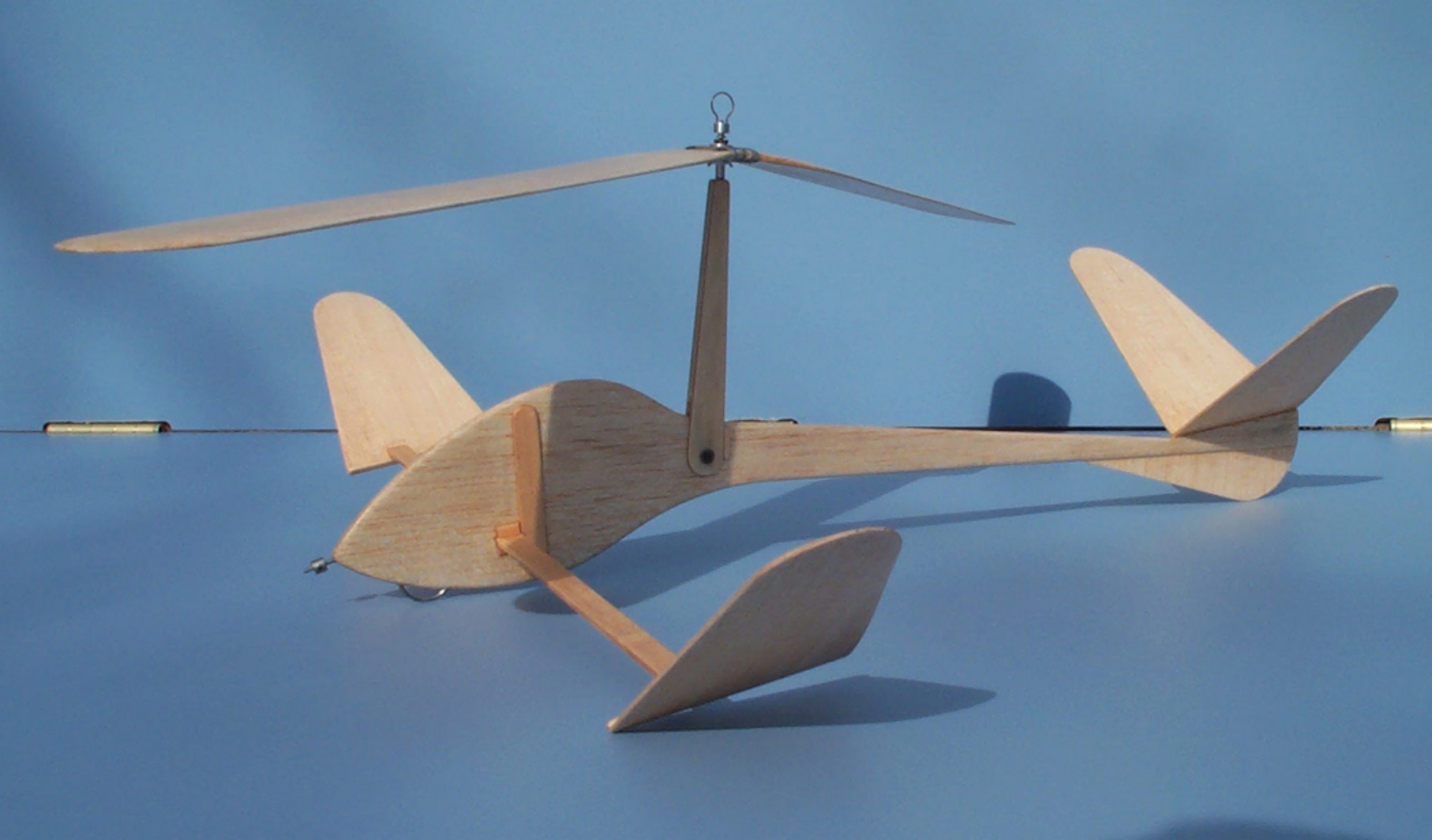

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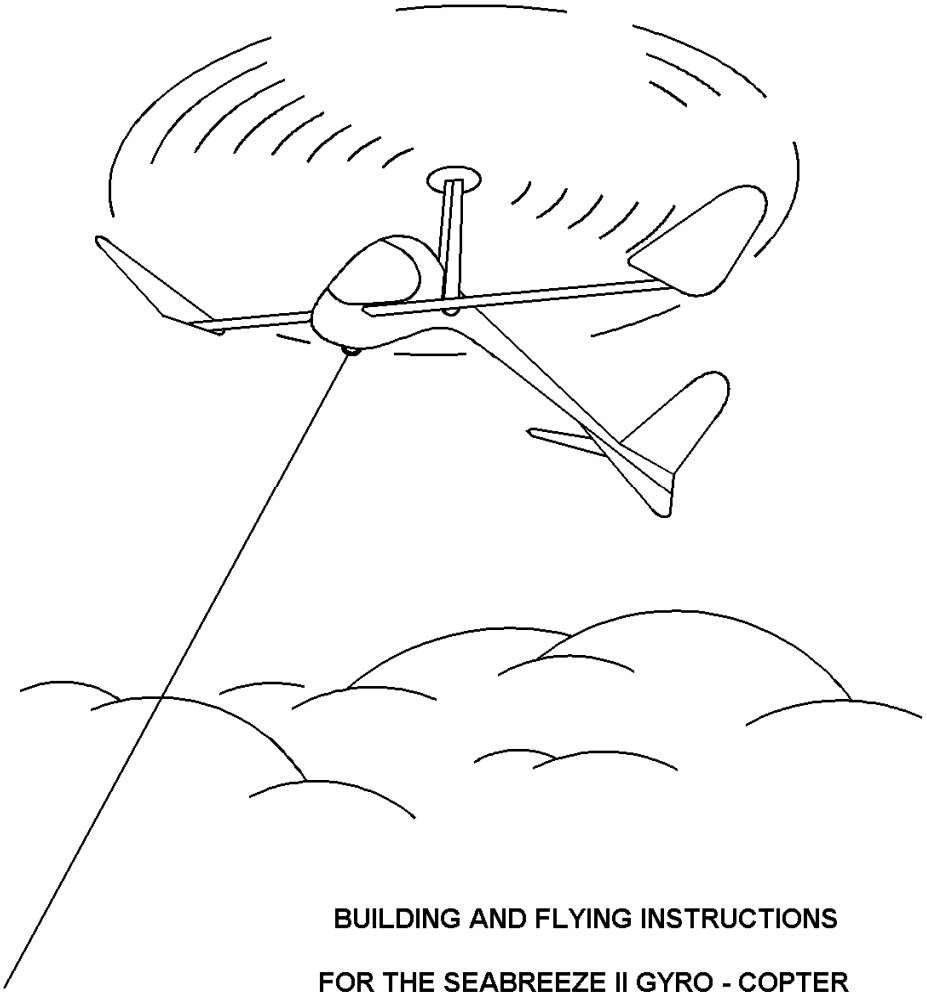


BUILDING AND FLYING INSTRUCTIONS

FOR THE SEABREEZE II GYRO - COPTER

First, a little history of the Seabreeze II Gyro-Copter. Right after World War II, a surplus gyro-copter came into my hands. It was knocked down in a tube and was intended to raise the emergency radio antenna of downed airmen at sea. It worked well, but was quite "ugly." So, I designed a nice streamlined versions, which also flew very well. My perfected design is the Seabreeze II, so named because I have flown this design many, many hours at the Oregon seashore. I made the effort to draw up these plans due to so many admiring spectators asking for such. My models are painted with model airplane dope in yellow, with red and blue trim.

Building is simple. Start by cutting out body from medium-hard balsa. Arrange the grain of wood as marked for a strong tail boom. Sand the edges round for smooth appearance. Next cut 1/8" X 3/8" hole below windshield for spruce spar to fit through.

Now a word about glues: I use two types only. I use superglue to "tack" parts in place, and then I use 5-minute Epoxy for the strong bonding I want. Slower epoxies tend to drip and run, and slow down the building time. Sand everything real nice - this is a pretty model and deserves the little extra effort. Use fine grit sandpaper.

Now cut out of 1/16" balsa the four fins using the "flat pattern" on the plan. Sand edges. Remember to round off the rear corner of the two forward fins. These fins (all four) have only two functions. One is to provide a stable platform upon which rotor-disc angle is based relative to the wind. Secondly, the fins keep the model stable through a momentary wind gust, enabling it to "ride out the gust" until smooth air is once again established. The rotor does all the lifting and, therefore, in the strict sense, our model is an aircraft not a kite.

