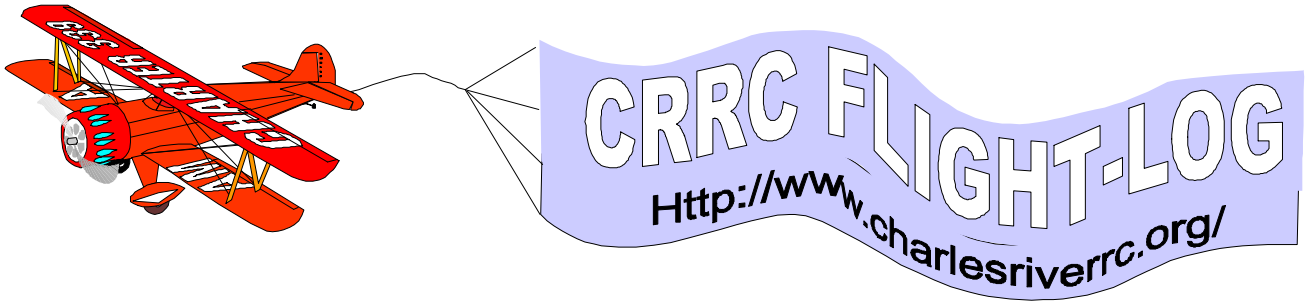
NEWSLETTER OF THE CHARLES RIVER RADIO CONTROLLERS, INC



AMA CHARTER 339 January 1999 Volume 35 Number 1

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CLUB MEETING
AT THE GTE LABS, WALTHAM
WEDNESDAY JANUARY 20TH
7:30 PM

Real Versus Models

Brooks Margolian

Brooks is an FAA certified aircraft inspector at Minute Man Airfield in Stow, MA. He will be talking about the differences and similarities of flying full-scale aircraft as opposed to models. He plans on bringing some slides and a video clip might be shown.

January Raffle

1. Slow Flyer for R/C. fly in your back yard with this great plane!
2. Transmitter box
3. Extra Hand
4. Gallon of Fuel.

RAFFLE INFORMATION:
Raffle tickets are $1.00 each and 3 for $2.00. To encourage people identifying themselves, a free ticket is given to anyone wearing a nametag. An extra ticket is also given to anyone who brings in a Show-and- Tell.

Your 1999 membership form is enclosed. If you have a Star by your name, you have already renewed.

TREASURER'S REPORT



Treasury as passed to Don Black 22 December 1998

STARTING BALANCE			
Checkbook Balance (after check #1051)			606.80
Savings Account Statement Balance			4247.65
Cash			52.80
Total Starting Balance			**$4,907.25**
INCOME			
Dues - Checks			225.00
- Cash			90.00
Dec. Raffle			98.00
Keys Deposits			0.00
Savings Account Interest for August		November	8.94
Total Income			**$421.94**
EXPENSES			
ITEM	CHECK	RECIPIENT	
Newsletter printing	# 1053	F. Bien	78.95
Newsletter postage	#1052	SSI	42.24
Dec. raffle	# 1054	J. Weigel	67.18
Bank Maintenance Charge for November			9.00
Total Expenses			**$197.37**
TREASURY BALANCE			**$5,131.82**
RECONCILLIATION			
Checkbook Balance (after check #1054)			844.43
Savings Account Balance			4256.59
Cash			30.80
Total Ending Balance			**$5,131.82**

Signature:
William L. Dimpfl

SEEN AND HEARD AT THE FIELD

With the mild December weather, we were able to fly every weekend during the month. January started with some wetter and windier weather, but between MIT and Northern Essex Community College, we've kept the string going. Come out and join us, Don Black and I are feeling lonely, setting up the winch when nobody comes.

-Fritz

DECEMBER 1998 GENERAL MEETING

Fritz Bien for Glenn Schrader

The meeting was called to order by President ***Dick Williamson*** at 7:42 PM. The Secretary and Treasurer's reports were accepted as printed in the Newsletter. A report on the excellent condition of the fields was provided by members who were lucky enough to get out in the excellent weather to do some flying.

