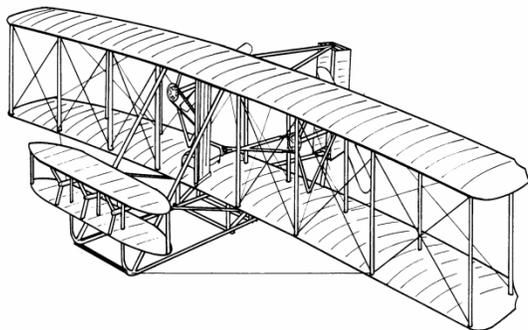


WRIGHT FLYER 1

INSTRUCTIONS FOR THE D10LC KIT



Manufactured in the USA by

Easy Built Models

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Visit us at www.easybuiltmodels.com

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GLUE METHODS

Always follow the manufacturer's use, safety and environmental instructions when using their products. We recommend our JET Instant glue, an aliphatic wood glue or Duco Cement for general wood construction.

FOR TISSUE: use either method A or B

A. UHU Blue GLUE STIC

Cut a piece of tissue slightly larger than the structure to be covered. Preshrink the tissue by lightly spraying it, allowing it to soak up the moisture, then set aside to dry.

Carefully apply a coating of the glue to the perimeter of the structure you are about to cover. Notes: Glue stic glue dries quickly, only coat a small section at a time applying the paper as you go. Keep blobs of glue to a minimum by using a toothpick to spread out evenly. Some builders report using rubbing alcohol to reactivate the applied glue by using a small brush to make small applications to the affected area.

Carefully pick up the damp paper and place it against a starting edge. Rub a finger moistened with water along the edge making sure it adheres to the glue. Pull out wrinkles as you proceed.

Pin to a flat surface and allow paper and glue to dry.

B. TRADITIONAL THINNED DOPE (50/50) OR THINNED WHITE/YELLOW GLUE (WITH WATER)

Carefully apply a coating of thinned dope to the perimeter of the structure you are about to cover, let dry. Cut a piece of tissue as big as the area to be covered. Wet paper well allowing it to soak up the moisture and set aside.

For dope only — in the meantime, lightly coat the perimeter of the structure again with thinned dope and proceed immediately to the next step.

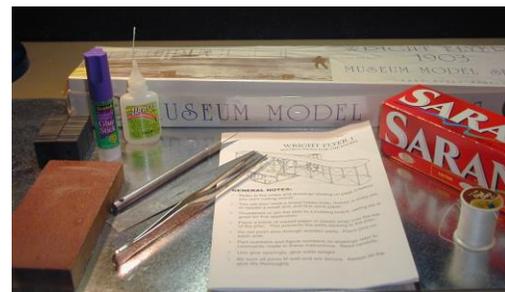
Carefully pick up the damp paper and place it against a starting edge. Rub your finger along the edge to make sure the paper is sticking.

Note: More dope or thinned white glue can be applied to the outer surface and rubbed into the glue point to improve the adhesion. Pull out wrinkles as you proceed with the rubbing. Pin to a flat surface and allow to dry.

STEP 1

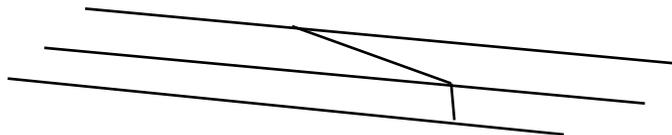
Read and familiarize yourself with the Instructions FIRST!

These are the supplies that you will need to build your airplane. The clear plastic is placed over the plan so the glue doesn't stick to the paper. You may substitute one of the following glues - aliphatic wood glue, white glue or Duco cement in place of our JET Instant cyanoacrylate glue. We used our "**MAGNA-BOARD**" set for the construction of our model (available at www.easybuiltmodels.com) but you can use the back of a flat ceiling tile and pins instead. Spread your plan on the building board and cover with plastic wrap. Other tools include a sanding block, tweezers, a ruler or straight edge, a hobby knife or razor blade, a glue stick and thread.



