aaron Petersen	66.4
7.	Jack O'Leary	54.4

CATAPULT GLIDER (6)

1.	Barrie Taylor	44.3
2.	Dell Marchant	32.7
3.	Dave Braun	30.8
4.	Dave Edmonson	30.7
5.	Jon Edmonson	24.6
6.	Terry Taylor	20.6

HLG (6)

1.	Barrie Taylor	66.3
2.	Dave Braun	54.6
3.	Dell Marchant	46.3
4.	Dale Mendenhall	36.9
5.	Dave Edmonson	36.7
6.	Bob Botha	29.6

JUNIOR HLG (2)

1.	Garrett Crawford	29.9
2.	Jon Edmonson	18.4

CORRECTION: The FUN FLY at BURNSVILLE is incorrectly listed on page 1 as MARCH 22. It should be MARCH 20. In addition, this fun fly is not 100% definite and may be cancelled. If you plan to attend and haven't gotten the word, check with Jack O'Leary, 888-0638, or Gary Oakins, 429-3150.
Also, I just received word of a Cat. I Indoor Contest at Winnipeg. See Dell for list of events. The date is MARCH 21.

INDOOR MEET RESULTS Feb. 14, 1993

PEANUT SCALE (6)

			SCALE	FLIGHT	TOTAL
1.	Jorge Triana	Monocoupe	52.5	54.3	106.8
2.	Don Berggren	Ganagobie	52	40.5	92.5
3.	Herm Fessler	Lacey	45	43.4	88.4
4.	Terry Taylor	Cougar	44	29.9	73.9
5.	Gary Oakins	Lacey	49	23.9	72.9
6.	Harold Wachtler	Lacey	33.4	33.9	67.3

WALNUT SCALE (5)

1.	Jorge Triana	Miss Grand Rapids	56.5	57.8	114.3
2.	Herm Fessler	Curtiss Robin	49	40.4	89.4
3.	Dave Braun	Skyfarer	48	33.4	81.4
4.	Dell Marchant	Allied Sport	44	31.5	75.5
5.	Bill Thomas	Aeronca K	51	21.5	72.5

EASY B (4)

1.	Bill Thomas	4:30.6
2.	Dave Braun	3:48.0
3.	Jorge Triana	3:18.1
4.	Dave Edmonson	2:11.5

PENNYPLANE (4)

1.	Bill Thomas	6:20.5
2.	Aaron Petersen	3:50.0
3.	Dave Edmonson	2:48.6
4.	Jorge Triana	2:18.0

PARLOR MITE (7)

1.	Jorge Triana	5:16.5
2.	Dave Braun	4:05.0
3.	Andy Karl	3:14.6
4.	Dave Edmonson	3:05.4
5.	Aaron Petersen	2:20.4
6.	Fred Switzer	:33.6

PHANTOM FLASH (6)

1.	Jack O'Leary	99.0
2.	Aaron Petersen	77.2
3.	Dave Braun	71.2
4.	Fred Switzer	57.1
5.	Hank Liljequist	55.7
6.	Pete Owen	48.6

BOSTONIAN (13)

1.	AaronPetersen	68.0
2.	Mike Spiess	64.3
3.	Jorge Triana	56.9
4.	Dave Braun	56.8
5.	Bill Thomas	56.4
6.	Gary Oakins	49.5
7.	Dave Edmonson	48.9
8.	Dell Marchant	44.2
9.	Denny Sussman	42.6
10.	Pete Owen	29.6
11.	Jack O'Leary	27.9
12.	Terry Taylor	22.4

HLG (2)

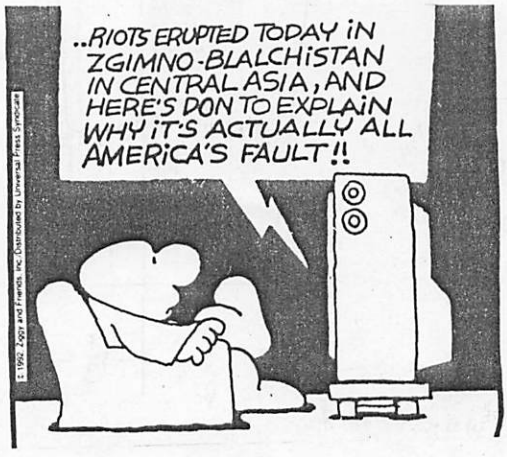
1.	Dave Braun	52.1
2.	Dell Marchant	40.4

