



# Thermals

Newsletter of the Rocky Mountain Soaring Association

March 1999

AMA Chartered Club 1245

Volume XXIII Number 3

## PRESIDENT'S MESSAGE

Are you ready? Ready for the second annual Pro-Am which opens the 1999 contest season? Weather permitting, the Pro-Am will be held March 7th. This will be the first opportunity for many of us contest hounds to limber up our thumbs and dust off our thermal senses to participate in this fun, low-pressure, team soaring event that Jim Monaco will CD. As was mentioned last month, this contest format provides the opportunity for soaring beginners and novices to team with a Master's class pilot to learn and improve his or her soaring skills to start off the new year's contest season. Valuable advice and practice concerning winch and retriever usage, when to launch, thermal search patterns, soaring, and landing combined with a fun, contest format will benefit all those participating. And you can't beat the price of the entry fee; its free!

For those of you just now getting back into the flying groove, make sure to perform thorough battery and wiring harness checks, radio range checks, any repairs you've made a mental note of from last October but haven't gotten 'round to it yet, etc. Ensure everything is ship-shape on the ground before getting airborne and realizing, oh yeah, I meant to have a look at the chattering left flap servo.

The club winch and retriever equipment is ready to support club R&R and contest events. The four winch motors have been rebuilt, new batteries, rings, and swivels purchased, and new line installed on both winches and retrievers. Many thanks to Bob Rice for taking care of most of the refurbishment. We should be able to enjoy a full contest season with strong, reliable equipment.

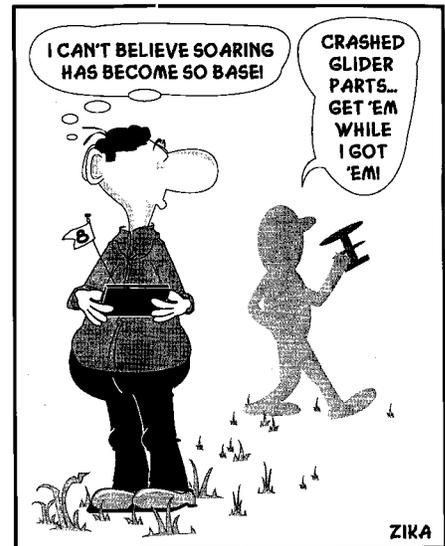
It is not too late to get any contest rules comments into any of the board members. Discussion of any rules issues was tabled until the March meeting after which they will be considered final and ratified.

A reminder to those renewed members who know of anyone who has not renewed their membership for this year to contact them and encourage them to jump back in the thermal pool and fly with RMSA.

Judging by the membership roster published last month, the club is already growing some with the addition of several new members. Welcome aboard! Hope to see you out at the field soon. If you're just getting started and have questions or problems, we're here to help out and get you flying successfully sooner rather than later.

Launching!

**Michael O'Hearn**



## Next Meeting:

Date/Time: March 2, 1999 7:00 PM

Location: Newgate Apts.  
10400 W. 44th Ave.  
Wheatridge, Co.

*Steps to meeting room are behind  
the building near the pool.*



# Rocky Mountain Soaring Association

## 2nd Annual RMSA Pro Am Soaring Event

**What is it?**

A fun TEAM soaring event with 2-man teams picked randomly.

**Who is it for?**

Everyone - One Pro and one AM per team

**Why?**

To help new and current non-contest fliers learn to fly better, for our Masters to pass on their fantastic knowledge, and to tune up for the coming soaring season

**How will it work?**

One Pro and one Amateur will be paired as a team for the entire day. The team scores will be combined at the end of the day to determine the winning team.

- Round 1 will be the "Trim" round. In this round the Pro may fly 1 time to achieve the round duration, but the Am may fly as many times as they can/want to achieve their "best" score. Best is defined as a combination of 1 flight and landing. Landings may not be combined with a different flight. It need not be the last flight. During this round the pro may launch and fly the Am sailplane to help with trimming and setup, but only flights completely flown by the Am are eligible for scoring.
- Rounds 2-n will be standard AMA T1 International Duration with only 1 scoring flight allowed per contestant and FAI 15 meter landing tapes.
- Amateurs are allowed 2 popoffs per round - Pros are allowed 1 per contest.
- Rounds will be flown "open winch" which will allow the Pros to instruct the Ams in air reading and selecting a time to fly.
- Rounds will be 50 minutes long and you must launch prior to the round-end signal in order for the flight to count.
- Pro and Am MUST time for each other - Pro should help the Am learn the basics of timing.
- There are no field boundary requirements - land safely where you can for flight points.
- In order to balance the number of Pros and Ams it may be necessary for a single PRO score to count with more than one AM score (different teams) or vice versa..
- The CD will make the final determination of who is a Pro and who is an Am. Basically all Masters are Pros and all Novices or non-contest flyers are Ams. The Sportsmen pose a classification challenge. For simplicity - any flyer that went to sportsman in the last 1/2 of the 1998 season will be considered an Amateur unless in the opinion of the co-CDs the flyer is significantly closer to a masters skill than a novice. The guiding rule is fairness.
- Amateurs are encouraged to fly their plane up the winch with the Pro throwing and pedaling the winch, but for those unable or fearful of the winch, the Pro may fly the sailplane to the top of the launch, but must give the transmitter to the Amateur immediately when the plane is off the towline.
- Your first flight of a round must be your scoring round (except flight 1 for Amateurs), but after you have completed a scoring round you may fly as many flights for fun as you can in the rest of the flight window.