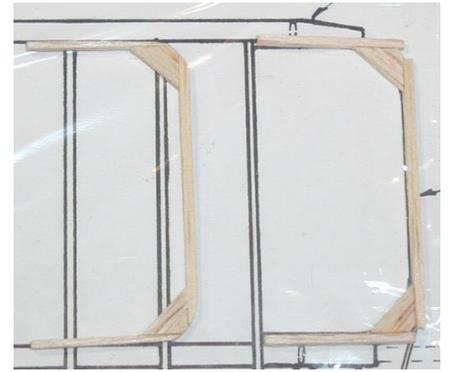
STEP 2

BEFORE YOU START CUTTING WOOD... It will be necessary to splice the 3/16" square leading edge pieces. The kit includes 3 pieces of wood 18" long. Make the splice on an angle. Cut one of the 18" pieces in half giving you two 9" pieces. Splice these to the 18" pieces to make two, approximately 27" long, pieces. You will use these for the leading edge in STEP 5. Repeat this step using 3/32 x 3/16 for the spar in STEP 5.



STEP 3

Make four wing tips as shown here by connecting 1/16 square balsa with parts W1 and W2. Shown on the left, sand the corners round to shape after the glue dries. Set these aside until later when needed.



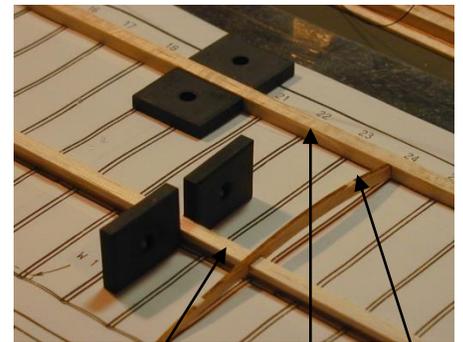
STEP 4

Make one wing at a time, start the wing assembly by first placing a 1/8" square piece of balsa over the position of the rear spar on the plan. This is a temporary piece to hold the spar at the correct height. Do not glue this piece in place as it is removed after the ribs are glued in place. At this time cut out your ribs for the printed wood version or separate out the laser cut ribs in preparation for assembly.



STEP 5

Position and pin the 3/32 x 3/16 from STEP 2 on top of the temporary 1/8" square piece shown in STEP 4. Next, place the ribs in position at each point shown on the plan (If you intend to fly your model then omit ribs 4, 6, 8, 10, 12, 14, 16, 18, 21, 24, 25, 27, 29, 31, 33 & 35 on the top wing. On the bottom wing omit all the same ribs except #18 which is needed). Place the 3/16" square leading edge, glue and hold in position with magnets or pins until dry.



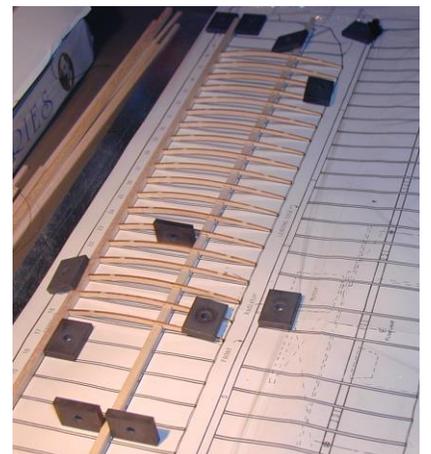
Rear Spar

Leading Edge

Rib

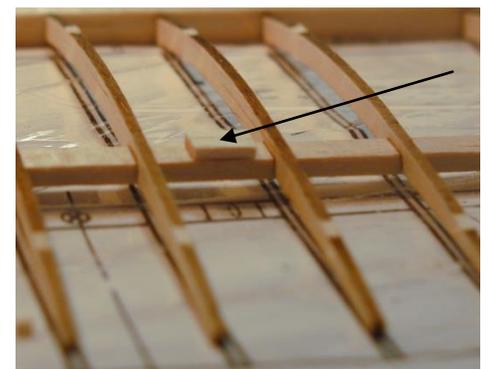
STEP 6

Check everything and glue securely. Be careful not to glue the rear spar to the 1/8" square support pieces (STEP 4) located underneath. They are discarded after the wings are taken from the plan.



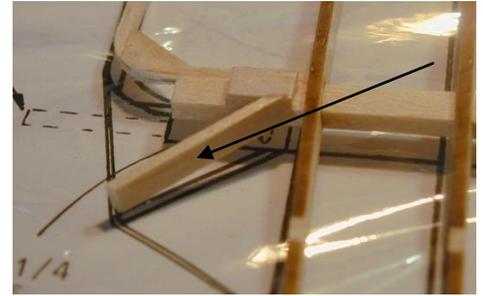
STEP 7

Place and glue a 1/16 x 3/16 x 1/4 piece of balsa on top of the rear spar of **only** the lower wing. There are eleven points where these blocks are glued, one for each vertical strut location and at the points where the two propeller support frames are mounted.



