THE MAX-OUT

Newsletter of the Magnificent Mountain Men

AMA CHARTERED CLUB #177

Issue 2024-04
(July-Aug)

Who else but Bernie would show up with an actual, no-foolin' outdoor rocking chair, complete with gas shock motion control!

In this Issue

Upcoming Events

Rocky Mountain Free Flight Championship	30 Aug-2 Sep	Don DeLoach Chuck Etherington
September Scramble	22 Sep	Frank Menanno
October Scramble	13 Oct	Jerry Murphy
November Scramble (Frito Pie)	3 Nov	Darold Jones

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The President's Corner

By Pete McQuade

June and July were one of those times when life underscores the age-old lesson: enjoy every moment today, for tomorrow might be too late. And, for the same reason, if you know someone who needs encouragement, a kind word, or a pat on the back—don't hesitate.

On Saturday, June 22, the MMM joined Chuck Etherington and his friends and extended family in celebrating the life of Chuck's beloved wife, **Sue Etherington**, who had passed away back in September. It was a beautiful event, held at the Pikes Peak Grange in Franktown, CO—site of recent MMM Annual Meetings. The place was packed with folks who were unanimous in their praise for this very special woman who epitomized warmth and grace and who made a friend of nearly every person she ever met. Thanks for touching all of our lives, Sue!

Sadly, June also brought the sad news of **Rob Romash**'s unexpected passing. Rob was a giant in every good way—Santa's biggest elf, in Rob's own words. His skills and creativity were phenomenal, and his willingness to share with and mentor young people made him a real-life, beneficent Pied Piper. His Celebration of Life ceremony was held the day after Sue Etherington's, and Rob's event, too, was packed. People traveled from out of state to be there. Rob is that much of a legend. The MMM's thoughts and prayers go out to Rob's wife, Nida, in this time of sadness and remembrance.

Around the same time, we also learned of some bittersweet news about **Jace Pivonka**. The bright, ever-cheerful F1B ace has taken an engineering job offer out of state—at Micron Technology, Inc. in Boise Idaho. We're all thrilled for Jace at this wonderful opportunity. But we're sad at losing his leadership and always-positive presence, as well as his demonstrations of great flying. Best of luck, Jace! Stay in touch. Wherever life takes you, you'll be a Magnificent Mountain Man forever!

July's 14-Rounder was a good contest, even if participation was down this year, due to schedule conflicts on the part of some of our regular contestants. And boy, that new permanent shelter on the flying field is a beauty! It made everything much easier. Details about the contest appear elsewhere in this issue of the MaxOut. Of course, the biggest news from the 14R was the retrieval-bike accident that seriously injured **Frank Menanno** and landed him in the hospital for several days. Nevertheless, Frank rebounded quickly and was out flying models at home soon after his release from the hospital. No doubt about it, Frank is Ironman!

To round things out, things went very well for MMMers **Tom Norell** and **Sean McEntee** at the Indoor Nats at the Kibbie Dome in Moscow, Idaho. Then, at the Outdoor Nats in Muncie, **Don and Skilly DeLoach** showed how it's done, along with **Jerry Murphy** and **Darold Jones**. Skilly garnered her fifth consecutive win in Mulvihill, this time as a Senior. She even won OT Catapult Glider! **Bernie Olson** was also at the Nats, flying RC sailplanes. Bernie's one of the most accomplished, versatile engineers and modelers I've ever had the pleasure of knowing. And his contributions to the 14-Rounder were tremendous.

Enough of looking at the past! It's time to get ready for the Scramble on August 18 and then the Rocky Mountain Champs over the Labor Day weekend. Hey, let's go flying! And don't forget—someone you know needs a kind word or a pat on the back today. Don't hesitate!

Frank went flying.

The 45th Annual MMM 14-Round Contest
Denver, July 13-14, 2024

By Pete McQuade and John McGrath, CDs

The forecast for the weekend of the 14-Rounder was both exciting and ominous: clear skies, moderate winds, and temperatures around 100 degrees. We were all grateful that the MMM "construction crew" had erected our new permanent sun shelter the previous weekend. Frank Menanno and Chuck Etherington led a large and stalwart team in that Herculean effort, and it really paid off, taking the edge off the heat.

Bernard Guest, Blake Jensen, Tiffaney O'Dell

Chris Adams

Attendance was down somewhat this year, but we had the pleasure of several notable out-of-towners, including Canadian Bernard Guest, a current resident of Alaska (and operator of Hummingbird Models), Jim and Joe Farmer from Arizona, the always-reliable Jack Murphy from Utah, and the very popular team of Blake Jensen and Tiffaney O'Dell from Oregon. By a strange coincidence, our F1B ace, Jace Pivonka, wasn't on the field to challenge Bernard and Blake, because he was in Oregon—of all places—competing in an Ultimate Frisbee competition.

Team Farmer gets an F1A airborne

Saturday morning greeted us with lighter winds than predicted, and after a short pilots' meeting, Round 1 got underway right on time at 8:00 am. The FAI fliers were right on it, but there was little activity in the AMA, NFFS, and SAM arena. The rising temperatures promised great lift, and soon the FAI maxes were rolling in.

It was great to have Chris Adams on the field. He'd made the long trek down from the Cheyenne, WY area to observe the rubber events and to help with timekeeping. Ray Boyd, Mark Covington, Don DeLoach, Bill and Karren Groman, Darold Jones, Bernie Olson, Rick Pangell, Ken Phair, and Len Sanders were also there, flying and/or helping. (I apologize to all those I haven't mentioned.)In Round 2, disaster struck when Frank Menanno took a bad spill off his motorcycle while retrieve a model. Fortunately, Chris Adams, who was timing for Frank, was aware that something was up when Frank

was late coming back. Despite having suffered a number of serious injuries, Frank summoned the strength to stand up, get the bike running, and ride back to the flight line. John McGrath then rushed Frank to Adventist Hospital in Parker, where the ER was waiting for him. Frank spent the next four days in the hospital. Visits from John, Chuck Etherington, and several other MMM members helped sustain Frank. True to his amazing physical and mental constitution, Frank began an amazing recovery. Shortly after being released to go home, he was out flying models near his home! There's just no stopping Frank Menanno!

Bill and Karren Groman.

(Wait, does everyone have gas-shock rocking chairs?)

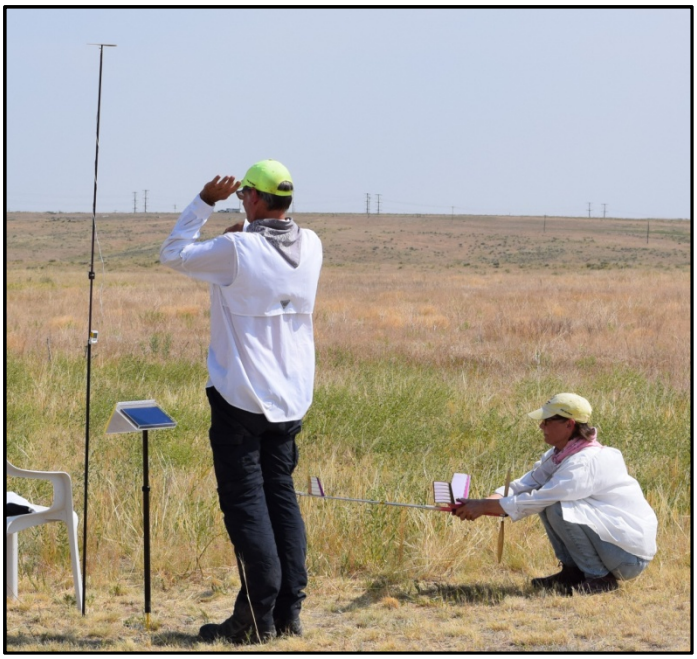
Jim Farmer's F1A on tow

The Editor's F1G

Mark Covington, who maxed out in CLG

The winds picked up in Round 3, with the result that we delayed the start of Round 4 until later in the day. We were finally able to hold that round before cancelling Rounds 5-7. Thus ended the FAI Centennial Cup contest. (See the results table below.) The flying was only marred by Tiffaney O'Dell's very long flight in F1G that took the model

well past County Line Road. Fortunately, Blake Jensen eventually brought back the wayward model, finally arriving back at the flight line shortly after sunset.



Waiting for thermals…

No official flights had been made Saturday in the AMA/NFFS/SAM events, so the competitors in those events all agreed to combine the Saturday and Sunday events into a bigger contest on Sunday.

