

Breese-Wilde Model 5

1/24th scale rubber powered scale design
by Richard Crossley

In the late 1920s, pioneering long distance flights were capturing the public imagination. Charles Lindbergh's epic trans-atlantic flight from New York to Paris in 1927 was probably the most famous long distance flight of all time. In 1927, just months after Lindbergh's flight, there was another epic, the largely forgotten 'Dole Pineapple Derby'. This air race, the brainchild of Hawaiian Pineapple Magnate James D. Dole was run from Oakland, San Francisco, to Honolulu on the Island of Hawaii. The massive sum of \$25,000 was offered to the winner, and this resulted in many of the cash-strapped barnstormers and stunt pilots of the era applying for the race. At 2,300 miles the race was to be considerably shorter than Lindbergh's flight from New York to Paris, but it was certainly just as big a challenge, as once the flyers had left the coast of America, Hawaii was a very small target to aim for indeed. Not surprisingly the race was a shambles, with a many of the would-be competitors' aircraft crashing whilst preparing for the race. Others came to grief on the day of the race, with overloaded aircraft crashing on take off. Some of those that did manage to get airborne were never seen again. Ultimately 10 people were killed preparing or participating in the Dole Derby, and only 2 aircraft finished the race, the most famous, and the winner

being the Travel Air 5000, named 'Woolaroo' flown by Art Goebel. The other aircraft to reach Hawaii was the Breese-Wilde 5, named 'Aloha', flown by famous barnstorming pilot, Martin Jensen.

For the race, Jensen fitted long range fuel tanks to his Breese, and painted it sunshine yellow with red lettering. Jensen's flying partner for the race, Paul Schuler, was a marine navigator who had responded to an advert for the position. Aloha won a whopping (at the time) \$10,000 for its second place, although it was money well earned, as Jensen only spotted Hawaii with a few minutes of fuel left in his tanks. Afterwards, the extra fuel tanks were removed and four seats were added, and it flew around the Hawaiian islands as the Breese 'Air Express' for the newly formed Hawaiian Air Tours. Aloha was eventually sold on, and performed sterling service with the New York Daily News as a photographic aircraft until it was destroyed in a hanger fire in Garden City, New York in 1933.

I couldn't resist the stubby looks of the Breese monoplane. This particular aircraft, with its 'Sunshine Yellow' colour scheme, emblazoned with 'ALOHA' on the fuselage sides, and wearing a traditional Hawaiian lei around its nose is very distinctive. The high wing layout makes for an easy to build and stable flyer, and the design is a simple one. 1/24th scale makes for a handy size at about 21" wingspan.

There was a second Breese 5 entered in the Dole Derby, the ill-fated 'Pabco Pacific'. This Breese crashed on take off due to fuel overload. I think its colour scheme was orange and deep blue, I have shown a side view of this one in colour too if you wish to have a go.

This is a rather obscure aircraft, and despite quite an exhaustive search, I was unable to find any 3-views or drawings of this aircraft at all. I therefore chose to bite the bullet and produce my own 3-view to base the plan on. Although I closely studied photographs, and the finished model looks convincing, I cannot vouch for its accuracy. I have however supplied a colour 3-view with this article, on which the plan is closely based so this should be all that you need to enter scale competitions. You will find good quality photographs online of the Aloha.

