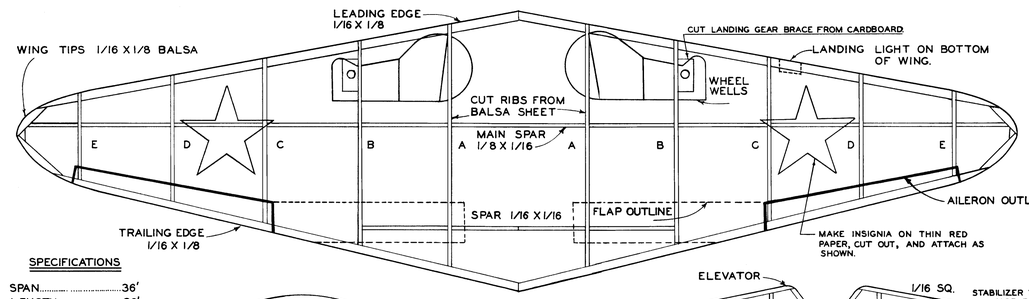
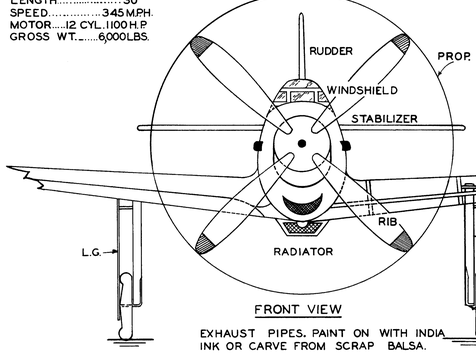


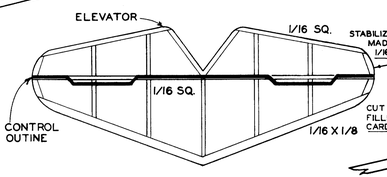
WING

SPECIFICATIONS

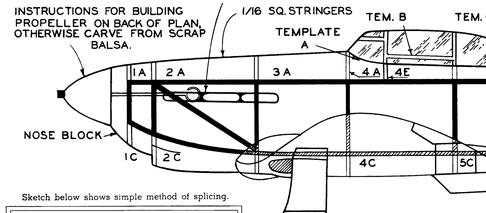
SPAN.....36'
LENGTH.....30'
SPEED.....345 M.P.H.
MOTOR....12 CYL. 1100 H.P.
GROSS WT.....6,000 LBS.

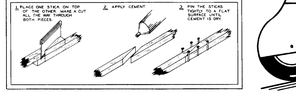


FRONT VIEW

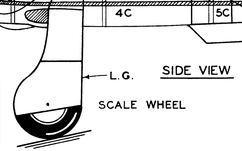


STABILIZER

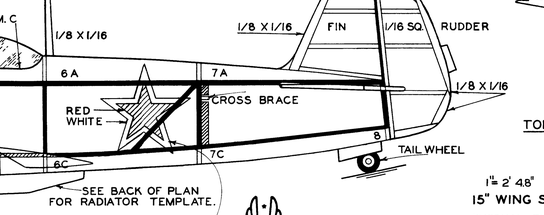




Sketch below shows simple method of splicing.



SIDE VIEW



MAKE EMBLEMS ON THIN WHITE PAPER, CUT OUT, AND ATTACH AS SHOWN.

TOP VIEW

1" = 2' 48"