Day 2, Sunday, was one of those "cream puff" days you dream about: light winds, booming thermals, and 100-degree temperatures that don't feel at all oppressive. The flying was hot, too, as the results in the attached tables show.

The fellas: Chuck, Don, Mark

After Round 6, the FAI fliers agreed to call it quits, rather than fly Round 7, thus ending the Columbine Cup contest. A short while later, we held a brief awards ceremony, including the awarding of perpetual trophies for the FAI events. The grand finale was the Champagne Cork Flyoff between Bernard Guest (F1B) and Pete McQuade (F1A). After some mental circle-towing, Pete got a nice bunt and some help from the air to score 20 feet (*I say 50—JFM*). The crowd voted unanimously to award the unused bottle of Champagne to Frank Menanno, to enjoy after he got out of the hospital.

The trophy winners! Pete (F1A), Bernard (F1B), Jack (F1S and F1Q) and Tiffaney (F1G)

That's Pete's cork traveling at high speed toward what's got to be a record-setting distance. That was a launch!

Bernie Olson—grill chef-in-chief

Many thanks to Bernie Olson who, on short notice, bought all the food and fixings for the on-the-field barbecue, then proceeded to grill some incredible burgers, brats, Italian sausages, and chicken patties. Thanks also to Jeff Pakiz and Darold Jones, who helped with the cooking. An unexpected consequence of our new permanent shelter is the sun protection it provides for the grill chefs!

As usual, many thanks are due Chuck Etherington, who, as usual, did most of the hard labor behind this large contest. That included coordinating with Nick Trainor, the cattle-grazing lessee, servicing the "clubhouse," and hauling bulky items to and from the storage shed. In addition, he and Frank Menanno mowed the launching area—earning everyone's gratitude. Frank also helped bring heavy items from the shed on Saturday morning, before his accident.

On a final note, we CDs thank Chuck Etherington for letting Pete use his riding mower to clear out a large area for the F1A fliers. It transformed the usual "towline slog" through thigh-high weeds, yuccas, and unseen prairied-dog holes and made it a "tow in the park."

Another important thank you: Marilyn McQuade. Marilyn and Pete together worked diligently throughout the contest to ensure scores were accurately transcribed and calculated.

Ken Phair preparing his Vintage FAI Power model

Bernard breaks camp

45th MMM 14-Rounder Results

F1A Centennial Cup (Saturday)		
Contestant	Score	Place
Pete McQuade	519	1
Jim Farmer	500	2
Joe Farmer	361	3

F1A Columbine Cup (Sunday)		
Contestant	Score	Place
Pete McQuade	789	1
Joe Farmer	153	2
Jim Farmer	94	3

F1A 14-Round Championships		
Contestant	Score	Place
Pete McQuade	1308	1
Jim Farmer	594	2
Joe Farmer	514	3

F1B Centennial Cup (Saturday)		
Contestant	Score	Place
Bernard Guest	720	1
Blake Jensen	650	2

F1B Columbine Cup (Sunday)		
Contestant	Score	Place
Blake Jensen	984	1
Bernard Guest	978	2

F1B 14-Round Championships		
Contestant	Score	Place
Bernard Guest	1698	1
Blake Jensen	1634	2

F1Q Centennial Cup (Saturday)		
Contestant	Score	Place
Jack Murphy	711	1

F1Q Columbine Cup (Sunday)		
Contestant	Score	Place
Jack Murphy		

F1Q 14-Round Championships		
Contestant	Score	Place
Jack Murphy	711	1

F1G Centennial Cup (Saturday)		
Contestant	Score	Place
Tiffaney O'Dell	480	1
John McGrath	464	2
Darold Jones	35	3

F1G Columbine Cup (Sunday)		
Contestant	Score	Place
Tiffaney O'Dell	557	1
John McGrath	550	2
Darold Jones	169	3

F1G 10-Round Championships		
Contestant	Score	Place
Tiffaney O'Dell	1037	1
John McGrath	1014	2
Darold Jones	204	3

F1J Centennial Cup (Saturday)		
Contestant	Score	Place
Frank Menanno	29	1

F1J Columbine Cup (Sunday)		
Contestant	Score	Place
Frank Menanno		

F1J 10-Round Championships		
Contestant	Score	Place
Frank Menanno	29	1

F1S Centennial Cup (Saturday)		
Contestant	Score	Place
Jack Murphy	476	1
Frank Menanno	237	2
Rick Pangell	120	3
Jerry Murphy		

F1S Columbine Cup (Sunday)		
Contestant	Score	Place
Jack Murphy	475	1
Jerry Murphy	213	2
Rick Pangell	31	3
Frank Menanno		

F1S 10-Round Championships		
Contestant	Score	Place
Jack Murphy	951	1
Frank Menanno	237	2
Jerry Murphy	213	3
Rick Pangell	151	4

Catapult Glider		
Contestant	Score	Place
Mark Covington	270	1
Don DeLoach	258	2
Rick Pangell	69	3

E-36		
Contestant	Score	Place
Jack Murphy	360	1
Jerry Murphy	240	2
Rick Pangell	120	3

Andrade Rubber		
Contestant	Score	Place
Darold Jones	163	1

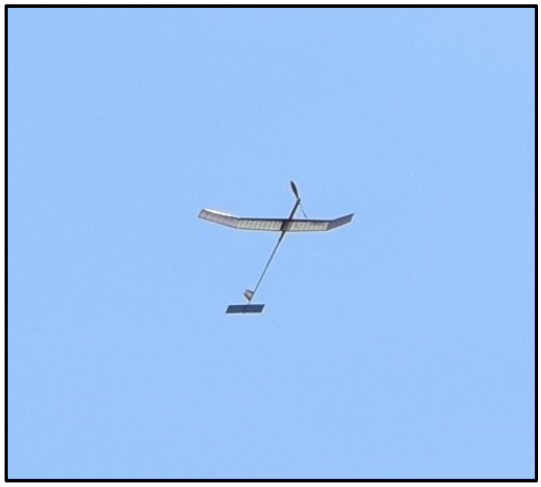
Hand Launched Glider		
Contestant	Score	Place
Don DeLoach	360	1

A/B Electric Combo		
Contestant	Score	Place
Jack Murphy (A)	348	1
Jerry Murphy (A)	120	2
Rick Pangell (A)	97	3
Jack Murphy (B)	344	

E-20		
Contestant	Score	Place
John McGrath	90	1

And the winner is…(Clockwise from left) Jack Murphy, F1S; Tiffaney O'Dell, F1G; Bernard Guest, F1B; Pete McQuade, F1A. Congratulations!

Article Photos: Pete McQuade, Tiffaney O'Dell, Bernie Olson, the Editor



Tiffaney's F1G

Home on the Range(s)

Chuck Etherington
Flying Site Coordinator, Field Maintenance

Gate (standard feature in this publication, it seems)
The main Lowry entrance gate off Quincy is no longer controlled by locks. It is just a chain, but for security, cameras are set up to capture who is coming and going. Among others, Nick (the rancher) has access to the camera footage. Hopefully, it has enough resolution to be able to make out license plates. While we were there working on the shelter project (more on that later) Nick was upset that someone left the gate open on the paved road between the main access gate and the hunt club. They were having an event, and it was most likely one of them, but we MUST keep the gates closed. If an internal gate is left open and your vehicle was the only one to use the main entrance during that period, you could find yourself herding up to 900 head of cattle back into the pasture they were supposed to be in. Don't turn the MMM club from a model lessee to a problem for the rancher and state land board.

Permanent CD shelter
After getting permission from the state land board, a 10'x20' metal carport was purchased last year and assembled this July. *(From the Editor: Chuck underdescribes the process. Due to deceptive box labeling, Chuck had to return hundreds of pounds of product multiple times before discovering with the help of Home Depot that shelters of two different sizes use the same boxing. Our thanks to Chuck for persisting in getting to the bottom of the mystery and enduring the related frustration.)*

The process was that Frank Menanno and I assembled the frame on a Sunday, then during the week 10 holes were drilled in the ground for wooden posts with a skid steer. Finally, an MMM volunteer crew finished the project the following Sunday. The posts were installed to anchor the shelter and bull-proof it (bulls tend to tear things up), but these 5" diameter posts will prevent that. Next time you're sitting under the shelter enjoying its benefits, give some thought to those who were willing to step up and help.

<u>Alphabetically:</u>
Bernie Olson
Bill Groman & Karren
Frank Menanno
Jay Strear
John McGrath
Ken Phair
Pete McQuade
The only challenges now are the cows who will love the shade and it will be an exercise in how many lying down cows can fit into the 10'x20' shade. A manure rake will, of course, be in order (I'll be bringing one to leave out there).

