



(Read every word before starting to build model)

Study plans, sketches and instructions carefully before attempting model construction As only one part of the plan will be used at a trate, the remaining partial can be folded over for a ideal reference and study during the process of assembly. The following tools and materials, other than those supplied, are necessary to build this model. A razor bicde: a small arowing neard; bitly small thin pins, a pair of pliers for bending shaft; some small pieces of eardpaper; a piece of waxed paper 16" x 20" and 15 ounce or

Some model builders find it better to out out carefully and stightly sand all outlined or printed parts on printed based the sheet ofter which they are preserved in a tittle box until ready to be assembled into the skeleton or framework of model Likewise, they carefully separate all strips from strip sheet, sand them lightly and keep them protected until

STEP 1-REENFORCED PRINTED SHEETS . Printed bulsa rib sheets are supplied, but, when stronger models are required, plain sheets of white writing paper can be pasted to backs of rib sheets. Apply library paste to paper and attach to back of such tib sheet Paper reenforcements eliminate possibility of cracking balsa along the grain. While drying, place pasted parts between two flat suctaces and apply weights to them to prevent warping. Do not remove paper reenforcements from various pieces after they have been cut from rib sheet.

STEP 2-SANDPAPERING . Obtain a small block of wood and fold sandpape tightly around it Rub sandpaper covered block with an outward motion LIGHTLY and SQUARELY on all balsa strips. Avoid founding edges of square longitudinal pieces.

STEP 3-SPARS, ETC. . Select the correct strips as required on the plan for leading edge, spar and trailing edge. Do this before any notches are cut in ribs so fit will be very close or tight. A close or tight fit requires less coment. Consequently, less weight

STEP 4-WING, RIBS, WING TIPS . Cut out printed ribs and wing tips from printed bolsa sheets. Begin assembly by working over wing in the top view. Place waxed paper over plan to prevent wood parts from adhering to and tearing or soiling plan when assembled wing is removed. Hold down balsa spars with small thin pins. Fit ribs on to spars at correct positions and coment securely. Next coment leading edge

by cutting at middle line and allow wings to rock backward so "trailing edges" can be pinned down to board. Now cement trailing edges and wing tips into position and pin them to board until cement is dry. Do not remove from plan or board until it is certain

stephent is dry.

STEP 5—ELEVATORS AND STABILIZER • The tail is assembled in one unit, namely, stabilizer and elevators. Work over top view. Sandpaper all strips as explained in Step No. 2, before cutting to required lengths. Use waxed paper and plus in the stabilizer and cut curved tips from assembly. Cut cross members and cross braces to required sizes and cut curved tips from rib sheet Place cross members and then front and reas edges in position. Pin down firmly Apply small amount of cement to cross braces and curved pieces before inserting and pinning down into position.

STEP 6—FIN AND RUDDER • Cut parts from printed rib sheets. Assemble in one imit. Work over side view Rudder is assembled in the same manner as stabilizer. Allow cement to dry before removing from plan.

STEP 7-BODY SIDES . Cover side view on plan with waxed paper. Assemble body sides over side view. Pin down longerons. Put in upright members. Start at front and work toward rear. Cut uprights to size and apply cement to ends before dropping into position. Put in diagonal braces. When dry, remove body side from plan. As two sides are required, replace waxed paper over plan and make another body side.

STEP 8-BODY SQUARE AND FORMERS . The second body step is the assembly of the two sides into the completed frame. Work over top view. Start by cutting and titting cross braces. Start at rear and work toward front. Crack and bend longitudinals where necessary. Cement all joints carefully. After all cross braces are in place, check trusness of body along center line. Check corners to be sure they are at right angles and perfectly aligned. Cut out and attach formers. Make former notches a trifle smaller than the printed outlines to assure a tight fit for the stringers.

