

Looking Up

Issue 30, November 1999

Minnesota

Radio

Control

Soaring

Society

In This Issue:

Join the Elite Club by building the Spirit Elite!!

Dive Testing, How do you do that??

Fiberglassing Wood Fuselages

**MRCSS WebSite and Electronic Newsletter Location:
<http://www.goldengate.net/~tmrent/mrcss.htm>**

SailPlane Pilots Wanted!!

To Join MRCSS, Send \$20 to: MRCSS 5354 Newton Ave, Minneapolis, MN 55419

All MRCSS members must also be a member of the Academy of Model Aeronics, AMA.

Membership forms for the AMA are available at any Hobby Shop, or from an MRCSS Club Officer

MRCSS Club Officers:

President:	Kirk Hall	612.866.1388	
Vice President:	Mark Miller	612.306.9984	
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Instructors = Help for Beginners

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MRCSS Message Line

Call 612.985.1525, then, at the proper time enter "star" (*) and the five digit password 67277 (MRCSS). Press P (7) for Play to hear the first message. Press K (5) for keep to move to the next message and then again press P (7) again.

?? Where does MRCSS Fly ??

Jirik Sod Farm

4 miles East of FARMINGTON on Co Rd 66. Park on Co Rd 66 or on Blaine ave (N/S road). Winch and high starts available on site. Contact an officer for locker combination.

Robinson Landscaping

2 miles East of Lexington Ave on Main Street (CR 14, 125th street) in Lino Lakes. This is the Sod Farm on the South side of the road. DO NOT FLY ON THE SOD FARM ON THE NORTH SIDE OF THE ROAD.

Prescott Slope

8 miles east of Prescott Wisconsin on Hwy. 10

Take Minnesota Hwy. 61 to Hwy. 10 just north of Hastings. East on Hwy. 10 into Wisconsin, through Prescott. Continue east on Hwy. 10 8 miles to "The Virginian" restaurant on north side of road. Park in north-west corner of lot, hop the electric fence and climb the hill. beware the fence. It's hot! N.N.W. to N.E. winds.

Superslope

4 miles SE of Northfield. Take MN 246 to Ibson ave. South on IBSON then East on 135th to Isaacson Trail. Isaacson Trail follows top of the Ridge. SSE to WSW winds at 5-25 MPH needed.

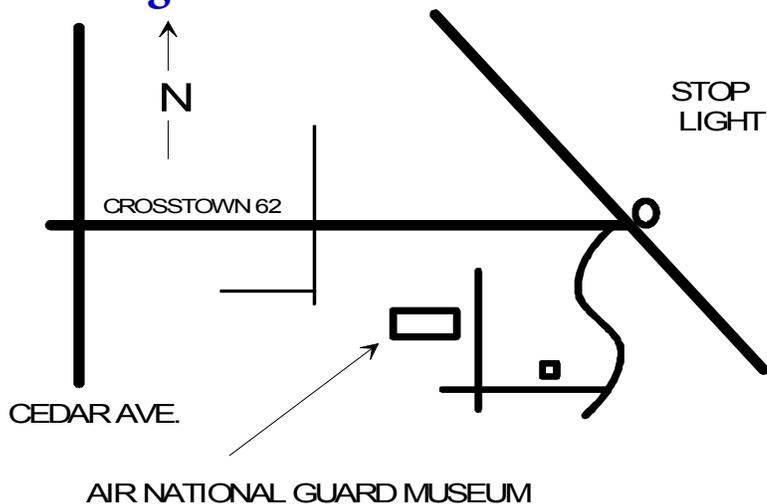
Schedule of MRCSS Events:

Club meetings are scheduled for 7:00 on the third Thursday of each month at the Air National Guard Museum at the Minneapolis Airport. Below is a map of the location of the Air National Guard Museum.

Fun Flies are scheduled for the Saturday following the club meeting. The location and time for the fun fly is determined at the meeting and is posted on the MRCSS message line.

November 18th	Meeting Air National Guard Museum	7:00 - 9:00 PM
November 20th	Fun Fly	
December 16th	Meeting Air National Guard Museum	7:00 - 9:00 PM
December 18th	Fun Fly	
January 1st	Year 2000 Freeze Fly!! Lake Normondale (if the ice is thick enough)	10:00 - ??

Meeting Location



Meeting Minutes - October 21, 1999

President Kirk Hall called for order at 7:30 P.M.