OLD BUSINESS

The results of the November Elections were reported, with an introduction of the new officers.

NEW BUSINESS

Bill Martin presented the call for help at the CRRC demonstration at the Natick Library on Sunday January 24th. If you have something you want to display, or in general help with our reaching out to possible new flyers, give a call to Bill at **508 653-0915.**

John Weigel presented the raffle prizes, and the GAVEL was passed to our new president, ***Bill Dimpfl***, who adjourned the meeting.

RAFFLE

1. Jan Kansky won the Piper Super Cub electric together with motor.
2. I did not get who won the Farman electric.
3. Multiple people won gallons of fuel contributed by Bob Glorioso who is getting out of the hobby.

SHOW AND TELL

I didn't take notes so am doing this from poor memory:

1. ***Dick Williamson*** brought in his Highlander, modified for 6 channels. This should be a fun foamy.
2. ***Jerry Kennedy*** brought in a plastic field box that he bought from Sears. Lots of drawers and compartments.
3. ***Jan Kansky*** showed what could happen to you if you get careless with cutting tools.

4. ***Eddie Ellis*** brought in three partially finished foam winged projects. He offered to help anyone who was interested in cutting foam.
5. ***Joel Foner*** brought in his helicopter training-stooge, which gives an excellent training platform.
6. ***Fritz Bien*** brought in yet another two rubber-band-powered airplanes, this time the Grumman Gulfhawk and the Hawker Hurricane.

There were at least 3 other projects that my bad note taking and old-man memory is blocking out.

ENTERTAINMENT

The main feature for the evening was the showing of the "Endless Lift" where Paul Naton traveled throughout the US flying his hand-launched glider at most unusual places.

Bill Dimpfl adjourned the meeting at 10:57 PM.

Respectfully submitted by Fritz Bien

PRESIDENT S MESSAGE

It's a pleasure and an honor to find myself elected to serve CRRC as the president for 1999. First I would like to acknowledge the fine job that Dick Williamson did last year, especially in being the principal figure in establishing a formal arrangement for our use of Davis Farm in Sudbury as a club field. I cannot imagine a better field for flying gliders.

Since moving to Massachusetts in 1992 I have enjoyed thoroughly finally getting deeply involved in my life-long interest in flying models, mostly to the credit of Fritz Bien who, besides being a valuable friend, has been an unfathomable resource. *(Lobbying for a raise, Bill? -Fritz)* There hasn't been a building problem that I have come across that he hasn't already solved, and seeing him nearly every day I take full advantage of his ideas and genius.

I am particularly enjoying the recent advances in sub-micro RC equipment. One of my particular proclivities is working miniatures, and the recent availability of much smaller and lighter equipment has allowed the scale of RC to be pushed a notch smaller. I have also found a gold mine of models and accessories from the Czech Republic that supports small RC. This all fits in nicely with the beginning of winter, as the RC models can now be made small and slow enough to fly indoors. I did that a couple of months ago at MIT with my Hacker Tiger Moth, although I felt a little like I was running a powerboat in a sailboat pond.

Something I have been struggling with recently is getting a good finish on an airplane. My experience in competing in scale left me believing that shiny airplanes impress the judges. The difficulty that I have had in producing such a finish has left me understanding why the judges are impressed: it's hard to do. So now I am building a small airplane (satisfying my interest in small) while experimenting with making shiny. Sometime down the road, after I master shiny, I hope to build a large, scale airplane (I also believe the judges are impressed with large, as am I).

This month's board meeting will address the calendar of events that we intend to hold during the year. If anyone has ideas about new events that you believe should be included you can pass your ideas on to a board member during the membership meeting this month. Tom Bauer will be chairing the board meeting this month since I will be out of town. He would be a good person to talk to.

See you at the meeting.

Bill Dimpfl

December Site News Highlights from our web site...