Cut out the sub-fin and tack glue all tail fins as shown. Once the proper angles are set, epoxy all joints, smoothing the glue out with a finger. You can clean epoxy off your fingers with alcohol. Next cut a slot in the bottom of the cockpit area for the washer that you will epoxy in place as shown. Now cut spruce spar to length and bevel the ends. Glue two 3/32" braces on bottom of forward fins. Now super glue spar into body and check for square ness with the body. Epoxy main spar to body. Now super glue front fins to beveled spar ends in position shown. Check that 145° angle. Now epoxy the joint as shown. Make sure fin bottoms are parallel to the reference line on the drawing.

The rotor mast is built up as explained on the drawing. The inside piece is 3/16" medium hard balsa, ending at the dotted tine just above the body. Epoxy this together. Drill bolt holes in plywood sides before gluing the 3 pieces together. Sand until it's nice looking. Make two rotor blades - using outline on plans. Sand both to airfoil shape shown. After assembly, balance rotor using small nails in blade tips. Cut out the rotor-hub from 1/16" aircraft plywood (found in model hobby shops). Sand edges. Buy your 1/16" 1D brass tubing at model shops, also the necessary 1/16" music wire we're using. Get your washers there also. Cut and file smooth the 1/16" ID brass tubing to the lengths shown on the drawing. Epoxy the hub pivot tube in place making sure it is square with the rotor hub. Make rotor shaft, as shown from 1/16" music wire. Cut out and sand the four 1/4" cube spruce blocks. Carefully drill 1/16" holes through them. Make two 1/16" music wire hinge pins to length shown on plans. Now, grab a cup of coffee.

"Tack glue" with super glue the two brass tubes to the corresponding angled ends of the rotor blades. Center the tube on the blade end. Now sew with a "skinny needle" and polyester thread around the tube as shown. Next; smooth 5-minute epoxy over the tube, blade end, and over all the threads. Epoxy glue hardwood 1/4" blocks in position as shown, aligning drilled holes with the brass tubes. Make sure whole hub assembly with hinge pins in place allow the flat bottom of blades to rest flat on the blade rest area of rotor hub. With blades flat at rest, there should be no angles at all relative to the disc of rotation.

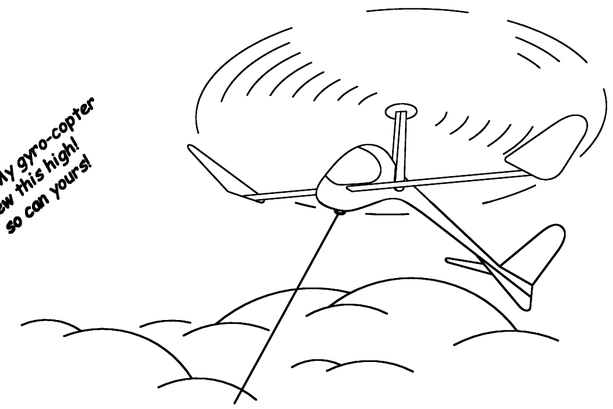
For the technical minded, you will notice the advancing blade will create more lift than the receding blade. This could cause a flip-over if blades were rigid. So our "flapping blade" lifts with the extra lift force on it. Because of our sneaky 120° hinge angle; the lifting blade aims downward spilling the excessive lift, and presto! Stability! The receding blade presents more area to the wind than the advanc1ng blade and presto! We have auto rotation!