STEP 8

Cut and glue into position a 1/16 x 1/8 piece of balsa for rounding the corner of the trailing edge. Sand to shape. Let the glued up wing thoroughly dry and then remove the entire wing from the plan. The wing can now be sanded lightly to remove glue pieces and fuzz and for shaping of the leading edge of the wing.



STEP 9

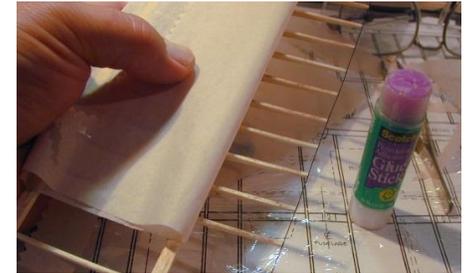
For ease of this step, use some blocks or small cans to support the wing on edge while you glue the thread to each rib creating the trailing edge as shown on the plan.

Repeat STEPS 4 through 10 to build the other wing before moving on to STEP 11 where you start covering with tissue.



STEP 10

Cover the underside of each wing first. Use a “permanent” glue stick to attach the tissue. Cover each wing in sections for ease of handling with small rectangles of tissue. Work from the leading edge to the rear, carefully rubbing glue on the wood and then position a slightly oversize piece of tissue over the glued area. Carefully pull the tissue to form a smooth surface with minimal wrinkles; these will be removed later by shrinking the tissue. Refer to the glue methods at the end of this booklet for more guidance. Before doing the top surface go to STEP 11.



STEP 11

Cut the excess tissue leaving a minimal strip, about 3/32”, this will be rolled over to form a secure bond. You will do this in two separate steps, one for when you cover the underside of the wing and then again when you cover the top side of each wing. When covering the top side you will be rolling the tissue from over the top onto the tissue on the underside, this seam will be visible and must be neat. The next step shows how to glue the tissue around the thread used to create the trailing edge.



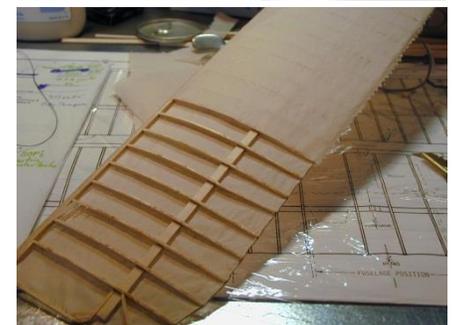
STEP 12

Brush a thin film of white glue at the joint of the thread and tissue, roll the tissue over the thread and allow it to dry. Do this on both wings for the underside first. Now move on to covering the top surface of the wings.



STEP 13

This picture shows the lower surface covered and the tissue wrapped over from the underside. The top surface is then covered in small sections for ease of handling the tissue.



STEP 14

After the wing is completely covered in tissue, you will most likely have minor wrinkles as seen here. Very lightly mist or steam the tissue's surface a little at a time. Allow the tissue to dry between each application of water focusing more on the areas where wrinkles remain. Each time the tissue will shrink a little bit. **WARNING:** if you get impatient or get the surface too wet **IT WILL SHRINK TOO MUCH** and warp the wing.



STEP 15

This is how your wing will look after the tissue dries. Once dried, you can use Krylon™ Satin Clear spray paint to seal the tissue. Remember to read the manufacturer's instructions for proper use and safety. Apply several light coats on the tissue allowing enough time for the paint to dry between applications or it may cause additional shrinking and warp the wing.



STEP 16

Cut nine (9) laser cut spacer spars as shown on the plan marked "FS". These spars will be installed at the leading edge. Repeat this step for the rear spar marked "RS" on the plan. Locations on the wing are marked on the plan with "O". Make use of something square to set the front spars to vertical alignment. **NOTE: YOU MIGHT FIND IT EASIER TO PAINT ALL EXPOSED WOOD PRIOR TO ASSEMBLING AS YOU MAKE THE PARTS.** Glue can be touched up with paint after it dries.



