# MINI CAVU

***Here is a 30 inch span high wing vintage style model redesigned by Alan Wooster for Park 300 motors and three-function R/C***

## AT A GLANCE

**MODEL TYPE:** Vintage style sports
**CONSTRUCTION:** Balsa and Depron
**WINGSPAN:** 30" (762 mm)
**WING AREA:** 135 sq in
**LENGTH:** 20½" (546 mm)
**WEIGHT:** 6.7 oz (190 g) without battery
**MOTOR:** Park 300 1080 KV brushless outrunner
**ESC:** 10 Amp
**BATTERY:** 2S 500 mAh 20-30C LiPo
**PROP:** 6" x 3" APC-E-prop

Some years ago RCMW published plans for my take on one of my favourite model designs, Cavu, which was originally designed back in the 1930s by the late Ken Willard, a very accomplished and prolific aircraft modeller from USA. That model was powered with a .25 glow plug engine and performed well.

Cavu still appeals to me as an attractive and rather unique vintage-looking design. And as I have been involved with small electric parkflyer models in recent times it occurred to me to revisit this one from this current angle.

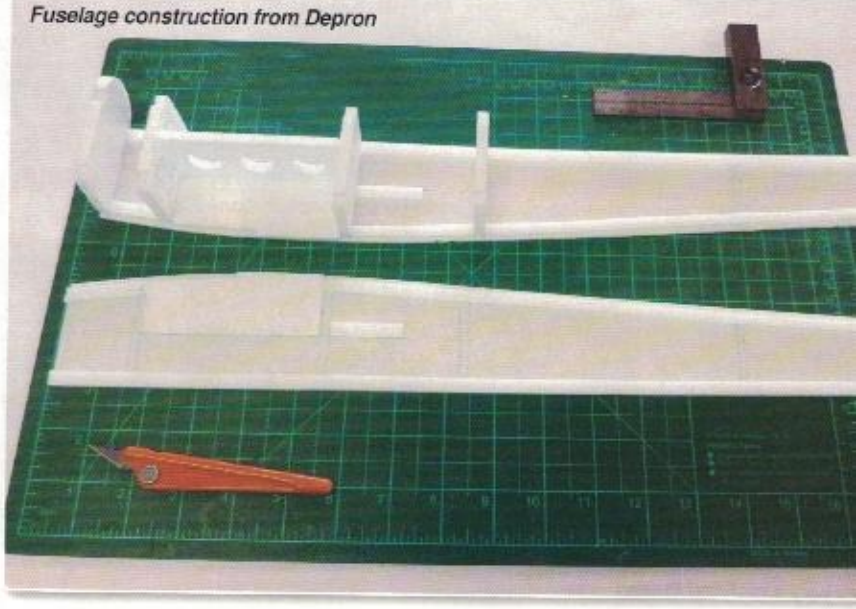
Mini Cavu detailed here is the result. Construction comprises both 3 mm and 6 mm Depron for the fuselage and tailplane components, combined with a wing built up from balsa and film, and covered in regular fashion. In the interests of simplicity and lightness I took the easy way out and built this one around the (inexpensive) radio gear and avoided the need for any complicated access hatches. The gear, excluding the LiPo battery, is captive in there for the life of the model.

Although it is small, low-cost and easy to build, it still appeals to me as an attractive little model. I haven't had the opportunity to try flying it indoors as yet and it is not really a suitable model for the newbie to this hobby.

### About The Adhesives

Following some trial and error I am currently using Weldbond universal adhesive on foam in general. This is a white water based product that works well and dries clear. For general balsa and woodwork I use Titebond Or aliphatic (red pack), which is also a wa clean-up adhesive. Ensure that any cy used is foam safe. A 5-minute epoxy w well for me also.

*Fuselage construction from Depron*



## Fuselage And Tailplane

I traced the fuselage sides shape onto a piece card (old manilla folder) and drew around this pattern with a fine point 'Uniball' spirit pen to transfer the shape to the 3 mm Depron foam. Glue formers F1, F2, F3 and F4 vertically to the RH fuselage side, as shown in one of the photos. Include the 3 mm foam reinforcment to each side of the battery bay and also the 6 mm horizontal panel that forms the top of the battery bay.

