

# The 29er

The 29er was designed especially for good flying and realistic appearance. It is easily adjusted for long, high flights - indoors or out. You don't have to be an expert builder to get flights of 25 or 30 seconds, and if you are a contest genius, you should aim at flights several times that long.

Although it is not a scale model, the 29er looks so realistic that even experienced modelers often ask whether it's a Heath, or a Fairchild, or some other sport parasol of the 1920s. If you have never built a flying model before, then the 29er is a little too difficult to start on. But if you've completed a balsa kit or two and would like to try a fine "sticks-and-paper" flyer, then let's get started.

**FUSELAGE:** Build two fuselage sides directly over the plans - one on top of the other. The wedge-shaped pieces under the tail and the N-struts under the wing are built as a part of the sides. Don't leave them off. Round the corners of the firm 1/16" x 1/8" strut pieces before cementing in place.

When the fuselage sides are picked up from the plans and separated, lightly cement the 1/16" square temporary braces diagonally across the outer side of both strut assemblies. They will strengthen the struts to prevent damage to them while you are completing the fuselage.

Join the two fuselage sides with formers F-3 and F-5 first. When these joints have dried, cement the remaining cross members and formers in place between F-3 and F-7, top and bottom.



Mac-the-modeler comes up with a nifty looking sportster from the vintage years of private aviation. She's a swell flier and could compete favorably in scale contests with a few changes. This is Ken Binger's ship, off Mac's plans.

## A SEMI-SCALE VINTAGE FLYING MACHINE BY PAUL McILRATH

Let this assembly dry thoroughly before completing the front and rear ends of the fuselage. The sides will have to be cracked slightly at former F-3 to allow the fuselage to narrow down near the nose. The 1/32" sheet covering on the nose *must* be flexible A-grain balsa. Soaking the sheet in water before bending will help.

Cement the noseblock, made of N-1, 2, and 3, lightly in place on the front of the completed fuselage while it is sandpapered to final shape. Then it will blend in smoothly with the lines of the cowling. Cement washers securely to the front and rear of the block to provide a free, true-running propeller. This is *important* in later flight adjustments.

**LANDING GEAR:** The pieces of the landing gear are made of firm 1/16" sheet. True length is shown on the front view, not on the side view. Cement the struts and gussets together and round the edges before attaching to the fuselage. The angle joint between the struts and the fuselage must fit well or it will not be strong enough.

Each wheel is made of four pieces: two 1/32" thick covers, one 1/8" thick outer ring, and a small scrap of 1/8" sheet sandwiched at the hub. Cement a washer on each side or use beads or eyelets for bearings.

**TAIL SURFACES:** Trace rudder outline on a piece of light 1/32" sheet. Cut it out and smooth the edges. Build the stabilizer directly over the plans. The tips are made by wrapping a water

soaked strip of 1/32" x 1/16" x 36" around a bottle or other round form of about two inch diameter. Hold the ends with rubber bands or tape while the strip dries. When the strip is completely dry, select a couple of smoothly bent sections for the tips.

**WING:** Build wing on plans in two halves. Be very careful to keep the short center ribs butted neatly together but NOT cemented to each other. Each wingtip is made from two layers of 1/32" x 1/16" strip. The strip is soaked and pre-bent just as the stabilizer tips. This time, use a three inch diameter form. Cement the 1/16" x 1/8" strut support pieces to both the leading and trailing edges and the ribs.

When the wing halves are assembled, join them together at the proper dihedral angle. Sandwich the center rib, made from 1/8" x 1/2" trailing edge stock, between the center ribs of the two wing panels. Before cementing the center rib in place, check to be sure that each tip is 1-1/8" inches above the center of the wing. Bevel the wedge shaped rib more or less with a sandpaper block if necessary to get just the right angle.

**COVERING:** Cover all the surfaces on both sides with Japanese tissue. Do not water shrink the tissue on the wing or stabilizer - they will warp easily. The fuselage may be covered with wet light weight Silkspan or dry Jap tissue. It is strong enough to stand water shrinking and two or three coats of thin dope. When covering the top of the (avoid the crash of '29, on page 14)

Here is an authentic three-view of the Fairchild 22 from Aircraft Yearbook 1934. Note similarity to the 29'er. With a few changes you can get good scale points on this fine duration model.

