

UPGRADE DH.89 RAPIDE

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HISTORY

The Rapide had its genesis in three earlier classic de Havilland designs — the DH.83 Fox Moth, the DH.84 Dragon and the DH.86 Dragon Express. The desire for a larger, twin-engined version of the five-seater Fox Moth, expressed by Hillman Airways, prompted de Havilland to produce the DH.84 Dragon in late 1932. The following year an Australian requirement for a fast ten-seater for the Singapore-Brisbane section of an England-to-Australia service saw the development of the four-engined DH.86 Dragon Express (also called the Express Air Liner) which incorporated many scaled-up features of the DH.84. The DH.84 had been an immediate success, but pressure from Dragon operators for a faster and more comfortable replacement resulted in the DH.89 Dragon Six, a scaled-down version of the DH.86, later to be renamed the Rapide. The prototype, powered by two 200 hp DH Gipsy Six engines, made its first flight from Hatfield on 17 April 1934. As with the DH.84, the first customer was Hillman Airways, and tragically the first fatal crash of a Rapide occurred within three months of delivery.

The Rapide quickly built up a good reputation on the export market, with nearly half of the first 100 built going to overseas customers, mainly to Canada and to Middle East oil exploration firms, including the Anglo-Iranian Oil Co. British modifications included split trailing-edge underwing flaps and optional metal propellers. Within two years a number of Rapides had gone to military customers, including Iran, China and Spain. During the Spanish Civil War a number of Dragons and Rapides ended up on both sides of the conflict (kit UG2004 will feature these markings). The vast majority of the 728 aircraft built (production ending in 1945) were operated by the RAF and Royal Navy during WWII as W/T trainers, air ambulances, navigation training and ferry pilot transportation.

The air arms of a number of other countries flew the Rapide, including Holland, Belgium, Portugal, South Africa, Rhodesia, Kenya, France, Israel, Finland and India. The Royal Navy's last Dominies left service in 1963.

The Australian and New Zealand Air Forces operated a number of impressed civil Rapides as well as new ones shipped from England (7 RAAF and 14 RNZAF). The Australians used theirs as transports and trainers within Australia, while the New Zealand Rapides were used for a wide variety of tasks.

While the Rapide saw pre-war service with a number of airforces, it was used in far greater numbers by a wide variety of civil/airline operators in the UK and as far away as Australia and New Zealand. A special Rapide was built for the NZ Centenary Air Race Committee for entry in the 1934 McRobertson Air Race between London and Melbourne. Local operating conditions in Canada and Scandinavia saw the fitting of skis and floats. Most of these were impressed into military service during WWII.

The end of the war resulted in hundreds of Rapides being released on to the civil market. These formed the nucleus of numerous airlines. KLM (Royal Dutch Airlines) were amongst the first of these in Schiphol late in 1945.

The most colourful Rapide scheme of all was that used by the Automobile Association between 1957 and 1963.

POSSIBLE FUTURE RAPIDE BOXINGS?

The success of the first UPGRADE Rapide release (kit UG2001), along with the very positive response from modellers worldwide, has resulted in the production of this civil boxing. Only 1200 of this boxing will be produced, so it is a strictly limited edition. If this release is commercially successful, at least one further civil boxing will be released in 1993. The King's Flight (G-ADDD), BEA and Canadian Airways (with white-metal skis included) are the leading decal options under considerations. Information on the colour schemes and markings for the Swissair and ANA (Australian National Airways) Rapides is sought—can anybody help?

SERIES INTRODUCTION

Many of you will be aware of the new series recently started by Premiere Models and Tasman Models that will re-introduce a number of old Frog kits in an improved format—new box, decals, instructions, vac-formed clear parts and white-metal accessories. This series has been the inspiration for UPGRADE—a series to be devoted to the re-issue of a wide variety of 1/72 and 1/48 aircraft kits from the ranges of a number of the world's major kit producers.

As can be seen from the contents of this kit, UPGRADE releases will not just be a simple re-boxing with new decals, but will be a strenuous effort aimed at providing the serious enthusiast modeller with many of the accessories needed to build each model to competition standard. The accessories supplied in each kit will vary depending on each kit's requirements. Standard with every kit will be a new box, a multi-option decal sheet, Falcon 'Clear-Vax' vac-formed clear parts, and an extensively illustrated instruction sheet. The Heller Rapide is an excellent kit, and requires little in the way of extras, but future releases will have a variety of metal/resin/photo-etched/injection-moulded parts to either replace existing kit parts or to add new detail. In many cases these parts will allow the modeller to build a different version of the base kit—as minor as a different canopy or as major as a completely new fuselage.

