

# RUMPLESTADT C TYPE

By Bob Lovejoy

This is a true-to-scale model of a plane built by the Rumplestadt factory in 1917. It was built to fulfill military requirements for a two place "C" type airplane of outstanding performance. It was to be faster than a Spad, more maneuverable than a Camel, have a better rate of climb than a Nieuport, have better dive performance than an S.E. 5A, be more stable than an Avro trainer, and have a stalling speed of less than twenty kilometers per hour. It was also requested that the plane be built in fewer man hours than any other plane in the world. Although these requirements seemed a little idealistic, this little heard of company somehow managed to build what was undoubtedly the best airplane of World War I.

The Rumplestadt C Type exceeded every requirement with flying colors

and yet it was not accepted by military officials! There were two major reasons for the plane being rejected: One being the lack of interplane struts and the other being the molded styrene foam wings. Although these innovations were sheer brainstorms, designer Reinhold Sturmkoef could not convince anyone of his airplane's structural integrity. Another area of skepticism was the single cylinder air-cooled engine that did not spin with the propeller but remained attached to the fuselage. The two prototypes were then destroyed in a fit of frustrated passion and all but one set of blueprints were torched. Now the only existing source of plans for this outstanding airplane is a magazine titled *R/C Modeler*.

The model is not a put on. It flies great and can be built in a few hours.

The fuselage construction is very simple and straightforward while the foam wings are from Goldberg's Ranger 42. These can be purchased separately at most major hobby shops. They eliminate one drawback of a model biplane — building two wings!

The Rumplestadt was designed with short field performance in mind, figuring a well muffled fifteen could be flown from a school yard without offending anyone. I have found this to be true. Anyway, I kept a few things in mind as I layed out the Rump: substantial nose moment for balance, good tail moment and vertical area for stability, high thrust to minimize zoom, plenty of distance between the wings to increase efficiency and differential wing incidence to minimize sensitivity to small elevator deflections, common in flat bottom wings.

The original Rumplestadt just prior to its capture by the British during World War I.





The Rumplestadt after modifications by the British. Transparent orange solarfilm on the fuselage, yellow Solarfilm on foam wings and sheet balsa tail surfaces.

The two efficient Goldberg wings provide gobs of lift, yet not much drag. Consequently, the Rump has both good low speed performance and good wind penetration. For example, you can head into a ten mile an hour wind, chop the throttle to twenty-five percent, ease the stick back about eighty percent and maintain altitude with near zero ground speed. I have even made vertical landings without a rollout. High throttle takeoffs are very short and can be followed by a steep climbout if desired. Seventy-five percent throttle will give you longer, smoother, more realistic takeoffs. I have never ground looped the Rump on takeoff but beware of crosswinds, both on taking off and on landing. High speed flight is responsive but predictable. Though it won't fly inverted or slow roll, it will barrel roll okay and snap rolls are "right now". The mid-throttle range gives docile trainer-like performance. Here the plane flies on the wings instead of the engine. The Rump does not fall off in a stall but rather wobbles and mashes downward until airspeed is regained. You will find yourself making tight turns at lower and lower airspeeds without consequences, but get used to the airplane first. That about covers it, so if you are ready, let's get into the construction.

**FUSELAGE:** First lay out and cut

the 1/16" or 3/32" sides with a ruler or yardstick. The triangular piece cut off under the nose may be used as the nose doubler which is to be glued on now. With the fuselage sides laying flat, (be sure you have a left and a right), glue on the 3/16" square longerons and cross braces. Be sure to leave spaces for the 1/8" ply cabane struts to fit. Next, glue in the 1/8" balsa doublers that provide a saddle for the lower wing and anchors for the struts.

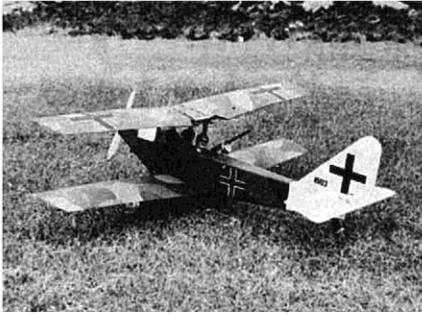
Since you have the 1/8" sheet in front of you, you might as well cut out the two formers, front and rear, and the gussets for the rear lower wing holddown (or up) dowel. Now, glue in the struts, measuring to make sure the left and right sides are equal in height, then glue in the dowel gussets. Next, glue on the front balsa pieces and the hardwood engine mounts. Let both sides dry before moving on to the next step. Now glue the front and rear formers in place on one fuselage side and glue the other side to the formers. Use tape or rubber bands to hold the fuselage sides against the front former while you glue the two sides together at the tailpost. When this dries glue in the 3/16" square cross pieces to the top and bottom fuselage longerons. Now glue in the front and rear floor pieces, making sure the engine fits snugly between the hardwood mounts. Glue on the 1/8" ply tailskid or

tailwheel mount and the 1/8" ply nose cap. Now the top and bottom sheeting can be glued on, 1/16" balsa for the rear, 1/16" ply for the front. Cut out the semi-circular firewall piece and glue it just ahead of the front struts. The 1/16" sheet decking is made from a paper pattern. Add the cross brace behind the engine mounts, the wing dowels, and the landing gear dowel. The upper wing dowel should be attached to the struts with epoxy and cloth pieces wrapped over to insure strength. That should be it. Now on to the easy parts.

**WINGS:** The Ranger wings can be used right out of the box, however, here are some modifications that will improve strength and performance. By sticking a strip of filament tape to the bottom surface from tip to tip, you will increase the lifting g-load strength of the wing tremendously. Also, if you glue small pieces of 1/16" ply to the foam where it is held against the wood, you will prevent foam crushing that takes place in this area. 1/8" ply skids on the lower wing tip are also a good idea. If you want to improve rudder response, cut the wings in half and epoxy them back together with a couple more inches of dihedral.

**MISCELLANEOUS:** The tail can be made from 3/16" "Foam Core" and 3/16" square spars, or built up with

*(continued on page 78)*



**Just before capture by the British.**

1/20" sheet over a 5/32" frame using a 1/4" square spar at the hinge line. Or, you can simply use 1/4" square soft balsa. Remember, as in most planes, to keep the weight down in the tail area. The landing gear is made from music wire pieces soldered to a music wire axle. Then the axle is cut in the middle and a piece of rubber tubing slipped over the cut. This allows the landing gear legs to spring apart on landings.

**FINISHING:** All balsa parts are covered with two coats of 50-50 clear dope and lightly sanded after each coat has dried. Then the entire plane was painted with Liquitex artist acrylic available wherever artist supplies are sold. It should be thinned with a slight amount of water, but left fairly thick as it smooths out nice. It dries to the touch in less than an hour but takes about twelve to eighteen hours to dry thoroughly and about forty-eight to cure completely. As always, it is best to try test samples first. You can detail it to suit your own taste. I used Williams Bros. wheels and pilots and mocked up the machine gun. Our Editor, Don Dewey, used Solarfilm on his versions including yellow Solarfilm directly over the foam wings.

**FLYING:** Gas it up. Start it. Check the controls on high and low engine. Take off. Fly!

**The Rumblestadt takes to the air.**