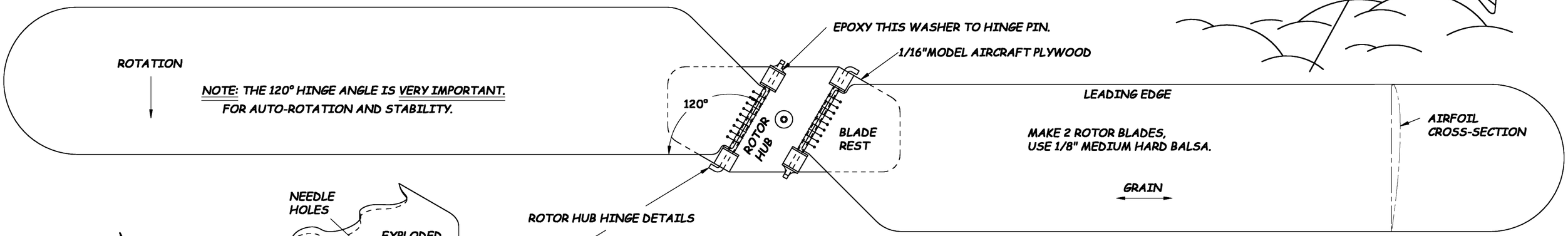
A final word on flying. Don't give in to the temptation to fly in gusty wind. It will dump your "pride and joy" very unceremoniously into terra firma and this can be hard on the components. Usually, however, the worst gusts are near the ground caused by trees, houses, or whatever. So if the gusts are only occasional, you can quickly get above it by launching from 100 feet away, having a friend helping you. Upon release, the model will go up quite fast. Your job is to let out line to gain altitude and take up any slack a lull in the wind might cause. Never allow your line to go slack. Once my line went slack and I found my model gliding beautifully in "free flight." But don't count on this! You will have a ball! I always do! With a real steady wind, one person alone can launch the gyro-copter right from the end of your spinning rod. Be sure to use a swivel where the line connects to the model, since your line is spinning or "twisting." Ten miles per hour wind speed or more is ideal. If the wind is real steady, the model will fly in less wind-speed. A Dwyer pocket wind-speed indicator is handy in measuring the wind.

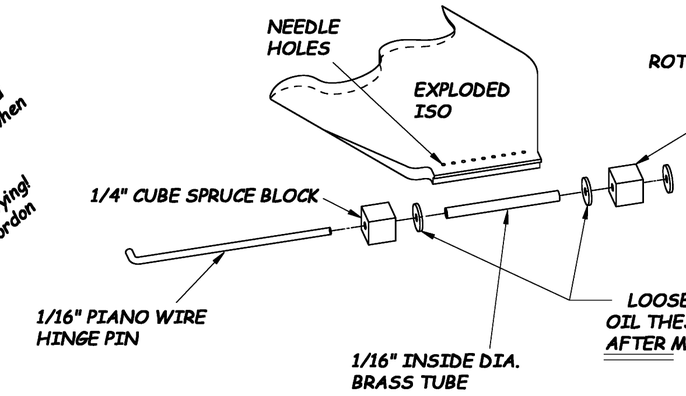
Good Flying!
Gordon Fairley

BEST WAY TO LAUNCH YOUR GYRO-COPTER.

A STEADY BREEZE IS A MUST! RELEASE MODEL
WHEN ROTOR IS FAST, STEADY, AND WANTS UP!