**Masters - This is an opportunity to have some fun and help out our newest flyers and members... and tune-up for the contest season.**

**Beginners/Novices - This is your opportunity to work one on one with a Master for a whole day, and even if you never fly another "contest" this will improve your soaring skills a great deal. Come take advantage of it...**

**Date: Sunday March 7, 1999**

**Registration: 8:00 AM to 8:30 AM**

**Pilot's Meeting: 8:30 AM**

**First Round: 9:00 AM**

**No Entry Fee, AMA Membership Required**

**Certificates will be awarded to the top 5 scoring teams and the top Pro and Amateur**



# Rocky Mountain Soaring Association

## March 14th Open Contest – CD Mark Howard



**Entry Fee:** \$5.00  
**Registration:** 8:00  
**Pilot's Meeting:** 8:30

**Current (1998) AMA membership is required and must be shown – if you haven't renewed – get to it...**

Please be registered and have planes assembled by Pilot's Meeting

**Winchmasters:** Please be at the field by 8:00AM. If you are unable to attend please contact the CD to arrange to have your winch/retriever available

**Tasks:** TBD



# Rocky Mountain Soaring Association

## E-mail Delivery Saves Money - Thanks

We have had a GREAT response to our plea for members willing to receive their newsletters via e-mail. To date 27 members are on the list to receive their newsletters via e-mail. This will save the club over \$250 a year that we can put towards club equipment and activities. Thank you for your support. This is definitely a win-win situation. You get your newsletters sooner, undamaged, and in a form you can save for future use without taking up space in your drawers. We save money, and just as important, it is much easier for the volunteers that need to produce the paper each month. Below is a list of the members we believe want the newsletter electronically. If you are on this list but really wanted the newsletter in paper, let me know. If you are NOT on this list and want to be - let me know. If the e-mail we list is wrong - let me know... Thanks again - Jim

Full Name	E-Mail
Wayne Angevine	wayne@al.noaa.gov
Bill Beggs	billbeggs@bbciber.com
Shannon Bingham	binghams@boulder.earthnet.net
Jeff Burg	jab6658@aol.com
Tracy Cochran	tcochran@idcomm.com
Jack L. Dech	jdech@aol.com
Bob Douglas	silentflyer@uswest.net
Terry Grau	graycondon@aol.com
Mark Howard	mark.howard@tobin.com
Charles Howerton	howerton@oneimage.com
Lenny Keer	lenny970@aol.com
Dr. Volker Klein	reklovusa@aol.com
Robert W Lewan	JDicke2274@aol.com
Greg Merkle	gmerk@concentric.net
Charles Miller	asw20@bouldernews.infi.net
Skip Miller	skip@woodlogic.com
Kevin Moffett	rtm0005@aol.com
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Jim Monaco	jmonaco@us.ibm.com
Michael O'Hearn	mjohearn@west.raytheon.com
Tim Olvey	olvey.tim@tci.com
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Dale Pahl	DalePahl@compuserve.com
John Pearson	JP7120@aol.com
Robert Pederson	bpedersn@oneimage.com
Bob Rice	bob.rice@tobin.com
Denny Rosenberger	dennydiesel@webtv.net
Gabriella Sterne	srllc@world.att.net
Richard Stillman	stillfat1@aol.com
Bill Thomas	thomasb@ruraltel.net
Jeff White	white@oneimage.com

## For Sale – Probe or Shadow

**Unlimited, 134", ALL CARBON FIBER, hollow molded "Probe" sailplane.** Brand new in box with glass winglets. Must sell. Cost \$550 - will sell for \$400.

**3 Meter Shadow Plus** - A competitive thermal duration ship that is also very easy to fly (960 sq. in wing area @ 74 Oz) with S7037 Airfoil. It comes ready to fly with 4-141 metal geared ball bearing servo's in wings. 1-102 for rudder and 1-454 coreless double ball bearing for elevator.