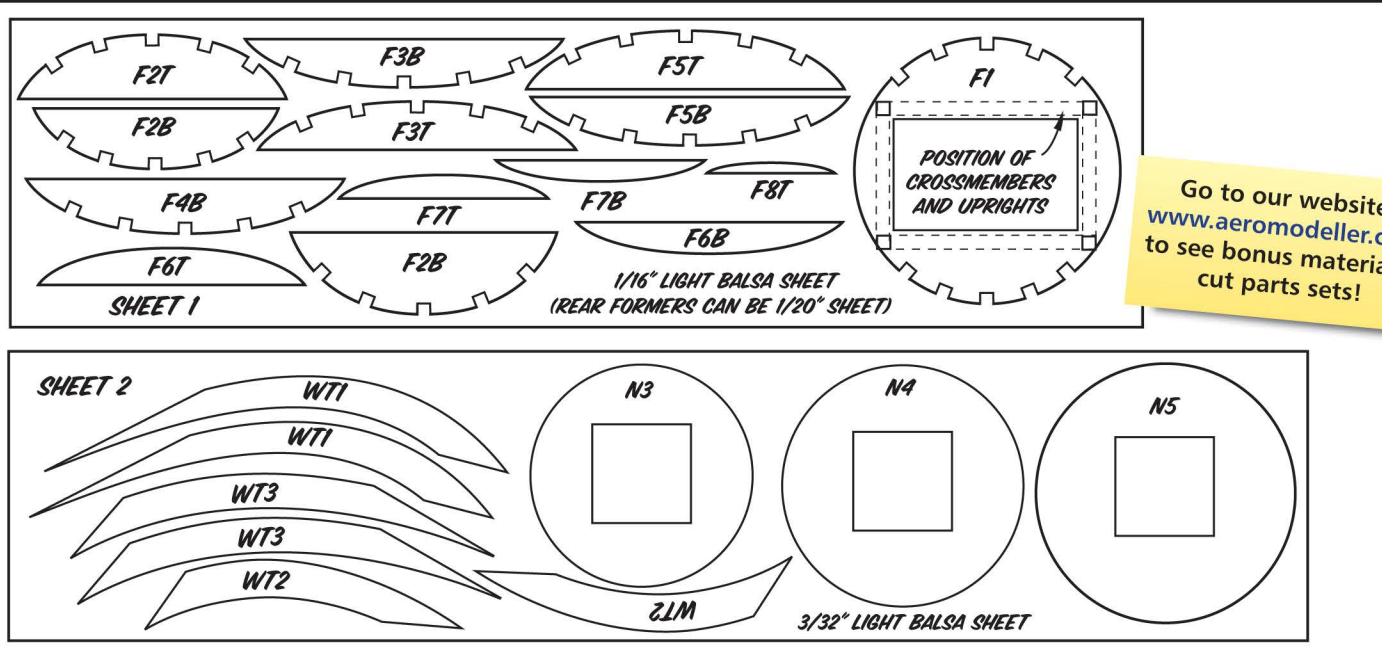
My main reasons for choosing the Breese to model, was its bright and characterful colour scheme, coupled with its relatively simple lines that would lend themselves to an easy model to build, and one that would be small enough to fly in my local sports hall in Stalham, Norfolk. It's a rare prototype, and I have not seen one modelled before.

Building

This is an easy model to build. It is totally conventional in layout and the structure will not prove at all taxing for the average

“ Although it looks warm and almost 'Hawaiian', there was snow on the ground when this picture was taken in North Norfolk. Paint is airbrushed Humbrol gloss Yellow 69, and the markings are all printed directly onto clear decal sheet. The wheel hubs were made from printed paper, cut out with a circle cutter, and then fixed to the black painted wheels with spray adhesive. ”





modeller. I have set it up with a generous 3 degrees of incidence, which makes it a lovely stable performer, note also the added dihedral which allows the model to turn quite tightly in my relatively small flying hall (the original aircraft had a flat wing) Much information is listed on the plan, but I will briefly run you through the build just in case anything is not clear. You may choose to make a copy of the plan and printwood patterns at your local copy shop. If you do this, do check to make sure there is no distortion. Using spraymount or similar adhesive, glue the paper templates to suitable lightweight balsa sheet. Carefully cut out all of the parts. For the wing ribs, I usually make a simple ply template and use this as

guide to cut around. This saves time, as well as ensuring all ribs are pretty much identical. You can then pin together the 'block' of ribs and cut the notches using a modeller's file.

Fuselage

This is a basic box structure with top and bottom formers, finished off with 1/16" stringers. Build one of the 1/16" square balsa fuselage sides directly over the plan (note that this structure is shown shaded grey). Pin each side of the wood, never through it, and glue the joints with your favourite adhesive as you go (I like good old fashioned balsa cement). Include the 1/16" sheet rear peg support. Once dry remove from the plan and build the other

identical fuselage side. Using scrap balsa strip, make up the 2 formers 'A' and 'B' directly over the plan. When dry remove from the plan and glue into position on one of the fuselage sides. Join the sides together, and then glue the rear of the fuselage sides together - hold with a clothes peg whilst the glue dries. Check that everything is nice and square and that the fuselage is not curved when viewed from above. Pull the nose together and join with former F1.

Next, cut all of the 1/16" square cross members to length, using the plan top-view, and glue in place. Glue all of the top and bottom formers into position on to the cross members. Note that you can save some weight to the rear fuselage by making the formers behind the wing from lightweight 1/32" sheet balsa.

Next, bend the wire undercarriage to shape over the plan. Sandwich the wire between 2 pieces of 1/16" balsa sheet, cut to the shape show. Using epoxy glue, glue the undercarriage assembly into position between the fuselage sides.

Now glue into position the 1/16" square top and bottom stringers: Note that they do not run from F3T to F5T on the top. On the lower fuselage, crack the stringers where they pass over F2B, F3B and F4B. Taper all stringers at the extreme rear fuselage so that they fit. Glue in place the nose cowl formers N3 - N5, the 1/8" sheet balsa side cheeks and the 3 short side stringers each side of the forward fuselage.