15" WING SPAN

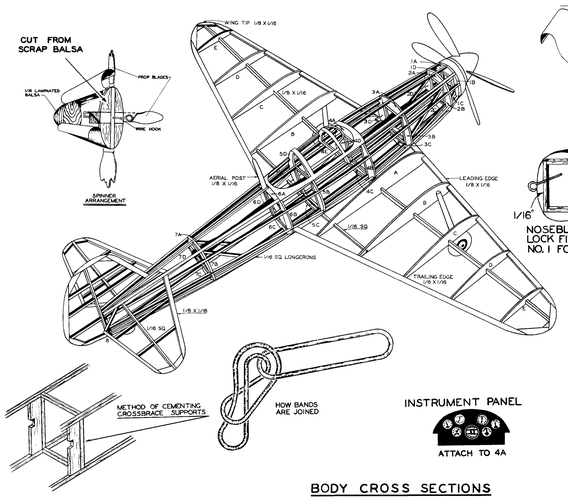
RUSSIAN FIGURE

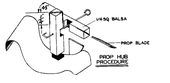
YAK-9

EXACT SCALE FLYING MODEL

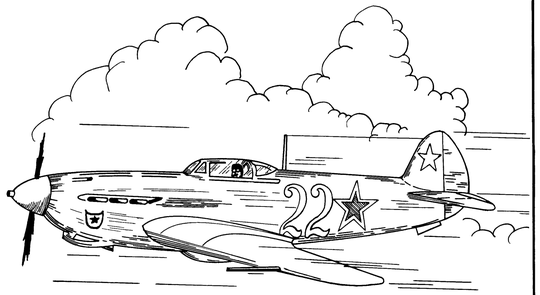
RACINE, WISCONSIN

CONTROL OUTLINES





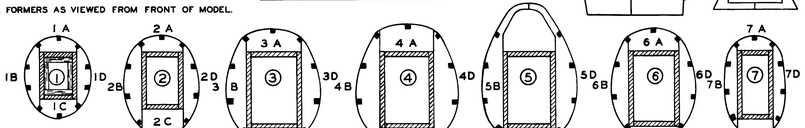
NOSEBLOCK LOCK FITS IN NO. 1 FORMER



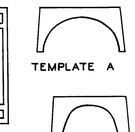
WHEEL WELLS

BODY CROSS SECTIONS

ALL FORMERS AS VIEWED FROM FRONT OF MODEL.

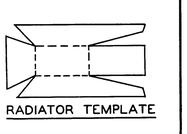


TEM. B



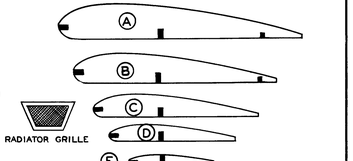
TEM. C

TEMPLATE A



RADIATOR TEMPLATE

WING RIBS



DETAILED INSTRUCTIONS

(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 time, the remaining portion can be folded over for added 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 blade; a small drawing board; fifty small thin pins; a pair of pliers for bending shaft; some small pieces of sandpaper; a piece of waxed paper 16" x 20" and ½ ounce or more of airplane cement.

Some model builders find it better to cut out carefully and slightly sand all outlined or printed parts on printed balsa rib sheet after which they are preserved in a little 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 ready for use.

STEP 1—REENFORCED PRINTED SHEETS • Printed balsa 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 each rib sheet. Paper reenforcements eliminate possibility of cracking balsa along the grain. While drying, place pasted parts between two flat surfaces 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 sandpaper tightly around it. Rub sandpaper covered block with an outward motion. LIGHTLY and SQUARELY on all balsa strips. Avoid rounding 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 cement. Consequently, less weight will be added to the model.

STEP 4—WING, RIBS, WING TIPS • Cut out printed ribs and wing tips from printed balsa sheets. Begin assembly by working over wing in the top view. Place waxed paper over plan to prevent wood parts from adhering to and warping 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 cement securely. Next cement leading edge into position. When cement is thoroughly dry, remove pins, separate left and right panels 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 cement 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 plan in assembly. Cut cross members and cross braces to required sizes and cut curved tips from rib sheet. Place cross members and then front and rear 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 unit. 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 fitting 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 trueness 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 ensure 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 giant perspective of framework on back of plan.

STEP 10—MOTOR COWL OR NOSE BLOCK • Trace any such required parts from drawings on front of plan onto balsa block and cut around traced lines to make block conform to proper shape and size. Drill small hole for shaft and finish entire part with sandpaper. Piece is now ready for cementing to front of body.

