



High T-tail and engine-prop at rear, give otherwise-standard simple craft a sleek jet-age look.

# Dolphin II

Popular Czechoslovakian sport model for rudder control uses pusher prop on .15-size motor.

## JAROMIR BILY

MANY modelers like to fly R/C for fun only. Dolphin II is an answer to many of my own dreams and whims. Being a pusher configuration, it rarely breaks a prop and it stays as clean as a glider.

The basic version is a recreation flyer for hand-launching without a gear. For those lucky to have a runway, a landing gear is shown. The front part is screwed in, the rear part fastened with rubber bands. The construction is very simple, the design quite straightforward, so only a few remarks are necessary.

Using my Czechoslovakian motor, Dolphin II emerged a little tail-heavy. Using an American motor, the model should balance suitably. Nevertheless, it is advisable to save weight toward the rear, from the wings back, whereas the front can be built quite sturdy. For balance and strength, my model has a spruce nose block. Hard balsa can be substituted, if ballast is added.

The wing ribs are constructed by shaping roughly pre-cut balsa ribs (for half the wing at a time) between the plywood root and tip ribs. Make the plywood templates from the wing center rib drawing with the notches shown on W-1, and make the tip rib from the wing tip rib drawing. Ribs W-1 have an extra deep notch for the dihedral joiner and their outlines must be reduced in the center by the thickness of the balsa sheet covering.

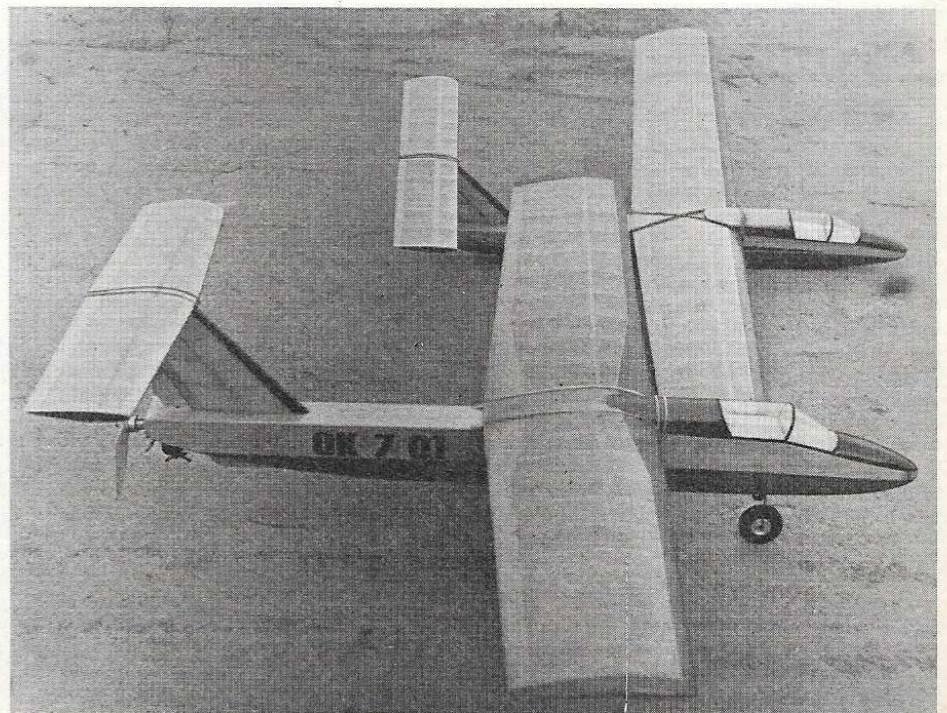
The next two ribs out on each panel are trimmed down to allow only for the wider

leading- and trailing-edge sheeting. The center-most ribs are trimmed all around like W-1 but then are cut through at the spar notch to fit on each side of the dihedral joiner.

First step in wing construction is to make the complete spar with joiner. Assemble all the ribs for one wing panel on the spar and pin this over the plans. Slide the trailing edge sheeting under the ribs and pin down. Now glue each rib to the spars and

trailing edge sheeting. Slide the leading edge  $\frac{1}{8}$ " bottom sheeting under the ribs and glue. Bevel both leading and trailing edge sheeting, following the rib curvature before adding the top sheeting. Repeat the above process for the other half of the wing. Add tips, center-most ribs, center sheeting, and the spruce leading edge center stiffener. After sanding smooth all over, cover with heavy Silkspan.

*Continued on page 51*



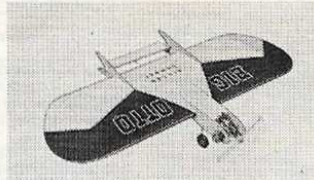
Birds of a feather. One in rear has gear removed for hand-launched flights when runway is not available. Ships stay clean as a glider because of pusher engine. Saves props, too.

