



SPORTY ACE

By Chuck Cunningham

As you may be able to recognize, the Sporty Ace is a first cousin to the Lazy Ace. Somewhere along the line the Sporty Ace didn't get enough vitamins, and didn't grow up to be as big a biplane as the Lazy Ace. In fact, the Sporty Ace is just what her name implies, Sporty, Perky, Pretty, and an Ace when it comes to flying. She has the same look as the Lazy Ace, but is designed for a .40 engine. She can be flown with anything from a .19 to a .45, but a .40 is the best size to carry her around. Don't get wild and try and put your favorite .60 in the nose; it might fit, but way too much power.

The Sporty Ace was designed to be a fun flying bird for the biplane lover who doesn't want to build a big biplane, but would like the good looks and flying ability of the Lazy Ace. The SA has a semi-symmetrical airfoil, but retains the slightly lifting stab of the Lazy Ace, Miss Texas, and Lucky Lady series of design. Her handling ability is the same on take-off and landing. On take-off you merely turn her into the wind, hesitate for a moment while she sniffs the breeze, then shove the throttle forward. Her aft end lifts up in about 3 or 4 feet, she tracks straight down the runway, and lifts up whenever you want to become airborne. On a paved field, this is in

If you're a biplane lover and don't want to build a large one, the Sporty Ace is a must. Designed around a .40, it has both appeal and ability. Try it and you'll like it.

about 50 to 60 feet. When landing you can either bring her in for a two wheel landing, or slowly rock back on the stick until you drag her in for a three point touch down. I have tried making stalled landings with her, and it is almost impossible to get her to stall out and drop. When she does break, it is just a slight settling straight ahead.

I went to a semi-symmetrical airfoil on the Sporty Ace since most biplane fliers of this size aircraft like to do wild and woolly maneuvers. The SA will do them. The wing area is generous for a .40, 700 square inches, and the weight is low, only 4¾ lbs. (covered with Super

MonoKote), which gives her a wing loading (based upon total wing area) of 15.63 ounces per square foot. If you're a heavy handed builder, and like to cover with silk and smear on lots of dope or paint, then you might add a pound of total weight and even then the wing loading would still be a respectable 18.93 ounces per square foot. Trouble comes in when you work in wing loadings of 29 to 30 for sport and fun fly airplanes, but that's another story.

The Sporty Ace is very easy to build yet, by using spruce spars for the wings, is very strong. You can use very hard 1/4" balsa for the spars if spruce is not available, but the 3/16" spruce spars weigh about the same as balsa, but are a heck of a lot tougher. The interplane struts are very simple to build and install, yet give her just that bit of finish look. Don't let building a wire cabane scare you away. It is easy to do, and is not installed on the fuselage until the finishing process is completed. If you want, you can bolt the wings in place, but I like to use rubber bands on any new design so that, if need be, I can make adjustments in wing incidence.

And, speaking of incidence, make sure that both wings are zero with the bottom of the stab. If any variation creeps in, this can louse up your model. Before covering, put everything in place,

slip the cabane structure into the tubes, block the aircraft up on a table and then, with a ruler, check that the stab is horizontal. When you have it blocked up correctly, check to see that the chord line of the ribs of each wing is horizontal. If not, then take the time to make the necessary adjustments to zero out everything. The time that you spend checking on this, or any other model, will be well spent and return the profit to you of a good flying airplane.

If you're a biplane lover, or if this is your first biplane, you're going to enjoy the Sporty Ace. She can make your day of fun flying really fun. Clear off the work bench, get out the glue pot and stack of balsa, and let's get started.

