



Thermals

Newsletter of the Rocky Mountain Soaring Association

March 2003

AMA Chartered Club 1245

Volume XXVII Number

President's Message

Well April is here and March has gone out like a lion but the soaring has been great and we are now in our contest season and everyone seems ready for the new year.

The first thing I need to address is something rather serious and that is, WE NEED someone to step up to be a winch master as we have one that may not be brought to the contests because two of our winch masters cannot make the contests. For those of you that have said that there is never a club winch at the field for sport flying well this is your chance to step or forever hold your peace because you now have the chance to be a winch master. So I have a great idea the next person to complain to me or any other member about not having a club winch to sport fly with at the field just became an automatic winch master....unless we get some people to step up to be winch masters we are going to have a lot of trouble at the contests getting all the rounds in because we will only have three or four winches there. Seriously we will be discussing new methods for having winchmasters at the next meeting. We will discuss options that include making being a winchmaster part of the duties of being a contest flyer. We could assign winchmasters on a yearly rotating basis to active flyers. We have tried to make it easier for the winchmasters by having random assignments for winch setup at the last two contests. This ensures that the winchmasters are not stuck setting up and tearing down at every contest. Jim Monaco keeps a record of who has set up the winches and selects people to set up the winches from the pool of those who have not done it. EVERY flyer will set up a winch this year. When everyone has done it – we start the rotation again.

Well since we had a snow day for our last meeting, the next meeting April we will be dealing with the two day contests at this meeting. Speaking of that we have had no one to step up to offer any help for the contests other than those that already have stepped up to help are already taped out due to time constraints in there life and doing what they can. If the RMSA is going to pull this off we are really going to need people step up to the plate. We really need to fill these remaining coordinator positions.

So any members that can step up and help even if you can just take one thing it will help, so really take a look at the list of what is needed for help and at least do one thing even if it a small thing it will help out so much. We all have jobs and a life away from the field and really need to have help or we will have to forget the two day contests and the USA team trial's, and I for one am not looking forward to telling others in the soaring community, yes we have a great field but no our members did not care enough to step up and help pull the contests off.

Sorry for the b.... session but I really needed to convey that we really do need the help of all the members that can help. This looks like a great year for us.....Enjoy.
See you at the field, *Dr. Dan*

Next Meeting:

Date/Time: April 1, 2003 – 7:00 PM

Location: Broomfield Advanced Chiropractic
26 Garden Ctr
Broomfield CO 80020-7012

Program: Planning for our Spring Soaring Festival and other events!

April 6th Open Contest CD Jim Barr

Entry Fee: \$5.00 (\$3.00 Jrs)
Registration: 8:30 AM DAYLIGHT SAVINGS TIME!!!!
Pilot's Meeting: 9:15 AM
First Flight: 9:30 AM

Current (2001) 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 9:00AM. If you are unable to attend please arrange to have your winch available

Tasks: Tasks will be man on man duration with times set according to conditions.

Landing: Regular AMA landing tapes will be used.

This is the day we switch to daylight savings time – so don't forget to reset your clocks on Saturday night. SPRING FORWARD!!! You will be an hour late if you don't!

April 27 F5J Contest – Lenny Keer, CD

Date: Sunday, April 27, 2003
Time: 8:30 registration, 9:00 pilots meeting
Type: Electric thermal soaring

Format: This will be a fun-fly type event. No entry fee, no awards.

Classes: Two classes will be flown. Pilots may enter one or both classes.
Sp400 Class – for stock speed 400 motors only and up to 8-cell battery.
7 cell/open Class – for any motor and cell count. (7-cell models limited to 7 cells)

Motor runs: Sp400 class will have 60-second motor run time.
7 cell models will have 40-second motor run time.
Open class models will have 20-second motor run time.

Task: The task is to climb to altitude in the allotted motor run time, and remain aloft for a total of 10 minutes. Each flight group will be scored together, man on man.

Landing: FAI landing tapes will be used, 5 points per meter.

