ELANIC

With a big 75" span and a good .61 for power, this slick sport flier is sure to please.

By Gilbert Appleson

Construction Photos By: Karsten Zachariasen

Webster's Dictionary defines the stem of the word "ELAN" as eagerness for action; the suffix "IC" as an adjective denoting the nature of the noun. "Elanic" was designed and built with the explicit desire to have an aircraft that would perform according to its namesake.

The self-aligning method of fuselage construction will assure a square fuselage and will provide accurate centering of the vertical fin, as well as locating the wing to its specified angle of incidence.

CONSTRUCTION:

Wing:

Note: The wing is built upside down. The top of the wing is straight, and built flat against the work surface. Dihedral will be present only in the bottom of the wing.

1. Cut out rib pattern block where shown by dashed lines.

2. Coat a sheet of 3/32" x 4" x 48" hard balsa with Elmer's rubber glue. Use the glue in accordance with the directions on the bottle, for easy removal of pattern.

3. Glue pattern block to this balsa sheet.

4. Place a second sheet of balsa under the above mentioned sheet. Pierce the two sheets with a straight pin in the area where the rib pattern does not occur. Separate the two sheets and mark each of the pierced points with a soft lead pencil for quick identification. Now, put a drop of CA at each of these points.

5. Press the two sheets together so that there is an overlap of 1/16" at each end and run a bead of thick CA at these overlaps (see illustration).

There are alternate methods to accomplish this task: One method is to use transfer paper to directly transfer the rib pattern to the balsa sheet; however, this builder feels that the method as outlined above is the most accurate method of production.

6. Before entirely cutting out the ribs, place (4) straight pins along the centerline of the ribs so as to hold the (2) ribs together during the final cutting operation. Lay out the centerline on all ribs for future reference of the wing building process.

7. Cut out all doublers and rib "1-A".

8. Place (2) short lengths of 1/4" x 3/8" stock into the spar notches of ribs #1 through #6 of one wing panel, and #1 through #10 on the other set of ribs. Stack the ribs in numerical order to form a geometrical pattern, aligning all centerlines and spar notches. Drill the 1/2" diameter hole for the servo lead raceway.

9. Cover the plan with wax paper.

10. Secure the main spar to the work surface by aligning the spar to the line. Secure the spar to the work surface with 1/2" roofing nails. Nail the spar down carefully until the nail head snugs up to the spar.

Note: The nails are placed in the space between the ribs and the shear webs **on each side of the spar**. The process of securing the wing to the work surface in this manner is an approach to assure a warp-free wing.

Note: A tool for removing the roofing nails holding the spar may be fabricated by utilizing an inexpensive screwdriver. Heat about 1" of the end of the blade until cherry red, place in a vise and bend to a 90° angle. Harden the bend by quenching in water immediately after bending.

11. Cut the notches in the trailing edge spar, as shown on the plan.

12. Set the ribs of one panel into position, but do not glue.

13. Set the rear spar onto the ribs, but do not glue.

14. Place the spar jig under the trailing edge spar. Check centerlines of ribs #1, #5, and #10 to ensure that they are parallel to the work surface; if not, slide the jig up and down the spar until they are correctly aligned.

15. Use the roofing nails to secure the trailing edge spar and jig to the work surface.

16. Glue the ribs and doublers to the main and trailing edge spar.

17. Glue the upper main spar in position.

ELANIC
Designed By:
Gilbert Appleson
TYPE AIRCRAFT
Sport
WINGSPAN
75 Inches
WING CHORD
10 Inches (Avg.)
TOTAL WING AREA
750 Sq. In.
WING LOCATION
Low Wing
AIRFOIL
NACA 0016
WING PLANFORM
Double Taper
DIHEDRAL, EACH TIP
Flat on Top
OVERALL FUSELAGE LENGTH
46 Inches
RADIO COMPARTMENT SIZE
(L) 11⅞" x (W) 3-9/16" x (H) 2⅝"
STABILIZER SPAN
22¼ Inches
STABILIZER CHORD (incl. elev.)
7¾ Inches (Avg.)
STABILIZER AREA
170 Sq. In. (Approx.)
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
Top of Fuselage
VERTICAL FIN HEIGHT
7½ Inches
VERTICAL FIN WIDTH (incl. rud.)
6½ Inches (Avg.)
REC. ENGINE SIZE
.61 2-stroke
FUEL TANK SIZE
12 Ozs.
LANDING GEAR
Tricycle
REC. NO. OF CHANNELS
4
CONTROL FUNCTIONS
Rud., Elev., Throt., Ail.
BASIC MATERIALS USED IN CONSTRUCTION

Fuselage	Balsa, Ply, Lite Ply
Wing	Balsa, Spruce, Lite Ply
Empennage	Balsa
Wt. Ready To Fly	112 Ozs. (7 Lbs.)
Wing Loading	21.5 Oz./Sq. Ft.

18. Set a 1/8" x 2⅝" x 48" hard balsa sheet between a pair of ribs. Using the spar as a guide, cut to size and glue all the shear webs in place with the grain running vertically.

19. **Servo Lead Raceway** — cut (4) strips of "plastic sheet protection" to a width of 3¾". Make (2) turns of the plastic strip around a 3/8" dowel. Insert the dowel through rib #1 until it penetrates rib #6. Withdraw the dowel. Tape raceway in each bay with plastic tape. Repeat the above procedure for the continuing length of raceway, telescoping one length of raceway into the other.

20. Place the 1/8" plywood main spar doubler between the two #1 ribs. Using the upper spar as a guide, mark and cut the plywood doublers to shape, then make a duplicate.

21. Glue the two spar doublers in place with epoxy glue. Clamp them together and allow to dry overnight.

22. Place a set of ribs and spars in position on the opposite wing panel.

23. Construct this wing panel as per instruction for the first wing panel.

24. Insert the doweled plastic raceway into rib #10, feed the assembly through the ribs until it exits at rib #1. Complete the raceway as described in Step #19.

Note: Remove nails in bays that contain the landing gear blocks and servo rails before gluing these items in position.

25. Set the landing gear blocks in position, then check that the groove in the blocks is parallel to the main spar, and that they extend 3/32" above the ribs.

26. Glue the landing gear blocks in position with its doublers and supports.

27. Glue the servo rails and doublers into position.

28. Glue rib "1-A" in position.

29. Tailor the 5/8" thick filler at the trailing edge spar, notch to fit "1-A", then glue in position.

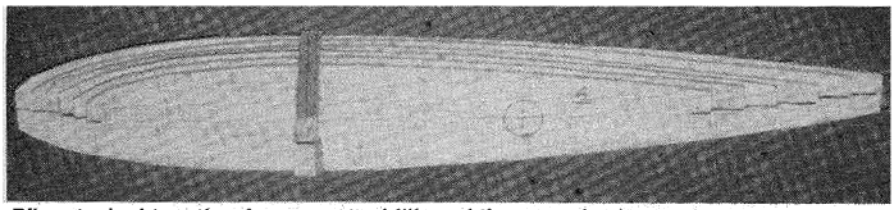
30. Glue the two 1/8"-"1-B" doublers in place.

