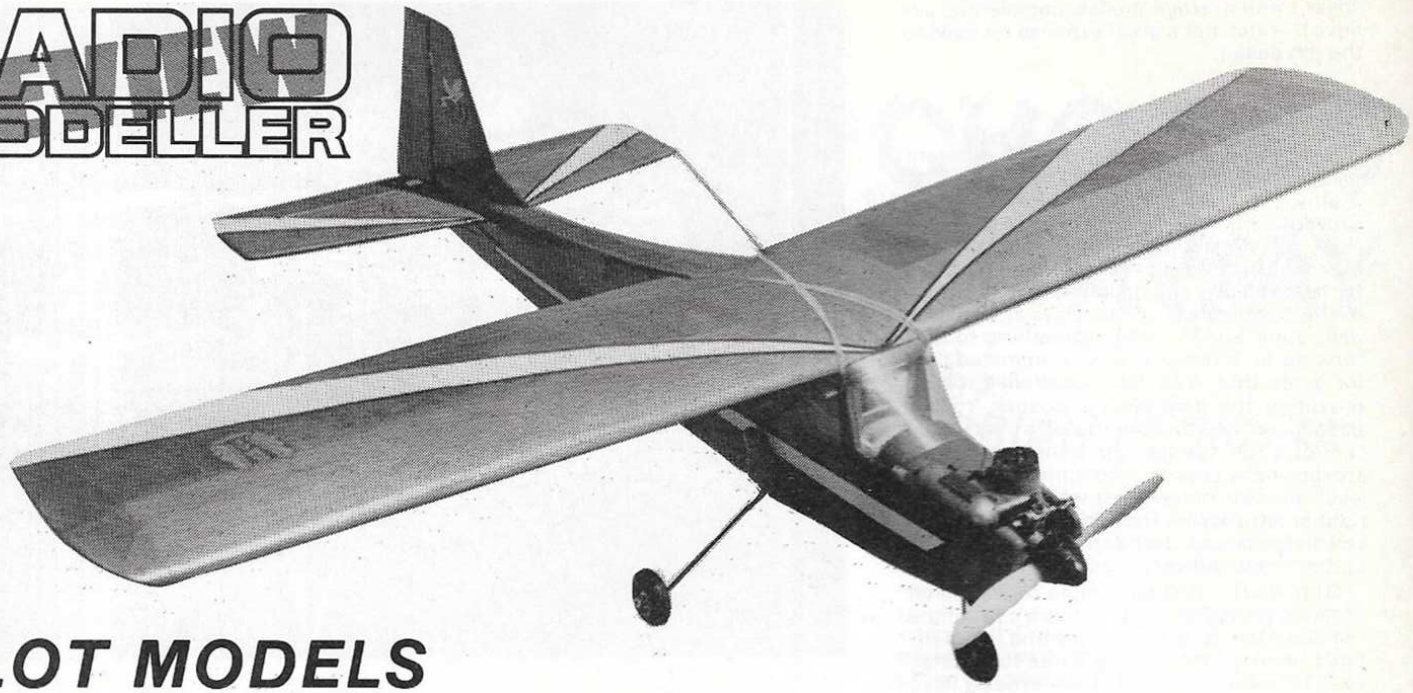
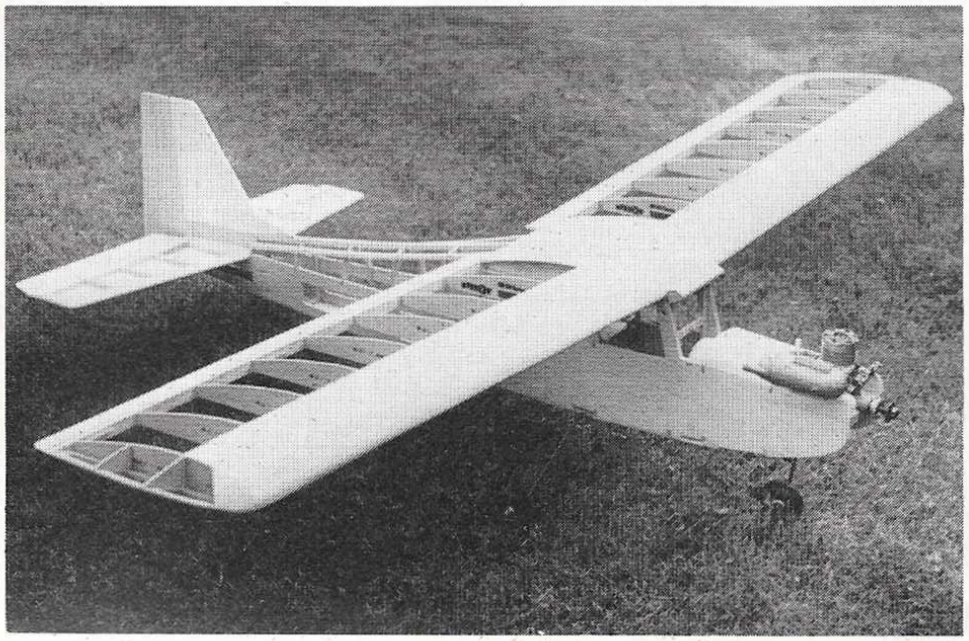
RADIO MODELLER