March 9th Club Contest Report

March Blowout - Bob Pederson CD

We had excellent participation with 28 entries. It was windy to start the contest with gusts between 15-18 MPH. A few of the guys with built-up gliders decided to go home with whole airplanes after 2 rounds. Of course, the wind abated and the thermals started popping for the third round. You quit too soon guys! We flew 5 rounds of T1 Int'l duration with AMA landing tapes., 2 were 6 min duration and 3 were 8 min. We were off the field by 4:30. Most flight groups had 6 pilots so the competition was interesting.

There were bunches of landings out due to high wind, direction changes, rusty thumbs, etc. Flight times were generally close within groups except mine (I just gotta get that Escape finished). Some groups made their times and some fell out early. Thank goodness for Man-on-Man scoring. There were a good number of pop-offs that were largely but not entirely due to the wind. Again, this may have been due to rusty thumbs. New lines were put on the winches and the winch masters had already installed the new motors. Thanks go out to the winch masters for having the winches ready and to Jim Monaco for score keeping.

Jim Monaco surprised the multitudes by selecting 6 Winchmasters for a day. The WFAD's were randomly selected and were responsible for setting up and tearing down one winch. The process seemed to work very well and relieved the regular winch masters of an onerous duty. I would like to make one suggestion and that is to have the CD assign one person to personally check all winches and turnarounds for security and alignment before the contest is started. We had a problem with a few winches not being accurately aligned which caused some vicious snarls in the spools.

Jon Padilla, I believe, suffered RF interference due to a turn-on in the pits. He recovered at a very low altitude and did not incur any damage. Let's pay attention to those transmitters and frequency pins out there folks. Final results are posted below:

Class	Name	Place by Class	RD 1	RD 2	RD 3	RD 4	RD 5	Total	Norm by Class	Norm by Contest	Place by Contest
M	Masters										
M	Skip Miller	1	964	976	1000	1000	1000	4940	1000	1000	1
M	Don Ingram	2	956	1000	996	979	1000	4931	998	998	2
M	Dr. Dan	3	907	1000	1000	954	936	4796	971	971	3
M	Bob Moffett	4	964	983	1000	1000	673	4620	935	935	4
M	Charlie Miller	5	879	1000	967	1000	759	4605	932	932	5
M	Jon Padilla	6	1000	746	832	1000	1000	4578	927	927	6
M	Ali Ghaffari	7	1000	980	993	636	920	4529	917	917	7
M	Jack Zika	8	788	927	947	1000	811	4474	906	906	8
M	Lenny Keer	9	1000	995	971	467	976	4408	892	892	9
M	Jim Monaco	10	747	993	651	989	974	4354	881	881	10
M	Tom Gressman	11	885	644	1000	982	827	4338	878	878	11
M	Mark Howard	12	1000	963	964	431	886	4244	859	859	12
M	Rich O'Connell	13	1000	998	666	543	1000	4206	851	851	13
M	Byron Blakeslee	14	752	741	963	877	873	4206	851	851	14
M	Bob Avery	15	876	915	984	424	1000	4199	850	850	15
M	Joseph Newcomb	16	847	901	997	531	884	4160	842	842	16
M	Mike Verzuh	17	973	960	972	270	947	4123	835	835	18
M	Bob Johnston	18	881	1000	824	576	796	4077	825	825	19
M	Bob Lewan	19	599	840	1000	660	844	3943	798	798	20
M	Shannon Bingham	20	756	1000	960	417	792	3924	794	794	21
M	Bob Pederson	21	682	506	301	686	789	2963	600	600	23
M	Phil Jones	22			977	989	900	2867	580	580	24
M	Chris Keller	23	558	358	547	426	524	2413	488	488	25
M	Bob Vixie	24	762					762	154	154	26
M	Bob Rice	25	205	222				427	86	86	28
S	Sportsman										
S	Wayne Hollenbeck	1	767	738	972	905	769	4152	1000	841	17
S	John Luetke	2	784	567	965	548	873	3737	900	757	22
N	Novice										
N	Danny Dermer	1	201	174	204	55		634	1000	128	27

5th Annual Pro/Am Contest Report

Jim Monaco

After being postponed from the first week of March (always a questionable time of year) we managed to get the Pro/Am in. As usual we ran an open winch contest with a set window of time to make your flights. This year however we set up two of the winches with the club Rahm Retrievers. I have been working on the retrievers for the last few months and believe I have a setup that works pretty good. See the other article in the newsletter for details of the retriever setup. Suffice it to say that the retrievers ran much better than they ever have and everyone thought the test was successful. A sort training session before the start of the contest got everyone up to speed on using the retrievers and most everyone got used to using them.