31. Remove the roofing nails from one trailing edge spar. Do not remove the nails from the main spar.

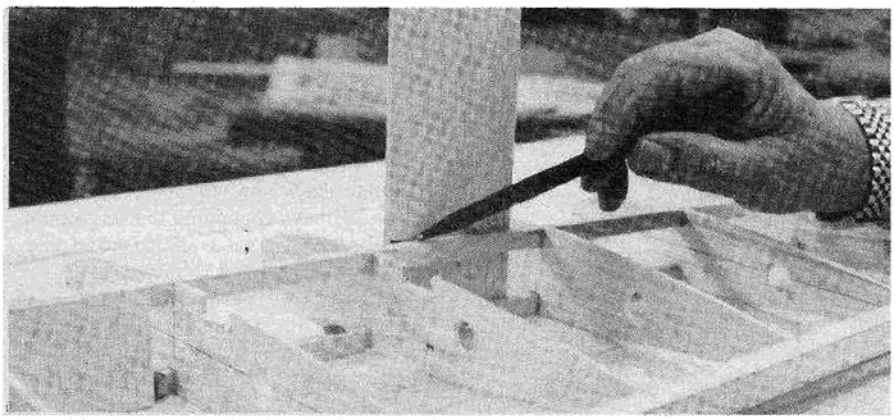
32. Razor plane, carve, or sand the exposed side of the trailing edge spar until it fairs with the ribs.

33. Starting at the center of rib "1-A", glue the 3/32" x 2" sheeting to the ribs and trailing edge spar. Use extra thick CA.

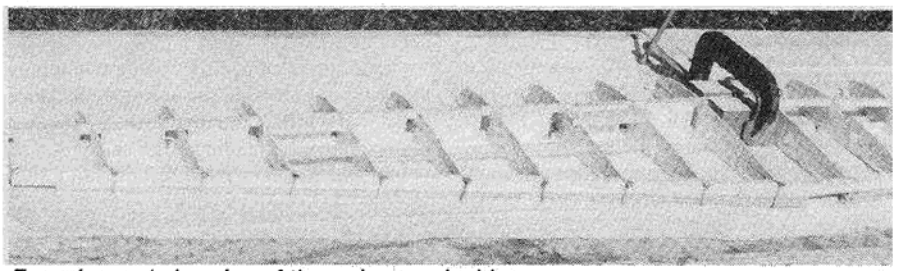
34. Re-nail this sheeted trailing edge to the work surface. Protect the sheeting with a



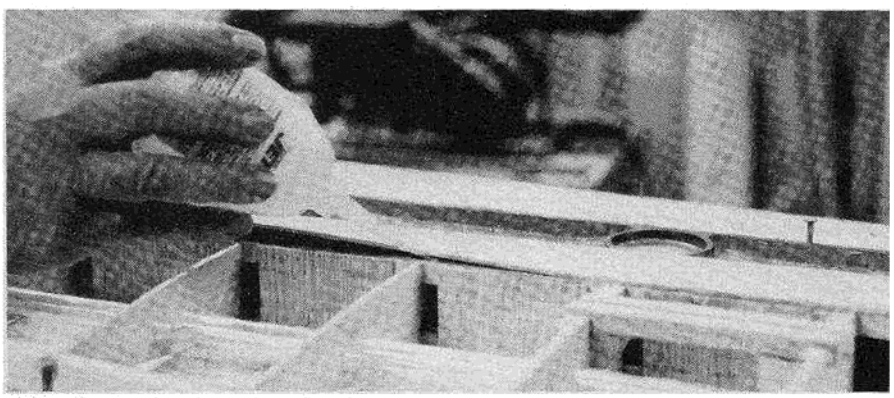
Ribs stacked together for accurate drilling of the servo lead raceway.



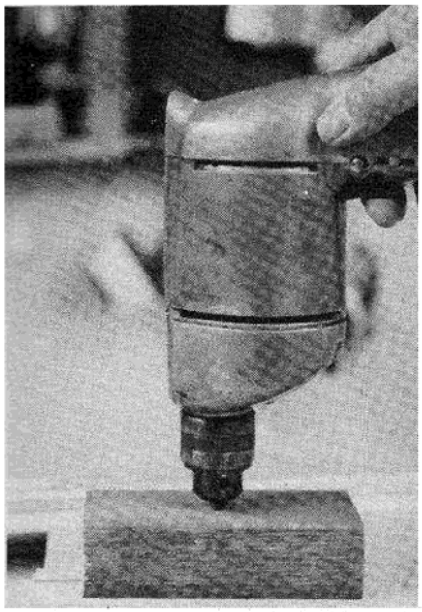
Marking shear webs for fabrication.



Epoxying and clamping of the main spar doublers.



Installing the leading edge sheeting.



Jig for drilling equal angle landing gear support holes. (See note following Step #45.)

only. Now dampen the top surface of the sheeting.

41. Allow about five minutes for the water to soak in, then bend the sheet down to the spar and check for fit.

42. Apply thick CA to the spar for a length of two bays. Glue the sheeting to the spar where you have applied glue. Then do another two bays. Apply glue to the portion of the ribs that is accessible. Do not concern yourself about gluing the sheeting to the ribs, as you can accomplish this task after the wing is removed from the work surface and before sheeting the top of the wing.

43. Remove the nails holding the main spar in the bays between rib #1 through #3 and in the bays containing the servo rails. Now sheet these areas as shown on the plan.

44. Repeat steps #31 through #43 for construction of opposite wing panel.

45. Glue the straight portion of the leading edge with its doubler into position.

Note: Drill a 5/32" hole on the centerline of a scrap piece of 2x4 pine at 90°. Establish the position of the 5/32" hole to be drilled

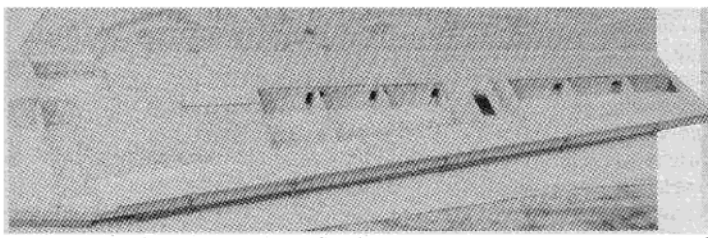
of the wing. Check to be sure that the solid trailing edge projects 3/32" above the trailing edge spar.

50. Glue the trailing edge sheeting in position on both wing panels.

Note: The subsequent instructions concern preparations for sheeting the top leading edge. It is necessary to cradle the wing to prevent the possibility of warpage.

51. Place the wingtip cradles under each #10 rib. Support the rib portion and no other. The center of the wing of rib "1-A" is to come into contact with the work surface, but not pressured against it. Slip a wedge shaped support under the trailing edge at the centerline until it nestles with wing. Place the rectangular leading edge support under the straight portion of the leading edge. Place a nail at each end of the wing at rib #10. Place nails in the strategic points around the perimeter of the wing.