Chamfer the inside of each side at the rear and glue the sides together here, being careful to maintain an even curve aft of the cockpit. Fix the motor to its plywood mounting plate, which can now be glued (epoxy) to the front of F1. Likewise, the undercarriage wire can be bent to shape and both sewn and glued (epoxy) to F2.

The two servos are hot glued to the 6 mm servo tray, which can now be installed. I used a servo checker to ensure the output arms were set up at neutral and the cheap servos did in fact work before gluing the assembly in place. Plot and install the outer tubes for the 1 mm (18 SWG) diameter piano-wire rudder and elevator pushrods.

Bend up the pair of parasol wing brackets. I used 6 mm x 2 mm flat aluminium bar, and bolt on the two upper rubber band fixing rails to form the assembly. This assembly is screw-fixed and glued to the 1/16" horizontal plywood plate, and the complete assembly is epoxied in place. Ensure the top of the assembly aligns with the fuselage top edge (datum line).

I installed the remaining radio gear at this stage and checked it all worked okay before proceeding to close off the fuselage.

The fuselage top and turtledeck are applied in two pieces, formed from rolled 3 mm Depron. I made cardboard patterns for these items. To arrive at the curved shape I experimented with scoring the inside surfaces and gently folding them over a piece of old broom handle dowel. I also massaged and wrapped the assembly with an old towel dampened with hot water. It all worked out well.

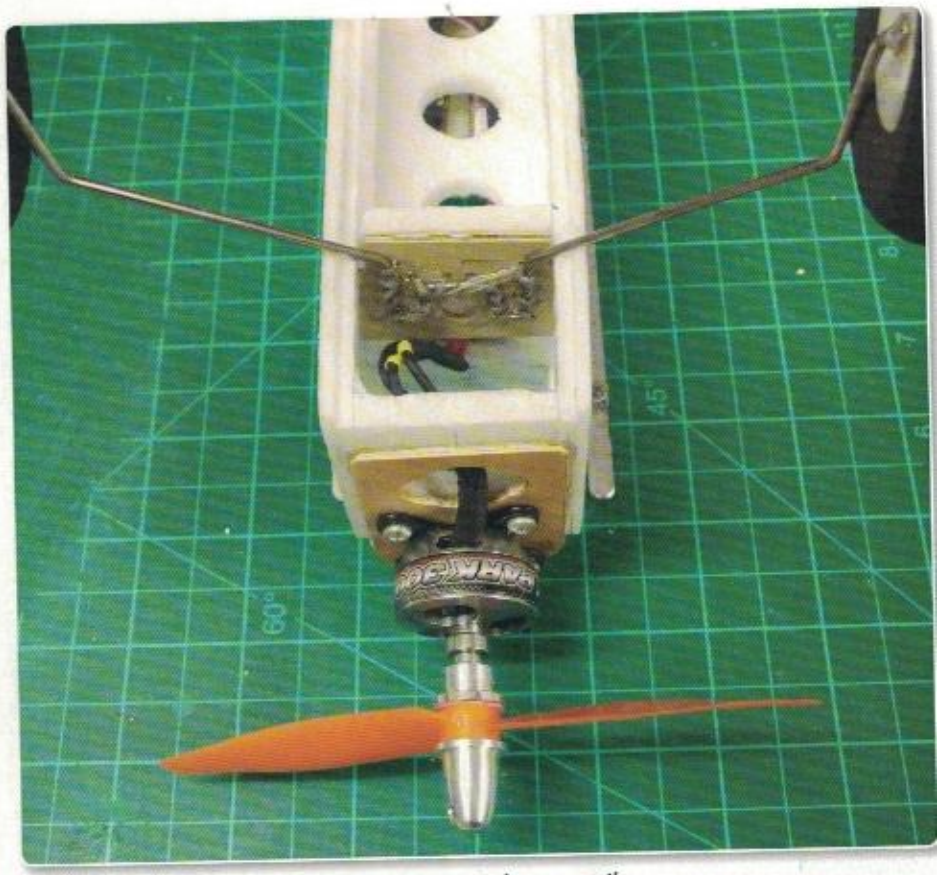
The fuselage bottom panels are fitted up between the fuselage sides. I take this option to return a neater finish when the lower edges are eventually sanded as the glue joint is hidden.

