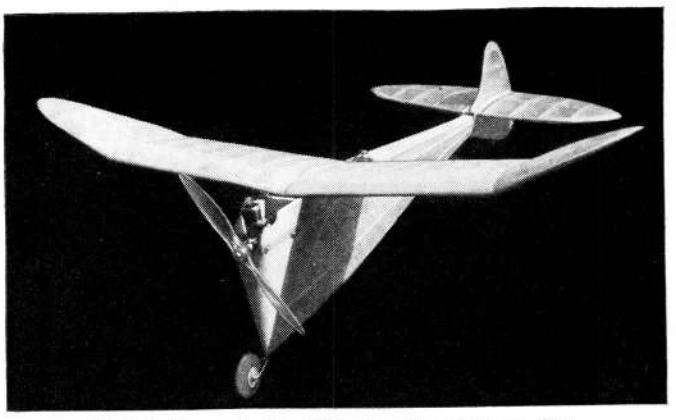
"Wedgy"- THE RECORD SMASHER



"Wedgy"; a sleek, efficient and consistent flier

The Class "A" 1940 Nationals Winner—A Little Ship With Many Unique Features That's Easy to Build. It Has Placed in All Contests Entered.

By LEON SHULMAN

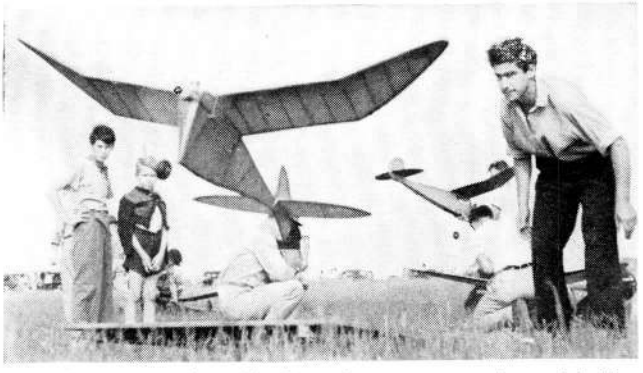
THOSE who attended the Nationals were thrilled at the sight of a small but unusually-shaped plane darting skyward with the speed of a rocket. At first glance its only resemblance to an airplane was carried out by the wings, which spread out from either side of a deep, wedge-shaped body.

It was an unusual plane, both in looks and performance. Many called it the "Flying Wedge" and in all events it certainly lived up to this name; for it "cleaved through the air with the greatest of ease" and ended up by capturing the world's record on Class A. Nor was this merely a lucky performance, for WEDGY has been winning consistently in all contests in which it has been entered.

One may look for its excellent flying qualities in the simplicity of its construction and its sound aeronautical design. The deep body helps to eliminate landing struts that cause considerable drag. The body, being shaped in such a manner, that though deep it offers small head resistance.

It has placed among the first three in every contest entered. At the Nationals it won the Class A event with a flight of 22 minutes plus.

Of course the thermals helped, as they usually do. WEDGY seems to catch thermals even at sunset and many a flight has resulted in mad dashes across country.