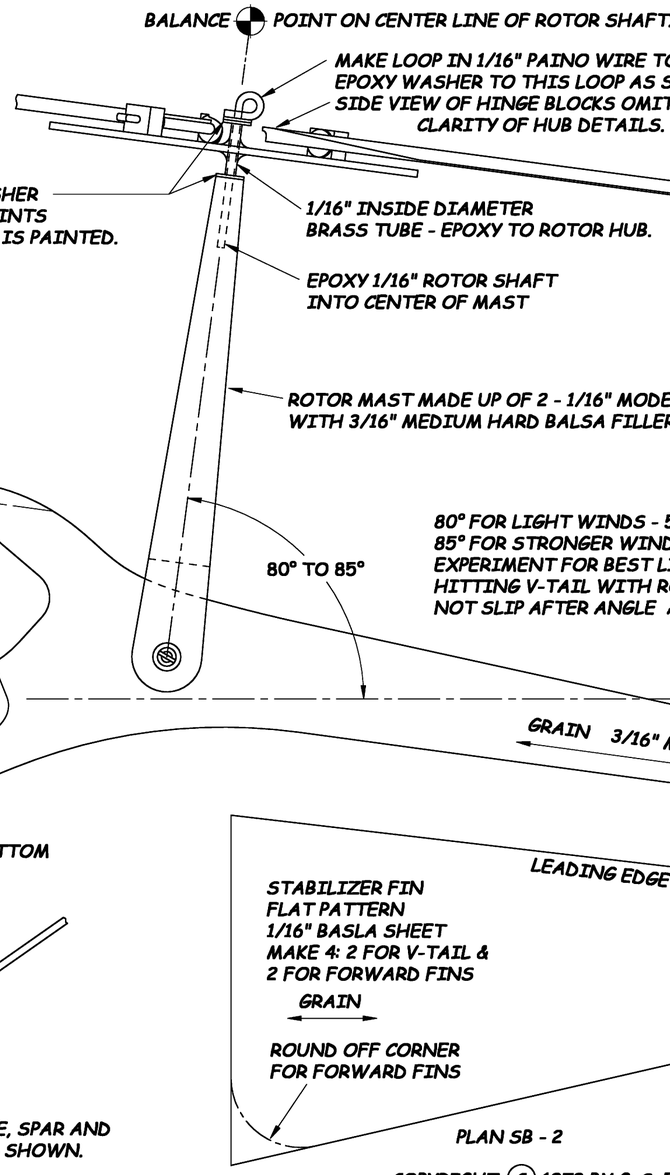




ROTOR HUB HINGE DETAILS

See instruction sheet for full details. I,d be deliughted if you send me a photo of your model when your done building it!

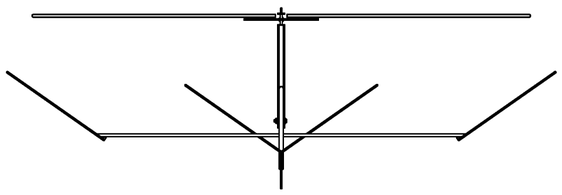
Happy flying!
Gordon

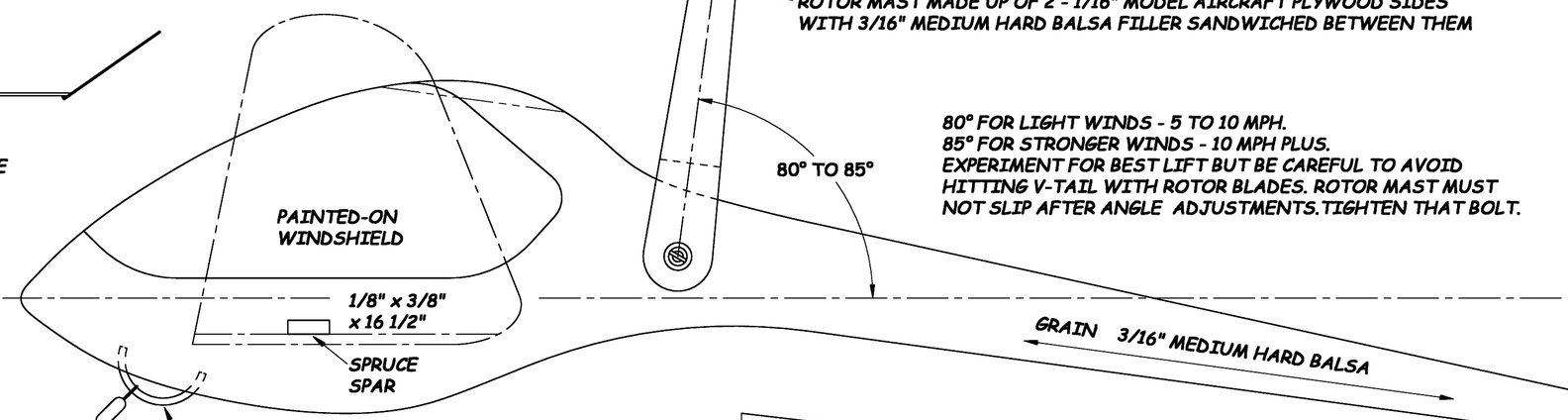


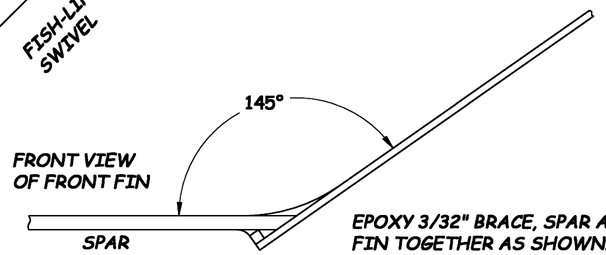
SCALE IN INCHES

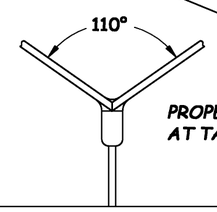
0 1 2 3 4 5 6

CAD by G Rock
10-9-00









Seabreeze II

CAPTIVE GYRO-COPTER

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