52. After cutting the leading edge sheeting to size, glue to leading edge only. Dampen the entire sheet, allow about five minutes for the balsa sheet to absorb the



Bottom sheeting being glued in place.

Removing roofing nails with tool made from screwdriver.

strip of pine.

35. Repeat steps #31 through #34 for construction of opposite wing panel.

36. Remove the roofing nails from the main spar of one wing panel between the leading edge and main spar. You will not have access to these nails after sheeting this area.

37. Glue the 1/4" x 3/4" leading edge in position.

38. Cut out the tapered 3/32" medium balsa leading edge sheeting to fit from back of leading edge to the main spar, and from rib #10 to rib #1. Do not cover "1-B" doubler.

39. Slightly bevel the edge of the sheeting that abuts the back side of the leading edge.

40. Glue the sheeting to the leading edge

into the groove of the landing gear block. Drill down into the groove no more than 1/8". This indentation will act as an index for the drill. Insert the drill through the 2x4 jig until the drill extends out of the jig about 1/8". Slide the jig with the drill riding in the groove until it indexes, then drill completely through the retainer block. *(This is a quick and simple way to drill 90° holes in an item that will not fit under a drill press . . . Ed.)*

46. Remove all the nails that are holding the wing to the work surface.

47. Now is the time to glue the ribs to the underside of the leading edge sheeting.

48. Razor plane, carve, or sand the trailing edge spar until it fairs with the ribs.

49. Glue the two inboard, solid, medium hard balsa trailing edges flush to the bottom

water, then pull and bend down to the spar, and glue.

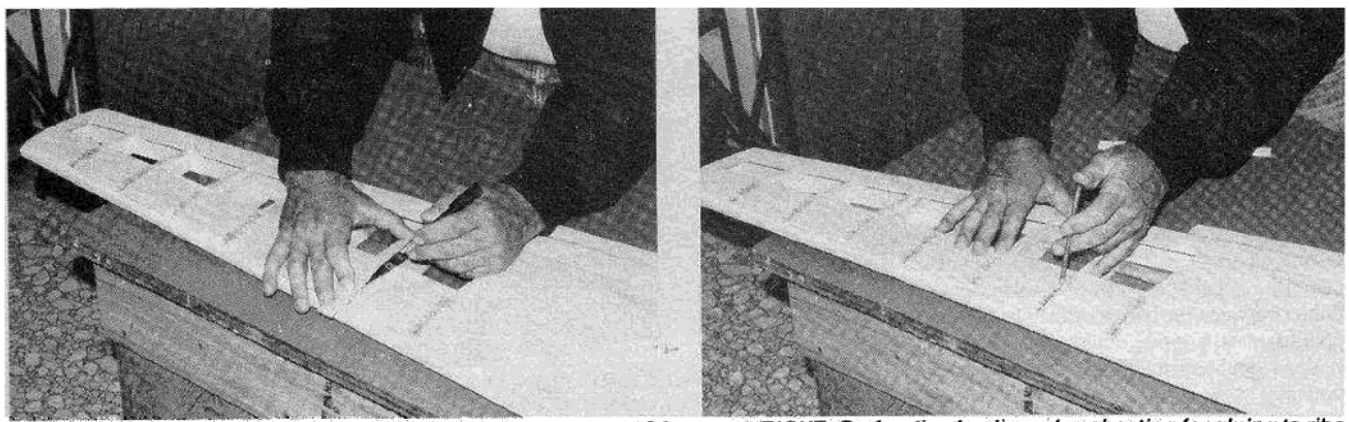
53. After the sheeting has completely dried, it is ready to be glued to the ribs as follows:

Take a 3/4" wide strip of soft balsa and align it to the center of the exposed rib, then trace a line on the sheeting. Grind or file a large nail to a sharp point. What you are trying to do is to shape the point into a funnel shape with a sharp point. Perforate the sheeting about 3/8" spacing. Insert a drop of thin CA into each perforation.

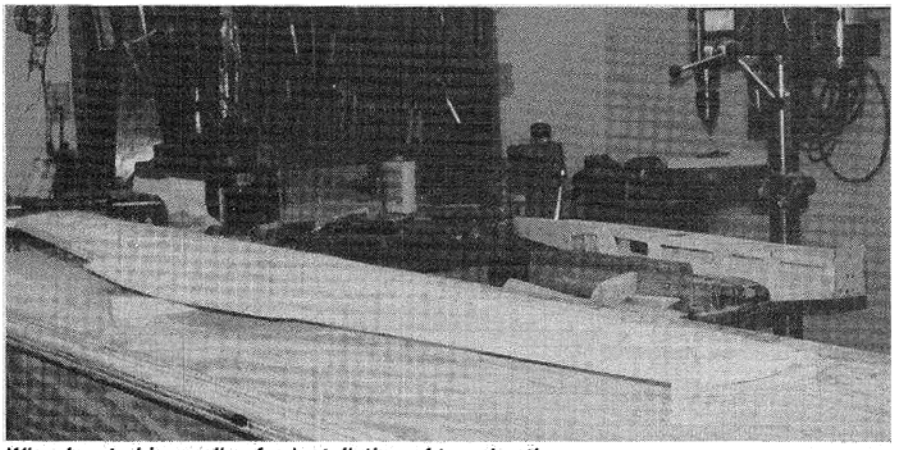
54. Sheet the center of the wing as shown on the plan.

55. Cut out the access hole to the servo leads.

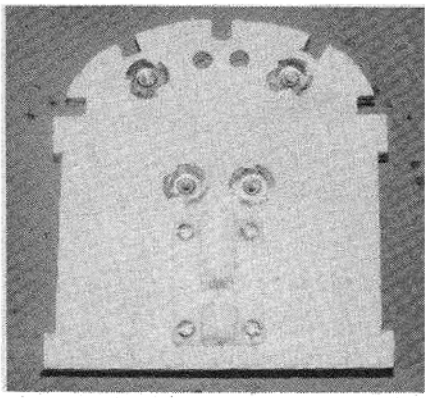
56. Shape the leading edge as shown on the plans.



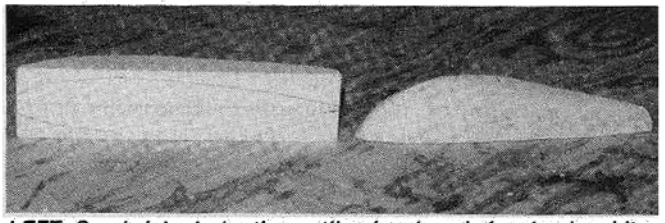
LEFT: Marking leading edge sheeting for perforations to accept CA cement. RIGHT: Perforating leading edge sheeting for gluing to ribs

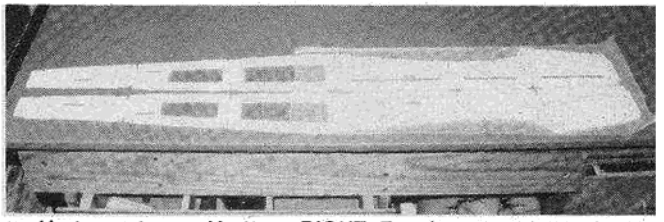


Wing located in cradles for installation of top sheeting.