VISITORS - Four visitors were present. DAVE FISHER is a full-scale pilot who has a Highlander EPP glider and Airtronics 6000.

RANDY VINGE is Dave's friend and also a full-scale pilot. ALLEN ESTONSEN has intended to come to our meeting for a long time. He has had a 5 year interest in sailplanes, has a Spirit 2M, but is short on flying time. BURLEIGH PETERSON is also a full-scale pilot who is building an Astro Challenger with an Astro 05G motor.

PAST ACTIVITIES - The September meeting at Igoe II field was described. No club business was conducted at that meeting.

FUTURE ACTIVITIES - Details of the Fun Fly on Sunday of this weekend will be announced by Kirk Hall on the MRCSS message line by 8 P.M. Saturday.

BUILDER'S CHALLENGE - Jim Ladwig reported that Maynard Vogelgesang says he has not received his money from the 1999 Fund. Jack Perceman said he would investigate. Speculation is that Dave Engleson may gain head up the 2000 Builder's Challenge.

OFFICER NOMINATIONS - Kirk Hall is not interested in running again. Tom Rent is willing to run for President or V.P. Ed Berris is willing to run for V.P. Jack Perceman and Jim Ladwig are willing to continue in their present positions.

POWER FLYERS AT JIRIK SOD FARM - Jack Perceman reported that on a Saturday about 3 weeks ago (late September or early October) there was a group of 3 glow RC flyers (2 flying plus one unable to fly because of a bad glow plug) at Jirik. They claimed to have permission of the owner. This contradicts information we have received from Mr. Jirik who wants no fueled engine planes on his fields. Tom Rent suggested we purchase four signs to notify the public of that fact. Ed Berris will call Mr. Jirik about that idea.

FLYING SITES - The following gifts were unanimously approved:

Gunderson	\$50 gift certificate
Jirik	\$50 gift certificate
Robinson	\$25 gift certificate
Prescott	no gift from club

(individuals are encouraged)

There was considerable talk about a slope at the south end of the gravel pit on Hwy 13 south of the junction with Hwy 101. Some of our members have used this in the past and found it to be good, with a good landing spot at the top. Owner is not known.

MAY TRIP TO KANSAS SLOPE - There is considerable interest from at least 6 members in travelling to Lake Wilson, KS in May, 2000 for a slope contest sponsored by the Lincoln, NE club. This is a 2-day event, which means a 4-day trip, beginning about 7 P.M. that Thursday evening. Ed Berris will write up the events to be flown so our members can build appropriate models.

ZAP PRODUCTS AT 50% DISCOUNT - Kirk Hall is taking orders. Deadline is the November meeting.

KIT STICKERS - Don Patterson distributed stickers to those agreeing to take them to area hobby shops. Don will be printing more.

SUMMER YOUTH PROGRAM - Tom Rent reported that Ann Cadwell of the Society of Manufacturing Engineers has designed a model glider with a power pod (Cox engine) and will sell kits at cost to youth. She is trying to set up a summer session where the youth will build a glider in one week and then fly with an experienced pilot. Does MRCSS have any experienced glider pilots?

SHOW AND TELL SESSION

Tom Rent announced the MRCSS Elite Club. Tom has for resale (at \$65) several of the new Spirit Elite kits. This is a 2 M glider similar to the Spirit 100. The wing has an advanced airfoil with ailerons and flaps and a choice of polyhedral or dihedral. The instructions are pictures and interlocking tabs are used for positive alignment during construction. This is a lightweight, high performance ship that would be an intermediate

step upward from the beginner 2M ship. It can take up to one pound of ballast. Tom's model has 4 metal-gear mini servos in the wing.

Ib Jensen showed a glassed fuselage and a SR Hobbies foam sloper BD-5 model. This one features an aluminum connection rod and carbon spar. Access to equipment is by unbolting the wing. Ib found the aileron linkage is difficult, and that a hot glue gun can be used with the foam, but one must watch the temperature. Ib is also now building a Fun One.

Jack Perceman brought his latest winch, for which he has two drums. It has very few parts, and those are set up for CNC machining. Rod Dahl is interested in building one of them.

Jim Ladwig showed the Flipper ARF from Dymond. This comes with a Speed 400 motor, prop, spinner and "Smartswitch" motor control for \$100. Construction and covering are of high quality. Performance with the kit motor and 7 cells is adequate, but tests are planned with 8 cells, and then with a Dymond MAX 48 motor and with a 4:1 geared Speed 400 with large prop.