We split the attendees into two groups, Pro and Am. Since we had a couple more Master flyers than Amateurs, I chose to pick the newest Master flyer (Joseph Newcomb) and Bob Johnston to fly in the Am class to make the numbers balance. This wound up being an interesting choice.

We managed to get in 6 rounds of flying, in a nice relaxed environment. I had plenty of feedback again that everyone had a good time and the Amateurs learned a lot working with the Pros. The day was pretty free from carnage, with the exception of Tony O'Hara's bird which was damaged in an accident. With the contest format also allowing practice flights after the counting flight and since the retrievers were working well, many people got several practice flights in – in addition to their contest rounds!

The air was fairly difficult with an overcast and some wind around. If you launched at the wrong time – there were plenty of dragons to kill your flight. We had to change the winches once – but that went quite quickly with lots of help – and we were flying again in no-time. Tom Gressman came a little late, but his assigned partner (Tony) had broken his plane, so Tom chose to fun fly for the day – thus the zero scores below.

At the end of the day, the High Pro and the High Am were on the same team (Coincidence??? I think not... ☺). I was fortunate to get paired up with Joseph Newcomb and he flew a great contest and carried me to a team win. His score was the highest of all flyers for the day!! Interestingly, the second high score for the day was flown by Bob Johnston. So the two flyers I picked to be amateurs wound up being the two high scores. I can really pick 'em. The rest of the scores follow below. See ya next year.

Jim

Name	RD 1	RD 2	RD 3	RD 4	RD 5	RD 6	Total		Team Total	Place by Contest
Masters										
C - Joseph Newcomb	443	417	572	504	508	513	2957		5721	1
C - Jim Monaco	430	415	427	498	499	495	2764			
A - Jim Newcomb	290	444	484	477	330	506	2531		5279	2
A - Bob Lewan	437	510	566	241	476	518	2748			
G - Byron Blakeslee	341	300	243	507	471	488	2350		5058	3
G - Chuck Stasek	434	460	470	326	507	511	2708			
F - Bob Johnston	369	484	561	471	499	497	2881		5039	4
F - Jack Zika	321	500	246	236	374	481	2158			
E - Bill Moxon	227	187	480	351	409	231	1885		4566	5
E - Dr. Dan	444	513	361	514	339	510	2681			
H - Ryan O'Hara	440	203	247	248	282	324	1744		4503	6
H - Mike Verzuh	387	300	557	507	497	511	2759			
D - Don Ingram	457	505	381	357	505	511	2716		3900	7
D - Steve Suntken	339	161	110	235	143	196	1184			
I - Bob Moffett	273	469	185				927		2812	8
I - Bill Moxon	227	187	480	351	409	231	1885			
B - Tony O'Hara	117	144	233				494		494	9
B - Tom Gressman										

Treasurer's Report – John Pearson

After all known bills are paid – including the new winch motors the treasury is in the following good state:

Savings.....\$672.94
 Checking..... \$822.79
 Cash.....\$106.47

 Total.....\$1109.81

For Sale

1. **One pair of RES bagged wings for the Nesail Victory.** Airfoil: SD7037 wingspan: 121" Paid: \$325 Sell: \$100 **Wings Only**
John Pearson 303 306 6800
john@pearsonandpearson.com

1. **Emerald** – Some battle scars but in pretty good condition. Freshly painted fuselage. Built-up rudder installed (original molded rudder comes with it). 2 HS-85BB servos on ailerons. 2 HS225BBMG servos on Flaps. 2-HS85BB for rudder elevator. No receiver or battery. **\$450**
Jim Monaco JimMonaco@Earthlink.net (303) 464-9895

1. **Jaro Mueller Ellipse-4**, Excellent condition, Yellow top-Red bottom. Completely built with JR/New Airtronics connectors. No radio components, install your gear and fly. Can provide Stylus program if desired. **\$850.00 OBO**
rlewan@earthlink.net