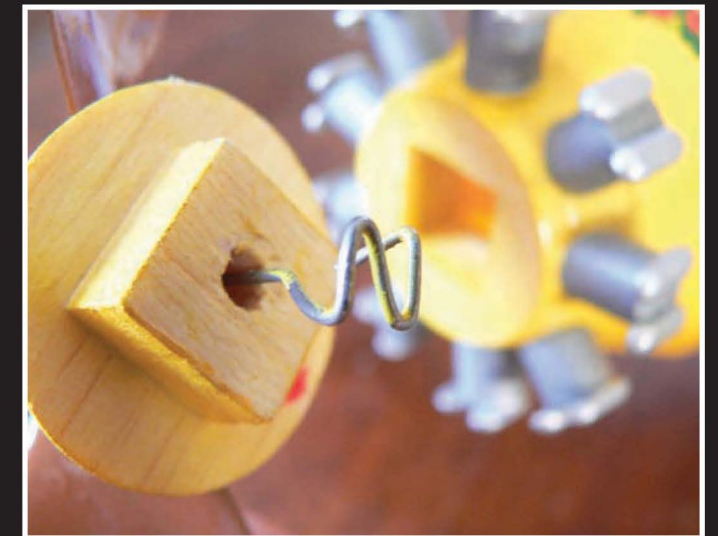
If you wish to have a cockpit cut-out you will need to fill in between the stringers between F2T and F3T with 1/16" scrap balsa sheet. This will then allow you to cut out an aperture. I also cut away part of Former F3T, and added some sheet wood to the front of the wing, cutting away the leading edge to form the rear of the aperture. I must admit that the



The basic bones of the Breese. As you can see its a simple build - nothing too demanding here.



My dummy engine was very simple, and made up from scrap balsa. Pushrods would help with scale realism, it depends how far you want to go.



I prefer to bend an 'S' hook on the prop shaft. The rubber sits on the central bar, and will not ride up the shaft, which sometimes happens with circular or diamond shaped books. Although called an 'S' book, its actually a 'Z' when viewed from the rear.

cockpit area on this model is a bit of a guess as no photographs are available. See photographs of my model to see how I did it. Alternatively you can paint this area black or use a piece of black tissue.

Make up the nose plug as shown on the plan using circular discs and squares of 1/8" balsa sheet. I used a large 'Peck' type nose bush. I used a 6" Tern prop to allow the model to take off, but if you are intending to fly your model outdoors, then opt for a larger 7" 'Peck' type plastic prop. Although slightly tricky to bend if you have not tried it before, an 'S' hook is by far the best type of hook to use on the wire prop shaft, as it stops the rubber trying to climb up the shaft. Oddly, the hook should actually resemble a 'Z' when viewed from the end, if it was an 'S' the rubber would slip off the hook! A balsa block spinner can be carved and epoxied over the prop.

Wing & tails

The wings are built directly over the plan in the normal manner. Build the right wing first. Note that the trailing edges are notched to accept the wing ribs. It is a good idea to carve and sand the trailing edge to a tapered section before building the wing, as this will prevent the risk of 'snagging' the ribs once the wing is built.

The wingtips are angled upwards slightly, so these should be assembled over the plan from 3/32" sheet parts WT1, WT2 and WT3. When dry, remove from plan, pin in place the assembled wingtips, propping them up by about 7mm under the extreme tip. Now add all of the wing ribs, noting that the root rib is angled using the template, and that the Tip Rib is raised off the building board. Glue the 1/16" square top spars into the notches in the ribs. When dry remove the wing from the

building board and add the lower 1/16" square spar and the gussets at the root rib position.

Build the centre section over the plan in a similar manner to the wings, noting that the rear top spar is made from 1/16" sheet balsa. Join the wing panels to the centre section, being careful to obtain the correct dihedral. 25mm under each tip provides plenty of stability, although for an outdoor model that does not need to hold a tight circling flight pattern you can probably get away with a little less.

The tailplane and fin are built up over the plan from strips of medium density 1/16" square balsa. Note the 1/16" sheet tip parts and gussets.

Covering and assembly

Carefully sandpaper the entire airframe with medium and then fine paper. It is a good idea to 'flat off' or facet the fuselage formers between the stringers to obtain a smooth airframe. When you are happy, cover the model with lightweight yellow Esaki tissue. For tissue paste I use 'Solvite Border Adhesive' this is obtainable from DIY shops, and the large bottle contains enough paste for literally dozens of models, so it is quite cost effective. When covering the wings and tails, always apply tissue paste to every rib as well as around the edges. This will go a long way to preventing warps, and will greatly increase the strength. Full size vintage aircraft use this practice - the fabric being stitched to each rib.

