

Ace RC Parallel Wing Kit Instructions v1.0 12 Jan2020

These wings are designed as a replacement for the now defunct 'Ace RC Foam Wings' which were available for a number of years.

These are just a few indicators to keep you on track rather than a full set of instructions - if you're building this, you will most likely have had some previous experience and your own methods !

Contents

2 off 6mm LE spars, 4 off 3mm sq wing spars, 4 off 6 x 3mm main spars, 4 off 19 x 1.5mm TE strip, 2 off 3 x 4mm TE caps, 2 off 19 x 3mm aileron stock - all 457mm long.
2 x 1.5mm laser cut rib sheets, 2 x 1.5mm laser cut wing root sheets and a small 3mm sheet with the wing tips and a wing gauge. 1 off 1.5x150x50mm aircraft ply.

Method

Start by pinning down the lower 6x3 spar to your build surface - use a piece of plastic packing tape under the spar to protect from adhesive.

Starting at the wing tip, place a rib W-2 flush with the spar end - ensuring it's square of course :-). Thin cyano is the adhesive of choice here. As the ribs are accurately laser cut, they should naturally fit the spar correctly and will align with subsequent ribs. Using the rib gauge on the R2 spacer setting, place the other five W-2's - gluing them on to the lower spar as you go. Using the W-1 setting, place and glue the final two W-1 ribs. Ensure that they all align correctly then drop in the top 6x3 spar - adjust the ribs as you go to ensure they still align, then glue them in with a drop of cyano. Place the 6mm square LE and align with the wing tip spars - again, check alignment then glue it on to the ribs. Repeat the process with the upper and lower 3mm spars - ensuring that you are using 3x3 and NOT 3x4 spars !.

Unpin the lower 6x3 spar; then pin down a 1.5x19 strip to the building board and offer up the wing frame - align the cutouts in the ribs to the strip - tack one end flush with the wingtip and when happy, glue the wing frame to it. Remove the pins and glue on the top 1.5x19 strip - keep it all straight of course ! You may want to plane and sand the LE to final shape at this point. Fit the 3mm wing tip - centred on the vee in the rib LE and flush with the TE.

Clean up the TE if necessary then attach the 3x4mm TE strip to the rib ends - it should ride over the end of the 3mm wing tip you just placed (you will have around 8mm short at the root, but there is excess wood there).

Fit the wing tip fillets - F1t in line with the main 3x6 spar and F2t in line with the 3x3 spar - repeat for F1b and F2b (t = top, b = bottom :-)

You can now fit the upper and lower 1.5mm root sheeting - the end of the sheeting should be flush with the first W-1 from the tip. The sheeting is accurately cut of course, but will need a slight angle fettled on their edges to ensure a perfect fit with the spars. Top sheets are (from the front) T1, T2 & T3 - similarly for the bottom B1, B2 and B3. As an OCD tip, keep the lasered text to the inside of the wing, that way it won't show through the finish :-)

Repeat the process above for the other wing, then sand the leading and trailing edges to final shape and give the wings a light sand.

The original foam wings were 454mm (17 7/8") from root to tip. These wings are 475mm giving you some leeway for wing attachment and adjustment. As there are various dihedrals used, a piece of 1.5mm aircraft ply is supplied to fabricate your own wing brace - although, it isn't really required - trimming to length and adjusting the roots to the correct angle, gluing together with cyano then taping up the joint with a piece of 25mm cotton bandage and some thin PVA is perfectly sufficient - YMMV as they say :-). Just use your favourite finish on the framework - film or dope and tissue is just fine.

Two lengths of 3x19mm strip are supplied as ailerons if required - trim to suit and attach using your favourite method. Note that the ribs are supplied with a servo cable cutout - a small 9 gram servo in each wing is the way to go !

There have been *many* designs that use these wings - a quick search on Outerzone/Hippocketaeronautics or Aerofred will produce quite a number to choose from.

If you have any issues with these parts, please just keep them to yourselves, I'm really not interested :-))

A tapered version of this wing is in hand and will be available soon.

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