1. **Emerald** - No batteries or receiver. Volz Micro Maxx X servos(6) Soars Great, Lands Great, **\$350**
2. **Risk HLG** - No receiver. w/battery pack 2 Hitec HS55 in wing No servos in fuse' **\$65**
Chuck Stasek (303) 530 9373 cstasek@attbi.com

1. **Spiro F5B from ShredAir fully loaded.** 70" span, hollow molded ship. Plane hasn't been crashed, but does have some dings, scratches, and minor repairs. It is structurally fine. Would make a good entry level F5B ship or hotliner. Included is an Aveox F12 brushless motor, Aveox speed controller, RFM folding prop and spinner, three installed servos, Airtronics receiver and receiver battery. Just add your crystal and a 10 cell motor battery and you're flying. **\$600**
Lenny Keer lenny970@AOL.com (970) 352-1194

1. **ASW-20 ¼ Scale 165" span.** Built by Ray Marvin. Needs finishing – Obechi over foam **\$600**
2. **Zumma Classic Molded RES from R&R – No Servos \$250**
Dr. Danny Williams DrDanDC@Juno.com (303) 903-2291

E-Soaring – Lenny Keer

SP 400 F5J Revisited

It's been about a year since I detailed the setup I was using for the SP400 class of F5J. A few things have changed since then, and I thought it was time to have another look at it.

In F5J SP400 class competition, the pilot is allowed 60 seconds to climb as high as possible, and then must complete a 9 minute thermal task and spot landing. To maximize the climb, it is necessary to extract as much power as possible from the power system.

The power system that I had been using, and still recommend is:

- 6V SP400 motor
- MP Jet 3.3:1 gearbox
- Graupner 13x7 prop

This system will provide a climb to about 1000 feet in 60 seconds when mounted in an appropriate sailplane. I have recently converted an old HLG sailplane into an electric and I'm currently flying that for competition. This particular model has a shorter nose, with insufficient clearance for a 13" prop. I now have a new power system based on an 11" prop that is working well.

- Rocket SP400 motor
- MP Jet 3.8:1 gearbox
- Graupner 11x8

While both systems are working well and will be competitive, the original system should theoretically offer slightly better performance due to the larger and more efficient prop.

There have been some new developments in batteries too. The battery of choice has been an 8 cell pack of Sanyo 600AE nicad cells. Nickel Metal Hydride cells have been improving, and now there is a new cell available that is a good replacement for the 600AE. The KAN 950 Nimh cell at least matches the power of the 600AE and offers more capacity. These cells work best if flown right after charging. Two vendors that carry these new cells are Diversity (www.flydma.com) and Eflightpacks (www.eflightpacks.com).

As far as airplanes, you can still be competitive with a 60" to 70" plane under 24 ounces. Converted HLG's work well and that's what I'm flying. Spoilers or flaps are handy, but not necessary. The Omega, Electron 400, or Sandy from Northeast Sailplanes, the Prima, Tango, or Trendy from AeroModel, or the Cumulus or Skimmer 400 from Hobby Lobby are good examples. Recently, the trend has been toward slightly larger, more efficient SP400 sailplanes. The larger size is more efficient in the glide, but must be built very light to keep the weight down in order to climb well. These models tend to have wingspans about 2 meters and feature composite, open structure construction. Some examples of this type are the Pulsar from Starflight, the Wind Dancer from Polecat Aero, and the Renny 2ME from Northeast Sailplanes. These models may very well represent the future of SP400 F5J competition.

Looking for a new charger? For most flyers I would recommend the new Schulze 6-330. This versatile unit will charge and discharge up to 30 cells and up to 5 amps. It also has a second charge output to charge your receiver pack at the same time. This charger is fully "plug and play" with charge rates determined by its computer and varied throughout the charge cycle for optimum performance. R/C Direct and Icare carry this charger for about \$160.

As always, I'd be glad to offer any assistance I can in optimizing electric sailplanes.

Lenny Keer, Lenny970@AOL.com

Spring Soaring Festival Coordinators

Following is the list of current volunteers and positions still needing to be filled: (To save space duties for filled positions has been omitted!