Includes 1400 mAh battery pack. Includes Ballast Rod.  
Excellent Condition.  
Reduced to \$ 400

Call Jon Padilla at (303) 932-2504

## For Sale – Skyhawk

Allen/Slegers SKYHAWK. 116 inch span T-tail with SD7037 airfoil. This is a special early kit. Painted in mold fuse with CF canopy. ES obechi wings pressed in molds. Molded stabilizer. Elevator servo (JR341) is mounted in fin. Aileron and flap servos also 341's. Excellent flyer in like new condition. \$495.

Byron Blakeslee 303-738-1104.

## Member Biographies

I was thinking recently that when I look through the membership list, there are a lot of names that I don't know, and some that I know the name and can't put a face to. I thought it might be fun to collect a bio and some information about each and every one of us and publish some of them in the newsletter each month. Send me a paragraph or two about yourself letting us know about you and your soaring experience, how long you've been flying, what you like to fly and where you like to fly. Send me pictures of yourselves as well if you can and I'll scan them and print them too. All pictures must be suitable for this "family" publication. E-mail electronic stuff to [jmonaco@us.ibm.com](mailto:jmonaco@us.ibm.com) or snail-mail your napkin writings and pictures to:

Jim Monaco  
103 Breckenridge Trail  
Broomfield, CO 80020



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## AMA Rulebook Changes

The 1999-2001 Rulebook is now out and there are a few minor changes in the book. The first concerns the FAI wingloading restriction that previously simply stated that aircraft shall not exceed 3.95 to 24.57 oz/ft<sup>2</sup>. This could have implied a minimum wingloading requirement that many HLGs clearly were below. The new wording clarifies the intent that the boundary is for the upper bound and not the minimum bound. So there is no minimum wingloading restriction.

Another more significant change is that time is no longer truncated, it is rounded to the nearest second. So take note – this year we are ROUNDING.

Several good editorial changes were made to place the examples closer to the section that referred to them making the correlation of the examples to the text much easier and clearer.

One thing that was not changed – even though I submitted a change form to the AMA, was that I believe the table showing score computation for speed contains a number of errors. Most I believe are rounding errors, but they affect the actual computed final scores – generally by 1 point, but one score is off by 20 points according to my calculations. Perhaps I am in error – so if any of you care to look at the table and recompute the contained values using the given formulas – I'd like to know if I am doing something wrong. The table is the same as the old book – so you don't need the new book to check it out. The AMA never replied to my change form, pro or con.  
Jim

## Treasurer's Report

Savings:.....\$669.99  
Checking:...\$921.44  
Cash: \$17.00

**John Pearson**

## Servo Chatter

Here are some interesting notes from the internet on causes and solutions to servo chatter. Thanks to Tom Hoopes for the info.

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 .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 dependant 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 move to the new position. It is desirable to have a certain amount of dead band or else the servo will always be attempting 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 and second, the extensions act 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 milliamps. 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 through out the cable length. This can be done quite easily. Cut three wire approximately 1 1/2 times longer than what you require. Wrap a piece of tape securely around each end of the three wires. Anchor one 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. As a reminder, use



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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 150pf - .001uf (pf=picofarad) 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.

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

1. Feeding the servo leads through a ferrite bead cause 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 Karlton sells a set of "clamp on" ferrites. Other sources include Amidon Associates, Digi-Key, J.W. Miller, etc.
2. 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. Sorry for such a long response, but it was just too easy.

**Tom Hoopes <oakley@xmission.com>**

## Internet Resources

Judging from the response I received for members who would like to receive the newsletter electronically, it is clear that a large number of you are wired (in the internet sense..). I am including in this issue a number of links that are soaring related, Some are dealers, some are clubs, some have cool pictures. I have not been to all of them recently, so it is possible that a few are no longer available – sorry – it's not my fault. If you are bored and it's raining or snowing out – surf the net a bit and see if there is anything in these links that appeals to you. Those of you that asked for the newsletter electronically should be able to simply click on the link below while viewing the newsletter. Those of you still getting paper will have to type them in. See – don't you really want the electronic version? I know it's impossible to read in the potty unless you have a laptop (or your computer is in the bathroom), but other than that it's a great way to get it... Jim