The tailplane items are cut from 6 mm Depron. I generally use flat hinges cut from light Mylar for these small models. Slip the hinges into a slot cut with the balsa knife and fix with a drop of foam-safe cyano from both sides. This appeals to me as being neater than using tape and I've never had a failure with them yet.

## Wing

The wing is built in three pieces and is quite straightforward. I cut the full number of ribs, bolt them all together and finish them to the same size in one block. The centre-section, root and tip ribs are re-cut to suit when placed later.

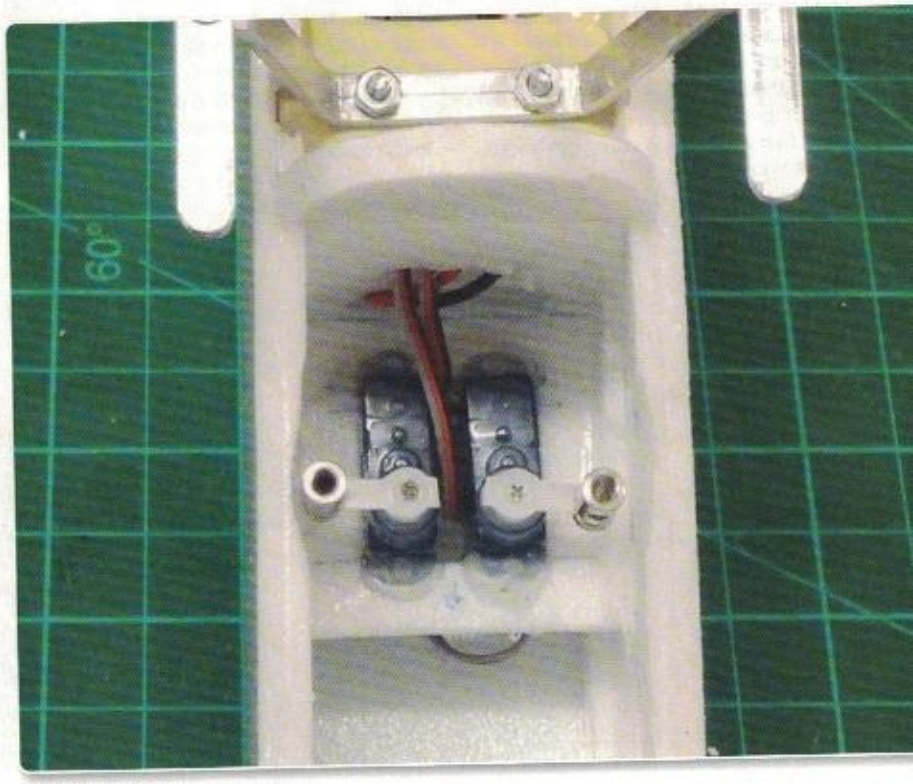
The mainspar is cut full depth from hard 1/8" balsa. Plot and cut the notches from the top to accept all the ribs. Cut matching notches to the front edge of the pre-formed trailing edge (TE). Fix the wing perimeter items over the plan, pin the mainspar in position and drop the ribs into place. Don't forget to cant the root ribs to cater for the dihedral.