Filled Positions	Unfilled Positions
<p>Scoring Coordinator - Jim Monaco</p> <p>Landing Area Coordinator - Tony O'Hara</p> <p>Concessions/Food Coordinator - Mike Verzuh</p> <p>Sod Farm Coordinator - Dr. Dan / Mark Howard</p> <p>Registration Coordinator - Mark Howard</p> <p>Awards Coordinator - Dr. Dan</p> <p>Website Coordinator - Jim Monaco</p>	<p>Equipment Coordinator - ????</p> <ul style="list-style-type: none"> • Locate winch and retriever equipment (4 winches and retrievers) • Arrange for loading new line for all equipment prior to contest day • Arrange proper retriever harnesses • Arrange transport of equipment to contest • Arrange Setup/Teardown of equipment (daily) • Schedule volunteers to operate the winches daily • Train retriever operators <p>Impound Coordinator - ????</p> <ul style="list-style-type: none"> • Arrange site logistics (tables/tents/etc.) • Schedule volunteers to man ingoing and outgoing impound daily • Train impound volunteers on proper procedures (frequency control) <p>Site Maintenance Coordinator - ????</p> <ul style="list-style-type: none"> • Arrange for porta-pottie delivery and pickup • Arrange for PA system (John Pearson has equipment) • Arrange for trash cans • Arrange for collection and disposal of trash after the contest • Arrange signage for parking, directions etc. <p>Shirt Coordinator - ????</p> <ul style="list-style-type: none"> • Create commemorative shirt design • Arrange for printing and pickup of ordered shirts • Arrange for distribution of shirts at the contest <p>Sponsor/Raffle Coordinator - Dr. Dan AND...</p> <ul style="list-style-type: none"> • Contact sponsors for donations • Arrange sponsor promotions • Arrange and conduct raffle <p>Accommodations Coordinator - ????</p> <ul style="list-style-type: none"> • Research and create information about camping options (Barr Lake, On-site etc) • Arrange local hotel group rates • Create local attractions information for family activities <p>Daily Operations Coordinator - ????</p> <ul style="list-style-type: none"> • Arrange Call-up announcers • Arrange winch assigners

Club Retriever Setup – Jim Monaco

Over the last six months I have been playing with the club retrievers trying to get a setup that works reliably. Since I have been with the club in 1996 I have not seen the retrievers used successfully. The first thing I wanted to address was that the retrievers were intended to run on 6 volt batteries. Although these are actually 12 volt starter motors just like the winch motors, they were run on 6 volts to keep the speed down. The problems are: a) the 6v batteries are difficult to come by, b) they require a separate charger and maintenance, c) when they run down there are no available batteries to substitute. I decided that it would be much better if we could run these from normal 12v batteries. In fact – during our noontime flying sessions – we only use one battery for both the winch and the retriever. For a lot of use though we do need separate batteries. Not being a EE, some of my attempts are crude and I would welcome any help or better ideas – but they seem to work well now. I tried several ways to slow the motors down. First we measured the current draw and were looking at 200 to 250 amps under load. That is a lot of power and it limits some of the options.

My first thought was that all we really needed was a speed controller – and that this should not be very different from our normal R/C controllers. I did some research on the web and found that: a) commercial controllers that handle this much amperage were available as they were designed for the War Bots, but were quite expensive – over \$200, b) Chips for motor controls were available but had a number of design deficiencies for this much current, c) It was going to take a LOT of FET transistors to handle the current demands, (btw Bob Vixie donated a bunch of FETS to the testing cause but I have not used them yet) d) I had no idea what I was getting myself into... So this idea is on hold unless I can get someone a bunch smarter than me to help design this thing. As an aside, I believe that the same circuit could be used as a winch controller to limit the power for launching built-up ships and training beginners on using the winch.

So alternate plan B was put into action. Ira Faberman found a couple of BFD (Big Fat Diodes) in the surplus store and offered that they might do the trick. Each BFD had 2 diodes, so hooking them up in series was a 4 diode drop. This seemed to be just about right. The speed was fast but controllable. We used heat sink compound and attached them to the frame to dissipate the heat from the drop. This worked very well. We had been using this setup for months at our noon flying field with no real problems. When we used this setup at the sod farm we did discover a little problem. The sod provided a lot more drag on the line coming back than the dirt at our noon field did. This exposed the issue that part of our voltage drop came from the heating of the wire that connected the 2 diode packs. We really smoked that wire during a couple of retrieves. We bypassed one diode set (and the connecting wire) at the field and that seemed to be just as good and only a little faster. I will be putting a much bigger wire on that connection. So this setup works – but the BFDs are about \$20 each – and \$40 per retriever was a little more than we wanted to spend. Soooo.