PILOT MODELS

RAINBOW

Above: the Rainbow shows off its scalish lines. Below: the simple, lightweight structure of the design is shown.



REVIEWED BY DAVE SKERTCHLY

A BEAUTIFULLY PRINTED kit box is the first thing a builder notices when first seeing the **Pilot Kits** *Rainbow* 52 inch span trainer model. Fortunately, beauty is not skin deep in this case, as inside the packaging is a superbly kitted model. The majority of components are held in the best die-cut sheets I have ever seen, the cutting going right through the material and the component being retained with little tabs which just require nicking through to release the part. Some smaller, loose pieces of balsa, ply and hardwood are packed in plastic bags. The hardware pack contains the optional nose or tail gear legs, aileron horns, elevator joiner, pre-formed maingear and a 6 ounce capacity fuel-tank. I found it necessary to find snakes (Bowden cable) for the throttle and steerable nose wheel; horns, push rods and clevises for the tail surfaces, in addition to the usual wheels, adhesives and covering materials.

I thought the 'ply' contained in the kit was unusual, as it appears to be a balsa and hardwood veneer laminate. It was at first disturbing to discover that the plywood side panels for the fuselage were cut in such a way that the hardwood veneers take the bending stresses of a hard landing. In practice this has not proved to be a weakness, in fact the ply is ideal for formers and I have saved the generous left-overs for my next project. The plan is clearly printed and well detailed with photographs showing the sequence of construction printed on the border. However, all the instructional notes are in the original Japanese hieroglyphs, which would not make the construction any easier for the novice. *(note, we have checked with Irvine Engines and these kits do now have an English translation of the instructions. Ed.)*

Building

Within minutes of starting, my eagerness and the lack of instructions combined and cause me to goof. Side thrust is built into the airframe by handed pre-cut hardwood engine mounts, and all I can do is confess that my own bone-headedness betrayed my years of experience and I swapped the bearers over.

Modifications were thus required to correct the side thrust.

A choice has to be made between the undercarriage configurations provided. My own preference is for a tail-dragger type as it is far more robust but I ended up building the more popular tricycle type. A snake link was used as a control linkage to the steerable nosewheel. Construction of the fuselage continued apace, as the fuselage is cleverly designed to be self-jigging with a structure that locks together accurately. The fit of the components is as close as a jig-saw puzzle and the construction is really fast if quick-setting epoxy or cynoacrylate glues are used.

By this time, I had found an unsuspecting beginner to try the *Rainbow* construction. Pete Stanton offered to build the wings and tailplane and to my disgust (after my own howler) he encountered no problems and found that the notched leading and trailing edges to the wing fitted perfectly. He also confirmed that the wing parts were accurately formed.

Finishing off

Recommended engine size is from .20 to .25 cubic inches and the constructional drawing shows a modern Schnuerle ported .25. I would judge this type of motor to be ideal, although my experience suggests that a cross flow .20 may be a bit marginal. An old OS30, roughly equivalent in power to a Schnuerle .20, was used on the *Rainbow* and fitted perfectly between the bearers with superb access to all the bolts and controls. The fuselage formers 3, 4 and 5 retain the fuel tank, and I used silicone caulk to seal the gap between former 3 and the tank, which seems to be mounted too low in the fuselage as the motor runs excessively lean as the tank empties.