Description	URL
<b>GENERAL SOARING LINKS</b>	
Academy Of Model Aeronautics Home Page	<a href="http://www.modelaircraft.org/index.htm">http://www.modelaircraft.org/index.htm</a>
Albuquerque Soaring Association (E)	<a href="http://www.marqui.com/asa/!Explorer_edition.htm">http://www.marqui.com/asa/!Explorer_edition.htm</a>
Battery Flight Pack Construction	<a href="http://www.slkelectronics.com/battery/index.htm">http://www.slkelectronics.com/battery/index.htm</a>
British Association of Radio Controlled Soarers	<a href="http://home.clara.net/barcs/">http://home.clara.net/barcs/</a>
Cincinnati Soaring Society Slope Soaring Photo Gallery	<a href="http://www.iac.net/~glide17/css/brookville/slopephoto.html">http://www.iac.net/~glide17/css/brookville/slopephoto.html</a>
Clipart	<a href="http://www4.ncsu.edu/eos/users/j/jkilian/HTML/clipart.html">http://www4.ncsu.edu/eos/users/j/jkilian/HTML/clipart.html</a>
Contains construction for a numerically controlled foam cutter	<a href="http://www.geocities.com/CapeCanaveral/Lab/5187/notas.htm">http://www.geocities.com/CapeCanaveral/Lab/5187/notas.htm</a>
Frankie Arzu's Home Page - Airfoil Plotting Utility	<a href="http://www.cs.tamu.edu/people/farzu/">http://www.cs.tamu.edu/people/farzu/</a>
German RC Circus - German Scale Soaring	<a href="http://www.rc-modell.de/circus/overview-gb.htm">http://www.rc-modell.de/circus/overview-gb.htm</a>
John Roe's Homepage	<a href="http://ourworld.comuserve.com/homepages/sensei_john_roe/ridet_hew.htm">http://ourworld.comuserve.com/homepages/sensei_john_roe/ridet_hew.htm</a>
JTModels Radio Control Accessories - Radio Mitts, Wing Sleeves, Fuse Tubes and more!	<a href="http://members.xoom.com/JTProuty/">http://members.xoom.com/JTProuty/</a>
League of Silent Flight	<a href="http://www.silentflight.org/">http://www.silentflight.org/</a>
National Soaring Museum in Elmira	<a href="http://www.soaringmuseum.org/nsmfacil.htm">http://www.soaringmuseum.org/nsmfacil.htm</a>
Orlando Buzzards R/C Soaring Society	<a href="http://www.specs-usa.com/~ingo/OrlandoBuzzards/">http://www.specs-usa.com/~ingo/OrlandoBuzzards/</a>
R/C Sailplanes - General info including connector wiring diagrams	<a href="http://www.fatlion.com/sailplanes/sailplanes.html">http://www.fatlion.com/sailplanes/sailplanes.html</a>
R-C Soarer - Silicone Hinge Construction	<a href="http://www.rc-soar.com/tech/silicone.htm">http://www.rc-soar.com/tech/silicone.htm</a>
RC Stuff and links to Interference oriented data	<a href="http://www.paranoia.com/~filipg/HTML/RC/F_RC_interf.html">http://www.paranoia.com/~filipg/HTML/RC/F_RC_interf.html</a>