STEP 11—PROPELLER • Semi-scale propeller blades are made from special die-cut sheets of firm wood; spinner or hub block from balsa. Remove die-cut blades from sheet, sand lightly, prepare spinner or hub as shown on plan and carefully cement blades into positions as indicated. Four-blade propeller hubs are made by cutting the ¼ x ¼ x 2 hub block in two and notching or cobbeting 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 hubs are made from solid block which is carved to shape, slotted and sanded 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 struts in most cases are made by cementing together two pieces ½ x ¼ balsa after 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 satisfactory 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 gear as complete as possible before attaching to model framework.

Wheels having large center holes should be plugged with match stick before being pierced by axle pin.

Tail or nose wheel is made from several separate discs or pieces which must be cut from printed rib sheet. Cement pieces together "cross-grained" for extra strength. Round to a true shape with sandpaper. Again, pins can be used for axles but tail wheels may as well be cemented firmly in position (without using a pin). Tail wheel can be offset after 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 gear units, as 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 sets.

Trace required templates from plan to letter paper, cut out and cement into proper positions as indicated on plan.

Model should now appear like illustration of skeleton framework perspective.

STEP 15—COVERING • If carefully used the tissue supplied is sufficient to cover body and rudder completely and wings and stabilizers on upper surfaces only. If desired, lower surfaces can be covered with scrap pieces of airplane or domestic tissue. 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 tissue and allow it to dry. Apply as much tissue paper in one piece as possible without undue wrinkling.

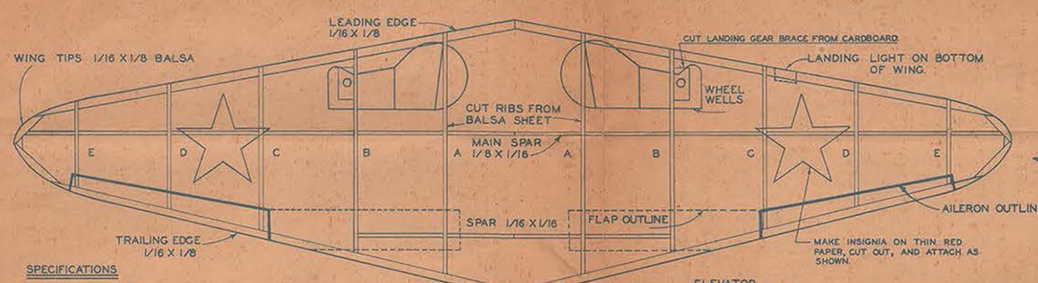
Models which are completely covered can be improved by lightly spraying them on all sides with water. When a fine atomizer or insect can after which they should be allowed to dry thoroughly. When covering is dry, after being sprayed, it is taut or under tension and therefore quite smooth.

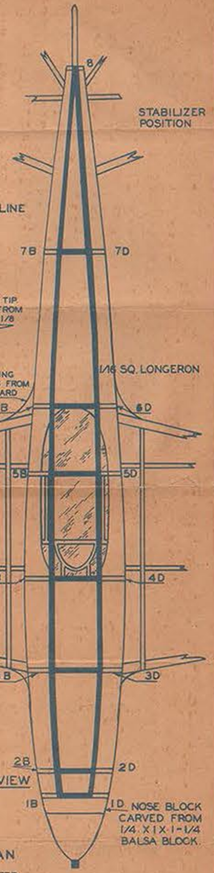
STEP 16—DECORATIONS, "CONTROLS," ETC. • Control outlines, insignia, pilots and instrument panel are printed on plan. Pilots' heads must be cemented together and then inserted in cockpit. Affix instrument panel and control outlines in their proper positions.

STEP 17—RUBBER MOTOR (not supplied) • A rubber band of two or four strands of ⅛ x ⅛ x 8" long, or its equivalent, is sufficient to fly this model. Similar rubber can usually be obtained from stationery stores, old models, etc. A small opening in the tissue covering is required at rear of skip for inserting rubber motor.