JUNIOR HLG (2)

1.	Tim Edmonson	28.0
2.	Jon Edmonson	16.2

JUNIOR RUBBER (3)

1.	Tim Edmonson	76
2.	Jon Edmonson	53
3.	Cody Spiess	44

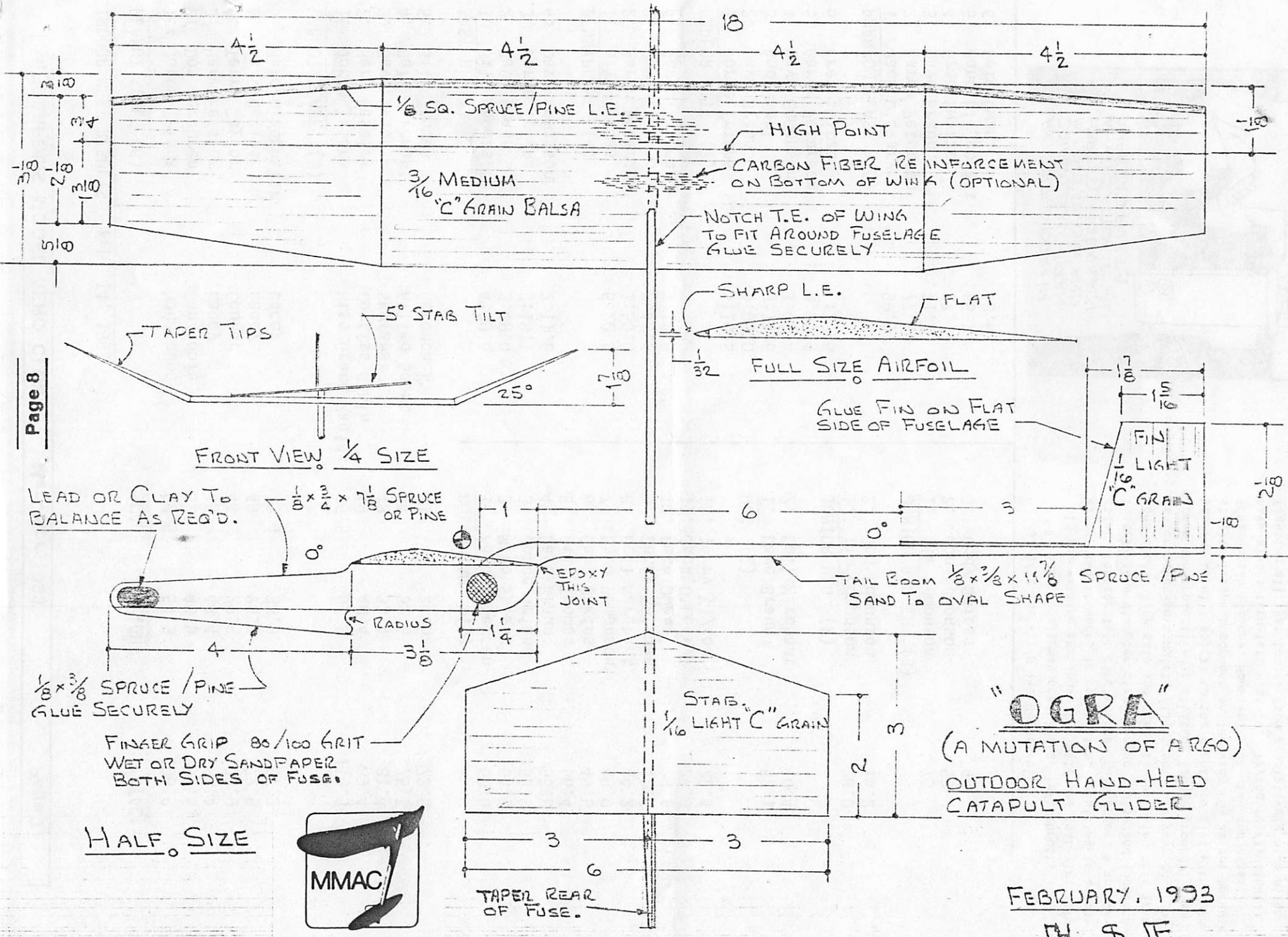


6. 3/32 in. - 1/8 in. downthrust.

7. Some models may need 1 deg. left thrust.

If you examine the above you will see that virtually every "tweak" works in opposition, resulting in a constant diameter left circle under full power, & approximately same diameter circle under cruise and approach conditions. Very safe and predictable. Using this trim is for power-on complete flight only. If your motor becomes non-productive at altitude (above ground!) them your model will spiral to the right, coupled with deep stalls. I cannot comment on low-wing CO_2 as yet because I haven't built one. However, high-wing and bipes I have always turn left with CO_2. Trying to fly right, fighting all that torque from a relatively high pitch

More on page 10



"OGRA"

(A MUTATION OF ARGO)

OUTDOOR HAND-HELD CATAPULT GLIDER

HALF SIZE

MMAC

FEBRUARY, 1993

O. S. F.

THE REASON FOR OGRA by Herm Fessler Feb. 1993

The Hand Held Catapult Glider rules puts a new twist on the design of a catapult glider. The length of the dowel and loop of rubber is fixed, but the lengths of peoples arms are not. The length of a normal persons arm span is roughly equal to their height. Ergo! A tall person can stretch the rubber farther and get more power/speed on the launch. In an attempt to "level" the playing field I redesigned "Argo" (Mpls Modeler, Sept/Oct '92) from a pole launched glider to a hand held catapult glider. The obvious change is the funny looking tail boom set-up. This is an attempt to get the tail feathers out of the way so the gripping fingers can move up to just behind the CG and not de-tail (pun) the glider on launch. This will increase anyones stretchability by at least one foot.