A wide variety of subjects has been arranged for this series, and these will be announced in due course. As with most releases from Tasman Model Products, the major theme of the UPGRADE series will be aircraft types operated by the New Zealand, Australian, South African and Canadian air forces, and this will be reflected in the subject matter on each decal sheet.

ACKNOWLEDGMENTS

Tasman would like to express thanks to the following people, whose contributions have been invaluable in the production of this kit: Tony Pritchard (typesetting and decal artwork), Tore Martin (Falcon canopy), David Money (research) and Humbrol Ltd for

permission to re-issue this kit. I would also like to express special appreciation to the Sport and Vintage Aviation Society of Masterton, New Zealand, for allowing me to open up and crawl over their superbly restored NZNAC Rapide in order to take the detail photos for this instruction sheet.

We would also like to make particular mention of the many modellers from around the world who responded with suggestions for future decal options and supplied reference material.

CONSTRUCTION INFORMATION

It is indeed fortunate that Heller extended themselves when it came to producing this kit, as it is still the only injection-moulded Rapide available. Even if built straight from the box the end result is a very acceptable representation of this beautiful aircraft. The following information is intended as a guide for those modellers who wish to make this kit as accurate and well-detailed as possible.

Wings and tailplanes

Heller have represented the ribbing on the flying surfaces by very fine raised lines. To be fully accurate there should be a gentle scalloping effect (photos 25 & 34), as all flying surfaces were fabric-covered over wooden spars. This, however, would be a major exercise and only the most fastidious should attempt it. The best way of reproducing this ribbing is to score 5-thou plasticard with a fine ballpoint pen, using the plans for spacing. The tailplanes don't have this scalloping effect but instead have 2-inch-wide tapes over the spar lines (cut thin decal film into 1/32"-wide strips). The rear upper portion of the engine nacelles (moulded in the bottom wing—see photos 11 & 14) need added fuel and oil filler cap detail. Note the large, uneven gap along the trailing edge of the nacelle (photo 14). On the top side of the lower-wing ailerons (photo 6) add three small bumps, which are rivets holding the aileron actuator (photo 21). These can be various sizes of rivets grafted from another kit. The moulded raised line representing the actuator should be removed, a shallow trench inserted and then a new actuator fabricated—note that you can see through it in the middle. The same applies to the outer upper-wing actuators (photo 25). Add a tie-down ring just forward of it. A close scrutiny of all available photos shows only one style of raised wing walk (photo 41), which is much smaller than the one moulded on the Heller wing. Sand off the Heller wing walk and make a new 9 cm x 5 cm one from thin plasticard. Photos 13 & 41 show the shape and position relative to the spar caps and cabin door. The outboard interplane struts are slightly too long and should be trimmed so that the upper and lower outboard wings are parallel. A venturi tube (photo 31) and air generator (photo 17; note that the AA Rapide did not carry this) will need to be scratchbuilt along with upper-wing leading-edge lights and a pitot tube on the outer right interplane strut. The raised lines on the inboard wing sections visible in photos 20, 25, 41 & 42 are spar caps, and there is no scalloping in these areas. These are only on the lower wing. On the upper surface there are two spar caps on either side of the engine/undercarriage nacelle, and they stop just short of the leading and trailing edges. On the underside of the lower wing there are two inboard of the nacelle and one outboard—these are shown as heavier lines on the drawings. Sand the corresponding lines off the kit and replace with either strips of 5-thou plasticard (cut as narrow as possible) or very fine stretched sprue (after the glue has fully dried, lightly sand them flat).

Engine and undercarriage nacelles

Start with the front engine covers. The main intake is the wrong shape, but is simply corrected by applying some putty to the inside lip and reshaping, using photo 30 as a guide. Drill the two extra holes to the left of the intake. The front of the engine is visible through these intakes, so unless you intend to scratch-build the engines (photos are supplied for anyone intending to do this) make a front cylinder and vertical pipe as shown in photo 30. All the panel lines will have to be sanded off and rescribed (note how relatively prominent the hatch and panel lines are). Heller have scribed the separation line much too heavily between the front and rear of parts 4 & 6 and 5 & 7—fill this in and rescribe a line with the same degree of prominence as the other lines. The raised scoop shown on both sides of these parts should be removed and replaced; the forward one should be lengthened by 75%. The trailing edge of the undercarriage nacelle (photos 14 & 35) has a noticeable lip on it. This can be simulated by running a length of stretched sprue down the edge and smoothing it in with a touch of putty. Drill out the drainage port (photo 35) and add the end of a pipe inside it. Note the slightly indented circular hatch just forward of it, more visible in photo 26.

