

History

The Bristol Boxkite was an improved version of the early Henri Farman biplane, built in 1910 by the British and Colonial Aeroplane Company (later to be known as the Bristol Aeroplane Company).

The Boxkite was developed in 1910 at Britain's first aircraft factory in Filton, Bristol. It was powered by a 70 horsepower "Le Rhone" rotary engine. The aircraft first flew on the 29 July 1910 and went on to become Bristol's first successful production aeroplane. 76 were built, 61 of which were the extended militaryversion, in the years building up to the First World War. Four of these planes constituted the first order placed by the British War Office when it was set up in 1911. Production was at the Filton factory, which was set up within a tramworks.

It was also the first aeroplane to land upside down in Brooklands Sewage farm FlightLieutenant Frederick Warren Merriam was the first to enact the scene from the film Those Magnificent Men in Their Flying Machines[.

Specifications

General characteristics

Crew:		2
Length:		38 ft 6 in (11.73 m)
Wingspan:		46 ft 6 in (14.17 m)
Height:		11 ft 0 in (3.61 m)
Wing area:		$517.0 \text{ft}^2 (48.03 \text{m}^2)$
Empty wei	ght:	900 lb (408 kg)
Max takeof	fweight:	1150 lb (522 kg)
Powerplan	t:	1× Gnome rotary piston engine, 50 hp (37 kW)
Performance		
Maximum	speed:	40 mph (64 km/h)
Wing loadi	ng:	$2.22 lb/ft^2 (10.9 kg/m^2)$
Power/mas	s:	0.043 hp/lb (70.9 W/kg)

Introduction

This Historic Wings kit is made from etched brass for the main structure, with cast metal detail parts. The flying surfaces can be covered with the tissue paper supplied, although many modellers may prefer to leave the structure uncovered to show the details.

Brass components can be soldered together, or joined with cyanoacrylate (SuperGlue) or 5minute epoxy. If you have the skills and equipment we recommend soldering.

To remove parts from the etched fret, you can use a pair of side cutters, or put the fret on a ceramic tile, and press down on each attaching tab with a sharp knife. If you use the 'knife & tile' option, put the attaching tab with the half-etched side of the tab face down. Whichever method is used, it may necessary to remove the burr of the attachment tab with a needle file afterwards.

CAUTION - MAKE SURE THE ORIENTATION OF THE WING IS CORRECT BEFORE YOU TWIST EACH RIB.

The wings and elevators are etched with integral ribs. Hold the leading or trailing edge in a vice or clamp, and then hold each rib in turn with a pair of fine flat-nosed pliers, and twist that rib through 90 degrees. When all the ribs have been turned, clamp the trailing edge, and do the process again.

Where etched parts are joined with two inter-locking slots it may be necessary to enlarge a slot with a needle file. This is because photo-etching is not an exact process, and sometimes the etching is slightly uneven across a sheet.

Parts List

Cast Metal

Form tool - female 1 off Form tool - male 1 off Engine 1 off Figure - pilot 1 off Fuel tank 1 off Oil tank 1 off Propeller 1 off Tyre 4 off

Etched metal

Fret 1 - brass										1	off
Fret 2 - brass										1	off
Fret 3 - nickel silver										1	off

Miscellaneous

Decals	1 sheet
Instructions	1 set
Stainless steel wire 1	length
Cream Litespan film	1 sheet





Fret 3



1 ASSEMBLE THE SPOKED WHEELS

A Drill a 1/16"/1.5mm diameter hole through the centre of the female form tool as shown in Figure 1 below. This is to let you push the discs of spokes out of the form tool after they have been formed into a cone.

DRILL HOLE IN FORM TOOL HERE



- B Remove the eight spoke discs from the fret and remove any burrs from the attachment tabs.
- C Form each spoke disc.
 - (1) Put each disc into the cavity in the female form tool.
 - (2) Put the male form tool into the cavity and press the disc into a cone. Figure 2 shows a vice being used to compress the form tool.
- NOTE: These photographs show typical wheels, spoke discs and tyres. They are NOT specific to this kit.



Figure 2

(3) Remove the form tool from the vice and remove the formed disc of spokes.

(4) Do steps 1 C (1) thru 1 C (3) again for each of the spoke discs.

- D Assemble the wheels.
 - (1) Paint the appropriate tyre areas of the cast metal tyres matt black. Do not paint the recesses where the spoke discs will be attached.
 - (2) Apply your preferred adhesive in the recess on one side of a cast metal tyre, then attach the conical spoke disc as shown in Figure 3.



Figure 3

- (3) When the adhesive is dry/cured, turn the wheel assembly over and attach the second spoked disc to the other side. Leave this adhesive to dry/cure.
- (4) Do steps 1 D (2) and 1 D (3) again for the other wheels.

2 WINGASSEMBLY

- A Remove the upper and lower wings, wing spars, interplane frames, aileron spars and ailerons from the frets and remove any burrs from the attachment tags.
- B Fold all the ribs on each wing through 90°.
- C Engage the slots in the wing spar in the slots in the ribs of each wing. Make sure that they are symmetrical, then bond the wing spars in place.
- D Attach the interplane frames between the upper and lower wings to form the wing assembly as shown in Figure 4 below.