Fire wall with "T" nuts in place for engine mount and nose gear mount. Holes also drilled for fuel lines.





LEFT: Sandwiched wingtips outlined and ready for shaping. Lite ply used between top and bottom. RIGHT: Fuselage doublers nailed to sides while cement cures.

Note: It will be necessary to have the fuselage assembly to complete the following steps.

57. Center the wing to the fuselage by measuring along the main spar. Mark the position of the fuselage on the wing at the leading edge. Now square the wing to the fuselage centerline by generating equal distances between the tips of the main spar to a point at the end of the tail.

58. Mark the position of the fuselage at the trailing edge. Tape the wing to the fuselage.

59. Set a 3/8'' drill into the dowel hole in former #1. Apply pressure to the drill so that it imprints the leading edge.

60. Remove the wing and (using the imprinted spot and ''1-A'' rib as a guide) drill a 3/8'' hole through the leading edge and spar doublers.

61. Set the 3/8'' dowel into position, then glue.

62. Drill the pilot holes for the nylon bolts through the trailing edge and wing securing plate.

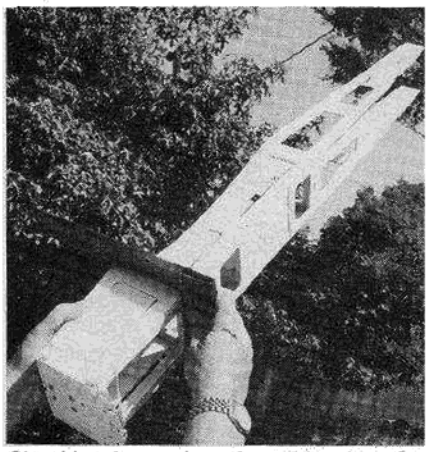
63. Remove the wing from the fuselage. Drill holes in the wing securing plate to accept the two blind nuts.

64. Fabricate the ailerons and hinge into position. Do not glue at this time.

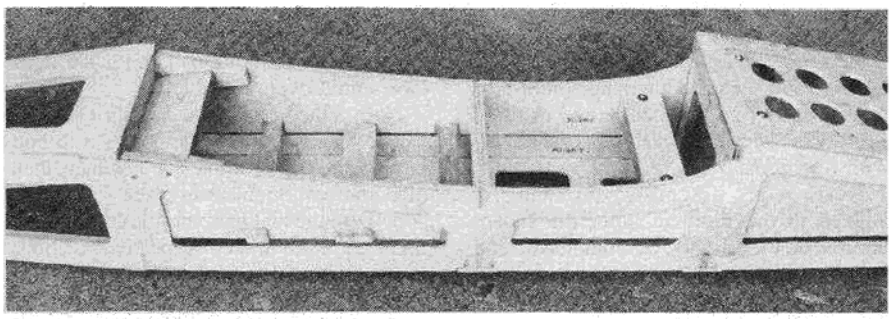
65. Align the ailerons with the trailing edge, then tape into position.

66. Now carve the solid balsa fillers that are between the ailerons and the wingtips. Glue into position.

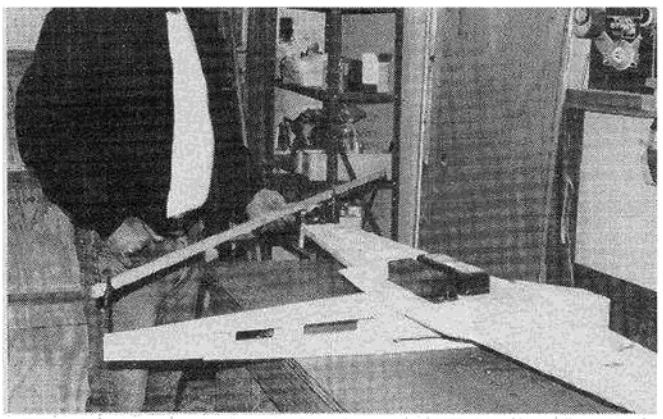
67. Fabricate the sandwiched wingtips

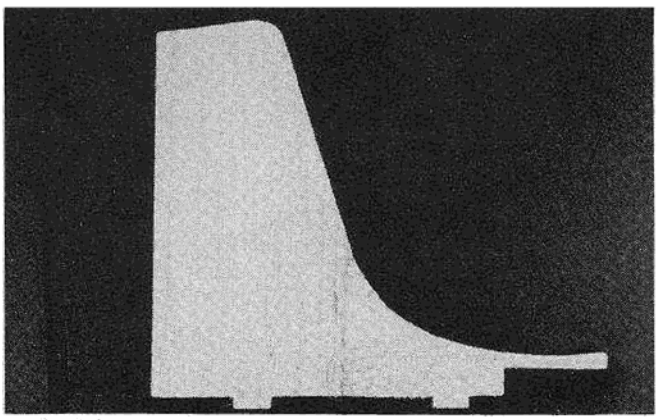


Checking forward portion of fuselage for squareness.

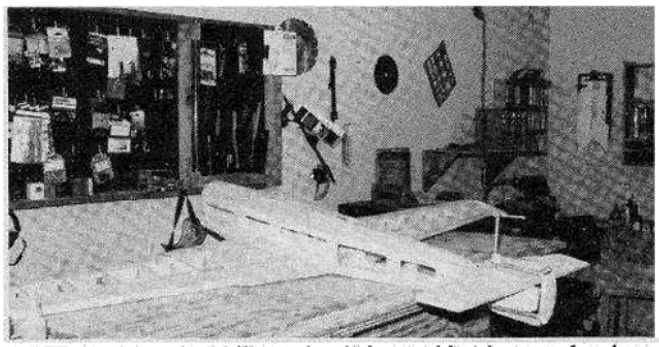


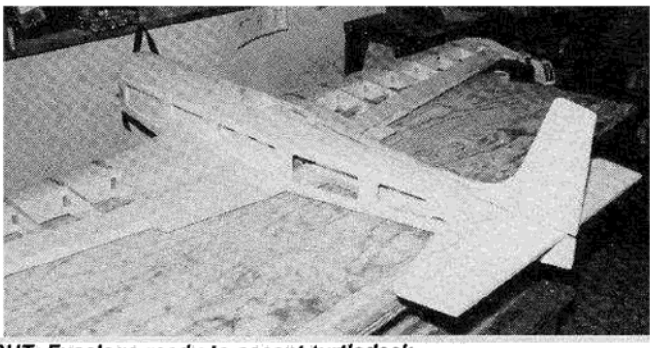
Servo compartment with mounts in place.