Joel Foner, Webmaster

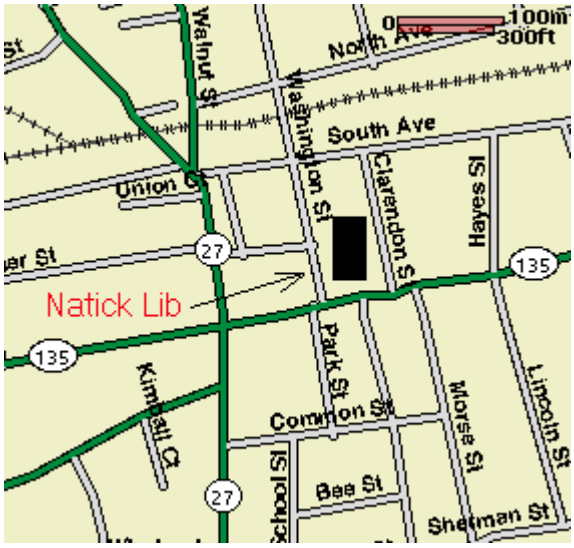
TRAFFIC - 5,250 visits since August 21 -over 270 per week (*5440 as I checked this morning –Fritz*)

- Added Electro-Tek to the Links / Companies page, manufacturer of the onboard battery monitor shown at our last meeting
- Added an "Other Slopes" section to the Flying Fields page, with descriptions of local and some interesting remote slope flying sites (Aruba and Australia)!
- Added five sailplane reviews by Pete Young to the Articles & Tips /Product Reviews page
- Added a flying tip from Stephen Reuss "Radio Glove Switch Solution"- Added RcCad to the Links / Companies page, a really nifty 3D solid modeling CAD package designed for aircraft, lots of features and under $50!...and much more...

Hope you had a happy holiday season and Happy New Year

JANUARY BOARD OF DIRECTORS MEETING

The January Board of Directors meeting will be held on Tuesday January 26th at 7:30 PM at the Natick Library. This meeting is important, as it traditionally is the one where the year's events are scheduled. Come to this meeting and have your inputs. A map to the library is shown below:



REMEMBER TO RENEW YOUR MEMBERSHIP!

IF YOU SEE A STAR BY YOUR NAME, YOU ARE ALREADY PAID UP FOR 1999.

WINTER FLYING

Trick I learned when I first moved here- get a can of Ronson lighter fluid for your field box. It works both for hand-warmers and to start your engine with!

CRRC Library

Videos:

1996 World Masters Aerobatic Championships
AMA – The Pioneers (25 min)
Byron – New Generation of Modeling Products (17 min)
Byron – R/C Wars
Combat Models – Fightertown USA Demo (8 min)
Coming of Jets & History of the DC3
Dynamic Soaring
Elmira '97

Endless Lift
Hot Stuff Video (60 min)
Local Flying (Medfield)
Military Aircraft
Monokote 1 & 2
Old Buzzard Goes Flying
R/C Helicopters
R/C Info and Tips
R/C Ornithopter Research Project (45 min)
R/C Soaring from the Ground Up
R/C Video Magazine, Vol. 1
R/C Video Magazine, Vol. 2
R/C Video Magazine, Vol. 3
R/C Video Magazine, Vol. 4
R/C Video Magazine, Vol. 5
R/C Video Magazine, Vol. 6 & 7
R/C Video Magazine, Vol. 7
R/C Video Magazine, Vol. 8
R/C Video Magazine, Vol. 9 & 10
R/C Video Magazine, Vol. 12 & 13
Scale Aircraft Documentation
The Light Stuff (Daedalus Project)
Wring It Out, Vol. 2 (40 min)

Books:

1993 Don Edberg Complete Source Book
AMA – Sound and Model Aeronautics
Aviation Heritage Magazine – B2 Flying Wing
Completely Cars – Harry Higley
Trainers (R/C Magazine)

UPCOMING EVENTS



January 18 GTE LABS General Meeting Come and hear Brooks Margolian on the differences between models and full sized planes.