CONSTRUCTION

Wings: Well, why not start out with the wings --- when you get them done, you're half way home with a biplane. Cut out 18 ribs for the top wing from 1/16" sheet balsa; then cut 18 ribs for the bottom wing. Both are the same in regards to size and spar location, except at the trailing edge for the lower wing. This is cut short to allow for the ailerons. When you have the ribs all cut out, then build a stack for the top wing; pin this stack together and sand to final shape. Do the same for the lower wing ribs. Now, let's build the top wing first. The plans show half of the lower left wing, and half of the upper right wing. Since the wings are similar, you can build all of the top wing at one time and all of the bottom wing at one time. The wings are built with the trailing edge flat on the table, so follow closely. Once you get the hang of the sequence, it's easy to build a straight and true wing. First cover the plans with wax paper and pin the trailing edge sheeting flat to the plan. Then put the bottom cap strips in place. Next, place the bottom two spruce spars in position. The cap strips hold the spars 1/16" above the building board. Glue all of the

ribs in place working from the tips toward the center section. Note that at the center section the ribs are cut short to allow for the center section cut-out so that the pilot can see where he is going. When all of the ribs are in place, use scrap balsa as shims and glue the leading edge block in place. Do not join the top wing at the center section. This wing has 1/2" dihedral at each tip, which keeps it from having that droopy drawers look. Next, glue the trailing edge sheeting in place, then the top leading edge sheet and the top cap strips. When this is dry, remove both wing halves from the plan, turn over and glue the leading edge sheeting in place. When all of this is dry, using a razor saw, cut slots in the ribs for the 1/8" ply dihedral braces. Smear 5-minute, or longer, epoxy all over the dihedral braces and slip them into the slots in the ribs. Make sure that the braces, glue, and spruce spars are in close contact. Block up the tips to 1/2" each; block up the trailing and leading edges so that the chord line of the wing is horizontal; pin in place and let the glue dry. When this is done, add the center section sheeting at both the top and bottom. Add the wing tip blocks and sand everything down to finished size. The lower wing is constructed in exactly the same manner, except that you add the 1/4" x 1/2" trailing edge piece, and the extra scraps to give the aileron hinges more bearing. The dihedral on the lower wing is 1 1/2" under each tip so be sure to slant the center ribs enough to take care of this. After the lower wing is complete, cut out a small well for the aileron servo.

The ailerons may look a bit large to you, but they are not. Make them the size shown on the plans. This aircraft responds nicely to aileron control, and you can throw them a lot, or a little --- it all depends upon your style of flying. The hold-down pieces for the interplane

SPORTY ACE

Designed By : Chuck Cunningham

TYPE AIRCRAFT

Sport Biplane

WINGSPAN

47 1/2" (Both)

WING CHORD

7 1/2 Inches

TOTAL WING AREA

700 Square Inches

WING LOCATION

Biplane

AIRFOIL

Semi-Symmetrical

WING PLANFORM

Constant Chord

DIHEDRAL, EACH TIP

1/2" Top --- 1 1/2" Bottom

OVERALL FUSELAGE LENGTH

37 Inches

RADIO COMPARTMENT AREA

(L) 6" x (W) 3" x (H) 4"

STABILIZER SPAN

16 Inches

STABILIZER CHORD (incl. elev.)

6 7/8 Inches

STABILIZER AREA

101 Square Inches

STAB AIRFOIL SECTION

Flat Bottom

STABILIZER LOCATION

Top Of Fuselage

VERTICAL FIN HEIGHT

6 1/2 Inches

VERTICAL FIN WIDTH (incl. rudder)

5 1/2" (Avg.)