Alternate Plan C was attempted. Someone on the internet used a piece of stainless steel strap to control the power of a winch. I tried this approach and found that the SS got HOT – REALLY HOT – dangerously hot! This approach was out.

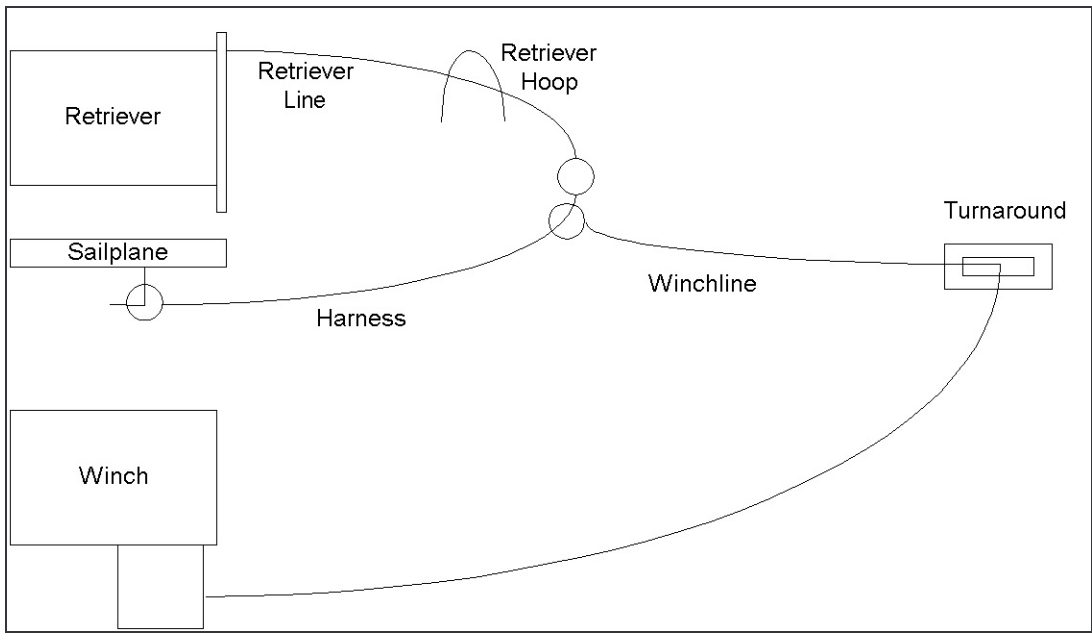
Alternate plan D was attempted. I took a bunch of 12ga wire and wrapped 25 feet around a 2” copper pipe to make a resistor where the copper pipe was used as a heat sink. I also bought a cheaper jumper cable for the connection, using only 10ga wire. Based on my calculations the total drop from both the jumper connections and the home made resistor should have given me about a 5v drop under load and not get too hot. It worked too well. At times the line would barely come back. So I took off 12 feet of wire and tried again. Woo Hoo – this worked really well. The wires get hot, but not too hot to touch, so there is no burn danger or danger of setting the field on fire. The resistor is on the ground side of the circuit so there is no danger of shorting it and arcing accidentally. I mounted the pipe to the base of the retriever – and thought it looks hokey, it works well and is inexpensive.

So with the electrical issues under control I addressed the setup issues. The first problem was that as the line spooled off of the reel it tended to whip into the ground, often causing drag and sometimes pulling a big hunk of line off that resulted in a big tangle. I screwed a 2x4 into the bottom front of the base so that the retriever angled up, and this worked very well. It would still be better to have the retrievers set up off the ground, but then we have to cart around some kind of stand – and figure a good way to anchor it.