STEP 18—FLYING • When model has been completely assembled it must be checked 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 can be inserted into front or rear of model to produce proper balance. When plume remains horizontal, model is balanced. Again, plan can be used for exact but tail wheels may as well be cemented firmly in position (without using a pin). Tail wheel can be offset after model is covered if desired.

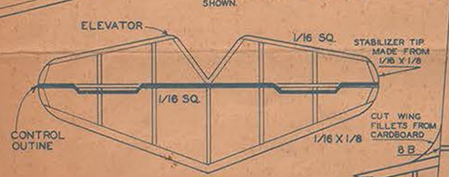
Model is now ready for its trial flight. Launch it with the nose pointed slightly downward which permits gravity to take effect. Before trying a powered flight it is advisable to test motor by winding propeller with right forefinger. Permit rubber motor to unwind completely. At this time check trueness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

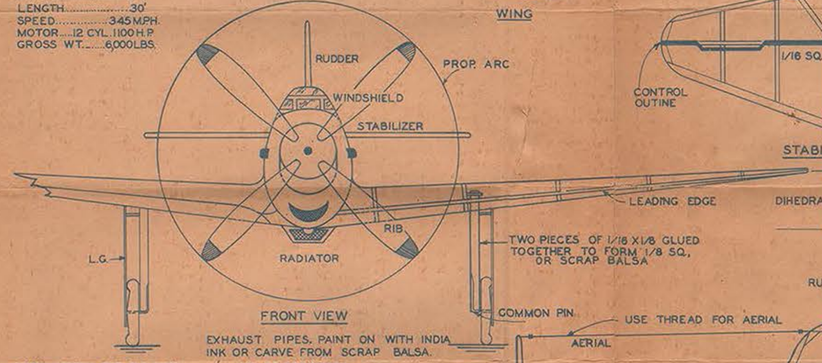


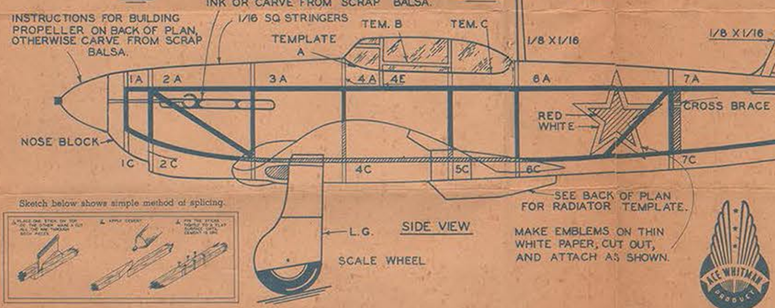


SPECIFICATIONS

SPAN.....36"
LENGTH.....30"
SPEED.....345 MPH.
MOTOR....12 CYL. 1100 H.P.
GROSS WT.....6,000 LBS.







Sketch below shows simple method of splicing.

1" = 2' 4.8"

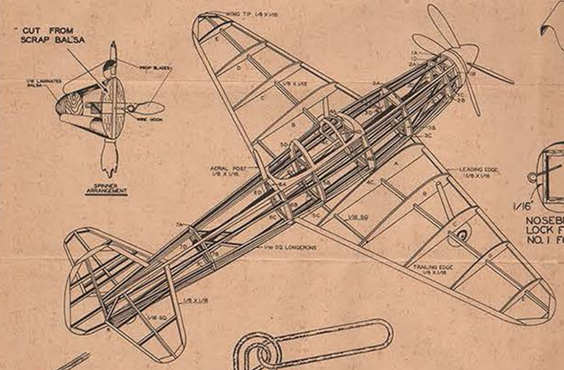
15" WING SPAN

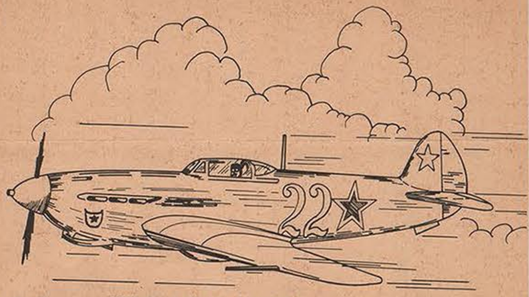
RUSSIAN FIGHTER

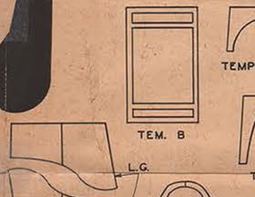
YAK-9

EXACT SCALE FLYING MODEL.