January 24 Natick Library CRRC Demonstration for public, Flight simulators demonstrated, planes displayed.

January 26 Natick Library Board of directors and Annual event planning meeting.

February 20 MIT: DuPont Gym 6:00 To 10 PM $5.00 for flyers, free for spectators. For more information, Call Ray Harlan, 508 358-4013.

February 26-28 WRAM Show in White Plains NY A must attend for any model airplane fanatic.

February 27 9:00 AM –4 PM Northern Essex Community College Haverhill

March 6 MIT: DuPont Gym 6:00 To 10 PM $5.00 for flyers, free for spectators

March 13 9:00 AM –4 PM Northern Essex Community College Haverhill

March 21 Central Mass R/C Modelers R/C Auction Auburn Elks 754 Southbridge St. Auburn MA Doors open Noon Auction starts 1:00 PM $2.00 Admission Swap shop for items under $15.00 Club gets 5% of selling price.

April 3 MIT: DuPont Gym 6:00 To 10 PM $5.00 for flyers, free for spectators

May 1 MIT: DuPont Gym 6:00 To 10 PM $5.00 for flyers, free for spectators

August 14, 15 Sudbury MA 26th CRRC Soar-In

CRRC FLIGHT INSTRUCTORS

Below is our list for qualified and willing instructors. Power is flown at the Bill Martin Flying Field in Medfield. Soaring is at Davis Farm, on Rt. 117 in Sudbury and Callahan State Park in Framingham.

There will be an organizational meeting in the Spring to help set up this year's instructional procedures.

POWER

INSTRUCTOR	TOWN	TELEPHONE
Neil Kaufman (Chief)	Sudbury	508-443-9647
Dan Ross	Natick	508-655-8396
Larry Copeland	E. Walpole	508-668-0448
Ken Antonellis	Natick	508-653-4513
Jon Leehey	Wayland	508 358 5721
Ruane Crummett	Wayland	508-655-2234
John Nilsson	Clinton	508-368-7136
Anker Berg-Sonne	Stow	508-562-3819
Dave Walter	Hudson	508-562-5400
Fritz Bien	Concord	508-369-1720
Lincoln Ross	Waltham	617-891-0332

SOARING

INSTRUCTOR	TOWN	TELEPHONE
Dick Williamson	Sudbury	978 443-8549
Dave Walter	Hudson	978-562-5400
Bruce Schneider	Hudson	978-562-9900
Lincoln Ross	Waltham	781-891-0332
John Nilsson	Clinton	508-368-7136
Chris Schuch	Stow	508-562-3819
Fritz Bien	Concord	978-369-1720

Takes a Licking, Keeps on Ticking

Taken from the December 1998
Air & Space

Ka-thunk! Two Zagi-LEs have just collided in mid-air. One hurtles to the ground, forcing its flier down the hill in pursuit, while the other one soars on victoriously. "Kill! Kill! Eeooww! I stuffed him," shouts 15-year-old Sam Siegel.

The wafting breezes and a bright blue sky laced with cumulus clouds make it another perfect day for flying on Snake Hill in Malibu, California. More than a dozen Zagi owners have gathered for a Fur Ball, a free-for-all combat meet. Designed and manufactured by Jerry Teisan, the Zagi-LE is the model flying-wing that has become the standard in slope combat-extreme competitions between radio-controlled models. You can build one in the morning, fly it in the afternoon, and attack and crash as often as you like-they're virtually indestructible. "At one combat contest I had 50 mid-air kills and 25 crashes to the ground-tons of abuse," says Teisan. "I've had a truck run over one and a dog intercept another, thinking it was a weird kind of Frisbee, and they flew just fine with tread marks and fang dents."

Teisan's Trick Radio Control Company offers three models, ranging from $45 to $100 (see www.zagi.com). They're not just for kids, klutzes, and crazies, says Teisan, who's known in model airplane circles as the Flying Wing Guy. "Experienced fliers will get really good, because they'll be able to do what they never could do with a high performance fiberglass or carbon fiber airplane."