Clockwise from lower left:

Frank, Bernie and Pete fix the frame to a post. Expanding foam was used to fix the posts in the holes.

Bill and Karren pre-drill holes in the uprights.

Ken takes a rest after working with Chuck to cut the ten six-inch posts to size.

“Putting a lid on it”

Chuck puts the edge trim on while the rest of the crew eats watermelon provided by Ken.

June Scramble

Sean McEntee, CD

The June Scramble, held on the ninth, saw typical Colorado summer conditions: great weather in the morning, followed by stronger winds and thunderstorms in the afternoon. Six flyers competed, with many arriving to the field early to take advantage of the mild morning conditions.

The highlight of the day was Troy King's son, Eli, hooking his first thermal on a non-official flight with an E-36. I'm sure everyone can remember the first time that their model slipped the surly bonds of Earth…it was a magical moment indeed! Bernie Olson scored his first E-36 max, as did John McGrath with his E-20. John experienced ignition issues on his chase bike, and he retrieved on foot. It was a delight to watch him run around the field like kid we all are at heart!

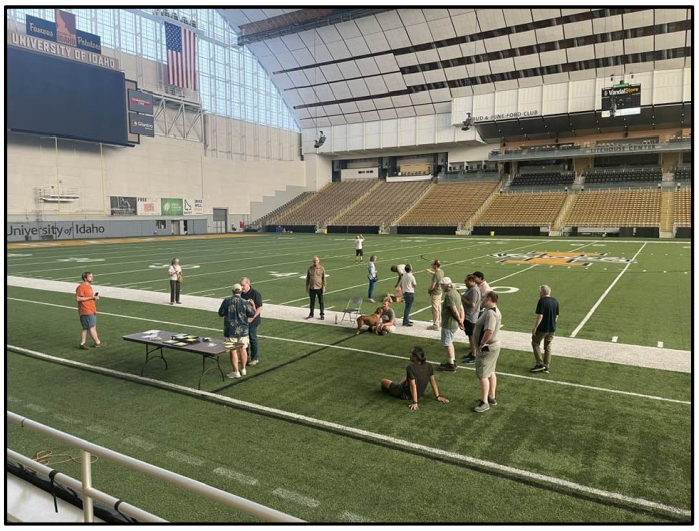
Sean McEntee continued the pursuit of a 1-minute Jet Cat flight and introduction into the coveted Sierra Hotel Club. Sean hooked a thermal with his A-10, but it spun out of the lift and crashed. It is repairable and should be back in one piece in time for the indoor Nats. Once the dust settled, Frank Menanno emerged victorious with a 2.81, followed by John McGrath's 2.77 and Bernie Olson's 2.55 Calculated Maxes. At the time of this writing, the 14-Rounder has passed, and the next field gathering will be the August Scramble. Be there or be square!

Indoor NATs report

Sean McEntee

Don Deloach has been telling me for years, "Dude, you gotta go to the Indoor NATs. The Kibby Dome is an amazing site, and you'll love it!" This year, my parenting schedule and school calendar permitted it. I built a couple gliders, loaded the car with my gear and my dog, Bella, and headed for Moscow, ID. The MMM NATs contingent consisted of myself, Mike Nelson, Tom Norell and David Aronstein. Mike and I hauled models and equipment for Tom and David, who flew to the event.

Monday through Wednesday saw David put up some outstanding flights with his Helicopter—one flight made it to the ceiling—and put up equally impressive flights with his ROG cabin to win both events. The ceiling gods were hard on David, snagging both his ROG cabin and intermediate stick models. Although his Cabin model was recovered without damage, his stick model was unfortunately destroyed in the recovery process. David also convincingly won Hand Launch Stick.



Gotta love a big room!

Tom earned a well-deserved second place in F1L. Tom also took a young modeler, Stephen Griggs, under his wing. Stephen's model box and its contents were heavily damaged by a careless TSA employee. Tom provided materials and mentorship and got Stephen flying again. Great job Tom!

Mike experienced some difficulties with higher torque loads on his F1M in practice but worked through the week and made quantifiable gains with each flight. My hand-launched glider was obliterated in impressive fashion on its first full-speed launch, due to insufficient construction. I switched gears to catapult events and, although I struggled with some wing flutter issued, put up flights in both standard and unlimited CLG, and placed fourth in each event.

Thursday and Friday were equally busy for the MMM group. Along with Hamish Christie from Tuscon, AZ, we were the only folks cool enough to

put up P-18 flights. Tom won with a mind-blowing 4:58 flight! Hamish followed for a close second, followed by Mike, David and Myself. Tom put up some good flights in Mini Stick, and Mike's hard work throughout the week paid off, and earned top honors in F1M. I placed a close second in F1N behind Ken Bauer, who flew impressively all week. FAC event scores are strangely absent from reports. Tom flew his gorgeous B.A.T WWI fighter in peanut, and both he and David put in some great flights with Pistachios. I was the lone entry in Nocal and battled one other entry in WWII Nocal Mass Launch for the top spot.

Big thanks go out to Tom, Mike and David for their help throughout the week. It was an absolute blast and I hope to go back next year!

Tom launches his BAT Monoplane

Indoor NATs report

Tom Norell

Once again, it was more of a respite from work rather than a full blown competition for me. Not sure if I even put up an official flight until Thursday, and even then it was a forced effort. But like they say, if it weren't for the last minute, nothing would ever get done. About 5PM Friday, two hours from the end of the contest week, things came together in P-18 and with the help of the rest of the team (Sean McEntee, Mike Nelson and Hamish Christie) I plunked down a 4:58.84 for the win. That single flight made the whole week worthwhile. (*I don't think we use the "r-word" with P-18, but I've never heard of a longer flight—Go Tom!!*)

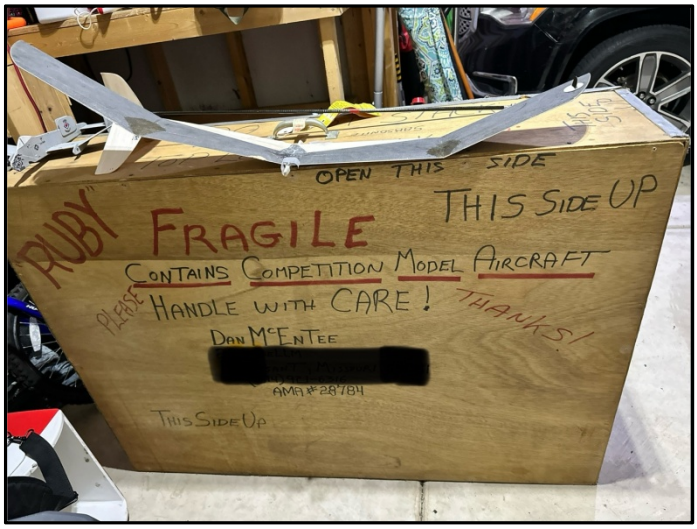
Hats off to Mike who won F1M and broke through the 3 minute barrier in P-18 by bouncing off the ceiling (150' +) then going dead stick. Sean schooled the class in NoCal and chased Ken Bauer and Ron Whittman in CLG and HLG. Both Mike and Sean already have plans in place to build new planes for next year and improve on their performances. However, the highlight of the week was the little lady that accompanied Sean. Only this time it wasn't the usual suspect, Clara, but a brown haired gal named Bella, his mild mannered Australian Bulldog. What a sweetheart! She was a bit timid at first, but warmed up to everyone by the end, and was a bit of therapy for all of us. I hope she becomes a regular at our indoor events.

David's winning helicopter

Bella advises Sean on proper launch technique. Or maybe lunch technique.

Stunt Box to become Indoor Box

Sean McEntee



Here is a neat piece of familial history. My dad built a CL Stunt model called "Ruby" for the 1989 Vintage Stunt Championships. Fairly small for a 35-size model, it was able to fit in a box that just fit the maximum dimensions for TWA's check luggage at the time. The box, made of ¼" Luan Plywood and 1x3 framework, has been resting in my parents' attic ever since. I brought it home from my last trip to St Louis, with plans to repurpose it for an indoor glider box. Sitting on top is my 42" span F1N and Jet Cat for size comparison. It won't take much cutting to get it small enough to hold about a dozen gliders. Even the original TWA baggage tags will be preserved!

(Sean, Rob would've fit 200 gliders in something that size!)

