Thermals

Newsletter of the Rocky Mountain Soaring Association

December 1998 **AMA Chartered Club 1245** **Volume XXII Number 12**

VICE PRESIDENT'S MESSAGE

The 1998 contest season has ended and what's left of the flying season depends on "Old Man Winter" and La Niña. Take advantage of the good weather days when you can to keep your skills honed for the '99 contest season.

Remember, the annual club banquet is December 6th at the "Old Country Restaurant" located at 134 Union Blvd. in Lakewood. Cost is $12.48 per person. If you haven't already sent your check in and plan on attending, give me a call at work or home so that I can get an accurate head count to give to the restaurant. I need this information no later than Dec. 2nd. (work: 303-306-8858; home: 303-693-6925)

Disregard the previous newsletter's schedules that have been indicating a regular, monthly club meeting on December 1st. ***There will be no club meeting in December, that's what the banquet is for***. We'll begin the 1999 RMSA club activities with a club meeting on Jan. 5th.

The 1999 contest committee meeting was held on November 24th. The '99 contest schedule was developed and responsible CDs identified. Additionally, the governing contest rules were discussed. Results of the meeting will be published in the January newsletter.

As was mentioned in last month's newsletter, work will be performed on the club winches to include the purchase of new batteries, replenishment of winch and retriever lines, and rebuilding of the winch motors. Bob Rice and I have been coordinating the early phases of this effort with the anticipation that the motor rebuilds and line replenishments should be accomplished by early February and the purchase of new batteries by early March.

Don't forget to renew your RMSA membership for next year. Membership dues provide the fuel that sustain the club activities including equipment maintenance, contest sanctioning, awards, trophies, and this newsletter. If membership dues are the fuel, then member involvement and volunteering are the engine. It is the volunteer time and effort expended by the membership that determines the success and progress of the club. Your ideas, thoughts, suggestions, and especially participation are solicited and welcome.

.**Mike O'Hearn**

Banquet Reservations

If you haven't made your reservations there is still time until December 2nd … Give Mike a call at work: 303-306-8858 or home: 303-693-6925 then send him your check at:

4821 Bahama Wy
Aurora, CO 80015

The banquet is a fun time, with lots of good food on the brunch buffet and a bunch of raffle prizes to be awarded. You won't be disappointed, and it's a great time to bring that significant other out and let them meet the folks you spend those weekends with!! (well maybe it's not such a good idea…)
SEE YA There - Jim

Late Newsletters

I'd like to apologize for the lateness of the last 2 newsletters. A series of problems led to the newsletter being put out much later than normal. I realize how important the newsletter is and we are taking steps to ensure that the newsletter is published in a more timely manner. The last 2 issues are particularly troubling because of the yearly elections and the need to collect reservations for the year end banquet. Please understand that the publishing activity is done by folks who all have real jobs and responsibilities that can affect the preparation and distribution of the newsletter. We do have a better plan for dealing with these unexpected events and hope to do a better job in the future. Thanks for your patience.
Jim Monaco

Slope Soaring Info

Here is a note from Dale Pahl with some great information for those interested in sloping… Thanks Dale!

If you don't already have it, there is a 24 hour phone number one can now call to get computer produced, on-site, real-time conditions: 303-697-4766. Hooray! This little jewel is worth it's weight in gold, as it can save you from making a 'dryrun' - while at the same time keep a guy from missing one of those wonderful (and all-too-rare) 'screamer' days on the fabled north hill. Tell your readers that the very best flying out there is on days of 10-15mph or more, when the wind is from the northwest (clockwise) through northeast, although we can really accommodate any wind direction except due east through south. Hey, too windy at the sod farm? CYA at Bear Creek - where the fun will be just getting started!