FUN FLY OCTOBER 24, 1999

The group convened at 11 A.M. at Jirik Sod Farm, but the 15 mph winds discouraged any flying there. Kirk Hall, Dick Johnson (visitor), Geoff Cooke, Rod Dahl, Dale Erickson, Dave Fisher and Jim Ladwig moved down to the Stanton North hill, south slope. Kirk flew his Alcyone, Rod his Zagi. Benton Jackson and Rudy showed up with their Zagis. About 4:00 P.M. a lone flyer with a red(?) plane was spotted on the slope from an altitude of about 700 feet. Who was that?

GLIDERS FLY AT WASHBURN HIGH - AGAIN

Bill Igoe's volunteer program at Washburn H.S. in Minneapolis is winding up on November 5. As of November 4, four of the eight gliders had flown, three having flown two days in a row. At least three of the remainder are expected to fly on the last day of class.

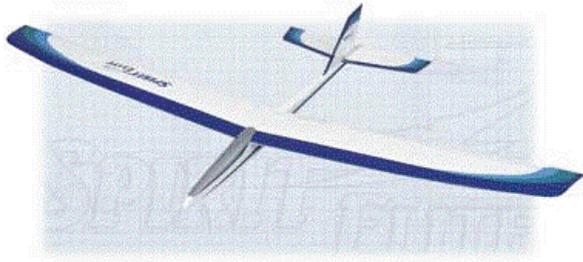
Bill did almost all the initial flights, and some of the students soloed on a histart launch. Blake Smith, Phoukha-

thong Thammarak, and Andrew McGovern all made very successful flights. Andrew caught some thermals and drifted downwind, circling directly overhead once and then circling downwind around the goal post, the flag pole and the scoreboard to a good soft landing. A real challenge for a beginner, although he has some power RC experience.

Nick Clark (student) and Jim Ladwig both did nothing to stop a wingover on launch, breaking Blake's wing. Jim came up with a spare wing for the next day. Bill Igoe had a reversed elevator problem with Poukhathong's plane, resulting in internal damage that was repaired. Bill now says to everyone, "Always check the direction of the controls before every flight."

This quarter there were 30 students working in teams to build the eight Gentle Lady gliders. One or more volunteers from MRCSS and other flyers were there every day helping students with their building problems. The school owns one radio set, MRCSS bought four transmitters and six receivers with AMA YES funds, and Conrad Sowder, Alan Phelps and Greg Stewart have donated and loaned some equipment to furnish all the planes. Two teams have to share a transmitter, but that is not a major problem. Perhaps more YES funds might relieve that situation. Another class will be offered in the spring.

SPIRIT™ ELITE



JOIN THE MRCSS "ELITE" CLUB by Tom Rent

FINALLY a 2 meter built up kit is available that has ailerons and flaps !

And what a great kit it is. I rushed my order into Tower with a \$10 off coupon, and for less than \$60 was on my way to beginning the building process.

Within 10 hours the entire kit was framed up and rough sanded, just in time to bring it to the October MRCSS meeting.

I also brought along 5 ELITE kits which I ordered from Tower in order for them to be available to members for

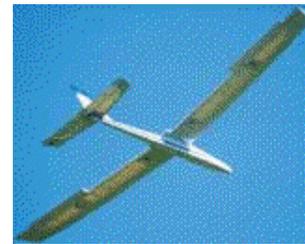
just \$65. All got sold but I'd be willing to order more if you like this price.

The kit is very well done with instructions as clear as ever and wood that just slides together with ease. Great Planes has really paid attention to details and the kit has essentially no errors in the plans, wood, or documentation.

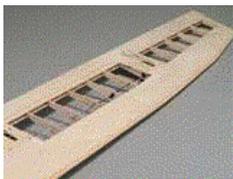
The kit is set up for 6 servos and has plenty of room for standard gear in the fuselage and also has room for at least a pound of ballast for those windier days. You can either build it with polyhedral or just dihedral depending on your skill level. This is a great kit to be introduced to both aileron and flap controls Which I think will make your flying more enjoyable. There is nothing like a point landing with full flaps to inflate you ego.