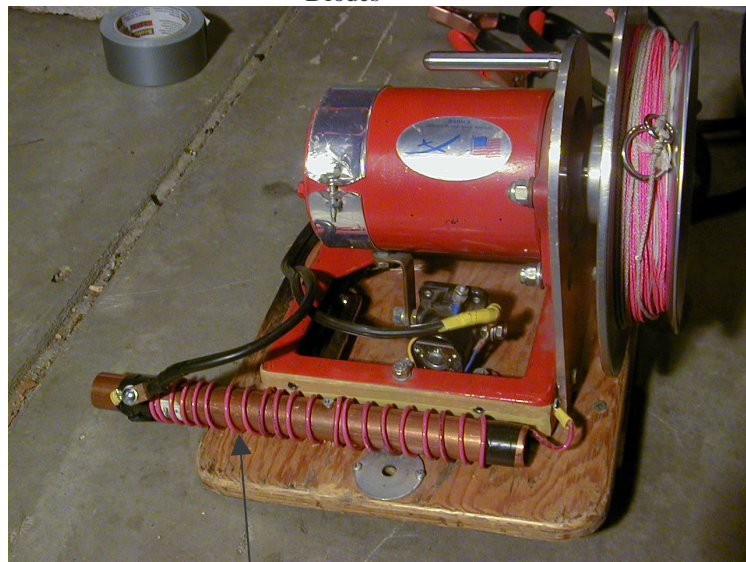
Next was the harness setup. In the past we had several problems. First was that the Rahm retrievers have small reels and tend to put a lot of twist in the line as it retrieved. Second was we needed a means to attach the retriever line such that the retriever harness did not slide and contact the airplane. The harness idea came from an article in RCSD magazine and was adapted to our use. The solution to the line twist was several ball bearing swivels. We needed swivels on both the retriever line AND the winch line. Two swivels were placed back to back in each line. This gave minimum twist in the line. For the harness I used a normal piece of winch line with a ring on each end. One end of the harness is attached to the retriever line, the other end is the launch ring. There is a third ring that slides up and down the harness. The winch line is attached to this sliding ring. With this setup, in launch position the harness launch ring is attached to the airplane. The sliding winch ring is pulled away from the airplane and stops at the ring that is attached to the retriever. This keeps the retriever line and hardware away from the plane during launch. When the plane comes off of the line and the retriever starts to pull, the winch ring slides down the harness line toward the launch ring. When it stops at the launch ring tension builds on the winch line and the retriever pulls the line back. When the line is completely back the next flyer goes to the end of the harness nearest to the turnaround where the 2 rings are together and pulls on the launch ring end of the harness which slides the winch line ring back down to the retriever end - and is ready to launch again.

On the retriever we have 1 piece of pink winch line on each end of the line. The innermost piece is used as an end of line indicator. If the retriever operator sees this pink line start to come off he warns the flyer that he is reaching the end of the line – and the flyer should get off soon. The piece on the winch end of the line is used as a marker for the operator that the line is fully retrieved. I have the length set so that when the start of the pink line arrives at the takeup reel on the retriever, the operator simply lets go of the button and the retriever will stop with the launch hardware in the proper position for the next launch. This makes it easy for the operator to know when to stop retrieving.

So this setup works very well – the speed controller would be the best solution, but probably pretty expensive to implement. I will be refitting all the retrievers with this setup for the Spring Soaring Festival. Following below are some diagrams and pictures of the setup.