The shape of each propeller blade is a little too wide at its widest point—sand the bulge down a little, referring to photo 24. The propeller hub should be slightly lengthened and rounded to an even curve. Alternatively, if you have a Frog/Novo Magister or Gipsy Moth propeller assembly in your spares boxes, then these can be substituted. The exhaust pipe, shown in photos 8, 14, & 33, is the long version that many civil machines carried but was not common on military ones. Research has shown that only the AA machine covered in this kit had the longer type. For the other three machines, modify the kit exhaust by replacing the outlet end with hollow stretched sprue, widened at the end. Do the same for the longer pipe but add the extra length, which should be faired into the side of the nacelle (photo 18). Before attaching the exhaust you may want to cut out the channel on the kit part that they attach to. If you do this, then lengthen the four feeder pipes so that they enter into the nacelle.

Fuselage and cabin/cockpit interior

Starting from the front again—paint the back of the nose landing light with silver for best effect. For those wanting to do a fully detailed cockpit or just simply have the clearest possible canopy, a Falcon Clear-Vax vac-formed canopy is supplied. This may be your

first time tackling a vac-formed canopy, but so long as you take it slowly, and follow these instructions, you will find it surprisingly easy to use. The first priority is to have a new blade in your scalpel or modelling knife. Note that there is a clearly defined border around the edge of the canopy. Lay the tip of the knife blade where the edge of the canopy meets the border, at a 45-degree angle, and gently score around the edge, using the minimum of pressure to start with. This will just break the surface of the acetate but will provide a channel for further scribing. Score around the edge a second time, increasing the pressure slightly. Usually 4 or 5 times round the edge is all that is needed to release the canopy from the backing sheet. The edge may be a little rough, so use a medium or fine grade of wet-and-dry to sand it smooth. Please note carefully that if you scuff the surface of this acetate that you can't polish it smooth, so if you have to do any sanding, do it with care. If you try to rush the cutting out then the blade is likely to slip and cut into the canopy, ruining it. Don't use any of the various superglues or liquid or tube cements to attach the canopy — use PVA/white glue. Superglue *can* be used (at your own risk) but if any of its fumes are trapped inside then they will permanently cloud the canopy. For those who want to go one step further, you can open up one, or both, side windows (photos 23 & 32 — the window above the 'T' in 'TUI'). It opens in an unusual way, inwards and down, hingeing at the front. The window sits on a narrow ledge (photo 40) on the cockpit wall. The kit's instrument panel is much too small, and a replacement one is provided in zinc (no lead content). The first thing necessary is to reduce the thickness of this panel (dictated by moulding limitations) by at least half. Superglue should be used to attach it. Using photos 3, 32, 37 & 40, detail the cockpit to the level you desire. Add an extra vertical rod to the control column. The contents of the main cabin would vary greatly from flight to flight, depending on what the aircraft was to be used for — stretchers, cargo, passenger ferrying, etc. Two different types of antennae are supplied in the kit, but neither were used by any of the aircraft on the decal sheet.