Norris Ranch Practice Session

Mark Covington, Frank Menanno, and the Editor had a great practice session out at Norris prior to the 14-Rounder. Frank was working on gas and E-20, I was getting an E-20 and my Andrade figured out, and Mark had intended to work on his F1H (or was it CLG?) but had unfortunately forgotten a key piece of gear.

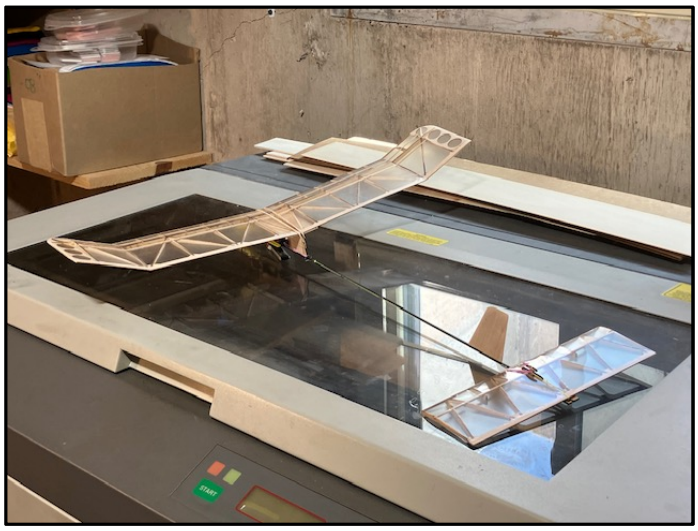
Frank's Vintage FAI Lucky Lindy

Mark, supervising the herd

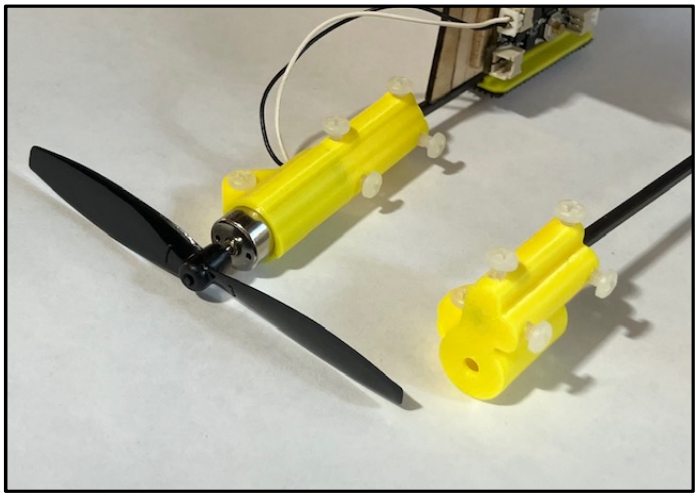
First flight using the Andrade stick (with Coupe wings and 20g of rubber!)

Projects and New Builds

John M's E-20 updates and improvements



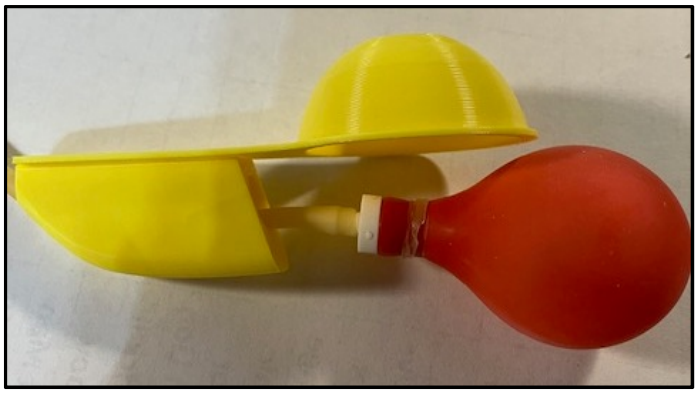
Here's V3. Lost V2 at the 14 Rounder on its first contest flight, but in its short life it provided me lots of useful intel. I'm still working on wing construction details—I think another few changes are needed—but most of the construction is the same. It uses a 2 mm square section pultruded CF tube as the fuselage, which is really nice for attaching things, having all those flat surfaces. Plus it's cheap! Covered in lightweight doculam, it came in at 29.5 g all up, but without a tracker. Still using a BMK E-20 timer and band burner with RDT, but I resoldered the antenna so it streams straight aft, not straight up into the wingmount.

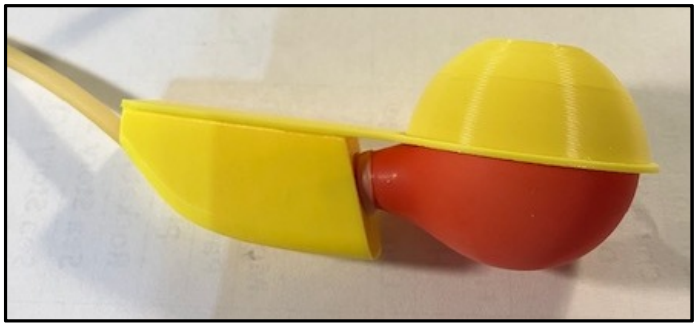


At the front end, I designed a "double-rocker" motor mount. The stick enters a channel and passes through a snug square constriction halfway between the front and rear 2-56 set-screws. The channel flares fore and aft. The mount pivots around that constriction up/down and left/right. Using the set-screws, a range of 0 to 5 degrees down and 0 to 5 degrees left is possible, and the shape of the channel permits independent adjustment of the two settings. At 1.5 grams, it's not as light as just gluing the motor to the stick, but it seems to work well. We'll see how it flies. Still working my way through that yellow PLA filament, as you can see ☺.

I made two versions. One where the motor lines up with the centerline of the stick, and the other where the motor is suspended beneath the stick. I like the inline one better.

Frank's 1/2 A Semi-Recessed fuel bladder





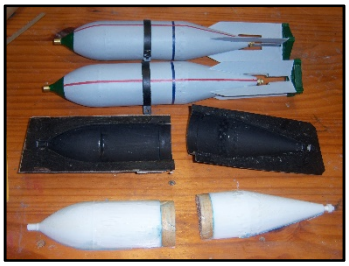
Frank gave me a sketch or two, and the parts involved (bladder, tubing, connecting ferrule) and asked me to see whether I could come up with something that would hold the tubing and balloon in place so about half of the balloon was up inside the fuselage. After a few false starts, this is the state of the project. Is it any better than the way everyone does it already? Probably not, but it was a fun project. It's in two parts, the pylon, through which the fuel tubing passes, and the "spoon" that accepts the upper hemisphere of the bladder.

Molding Composites for Models – Part II

Bernie Olson

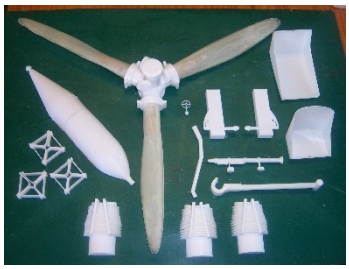
In the previous installment, Bernie took us through some of the options for molding composites, discussed various materials available and best of all—he named names! See Part 1 for the particular products Bernie favors. Here in Part 2, the fun gets real. Thanks, Bernie—This is a superb article.

You've drawn up your next model and have decided to mold one or more of the components. The first part of this series laid a foundation covering composite basics. Now we'll turn that knowledge into hardware. Molds are often made directly by NC machining it from a plate of aluminum or even Corian by some modelers. If you don't have access to NC machining, and that includes me, start by making a 'plug' of your desired part.



A plug can be made from many materials. The ones I've used include wood, foam and 3D-printed plastics. The plug should be as accurate as you can make it. The better the plug, the less work that will have to be done to the final flying parts. Weight is irrelevant on the plug so put it there rather than in the finished model.

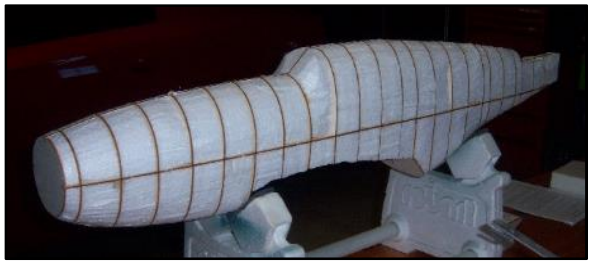
Plugs can be 3D-printed. Molds were made for bombs used on a scale model of a Val that started from 3D-printed plugs. The process was simple and accurate. The photo shows the plugs, molds and finished parts. Plugs made this way only require smoothing prior to laying up their molds.



