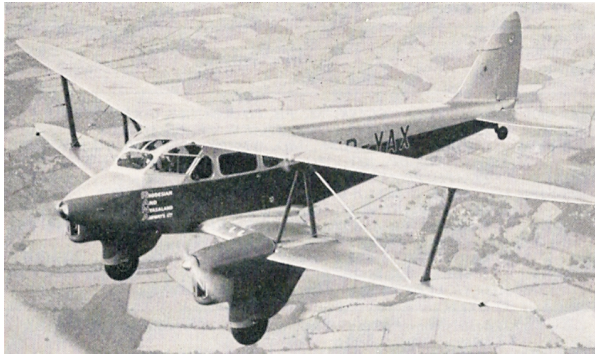




Rag Rat Resins

1:72 Resin Kit of the



de Havilland DH 90 Dragonfly

History, Notes and
Instructions

History

The prototype DH 90 Dragonfly, G-ADNA first flew on 12 August 1935. It was a five seat luxury tourer powered by two 130 HP Gypsy Majors driving fixed pitch propellers. Although outwardly similar to the Dragon Rapide, it established new ground structurally in having a partly cantilever wing and a plywood monocoque fuselage pioneered on the DH88 Comet Racer.

At £2650 it was an expensive aircraft, but a number were bought by prominent and wealthy men. 21 aircraft operated on the UK civil register. A total of 67 were built and were operated over the world. Notable operators were Shell-Mex, Rhodesia and Nyasaland Airways, QANTAS, and many other embryonic airlines. Military use of the aircraft was limited; The Flygvapnet (Royal Swedish Air Force) operated one, the Royal Danish Air Force operated two and the RCAF operated two. The RCMP used four, and a number were impressed during World War II by the RAF, RCAF and RAAF. One aircraft, G-AECW was camouflaged but retained its civilian registration and was operated by De Havilland as a company 'hack'.

There were few modifications in service, the most obvious changes being the installation or removal of the generator and at least one aircraft (VP-KCA) had a slightly revised window and freight door arrangement. Some aircraft were later re-engined with the more powerful 145 HP Gypsy Major 10.

Two aircraft remain airworthy, G-AEDT, and G-AEDU. G-AEDT was also registered VH-AAD, N2034, and G-AEDU had formerly been ZS-CTR and CR-AAB.

References:

De Havilland Aircraft since 1909	A J Jackson	Putnam
De Havilland - the golden years 1919-1939	R J Riding	IPC Transport Press (Flight)
Wingspan magazine	April 1995	

Acknowledgements:

Our thanks to Mr Alf Grainger and Mr Alan Forberg of Wingspan Publications for permission to use the general arrangement drawing of the Dragonfly

The Rug Rat Resins Kit

The Rug Rat Resins kit of the Dragonfly is cast in urethane resin using one- and two-piece moulds. Because of the limitations of the moulding technique, there may be a few small air bubbles in the components, but these can be filled using any of the proprietary model fillers (Green Stuff, Milliput, etc). Another deficiency of resin is that the moulds eventually exhibit some pitting that may necessitate skim-filling here and there. The 'pitting' is not a symptom of extraneous bubbles in the resin; it is caused by pimples appearing in the mould, sometimes very early in the mould's life. We normally only produce 40 sets from each mould.

Resin parts can be shaped with a scalpel fitted with a stout blade or a modelling knife, and can be cut with a razor saw. They can be attached using superglue (cyanoacrylate) or 5 minute epoxy. We favour the use of superglue, but be warned: if your mating surfaces are well prepared, the superglue bond will be immediate and permanent. Any attempt to reposition the parts may result in breakage. Resin is a relatively brittle material and rough treatment of thin components will lead to breakage. Resin can be filed, sanded, wet-and-dried, and polished just like polystyrene, but remember that the dust is an irritant (similar to sawdust). Wear a mask, or sand it wet. For filling, we generally recommend Milliput, because it sets thoroughly, even in thick layers. The down-side is that it takes around three hours to cure. Green Stuff and similar fillers that rely on evaporation are only suitable for 'skimming' and minor filling operations that need to be sanded with minimum delay.

Before starting assembly, wash the resin parts in (preferably) a good benign solvent such as isopropanol or warm soapy water. This will remove the mould release agent from the parts. Do not use hot water, because the parts may soften and distort. You can turn this to advantage, however, because if you have a warped part, or want to 'tweak' something, you can heat up the resin with hot water or a fan heater, and gently adjust it. When cool, it will retain the modified shape.

In addition to the resin parts, the kit also contains cast metal parts and vacuum-formed transparencies. Use superglue for the cast metal, and read the detailed assembly instructions for advice on gluing the transparencies.

If you are unhappy with any of the parts, send them back to us for free replacement.