One of the more distinctive features of the Rapide is the window surrounds on the fuselage. They are, in reality, quite deceptive as they are not as prominent as some photos may suggest. As can be seen in photos 1, 13, 17 & 42, the window frames are no more than a third of an inch (8 mm) proud of the fuselage. In 1/72 scale this would be barely perceptible, but for those who want to add them to their model, the best and simplest way we have found is to lay a strip of very thin, adhesive-backed metal foil (the type used for skinning models) over the line of windows, allowing a millimetre of excess. Tap it down in place and then, using a sharp blade, cut out the inside of the windows (before gluing the clear windows in place) which gives you a reference to use when you tackle the tricky job of cutting the thin strip round each window. Unless you are really keen, however, we suggest you leave this part of the kit detailing alone. Add a door handle to the main cabin door (photo 13) and scribe a luggage/cargo hatch door on the starboard fuselage (photo 9 and sideview drawing), but note that the bottom and left edges have thin strips that lap on to the fuselage. Represent these with a very thin piece of 5 thou card or metal foil. Where the tailplane is attached to the tail, Heller have moulded circular and rectangular holes. The latter should be only half as wide (photo 38). Add a mass balance to the fin leading edge (photo 15). Most of the belly of the Rapide can be opened up for inspection or repair. During the war the fabric panels were held in place by stitching (ZK-AKY is a little more up to date, as it has metal zips instead). Add circular plates over the junctions (5 thou card), as shown on drawings. A simple way of including this stitching is to mask off a 1-mm strip where the stitching is indicated and, using a scribing point, zig-zag it evenly along the strip. Peel the masking off and you should have a very realistic effect. The fabric/rib effect mentioned earlier also applies to the top and bottom of the fuselage (photos 25, 27 & 42), and the same method of scoring and skinning can be used. A circular hatch (photo 39 and drawings) should be scribed on top of the fuselage. If the main cabin door is to be modelled open (photo 20) then ceiling ribs should be added (photo 5), as well as a first-aid box on the rear of the cockpit bulkhead (photo 12).

Rigging

The kit includes a length of 10x0.1 mm silver-plated copper wire. This method is by far the easiest way of rigging a biplane; it takes a little patience but can be mastered very quickly, and the result is most realistic.

You will need only a clear plastic ruler, a good pair of dividers, a sharp modelling knife, a couple of pairs of fine tweezers and a little PVA glue.

1. Strip a short length of plastic insulation from the wire and use the tweezers to pull out one of the strands of wire. The first will be hard to get out but subsequent ones get easier.
2. Cut off a piece of wire rather longer than needed and place on a flat, hard surface. Place the ruler on the wire (lengthwise) and gently roll it backwards and forwards under the ruler (that's why the ruler needs to be transparent). This gets the wire perfectly straight.
3. Using the dividers, measure the exact length of a wire position from the assembled model. Start with an inner wire and work outwards.
4. Cut the wire to length.
5. Pick up the wire very carefully with one pair of tweezers and lightly touch the ends into PVA glue so that there is a tiny blob on each end. Alternatively, use a fine paint brush to put a drop at each wire end location on the model.
6. Place the wire in position very carefully. The second pair of tweezers can be used to help guide the wire to the right spot, but with a little practice this isn't necessary. The really important thing is not to bend the wire, even slightly. A bent wire can, however, be removed and rolled straight for re-use. Double wires require a little extra care as they need to be completely parallel as well as in the right place.
7. Control wires that are run externally are done by the same process as rigging.

THE COLOUR SCHEMES

Automobile Association G-AHKV: Overall scheme is gloss black and yellow. All upper surfaces (wings/fuselage/tailplanes/engine nacelle) are black, along with the bottom of the undercarriage fairings, the fuselage belly and the interplane struts (refer to the drawings for the exact areas). Note that the black area fractionally overlaps the fuselage side, top and bottom, by 0.5 mm. Cockpit canopy frames, fuselage window frames and prop spinners are yellow. The colour of the circular hatch on the roof is not known; our guess is either silver or white, but it could be yellow. A white underlay decal has been provided for the AA badges and G-AHKV on the upper wings to minimise see-through effect of the black

surface. Allow these to dry overnight before applying the yellow decals on top. Care should be taken when applying the fuselage and nacelle striping—slide a small part of the decal off the backing paper then, while holding that part in position, pull the backing paper away slowly. A mistake in the decal printing has resulted in the omission of the black underwing G-AHKV decal. This will be corrected in the next print run (and may in fact be included with this kit), but appropriate civil lettering can be found on an Aeroclub sheet. All UPGRADE outlets will be supplied with the missing decal (if purchased by mail order, send the outlet a stamped self-addressed envelope).

Delete the rear window on both sides of the fuselage. The AA Rapide is the only aircraft in this kit that uses the new injection-moulded engine nacelle fronts and larger DF antenna.

KLM: A really simple scheme—doped aluminium overall, with bare metal prop spinners.

Anglo-Iranian Oil Co.: Also very simple—bright red overall except for the upper and lower surfaces of wings and tailplanes. Prop spinners, canopy frames and window frames are natural metal.