A plug for propeller blades for the same project were carved from balsa. The one plug led to three identical fiberglass blades – one of the advantages of molding composites. Some of the other 3D-printed parts for the Val are shown with the assembled propeller.

Most plugs that I make today are fabricated from 1/8-inch lite ply frames filled with foam blocks that are carved and sanded to shape. Spackling paste can be applied over the foam and sanded to help smooth the plug and fill any gaps. The plug is then covered with one ply of6 oz fiberglass fabric, followed by more filling and sanding until the shape is right. Remember that a correctly shaped, smooth plug avoids adding dead weight to the flying part. Spend the time and weight at this stage to get the plug right. The plug for the E-36 Super Pearl is shown hanging here as its glass overwrap cures. Parts for the wood frame can be made old school by hand or with laser cutting. I prefer the latter for its accuracy. The blue filler seen in the photos is Stits SuperFil. This product is a two-part epoxy filler that's odorless, light and sands nicely. I started using it in the nineties and go through a quart kit annually. It's available from many on-line aircraft supply houses including Univair here in Aurora. https://www.univair.com/

A plug made for a P-51B/C project is shown going together (*See next page*). The first shot shows the laser cut parts for its lite ply frame. Foam blocks were then glued in place with Titebond. Finally, the finished plug is shown ready for molding. The plug for the Mustang's scoop rests below it. Use any good filler/sander. I've had nice success with Rust-Oleum's 2 in 1 Automotive Filler Primer. Don't bother with a topcoat at this stage. The primer alone works best and topcoats are more prone to sticking to the mold. Note also that the plug should have no negative draft angles that will trap it in the mold.



Now we set up to make the mold. Determine how many pieces the mold should be divided into in order to be able to extract the plug and shells. Simple parts like a cowl might only need a one-piece mold but that's unusual. The Val cowl required a five-piece mold. Most fuselage molds are broken into two-parts that split along the fuselage's vertical center plane; known as butt line zero (BL 0) in aircraft parlance. Build a shadow board that represents the plane along BL 0. Build a frame around the backside of the shadow board along with some internal ribs to support the plug so that the board bisects it at BL 0. Let's call this the shadow box. If you had parts for the plug laser cut, parts for the shadow boxcan be laser cut at the same time. The Super Pearl plug is shown positioned in its shadow box as an example.

Apply and polish four coats of mold release wax all over the plug. Make sure every spot is well waxed. Carnuba floor wax can be used or mold release wax can be acquired from CST. For peace of mind, I use the CST product. The face of the shadow board should be prepared as well. Since it's flat, a simple option is to apply packing tape. Epoxy doesn't stick to that stuff and it works nicely as a release agent. If you look closely the glossy tape can be seen in the photo along the edge of the board. Place the plug back in the shadow box.

www.cstsales.com

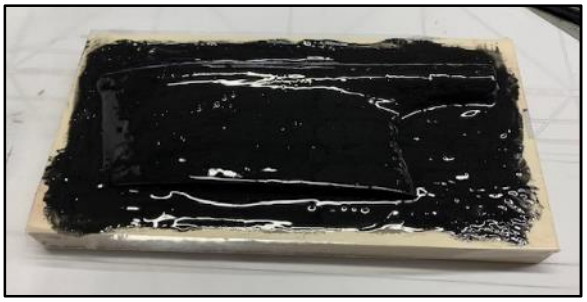
There is now a gap between the plug and shadow board. Seal this gap with non-hardening clay. Modeling clay works fine or a lifetime of the official stuff can be picked up from CST. Now square this clay up. I like to scrape the corner of a 6-inch metal scale along the joint to remove the excess clay. You want to create a sharp, sealed corner between the shadow board and plug. The goal is to keep epoxy from running down this gap while the mold is being layed up.

Now brush a light coat of PVA (polyvinyl alcohol) or Partall Coverall Filmmold release on the shadow board and exposed half of the plug. Let it completely dry. This step takes an hour or two depending on how much PVA puddles into the corners.

Use cheap, disposable chip brushes for PVA application and the epoxy layups. I procure ½-inch and 1-inch brushes by the hundred. A lot of them are used but they're cheap. I also use small bathroom Dixie cups for mixing laminating epoxy. You'll also want a bunch of popsicle sticks and tongue depressors on hand for mixing.

Now we get gooey; pull on a pair of disposable rubber gloves! Harbor Freight sells them by the box. We're going to apply the mold's surface coat. Mix up a small batch of West Systems 105 epoxy resin with 206 hardener. Note that it's amber in your cup but black in the photos. That because I like to mix graphite powder

(West Systems 423) into the epoxy for this step. It doesn't take much, about a teaspoon. This does two things. It turns the mold black which makes it easier to see air bubbles when you're laying up the shell later. More importantly in my opinion, it seems to make the mold surface a little more slick which allows the plug and shell to release more easily from the mold. Brush a coat of this mixture over the plug and shadow board.

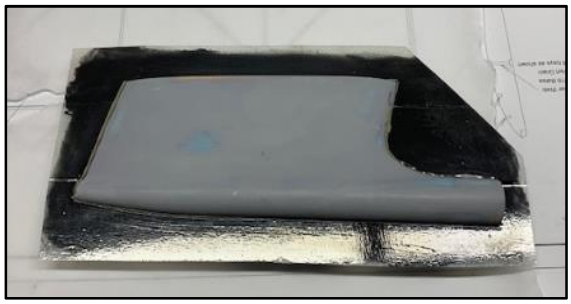


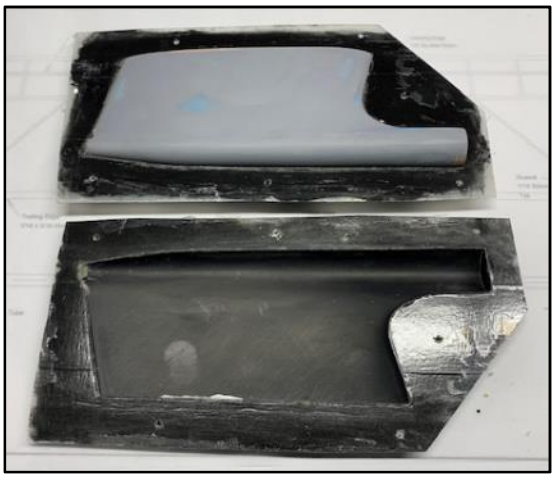
Now the remaining slurry in the cup needs to be thickened. This can be done by adding Cabosil or West Systems 406 Colloidal Silica to the mix. It's like adding microballoons to epoxy. Add small amounts until you get a paste that's halfway between the viscosity of honey and peanut butter. Brush this paste across the plug and shadow board with extra in the corners to create fillets. Use the brush to remove any air bubbles from the slurry. Let this stand several hours until the epoxy starts to set but is still tacky. The photo shows this step for the Super Pearl.

While you're waiting, cut out a kit of fiberglass plies for the next step. Plan on at least 6 plies of 6 oz fiberglass. Larger molds will require more plies. Heavier fabric can also be used to speed the build.

When the slurry has set, lay down the first fiberglass ply and brush on a liberal coat of the same West Systems epoxy. This time don't add any thickener nor graphite powder. You'll probably need to strategically slit the cloth to get it to lay down completely. Eliminate any air bubbles and voids with the brush. Now repeat until you have at least six plies. Stagger ply slits to avoid weak spots in the mold. Step away and let the epoxy cure overnight.

Remove the shadow box, trim off any excess fiberglass and wax the exposed surfaces of the mold and plug. Apply PVA and repeat the epoxy and glass layup as was done with the first half of the mold. The photo shows the first half of the Super Pearl's mold once the shadow board was removed. The perimeter of the mold has been cleaned up of excess fiberglass.





Once the second half of the mold has cured overnight drill mating holes through the mold flanges. This will help align the two halves later. I like to use cleco fasteners to hold the halves together but screws also work.

Split the two mold halves apart and remove the plug. You may need to wedge a slotted screwdriver or two between the halves to pop them apart. Use something soft like popsickle sticks for the plug. You don't want to scar the surface of the mold removing the plug. You may be able to flex the mold to help pop the plug out. If you've lived a clean life it will pop right out but sometimes the plug is destroyed during this step. That's okay. As long as the mold survives you're in business. Cleanup the molds and wash off any remaining PVA film. It's water soluble and washes off easily.

We're finally created the tooling to lay up the actual shells that will be used in the model – woo hoo! Once again, apply and polish four coats of wax on the molds. Brush PVA or Partall Coverall Film mold release to the molds and let it dry.