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RCSD - R/C Soaring Digest Magazine Homepage	<a href="http://www.halcyon.com/bsquared/RCSD.html">http://www.halcyon.com/bsquared/RCSD.html</a>
RCSE Soaring Digest Archive - lookup old posts from the e-mail Soaring Exchange	<a href="http://www.findmail.com/list/soaring/">http://www.findmail.com/list/soaring/</a>
RMSA Home Page - OUR HOMEPAGE	<a href="http://www.tobindatag.com/rmsa/rmsa.html">http://www.tobindatag.com/rmsa/rmsa.html</a>
Sailplane Modeler Magazine	<a href="http://www.sailplanemodeler.com/">http://www.sailplanemodeler.com/</a>
Sailplane-Oriented Web Sites from Tower Hobbies - more links	<a href="http://www.towerhobbies.com/rcwsail.html">http://www.towerhobbies.com/rcwsail.html</a>
San Francisco Flying Sites	<a href="http://members.aol.com/Rpvi/flysites.html">http://members.aol.com/Rpvi/flysites.html</a>
San Francisco Wind Statistics sites	<a href="http://sfbay7.wr.usgs.gov/wind">http://sfbay7.wr.usgs.gov/wind</a>
Soaring Artwork from Aufwind Magazine	<a href="http://www.aufwind-magazin.de/html/poster4-98.html">http://www.aufwind-magazin.de/html/poster4-98.html</a>
Soaring Images	<a href="http://acro.harvard.edu/SOARING/images.html">http://acro.harvard.edu/SOARING/images.html</a>
Soaring Stuff - soaring supplies	<a href="http://www.3lefties.com/soaringstuff/">http://www.3lefties.com/soaringstuff/</a>
Soaring Yellow Pages - a good set of links to people and dealers	<a href="http://www.ocpapsych.com/yellow.htm">http://www.ocpapsych.com/yellow.htm</a>
SoarWest - Soaring out West	<a href="http://www.soarwest.com/">http://www.soarwest.com/</a>
The E Zone - for Electric Flight	<a href="http://www.ezonemag.com/">http://www.ezonemag.com/</a>
The Work Bench -- Vacuum Bagging Wings	<a href="http://www.pilotsguide.com/rc/vacbag.shtml">http://www.pilotsguide.com/rc/vacbag.shtml</a>
Torrey Pines Gulls Home Page	<a href="http://www.torreypinesgulls.org/">http://www.torreypinesgulls.org/</a>
Wind Reports from many wind sensors - none near us	<a href="http://www.windcall.com/frameless/reports/">http://www.windcall.com/frameless/reports/</a>
<b>DEALERS:</b>	
ACCULAB PORTABLE DIGITAL BALANCES	<a href="http://www.balances.com/vseries.html">http://www.balances.com/vseries.html</a>
Airtronics Main Page	<a href="http://www.wtp.net/DBEST/AirtronicsMainPage.html">http://www.wtp.net/DBEST/AirtronicsMainPage.html</a>
Boomtown City - Sheldons Hobbies	<a href="http://www.btown.com/">http://www.btown.com/</a>
Composite Structures Technology Home Page	<a href="http://www.cstsales.com/">http://www.cstsales.com/</a>
DJ Aerotech RC Sailplanes	<a href="http://www.bright.net/~djwerks/">http://www.bright.net/~djwerks/</a>
Finney's Hobbies Home Page	<a href="http://www.mindspring.com/~finneys/hobbies/finhome.htm">http://www.mindspring.com/~finneys/hobbies/finhome.htm</a>
FMA Direct - High Quality Equipment for the R/C Enthusiast	<a href="http://www.fmadirect.com/">http://www.fmadirect.com/</a>
Fuse Works' Vortex - Molded Sailplanes	<a href="http://members.aol.com/fuseworks/vortex2.htm">http://members.aol.com/fuseworks/vortex2.htm</a>
Futaba® Home Page	<a href="http://www.hobbies.net/futaba/">http://www.hobbies.net/futaba/</a>
Hitec R/C WebPage	<a href="http://www.hitecrd.com/">http://www.hitecrd.com/</a>
Hobby Club - Home	<a href="http://www.hobbyclub.com/">http://www.hobbyclub.com/</a>
Hobby Horse	<a href="http://www.mailbag.com/users/hobbyhorse/">http://www.mailbag.com/users/hobbyhorse/</a>
Northeast Sailplane Products Homepage	<a href="http://www.nesail.com/">http://www.nesail.com/</a>
Radio South Home Page	<a href="http://www.wtp.net/DBEST/radiosouth/RS1.html">http://www.wtp.net/DBEST/radiosouth/RS1.html</a>
Remote Control Manufacturers-Suppliers Listing	<a href="http://www.eden.com/~jmcaldin/misc/rcsupply.htm">http://www.eden.com/~jmcaldin/misc/rcsupply.htm</a>
Sailplane Specialities	<a href="http://www.netcom.com/~ricrscue/sailplanes.html">http://www.netcom.com/~ricrscue/sailplanes.html</a>
Slegers International Home Page	<a href="http://www.slegers.com/">http://www.slegers.com/</a>
Studio 'B' R-C	<a href="http://www.studiob-rc.com/">http://www.studiob-rc.com/</a>
The Ace Radio Control Homepage	<a href="http://vax1.rainis.net/~webcom/ace/index.html">http://vax1.rainis.net/~webcom/ace/index.html</a>
Tim McCann - Skegs and Stuff	<a href="http://www.alltel.net/~tmccann/">http://www.alltel.net/~tmccann/</a>
Tower Hobbies Inventory Reduction Daily Sale	<a href="http://www.towerhobbies.com/listings/listinva.html">http://www.towerhobbies.com/listings/listinva.html</a>
Tower Hobbies Prices	<a href="http://www.towerhobbies.com/listings.html">http://www.towerhobbies.com/listings.html</a>
<b>WEATHER</b>	
Current Weather Conditions - Broomfield - Jeffco, CO, United States	<a href="http://tgs77.nws.noaa.gov/weather/current/KBJC.html">http://tgs77.nws.noaa.gov/weather/current/KBJC.html</a>
Current Weather Conditions - Denver, Denver International Airport, CO, United States	<a href="http://tgs77.nws.noaa.gov/weather/current/KDEN.html">http://tgs77.nws.noaa.gov/weather/current/KDEN.html</a>
INTELLICAST\$ denver Radar	<a href="http://www.intellicast.com/weather/den/radar/">http://www.intellicast.com/weather/den/radar/</a>
National Weather Service Text - Denver	<a href="http://cirrus.sprl.umich.edu/wxnet/fcst/denver.txt">http://cirrus.sprl.umich.edu/wxnet/fcst/denver.txt</a>
NCAR Foothills Lab Weather with English units	<a href="http://www.atd.ucar.edu:80/cgi-bin/flabweatherE">http://www.atd.ucar.edu:80/cgi-bin/flabweatherE</a>
NCAR Mesa Lab Weather - good for NCAR slope site	<a href="http://www.atd.ucar.edu/cgi-bin/mlabweatherE">http://www.atd.ucar.edu/cgi-bin/mlabweatherE</a>
Rocky Flats - useful for 128 <sup>th</sup> St. Powerlines slope site	<a href="http://wind2.nrel.gov/weatherdata">http://wind2.nrel.gov/weatherdata</a>