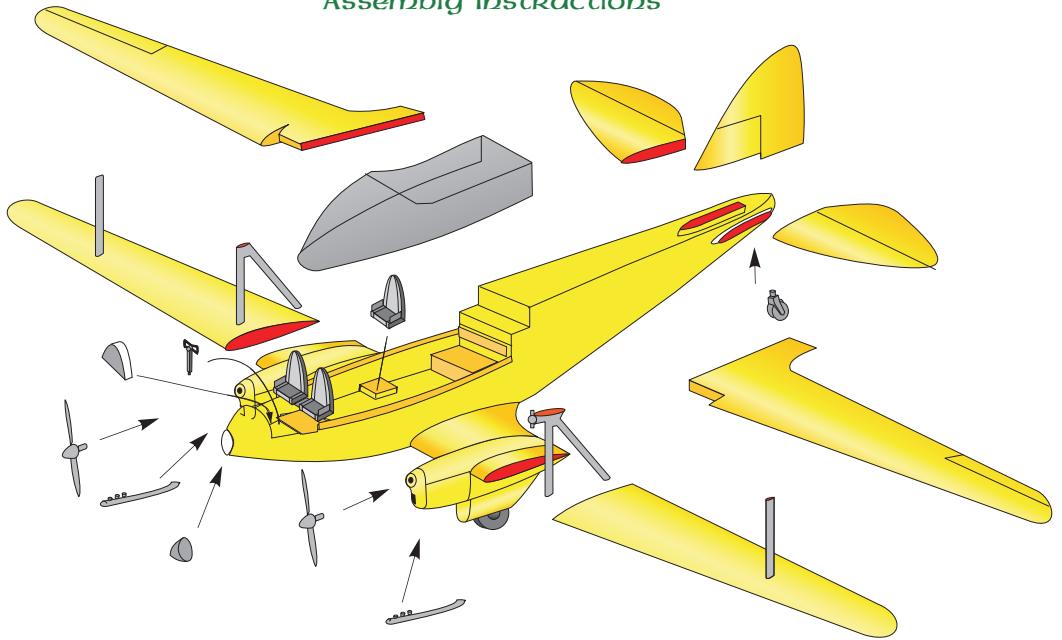
The decal sheet provided is intended to minimise the pain when finishing the aircraft. A unique feature of the decal sheet is the provision of the windscreen and window framing. These are in the base colour, and can be used for any Dragonfly with a silver or blue fuselage. Because the ink for some colours is not opaque, only the minimum area should be left transparent, for the decal to cover. If it is still translucent, touch in the affected areas with a fine paint brush.

Cut out each decal with a scalpel. There are complete decals for G-AEDT, VP-YAX of RANA and 6-3 of the Flygvapnet (Royal Swedish Air Force). There were some variations between individual aircraft, however, and we recommend that you check your own references to ensure the maximum accuracy for the variant of your choice.

PARTS LIST

RESIN	CAST METAL	OTHER
Fuselage	Tailwheel	Vacform canopy (2)
Fin	Propellers (2)	Landing light cover
Tailplane - left	Exhausts (2)	Decals
Tailplane - right	Control column	
Wing - left upper	Inner interplane strut/generator	
Wing - right upper	Inner interplane strut	
Wing - left lower	Outer interplane struts (2)	
Wing - right lower	Passenger seats (3)	

Assembly Instructions



1. Preparation

CAUTION: If parts are not degreased thoroughly, the paint might not dry thoroughly, when the model is painted.

- A Wash all of the resin parts in isopropanol (use warm warm, soapy water if isopropanol is not available) to degrease them, then remove the excess resin with a craft knife or razor saw
- B Sand the rough edge to a flat surface and use the lines that mark the border between the resin part and the 'flash'. A sanding block with medium wet-and-dry paper is ideal. As resin sands very easily be careful not to remove too much material!

Note: The vac-form canopy can be cut from its surround with a stout blade or un-serrated scissors.

2. Assembly

- A Glue the cabin seats in position. Add the pilot's seat and control wheel. There are some prominent internal struts shown on the drawing (not provided in kit), which you can make from stretched sprue and add if desired. There should be a bulkhead aft of the pilot's seat with cutouts for pilot access. Paint the interior to your choice. We regret that we have no data on interior colours. Paint the instrument panel base colour; DH aircraft were frequently black, silver or light grey. Apply the instrument panel decal.
- B Trim the canopy so that it fits precisely against the ledges provided. Do not trim the top. We recommend that you attach the canopy with 5 minute epoxy because the canopy will take a lot of abuse. White glue (PVA) is not strong enough and superglue will cloud it.
- C Use a pointed object (such as a piece of stretched sprue) to put a bead of 5 minute epoxy around the front and rear bulkhead and on the sills. Watch out for 'stringing' of the adhesive.
- D Glue the canopy in position, Make sure that you have good continuity of the fuselage lines when you do this.