REC. ENGINE SIZE

.19-.45 Cubic Inch

FUEL TANK SIZE

8 Ounce

LANDING GEAR

Conventional

REC. NO. OF CHANNELS

4

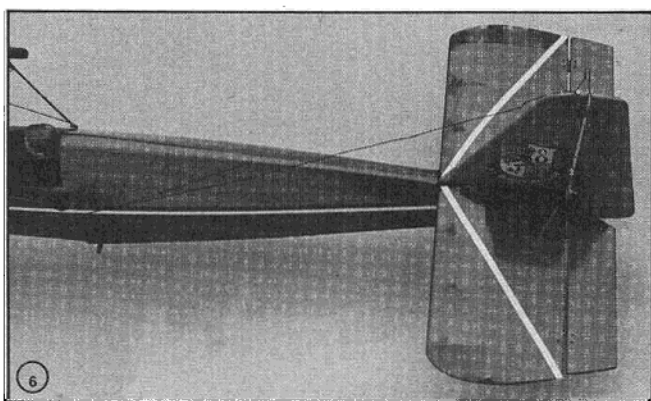
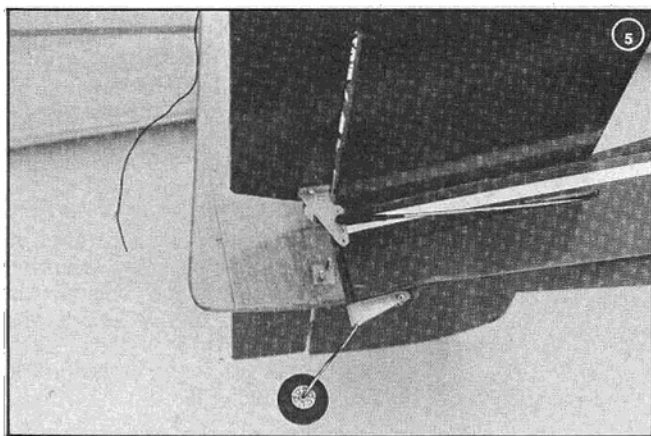
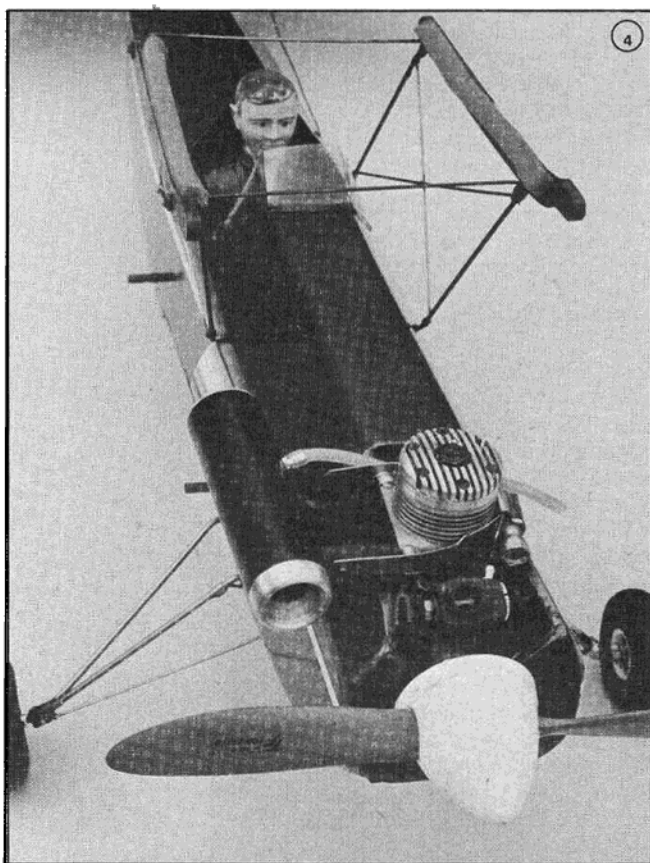
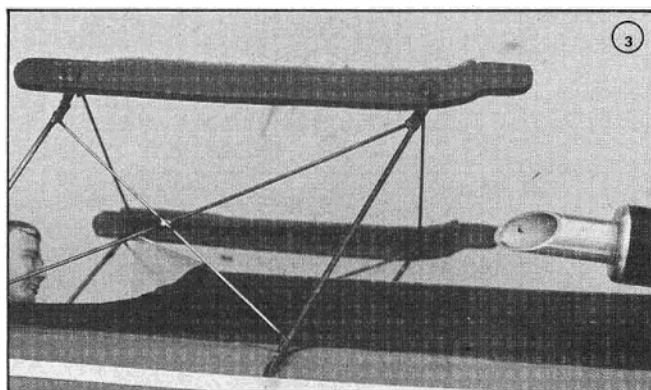
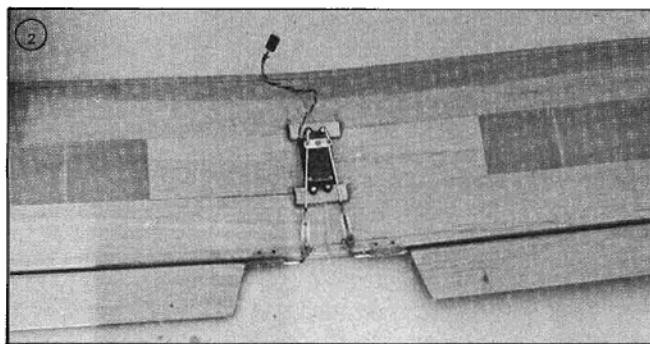
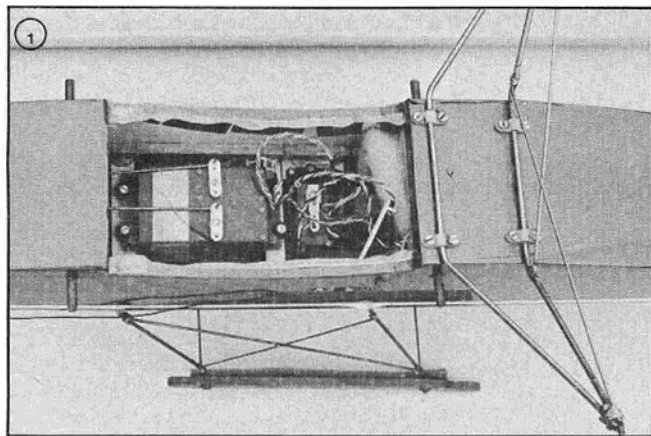
CONTROL FUNCTIONS