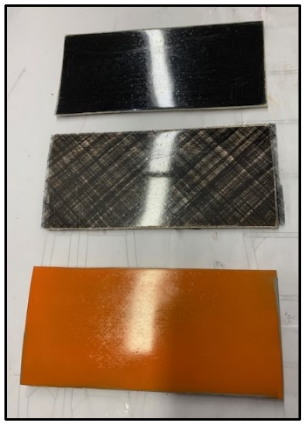
While that's drying, prepare a ply kit for the shells to be layed up. Determining the best ply stack is iterative and varies for each airplane. The first Super Pearl shells used a surface ply of 1 ½ oz fiberglass fabric followed by two plies of 3 oz fabric. (A total of 7 ½ oz). It came out a little stronger than necessary so the next one could be lightened with two plies of 1 ½ oz fabric with one ply of 3 oz or simply two plies of 3 oz fabric. (A total of 6 oz). Lighter fabrics yield better surface quality with fewer pin holes. I prefer 1 ½ oz fabric for the surface ply for that reason but 3 oz fabric works pretty nicely too.

Once the PVA is dry apply the plies one at a time. Remove all voids and bubbles with the brush. These stand out against the black mold surface. Again, if plies need to be slit to get the fabric to lay down, be sure they don't overlap between plies. If local stiffening is needed at some point, I like to sandwich it between the plies so it's captive and smoother. Once the epoxy has started to set (after several hours) trim the excess fabric away with a sharp razor blade or Xacto knife. It can also be removed after the shells have fully cured but this earlier point is easier and yields a sharp edge that's aligned with the molds.

Let the epoxy cure overnight and pop the shells out of their molds. Popsicle sticks or tongue depressors can be used to assist the process. We now join the shells to each other.

The two shells are aligned with each other, then tacked with CA or masking tape. Woven tapes are then installed on the inside of the shells over the mating seams. I usually use 1-inch tape. Epoxy is brushed through the tapes to assure thoroughly wetting out the faying surface of the shell where it contacts the tape. Voids can be seen through the shell. One option for joining the shells is to place them back in their respective molds then clamp the molds together using the alignment holes that were drilled earlier. This works nicely if adequate openings exist in the molds. Rewax the molds prior to inserting the shells. To reach into long molds, an acid brush can be slipped onto the end of a wooden dowel. Note that some molds have narrow areas like fins where woven tape doesn't easily fit. Tow can be used effectively instead of tape in those areas. Wash the PVA off the shells with water after joining.

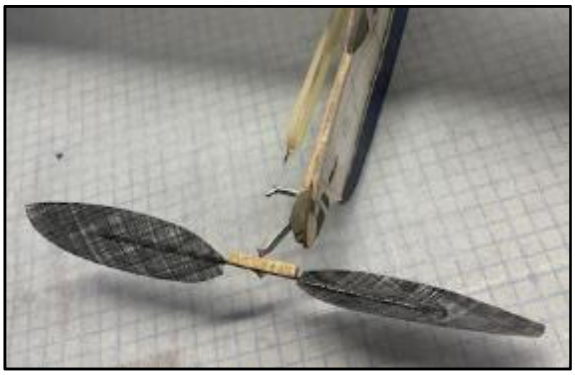
That lays out the basics techniques for molding composites for our models. Here are a few twists on the theme:



Light, stiff, accurate spoiler blades were easily molded. First, a balsa plug was fabricated to the correct airfoil (orange). Then a mold was layed up from the plug (black). Finally, the spoiler was layed up with 11 g/m^2 Carboweave face plies over 1/32 balsa. The sandwich was formed between the plug and mold then lead shot compressed the stack together. After curing, a pair of spoilers were cut from the sandwich.

How about that Nocal prop shown in Part I? This winter I built a lovely Cessna Nocal but its wooden prop shattered on the first flight. It was glued back together then broke again on the next flight. That was frustrating so a carbon replacement was tried. Basically, the standard method for forming balsa prop blades was used except composites were substituted for the balsa. The 'molds' were a glass jar and a can of the desired diameters for two different sized props. Both were wrapped with packing tape. Recall that epoxy doesn't stick to that stuff. A ply of 11 g/m^{2}Carboweave was brushed on followed by a ply of ¾ oz fiberglass. After curing, the glass/carbon stack was popped off the 'molds'. Blades were cut out just like with balsa blades – oriented 15º off vertical. The prop worked great and survived a season of flying into stuff without damage.

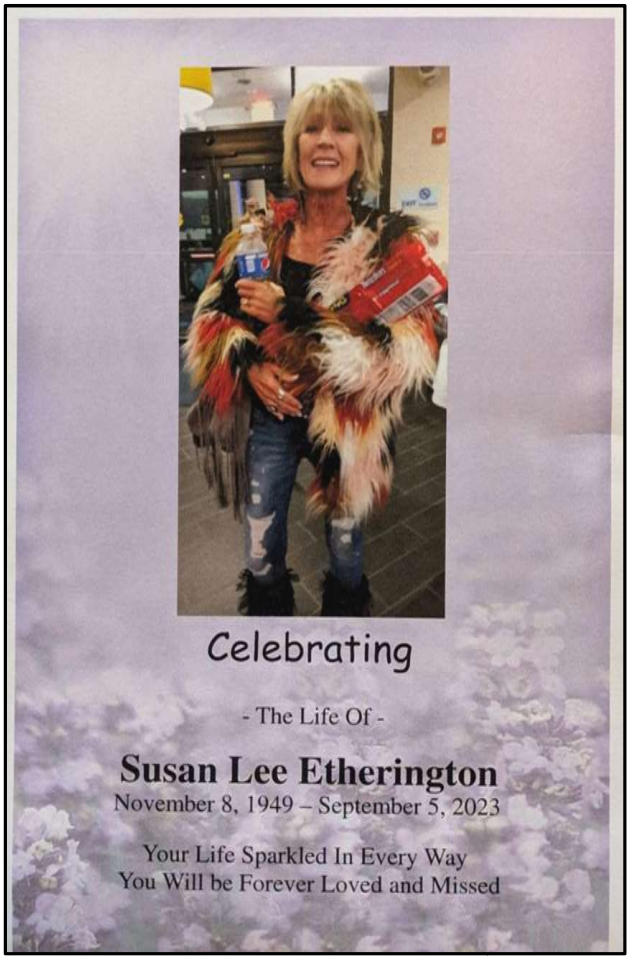
Weight can be further saved by laying up the shells using sandwich construction. I recently used this approach on scale and pattern plane fuselages. The sandwiches were glass/balsa/glass stacks and definitely saved weight over a solid laminate. Before layup, the balsa cores were perforated with a 'stippling' roller. The resulting pin hole sized perforations let epoxy flow in creating 'nails' that spanned between the face sheets to minimized any chance of delaminating. The method does require vacuum bagging, however, and that's another story.

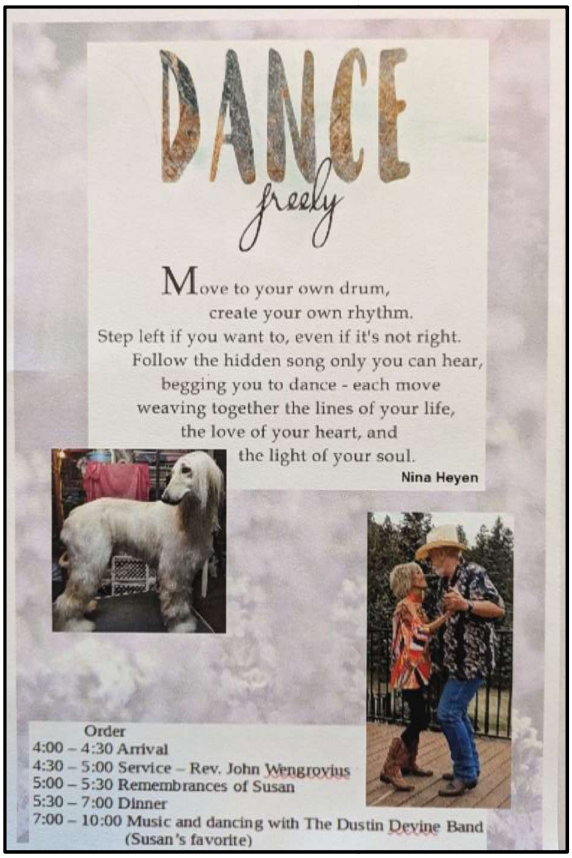


From Sean McEntee: "For those that have the BMK GPS tracker, this is the battery that is in the Receiver. Mine went bad because I kept it on power constantly. This is the exact battery, part number and all and is available on Amazon for about $12. I plan on using the leads for the old battery as pigtails and soldering the new battery to those, rather than trying to solder onto the board."

