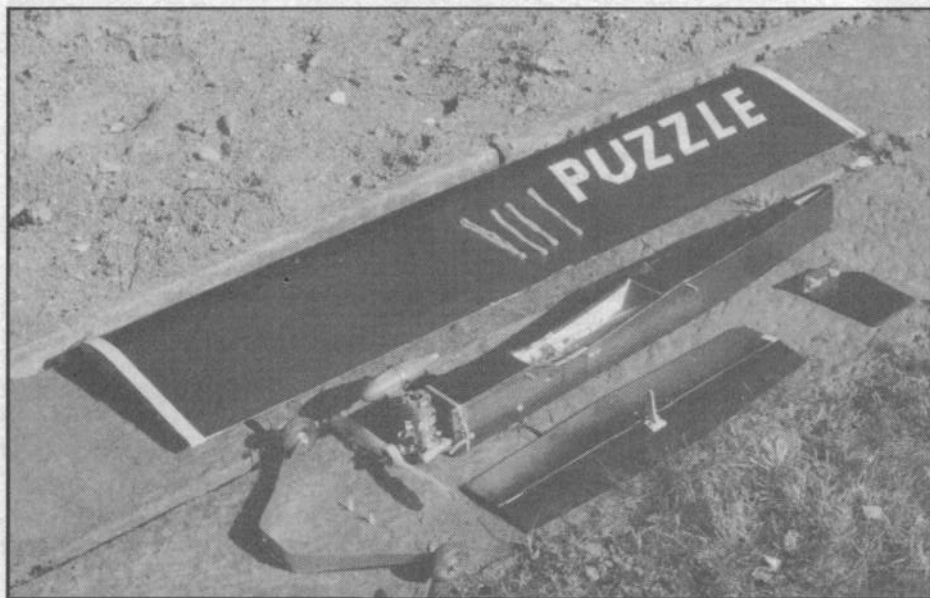




The simple lines of 'Puzzle' have a purposeful look about them.

PUZZLE



The five-piece 'Puzzle' ready to be put together.

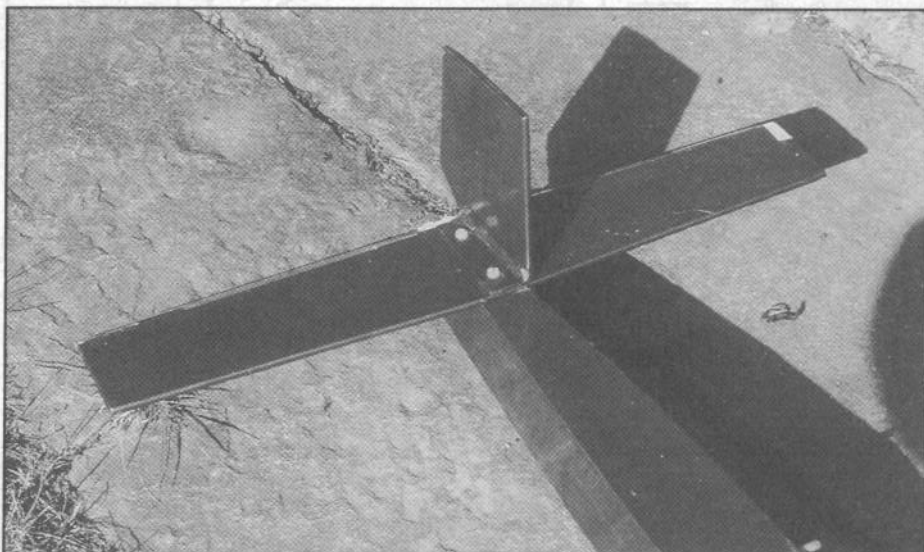
Design considerations

When I started to make Puzzle I had just done my first loop. The aim was to build a suitable model for learning inverted flying and round figures. It needed to be fast to build and easy to repair. I decided not to use a profile fuselage, where, in most cases, wing and fuselage are badly damaged after a crash. A simple box-fuselage, with rubber band fixed wing and the rest screwed together with nylon bolts, seem to me to be a better approach. The line length should be 60 to 70 feet as this gives more time per lap, more time to react and more space to fly. I fly my model with an OS-40FP-S or a FOX 35 Stunt engine. Another suitable motor is the British PAW 35. They can all also be used for the next step, an intermediate or advanced stunt trainer with flaps.