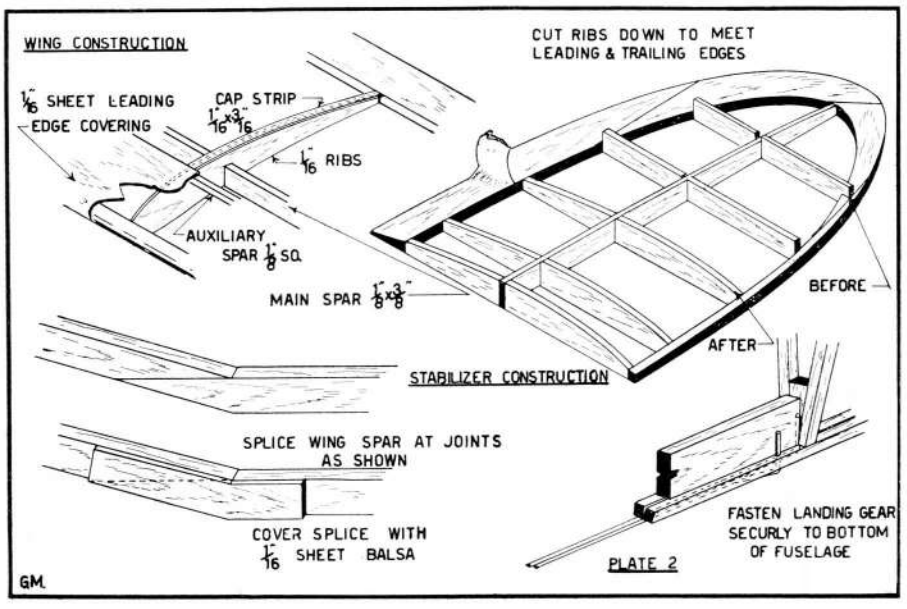


"Wedgy" jumps for altitude as its creator watches critically

Nine ships of different sizes have been built and all have the same characteristics—an especially tight, cork-screw climb and a tight right circular glide having great soaring tendencies with exceptional stability.

Although the profile view of the WEDGY seems not too streamline, the flight results have proved otherwise, there being very little frontal area exposed to produce much drag. The exceptional flat glide indicates efficiency. The protruding wheel from the nose of WEDGY will save many props on rough landings and aid immensely in the take-offs. The new 1940 Bantam was used as power for the WEDGY although any class A or B engine would be satisfactory.

Since all plans shown for the WEDGY are not full size, they will have to be scaled up to proper dimensions. This can be done very easily on a large sheet of brown wrapping paper with the use of a ruler, pencil, eraser, patience, common sense and a couple of hours. Care should be exercised where the dimensions are concerned, since the proportions may be changed. The body should not be too difficult to draw since it has only a V-shaped cross section with no formers to worry about. The wing is the simple type with parabolic-shaped wing tips. The stabilizer is elliptical and the rudder of simple shape.



Fuselage

The entire fuselage is constructed of 3/16 inch square hard balsa wood, except where noted. The motor mount bearers are of pine wood or any hardwood. These are cemented to the bearer supports. The sheet balsa sides of the cowl can be built with each side. The front cowl block can be cemented into place after the fuselage sides are cemented together. Note that the top longeron is double where the wing rests on the fuselage. This is to prevent the fuselage from collapsing when put under strain. Assemble the fuselage by bluing the bottom longerons of each fuselage side together, and add cross braces between the top two longerons. Be sure that the angles on the cross braces are pretty near perfect, for this will greatly strengthen your fuselage.

After the two fuselage sides are glued together and have the right shape, add the front nose cowling. Details can be seen in the sketch.

The landing gear should now be bent to shape (as shown in the drawing) to fit the fuselage and to hold the wheel. (A 2 1/2 inch air wheel can be used.) The landing gear should then be attached to the fuselage as shown on the plans and bound with very strong thread. Several coats of glue over this would greatly add to its strength. The next step would be to turn the fuselage upside-down and sand the bottom of the