Regards, Dale Pahl of your friendly RMSA 'sloper division'

For Sale

TRC Impulse 2D Fast DC Pulse charger-
Excellent condition . Will charge and discharge/cycle up to 1200 Mah TX&RX battery packs. Your choice of connectors. Paid $200, asking $125

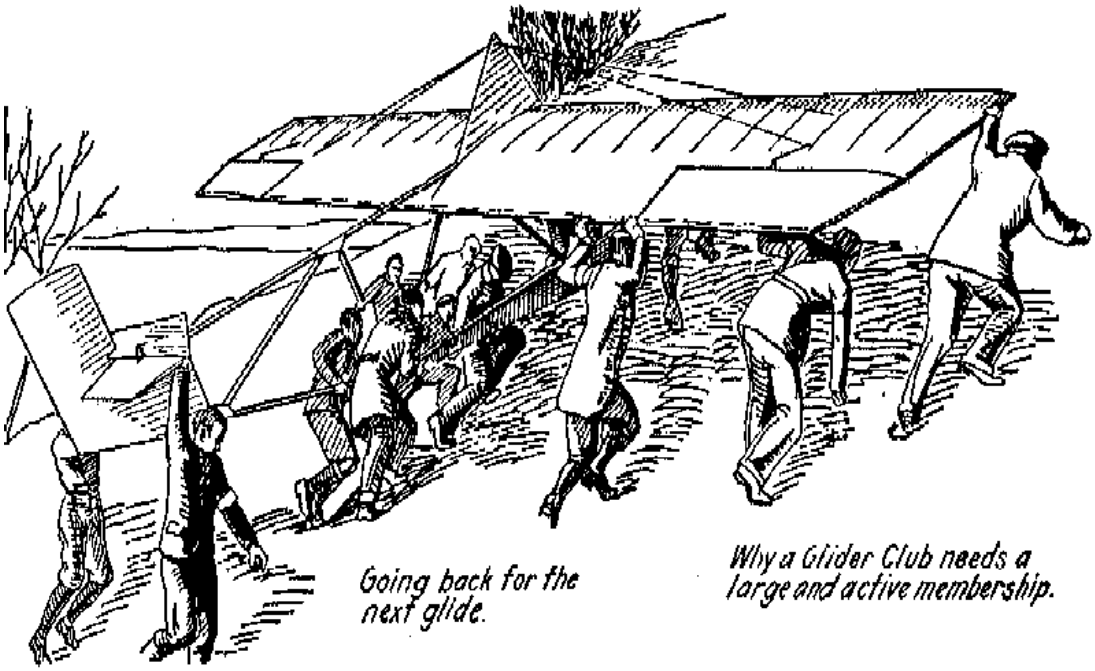
Monarch C HLG--With 2-HS-50 servos and 110Mah pack. Perfect condition with rear finger hole. Never crashed or broken. 9.5oz RTF
$225 with servos and battery or $175 without.

If interested please contact Jeff Burg@ (303) 627-9895 or E-Mail ---JAB6658@aol.com

Renewal Time!!!

It's renewal time and now is a great time to get that check off. The sooner we have the funds in the bank, the sooner we can begin the process of preparing for 1999. As Michael said earlier - we have a lot of refurbishing to do before the 1999 season starts in earnest. The biggest expense is to refurbish the winches - rebuild the motors and restring the drums and purchase new batteries. With new batteries we can avoid the "power deprivation syndrome" experienced during the Challenge Cup and can use the marginal batteries as backups.

Well - it's not "exactly" the same, but Gene Oxenrider sent in a nice graphic illustrating the need for club teamwork. Thanks Gene!



Frost on the Pumpkin Thermals

The second RES contest was held Sunday, November 8, 1998. The drive up to the field from home was completely in the fog. 8:30 am temperature at the field was estimated to be in the mid 20s with a slight breeze. The field was covered with frost but fortunately no snow from the system that hit Denver two days earlier. One by one, the hardy (foolish) contestants arrived at the field and joined the growing huddle who looked upwards into the fog estimating flying conditions, visibility, and second guessing themselves for getting out of bed so early on such a cold morning.

On two occasions the fog began to thin and lift only to close back in again. But it was decided that the eight of us had come out to fly, not to cuss and discuss the weather. Two winches were deployed per my directions based upon prognostication of the television weatherman. And at 10:30 the contest had begun. The first task was a simple duration of 3 minutes that I thought would be appropriate for all to warm up on. It was during this first task that it became apparent that my reliance on the infallible TV weatherman for orienting the winches was 180 degrees out of whack. (aspiring CD lesson #1).