# Rocky Mountain Soaring Association

The Weather Channel - Denver	<a href="http://www.weather.com/weather/us/cities/CO_Denver.html">http://www.weather.com/weather/us/cities/CO_Denver.html</a>
USA Today - Weather-Denver, Colo	<a href="http://www.usatoday.com/weather/basemaps/nw724690.htm">http://www.usatoday.com/weather/basemaps/nw724690.htm</a>
Weather Underground Denver, Colorado Weather.	<a href="http://www.wunderground.com/US/CO/Denver.html">http://www.wunderground.com/US/CO/Denver.html</a>
Weather24 Detailed Weather Report for Boulder, CO	<a href="http://www.weather24.com/local/weather-extended/CO/BOULDER">http://www.weather24.com/local/weather-extended/CO/BOULDER</a>
Weather24 Detailed Weather Report for Denver, CO	<a href="http://www.weather24.com/local/weather-extended/CO/DENVER">http://www.weather24.com/local/weather-extended/CO/DENVER</a>



# Rocky Mountain Soaring Association

## Paid Membership Roster

Full Name	Address	City	St	Zip	Phone	Work Phone	Ama
Wayne Angevine	4160 26th St.	Boulder	CO	80304	303-443-5165	303-497-3747	6502
Jim Barr	1255 Ivy St	Denver	CO	80220	303-355-3833	303-337-4743	594
Shannon Bingham	4382 E Utah Pl	Denver	CO	80222	303-584-0225	303-688-7963	607708
Byron Blakeslee	1448 W. Briarwood Ave	Littleton	CO	80120	738-1104		6153
Tom Blatter	12969 W 55th Pl	Arvada	CO	80002	422-2239		380235
Jeff Burg	21059 E Belleview Pl	Aurora	CO	80015	303-627-9895	672-1307	62392
Jim Butler	9505 W Wagon Trail Dr	Littleton	CO	80123	978-1656		
Tracy Cochran	690 S. Canosa Ct.	Denver	CO	80219	934-8838		261901
Jack L. Dech	PO BOX 25188	Colorado Springs	CO	80936	719-590-7673	719-548-3287	2829
Philip DeLong	11283 N. Forest Dr.	Thornton	CO	80241	452-1038	756-9030	303044
Bob Douglas	4833 S. Hoyt St.	Littleton	CO	80123	933-6993		5839
Nathan Evans	5515 S. Olathe Ln.	Aurora	CO	80015	699-7163		210198
Bert Evans	5515 S. Olathe Ln.	Aurora	CO	80015	699-7163	427-5581	208350
Dustin Evans	5515 S. Olathe Ln.	Aurora	CO	80015	699-7163		377561
Lloyd Fisher	7130 S. Reed Ct.	Littleton	CO	80128	303-933-7502	303-971-8826	99596
Terry Grau	29955 Roan Dr.	Evergreen	CO	80439	303-670-7868		596082
Tom Gressman	7753 Emerald Peak	Littleton	CO	80127	303-979-8073	303-744-3535	20538
Bob Hatch	1035 Stoneham St	Superior	CO	80027	303-494-4508	303-661-7211	420619
Mark Howard	19015 W. 62nd Ave.	Golden	CO	80403	303-278-7519	303-831-3452	4113
Charles Howerton	12707 Hillcrest Dr.	Longmont	CO	80501	303-772-2760	303-556-3433	434664
Lenny Keer	5013 W 9th St	Greeley	CO	80634	970-352-1194	970-395-1251	100318
Fred Kuhns	4985 S. Eagle Cir.	Aurora	CO	80015-2215	699-7475		97282
Gary Lewan	1305 Quaker	Golden	CO	80401	277-1375	914-1774	543294
Robert W Lewan	704 Locust Ave	Brighton	CO	80601	303-655-1649	303-261-9100	542813
Raymond Marvin	2781 S. Garfield	Denver	CO	80210	756-7589		L77
