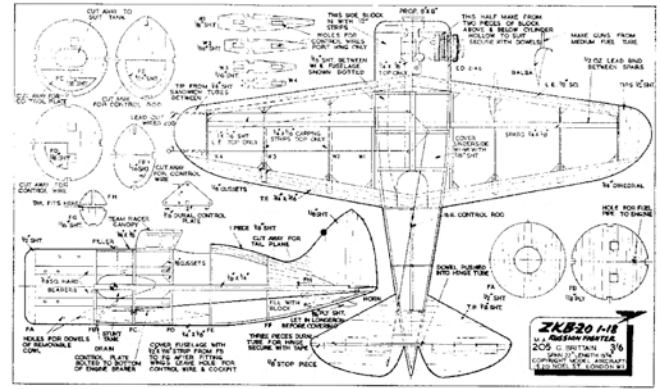
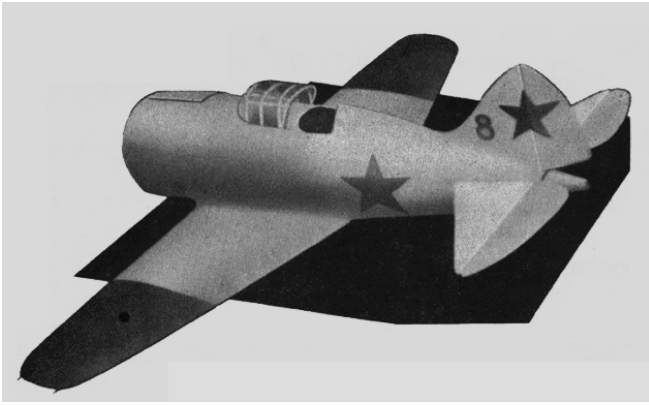


ZKB-20



An Unusual Prototype for a Fine Flying Scale Control Line Model by G. Brittain.

The Russian ZKB 20 1-18 fighter operated with the Spanish Government Air Force during the civil war. It was powered by a Russian built Wright Cyclone 1,200 h.p, radial engine, operating a two bladed metal prop, top speed being 300 m.p.h. Construction was all metal sliced skin with fabric covered movable control surfaces. The under-carriage retracted inwards.

Armament consisted of two .30 Browning machine guns fixed outside the airscrew disc. ZKB operating in Spain were identified by the Government markings of red, yellow and blue concentric circles on wings and fuselage, and similar coloured horizontal bars on rudder. Those used by the Russians in World War II were, in summer, all green or mist grey with a red five-pointed star outlined in white on wings, fuselage and rudder. In winter, they were all white except for the top outer wing panel, which was a vivid red for easy identification on forced landings.

Construction: All balsa unless otherwise stated. Cut out formers FA to FB, FC is 1/8 in. ply. Cut holes for engine bearers in FB, C and D to suit engine to be used. Take two 1/8 in. x 1/4 in. strips, cut to length and cut away at rear for horizontal tail unit. From plan, mark on these strips the former positions.

Starting from FB, cement formers in position, pulling the 1/8 in. x 1/4 in. strips together at tail and cementing securely. Cut engine bearers and drill to suit engine, and also hole for control plate. Fit bottom bearer in place and bolt for control plate.

Fuel tank is now placed in position followed by top bearer. Now cement both bearers in position and secure fuel tank in place. Fit 1/8 in. x 1/4 in. strip between FB and FD, similarly underneath between FB and tail. Cut stationary portion of horizontal tail surface and fix in place, followed by fin, but nm offset rudder. Now fit the two pieces FH.

Plank in top half of fuselage with 1/2 x 1/16 in. strip starting either side of the 1/8 in. x 1/4 in. longeron and working upwards. Cut out cockpit and sand to shape. Fasten three control wires to control plate and bolt control plate in position using two nuts between bearer and plate to drop plate to approximate center of wing.

Wing: Wings are each made separately over plan. First cut required number of ribs, the two shaped 1/2 in. strips for leading edge and the two 3/4 in. shaped for trailing edge. Pin leading edge in position, also trailing edge, packed at rear with 1/8 in. scrap. Cement ribs in place.

Now fit wing tips, starboard tip being 1/2 in. sheet, whereas port tip is made up of three 1/8 in. pieces with tube for control wires passing through center. Slide port wing into position with control rods passing through ribs.

Place fuselage upright on building board and pack up wing tip 3/4 in. for dihedral. Before cementing wing, ensure free movement of control rods. Fit starboard wing in same way. Pack between leading edge and FB with scrap. Ensure wings are firmly cemented in place.

Plank in top leading edge and capping strips from 1/16 in. sheet as shown, also between W1 and fuselage. Plank in underside of fuselage with elevator control rod passing through hole in port side. Cut out movable

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elevators, sand and join the two portions with dowel. Bind metal tube with linen in place, also to fixed tail surface as shown on plan. Fit ply control horn.

Tail Unit: Join the two portions of tail by passing pieces of wire through tubing and then cement pieces of scrap balsa on outside to prevent wires coming out. Join control rod to control horn. Next fit rudder with 10 deg. offset. Fit ply tailskid. Fill in both sides above and below horizontal tail surface with scrap and sand to shape.

Now cement FA to bearers and fit engine bolts. Fill port side with 1/2 in. strip fitting flush with engine bearers, forming fixed cowl. Starboard movable cowl is shaped from block balsa, which is held in place by dowels which fit into holes in fixed cowl.

Sand whole aircraft to smooth finish then cover wings with heavyweight tissue and remainder with lightweight. Give two or three coats of clear dope and sand smooth. Fit cockpit cover, then colour dope to taste. Guns and drop off undercarriage may be added if desired but original model was hand launched.

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