



The model takes any .099, or smaller, engine. The slight taper in the wing panels takes away that squared-off look. The large open cockpit gives the job a touch of realism.



THE .099 SPORTLINER

by Lloyd Hunt

One of the neatest little yo-yo's we have seen for small engines. The fuselage is sheet balsa, wing is built-up

● The ".099 Sportliner" was designed with but one point in mind—to produce a sport model that could be taken out to fly and, at the end of the day, still be in one piece.

You can power it with a .099 McCoy or small Arden—whichever type of engine you may have—with very little time and trouble involved in installation. We used the Cub .099. Before starting construction, look over the plans. You will notice that only the working parts or templates have been shown—the front and top views have been omitted, since they are not needed to construct the model.

Half-size plans for the .099 Sportliner are shown on the facing page. If you don't know how to enlarge them to full-size, or don't want to bother with this, you may obtain full-size plans free of charge from FLYING MODELS by using the coupon on Page 44.

FLYING MODELS

WING: Form the leading edge of the wing as shown. After the two strips have dried, pin the leading edge down on the plan on top of a flat surface. Notch, pin and cement the trailing in place. Cut the required wing ribs; the taper can easily be accomplished by cutting the ribs as shown. Cement the ribs in place and add the wing tips, which are shaped from balsa blocks. Lastly, cement the spars to the wing.

The plan drawing shows a lead weight. The weight may be used either for the left or right panel, whichever way you will fly the ship. It should weigh one-half to three quarter ounces and will keep the lines taut while flying.

After adding the complete wing, insert aluminum tubing in the tip for your lead out wires.

LANDING GEAR: Lay out the gear pattern on aluminum and drill the

holes as shown (three for mounting the gear and two for the bolts that are used as axels). Bend to the desired shape and bolt it to the mount.

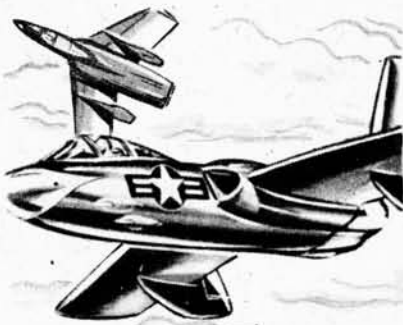
CONTROL SYSTEM: Any 2" bellcrank will do. Bolt it to the mount and cement the mount in place between the two base ribs. Add the lead-out wires.

FUSELAGE: Cut the sides and former from $\frac{3}{32}$ " sheet balsa. Then, cement formers B and C in place, followed by the firewall (former A) and finish by adding the remaining formers. After the formers and sides have dried, cement the fuselage to the top of the wing. Then cement the motor mounts and add the fuel tank, (we used a wedge-type design), cemented forward of former B.

STABILIZER, RUDDER: Cut the stabilizer and elevator from $\frac{1}{8}$ " sheet (hard). Cement the hardwood spar (Please turn to Page 32)

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LITTLE ARCY

(Continued from Page 11)

Arcy by gliding her from a high embankment into a ball diamond while keying the transmitter. This aided greatly in determining the amount of rudder movement necessary and at the same time warmed us up to the response of the ship.

Try your first power flight with the R/C rig in operation, as the model is not mean. The 3° right thrust with the 9" / 4" prop should produce straight flight. In a 180° turn, the nose will just start to drop; so you don't need to worry about spinning her in. However, it is advisable to limit yourself to 90° turns until you are familiar with the ship.

If the model glides well but has a tendency to stall slightly under power, especially after making a shallow turn, increase the downthrust. Any R/C model will tend to stall after recovery from a diving turn. To eliminate this, merely apply alternate right and left rudder as she comes out and the excess speed will be dissipated.

BILL OF MATERIALS

(Balsa unless otherwise indicated)