Construction

Before you cut any balsa, please check that all the commercial parts you intend to use will fit, and modify the plan if necessary. Use only good balsa, especially for the spars, leading and tailing edge which must be perfectly straight. I recommend three different glues, UFO Thick (odourless cyano) for fast gluing, white PVA for general use and 5 minute epoxy for strong joints and glass fibre reinforcements. To make

the reinforcements I cut the 20mm glass fibre bandage to the desired length and put it on a sheet of plastic, add some drops of epoxy, cover



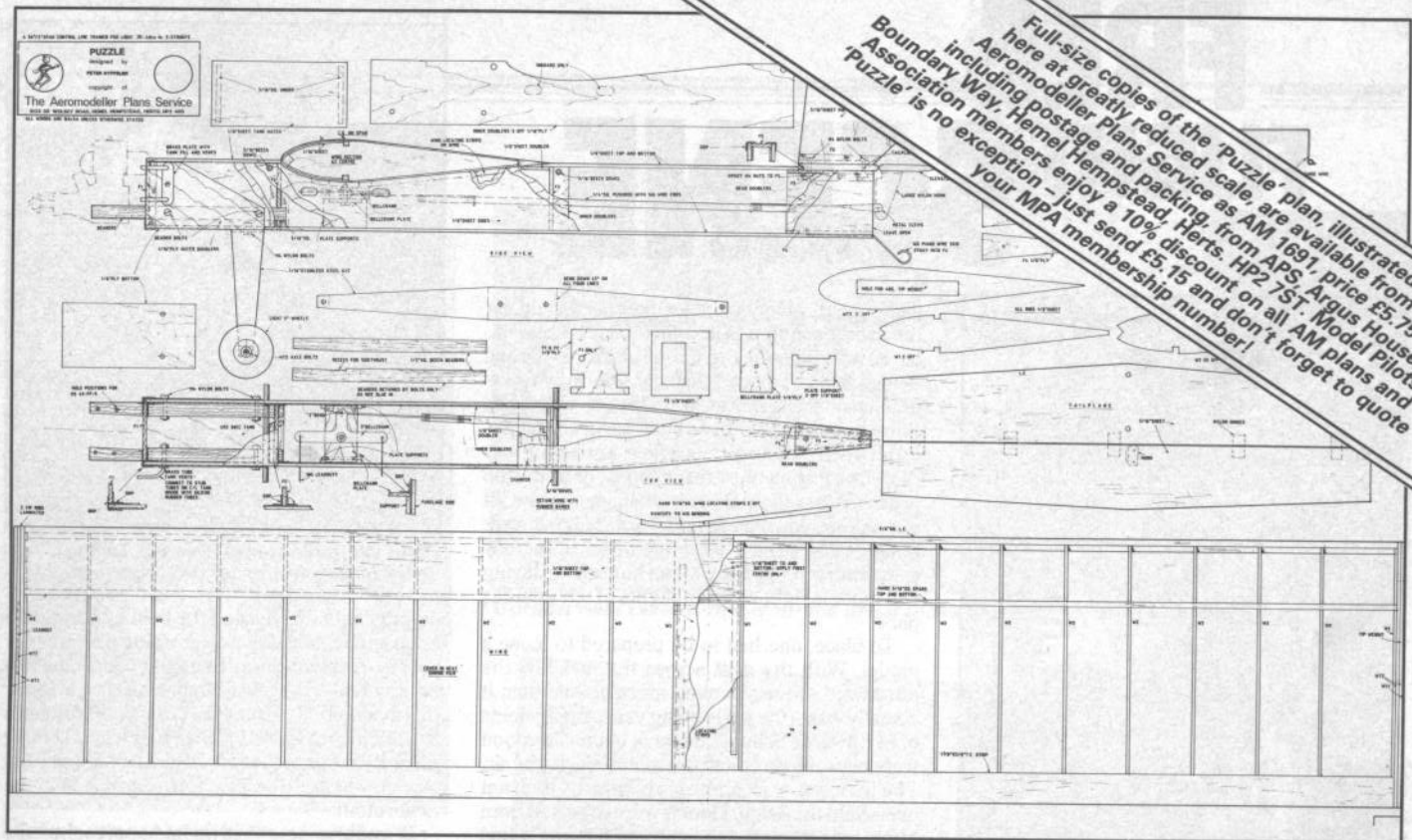
The tailplane and fin are held on by two plastic bolts. It is a good idea to make spare components so that they can be easily replaced on the flying field in the event of crashes.

A simple model for the control line newcomer designed by Peter Nyffeler from Zurich

it with a second plastic sheet and then press the epoxy into the glass fibre.