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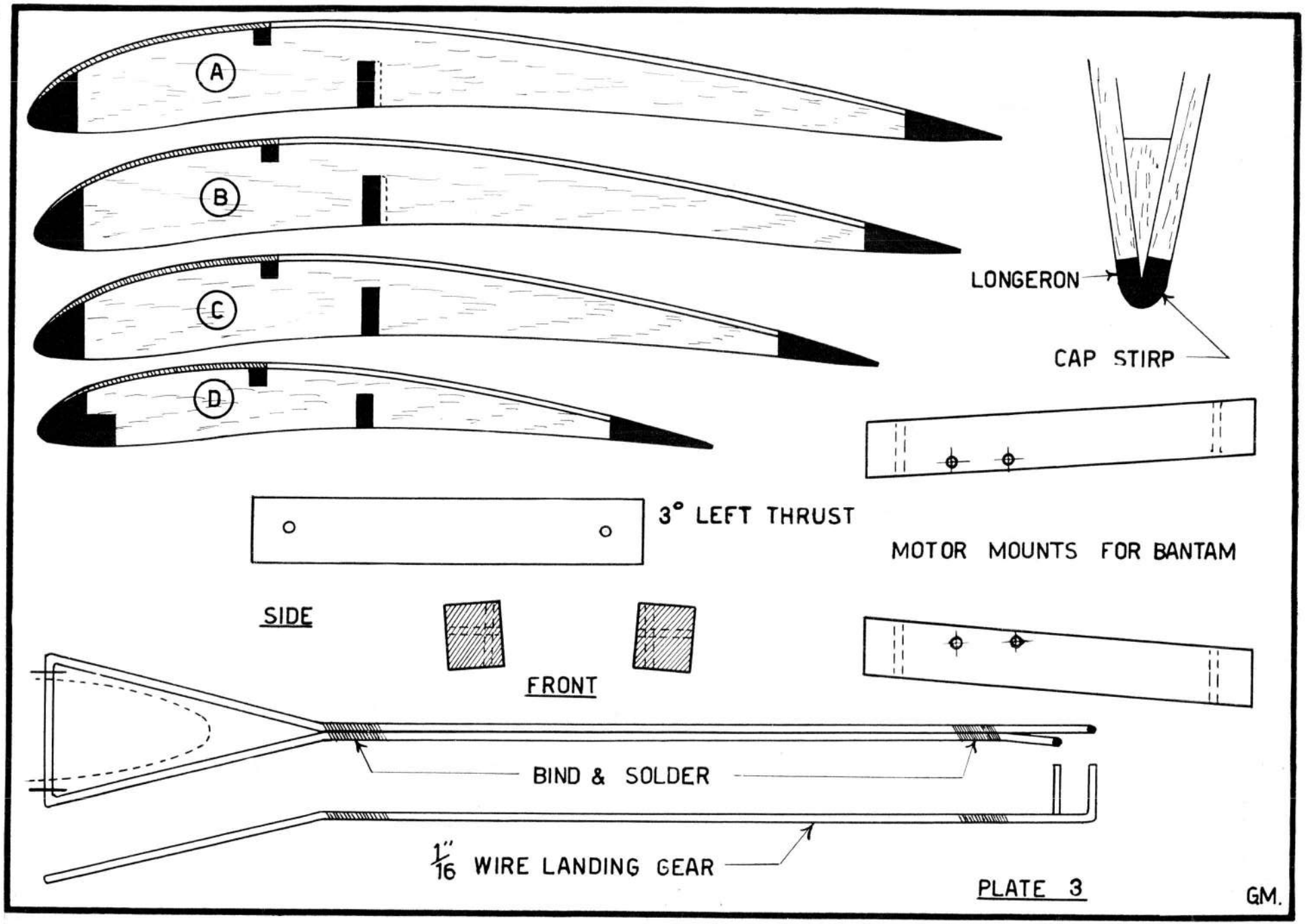
A
B
C
D
LONGERON
CAP STIRP
3° LEFT THRUST
MOTOR MOUNTS FOR BANTAM
SIDE
FRONT
BIND & SOLDER
1/16" WIRE LANDING GEAR
PLATE 3
GM.

their first annual model meet Sunday, August 4. Prizes totaling $125 drew 91 entries to the first meet. The contest was a big success with about 2,000 spectators.

"High honors in the gas event went to Wm. Kandler of Indianapolis with a total time of 18:14.4 for three flights. Other winners in order are: James Bennet, Indianapolis, time 13:2.5; Herman Batt, Newcastle, 11:48.5; Ray Neese, Indianapolis, 11:43; Ernest Roberts, Muncie, 9:27; Harold Stofer, Indianapolis, 9:23; Harold Stofer, 8:41.5; Logan Coombs, Bloomington, 8:30.5; George Cochran, Indianapolis, 8:18; James Bennet, Sr., 8:13.6.

"Logan Coombs, eighth place winner, launched his ship for an out-of-sight flight on his first attempt and his ship has not been found to date.

"Top place in the rubber entries went to Bob Romiser of Indianapolis with a time of 7:23 for three flights. Second place was won by Kletis Kirk, Middletown, 5:59; 3rd place, Ivan Mount, Marion, 5:23; 4th place, Erle Moore, Noblesville, 5:19; and 5th place, Harold Poer, Anderson, 5:08.

"The club has 30 members to date. Officers of the club are as follows: Pres., Jack Preston; Vice Pres., Bob Moore; Secty., Ernest Kitterman, and Treas., Harry Scherer.

"The club plans to put on a bigger and better contest next year."