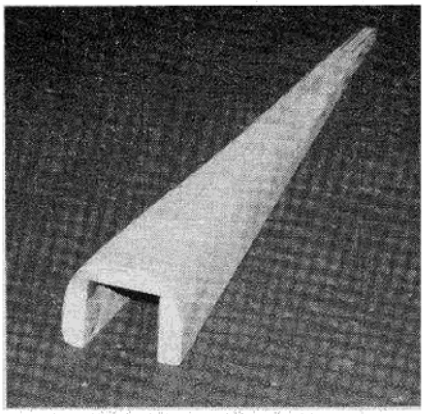


LEFT: Alignment of wing to fuselage. RIGHT: Vertical fin with forward extension.

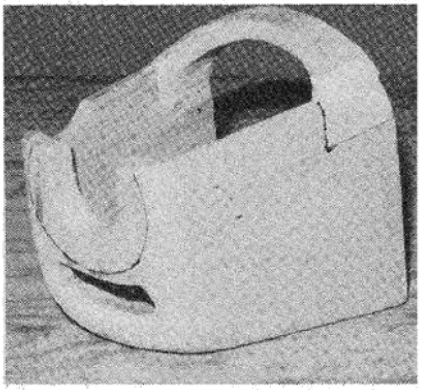




LEFT: Horizontal stabilizer glued/clamped in place on fuselage. RIGHT: Fuselage ready to accept turtledeck.



Turtledeck ready for installation.



Cowling, carved and shaped, ready for installation.

and cut out as per top plan view. Set the wingtips against the tip rib and trace the outline of the tip rib onto the wingtip. Carve the wingtips using the plywood center piece as a guide. Align the plywood to the centerline of the leading edge and the trailing edge, then glue in place.

68. If you have access to a table saw, it is recommended that the ailerons be fabricated from solid hard balsa stock. (Ref: RCM "For What It's Worth" book, Vol. 5, page 62.) The above reference is the suggested method of accomplishing this task. If, however, you do not have access to a table saw, then the alternate "built-up" method has been provided on the plans.

69. Reinforce the center joint of the wing with fiberglass.

Note: After assembly, the wing is aligned to the fuselage, after the square portion of the fuselage is completed, and before adding the forward top curved section and the turtledeck.

Fuselage:

1. Using transfer paper, trace the side onto a rectangular piece of 1/8" lite plywood. Nail a second piece to the first, then cut out the two sides together. Mark one side "right hand" (as seen from the cockpit) and shorten this side 1/8" at the fire wall, so as to affect the 2° right thrust offset. Follow the same above procedure for the doublers.

2. Place aliphatic glue on the doublers and nail to the side with 3/4" #17 wire nails. Do not remove nails until the units have cured overnight.

Note: One way to prevent fabricating of two left, or two right side panels is to butt the straight edges of the side together, then glue and nail doublers in place.

3. Drill the fuel line, throttle control, and blind nut holes in their respective positions in the fire wall.

4. Drill two 3/32" holes in each side of the 1/4" plywood wing securing plate.

Note: The purpose of these four screws is twofold: First, to act as clamps to hold the sides to the 1/4" plywood wing securing plate, and second, to reinforce the glued joint.

5. Trial fit all formers and the fire wall to the sides of the fuselage, then place the top and bottom plates in their location to form the front of the fuselage. Hold the fuselage together with rubber bands. Use a tri-square to check the fuselage for squareness before gluing with 30-minute epoxy.

6. Epoxy the fire wall with formers #1 through #3 together, with top and bottom front in position. Epoxy the 5-ply wing securing plate in position. Immediately install the four #2 x 1/2" flat head screws before the glue can set. After the epoxy has dried, glue the balsa reinforcing components in place.

7. Let this rectangular front portion of the fuselage cure before epoxying the remaining tail portion together. Inspect the end of tail to see that it is 90° to the fuselage.

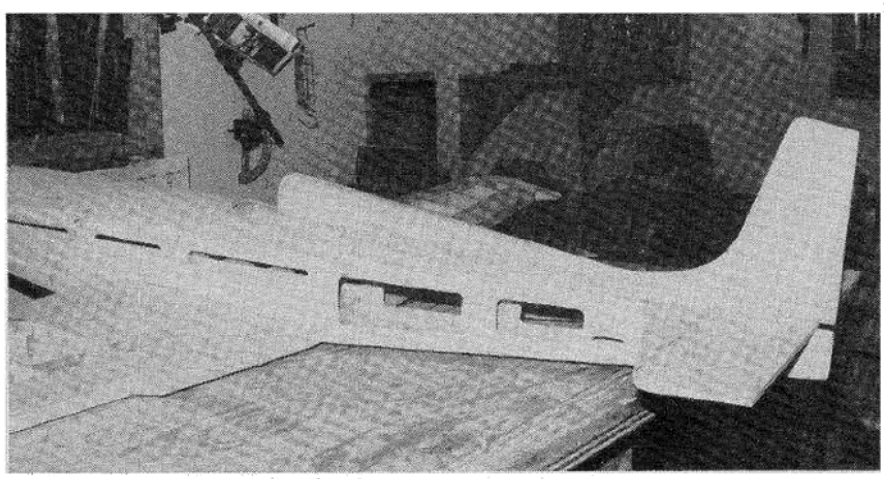
8. Reinforce the fire wall with triangular stock.

9. Place the fuel tank access panel in position, then drill pilot holes for blind nuts and bolts.

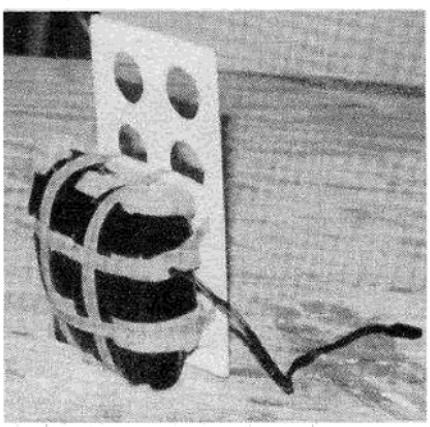
10. Epoxy the servo rails into their notches.

11. Glue the hard balsa receiver cross member support to each side with medium CA. Glue foam rubber to the cross member, and drill for retainer screws.

Note: Stop construction of the fuselage at this stage and align the wing to the fuselage.

