



THE "CITABRIA 20" is a perky little tail-dragger in the *Pilot* range of kits, produced by the O.K. model company in Japan. The name "Citabria" which is "airbatic" spelt backwards, correctly suggests that the model is of the sport-aerobatic type and, at 53in. span, is approximately a 1/8th scale model of the Bellanca "Citabria S." This aircraft, equipped with 150 hp engine, has a 128 mph cruise and is stressed to plus five and minus 2 G's, which makes it a good aerobatic mount for the sports pilot.

Construction of the model fuselage from 1/8in. plywood keels and formers, with spruce and balsa longerons, nicely represents the welded tube construction of the full-size aircraft.

A wing section of 13 per cent thickness/chord ratio with low camber and well rounded leading edge is used, which results in forgiving flight characteristics and an ability to fly inverted.

Control is by the usual four function R/C system as shown on the uncluttered radio installation plan, but the model would fly equally well on just aileron, elevator and motor control. Rudder and elevators feature aerodynamic balances of scale proportions

and the rudder has a neat steerable tailwheel attached to it, providing positive directional control on the ground.

The fuselage, at 3 3/4in. wide, has ample room for any radio installation, and has a die cut hole for the Rx switch which is a thoughtful touch.

The Kit

The contents of the kit are somewhat unusual by modern standards, in that there are no foam components and built-up construc-

tion is featured throughout the kit. The fuselage is constructed almost entirely from 1/8in. plywood and out of the 24 pieces, included in the three beautifully die cut sheets, only one had to be eased out with a knife.

Wings and tailplane are of conventional built-up balsa construction, with accurately die cut balsa and ply components. The fin and rudder are of sheet balsa construction, with some nicely milled fairing blocks which save the time that would be spent in carving these items.

Right and below: Pilot kits are a traditional model builder's delight, the very best of die-cutting plus a nice proportion of modern technology in the vacuum forming and decal areas. Kit includes a plan sheet detailing all die-cut parts full-size.

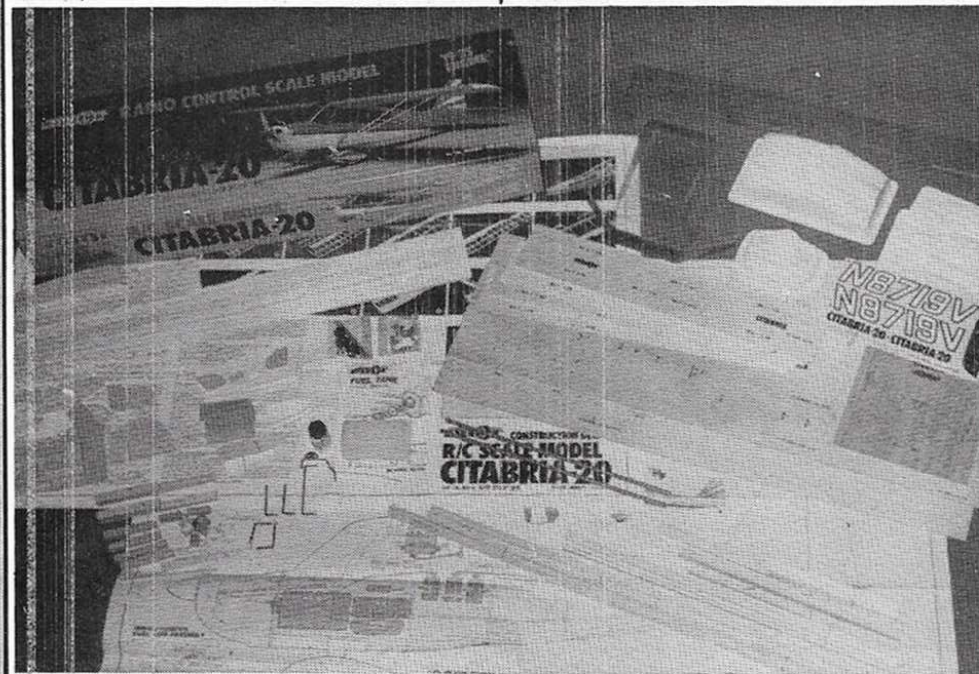


All the wooden components are contained in plastic bags, as are the items of hardware such as tank, control horns, aileron torque rods, wheel spat fittings, wing hold-down bolts, engine bolts and elevator joiner etc. No clevises are included in the kit and the plan recommends the use of pushrods for all controls.