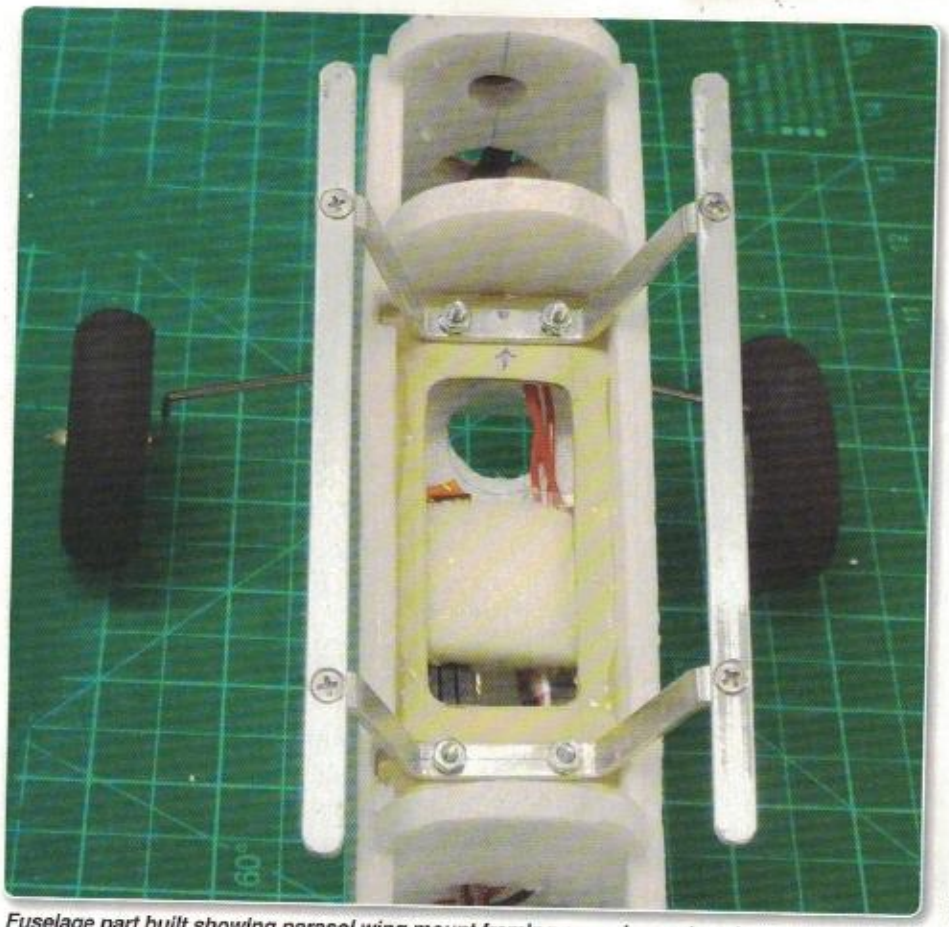
*Fuselage assembly showing motor and undercarriage mounting*

The short connecting TE piece between the root rib and main TE is laminated from scrap balsa to obtain the required tapered thickness. I suggest building in a hint of washout under the wingtips on this model (reference the detail on the plan).

Trim the centre-section ribs back 1/16" top and bottom to cater for the 1/16" balsa sheeting. The plywood dihedral brace is cut to suit the resultant dihedral following the three-piece wing assembly, so leave the lower 1/16" balsa sheeting clear at the mainspar location until after the brace is installed. Cut a full-depth slot through the centre-section and root ribs immediately adjacent to the rear face of the mainspar, then cut and install the 1/16" plywood doubler from the resultant pattern.



*Servos installed in cockpit*



*Fuselage part built showing parasol wing mount framing on a plywood anchor plate*

## Finishing

The wings are sanded and covered with your favourite film; In this instance I used Solarflim Polyester Lite. The fuselage is lightly sanded and finished to suit. I am still experimenting with painting foam models. In this instance I consciously avoided extensive masking as paint 'creep' under the masking can be difficult to prevent.

Water-based paints seem to be the norm for painting foamies but I have been using Tamiya spray cans on recent models and I am reasonably happy with the results to date. I have heard that some Tamiya paints will 'eat' foam but my approach is to use the 'TS' cans and apply as thin a coat as you can get away with. So far, so good!

## Cowling

I have been using lightweight moulded cowlings where appropriate for several years now. The cowling here is probably the smallest yet but the process is much the same. The alternative for this model is to carve one from balsa but the pantyhose method described here is not as daunting as it may seem.

A skeleton for the plug is cut from 3 mm MDF board or similar. This skeleton frame comprises three items: the basic cowling shape at the model centreline, a pattern from the first former and a nose ring. The central former is cut over length to cater for trimming the finished moulding to length at the rear.