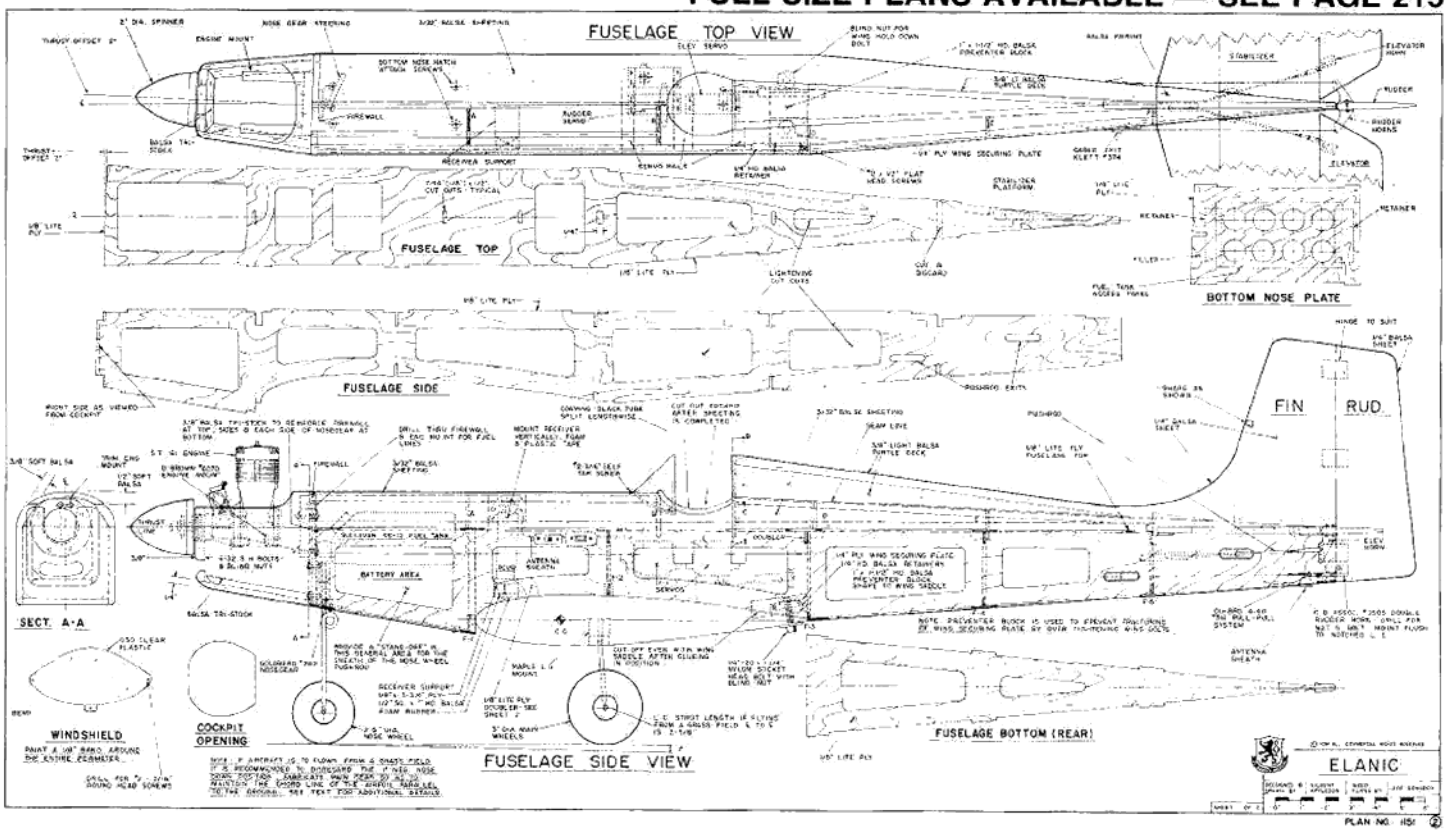


Turtledeck glued in place on fuselage.



Battery pack is attached to fuel compartment access panel.

FULL SIZE PLANS AVAILABLE — SEE PAGE 215



12. Cut out the formers "A through F."

Note: The purpose of the tabs on the formers are to hold the formers in position while gluing. These tabs will break off very easily and are not structural members of the fuselage. You may want to stick a thin, short straight pin through the tab into the body of the former to reinforce the tabs during construction.

13. Set the two stringers that form the base for the turtledeck in position. Taper both stringers to 1/4 sq. in. when glued together at former "F". Sight down the stringer, they should be straight; if not, adjust the notches in the formers to achieve alignment.

14. Apply the sheeting from former "C" to "D", then from "D" to "F".

15. Use a long sanding block to level the stringers and sheeting to form a base for the turtledeck.

16. Glue the stringers in place in the front of the fuselage.

17. Sheet the section from the fire wall to former "C".

18. Cut out the cockpit opening.

19. Cut out the empennage; that is, the horizontal stabilizer, elevator, vertical fin, and rudder, from 1/4" sheet balsa. Shape to outline shown on plans.

20. Align horizontal stabilizer to the fuselage in the same mode as you did for alignment of wing.

21. Epoxy the horizontal stabilizer to the saddle at tail.

Note: Attach the wing to the fuselage during the above step in order to check the horizontal alignment of the horizontal stabilizer to the wing.

22. Glue the vertical stabilizer to the horizontal stabilizer. Use tri-square to ensure 90° alignment.

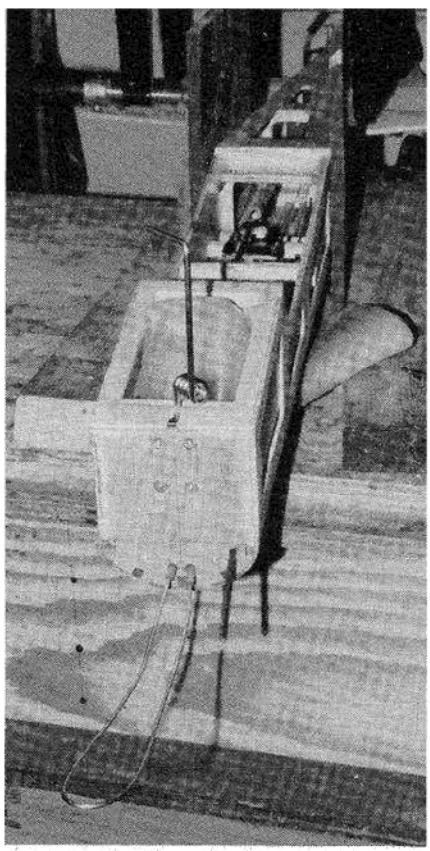
23. Carve the top of turtledeck to shape, glue cover to the front of the turtledeck. Cut 1/4" wide slot at the end of the turtledeck to receive the extension of the vertical stabilizer. Glue to top of the fuselage.

24. Glue fairings between the horizontal and vertical stabilizers.

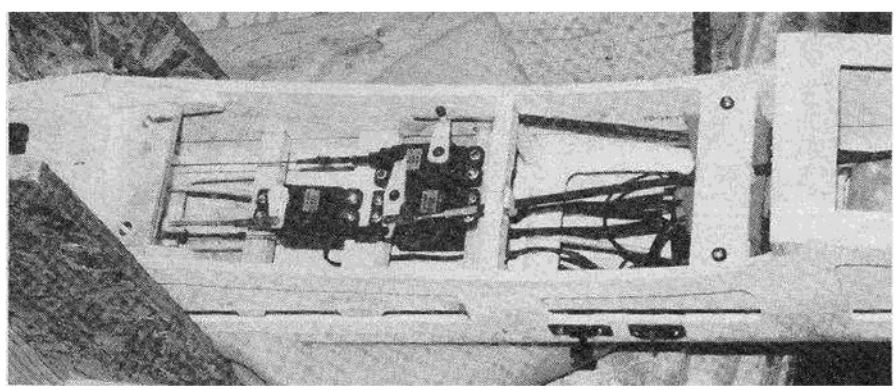
Note: Glue a slab of foam rubber to the top of the fuel tank.