3-3/32" x 2" x 36" (hard)	Wing and elevator ribs
2-3/32" x 3" x 36" (hard)	Fuselage sides
1-1/8" x 3" x 36" (hard)	Fuselage top and miscellaneous
2-3/32" x 2" x 36" (med.)	Fuselage top, sides
4-3/32" x 1/4" x 36" (hard)	Stiffeners
1-3/16" x 1/2" x 36" (hard)	Stiffener
1-1/8" x 1/4" x 36" (hard)	Fuselage bottom cap strip
2-5/16" x 1/2" x 36" (hard)	Wing L. E.
2-1/4" x 7/8" x 36" (hard)	Wing T. E. (Tapered)
2-3/16" x 3/4" x 36" (hard)	Wing spars
1-1/4" x 3/8" x 36" (hard)	Elevator L. E.
1-3/16" x 3/4" x 36" (hard)	Elevator T. E. (Tapered)
2-1/8" x 1/4" x 36" (hard)	Elevator spars
1-3/16" x 2" x 36" (med.)	Tips, Bulkheads, etc.
1-1/4" x 2" x 36" (med.)	Tips, Bulkheads, etc.
1-4" x 8" x 1 1/4" (soft)	Nose block
1-2" x 2" x 4" (med.)	Cowling block
1-4" x 5" x 1 1/8" (soft)	Hatch block
1-1" x 1" x 6" (soft)	Head rest

1/4" x 18" birch dowel; 1/8" dia. x 36" steel rod; 3/32" dia. x 36" steel rod; 1/16" dia. x 36" steel wire; .040" dia. x 36" steel wire; 1/16" O.D. x 2" Aluminum tubing and length of music wire to fit; 3" or 3 1/2" dia. air wheels; 7/8" tail wheel; "J" Bolts; other hardware and covering material; dope; cement; prop; .09 Arden or similar glow-plug engine.

LUCKY 13

(Continued from Page 25)

ing, so that warpage may be prevented. Silkspan-covered portions receive two coats of clear dope and the balsa-covered center section receives three coats of colored dope. Again pin the wing to a flat surface during doping. Tail surfaces should receive three coats of colored-dope, sanded between coats.

The stabilizer is slipped into the slot in the fuselage and cemented securely. The rudder is cemented to the fuselage at this time, also.

Mix talcum powder with clear dope until a pasty consistency has been obtained; brush a coat on the engine cowling. Let this coat dry, then sand smooth and apply another coat. When the second coat has dried, sand the

entire cowling to a glasslike smoothness, using very fine sandpaper. Next, apply three coats of colored dope to the cowling. With the engine mounted securely in position, cement the lower cowling section to the firewall.

Add the celluloid windshield and canopy at this time. Trim around the windshield and canopy with black dope or Trim-Film.

All exterior surfaces are now given two coats of fuel proofer. The interior of the engine cowling also should receive two coats of hot-fuel proofer.

Mount the wing with rubber bands, passed over the wing mount dowels as noted on the plan.

ADJUSTING AND FLYING: The original model tipped the scales at 7 3/4 ounces with the engine installed and was in perfect flight trim right off the work bench.

Test-glide your ship from shoulder height over tall grass and make minor adjustments by warping the elevator or rudder, as may be required. Check for erratic flight on your first power flights and correct by adjusting as in the glide tests.

When you are satisfied, fill the tank and start chasin' brother!

BILL OF MATERIALS

(Balsa of medium grade unless otherwise noted)

4-1/16" x 3" x 36"	Fuselage sides, bottom and top. Formers, wing ribs, and wing center section covering
1-1/8" x 3" x 36"	Tail surfaces, landing gear fairings
1-1/8" x 3" x 6" (soft)	Wing tips
3-1/16" x 1/16" x 36"	Fuselage stringers
2-1/16" x 1/8" x 36"	Rear wing spar, former No. 2 stiffener
2-1/8" x 1/4" x 36"	Front wing spar
2-3/16" x 3/16" x 36"	Wing leading edge
2-3/16" x 1/2" x 36"	Wing trailing edge
2-1 1/2" x 2" x 2 1/2" (soft)	Engine cowling
1-1/8" x 2" x 2 1/2" (plywood)	Firewall

1-1/8" Diameter x 5" hardwood dowel for wing mount; 1/8" diameter steel wire for landing gear and tailskid; .040" diameter steel wire for windshield support; 2-13/16" diameter sponge rubber wheels; 1/8" diameter hardwood dowel for engine cowling mount; Rubber bands for mounting wing; Celluloid; Silkspan; clear dope; colored dope; cement; hot-fuel proofer; Trim-Film or masking tape; and .065 Royal Spitfire or similar engine.

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(Continued from Page 13)

to the leading edge of the elevator. Add the tips, and finish by sanding completely. Then, add the cloth hinges and elevator horn, which is located on the center of the spar. Attach the push-rod to the horn; then cement the stabilizer onto the fuselage. To complete, secure the other end of the push-rod to the bellcrank. Before covering the bottom, bend the tail skid and mount to a plywood wedge secured with crinoline.