Rud., Elev., Throt., Ail.

BASIC MATERIALS USED IN CONSTRUCTION

Fuselage	.....	Balsa, Ply & Spruce
Wing	.....	Balsa, Ply & Spruce
Empennage	.....	Balsa & Ply
Wt. Ready-To-Fly	.....	76 Ounces
Wing Loading	.....	15.6 Oz/Sq. Ft.





(1) Bottom view of fuselage shows nylon clips for L/G, also ample radio room. (2) Servo and linkage for lower wing. (3) Close up of cabane struts. (4) K & B .40 up front sporting a Semco muffler. (5) Close up showing tailwheel, rudder & elevator installation. (6) Overall photo showing completed tail group.

struts are added after the wings are completely finished.

Tail Section: The horizontal stab is built flat on the board and offers no

problems. Pin the leading and trailing edge pieces to the plan, as well as the bottom spar. Glue the 1/16" center section sheeting in place. Cut the ribs

from 1/16" balsa, stack and sand just like the wing ribs. Glue them in place. Add the extra pieces at the trailing edge

Radio Installation: Install the radio in your favorite manner, checking the balance of the aircraft as you go along. Install your favorite type of pushrods. Since this isn't a radio "how-to do it", I won't go into all of this here. Make sure that all of the controls work properly and that there is no binding in the linkage. Just about any radio equipment will fit in the Sporty Ace but, as in all smaller aircraft, a bit of care is necessary to get everything in place. An 8 ounce Kraft tank was used in the original and slipped in through the radio compartment. Takes a bit of fitting, but it can be done.

Flying: The Sporty Ace is a very easy aircraft to fly and one that will give you hours of enjoyment. Make sure that all of the controls have the amount of throw shown on the plans. Make sure that all of the controls are at neutral when the control sticks are at neutral. Check the balance point one more time, with the tank empty. Be sure that the wings have at least four rubber bands on each side holding them in place (use #32 bands). Check the engine idle and high speed settings for just a slightly rich mixture. Taxi out, turn into the wind, let her come to a stop, check the wind direction one more time (tail draggers like to take-off right into the wind), advance the throttle, hold just a nudge of right rudder (not much), watch the tail come up and, then, as she picks up speed, ease back on the elevator stick just a wee bit and watch her break ground. Climb up to a safe altitude and then start putting the Sporty Ace through her paces. I know that you're going to like taking this young lady out on a date to the flying field. When it comes time to make a landing, you're going to enjoy it even more and will want to go steady with her. □

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