In Memoriam

The club recently lost a dear friend. In the Fall of 2023, Chuck's wife **Sue Etherington** passed away after an illness. Sue was always a joy to encounter, whether at the field or perhaps at Murph's July 4th events. No words can possibly express the sorrow we all felt at her passing. Sue's Celebration of Life was held at the Pikes Peak Grange in Franktown on June 22. Sue, we'll miss you.





Above: Chuck and Sue at the field, celebrating Chuck's induction into the MMM Hall of Fame.

Left: In keeping with her effervescent spirit, Sue's Celebration featured heartfelt remembrances as well as a live band.

In Memoriam

The Editor, Tom Norell, John Kagan

Modeler extraordinaire **Rob Romash** passed away unexpectedly in June. Rob was so many things to so many people that it's hard to know how best to remember him. We'll all carry with us memories of Rob at his best, telling stories, helping young modelers, crafting incredible, unique models, being a world-traveling toy designer--but most of all, being the sort of person you'd never mistake for anyone else!

It felt like a privilege to have his respect for something you tried, and a gift to have his advice when trimming a plane. While so many free flighters see the hobby as a technical performance, Rob approached modeling as the artist he was—and his shapes and structures proved equal to anyone's. He was a fearless and incredibly creative designer.

Rob's Celebration of Life was a reflection of his wide-reaching influence on the free flight community—especially indoor. In attendance were no fewer than three World Champions, our NFFS President, visitors from around the country, and of course, friends from the Colorado modeling community.

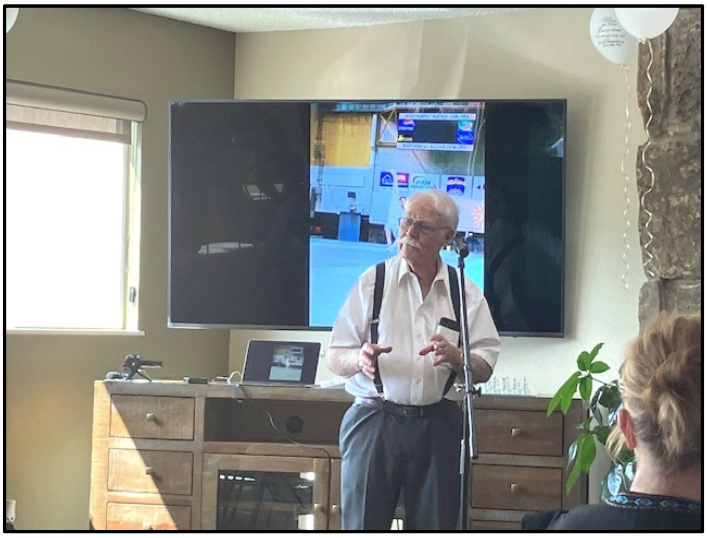
Special regard is due Tom Norell, who was a true friend to Rob and his wife Nida during Rob's final years and during the time of his passing. Thank you, Tom, on behalf of all of us, for showing us what true generosity of spirit looks like.

Dave Lindley shares some memories.

Many of Rob's treasures were on display.

Dave Sanders, with Don & Cindy DeLoach and Eric Monda.

John Kagan launches one of Rob's models (Indoor Towline glider?) from the balcony.



Murph was a kind friend to Rob.

Tom Norell writes:

I think the best phrase that embodies Rob Romash is "larger than life." You always knew when he was in the room, and sometimes you wished he was somewhere else. He definitely knew what buttons to push, but he also knew how to make you laugh hard enough to soil yourself. With Rob's passing, I lost my best friend. In addition to aviation, we shared a love for music, movies, science and technology, astronomy, cars, food, and toys from our childhood.

I cannot come close to the words John Kagan penned in a Facebook post, so I feel it is best to share a few of them here:

"...he gave himself the freedom to live beyond "normal" limits. He was a self-described giant Santa's elf, master craftsman, entrepreneur, fast car junkie, a pied piper to children, playing a "flute" of flying things, and a thrill-ride-for-a-day to adults, whom he pushed beyond comfort just because he could. We are going to be less interesting without him.

“I am going to try to live a little slice of "what would Romash do?" I'm going to build a few models that don't qualify for contests or records just because I like the way they look, - and I'm going to fly them. I'm going to get my small R/C glider together and guerilla fly it in crazy spots like Rob would. In short, I'm going to spend a little more time enjoying life and the people in it. I sincerely doubt Rob feels he left much on the table.

We already miss you. Dude."

Readers are invited to read Dave Lindley’s moving piece in the August NFFS Digest for more about Rob.

Rob and Nida
July 4, 2023,
Manitou Springs

59th Rocky Mountain Free Flight *Championships*

Aug. 30 - Sept. 2, 2024

Category III, Class AAA, National Cup *Exempt*

AMA • SAM • NFFS • FAI America's Cup • FAC *Mountain States Scramble*

Located about 20 miles ESE of downtown Denver. Drive six miles east of E-470 on Quincy Ave. Continue one mile east of "T" intersection at Watkins Road, look for MMM entry gate on right (south) side. Call or e-mail for gate combo.

Friday, 8/30 3-5 p.m.
Late registration and FAC Scale judging at the Lowry flying site. Informal dinner at local restaurant afterwards.

Saturday, 8/31 8 a.m. – 6 p.m.
Dynasty Cup: F1A, B, C | P, Q
AMA Mulvihill | Moffett combo
AMA A | B Electric combo
AMA A | B Gas combo
NFFS Classic Towline
Nos. 1/2A | Early 1/2A | 1/4A Gas
FAC WWI Combat (10 a.m.)
FAC Greve | Thomp. | NAR M.L. (noon)
5x5 HLG (2 p.m.)
FAC *No-Blue-Max* Horde (4 p.m.)
FAC Golden Age | Modern Civil combo
FAC Dime Scale
FAC Embryo Endurance
FAC Old Time Stick | Fuselage combo

Sunday, 9/1 8 a.m. – 6 p.m.
Dawn Unlimited: 7:30 a.m. launch
Dynasty Cup: F1G, H, J, S
AMA C | D Gas combo
AMA CD Classic Gas
AMA HLG
SAM OT HLG | CLG combo
Sm. Nos. | Andrade | SAM Sm. OT comb.
FAC L.W. Trainer M.L. (10 a.m.)
FAC WWII M.L. (noon)
FAC Modern Military M.L. (2 p.m.)
FAC 2-Bit + 1 | Jimmie Allen combo
FAC Jet Catapult Scale
HLG Mass Launch (5:30 p.m.)

Monday 9/2 8 a.m. – 3 p.m.
Dawn Power: 7:30 a.m. launch
AMA AB Classic Gas
AMA 1/2A | 1/2A Classic combo
ABC Nost Gas | E-Nos combo
AMA E-36
AMA P-30
AMA Catapult Glider
SAM Large O.T. | Large Nos. Rubber combo

May be flown any/all of the three days (need not finish on day started): FAC Peanut Scale, FAC Rubber Scale, Junior P-30, Junior E-36, Junior 1/2A Classic Gas, Junior HLG, Junior CLG, Junior Classic Towline, Junior Jat Catapult (special prize!).

Contest Directors: Don DeLoach, 719-964-7117, <ddeloach@comcast.net>; Chuck Etherington, 720-201-6218, <etherington.freeflight@outlook.com>. Visit <www.themmmclub.com>.