Florida

The Mad Modelers of Lakeland, Fla., with headquarters at 921 East Osceola Street, held a contest on August 11. It was sanctioned by the A.M.A. and directed by Ruper Keene, CAA ground instructor. It was sponsored by the Junior Chamber of Commerce and had 70 entries from various sections of Florida. The respective winners were:

Hand-Launch Glider Event: Gene Chaille, Miami; John Caudle, Lakeland; Edward Smith, Jacksonville. Gas Event: Gene Chaille; Ed McIntyre, Miami; Dale Hoffman, Sanford; Armond Nielsen, Lakeland. Rubber Powered Event: Bill Ransey, Daytona; Armond Nielsen, Fred Whitt, Lakeland.

Coming Events

On October 12 the Flying Dutchmen of Yonkers, N.Y., will hold an official A.M.A. contest at Reynolds Central Westchester Airport, Valhalla. It is the first official meet of the club and all gas model fliers are invited to participate. Over $100 worth of motors, kits and other merchandise of the highest quality is to be offered at prizes. Those who wish to enter should write to William Mertens, secretary, Flying Dutchmen of Yonkers, 20 South Broadway, Room 1107, Yonkers, N.Y.

Correction

In the account of the Nationals, given in the September issue of M.A.N., it was stated that John W. Ault placed sixth, winning the General Battery Award. This appears to be an error, for Mr. Ault says that the award he received was a medal and $25 in cash.

Notice

A number of builders will be interested in hearing that Lt. William Bouldin, 3rd, who is one of the oldest model builders in the country, has opened the Airport School of Navigation in conjunction with Capt. E. D. Carlson. It is located at Orange, N.J. They specialize in teaching Air Navigation, Civil Regulations and Meteorology. They are also offering a home study course.

"Wedgy" the Record Smasher

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fuselage, longerons flat; then glue the 1/8 inch by 3/8 inch cap strip in place. When dried this should be rounded off to the proper shape. The underslung or sub-rudder is cut from sheet balsa then glued to the fuselage in its proper position and sanded to streamline shape. The nose cowl should then be finished off to fit the WEDGY nose.

The Wing

The WEDGY wing is extremely simple to build because of its shape. The simplest method of constructing this wing is to make two templates of hard balsa. Cut from 1/16 inch sheet balsa, 22 rectangular pieces slightly larger than the rib template. (It would be wise to make at least four more ribs than necessary. These can always be used later for repairs.) By standing all the rectangular pieces of balsa on end they can be evened out so that it will resemble a rectangular solid block. Then place the two rib templates on each side of these pieces of balsa, making sure that they are lined up with one another. Drive a few pins through the rib templates into the bunched pieces of balsa from each side, making sure that it is quite solid. By cutting with a sharp knife or coping saw, this so-called block can be trimmed so that it will have the outline of the airfoil. By using rough sandpaper all bumps can be smoothed out. By finishing smooth with fine sandpaper the outline should be accurate. The notches for the spars should now be cut into these balsa ribs. This can be done either with a saw or razor. After extracting the pins, the ribs will be completed and alike.

The spar should now be joined as shown in sketches, making sure that all joints are pretty near perfect. The gussets on each side of the joints are of sheet balsa and should add great strength to the spar. The ribs can then be placed on to this spar in their proper positions and glued in place. The leading and trailing edge should then be glued in place. The tips which are cut from sheet balsa are then fitted into position. You will note by looking from the side that the wing tips assume a negative angle. This is done to decrease any stalling tendency the ship may have, therefore assuring a flat glide. The sheet balsa leading edge can be fitted to the wing after the 1/8 inch square balsa top spar is in place. After the sheet balsa leading edge is in place, add the cap strips to their respective positions. The wing is then finished smooth by sanding all the excess balsa so that the airfoils of the wing are smooth.

Tail Assembly

The trailing edge is cut from 1/4 inch soft-sheet balsa. It is placed on the plans

and pinned into position. The leading edge of 3/16 square hard balsa should be soaked in water and pinned in position. The spar of 1/8 inch by 1/2 inch, and ribs of 1/16 inch by 1/2 inch are cut and inserted as shown in the sketch. Cement securely at all points and when dry use a pen-knife or sand block to cut the ribs down to meet the leading and trailing edges, which are sanded to a smooth airfoil section. The rudder outline is cut from 1/4 inch sheet balsa. The rudder rib is 1/4 inch square balsa. When the assembly has been completed and the glue dry, sand to symmetrical airfoil shape.