CONTROL OUTLINES

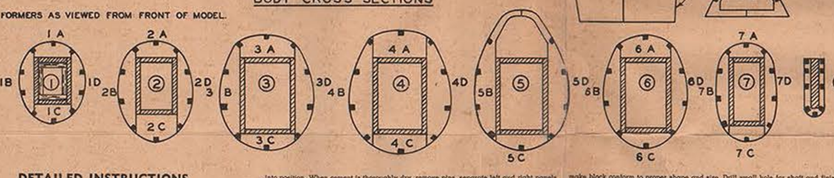






BODY CROSS SECTIONS

ALL FORMERS AS VIEWED FROM FRONT OF MODEL.



DETAILED INSTRUCTIONS

(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 time, the remaining portion can be folded over for added 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 blade; a small drawing board; fifty small thin pins; a pair of pliers for bending shaft; some small pieces of sandpaper; a piece of waxed paper 15" x 20" and ½ ounce or more of airplane cement.

Some model builders find it better to cut out carefully and slightly sand all outlined or printed parts on printed balsa rib sheet after which they are preserved in a little 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 ready for use.

STEP 1—REENFORCED PRINTED SHEETS • Printed balsa rib sheets are supplied, but, when stronger models are required, plain sheets of white strong paper can be pasted to backs of rib sheets. Apply library paste to paper and attach to back of each rib sheet. Paper reenforcements eliminate possibility of cracking balsa along the grain. While drying, place pasted parts between two flat surfaces and apply weight 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 sandpaper tightly around it. Rub sandpaper covered block with an outward motion LIGHTLY and SQUARELY on all balsa strips. Avoid rounding 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 the before any notches are cut in ribs so fit will be very close or tight. A close or tight fit requires less cement. Consequently, less weight will be added to the model.

STEP 4—WING, RIBS, WING TIPS • Cut out printed ribs and wing tips from printed balsa 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 cementing wing is removed. Hold down balsa spars with small thin pins. Fit ribs on to spars at correct positions and cement securely. Next cement leading edge into position. When cement is thoroughly dry, remove pins, separate left and right panels by cutting at middle rib and allow wings to rock backward so "trailing edges" can be pressed 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 cement 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 pins in assembly. Cut cross members and cross bronze to required sizes and cut curved tips from rib sheet. Place cross members and then front and rear 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 unit. 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. Pat in upright members. Short or front and work toward rear. Cut uprights to size and apply cement to ends before dropping into position. Pat in diagonal bronze. 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 fitting cross bronze. Start at rear and work toward front. Crack and bend longitudinals where necessary. Cement all joints carefully. After all cross bronze are in place, check trueness of body along center line. Check corners to be sure they are of right angles and perfectly aligned. Cut out and attach formers. Make former notches a trifle smaller than the printed outlines to ensure a tight fit for the stringers.

STEP 9—BODY STRINGERS • Use the same kind of stick material is used for both longerons and stringers. Smooth with sandpaper, cut to required lengths and cement into position as indicated BY NOTCHES IN FORMERS. Stringers are necessary over and above those on front of plan but are clearly indicated in plant perspective of framework on back of plan.

STEP 10—MOTOR COWL OR NOSE BLOCK • Trace any such required parts from drawings on front of plan onto balsa block and cut around traced lines to make block stockroom to proper shape and size. Drill small hole for shaft and finish entire part with sandpaper. Piece is now ready for cementing to front of body.