A total of seven tasks were flown, all of them slightly to moderately downwind launches into very marginal lift conditions. Consideration for the type of planes being flown and for the weather resulted in setting relatively low flight time targets of five minutes for the five T1 tasks. This proved to be challenging enough for everyone since about 40% of the target times were achieved or gotten close to. The final task was a T5, Precision Flight. In this task, hitting the target time of two minutes exactly would yield 100 points but the further away in seconds your were, the more rapidly the points would be reduced. To add some spice, landing points were doubled if you landed within a six second window centered around the two minute target. As luck would have it, I managed to land at one end of the time window and double my landing points. This resulted in some good-natured ribbing from the others since the CD was the only one who benefited from this rule modification.

All in all, I considered the contest successful and fun. Seven tasks flown in a little less than four hours which let us get back home in time to watch the Broncos finish kicking the Charger's butts. Congratulations go to all the contestants who stuck out the variable conditions and patiently abided my execution of the contest and who helped clear away the equipment afterwards. Handing out the awards and certificates was a first for me. I saw a lot of grinning faces which made the whole experience worthwhile. (aspiring CD lesson #2).
Mike O'Hearn

Frost on the Pumpkin Thermals Results

ID	Class	Name	RD 1	RD 2	RD 3	RD 4	RD 5	RD 6	RD 7	Total	Norm by Contest	Norm by Class
	N	**Novice**										
2	N	Shannon Bingham	188.00	351.00	332.00	307.00	387.00	166.00	99.00	1,830.00	971.85	1,000.00
6	N	Greg Merkle	180.00	151.00	294.00	367.00	91.00	80.00	65.00	1,228.00	652.15	671.04
8	N	Gene Oxenrider	143.00	148.00	62.00	102.00	65.00	163.00	45.00	728.00	386.62	397.81
	S	**Sportsman**										
1	S	Mike O'Hearn	180.00	340.00	186.00	307.00	382.00	263.00	225.00	1,883.00	1,000.00	1,000.00
4	S	Gary Lewan	154.00	293.00	117.00	360.00	201.00	148.00	104.00	1,377.00	731.28	731.28
5	S	Mac Arthur	140.00	212.00	177.00	230.00	188.00	194.00	118.00	1,259.00	668.61	668.61
3	S	Jim Monaco	140.00	259.00	92.00	285.00	163.00	209.00	10.00	1,158.00	614.98	614.98
	M	**Masters**										
7	M	Jack Zika	266.00	196.00	291.00	186.00	319.00	284.00	85.00	1,627.00	864.05	1,000.00

Mixing Full House Sailplanes

Here is an article on the basics of using a computer radio for mixing controls. Even the mid-level transmitters these days have many of these features and this article may clear up some of the terminology for some of you…

By Rick Eckel Copyright 1995

Let's admit it. The simple two channel 'floater' type sailplanes are the most relaxing and enjoyable planes to fly. They look graceful in the sky, practically fly themselves, and land so slowly you can walk beside them. On a beautiful, calm, sunny, summer Sunday there is no better way to spend time than guiding a floater beneath billowy clouds suspended in a deep blue sky. But...

There are some of us who can't leave a good thing alone. We must have speed... Or "performance"... Or a thousand little switches sticking out of our transmitters. We want launches to the moon, thermal searches that cover at least three states and landings on the head of a nail every time. For us there's no fun like the good adrenaline rush of a high speed pass low across the field!

So we opt for the full house sailplane. Fiberglass, carbon fiber, kevlar, foam, obeche, and servos in every nook and cranny. Beasts that are inherently unstable, fast as the dickens and prone to landing like lawn darts. And then we are faced with trimming the dang things, getting them to fly in a civilized (or at least somewhat controlled) manner, and landing 'em without cutting off our own legs. The key to all this is a computer radio and that most dreaded of all procedures: mixing.