Note: The true length of the engine cowling should be ascertained from the top view of the cowling.

25. Glue the cowling sides and front together, tape assembly to the fuselage. Place 1/4" thick medium balsa sheet

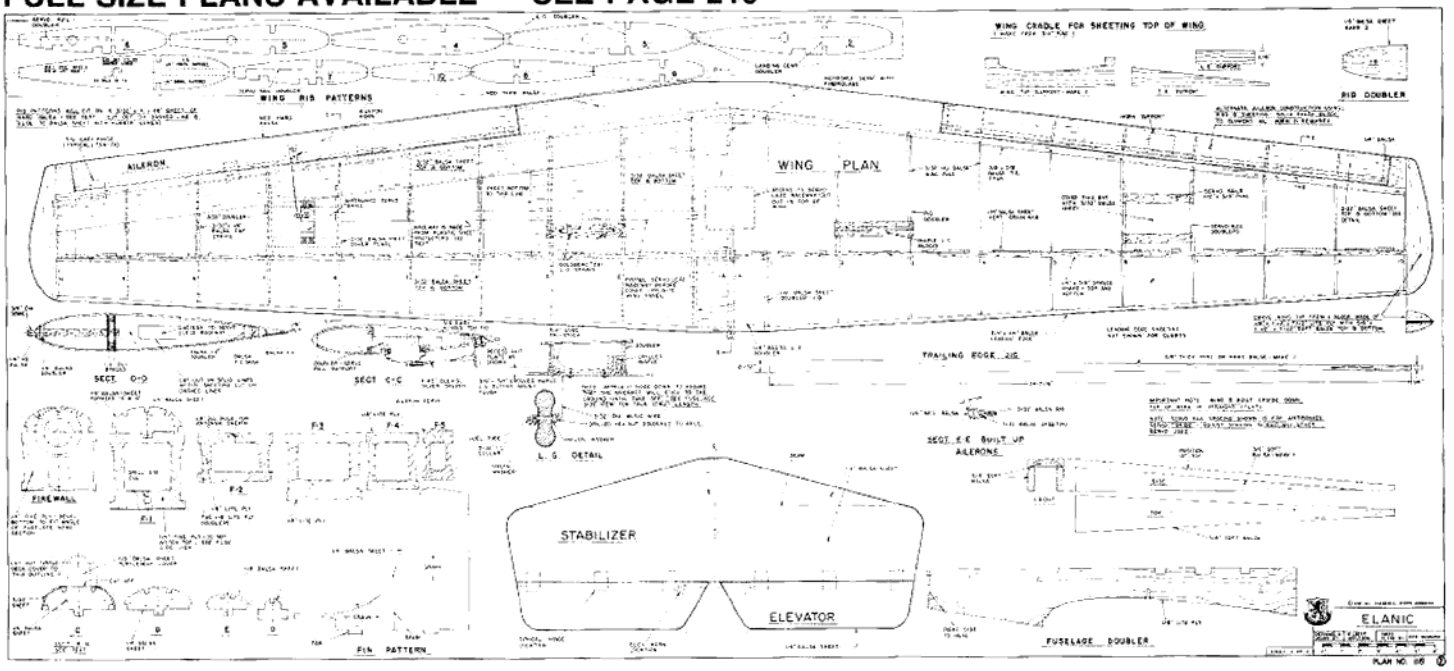


Fuel and pressure/vent line threading tool (bent soft wire).



Layout of servos and controls.

FULL SIZE PLANS AVAILABLE — SEE PAGE 215



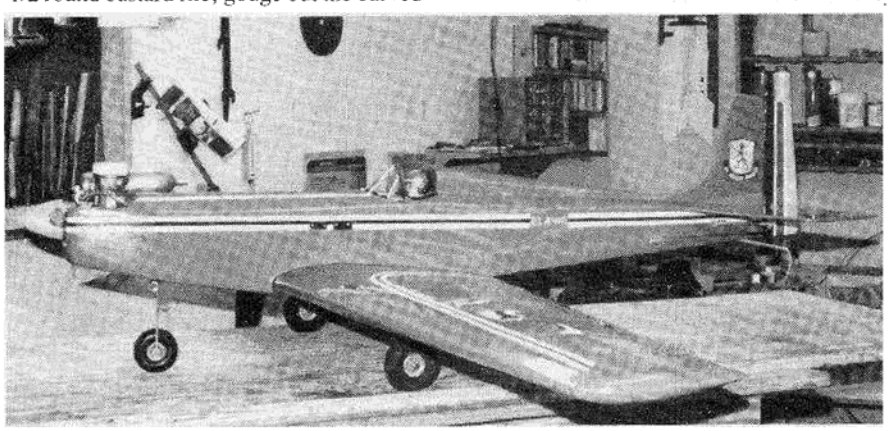
(slightly larger than required) at the bottom of the cowl. Scribe a line in the interior of the cowl onto this piece. Cut out and glue in place. Add the triangular balsa at the sides, bottom, and front of cowling. Cut a slot in the cowling to accommodate the engine prop shaft. Attach the engine mount with engine to the fire wall. Mount a cardboard pattern, slightly larger than the engine drive washer onto the prop shaft; snug up the prop washer and nut. Scribe a circle around the pattern onto the front of the cowling. Project straight lines from the diameter of this circle to the top of the cowling. Remove the cowling and cut out this "U" shaped plug. Retape the cowling to the fuselage. Secure the engine in its exact location on the engine mount. Install the spinner backplate to the prop shaft and secure in place with prop washer and nut. Use the backplate as a pattern; scribe a circle onto the front of the cowling. Use this circle as a guide when carving and rounding the nose of the cowling. With a 1/4" drill, drill a series of holes to help form the air inlet. Cut away the portions between the holes. Round off the edges of the air inlet. Fabricate the three pieces that complete the top rear curved section of the cowling. Glue this unit to the notches in the aft end of the cowling. With a 1/2 round bastard file, gouge out the curved interior surfaces. Sand to a smooth finish. Carve the top of the unit to roughly conform to the top of the fuselage.

26. Fuelproof the interior cowling and fire wall before gluing the cowling to the fuselage.

Note: The 1° (–) negative attitude of the aircraft while sitting on the ground was designed to hold the aircraft on the ground during the "take-off run" until the pilot was ready to take off. However, if you are flying from a grass field, the 1° (–) may not be required because the dragging effect of the grass on the nose wheel may accomplish this purpose. The landing gear strut length determines this effect (see plan for further details).

27. The "split elevator 4-40 pushrods" are bent as shown on plan, then assembled as follows: (A) File or grind the tangs to a point. (B) Lay 1/4" square wood pushrod on the plan, then mark the location of the tangs. (C) Drill holes at these marked locations that are slightly smaller than the diameter of the 4-40 rods. (D) Force tangs into holes, then with pliers or vise, compress the rods together until they make a shallow indentation in the wood pushrod. (E) Wrap with string and saturate the assembly with thin CA.