Spirit Elite has a lightweight, low drag airframe, and modern features such as :

- Advanced Selig/Ashok Gopalarathnam SA7035 and SA7036 airfoils enhance speed and offer easy wind penetration without requiring ballast
- Two-piece, bolt-on wing's ply/aluminum joiner provides the strength to handle hi-start and electric winch launches
- Wing can be built with dihedral for efficient forward flight or polyhedral for quick turns – triple taper planform improves lift and reduces tip drag
- Aileron and flap micro servos are recessed in easy-access wing hatches to minimize drag and improve performance
- Lift-off, vacuum-formed canopy conceals the radio compartment



SPECIFICATIONS	
Wingspan:	78.5 in
Wing Area:	645 sq in
Weight:	33-35 oz
Wing Loading:	7.3 oz/sq ft
Length:	46 in
Requires:	4-6 channel radio with 4-6 micro servos & 2+ rolls of covering.



I have already finished my model and will bring it to the November meeting. I covered mine in white with transparent green monokote over the "bones" of the wings and tail feathers. She looks sexy.

If you need to break out from the 2 channel world, and want a solid, inexpensive, modern ship ... then the ELITE is a great choice in my opinion. It builds in less than 30 hours !

Dive Testing

by Tom Rent

There is much dilemma over how to conduct and interpret “dive testing” of a sailplane. What is typically asked is, “hey, you’re plane isn’t flying ‘right’, have you done a ‘dive test’?” What does this mean?

What dive testing usually does tell you is whether the decalage angle (the angle between a wing and horizontal stabilizer) is ‘right’ and the resulting pitch stability of your plane.

From this you can guess at your plane’s relative CG position.

To perform a ‘dive test’, start from a relatively high height. Dive the plane, 45 degrees, to pick up speed and neutralize the controls (let go of the stick) and watch what happens to the plane.

There are three things that can happen:

- The plane pulls out of the dive.
- The plane ‘tucks’ under or accelerates in the direction the plane is traveling.
- The plane remains in the dive.

Below summarizes these behaviors:

If the [flight path of the plane] pulls out of the dive quickly, your plane has a relatively large decalage angle, has a forward CG, is ‘pitch stable’ and will want to fly at one airspeed - the one it was trimmed for in level flight with the stab trim level. This setting is good for free flight gliders and student R/C pilots.

The nose-weight has the same effect at all airspeeds. The large decalage angle (up elevator) has a tail lowering force that increases with increasing airspeed and hence the rapid dive recovery. Likewise, if you get too slow, the heavy nose (forward CG) and lack of a tail-down force will lower the plane’s nose to increase the airspeed to its “trimmed” value. If your plane makes a good gradual pull-out, you are somewhere between very stable and neutrally stable. This is the region I prefer.

If your plane tucks under by itself in the dive or keeps ‘nosing’ up when you pull out of the dive, the plane has negative stability (or divergent stability). Whatever the airspeed trend is, it will tend to accelerate that trend. This yields a very maneuverable plane, but requires you to fly the plane at all moments to stop the divergent trends. Nobody wants to fly in this region, but if you like to fly with an aft CG and the plane doesn’t want to trim out and “groove,” you’re probably slightly into this region.

If your plane remains in a 45 degree dive (do remember to pull out prior to reaching ground zero), it is neutrally stable. This is a good position for slope racing and F3B speed runs, because the plane goes where it is pointed instead of ballooning every time the stick is released or the plane is rolled out of a pylon turn. The pilot, however, must be proficient at “pointing” the plane. This means you’ll have to “fly” the plane and constantly change or adjust your pitch to maintain proper airspeed. You’ll need a good view of the plane to fly it, and as such, this is probably not a good setting if you like to fly two miles downwind and have only average eyesight.

Again, the dive test tells you about the decalage, stability and CG position. It doesn’t tell you where it should be for max performance.

FIBERGLASSING WOOD FUSELAGES; from rec.models.rc.soaring.supplied by Tom Rent

QUESTION:

I understand that some builders who (still) build wooden ships sometimes apply a layer of fiberglass onto the builtup fuse to increase > the strength and aesthetic value. How is this done? I have only built wooden ships in the past, but have no experience whatsoever in fiberglassing any components of gliders. I would like to do this to my next ship as it was suggested by others who have done the same.

Any instructional help would be greatly appreciated.

Greg

RESPONSE 1:

This is a great way to bridge the gap between bulky wood jobs and the sleek laminated ships. I prefer to build a light wooden fuse w/ generously radiused corners to get the shape right, then sheath it in fiberglass to get the strength up. Depending on the application (HLG, floater, sloper) I glass increasing amounts of the fuse, starting from where the greatest impacts occur (nose).

