

# FRED

By SIEGFRIED GLOECKNER, Noettingen, West Germany . . . With a name like FRED, it *has* to be cute! Not only that, there's lots of useful wing area jammed into its 13-inch wingspan.



*NOTE: In order to "maintain the flavor" of English translation by our interesting overseas contributing authors, we do not "over-proof" the original text as received, unless for clarity, it is absolutely necessary. wcn*

FRED stands for Flying Runabout Experimental Design. The prototype flew in 1963. The construction is still being modified by its designer, Eric Clutton, for improvements.

FRED can be towed behind a car. The horizontal tail and the rudder (no fixed fin) are detachable. The rudder fits inside a smaller car, the horizontal tail to a roof rack. We are in Europe. An American (Detroit) station wagon perhaps can contain the whole empennage. With the wings folded alongside the fuselage, the plane can be towed on its own wheels behind a small car and kept in the owner's garage.

The aircraft is not a fast cross country plane; it is a safe and stable flyer just for fun flying. It has a high-lift wing section (Goettingen 535), giving no bad stall characteristics. Except for high stressed parts like cabane struts, landing gear, hinges, etc., the aircraft is built from wood. Recommended engine is a 1500 ccm Volkswagen engine or equivalent power plant.

**The Model:** The Peanut FRED construction is conventional, and needs no extra description. Some perhaps unorthodox construction sequences are described.

**Fin and Stab:** They are built up from 1mm square balsa sticks.

**Wings:** Nothing strange here. Note thicker ribs at center sections with holes to be drilled for cabane attachment. The wingtips are advised to be laminated from balsa or basswood, to be light but strong. The center section is planked with thin balsa, 0.4 mm thick, forward from the spar, to simulate the wing tank. Do not forget rigging point reinforcements.

**Fuselage:** The left side is built on the right side, to get two equal sides, from 1mm square balsa. Note the front end: The top longeron goes all the way to the nose former; the rest is filled with 1mm sheet balsa cut to size. Do not forget the rigging point reinforcements. Glue the fuselage sides at the front, adding F1, and at the rear together. Then add the formers F2 to F6 on top and the spacers at the bottom. The fuselage top is planked

with 0.4 mm balsa. Note that the fuselage formers do not run till the outer edges of the top longerons. They are slightly undersize so that the planking will be flush with the fuselage sides. Cut the planking slightly oversize. Glue the planking on top of the formers at first, then fold around. Take a sharp (!) knife (*uber skiver!* wcn) and cut along the top longeron so that the planking will fit to the formers with no overlap at the fuselage sides. Then glue to top longeron. The headrest is formed by adding F7 and a planking of 0.4 mm balsa, cut to fit.

**Landing Gear:** The struts are built from bamboo. The L.G. fairing is glued to the lower strut. The wheel axle is bent from 0.8mm glued to the lower strut. The wheel axle is bent from 0.8mm dia. wire and glued to the strut with epoxy or high viscosity CA glue. Insert the reinforcing to the fuselage to the spacer under the former F3 for L.G. attachment. Form the noseblock, wheels, and engine from balsa. I cut and bent the exhaust pipes from plastic tubing.

**Finishing:** Cover the airframe with your preferred paper. Paint cabane and L.G. struts if desired. Epoxy lower L.G. struts at first at correct angle in place. Then epoxy upper L.G. struts (bracing

struts). Paint wheels and engine. Glue engine to fuselage. Install wheels and secure with a drop of glue.

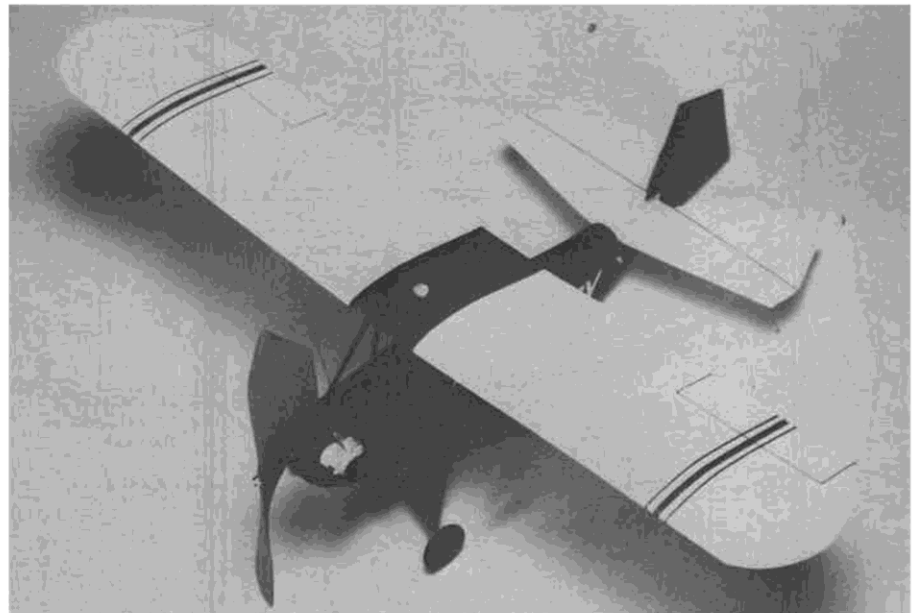
Install windshield, cut from thin transparent material. If immatriculation (*markings*) have not been added to the model yet, it should be done now.

Install rudder and tail. Do not use too much glue, perhaps they have to be reset for trimming.

Glue wing to cabane struts. Bend hooks for wing rigging points from thin wire. Fuselage rigging points are small holes drilled. Use silk thread for rigging. Glue rigging at one point to fuselage, lead through hook at wing and glue to second point at fuselage. Hold thread till glue has set.

If you do not intend to carve your own prop from balsa, use a North Pacific Prop. I used one on my first FRED, which weighed 17 grams (!!) and was very content with that prop. My second FRED weighs 6.8 grams. That first heavy FRED managed to fly 35 seconds with 1/8 inch Peck rubber, so I am sure the new one will be a potent flyer. Like the original, the model is a stable flyer and easy to trim.

If you intend to build a FRED, I wish you a lot of fun and many happy (long) flights. ●



With all of its horizontal surface area, FRED, could certainly give the Fike a run for its money. Slow flight performance of full-scale aircraft is amazing.