Many newcomers to our wonderful sport have approached me and asked about computer radios, how to choose one and what it is that you really do with one when you have it. Nosy and full of questions as they are, they are seldom satisfied with "mixing" as an answer. So here is the lowdown on what 'real' sailplane pilots do with a computer radio.

Let the mixing begin

Setting up, or 'mixing', a full house sailplane with a computer radio can be a pretty intimidating task for the uninitiated. There seem to be so many possibilities, so many control surfaces, so many switches and so many terms and nomenclatures. Actually... there really are too many. But they're manageable if we first understand the basics of what we need to accomplish. Then we must translate that into the terminology and control functions provided by our particular computer radio manufacturer.

Sailplanes have three distinct flight requirements: launching, landing and the flight task. Mixing is used to enhance the flight characteristics of the plane for each of these requirements. In launching we want to obtain the highest possible altitude. For landing we require slow speed with the most control possible in order to land very precisely. The flight task requirements vary with the task (I'm most familiar with the thermal duration task but there can also be speed and distance tasks),

As the full house sailplanes and computer radios have become more common, basic ways of enhancing each of these flight requirements have become more or less standard. They are enabled by mixing two or more control functions (for instance: flaps and elevator or aileron and rudder) together so that the flight characteristics of the plane are optimized for a particular flight requirement. The interesting part is that each airplane design will have its own reaction to the typical mixes and must be optimized individually for top performance.

A Few Definitions

Camber, reflex, crow and butterfly are terms tossed about by those baptized in the use of computer radios as if their meaning were obvious. From my experience they are only obvious if you already know them. (Or is that obvious?) Anyway, a brief review won't hurt.

Camber and reflex are kind of equal but opposite terms. They refer to the position of the wing's flaps and/or ailerons. Camber means that the flap or ailerons is deflected a little downward effectively adding undercamber to the normal wing airfoil. Adding undercamber means that the bottom surface of the wing becomes more concave. Reflex, on the other hand, is the deflection of the flaps or ailerons upward. Moving the flap or ailerons up removes camber in the airfoil making the bottom more flat or even giving the wing a 'reflexed' trailing edge.

Butterfly and crow are different terms for the same thing. A sailplane in the crow or butterfly configuration has its flaps lowered and both ailerons reflexed (raised). The ailerons stick up and the flaps hang down making the plane look reminiscent of a crow or butterfly as they approach a landing.

The flaps, ailerons or the full trailing edge (both flaps and ailerons) can be referred to as cambered or reflexed. Camber and reflex are used in a variety of circumstances. Crow (or butterfly) is only used for landing or perhaps for diving out of a thermal.

Launch Mixing

A sailplane will launch from a winch or high start perfectly well without any trim adjustments - assuming that the tow hook is well positioned. However the launch may be enhanced by several adjustments. The first is to camber flaps a bit to generate more lift during the launch. A little up or down elevator compensation is frequently of benefit when flaps are used during launch.

Flaps only cover perhaps 1/2 of the length of the trailing edge of the wing. Some fliers find that additional lift can be generated and a steeper launch attained if the ailerons are also cambered to match the flaps, or a little less, when launching. As a beginning point of reference, we are talking about a cambering of flaps and ailerons of perhaps 1/4".

At the end of the launch some additional altitude can be gained by "zooming" off of the winch line. This zooming can be enhanced by reducing airfoil drag by reflexing the trailing edge. That is, reflexing both the flaps and ailerons slightly above their normal positions. Again, as a point of reference, we are talking about maybe a 1/16" reflex of flaps and ailerons.

All of these things can often be controlled using the 3-position flaps switch as the master channel for the flaps and slaving the other channels that require adjustment (elevator and ailerons) to them. This means that a lot of flexibility for mixing to flaps is necessary for the launching task. That makes it one of the key things to look for if you are choosing a radio for a full house sailplane.