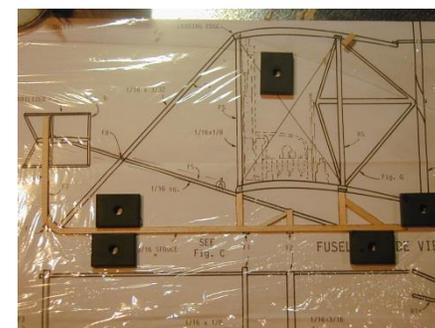
STEP 17

Stand the lower wing on edge and glue the top wing to the front spars keeping everything square. Once the glue dries insert and glue the rear spacer spars at the appropriate locations as indicated on the plan. After these dry is a great time to install the thread rigging before additional parts are added and get in the way. Look at the rigging diagram to see where the spars belong. **You may wish to study placement of the engine and drive train parts before starting the rigging while access is still easy.** Set the wing structure aside while you construct the fuselage.



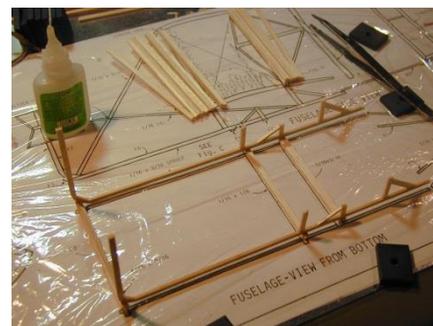
STEP 18

The fuselage is started by positioning F6, F7 and F8 as shown on the plan in the side view. Glue the parts together. The remaining parts are made from balsa. Make two identical body sides for the fuselage.



STEP 19

Use the bottom view on the plan. F2 and F3 are made from 1/16 x 3/16 and F1 is made from 1/16 x 1/8 balsa. Pin the two body sides from STEP 18 on top of and perpendicular to parts F1 and F2. F3 is then glued to the front (look at the front and side views to see how it is raised up from the ground surface. Let the parts dry. With care mount the assembled wings on top of the uprights as shown on the plan with glue and making sure all is square. NOTE: the fuselage does not mount directly on the center line of the wings because the original aircraft was made with the starboard (right) wing 4" longer than the port (left) wing. Now add the 1/16 x 3/32 strip F4 to stiffen the assembly. DO NOT ADD F5 AT THIS TIME. Set this structure aside for now.



STEP 20

Make the upper and lower stabilizer over the plan using the shaped tips S4 and S5 with 1/16 x 3/16 balsa for the leading and trailing edges. Use 1/16" square for ribs. Glue and let dry.



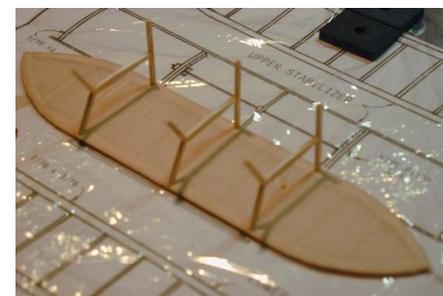
STEP 21

Apply tissue both stabilizers in the same manner as the wings.



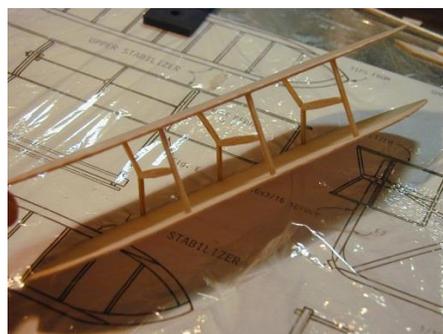
STEP 22

Using the side view at Fig. D, make three "K" shaped sections. These are shown in the photo glued in position on the bottom stabilizer.



STEP 23

Glue in position the upper stabilizer. Set aside while the glue hardens.



STEP 24

Once the two stabs are connected by the three "K" shaped parts you need to center the unit up over the vertical supports of the fuselage and carefully cut the tissue so that the stab can be slid into position. DO NOT GLUE THE STABILIZER IN POSITION. Using the wire piece, slide it carefully through each hole. This will allow the stabilizer to be moved. Use the 3 circles S2 on the wire as shown on the plan to hold the wire in position. MAKE SURE CIRCLE S3 IS INSERTED BEFORE FINALIZING ASSEMBLY. Use a drop of glue on each circle to keep in place.

Set the plane assembly aside while you make the final parts.