Plans and instructions are on two large sheets, both of which are printed on both sides. The plan is clear enough to enable the average builder to construct the model without reference to the instructions. On the reverse of the plan is the radio installation drawing which also shows suggested control throws and a three-view colour scheme.

The instructions are less clear and quite brief, the 21 stage by stage photo sequence is of more use. The wing construction is not quite the same as that shown on the plan. On the reverse of the instruction sheet all the components of the kit are drawn full size and labelled, stating their material and thickness. All the wording is in English and Japanese and dimensions are metric and imperial, so there is plenty of choice for everyone.

The remaining components in the box are a dural U/C but no wheels, the ABS cowl and spats, a bottle of plastic cement, the cabin windows and a self-adhesive decal sheet.



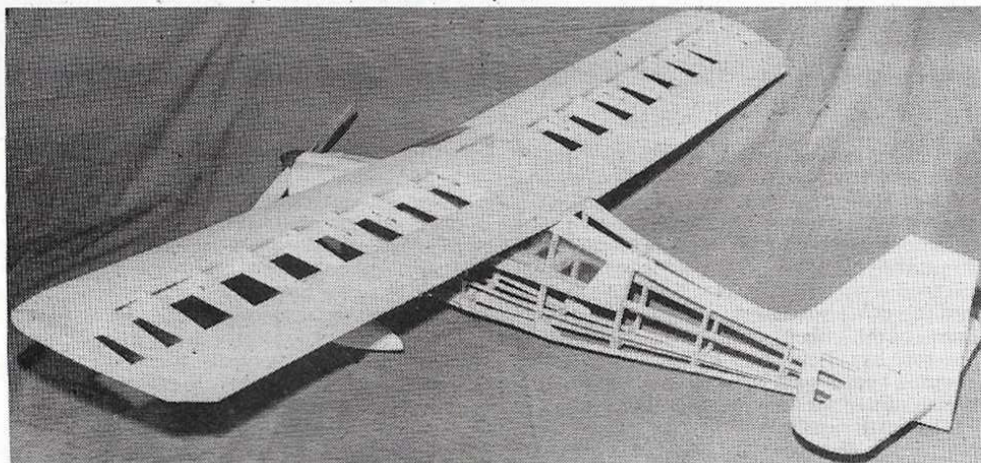
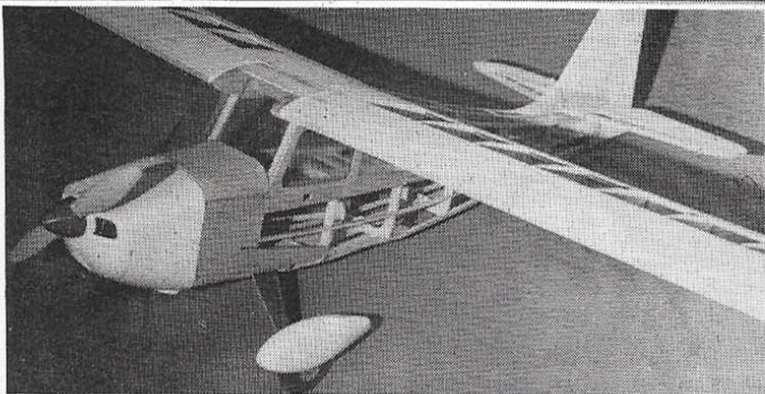
This sheet contains a very detailed instrument panel and a left and right hand set of American registration letters.