Step 3 Carefully fill the joint around the transparency/resin intersection with Milliput. Work it into the joint with a wet finger. Make sure that you remove the Milliput from areas which will be windows. This is easily done when the Milliput is still uncured. When the Milliput is dry, lightly sand, if necessary. When sanding the joints, make sure that you do not scratch the areas of canopy that will form the windows; you cannot polish vacform canopies. Note that the window decals will cover part of the joint.

Step 4 At this stage, we recommend spraying the model with a mid-grey acrylic paint to show up any imperfections in the filler. Spray the whole model, transparency included. This paint can be removed later by using Isopropanol.

Step 5 Glue together the two upper wings, and trim the underside at the centre-section where the wings will join onto the top of the clear transparency. Ensure that there is a goods flush joint; this will minimise any filling.

Step 6 Due to a slight error that crept in (due to basing the model initially on a less accurate drawing), the locations of the outer interplane struts on the upper wings are slightly too far outboard. If desired, fill in these holes and make some new ones about 2mm further inboard. Glue lower wing outer panels to centre-section, ensuring that dihedral and sweepback are correct. Do this by placing the model over the drawing, then check 'by eye'. The sweepback of the upper and lower wings must be the same, and if any one wing is slightly out of alignment, it looks very obvious on the finished model.

Step 7 Glue the upper wing into position.

Step 8 Fill the joints between the components with Milliput, and sand to shape. Ensure that the filled surfaces are really to your satisfaction, because the expanse of silver will show up every imperfection in the surface. We found that the joint between the top part of the canopy and the front of the upper wing centre-section required filling. Again, check this with matt grey paint.

Step 9 Glue tailplane halves and fin to rear fuselage. It may be necessary to build up the tailplane roots slightly to match the tailplane root chord.

Step 10 Add the interplane struts; the outer struts are supplied slightly over-length, and will need slight trimming. These have a fattened profile which should be on the bottom of the strut. The inner struts are of the correct length. Check whether the example you are modelling had the strut-mounted generator. If not, remove it from the part provided. Fill the strut-to-wing joints as necessary.

Step 11 After rectifying any deficient areas, remove any remaining matt acrylic paint and apply the chosen paint scheme. Mask the transparencies. The canopy can be masked entirely and the canopy frames provided on the decal sheet can be used after the masking is removed. The decal window frames provided overlap the fuselage sides, so precise masking is not necessary. Varnish the transparency first as decals do not stick to unpainted plastic. The decals are varnished gloss, because of the civil nature of the aircraft and because the transparency decals must be gloss. Ensure that the paint colour you are using matches the colour of the window frame decals.

Spray and decorate model, add propellers, tailwheel and exhausts. The propellers were cream with polished metal spinners. Use drops of Kristal Kleer to represent navigation lights (if fitted). Paint the nose landing light bay silver, or add an MV lens/aluminium foil, then trim the landing light cover and glue into position. Rig the model using the drawing for reference. We suggest stretched sprue attached with white glue. Note that the wire attachments at the outer strut attach to the wing ahead of the strut.

Finishing and Decorating the Model

Finishing and Decorating

Follow the colour scheme information provided. When applying the decals, please note that they are very thin and will fold back on themselves given any chance at all. We have found it was best to wet the decal and place it (still on its backing paper) next to the area where it will go, then ease it into place with a paintbrush. If it folds, you can always move it back onto the paper, place in water and sort it out with a paintbrush while it is under water. We recommend extreme care! Always keep the decals very wet until they are in position. Although the decals are finished gloss, We do not recommend trimming the insides of the letters; they become too difficult to handle when wet. The decals tone in quite well with a silver finish.

Colour Schemes

Markings were gloss or satin, not matt, and registration letters were applied across the top and bottom of both wings, outboard of the engines: 'G-A', 'XYZ', such that they could be read from behind. Under the wings, 'G-' was outboard, 'A' and 'X' inboard of the engines and 'YZ' outboard.

G-AEDT Medium Blue: fuselage, extending partly up fin; engine cowlings and undercarriage fairings

Silver: wings, tailplanes, fin

White: fuselage trim stripe (decal)

VP-YAX Medium Blue: lower fuselage, engine cowlings and undercarriage fairings

Silver: fuselage top, wings, tailplanes, fin

The words 'Rhodesia and Nyasaland Airways' were carried below the cockpit side windows left and right (decal).

6-3 Flygvapnet Overall silver with markings according to drawing.

The manufacturers reserve the right to alter parts; add to, or delete parts without prior notification in the interests of quality control or product improvement.

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