Water shrink the tissue. Be especially careful to avoid warps in the tailplane and fin: I prefer to hold these parts over a steaming kettle, if you do this a couple of times the tissue will shrink just enough without warping the structure. Apply a couple of coats of thinned cellulose dope or banana oil to the tissue. Glue the wing in place on to the top longerons. Cut

out the small piece from the rear stern post so that the tailplane will slide into the slot provided. Glue in place the tailplane and the fin. Cut to fit a paper fairing to blend former F5T into the rear of the wing.

Engine, wheels and struts

Engine: make up the dummy engine as shown on the plan seal with dope and carefully glue the individual cylinders in place. I omitted the pushrods on my model, but the more detail you include the better your model will look.

Wheels: the wheels are made up from laminations of soft balsa sheet as shown on the plan. A 'circle cutter' is invaluable for cutting out the wheels parts. Sand to shape, apply a couple of coats of dope to seal them, then epoxy in place the aluminium tube axles. I drew up the hubs on my computer and printed them out. After cutting with the trusty circle cutter these were then applied to the black painted wheels using spray adhesive. This is a simple but effective method of getting a neat pair of wheels. Use the outer plastic stripped from thin electrical wire to hold the wheels in place.

Struts: these are all made from firm 1/16" balsa strip, cut to the right width and then sanded and sealed with dope. Note that to allow the undercarriage wire to flex freely, the balsa wheel struts are set on the inside of the wire, and glued to the fuselage only. Also, the vertical oloe strut pieces do not touch the axle, this allows the wheels to flex upwards on impact. For a better idea of the exact layout of the various struts refer to the 3-view and photographs of my completed model. Don't forget the tail skid.

Finishing touches

I decided to airbrush my model with a thin coat of Humbrol 69 gloss yellow enamel paint.



1927 Breese-Wilde 5 'Pabco Pacific Flyer' Crashed on take off at the start of the 'Dole Derby'



1927 Breese-Wilde 5 'Aloha' Second place in the 'Dole Derby'



This pic shows well how I added 1/16" sheet balsa fill-in between the stringers in the cockpit area. This allowed me to then cut out the aperture. I also did the same with the wing, removing the leading edge too. You could just paint the area black, or use a patch of black tissue. The pilot was carved from white foam. I used a Rotring Rapidograph pen for the panel lines. Note the garland or 'Lei' around the nose.



Sitting the UC struts on the inside face of the wire will allow the wire to flex up and back. Note that the oleo leg strut falls short of the axle.

Go to www.aeromodeller.com and check out the Bonus Content section for issue 921 and download decal art for the Breese/Wilde 5.

I designed the decals in Adobe Illustrator on my Apple Mac computer, and then printed them out onto a clear sheet of waterslide decal material on my office laser printer. I have used this technique many times and it works out really well. Note that waterslide decals only adhere properly to a gloss surface. The other option would be to leave the model in its yellow tissue finish, and apply the markings from cut tissue, doped on. This would also look great.

Cut to shape and fit a celluloid windscreen. I like to carve my own pilots from blue or preferable white extruded foam. This is a nice material to work with, and if you are careful you can obtain nice results. I use artists oil paints on my pilots as these are easy to blend together to obtain various flesh tones and highlights etc of the clothing. Alternatively if you search around you will find small commercial pilots online. Dave Banks produce some lovely small scale pilots. Cheaper versions are also available from Lindsey Smith, who sells them through SAMS Models (they have a website).

Flying

Before you start, check the balance position is close to that shown on the plan. Note that the rear motor peg support is situated fairly well forward, this makes for a lighter model as you may well find that no extra nose ballast is needed to obtain the correct balance. Duration does not seem to be unduly affected using this 'forward peg' system.

I test flew my Breese in a unfinished state at our local indoor flying venue to check that all was OK. The very first flight was amazing, the model made a beautifully slow flight along the complete length of the hall. In fact it was so slow that I managed to trot along beside the model and catch it before it hit the far wall. I used a single loop of 3/16" Tan 2 rubber, about twice as long as the distance between prop hook and rear peg, with around 200 turns.

As flight trimming went on, I used a small acetate tab to act as a rudder, which I offset for a left turn, and also used a small piece of modelling clay on the left wing to encourage the model to turn indoors in the small hall.

The model really does float about in a slow and realistic manner and showed a lot of potential on the limited turns applied to the rubber. Although at the time of going to press, the model has only made a handful of flights, it shows great potential as the rubber will take around 1,000 turns. The final flying weight of my model is just 30 grams, of which 4 grams is the rubber motor. The loading is light at 7.2g per Dm2.

Why not have a go at this interesting little model? For a modest outlay in time and money, its a really good performer, and you'll not see many at your flying field (or hall)! ■



The Breese is a nicely proportioned aircraft for rubber power. Although simple, the struts and dummy engine give it bags of character, as does the vibrant colour scheme.