Wing

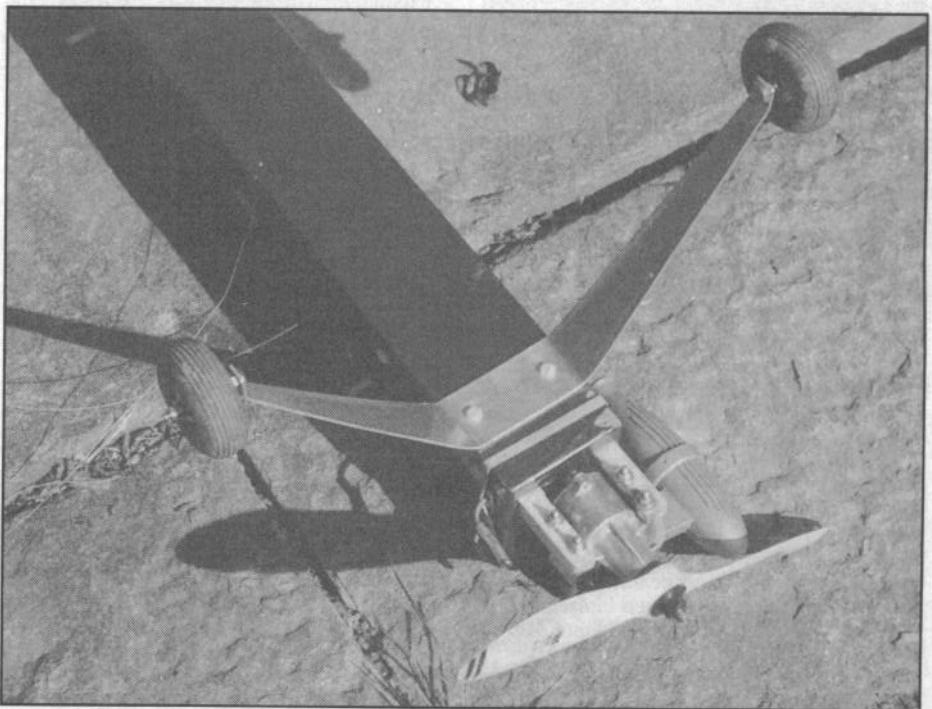
Use the sandwich method to make the wing ribs. Glue the ribs with cyano to the tailing edge (do not forget to put a 1.5mm balsa spacer under the centre ribs). Glue the spars and leading edge onto the ribs. Cover the front part of the centre ribs, then the whole front and the centre section of the wing. Keep the wing fixed firmly on the building board while drying to prevent warps. Add wing tips with the wire leadout guide and lead tip weight as shown.



Full-size copies of the 'Puzzle' plan, illustrated here at greatly reduced scale, are available from Aeromodeller Plans Service as AM 1691, price £5.75 including postage and packing, from APS Argus House, Boundary Way, Hemel Hempstead, Herts. HP2 7ST. Model Pilots' Association members enjoy a 10% discount on all AM plans and 'Puzzle' is no exception - just send £5.15 and don't forget to quote your MPA membership number!

Fuselage

Cut the few parts needed to build the fuselage as precisely as possible. First prepare the two fuselage sides. Glue on the 1mm ply inside doublers (note that the rear doublers have a 3mm gap from the upper and lower outline). Drill the holes for dowels, cut out the wing profile and the leadout holes (inboard side only), then glue the bellcrank support on both sides. Glue, with epoxy, the nuts on former F5 and the front fuselage bottom ply sheet and the screw to fix the bellcrank onto its mounting plate. To assemble the fuselage, glue the formers F1 and F5 on one fuselage side (check that they are fixed at a right-angle). Now glue the other fuselage side onto the formers F1 and F3. Let them dry. Pull the sides together at formers F4 and F5 (watch for symmetry of



The undercarriage can be removed simply if you fly over long grass.



Easy access for attention to the fuel tank and bellcrank. Not everyone would take lightening the bellcrank so seriously...

fuselage). Glue in bellcrank mounting plate. Glue on fuselage top and bottom sheets and outside doublers. Now slide in the motor bearers and drill the fixing holes through fuselage and bearers with them held together. Make reinforcements as shown on plan and do not forget those at the bellcrank mounting plate. Drill holes for tank fill and vent pipes.

Tailplane & fin

Cut out from 6mm balsa sheet and sand the parts to the profile shape. Use your preferred hinge type for the tailplane. Glue F6 on the fin and reinforce with glass fibre strips.

Finish

Sand all parts with 280 or finer sandpaper and remove the dust with a brush. Since we do not want to win a contest for the best finish,

cover the model in your favourite heat shrink film. Paint the inside of the engine and tank bay with a liberal coat of fuel proofer.

Final assembly

Install pushrod, bellcrank and leadout wires. The leadout wires should be a bit longer than half wingspan, this helps prevent damage of the control lines in case of a crash. Insert a suitable R/C stunt tank and bolt on the motor, undercarriage, tailplane and fin.

Flying

If this is your first C/L model, I suggest you remove the undercarriage and make your first flights with a hand launched start over long grass and take spares and repair material with you. I wish you good luck and a lot of fun flying your Puzzle.