ZK-ACO "Tainui": The fuselage is orange; the wings, tailplanes, fin and rudder are all doped aluminium. The engine nacelles and interplane struts are dark green, and the canopy frames, window frames and prop spinners are natural metal. A number of modifications were made to this aircraft, including the deletion of the second and third fuselage windows on both sides and the addition of a sliding window on the port side (used for wind-drift measurements). After the 1934 race the race number '60' was deleted and a thin orange stripe was added to the engine nacelles. There was no light in the tip of the nose.


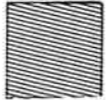

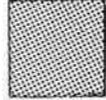
REFERENCE SOURCES

Until recently, the Rapide has received relatively little coverage in magazines and publications, but this is now changing. The following list is of all known references: Profile Publications No.144; De Havilland DH.89 Dragon Rapide Aircraft Illustrated Special 1986, by Ian Allan (best Rapide reference source); De Havilland, The Golden Years 1919-1939, a Flight International Special, 1981; Illustrated Encyclopedia of Aircraft, Part 205, Orbis Publishing 1985; Scale Models, October 1980 (excellent article, including reviews of all Rapide kits); Radio Controlled Scale Aircraft magazine, Aug/Sept 1990 (excellent overall article); Scale Aircraft Modelling, May 1981 (side-view drawings of 6 UK Civil Rapides); Aeromodeller, Aug 1957 (plans and detail photos); Scale Models, Oct 1984, (colour profiles of RAF, RN, USAAF & civil); Aircraft Illustrated Aug 81 (excellent overall article); Aeroplane Monthly, Jan 1985 (article on DH.84/86/89); Aviation News vol.9 no.22 (1/72 plans); Journal of the Aviation Historical Society of New Zealand vol.33(3), Dec 1990 (PO Box 12-009, Wellington, NZ; article on ZK-ACO); Scale Aircraft Modelling Dec 1991 (excellent feature article); Wingspan magazine 78, Aug 1991 (major Rapide feature).