Landing Mixing

For landing a sailplane the flaps are again important. They are useful for obtaining the slow speeds while retaining good control that make spot landings easier. Most airplanes exhibit a nose up pitching motion (or "ballooning") when flaps are deployed. So a mix of elevator to the flaps is employed to counteract the pitching. The elevator mix used in the launch may or may not work (or be available) for the landing flaps deployment. So a different elevator mix may be needed. Most pilots also prefer to have landing flaps fully proportional and controlled by the throttle stick on the transmitter so that they can vary the flaps depending on their landing approach.

Another enhancement to the landing function is the use of ailerons as spoilers. When both ailerons are reflexed and the flaps are lowered the plane is said to be in the "crow" or "butterfly" configuration. A little reflex of the ailerons just dumps (spoils) the lift of the wing and steepens the glide slope. A large degree of reflex adds drag as well.

So this landing mix is a lot like the launch mix except that the ailerons have a different motion, the elevator to flaps mix is different and the flaps are proportionally controlled by the throttle stick rather than having preset positions via the 3-position switch. Only the more advanced programmable radios and/or those specialized for sailplanes will have the ability to provide both launching and landing mix setups.

Flight Task Mixes

Perhaps the most widely used flight task mix is rudder to ailerons. The purpose of this mix is to allow coordinated turns to be accomplished using only the right stick on the transmitter. This mix also eases the transition from a two channel (rudder-elevator) sailplane to an aileron equipped model. (Just don't forget that the ratchet trim for the rudder is now under the left stick!)

There are also a variety of other mixes for the flight task requirements for sailplanes. Pilots tend to vary in their preferences for these mixes. Part of the preference is personal and part is because different planes respond differently.

Some pilots like to have the trailing edge of the wing camber, either just flaps or flaps and ailerons, with the application of up elevator. This gives an apparent increase in the effectiveness of the elevator. Conversely they sometimes want the trailing edge to reflex with the application of down elevator. This makes the plane accelerate more quickly. Pilots like to be able to switch this mix in and out depending on whether they're in a thermal or not. So they turn it on and off with a switch on the transmitter.

In addition to or in place of the above some pilots like to be able to 'dial in' some camber on the wing while they are working a thermal. With more camber some airfoils can fly slower, develop more lift, and get more altitude out of a given thermal. Once a thermal expires or is lost pilots want to 'flee the sink'. The ability to reflex the trailing edge can be very effective when you need to get away from a particular piece of sky quickly. These controls are often handled by a pot (potentiometer) on the transmitter or, as an alternate by the throttle stick so that they are proportionally variable.

In slope racing it is very important to make good 'bank and yank' turns. I understand that some pilots like to use an inverse aileron differential mix in order to put some adverse yaw in the plane as they bank up for the turn just prior to the 'yank'.

The Mix is the Secret!

There are many other mixes and variations on mixes that different pilots use for different flight requirements. I think that some of them must be closely guarded secrets! Secret mixes that provide a competitive edge that pilots develop and hand down only with greatest ceremony to select coconspirators! I think that's why I can't fly as well as Brian Agnew or Joe Wurts (or a lot of other pilots for that matter) - I don't have any secret mixes! (Aren't conspiracy theories wonderful excuses!)

Thermals! Rick

Rocky Mountain Soaring Association

RENEWAL ____ NEW MEMBER _____ SPONSER _____

Please complete the following information for our records:

Family Memberships - Please make and complete a copy for EACH flying family member!

Name : _____ Need name badge? No Novice Sportsman Master

Address (if new member or incorrect on label) Year Joined RMSA:_____

_____ Home Phone: _____

_____ Work Phone: _____

AMA #:_____ AMA Contest Director? Yes No

AMA Class Open Youth Family Birth Date: ___/___/_____

LSF #: _____LSF LEVEL: ___ NSS #: _____ E-Mail: _____

RMSA Membership Class Senior Only Senior W/Family Associate Family
(Note - Senior W/Family receive THERMALS - other Family members check Family Box)

Non-Flying Family members: _____

RMSA Competition Class Novice Sportsman Master

RMSA Offices Held _____

---------- **MODELS OWNED** ----------

PLANE	**SPAN**	**COLOR** (Top,Bott.,Fuse)	**CLASS**(Open,HLG,Std..)	**FREQUENCY**