No particular method of covering is recommended, nylon with painted trim and Tufkote proofer was used on the review model but the popular heat shrink coverings would be adequate.

Armed with a copy of the Radio Control Guide, Pete set about fitting the servos. He decided to use miniature servos although there is plenty of room for even the largest modern equipment. Servo trays are included in the kit and these only required drilling to accept servo mounting screws and grommets. The control layout shown on the plan is clear, concise and accurate and no problems were encountered in this area. A cut-out for the switch had even been die-cut into the fuselage side. The servos are fitted high up in the fuselage for easy access, but this does result in a couple of very tight bends in the linkage to the nosewheel leg.

With everything positioned in accordance to the plan the balance point was perfect but the all-up weight was exactly four pounds over the designed weight of 3½ to 3¾ pounds.

Top: Pete Stanton shows off the Rainbow. Above: the model photographed during an ultra-low fly-by.

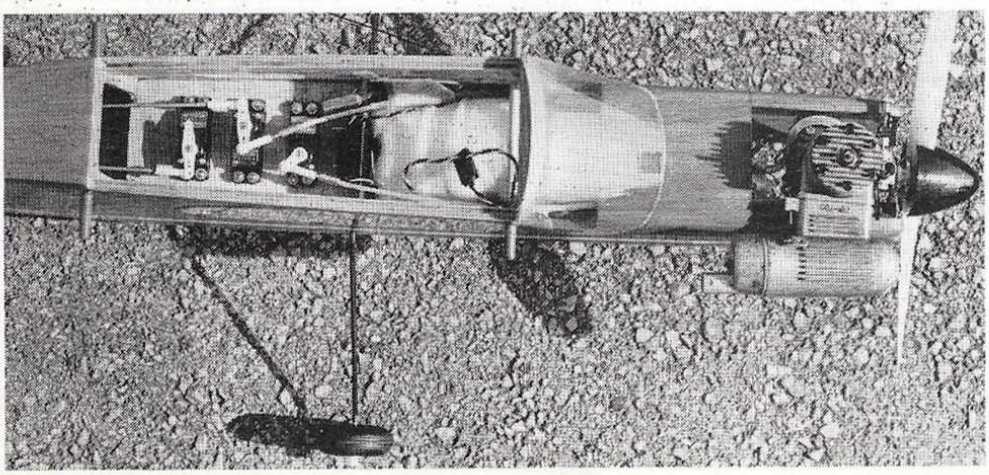
Flying

Although fuel feed problems were encountered due to the low tank position, Pete and I were able to enjoy a full afternoon's flying on the model's first outing, which is a credit to the design. I am glad we had the field to ourselves for the first flight, as the precise effect of the steerable nosewheel caught me out and I ground looped the *Rainbow*, a sight which had Pete chewing lumps out of the concrete in a fit of mirth.

Next time round I was ready for it and used only slight corrections during the take off run. The *Rainbow* rotated easily and commenced a gentle climb, much to my relief. On the odd occasions when Pete let me have the transmitter, I discovered that the rudder control was much more sensitive than the ailerons. I am sure the model could be flown on rudder and elevator control only if preferred. Aerobatics are surprisingly good for what is really a basic trainer, with slow but not excessively barrelly rolls while loops were beautifully smooth.

Landings are a little tricky for a novice, as the *Rainbow* was not very keen to weathercock into wind and required careful control during the whole of the approach to prevent a bumpy cross-wind landing.

Below: easily accessible engine and an uncluttered servo bay will make life simpler for the novice.



Summary

The Pilot *Rainbow* is a superbly kitted example of an attractive design and I am sure the quality of the kit could not be improved. The four function design is adequate to train the embryo pilot from first flights to basic aerobatics, which can be a saving as it often seems that two or more models are used during this stage. Overall, I believe that a completed *Rainbow* is a model that a beginner can feel proud of.

Manufacturer: Pilot Models, Japan. Distributor: Irvine Engines, Unit 2, Brunswick Industrial Park, New Southgate, London. Price £25.95.