By far the best method I've seen is based on light glass cloth (1.5 to 3 oz per sq. yard), laminating epoxy and spray adhesive (all available at most hobby shops, plastics supply houses and some DIY'er stores).

1. *Very* lightly, at arm's length, dust a coat of spray adhesive (3M Super77) on the fuse, enough to see is too much!
2. Cut the glass to approximate shape, leaving at least 1 inch all around. Lay it on the fuse, starting on the bottom and smoothing it so it conforms to the fuse. The glue should just hold it in place, not grab it and cause distortions in the weave. If it does, take off the cloth and wait 30 minutes.
3. Mix the epoxy in small (couple oz) batches and coat the fuse using a cheap fiber brush, fingers in latex glove, plastic squeegee or large popsicle stick. The epoxy should be thin, like warm honey. If not, warm for a couple seconds in the microwave, but beware, it will gel faster when hot. The glass will turn from white to clear when it is properly saturated with epoxy.
4. Warning: any excess epoxy is bad! Once everything is saturated, squeegee off as much as possible so the grain of the cloth clearly shows. You want the glass *right* against the wood. Too much epoxy will float the glass off the wood making it weaker and adding weight.
5. A second coat of epoxy or automotive/wood filler will fill the glass weave later. Do not sand into the fiber glass, except to fair out overlapping glass or edges.
6. Finally one thin coat of spray paint (Krylon, etc) does the trick.

It's really much lighter than an equal strength wood fuse, much more puncture resistant and looks good to boot. You could easily do your first fuse in two short evenings using this method.

Hope this helps.

Cheers!

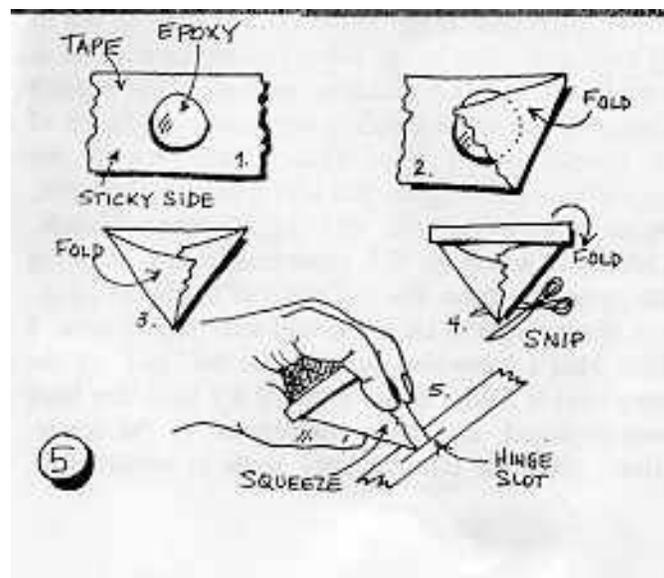
Tony

RESPONSE 2:

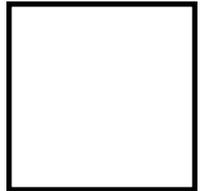
I might add just a couple of small additional comments to Tony Rodgers fine detailed response post to the question of how to glass a wood fuselage:

- 1) It helps to use a style of epoxy that has longer work time (≥ 20 minutes) and thinner consistency so you can apply it through the layers of cloth. The epoxy should also sand well. I prefer to use a laminating resin like the Pacer Technology Z-poxy Laminating/Finishing Resin (Part No. PT-40). This epoxy tends to tolerate slight imperfections in mixing ratio and produces consistent stiff tough hard sets.
- 2) Many of the current glider designs tend to build up tail heavy (even after being careful to build light at the tail). Glassing the nose back to the rear of the wing saddle tends to add strength where it is needed and helps move the weight and balance closer to the correct position.
- 3) Epoxy Resin can over a long period of time can produce allergic response (skin rashes, congestion of the lungs, etc.). It is wise to use protective vinyl gloves and attempt to not get epoxy directly on or inside you. Clean up agents like acetone and other solvents can actually carry epoxy resin into the first layers of skin. It is safer to use gloves and long sleeve sweat shirts to prevent contact and undue exposure. Epoxy is a wonderful modeling material but deserves respect. It would be a shame to lose the use of this material or have to give up modeling because of an allergic response to epoxy brought on by careless exposure.

Tom Rent has been Surfing!! Check out this web site recommended by Tom
<http://www.net-express.com/mnrc/home.html>



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First Class Mail