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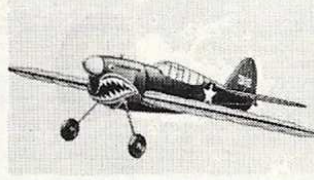
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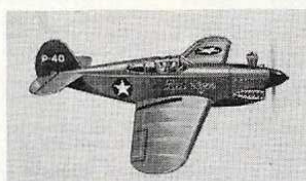
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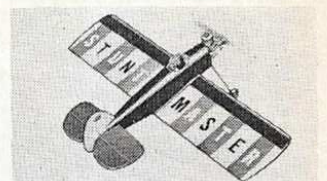
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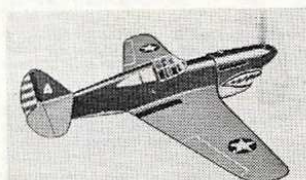
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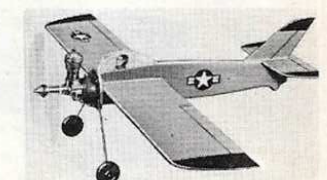
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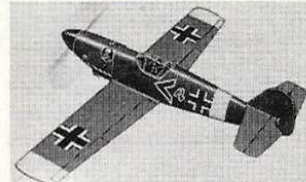
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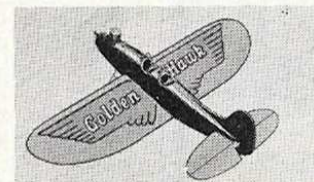
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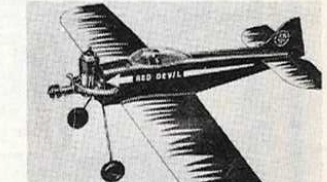
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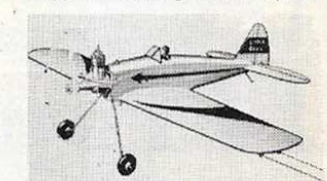
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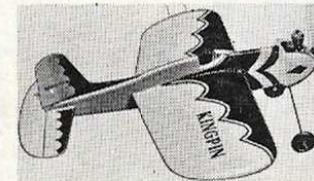
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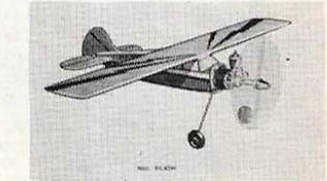
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## Dolphin II

Continued from page 25

Fuselage side panels are  $\frac{3}{32}$  balsa strengthened at the front and rear with  $\frac{1}{32}$  plywood doublers. On one side panel glue the bulkheads, firewall, and the motor mount; then glue the other side panel in place. Note the sides are parallel behind F-1. When the glue is dry, put the body in normal position and pull the nose together to glue the nose block in place. Check the alignment of the sides over the plans.

Sheet the top of the fuselage from bulkhead F-3, to the rear. Fit the spruce strip from F-4 forward, then glue and shape the balsa nose top block. Assemble the cabin parts by tack-gluing the lower parts to the fuselage. Shape accordingly to fuselage contours. Cut out and glue the acetate windows in place. Cover the windows with tape to prevent scratching. The completed cabin assembly will help hold the fuselage together while completing the tail.

Make the necessary cutouts in the top sheeting for the rudder leading edges, spars, and trailing edges. Put the rudder together free-hand. Shape, sand smooth and cover with heavy Silkspan. Fit the stabilizer platform on top. Slide the base of the rudder, spars, etc. into the fuselage and firmly glue at all joints, inside and out.

Be sure the rudder spars are glued to the inner face of the fuselage sides. Shape the rudder control surface, mount wire control horn, and hinge in place. Make the pushrod for the rudder. Estimate the servo location and put the necessary fittings on the front and rear of the pushrod. Install the pushrod, engaging the rudder horn. Secure this against disconnecting.

Cut out and fit the main gear's dowel holder. Glue this inside the fuselage, then glue in place the bottom fuselage sheeting.

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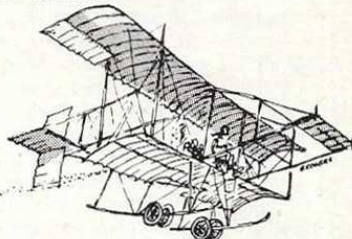
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The stabilizer is a simple structure. Patterns are shown for the center and tip ribs. Use them as guides in cutting the other four ribs. Assemble on a flat surface to prevent warps. Cover with lightweight Silkspan.

Structurally, your model now is complete. Considering the difference between the motors and radios used in America and those we use in Czechoslovakia, the details of completion of the model are left to you. This model won't need heavy doping because of the lack of oily propwash. It is designed for rudder-only control with optional throttle.

Most probably, elevator control can be added. The gas tank is homemade, but you can adapt a commercial one to fit behind your engine. Just remember, the fuel pick up must be at the rear end of the tank. To afford adequate propeller clearance when using the landing gear, use a short diameter three-bladed pusher propeller.