Let's analyze this. A six foot tall person with an arm span of six feet will probably get about 5 feet of useable arm span with the glider held far enough out in front so it doesn't hit some part of the body on release. Grabbing the glider by the tail (12" from Ogra's launch grip point) gives about four feet of rubber stretch. The ¼" tan rubber that I have will stretch to about six times its relaxed length. A nine inch loop will stretch to about 54", just a little farther than our six footer can manage. With the launch point moved forward 12 inches it can be stretched to the maximum. So our 6 foot tall person can get all of the power allowed by the rules. So can a person who is 5 foot 6 inches tall (66" arm span less 12" for launch safety) get maximum stretch from a nine inch loop?

Now, for the Juniors (or any midgets among us), nowhere do the rules state that the rubber loop cannot be shorter than nine inches. The stress in the rubber will be the same in pounds no matter how long or short the loop is, so long as it is stretched to its useable maximum. This means the force on the glider will be the same and the initial acceleration (read speed) will be the same regardless of the rubber loop length. Any differences in performance will be akin to the differences in muzzle velocity of the same bullet being fired from guns with different length barrels.

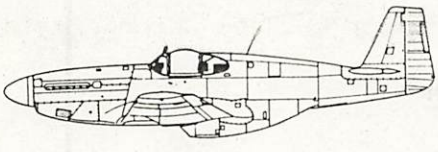
The above assumes that all ¼ inch strip rubber is created equal. But some rubber will be more "equal" than others. The guy with the thickest strip wins.