STEP 11—PROPELLER • Semi-scale propeller blades are made from special diecut sheets of firm wood; spinner or hub block from balsa. Remove die-cut blades from sheet, sand lightly, prepare spinner or hub as shown on plan and carefully cement blades into positions as indicated. Four-blade propeller hubs are made by cutting the ¼ x ¼ x 2 inch block in two and notching or rabbeting to permit pieces to be cross-halved as shown after which ends are single notched to receive blades. Allow cement to dry thoroughly before spinning propeller. Three-blade propeller hubs are made from solid block which is carved to shape, slotted and sanded 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 struts in most cases are made by cementing together two pieces ½ x ⅛ balsa other 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 satisfactory axles. Pins are usually bound to struts with a covering of thread after which a liberal application of cement is recommended. A satisfactory method is shown on plan. Have landing gear complete on plan before attaching to model framework.

Wheels having large center holes should be plugged with match stick before being pierced by axle pin.

Tail or nose wheel is made from several separate discs or pieces which must be cut from printed rib sheet. Cement pieces together "cross-grained" for extra strength. Round to a true shape with sandpaper. Again, pins can be used for axles but tail wheels may as well be cemented firmly in position (without using a pin). Tail wheel can be affixed after 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 gear 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 sets.

Trace required templates, from plan to letter paper, cut out and cement into proper positions as indicated on plan.

Model should now appear like illustration of skeleton framework perspective.

STEP 15—COVERING • If carefully used the tissue supplied is sufficient to cover body and rudder completely and wings and stabilizers on upper surfaces only. If desired, lower surfaces can be covered with scrap pieces of airplane or domestic tissue. Cover wings and elevator on top side only and remaining parts all around or on both sides. Sandpaper all rough edges and notes all corners slightly round. Fit tissue paper, a section at a time, then apply cement and finally attach tissue 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 spraying 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 taut or under tension and therefore much smoother.

STEP 16—DECORATIONS, "CONTROLS," ETC. • Control outlines, insignia, plans 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 positions.

STEP 17—RUBBER MOTOR (not supplied) • A rubber band of two or four strands of ⅛ x ⅛ x 9" long, or its equivalent, is sufficient to fly this model. Similar rubber can usually be obtained from stationery stores, old models, etc. A small opening in the tissue covering is required on rear of ship for inserting rubber motor.

STEP 18—FLYING • When model has been completely assembled it must be checked 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 from printed rib sheet. Cement pieces together "cross-grained" for extra strength. Round to a true shape with sandpaper. Again, pins can be used for axles but tail wheels may as well be cemented firmly in position (without using a pin). Tail wheel can be affixed after 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 gear 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 sets.

Trace required templates, from plan to letter paper, cut out and cement into proper positions as indicated on plan.

Model should now appear like illustration of skeleton framework perspective.

STEP 15—COVERING • If carefully used the tissue supplied is sufficient to cover body and rudder completely and wings and stabilizers on upper surfaces only. If desired, lower surfaces can be covered with scrap pieces of airplane or domestic tissue. Cover wings and elevator on top side only and remaining parts all around or on both sides. Sandpaper all rough edges and notes all corners slightly round. Fit tissue paper, a section at a time, then apply cement and finally attach tissue 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 spraying 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 taut or under tension and therefore much smoother.

STEP 16—DECORATIONS, "CONTROLS," ETC. • Control outlines, insignia, plans 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 positions.

STEP 17—RUBBER MOTOR (not supplied) • A rubber band of two or four strands of ⅛ x ⅛ x 9" long, or its equivalent, is sufficient to fly this model. Similar rubber can usually be obtained from stationery stores, old models, etc. A small opening in the tissue covering is required on rear of ship for inserting rubber motor.

STEP 18—FLYING • When model has been completely assembled it must be checked 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 can be inserted into front or rear of model to produce proper balance. When plane remains horizontal, while suspended on finger tips, it can be considered balanced. 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 pass forward 10 to 15 feet, ship can be considered on making a normal glide.

Model is now ready for its trial flight. Launch it with the nose pointed slightly downward which permits gravity to take effect. Before trying a powered flight it is advisable to test motor by winding propeller with right forefinger. Permit 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 number of turns for rubber motor is attained when the coils or twists are fairly small and tight.