Diodes



Resistor 8

2003 RMSA Contest/Event Calendar

Date	Event	CD	Notes
Jan 7	RMSA Meeting		
Jan 25	<i>Open Event (PPSS)</i>	<i>Joel Zellmer</i>	<i>Fun Fly</i>
Feb 1-2	SWC		<i>Phoenix SouthWest Classic</i>
Feb 4	RMSA Meeting		
Feb 23	<i>Open event (PPSS)</i>	<i>Steve Bygren</i>	<i>Snow Fly</i>
Mar 2	Pro-Am	Jim Monaco	Sixth annual Pro-Am
Mar 4	RMSA Meeting		
Mar 9	Open*	Bob Pederson	March Blowout
Mar 22	<i>Open event (PPSS)</i>	<i>Larry Laughlin</i>	<i>March Madness</i>
Apr 1	RMSA Meeting		
Apr 5	<i>RES event (PPSS)</i>	<i>Rich O'Connell</i>	<i>REServe</i>
Apr 6	Open*	Jim Barr	Spring Thermals
Apr 27	F5J	Lenny Keer	
Apr 27	<i>Open event (PPSS)</i>	<i>Rich O'Connell</i>	<i>Humps and Bumps</i>
May 4	Open*	Don Ingram/Bob Johnston	Spring Fling
May 6	RMSA Meeting		
May 17	<i>Open event (PPSS)</i>	<i>Austin Cleis</i>	<i>May Fly</i>
May 18	HLG**	John Kappus	
May 24, 25	<i>Spring Soaring Festival*</i>	<i>Mark Howard</i>	<i>Special National Event-- click date for more info</i>
May 31	F5J	Lenny Keer	
June 1	Open**	Bob Moffett	Summer Fun
June 3	RMSA Meeting		
June 7&8	F5B!	Lenny Keer	National Level Contest
June 7-8	IHLG		
June 14	<i>Electric event (PPSS)</i>	<i>Jack Dech</i>	<i>Watts of Fun</i>
June 22	HLG**	Jim Newcomb	
June 22	<i>Open event (PPSS)</i>	<i>Chris Keller</i>	<i>Summer Solstice</i>
June 28-29	<i>F3J in the Rockies*</i>	<i>Mark Howard</i>	<i>Two Day National Event – click date for more info</i>
July 1	RMSA Meeting		
July 12	<i>RE event (PPSS)</i>	<i>Dave Kurth</i>	<i>Memorial</i>
July 13	Open*	Jim Monaco	Firecracker Open
July 19	<i>Open event (PPSS)</i>	<i>Bob Avery</i>	<i>Height of Season</i>
July 20	HLG**	Dr. Dan	
July 26/27	F5J	Lenny Keer	Electric event – click date for more info
Aug 2	<i>Open event (PPSS)</i>	<i>Greg Tarcza</i>	<i>Howling Coyote (Night Fly)</i>
Aug 3	F5J	Shannon Bingham	
Aug 5	RMSA Meeting		
Aug 10	Open*	Bob Johnston/Don Ingram	Hotter than Snot
Aug 24	HLG**	John Kappus	
Aug 24	<i>Open event (PPSS)</i>	<i>Dave Meyers</i>	<i>Dog Daze</i>
Aug 30-Sept 1	F3J Team Selections		TENTATIVE
Sept 2	RMSA Meeting		
Sept 7	Open*	Bob Rice	AKA: Colorado Challenge Cup
Sept 20	<i>Open event (PPSS)</i>	<i>Barry Welsh</i>	<i>Soar Bash</i>
Sept 21	HLG**	John Kappus	
Oct 4-5	VISALIA		
Oct 4	<i>HL event (PPSS)</i>	<i>Bob Vixie</i>	<i>Toss Up</i>
Oct 7	RMSA Meeting		
Oct 12	Open*	Shannon Bingham	Falling Leaves Open
Oct 18	<i>RES event (PPSS)</i>	<i>Jack Dech</i>	<i>RESpite</i>
Oct 26-27	F5J		<i>Phoenix National Competition</i>
Oct 26	<i>HL event (PPSS)</i>	<i>Mike Fritz</i>	<i>Witches Brew</i>
Nov 4	RMSA Meeting		
Nov 23	<i>Open event (PPSS)</i>	<i>John Read</i>	<i>Turkey Shoot</i>
Nov 9	Open*	Jim Monaco	Last Chance Thermals
Dec 6	? (PPSS)	<i>John Read</i>	<i>Barn Fly</i>
Dec 7	Awards Banquet		

*Club Open points contest **Club HLG points contest

Italics indicates non-RMSA events



2003 Board Members

President:	Dr. Danny Williams	(303) 903-2291	drdandc@juno.com
Vice President:	Mark Howard	(303) 278-7519	Mhoward@spaceimaging.com
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<http://rmsa.homestead.com>
Chief

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Phil Jones	(720) 488-2854	philip.jones@galileo.com



Directions to Field

Take I-76 to exit 16. Turn left and follow the frontage road to the stoplight and turn east onto 120th eastbound towards the airport. 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.



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Forwarding Address Requested

First Class Mail