Greg Merkle	11661 Decatur St Apt J303	Westminster	CO	80234-2582	303-410-1527	303-966-7316	618033
Charles Miller	1325 S Bowen	Longmont	CO	80501	303-776-8036	303-443-7714	192529
Dusty Miller	4865 Fountain St.	Boulder	CO	80304-4331	442-6454	442-8642	459745
Skip Miller	4865 Fountain St.	Boulder	CO	80304-4331	442-6454	442-8642	22047
Robert Moffett	8330 Zuni St #120	Denver	CO	80221-4674	303-426-0328		396839
Kevin Moffett	8330 Zuni St #120	Denver	CO	80221-4674	303-426-0328		396839
Jim Monaco	103 Breckenridge Trail	Broomfield	CO	80020	303-464-9895	924-3393	493215
Marc Monaco	103 Breckenridge Trail	Broomfield	CO	80020	303-464-9895		543461
Erin O'Hearn	4821 S. Bahama Wy	Aurora	CO	80015	693-6925		602541
Michael O'Hearn	4821 S. Bahama Wy	Aurora	CO	80015	303-693-6925	303-306-8858	581474
Tim Olvey	8706 Dover St	Westminster	CO	80005	303-424-4916	303-267-7022	632690
Travis Olvey	8706 Dover St	Westminster	CO	80005	303-424-4916		632691
Gene Oxenrider	8163 S. Emerson Wy	Littleton	CO	80122	303-798-6446	303-965-5714	622720
Jon Padilla	7655 S. Allison St.	Littleton	CO	80123	303-932-2504	303-271-0663	277950
Dale Pahl	8011 Lodgepole Trail	Littleton	CO	80124	303-790-8016		504427
John Pearson	8707 E Florida Ave Unit 704	Denver	CO	80231	745-1615	303-306-6800	191017
Robert Pederson	7130 Sedona Hills Dr	Berthoud	CO	80513	970-532-3437	303-460-3528	1815
Bailey Phelps	1629 Parkside Circle	Lafayette	CO	80026	303-604-2890	303-777-4228	556232
Don Port	711 Beech St.	Golden	CO	80401	303-232-8842		8832
Tom Powers	10361 Tennyson Ct.	Westminster	CO	80030	466-2678	624-1677	108839
Peter Rackow	5425 S. Hoyt St	Littleton	CO	80123	303-973-9934		112455
Bob Rice	1123 S. Oakland St.	Aurora	CO	80012	745-5629	303-831-3412	8101
Art Ries	2020 So. Monroe St. Apt 802	Denver	CO	80210	303-759-4383		488935
Denny Rosenberger	711 S. Holly St.	Denver	CO	80222	322-5616		153178
Matt Sheldon	7800 W 35th Ave #8	Wheat Ridge	CO	80033	303-445-9457	303-432-8259	1880
Keith Stillman	12432 Clayton Ct	Thornton	CO	80241	303-280-1668		625906
Neil Stillman	12432 Clayton Ct	Thornton	CO	80241	303-280-1668		625907
Richard Stillman	12432 Clayton Ct	Thornton	CO	80241	303-280-1668	303-466-1714	625905
Ray Tate	10960 Harlan	Westminster	CO	80030	303-466-1169	303-469-3523	572801
Bill Thomas	Box 284	Otis	KS	67565	785-387-2577		6372
Dave Thompson	1740 W 102nd Ave	Denver	CO	80221	303-438-5765		
Philip Weigle	1290 Salem St.	Aurora	CO	80011	303-341-9256	303-371-9112	8461
Paul Welschinger	2918 Benton St	Wheat Ridge	CO	80214	303-238-1944		Pending
David West	9352 S. Mountain Brush St.	Highlands Ranch	CO	80126	303-470-6356	303-355-4585	509122
Jeff White	1614 Bowen St	Longmont	CO	80507	303-772-7482	303-665-3777	656831
Jack Zika	2390 Braun Dr.	Golden	CO	80401	303-279-1549		8223