Covering

Covering of the WEDGY is extremely simple. Light silk span or double tissue can be used, as this will not add any unnecessary weight to the finish because of the tissue's extreme lightness. Remember that the paper should be cemented to the underside of the wing surface; this will result in a true wing section. When completely covered, water dope. Then brush on two coats of clear dope; it is not necessary to add more since the paper becomes brittle.

Motor Mounts

Because of many crashes a ship is bound to receive, removable mounts have proven to be the best in every respect. WEDGY motor mounts allow the motor a thrust range of approximately 4 or 5 degrees in every direction. The mounts are made of hard wood and bolted to the hard-wood motor bearers. Since almost every motor has different mounting dimensions, mounts of different sizes will have to be used to fit these motors. The method of mounting is illustrated in the sketches.

Wiring

The position of the battery box, timer and coil are shown in the fuselage by dotted lines. Any standard wiring diagram may be used.

Test Flying

Test flying the WEDGY will be the simplest testing job ever, due to the ship's stability. Of course do not be over-confident because mistakes happen. The plane, when completely assembled, should balance at approximately 1/3 back of the leading edge and should weigh approximately 17 ounces. If WEDGY does not balance at this point, shift the ignition weights in the fuselage to achieve correct balance. WEDGY should be test glided in tall grass "just in case." If all the incidence is built in as required, the ship should have a smooth flat glide with a slight right turn (looking from the rear forward). Before attempting to fly WEDGY, check the thrust adjustments so that the motor is directed 3 degrees to the left (from rear forward) and a zero degrees horizontal thrust line, and a bit of right rudder. By allowing the motor to run smooth and at a low speed WEDGY should be launched into the wind from shoulder height. With a motor run of twenty seconds, the model should climb in a left circle while under power and glide to the right on motor shut off. After continuous testing with gradual increase of power, the model should climb in a fast, tight, left corkscrew and roll out to a right floating glide on motor shut off. You will find WEDGY to be the most rugged, dependable ship you have ever owned and your only regret will be that you have only one. So make the best of it!

Fundamentals of Model Plane Control

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angle of turn. All that is necessary is that the lateral area to the model be so disposed that its center is in the correct position relative to the CG to induce the desired degree of slant in XY. The greater the slant, the tighter the turn will be.

The more positive XY is relative to LT the straighter the flight will be. The reason for this can be seen by means of a demonstration. When the model such as is shown in Fig. No. 1 banks to the right, it will rotate about axis XY. If the rotation is through an angle of 90 degrees, it will assume the position shown in Fig. No. 2. The old line of flight is XY. It is obvious now that the nose of the plane is pointed to the right of the former line of flight, in the direction of the bank. Therefore it will have a tendency to nose around to the right, due to the increased angle of attack, augmenting the effect of the right bank.

Now look on Fig. No. 3, here we have a model whose neutral axis is positive to the line of thrust. Assume that the model banks to the right as in the case of the first model, rotating about XY and assuming the position shown in Fig. No. 4, XY in Fig. No. 4 being the old direction of flight.

In this case the nose in the model is pointed to the left of XY and away from the bank. This will create a tendency to turn the model to the left rather than to the right, thus opposing the tendency of the model to turn to the right because of the bank. In other words, the model nosing to the left neutralizes the effect of the banking to the right.

When in flight, such a model would have a tendency to right itself immediately and continue on a straight course rather than turn in a circle.

It becomes evident that the degree of turn of a plane may be regulated by the angularity XY relative to LT.

In our previous discussions of the effect of the position of the center of lateral area, it was stated that the higher the center relative to the CG, the sharper would be the turn and the greater the tendency of the model to spiral dive. This reasoning coincides with the present explanation, for the higher the CLA, the tighter the turn will be and consequently the plane will have a greater spiral diving tendency, provided the model is flying at an approximately horizontal course.

Now assume that your model has a relatively high CLA, but instead of flying nearly horizontally it is designed and made to execute a steep or vertical climb. The CLA being high, the model will have an extreme tendency to roll about XY and turn. Now, however, the nose of the model being pointed upward in a climb, the ship will spiral climb instead of spiral dive. The same rolling action will take place about its CLA neutral axis as well as when it is flying horizontal. However, its climbing position turns the spiral dive into a spiral climb.

On a number of occasions the high CLA