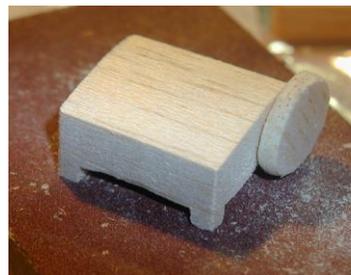
STEP 25

Start making the motor block assembling the block sides E1, E2, E3 and E4. Cap this with part E5. Square up and glue assembly. On the side opposite where the cylinders glue to there is going to be a gap that will accept a 1/8x1/8" balsa strip. Glue this in the gap. Use sandpaper to smooth all surfaces and to round off the length of the 1/8" square balsa strip.



STEP 26

Use a piece of 1/16" sq. short balsa scrap rounded and inserted as the shaft for the fly wheel. Push this into both the flywheel and then into the side of the motor block as shown on the plan. Glue these in place.



STEP 27

Use the 3/16" dowel rod to cut 4 cylinders to length as shown on the plan. Sand each to clean up any fuzz.



STEP 28

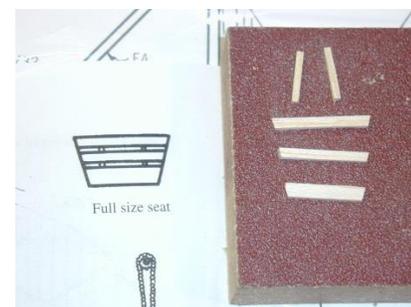
Glue the cylinders onto the side of the motor block keeping the tops level with each other and the top of the motor block and equally separated as shown on the plan. Use part E6 to create a top over the cylinders and round the outer corners as shown here. Fold a piece of fine sand paper between your fingers, place a piece of 1/16" square balsa within it and rotate to make it round. Cut these off in 1/8" lengths and glue them centered over the top of each cylinder. Now is a good time to paint this and let it dry while you make the cradle that held the pilot in place while he laid on the wing to fly the plane.



STEP 29

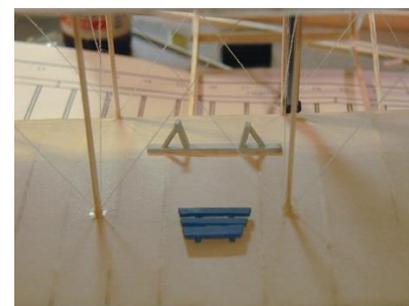
The "seat" which the pilot rested his legs on is made 2 pieces C4 in parallel to form the bottom supports and three pieces C5, C6 and C7 glued crosswise.

Make the forward body support using C1 as the base. Then use C2 set on the inside pair of holes. Use C3 in the outside pair of holes and now lean outward to lock the C3 pin in the top hole of C2 creating the cradle for the pilot as shown on the plan. Paint these and set aside to dry.



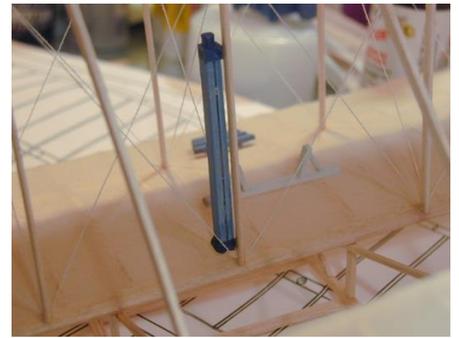
STEP 30

Now using the plan for reference, begin placing the body supports in position on the lower wing's top surface. This picture is looking at the plane from the rear before the rudder has been attached.



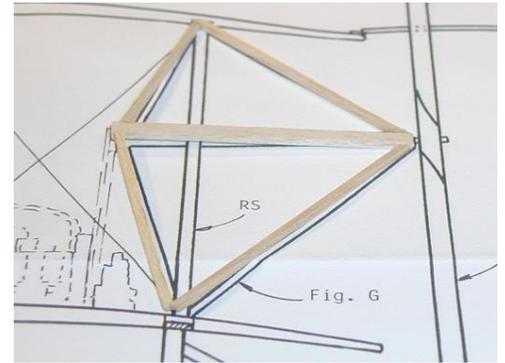
STEP 31

Next make the radiator using the laser cut radiator side panels. The sizes for the parts are shown on the plan. Glue and paint, when the parts are dry glue it in place on the front spar as shown on the plan. This picture is taken from the front right side of the plane.