Interests: Sports Flying T/D contests HLG Contests NSS Soar-ins F3J
F3B X-C contests Slope contests Other_____

Past Achievements:_____

_____

Dues: $ 5.00 New Member Initiation Fee
$ 5.00 Junior - under 17
$ 25.00 Senior - individual 17 and over
$ 30.00 Family - any number (same address)
$ 8.00 Associate (newsletter only)
Make checks payable to RMSA

Comments and suggestions are ENCOURAGED! Please include these with your form!
Please send to: RMSA
c/o Bob Rice
1123 S. Oakland St.
Aurora, CO 80012

1998 Contest/Event Calendar

Date	Type	CD	Notes
Jan 6	RMSA Meeting		Newgate Apts – See Cover
Feb 3	RMSA Meeting		Newgate Apts – See Cover
March 3	RMSA Meeting		Newgate Apts – See Cover
March 8	RES	Bob Douglas	Restricted to Rudder/Elevator/Spoiler controls only
March 15	Open*	Mark Howard	
April 7	RMSA Meeting		Newgate Apts – See Cover
April 19	Open*	Jim Barr	
April 26	HL**	Phil Weigle	Points towards club HL championship
May 5	RMSA Meeting		Newgate Apts – See Cover
May 17	Open*	Jim Monaco	
May 31	HL**	Phil Weigle	Points towards club HL championship
June 2	RMSA Meeting		Newgate Apts – See Cover
June 7	Open*	Phil Weigle	
June 21	FunFly	Bob Douglas	Fathers Day Family BBQ and Fun Fly
June 28	HL**	Lenny Keer	Points towards club HL championship
July 7	RMSA Meeting		Newgate Apts – See Cover
July 12	Open*	Bob Rice	
July 26	HL**	Jack Zika	Points towards club HL championship
August 4	RMSA Meeting		Newgate Apts – See Cover
August 9	Open*	Jim Monaco	
August 16	LSF Tasks	Bob Douglas	LSF Tasks and Fun Fly
August 23	2 Meter *	Mark Howard	Restricted to 2 meter models
Sept 1	RMSA Meeting		Newgate Apts – See Cover
Sept 13	Colorado Challenge Cup*	Matt Sheldon	Open Class
October 6	RMSA Meeting		Newgate Apts – See Cover
October 11	Open*	Bob Rice	
October 25	Fun Fly	Bob Douglas / Jim Monaco	1st Annual PRO/AM
November 3	RMSA Meeting		Newgate Apts – See Cover
November 8	RES	Bob Douglas	Restricted to Rudder/Elevator/Spoiler controls only.
December 6	Awards Banquet		Annual RMSA Family Banquet with Awards – location TBD

* Indicates contest included in club Open Championship points

** Indicates contest included in club HLG Championship points

Shaded events are historical

1998 Board Members

President:			
VicePresident:	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

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

Winch Masters

Bob Rice	(303) 745-5629	bobr@tobindatag.com
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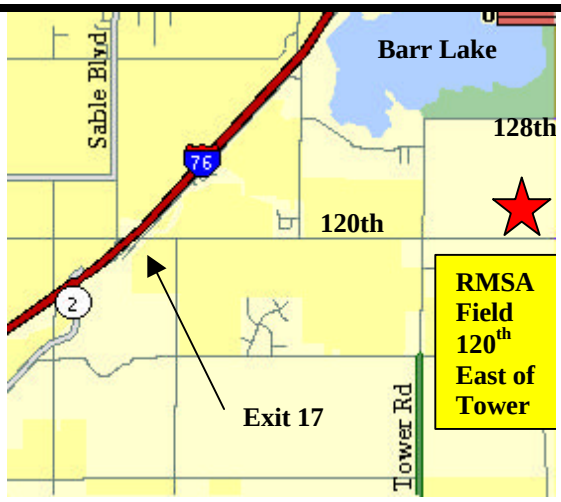
Shannon Bingham		binghams@boulder.earth net.com
Gary Lewan	(303) 277-1375	



Directions to Field

Take I-76 to exit 17. Take 120th 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