- E Aileron assemblies (4 off)
 - (1) Attach the spar to each aileron bond /solder them together..
 - (2) Crop one arm off two of the bell cranks.

(3) Attach the modified bell cranks to the ribs of two of the ailerons - bond /solder them together.

(4) Do not attach the ailerons to the wings now.

3 FUSÉLAGE ASSEMBLY

A Remove the fuselage frames from the fret and remove any burrs from the attachment tags.



Figure 5

- B Align the ribs on the two fuselage frames with the ribs on the lower wing and bond /solder them together.
- C Align the fuselage frames with the ribs of the upper wing and bond /solder them together.

4 EMPENNAGE AND CANARD ASSEMBLIES

- A Remove the upper horizontal stabilizer and elevator, the lower horizontal stabilizer and the canard elevator from the fret and remove any burrs from the attachment tags.
- B Fold all the ribs on each stabilizer and the canard elevator through 90°.
- C Fold the two arms on the elevator upwards through 90°.





- D Empennage assembly
 - (1) Attach a bell crank to the centre of each rudder as shown in Detail A of Figure 6
 - (2) Align the ribs on the two fuselage frames with the ribs on the lower horizontal stabilizer and bond /solder them together.
 - (3) Align the ribs on the two fuselage frames with the ribs on the upper horizontal stabilizer and bond /solder them together.
 - (4) Put the two central interplane struts between the two stabilizers and then bond /solder them together (the forward strut includes the tail skid).
 - (5) Attach a rudder to the rear struts of the fuselage frame and to the central forward strut.
- E Clip the canard assembly between the forward fuselage frames.

5 AIRFRAME COVERING AND PAINTING

- A If the airframe is to be painted, do it at this stage in the assembly. Paint the structure to resemble a light to medium brown wood. If the model is to be covered with Litespan film, do not paint those areas where adhesive will be applied.
- B If the model is to be covered with Litespan film (the film), cover the flying surfaces now. For each flying surface:
 - (1) Cut a piece of the film which is larger than the panel.
 - (2) Apply a continuous layer of cyanoacrylate adhesive (superglue) to the structures where the film will be attached.
 - (3) Attach the edge of the piece of film to one long edge of the bay and press it down so that it is smooth, and without creases.
 - (4) When the superglue has attached the film securely, apply more superglue to the other three sides of that bay.
 - (5) Pull the film smooth and attach the other three sides of the panel of film, so that it is smooth and not slack.
 - (6) When the film is securely attached, use a sharp blade to trim off the excess film.
 - (7) Do this procedure again for all the other panels to be covered.

(8) Use a hair frier of similar appliance to blow warm air over the film to tighten it. (9) Apply the 'BOXKITE' decals to the outboard face of each rear rudder.

6 LANDING GEAR AND DETAIL PARTS ASSEMBLY (See Figure 9)

- A Remove these components from the frets and remove any burrs from the attachment tags:
 - Control column
 - Foot rest
 - Fuel and oil tank supports
 - Propeller shaft mounting
 - Seat
- B Assemble the seat.

(1) Fold the seat, and foot rest, bond /solder them together, then attach the control column, as shown in Figure 7 below.

(2) If required, paint the assembly to resemble wood.





Figure 7

- C Fuel and oil tanks
 - (1) Fold the fuel and oil tank supports as shown in Figure 8 below.
 - (2) Remove any casting seams or flash from the cast metal fuel and oil tanks.
 - (3) Attach the two tanks as shown in Figure 8 below.
 - (2) If required, paint the assembly:
 - The tanks are brass
 - The supports are steel
 - Paint the base to resemble wood.



Figure 8

- D Engine, propeller and drive shaft:
 - (1) Drill 0.75mm/.03" diameter holes through the hub of the propeller hub and the engine.
 - (2) Attach the propeller to the engine with 5-minute epoxy adhesive.
 - (3) Put a pin or a piece of wire (make sure the wire is straight) through the propeller/engine assembly and attach it to the propeller shaft mount with 5-minute epoxy adhesive.

(4) Attach a nickel silver pushrod to each cylinder as shown in the detail below.

Figure 9







PUSHROD - ONE ON EACH CYLINDER

- E Main wheels.
 - (1) Cut a piece of wire for each of the two main wheel axles, or use dressmakers pins.
 - (2) Attach a main wheel to one end of each axle with 5 minute epoxy adhesive, make sure they are symmetrical and put them aside until the adhesive has cured.
 - (3) Put one axle through the hole in each fuselage frame. Attach a second main wheel to each axle with 5 minute epoxy adhesive, make sure they are symmetrical and put them aside until the adhesive has cured.
 - (4) With the aircraft standing on its undercarriage, make sure the mainwheel are equi-distant from each fuselage frame and lock the axles to the fuselage frames with 5 minute epoxy adhesive.



F Rig the model with monofilament, or your preferred material, using the drawings as a guide.



NOTES

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