STEP 32

Make a pair of the propeller support and shaft as shown on the plan. Paint these after the glue dries. Set aside for now.



STEP 33

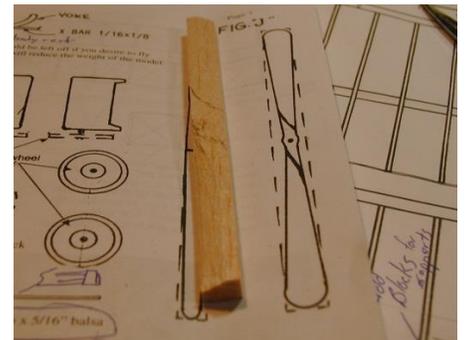
Make the drive chains, two different sizes from parts E7 and E8. Cut out the chain gear image if desired and paste it to the laser cut balsa making a three dimensional part. Careful painting adds to the realism of the parts. Paint the gears silver, the chain a dirty gray and the tubular chain covers a light gray on all sides of each part. Set aside to dry.



The arrow points to one of the areas with the waste piece between the simulated chains removed.

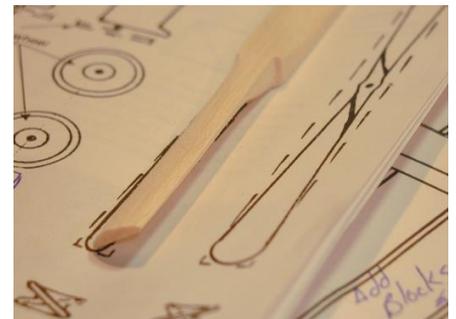
STEP 34

Now make two propellers. These are counter rotating propellers so they will be made with opposite blade pitch compared to each other. Begin by cutting the approximately sized 1/4 x 3/8 blocks to the correct length shown on the plan. Rough carve each to create the pitch for the blade remembering that each blade is opposite.



STEP 35

Smooth sand each blade and round the tips as shown on the plan.



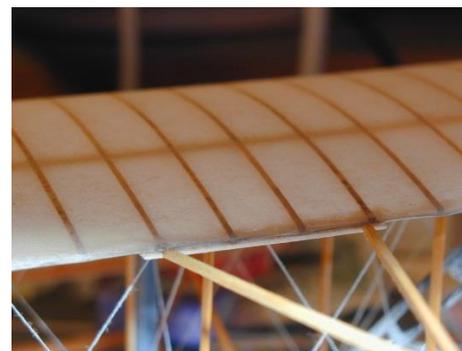
STEP 36

Now begin putting the rest of the details together on the finished plane. REVIEW THE PLAN AND INSTRUCTIONS TO UNDERSTAND THE RELATIONSHIP OF THE PARTS BEFORE GLUING THEM JUST IN CASE MINOR ADJUSTMENTS ARE NECESSARY. Install the propeller supports first. Next using the parts representing the drive chains locate where to glue the motor block so that the small power sprocket on each reaches the center of the flywheel. Glue the motor block in place and then the chain drives. Next glue or pin the propellers to the end of each of the drive shafts as shown on the plan. Next let the assembly dry.



STEP 37

Before mounting the rudder supports you will need to glue a thin strip of balsa to the trailing edge of the upper wing shown on the plan as "W3". Sand down a piece of 1/16 x 1/8" to 1/32 x 1/8". This is for the rudder attachment to the top wing.



STEP 38

If you have not already installed the thread rigging then now is the time to make a decision. The rigging adds to the realism of the model but is definitely more work. You will need a light mercerized thread to continue. Follow the diagram showing the location of the rigging. Additional reference material is helpful if you have access to other pictures. You can either drill small holes to feed the thread thru or glue the thread at the base of each support. A light gray or black thread will save you the trouble of painting it later. You will need to keep tension on the thread while the glue dries, this is where instant glue excels for the application (try our JET Instant glue).



Make two rudders per the plan side view and glue these together using the bottom view for dimensions. Set the rudder aside. Make the rudder supports R1 and R2 from 1/16 square balsa, paint them and glue to the wings as per the drawing. Finish up by gluing the rudder in place.

Now look over your model, touch up any areas that still need paint. Find a nice place to display your model and reflect on what an amazing aircraft the Wright Bros and you have built. Now clean up your mess and get ready for bed.

We have over 160 other kits you can build and fly or display. Write us for a catalog or visit our website at www.EasyBuiltModels.com.