### The 29'er Details

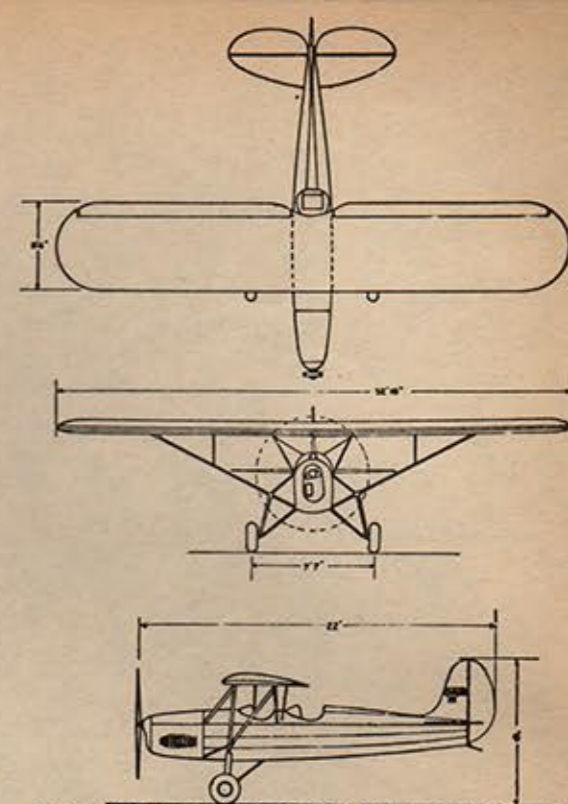
Except for N struts, all struts are just for looks and may be omitted if you prefer. Before starting to assemble struts, complete and cover wing and fuselage with N struts and landing gear attached. Remove tissue from all attach points.  
1. Spread N struts apart at the top and lightly cement spacers in place. Cement wing to N struts and allow to dry.  
2. Add 1/16" x 3/16" lift struts by cut-and-try.  
3. Cut 3/32" round shock struts to length and cement.  
4. Add remaining 1/16" round struts and remove spacers.



fuselage, the tissue will have to be notched to fit around the projecting N-struts.

**STRUTS AND ASSEMBLY:** Cement the stabilizer and rudder very lightly to the fuselage with small spots of cement, they may have to be removed later for flight adjustments.

Always remove the tissue from a generous area wherever a strut attaches to the framework. Lightly cut around the outline of the "window" with a sharp razor blade, then loosen the patch with a drop of thinner. It will lift off neatly. Carefully crack the joints between the N-struts and the fuselage so that the two N-strut assemblies can be bent outward at the top. Very lightly cement the two strut spacers in place between the struts as shown in the front view. This will give a flat, solid, four point structure to which the wing can now be cemented. Place the wing bottom side up on the work bench. Put a small drop of cement on the top of each N-strut. Turn the fuselage over and rest the strut assemblies on the spots you have prepared on the bottom of the wing center section. When these joints have dried completely, the four long struts can be cut to fit and cemented in place. The remaining struts are all added by the cut and try method. They are just for looks, and may be omitted if you prefer. Cement all attachment points lightly. Don't let excess cement squeeze out and stick to the paper.



KREIDER-REISNER AIRCRAFT COMPANY, INC.  
Hagerstown, Md.  
FAIRCHILD 22 — 2 PLACE

Then, in a bad collision, the glue joints will pop cleanly, without shattering structure or tearing tissue. Repairs will consist of just a dab or two of cement.

**PROPELLER:** A seven inch plastic propeller from a North Pacific ready-to-fly kit does a beautiful job of powering the 29er. A carved balsa prop might give longer flights. A free wheeling arrangement should be used. (See March-April 67 SAMM)

**FLYING:** Make a 12 inch loop of 1/8" flat rubber and install. Add modeling clay to the nose or tail until the model hangs level when supported at the Balance Area shown on the plans. Hand glide your 29er in tall grass. Adjust the glide by changing the angle of the stabilizer, 1/32 inch at a time. If you have cemented the tail surfaces lightly to the fuselage, it will be easy to pop the rudder and the stabilizer loose and slide a 1/32" thick sliver under the stab. Correct a stall by adding shims under the front of the stabilizer. Correct a dive by adding the shims under the rear. When the glide is smooth and safe, bend the rudder to get a slight right turn. If the model refuses to turn to the right, the wings are probably warped. The wings can be twisted and held by changing very slightly the length of the outer wing struts. Break a strut loose at the outer end and shorten it by a few sandpaper

strokes. Shorten a rear strut to lift that wing up; shorten a front strut to drop the wing on that side. A tiny lump of clay on a wing tip also help to hold that wing down.

When the glide suits you, try 100 turns on the propeller. The glide should be stretched out and the turn should still be to the right. If a stall develops, add downthrust. Add right thrust for turn under power. Do this with shims behind noseblock. Unless your plane has been built extremely light, 1/8" rubber will probably not give much climb outdoors. Add a loop or two of 1/24" rubber to get as much snap in the climb as you wish. Adjustments will have to be changed, of course, as the power is increased.

Now that your 29er is well adjusted for hand winds, lubricate the motor, stretch it out and wind with a winder. With a power run like that, she'll climb clear to the ceiling of most any auditorium. And on a calm summer evening, she'll sail into the sunset with all the beauty of the final scene in a technicolor Western.

### MATERIAL LIST

- 4 - 1/16" sq. x 36" med. hard balsa
- 1 - 1/16" x 1/8" x 36" med. hard balsa
- 1 - 1/16" x 3/16" x 36" med. hard balsa
- 1 - 1/8" sq. x 36" med. hard balsa
- 1 - 1/16" x 3" x 18" medium balsa
- 1 - 1/32" x 3" x 24" medium balsa
- 1 - 7" North Pacific prop
- scraps of 1/8" & 1/4" sheet balsa







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