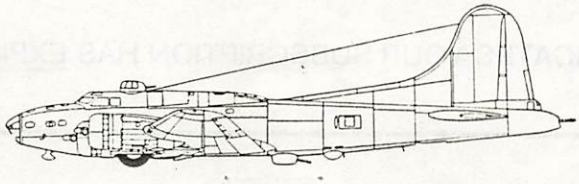
CLUB POINTS 2/15/93

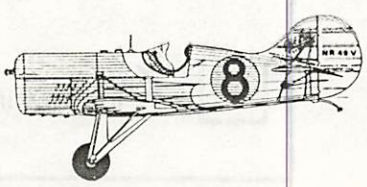
1.	Jorge Triana	96
2.	Aaron Petersen	85
3.	Dave Braun	81
4.	Dave Edmonson	46
5.	Dell Marchant	44
6.	Hank Liljequist	37
7.	Jim Anderson	32
8.	Gary Oakins	24
9.	Don Berggren	23
10.	Jack O'Leary	22
11.	Don Spehn	21
12.	Pete Owen	20
	Bill Thomas	20
14.	Fred Switzer	12
15.	Mike Spiess	11
16.	Terry Taylor	9
17.	Herm Fessler	8
18.	Denny Sussman	6
19.	Dale Mendenhall	3
	Harold Wachtler	3
21.	Jack Hanson	1
	Bob Oppegard	1

JUNIORS

1.	Tim Edmonson	13
2.	Jon Edmonson	9
3.	Cody Spiess	4
4.	Garrett Crawford	3







prop, is a tremendous waste of energy. I still use the forward C.G. coupled with up-elevator configuration on CO_2, once again because it is so safe. This set-up was discovered accidentally when I built a SIG Mr. Mulligan with standard Telco (CO_2) power. What used to be a willowy flight pattern was transformed after the model hit the wall. The CO_2 bottle on board moved forward about two inches due to impact and was (of course!) inaccessible. To offset this change in C.G. - now about 10% - the elevators were adjusted up about 1/8 in., and the model flew great, indoors and out. It has now worn out 2 Telcos, & is flying as well as ever.

As there is no power burst with CO_2, trimming is less tricky than with rubber models. but unfortunately nearly every change differs, changing power and weight. However, my models seem to cope with these changes, and provided that your gas cylinder is on or near the C.G., no significant flight changes should occur. My high-wing CO_2 models have the following trim:

1. Slight wash-in, left-hand wing.
2. Slight wash-out, right-hand wing.
3. Forward C.G., 10 - 15%.
4. Up elevator to conteract (3)
5. 2 degrees right thrust - to counteract torque.
6. 1 - 2 degrees downthrust.
7. Straight, or slight left rudder.

This trim gives constant diameter left-hand circles on power and "flight idle".

My two rubber biplanes are trimmed in a similar fashion except that wash-in and wash-out are applied to the lower wings only. When setting biplane rigging angles use the American method. Only the leading wing has incidence; the trailing wing is set at zero. This method and a forward C.G., coupled with elevator, will cure the average biplanes tendency to be over-elevated and (loop?) crazy.

Do not forget to charge your gas cylinder, or to put enough turns on your rubber motor to make it taut, before you adjust for C.G. position. A charge can weight up to 6 gm (Brown twin, 6 cc tank) which in my Lacey's case is 20% of the model weight, and I should think that rubber is comparable. Keep sparklet cylinder in your pocket to generate some heat for they dispense gas much more efficiently when warm. Use no other method, though, to warm cylinders.

Use as long a rubber motor as is practicable. This minimizes high initial power bursts, gives a more even power curve, and allows more turns for longer flights. My Peanut Lacey uses 24 in. loop of .83 in. rubber and take 2,100 turns, resulting usually in a 60 - 70 second flight. My Heinkel HE-100 (with Peck Polymer propeller trimmed 5½ in.) flies about 45 seconds on a 17 in. loop of .110 rubber. the Mew Gull is similar. As a comparasion, my inch-to-the-foor Lacy with dual nose blocks (rubber and CO_2) uses four strands of .100 in. in a 36 in loop and flies 70 seconds, while the Brown twin with 6 cc tank has flown 2 minutes and 24 seconds in the Lacey at West Baden, Indiana, in 1980. My SIG Mr. Mulligan flies about 1 minute with the standard Telco.

Let's fly!