Teisan has seen his competition come and much of it go. "Everybody sort of scoffed at the whole flying wing thing and for two years the other major model plane manufacturers left me completely alone," he says. During that time, Zagis garnered a sky-high reputation. Nobody's scoffing now. Zagi flier Jim Thorne put it this way:

There once was a sloper quite shaggy,
Who was trying to knock down a Zagi.
He flew without fear
And thought he was clear,
But took home his plane in a Baggie.

Although Teisan launched his company just four years ago, he's been building model airplanes since childhood. Throughout three careers-as an industrial and fashion photographer, a building trades consultant, and a fisherman, Teisan flew his model airplanes whenever he could. By 1990 he was spending his spare time making custom composite racing aircraft and selling them on a one-by-one basis. But when he saw a foam airplane at one of the local flying fields, it got him thinking. "The worst thing about learning to fly model planes is you spend 20 to 30 hours building this fragile thing out of sticks and balsa wood, and then you finally get it up in the air and-boom! within three minutes of stick time it crashes and breaks," he says. "Men, even if you get it back together, it never flies as good. But the new foams coming out returned to shape after impact."

Teisan combined his passion for flying wings with the latest in foam technology. He perused old German airfoil books, settling on a wing design attributed to "Zagi." He cut wings from expanded polystyrene or Styrofoam and attached leading edges of soft expanded polypropylene. "Men I invited a bunch of friends over, and we installed their radio gear and went out to test fly them," he says. "The one I called the Zagi-LE worked the best."

The Zagi-LE was such a hit everybody at the hill that day wanted one. Within months, Teisan was in business producing Zagis from his home in Venice, California. Today he is shipping about 500 every month around the world. "These days, kids who have grown up with the computer know a joystick and gimbal from the time they crawl, and their eye-hand coordination is just incredible," says Teisan. "They're learning to fly in a day, but the airplanes have to be indestructible for that learning process."

Sure enough, two boys in today's Fur Ball competition took top honors Sebastian Mark, 9, walked away with the trophy, with Sam Siegel coming in second. Despite more than 100 kills and half again as many crashes, everybody at Snake Hill went home with their Zagis intact and only their egos bruised.

Now that his Zagis have taken off, Jerry Teisan has accomplished all his childhood dreams except one. "I always wanted to be a pilot," he says, "of full-scale airplanes."

UNDERSTANDING AND CURING SERVO GLITCHES

(*This article, supplied to the Flight Log by **Dick Williamson**, was written for gliders, but is equally important for modern power-planes –Fritz)*

Do you get weak in the knees when you are about to launch your dream creation and see one or more of the surfaces glitching wildly? Have you had to resort to having someone else launch your plane because the glitching seems worse when you are next to the plane? With the advent of micro-servos, it has become increasing more popular to embed servos in the wing or tail to eliminate long or complicated mechanical linkages. High-performance designs demand such configurations, which may use up to four servos in the wing alone.

Electrical connections from the receiver to a wing- or boom-mounted servo can conveniently replace equivalent mechanical linkages but a new set of problems may appear in the form of electrical noise. To understand this phenomenon, you must first know a little theory on servo operation. Modern servos require three wires for operation, which are: power (+4.8 volts), ground, and signal. Although the power and ground leads are self-explanatory, the signal lead may not be as evident. All servos whether connected to AM, FM, or PCM receivers are positioned by issuing a positive pulse from the receiver to the servo whose width determines the servo arm/wheel position. Typically, a pulse width of 1.5 milliseconds (that's 1 1/2 thousandth of a second) will center the servo, a pulse width of 0.8 milliseconds will rotate the servo to one extreme and a pulse of 2.2 milliseconds will rotate the servo to the other extreme. The resolution or granularity of servo movement can be dependent on the make and type of servo. Servos also have a characteristic called "dead band" which is the amount the width of the pulse may change before the servo will actually try to move to the new position. It is desirable to have a certain amount of dead band or else the servo will always be attempting to align itself with very minute changes in the pulse width which can result in buzzing, chattering, and higher than normal current consumption.