In this instance I used a suitable size washer as the nose-ring. A block of urethane or similar easy-sandable foam is glued each side of the central former. Cut and s foam to the required shape. Th quicker and easier than it soun should be slightly tapered or pa form to enable the resultant mo slipped forward off the plug.

The finished plug is wrapped cling film as a release agent. Th applied in pieces if desired and here and there will not affect the article. The leg of the stocking is suitable size tubes and four laye are separately drawn over the p larger cowling the open ends ar tied off (masking tape will do) at the plug.

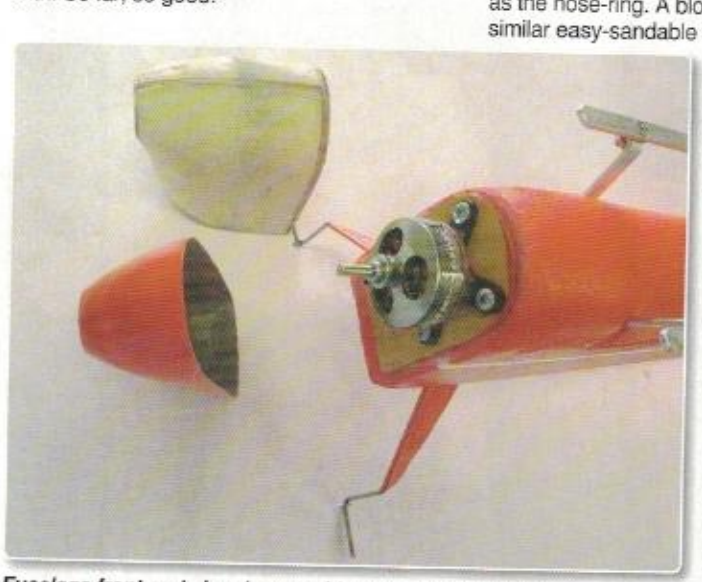
In this instance it is quite easy the nylon tube so it requires tyin rear end only. The beauty of usi material instead of glass cloth is will easily stretch to the desired hold itself in place.

The resin is now applied. I use Pacer 'Z-Poxy Finishing Resin' h this with a 'dibber stick' made fro length of scrap of hardwood spa wide strip of thin foam rubber wr the end and fixed with masking t cost and disposable. Make sure well worked through the nylon cl leave it to dry.

In this instance where the front cowling is undercut (à la de Havi pushed the front of the cowling in round party balloon placed in an plant pot and wedged it into place photo).

When properly dried the mouldi from the plug. Cut the twitched rea plug and if necessary cut a small h front in order to carefully drive it of suitable drift. Cut and fit the mould shape. I apply two coats of sandin the finished item, well sanding bet then a reasonably thick primer coa sanding and then finishing with pa

For a larger cowling you may wa reinforce it by applying patches of cloth around the inside but for a s cowling as used here that is not required. The finished article is ne and very lightweight. In this instan I simply glued it into place with fou drops of Weldbond adhesive.



*Fuselage front end showing moulded cowling and plug*

*Fuselage completed*


Rib stack and wingtip items

Wings under construction

Model completed and ready to go

A perfect choice for drifting around on still summer evenings

Alan proudly displays the petite Mini Ca

## Flying

This is another small sport park flyer model and once trimmed it is a reasonably gentle performer. The prototype wanted to climb so I reduced the wing incidence with a small 1/16" balsa packing strip under the wing TE, which cured that. With 2S battery power it will loop and produce a markedly barrelly roll.

I intend to up the power to 3S at some stage to make it a little more lively, but I will need to change the battery connections to achieve that.

All-in-all it is a pretty little model, sort of replicated from an earlier era, and with a rather gentle performance to match. **RCMW**

*Prototype model in flight*

*The pylon mounted wing adds plenty o character*

## PLAN DETAILS

| | |
|---|---|
| **PLAN NAME:** | Mini Cavu |
| **BUILD CATEGORY:** | Intermediate |
| **PLAN NUMBER:** | MW3783 |
| **PLAN PRICE:** | £11.99 ($20.99) |

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