STEP 9...BODY STRINGERS . The same kind of stick material is used for both longerons and stringers. Smooth with sandpaper, cut to required lengths and cement into positions indicated BY NOTCHES IN FORMERS. Stringers are purposely not shown on front of plan but are clearly indicated in grant perspective of framework on back of

STEP 10-MOTOR COWL OR NOSE BLOCK . Trace any such required

discut sheets of firm wood: spinner, or hub block from balsa. Remove discut blades from sheet, sand lightly, prepare spipner or hub as shown on plan and carefully cement blades into positions as indicated. Four blade propeller hubs are made by cutting the 14 x 14 x 2 hub block in two and notching or rabbeting to permit pieces to be cross-halved as shown after which ends are angle notched to receive blades. Allow cement to dry thoroughly before spinning propeller. Three-blade propeller hube are made from solid block which is carved to shape, slotted and saided in accordance with description on plan

Front spinners are made from paper and scrap balsa as indicated and are usually cemented to propeller hub after shaft has been installed

STEP 12-LANDING GEAR, TAIL OR NOSE WHEEL • Landing gear ng together two pieces is x is balso which they can be sanded to shape and cut to required lengths. Common straight pins, bent to required shapes after being pushed through center of wheels, form sutisfactory axles. Pins are usually bound to struts with a serving of thread after which a liberal application of cement is recommended. A satisfactory method is shown on plan. Have landing year as complete as possible before attaching to model transework

Wheels having large center holes should be plugged with match stick before being

Tail or nose-wheel is made from several separate discs or nieces which must be aut from printed rib sheet. Coment pieces together "cross-grained" for extra strength, Round to a tire shape with sandpaper. Again, pins can be used for axles but tail wheels may as well be comented firmly in position (without using a pin). Tail wheel can be affixed ofter model is covered if desired.

STEP 14—ASSEMBLING . When all individual parts are complete they are ready for final assembly. Cement elevator and rudder into positions as shown and allow cemented joints to dry thoroughly. Cement landing quar units on wings and then cement wings into position shown in side view. Block up wing tips to produce proper dihedral and allow cemented joints to dry. Be sure everything is aligned properly before cement

Trace required templates from plan to letter paper, cut out and cement into proper

positions as indicated as plan.

Model should now appear like illustration of skeleton framework perspective.

cover body and rudder completely and wings and stabilisers on upper seriaces only. li desired, lower surfaces can be covered with scrap pieces of airplane or domestic ties Cover wings and elevator on top side only and remaining parts all around or on both sides. Sandpaper all rough edges and make all corners slightly round. Fit tissue paper, a section at a time, then apply cement and finally attach useue and allow it to dry Apply as much tissue paper in one piece as possible without undue wrinkling.

Models which are completely covered can be improved by lightly apraying them on all sides with water from a fine atomizer or insect gun after which they should be allowed to dry thoroughly When covering is dry, after being sprayed, it is tout or under tension

STEP 16—DECORATIONS, "CONTROLS," ETC. • Control outlines, insignic, pilots and instrument panel are printed on plan. Pilots heads must be cemented together and then inserted in cockpit. Affix instrument panel and control outlines in their proper

STEP 17-RUBBER MOTOR (not supplied) . A rubber band of two or four strands of $\frac{1}{32} \times \frac{1}{32} \times \frac{1}{32}$ can usually be obtained from stationery stores, old models, etc. A small opening in the

tissue covering is regulred at rear of ship for inserting rubber motor. STEP 18-FLYING . When model has been completely assembled it must be thecked for center of gravity balance BEFORE a trial flight is attempted. Place forefingers at the midpoint of the wing tips and lift model to see whether it balances. Tacks or pins tan be inserted into front or rear of model to produce proper balance. When plane remains horisantal while suspended on finger tips, it can be considered bolunced. A few short trial glides should be made AFTER the model has been properly balanced (not before). To be certain that model is correctly balanced, hold it, unwound, in position for launching and if the glide after leaving the hand is steady and consistent and goes forward 10 to 15 feet ship can be considered as making a normal glide.

Model is now ready for its trial flight. Launch It with the nose pointed slightly down-

ward which permits gravity to take effect. Before trying a powered flight it is advisable to test motor by winding propeller with right forefinger. Permit rubber motor to unwind completely. At this time check trueness of propeller rotation. While turning propeller and thus winding rubber motor, hold model firmly by its nose block. The proper of turns for rubber motor is attained when its soils or twists are fairly small or tight

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