When servos are located in the wing or tail boom, they must be located further away from the receiver, which generally means 12" to 36" extensions. These extensions seem innocent and simple enough that little thought is ever devoted to them, but these extensions can be the source of servo jitters and potential loss of control. Extension wires can cause two problems: first the wires must be of sufficient gauge to carry adequate current to the servos, especially nearing a stalled condition. Second, the an extension may act as a crude antenna that can pickup RF (the Radio Frequency signal that is emanating from your antenna or the pilot's transmitter that may be next to you) and feed it into your servos. Both of these situations can cause servo glitches and jitters.

Now that we have identified the problem, how do we solve it? Let's attack the first problem. How much current will a servo draw when stalled? Well, that depends again on the servo, but it can exceed 100 milli-amps. I would recommend using 26-gauge wire as a minimum with 24 gauge preferred. For reasons that are too lengthy to explain in this article, another preferable quality to have in your extension cable is a continuous twist throughout the cable length. This can be done quite easily. Cut three wires approximately 1 1/2 times longer than what you require. Hold the ends of the three wires together and wrap a piece of tape securely around all three wires. Anchor the taped end of the three wires to a door knob or chair leg and insert the other three ends into the chuck of a variable-speed drill. Carefully run the drill until a tight twist is formed in the cable. It is normal for the cable to untwist slightly when it is released. Heating the wires slightly with a heat gun will help set the twist. As a reminder, use colors that make sense (i.e., red = +4.8, white = signal, black = ground). This should help avoid a costly wiring mistake.

The solution to the second problem may not be quite as clear. Logically, we need some way of eliminating or filtering out the high-frequency RF noise from the signal line but still allowing the positioning pulse to pass without being altered or else our servo positioning will be destroyed. We can do this by using a passive component - a capacitor. In this application, the capacitor will appear as a direct short or "shunt" to the high-frequency noise but look like an open circuit to the low frequency (remember our 1.5 millisecond pulse?). Not any capacitor will do! It must be of

the proper value. A little math and collecting of empirical data (testing different values) indicates that a small monolithic or ceramic disk capacitor of 150 pf to .001 uf (pf=picofarad, uf=microfarad) will do the trick. Solder the capacitor as close to the servo as possible and connect it from the signal lead to the ground lead. Remember to use heat-shrink tubing to avoid short circuits.

Feeding the servo leads through a ferrite bead causes the servo lead to act as a small RF choke at high (RF) frequencies. In other words, this is another way to attenuate the superimposed RF noise as done with a capacitor above. I believe Critter Bits sells a set of "clamp on" ferrites. Other sources include Amidon Associates, Digi-Key, J.W. Miller, etc.

The capacitors are generally cheaper and easier to acquire. At your closest Radio Shack, look for P/N 272-125 (470pf) or P/N 272-126 (.001uf). They'll run about $0.25 each. Remember, solder the capacitor as close as possible to the servo and place across the signal and ground lead.

I have never had a case of the jitters that I couldn't solve by following the guidelines that I have presented. Good luck!

Tom Hoopes oakley@xmission.com

HOW TO CONTRIBUTE TO THIS NEWSLETTER

Hi guys, you see several people contribute to the newsletter each month, and wonder how you can too? It's easy! Just send me the information either by e-mail or regular 33cent mail by the first Friday of the month, so I can have some time to drop it in. I can take pictures, which I scan in, CAD files in dxf format, or autocad dwg format, or any of the picture formats that is commonly used with a PC. The only format I've had trouble with has been Post-script print files, as there are several flavors of that and not all are transferable.
REMEMBER Just send it to:
Fritz Bien
41 Saw Mill Road
Concord MA 01742
Fritz@tiac.net

FOR SALE

Eclipse Electric glider Redy to fly.
Radio (Futaba 4-Channel)
2 flight packs
Charger (Protech)
RCD Battery Eliminator
This plane has flown maybe a dozen times by a little old man on Sundays.
Ready to go flying now. Asking $250.-
Call Ruane Crummett 508 655-2234.