The Fine Print:
- On-site tent/RV camping allowed, no water or hookups, NEW: no fee!
- One-site grilled lunch each day. Cash donations gratefully accepted.
- All events J-S-A combined unless noted.
- All events to current AMA, NFFS, FAC, FAI, and SAM rules unless otherwise noted.
- In combined events contestants may fly any/all events within the groupings for National Cup points and/or to better an existing score for RMFFC award purposes. For example, in C/D Gas Combo, you may fly separate flight strings with both C and D models. Only your best score of the two will count for RMFFC awards purposes; both scores count for NFFS National Cup points.
- HLG and CLG (AMA and OT) will be flown from a launch pen.
- Old Timer HLG/CLG: Best 3 flights of 9. Same flyoff rules as AMA CLG/HLG (90s max, one chance to max, keep flying until you drop a max).
- FAI events: 90-minute overlapping rounds starting at the top of each hour beginning at 8:00 a.m., weather permitting. Seven rounds of F1A-B-C/P-Q Saturday; five rounds of F1G-H-J-S

MAGNIFICENT MOUNTAIN MEN
COLORADO
FREE FLIGHT

Sunday. Flyoffs (if required): after 6 p.m. each evening or on the following morning.
• FAC *No-Blue-Max* Flying Horde open to any FAC model, scale or duration, non Blue Max holders only. Single round, winner gets a Kanone.
• Dawn Unlimited Rubber: Meet at 7:15 Sunday. Launch window: 7:30-7:40 a.m. Must wind and launch inside the 10-minute window, no max, timed to the ground. All AMA rules apply.
• Dawn Power: Meet at 7:15 a.m. Monday. 7:30-7:40 a.m. launch window. All power models fly together including FAI, Nos, AMA, SLOP, Electric. One attempt allowed for one flight with no max. Motor run will be 15 seconds unless weather dictates shortening.
• **Dave Wineland's Gas Attack!** $100 cash to the longest string of maxes in any regular RMFFC gas event including AMA, Nostalgia, SAM, FAI. Must follow rulebook engine runs/maxes including flyoffs. Automatic, free entry for all Gas event flyers. Thanks Dave!
• "5x5 HLG" special event flown on Saturday 9/2. AMA HLGs flown in five 5-minute rounds with 90-second maxes and 10-minute chase period between rounds. Part of the "Ruckus in the Rockies" $100 Challenge.
• Plaque awards through third place in all events.
• The following RMFFC perpetual trophies will be awarded: F1A, F1B, Gollywock, Mulvihill, Rubber Scale, Collins Glider Hi-Point, Gibbons Rubber Hi-Point, McGhee Power Hi-Point (includes electric events), and the 1961 RMFFC Grand Champion Trophy.
• Grand Champion scoring: Choose up to 5 events: 1 Rubber, 1 Power, 1 Glider, 2 of any. 5, 4, 3, 2, 1 points for 1st, 2nd, 3rd, 4th, 5th place. If only 4 flyers 4 points for 1st, etc. If 3 or fewer flyers, 3 points for 1st, 2 for 2nd, 1 for 3rd.Tiebreaker: Total points accrued in flyers' other events apart from the five chosen events. **$50 cash to Grand Champ!**
• CDs reserve the right to reduce maxes/engine runs to suit weather/retrieval conditions.
• Raffle during awards on Monday, approximately 4 p.m. **PLEASE DONATE ITEMS.** 100% of ticket sales benefit MMM and our great flying site.
• Glider Champion, Rubber Champion, Power Champion scoring: 5, 4, 3, 2, 1 points for 1st, 2nd, 3rd, 4th, 5th per Grand Champ scoring above. All glider/rubber/power events count including scale. No maximum number of events to be counted. Tiebreaker: total number of maxes achieved. "Power" includes electric events.
•Junior/Senior Championship award: for highest scoring Junior/Senior per the Grand Champion scoring. $50 cash.
•**RMFFC Sweepstakes award - $50 cash to the flyer with the most championship points in all events—no maximum number of events and all events count. Fly all you can for the big pot!**
•Accomodations: 1. Super 8, Parker, Colo., 720-851-2644, ~$90, 20 min. from field. 2. Hampton Inn, Parker, Colo., E-470 at U.S. 83/ Parker Rd., 303-841-2977, appx $110. 20 min. from field. 3. Motel 6, 9201 E. Arapahoe Rd. 303-790-8220. Appx $70, 30 min. from field. 4. Country Manor Motel, 32681 E. Colfax Ave. Watkins, CO 80137, (303) 261-9650, appx. $75, 15 min. from field.

- -

Detach & mail (or scan and email) to: Don DeLoach 831 E. Willamette Ave., Colorado Springs, CO 80903, <ddeloach@comcast.net>.
Entry Fees: Adult: $20 first event, $10 each event thereafter, $50 max. Juniors/Seniors: $10 flies unlimited events. Make checks payable to "MMM Club" or Paypal to <mmmffclub@gmail.com>. **Make your contest directors happy…PLEASE PRE-ENTER!**

>> Pre-entry: Unlimited events for $40, if entry & payment received by 8/29/24<<

Name ______________________ Address ______________________________

City, State, Zip ________________________________ AMA # ______________ J S A

Paypal check here ____ Total enclosed : $__________

Circle events you wish to enter. Star or highlight your five Grand Champ events (1 glider, 1 power, 1 rubber, plus 2 of any type.) Must choose Grand Champ events prior to flying any.

Saturday: F1A, F1B, F1C/P, F1Q; A | B Electric Combo; AMA A | B Gas Combo; AMA Mulvihill | Moffett Combo; NFFS Classic Towline; Nos. 1/2A | Early 1/2A | 1/4A Gas Combo; 5x5 HLG (2 p.m.), FAC WWI Combat (10 a.m.); FAC Embryo; FAC Greve | Thompson | NAR M.L. (2 p.m.); FAC Golden Age | Modern Civil Combo ; FAC Dime Scale; FAC *No-Blue-Max* Flying Horde M.L., FAC OT Stick | Fuse.

Sunday: Dawn Unlimited; F1G, F1H, F1J, F1S; AMA C | D Gas Combo; AMA CD Classic Gas; AMA HLG; SAM OT HLG | CLG Combo; Nos. Small Rubber | NFFS Andrade | SAM Small OT Rubber Combo; FAC Low Wing Trainer M.L.; FAC WWII Combat ; FAC Modern Military M.L.; FAC 2-Bit + 1 | Jimmie Allen Combo; FAC Jet Catapult Scale; HLG Mass Launch.

Monday: Dawn Power; AB Classic Gas; ABC Nostalgia Gas | E-Nos combo; AMA E-36; AMA P-30; AMA Catapult Glider; SAM Large O.T. | Large Nos. Rubber Combo, AMA 1/2A | 1/2A Classic Combo.

Any day: FAC Peanut Scale, FAC Rubber Scale, Junior P-30, Junior E-36, Junior 1/2A Classic, Junior HLG, Junior CLG, Junior Classic Towline.

Ruckus in the Rockies

HLG throwdown at the RMFFC

3-part composite event for $100 in prize money! Winner takes all.

I. "5x5 HLG" Saturday, 8/31/24. Five rounds, 5 minutes each, from the pen. All flights count, 5-flight total, 90-second maxes. Fifteen-minute chase period between rounds. Round 1: 2-2:05 p.m.; Round 2: 2:20-2:25; Round 3: 2:40-2:45; Round 4: 3-3:05; Round 5: 3:20-3:25. II. AMA HLG (from launch pen, AMA rules, National Cup points); Sunday, 9/1/24. III. HLG Mass Launch (5:30 p.m., 3 elimination rounds); Sunday, 9/1/24.

Scoring: 5 pts for 1st, 4 for 2nd, 3 for 3rd, 2 for 4th, 1 for 5th places in I, II, III above. Highest total of (I+II+III) is Ruckus Champ! (Tiebreaker: most maxes in I+II).

CD: Don DeLoach <ddeloach@comcast.net>, 719-964-7117

IF YOU WANT TO BECOME A MEMBER, OR IF YOUR PERSONAL INFORMATION CHANGES, PLEASE USE THIS FORM

Use this form and send it in regardless of how you pay

NAME_____

STREET ADDRESS_____

CITY/STATE _____ZIP_____

PREFERRED PHONE _____EMAIL:_____

AMA NO._____

DESIRED STATUS(CHECK ONE):

MEMBER____2024 DUES: Adult - **$45.00**
16-20 years - $10
(Under 16 yrs. old – FREE!)

NEWSLETTER SUBSCRIBER _____2024 RATE: $15.00 PER YEAR

SEND CHECK PAYABLE TO: MMM CLUB
C/O: CHUCK ETHERINGTON
33946 GOLDFINCH DR.,
ELIZABETH, CO 80107

News Note: ***MMM Now accepts "PAYPAL" for Dues, Contest Entry Fees, Etc !!***

- *Simply Log in to paypal.com (or create your own 'PAYPAL" account if you want)*
- *Click on "Send Money" in the upper menu bar*
- *In the "To" block, type in mmmffclub@gmail.com, the amount, and click the button "Services"*
- *In the next form where you confirm payment, in the Lower "Subject" and "Message" boxes state what the money is for… annual dues, entry fees and such.*
- *When pre-entering a contest that needs event selection or similar, you still need to send in the pre-registration form to the Contest Directors*

Note, Paypal does charge a fee for this service so if you do use paypal maybe add an extra buck to help us out