Construction

Fuselage construction, though unconventional, is very straightforward with the accurately die cut 1/8 in. ply components fitting together so that the fuselage may be assembled without glue. Five minute epoxy was used throughout, and although the built-up construction looked formidable it went together very quickly. The engine is mounted on 1/2 in. hardwood engine bearers which must be inserted correctly otherwise left thrust instead of right thrust would result.

The tailwheel mount was slightly modified so that landing loads would not be transferred to the rudder hinges. With this com-

Right and below: completed bare airframe ready for covering - traditional former, stringer construction method evident here. Nice use of die-cut plywood around the cabin window area stiffens up a weak point on this type of aircraft.



plete the fin and tailplane were added leaving only the plastic components to complete the fuselage.

Windows in the cabin are made from clear plastic and fitted into the plywood side panels with ease. In contrast, the windscreens proved to be rather more difficult to shape, as it has to wrap around the wing leading edge, but by patient scissor work, a neat fit was achieved. Attention was then turned to the cowl and spats, which are moulded in ABS. A special glue is supplied with the kit for joining the ABS, and the author was rather unsure as to how to use the thin liquid. After some head scratching the cowl was assembled, from its three parts, with tape on the inside; then the glue was applied with an eye dropper to the join and this quickly produced a stiff cowling. No attempt was made to conceal the joints as the glass fibre cowl on the full size "Citabria" has similar joints to allow its removal for engine inspection. Construction of the spats was rather more difficult because one half must fit inside the other.

Wing construction followed and proved to be very simple. The only unusual feature was the use, with outboard ailerons, of torque tubes. These were made from 1/4 in. diameter brass tube to eliminate any possibility of twisting which could have occurred, as they were well over one foot in length.

Installation

With construction complete the radio system was installed in the roomy radio compartment (7 in. x 6 1/2 in. x 3 3/4 in.). Flexible "snakes" were used to transmit the motion to the control surfaces and throttle. A large output arm had to be purchased for the aileron servo as this was the only way to achieve the control throws shown on the plan.

Engines of 0.19 to 0.25 cu. in. were suggested as suitable and accordingly a "Cipolla 25" was installed complete with 9 in. x 6 in. propeller and a home-made muffler which allowed the engine to be totally enclosed by the cowl.

Covering followed rapidly, using red and white Solarfilm on the wooden areas of the

model and matching Polykote on the cowl and spats.

A check on the C of G revealed it directly under the main spar, just where it should be; the total weight being 3 lb. 14 oz. which was just within manufacturer's wing loading of 20-22 oz. per sq. ft. using a 225 mAh battery pack.

The control throws were set as shown on the plan: elevators and ailerons 1/2 in. each way and rudder 1 in. each way.

Flying

Flight testing of the "Citabria" started on a warm day in August with 6ozs. of straight

fuel on board. The model was hand launched into the slight breeze and immediately banked to the left. This was corrected with a small amount of opposite aileron trim which only served to reveal the models' over-elevated condition. It was now climbing like a dingbat and fast disappearing into the blue. Full down trim did little to help and with the engine ticking over the "Citabria" still seemed to be maintaining altitude, so the engine was cut. The glide was observed to be flat and slow but the model retained a good level of manoeuvrability.

Back on the ground, some down elevator was wound in, and despite the long grass an ROG take-off was attempted. Subsequent take-offs revealed the need for full up-elevator until the model lifted and a take-off was achieved after a run of 60ft.

The "Citabria" was now flying very nicely, performing loops and rolls effortlessly on three quarter power. Inverted, the model would fly level with little down elevator and was easy to control considering its high wing configuration. The glide was good and controllable but the landings had to be three point to stop the model nosing over.

Conclusion

"Citabria" is a pleasing near scale subject with a good flight performance. Neither the construction nor the flight characteristics would recommend it as a beginner's model, but it would make an excellent intermediate model. The kit is very complete and though of built-up construction is quickly completed. *Pilot "Citabria" — kit price £34.95, available from Irvine Engines stockists.*

Right and below: finished model in one of the authentic colour schemes illustrated on the plan. Wheel spats have been removed for rough field operation, but can be retained if smooth grass or tarmac flying area is available.