# Rocky Mountain Soaring Association

## 1999 RMSA Contest/Event Calendar

Date	Event	CD	Notes
Jan. 5	RMSA Meeting		Newgate Apts
Feb. 2	RMSA Meeting		Newgate Apts
Mar. 2	RMSA Meeting		Newgate Apts
Mar. 7	Pro-Am	Jim Monaco	Second annual Pro-Am
Mar. 14	Open*	Mark Howard	
Apr. 6	RMSA Meeting		Newgate Apts
Apr. 11	Open*	Jim Barr	
Apr. 24	RES	Bob Lewan†	Restricted to Rudder/Elevator/Spoiler controls only. Saturday event
May 4	RMSA Meeting		Newgate Apts
May 16	Open*	Lenny Keer	
May 23	HLG**	Phil Weigle	
June 1	RMSA Meeting		Newgate Apts
June 6	Fun Fly	Bob Douglas	Great Plane Race and Funfly event
June 13	Open*	Bob Rice	
June 27	HLG**	Jeff Burg†	
July 6	RMSA Meeting		Newgate Apts
July 11	Open*	Phil Weigle	
July 18	HLG**	Jack Zika†	
Aug. 3	RMSA Meeting		Newgate Apts
Aug. 8	Open*	Jim Monaco	
Aug. 15	HLG**	Lenny Keer	
Aug. 21	2 Meter*	Mark Howard	Restricted to 2 meter models
Sept. 7	RMSA Meeting		Newgate Apts
Sept. 12	Open*	Matt Sheldon †/M. O'Hearn	AKA: Colorado Challenge Cup
Sept. 25	LSF & Fun Fly	Bob Douglas	Saturday event
Oct. 5	RMSA Meeting		Newgate Apts
Oct. 10	Open*	Bob Lewan†	
Nov. 2	RMSA Meeting		Newgate Apts
Nov. 6	RES	Michael O'Hearn	Restricted to Rudder/Elevator/Spoiler controls only. Saturday event
Dec. 5	Awards Banquet		



**1999 Board Members**

**President:**  
**President:** Mike O'Hearn (303) 693-6925 mjohearn@ccgate.hac.com  
**Secretary:** Bob Rice (303) 745-5269 bobr@tobindatag.com  
**Treasurer:** John Pearson (303) 306-6800 jp7120@aol.com  
**Past President:** Jack Zika (303) 279-1549 (303) 505-9488(Pager)

**Member Support**

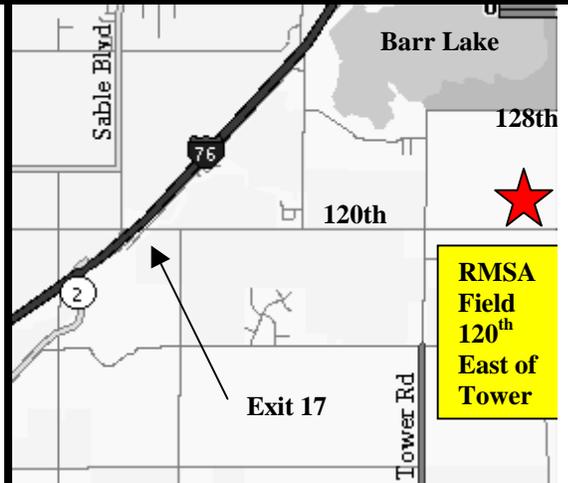
[www.tobindatag.com/rmsa](http://www.tobindatag.com/rmsa)

**Chief**

**Instructor:** Jack Zika (303) 279-1549 (303) 505-9488 (Pager)  
**Instructor:** Mark Howard (303) 278-7519 [Markho@tobindatag.com](mailto:Markho@tobindatag.com)  
**F3B/F3J:** Mark Howard (303) 278-7519 [Markho@tobindatag.com](mailto:Markho@tobindatag.com)  
**Librarian:** Tracy Cochran (303) 934-8838 [Tcochran@idcomm.com](mailto:Tcochran@idcomm.com)  
**Newsletter:** Jim Monaco (303) 464-9895 [jmmonaco@us.ibm.com](mailto:jmmonaco@us.ibm.com)

**Winch Masters**

**Bob Rice** (303) 745-5629 [bobr@tobindatag.com](mailto:bobr@tobindatag.com)  
**Mike O'Hearn** (303) 693-6925 [mjohearn@ccgate.hac.com](mailto:mjohearn@ccgate.hac.com)  
**Shannon Bingham** (303) 814-0571 [binghams@boulder.earthnet.com](mailto:binghams@boulder.earthnet.com)  
**Gary Lewan** (303) 277-1375



**Directions to Field**

Take I-76 to exit 17. Take 120<sup>th</sup> East to Tower Rd. Continue straight through traffic light and look for the sod sprinkler on the left. We are on the southwest corner of that part of the sod farm.

*Flying for RMSA members and accompanied guests only.*



**Rocky Mountain Soaring Association**  
**1123 S. Oakland St**  
**Aurora CO 80012**

**First Class Mail**

*Forwarding Address Requested*