NSP LASER 3MC.
New in the box. $500 firm.

122" span 940 square inch quad taper plan form with SA 7035 section. Flying weight of 63 ounces giving 9.0 ounce per square inch wing loading. All composite construction with Epoxy glass/Kevlar fuse and carbon fiber wings. Wings come finished with servo hole and servo wire tunnel already cut. Flaps/ailerons ready to hinge. Stab is also complete. NSP price is $525 plus about $25 shipping.

Steve Smith
978-537-8209
Stephen.Smith@Intel.com
Stephen.D.Smith@gte.net

CRRC OVER THE YEARS

I have a large archive of pictures taken over the 28 or so years that I've been a member of this club, and I'll use them to fill up space until you get sick of them. If you have any you want to share, please send me a copy. I'll scan them and return them.

-Fritz



Jim Peghiny and John Weigel discovering Cape Cod ca. 1971.

THE CHARLES RIVER RADIO CONTROLLERS, INC

A M A C h a r t e r 3 3 9

1999 MEMBERSHIP APPLICATION

Name _____AMA No._____

Street _____Birth Date (AMA reqmnt)_____

Town_____State____ Zip _____Tel.( )_____-_____

e-mail_____

To receive membership card and field pass, bring this application to a club meeting, or mail with a **copy of your 1998 AMA LICENSE**, appropriate dues, and a **SELF ADDRESSED STAMPED ENVELOPE** to:

Jan Edward Kansky
Membership Secretary
159 Elsinore Street #2
Concord MA 01742
978-371-2485
E-mail kansky@ll.mit.edu

☐ I DO NOT want my address to appear in the club phone book

$30.00 OPEN Renewal by March 1st
$35.00 OPEN March 1st through December.
$20.00 SENIOR member, (if age 60 before 7-1)
$15.00 JUNIOR member, (under 19 before 7-1)
$15.00 full time STUDENT
$15.00 for Family member additional to OPEN membership

I WOULD LIKE TO PARTICIPATE IN:
☐ CONTESTS ☐ FUNFLYS

I'M INTERESTED IN THE FOLLOWING:

☐ **TRAINERS/SPORT PLANES** ☐ **ELECTRICS** ☐ **HELICOPTERS**
☐ **GLIDERS** ☐ **PATTERN** ☐ **RACING**

☐ **SCALE/SEMI-SCALE/QTR SCALE** ☐ **DUCTED FANS** ☐ **SEA/FLOAT-PLANES**
☐ **OTHER** (specify) _____

FREQUENCY DATABASE

This database is made to help you select future radios that have the fewest conflicts with ones used by others at the flying field. Put the number of transmitters that you own for each frequency. **ADD D IF IT IS YOUR PRIMARY FREQUENCY AT Davis Farm, and M if it is your primary at Medfield.**

11 _____ 16_____* **21 X** 26 _____ 31 _____ 36 _____ 41 _____ 46 _____ 51 _____ 56_____
12 _____ 17 _____ 22 _____ 27 _____ 32 _____ 37 _____ 42 _____ 47 _____ 52 _____ 57_____
13 _____ 18 _____ 23 _____ 28 _____ 33 _____ 38 _____ 43 _____ 48 _____ 53 _____ 58_____
14 _____ 19 _____ 24 _____ 29 _____ 34 _____ 39 _____ 44 _____ 49 _____ 54 _____ 59_____
15_____ * **20 X** 25 _____ 30 _____ 35 _____ 40 _____ 45 _____ 50 _____ 55 _____ 60_____

*These channels cannot be used at CRRC fields due to the close proximity to TV Channel 4.

HAM LICENSE CHANNELS: license will be checked at the field!

01_____02_____ 03_____ 04_____05 _____06_____07_____08_____09_____10_____
53.1 _____ 53.2 _____ 53.3_____ 53.4_____53.5_____ 53.6_____ 53.7_____
53.8_____