Note: See RCM November 1992 issue,



MATERIAL LIST

Wing:
3 — 3/32 x 4 x 48, hard balsa, ribs
6 — 3/32 x 4 x 48, medium balsa, sheeting
4 — 3/32 x 2 x 48, medium balsa, sheeting
1 — 3/4 x 1½ x 36, soft balsa, wingtips
2 — 1/4 x 3/8 x 36, spruce/pine, main spars
2 — 1/4 x 3/8 x 48, spruce/pine, main spars
2 — 3/8 x 5/8 x 36, hard balsa, T.E. spars
1 — 3/8 x 3/4 x 12 hardwood (5/32" wire), grooved L.G. mount
T.E. and ailerons (see text)
1 — 1/8 x 3 x 36, hard balsa, shear webs
1 — 3/8 x 4¾, hardwood, dowel
1 — 5/16 x 1/2 x 18, pine, servo rails
3 — 3/32 x 1/4 x 36, medium balsa, cap strips
2 — 3/4 x 3/8 x 36, pine/hard balsa, jig
2 — 3/4 x 1/4 x 48, medium balsa, L.E.
2 — plastic sheet protectors, raceway

Fuselage:
2 — 1/8 x 12 x 48, lite plywood, fuselage
1 — 3/8 x 2 x 48, soft balsa, turtledeck
1 — 1/4" x 4" x 2'-0", medium balsa, cowling
Front of cowl 3/8" — glue up from salvage of turtledeck
1 — 1/4 x 6 x 12, 5-ply, former #1 and fire wall
2 — 1/4 x 4 x 48, medium balsa, empennage
1 — 3/32 x 4 x 48, medium balsa, sheeting
1 — 1/8 x 2 x 36, medium balsa, formers
5 — 1/4 x 1/4 x 48, hard balsa, stringers

Hardware:
4 — #2 x 1/2 flathead wood screws
4 — #2-56 blind nuts
4 — #4-40 blind nuts
4 — #4-40 x 3/4" screws
1 — #262 C.G. steerable nosegear
2 — 1/4 x 20 x 1¼" nylon socket head bolts
2 — 1/4 x 20 blind nuts
Pkg. Sig. Easy Hinges
1 — C.B. Assoc. #3505 double rudder horn
1 — Du-Bro #518 pull-pull system
7 — Sullivan 4-40 Gold-N-Clevis
3 — Sullivan 2-56 Gold-N-Clevis
2 — 6" lengths of 4-40 rods
4 — Klett #374 cable exits
1 — 2¼" dia. spinner
2 — 3" wheels
1 — 2½" wheel
1 — antenna sheath
3 — 5/32" wheel collars
1 — length 4/32" music wire
4 — C.G. #291 L.G. straps

page 156, for one way to secure the metal rods to the wood segment of the assembly.

28. In order to install the elevator pushrod into the fuselage, it will be necessary to compress the two ends together until they are approximately 1'' apart. Tie with string then insert in the fuselage. Insert one rod through the side of the fuselage and cut the string. Now, fish the other side out of the fuselage.

29. It is important that the elevator control horns align with the angle of the pushrods. Attach the horns to the pushrods and check to see that there is no binding action between the pushrod and horn, then mark the horn mounting hole locations onto the elevators.

30. Battery installation is accomplished by cutting out a piece of 1/4'' plywood in which the dimensions are equal to the dimension of your foam rubber battery pack. Pass two rubber bands around the above, then pass two more 90° to the first pair. Now attach this assembly to the fuel compartment access cover. With flat head screws, mount the battery pack as far aft as possible, so as to clear the action of the nose wheel lever.

31. Attach engine mount to fire wall.

32. Use 30-minute epoxy to glue the cowling to the fuselage.

33. After epoxy has dried, fair the cowling to the fuselage. Radius the bottom edges of the fuselage.

Radio:

For control, an Airtronics 6-channel Vanguard radio system was used, with five standard servos (two for ailerons, one each for rudder, elevator, and throttle), and a 600 mA battery pack. (See plans for equipment location.)

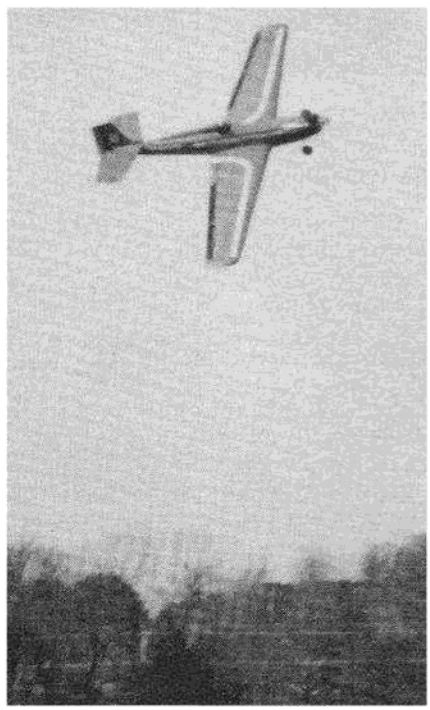
Covering:

To cover the Elanic, I used C.G. Models' UltraCote for all surfaces. The trim was done with Coverite lettering and automotive striping tape. The open wood area in the engine compartment was sealed using a polyurethane paint.

Flying:

The initial flights of both the first and second Elanics went very smooth, other than the designer's first flight ''jitters.'' The high speed needle was left across town in the workshop on the day of #1 Elanic's first flight, and there was a camera mixup on #2. Thanks to the help of fellow Memphis Prop Busters club members, we were able to proceed with testing.

Initial taxi tests proved that she was a stable bird on the ground, just a trifle sensitive on the nose wheel, which was easily corrected. We made a high speed taxi run that looked and felt so smooth that we decided to ease in a little up elevator and take her up. Initially, a couple of clicks of aileron trim were needed to get that ''hands off'' feeling, and as the flight progressed, a click or two of right rudder helped tracking in loops. As we built up stick time, the dual rates were utilized on the transmitter to smooth out the control responses. (We still like a lot of control movement on test flights of newly designed ships, just in case!)



We did most all of the aerobatic maneuvers in our bag of tricks and were pleased, to say the least. Knife-edge was excellent for a sport model, needing only moderate amounts of elevator and aileron input to straighten her out; loops were easy to keep big and round when desired; inverted flight needs just a small amount of down elevator; flat spin entries and exits were reasonably well defined, as long as one remembers which direction the spin was entered, neutralizing all controls momentarily, then applying pro-spin aileron to get the nose back down. Both inside and outside snaps were exceptionally quick.

Landings were fairly smooth and easy, especially if one remembers to set the angle of attack as the speed drops, and control the glide path with small power inputs. If you're into crossed control side-slips, both directions were manageable, but be careful to keep that nose down before smoothly cranking in full rudder deflection and opposite aileron . . . remember, she does have a tapered wing, and ''the ground may reach up and smite thee, if thee doesn't watch thy airspeed.''

Use the C.G. shown on the plans for early flights, and as your confidence builds, move it back a little at a time until you get the flight characteristics you prefer.

Have fun, and we hope you will enjoy your Elanic as much as we have ours. □