Cut the rudder from 1/32" plywood, the dorsal fin from 1/32" sheet balsa. Sand to a streamlined shape.

FINISHING: Cover the bottom and fill in between formers B and C with a balsa block. In order to cover the remaining portions of the fuselage sides, the bottom of the sheet balsa should be beveled to facilitate cementing the tissue to the formers. Com-

(Please turn to Page 44)

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plete the covering by adding the balsa block aft of the fuselage. Slot the fuselage to secure the rudder, and fill in around the cockpit with 1/16" sheet.

The engine cowling is optional, but may be formed from 1/4" sheet balsa, sanded to contour.

If you plan to run the lead-out wires through the ribs, our suggestion would be to use a piece of 1/16" diameter music wire as a drill. Sharpen one end to a point and twist the wire through the ribs to make the holes.

Sand the fuselage, working all the edges to a rounded appearance. Next, sand the remaining parts—then complete covering and doping the model. Use color and fuel-proof dope to suit. Cement the windshield to the fuselage. Add the wheels. If you use Banner wheels, the bolts should be notched as shown in the instructions for the 3/32" diameter wire gear.

BILL OF MATERIALS

(Balsa unless otherwise specified)

3-3/32" x 3" x 36" (medium hard)	Fuselage, formers sides, covering and wing ribs
2-1/4" x 3/8" x 3 3/16" (hardwood)	Motor mounts
1-1/8" x 3" x 18" (hard)	Horizontal stab and elevator
1-1/8" x 1" x 36" (hard)	Trailing edge
1-3/16" x 3/8" x 36" (hard)	Leading edge
1-1/4" x 1/2" x 36" (hard)	Leading edge
2-1/8" x 1/8" x 36" (hard)	Spars

Scrap 1/4" sheet for engine cowling; scrap 1/16" sheet for fill-in; .046" 24 ST aluminum for landing gear; 1 length 1/16" diameter push-rod; bellcrank; elevator horn; cloth for hinges; 1/32" plywood for rudder; 3/8" plywood for firewall; wedge fuel tank; neoprene tubing; celluloid for windshield; 1 length of .04" wire for tailskid; 1/16" plywood for skid mount; lead-out wires; 2 pieces of aluminum tubing; balsa blocks; washers, pins, nuts, bolts; tissue; cement; clear and colored dope; fuel-proofing; wheels and .099 engine.

BETTERFLY

(Continued from Page 18)

ADJUSTING: Although Betterfly is a good all-weather performer, it is advisable to wait for a relatively calm day for initial testing. Since the

model is not equipped with a landing gear (though you may add one if you desire) test-gliding is best conducted over tall grass.

Adjust for tight left turns, but do not attempt to get a nose high gliding attitude so popular with contest flyers. The glide should be flat and fairly swift. To obtain this left turn, make all adjustments with the wing flaps. Raising the left aileron (viewing the model from the rear) and lowering the right will force the model to glide left—but change the aileron settings only a small amount each time until the correct balance is achieved.

The climb is next (a right turn is preferable) and this is attained by varying the thrust line only. Do not change the glide settings! This set-up will give an "S"-shaped flight pattern which is not only graceful but also an asset on a windy day, when it tends to keep the model over the field.

Realistic performance will be achieved by the use of an over-sized propeller and low-power glow fuel. The original used a 6" diameter 3" pitch Tornado, cut down to 5 1/2" diameter with the tips left square—in conjunction with O & R "Economy" fuel.

With the .020 engine, no trouble should be encountered. If you wish to have more power, an O.K. .039 or K. & B. .035 can be installed though they may tend to affect the sport performance of this model.

As a final thought, this job can double as a towline or hand-launch glider just as well. In other words, we have a triple-threat machine. Properly adjusted, and sporting a consistent engine, Betterfly will give unparalleled pleasure and enjoyment.

BILL OF MATERIALS

(Balsa unless otherwise specified)

1-1/4" x 3/4" x 18" (hard)	Fuselage, lower half
1-1/4" x 1 1/4" x 13" (medium)	Fuselage, top half
1-3/16" x 3" x 32" (medium)	Wing sheet stock
1-3/32" x 3" x 16" (medium-soft)	Stabilizer and rudder

Sanding sealer; pigmented dope; fuel-proofer; cement; soft iron wire; plywood; .020 "Infant" engine or larger if desired.

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