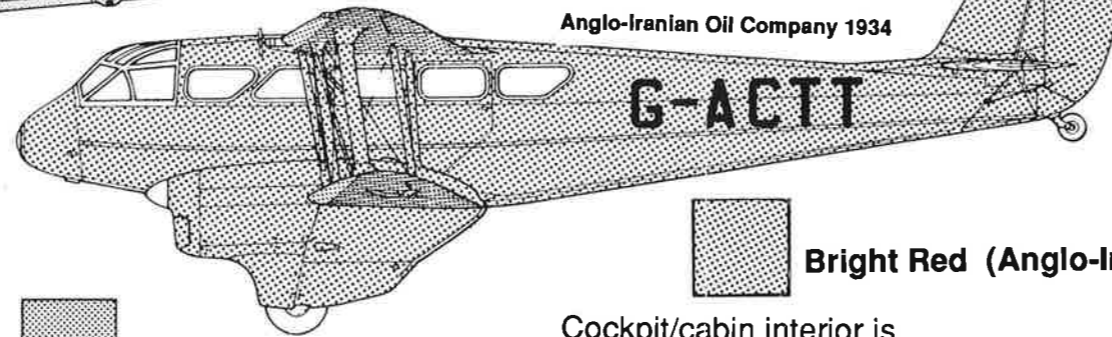
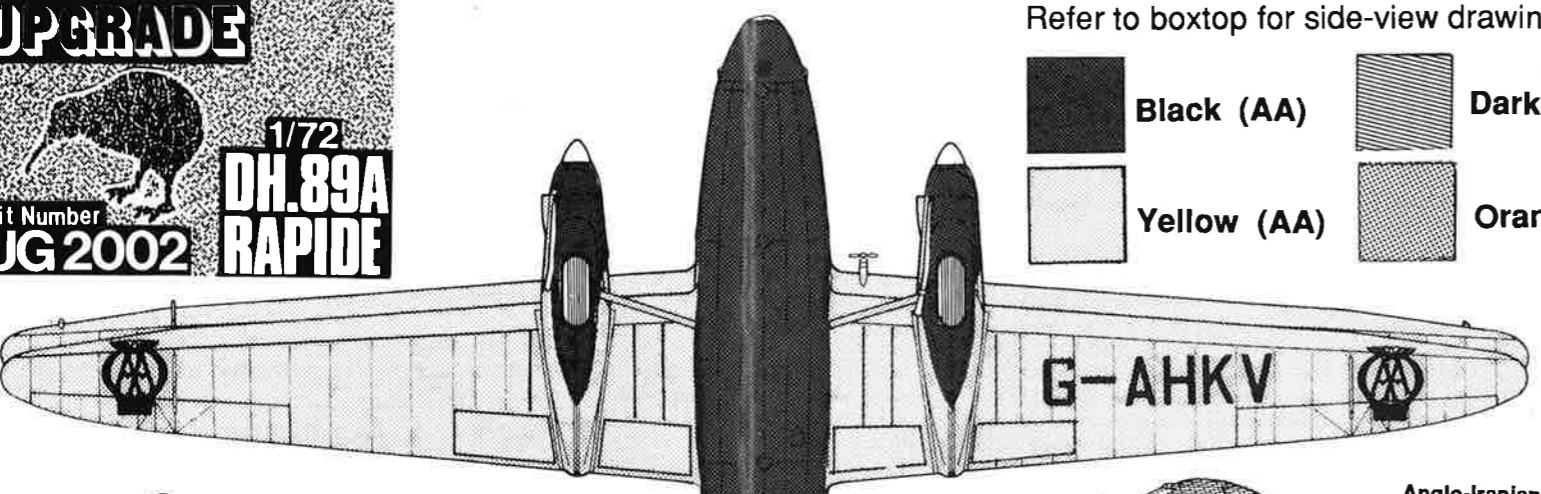
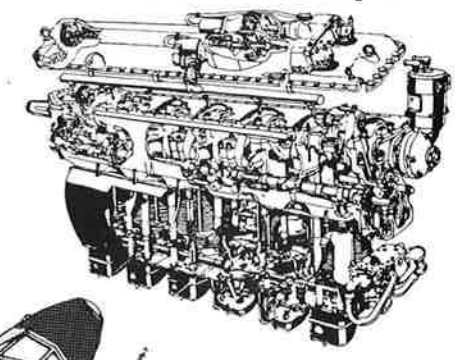
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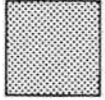
1. Upper wing/fuselage and side window detail. Note the curved joint where wing meets fuselage.
2. Right side of port engine. Engine cover is black and engine block is a blue-grey.
3. Lefthand bottom of cockpit.
4. Top of starboard engine block, rear engine bulkhead and engine cover detail.
5. Cabin interior. Note size and position of ceiling spars.
6. Port lower-wing aileron. Note actuator attachment 'bumps', and fabric cover over the front of the aileron.
7. Starboard engine from rear. Note rigging.
8. Right side of starboard engine block and exhaust pipes.
9. Cargo/luggage door detail on starboard fuselage. Note door frame overlaps all the edges except the vertical hinge line.
10. Rear of port engine. Note air scoop detail.
11. Top of starboard nacelle. Note fuel filler cap detail (the cap is brass).
12. Rear of cockpit bulkhead. Note first-aid box, fabric ribbing on bulkhead and step into cockpit.
13. Main cabin door.
14. Rear of starboard engine/undercarriage nacelle. Note oil cap detail, ill-fitting panels and exhaust outlet.
15. Tail/rudder detail. Note tail-light, which must be added to model.
16. Underside of nose. Note circular raised plates over where the zip junctions, circular panel where there is normally a raised navigation light (refer drawings).
17. Port wing root. Note air generator detailing.
18. End of exhaust pipe. Note how it is faired into the nacelle.
19. Top of starboard engine block.
20. Interior of cabin door. Note wing-spar cap, raised lines on wing, and pattern on door.
21. Aileron actuator (opposite side of photo 6) and tie-down ring detail.
22. Tailplane aileron detail. Note how the hinge line is fabric-covered except for the hinges.
23. Forward nose area general detail.
24. Propeller blade and spinner detail. Note intake on nacelle side.
25. Port wing surface detail. Note scalloping effect on both wings and fuselage top, top-wing aileron actuator, and the prominent wing-spar caps inboard on lower wing.
26. Exterior detail of port engine/undercarriage nacelle.
27. A continuation of photo 16 — note the raised circular panels going down centreline of belly, and raised panel to the left of the navigation light (24-volt socket port — see drawing for size and location).
28. Wing struts and rigging detail. Note parallel rigging spanwise and single rigging chordwise.
29. Undercarriage wheel. Wheelhub detail is non-standard.
30. Front engine cover. Note how much of the engine is visible and shape of the two small inlets. This photo should also be used to reshape the main intake.
31. Venturi tube detail.
32. Left side of cockpit showing electrical panel, trim wheel, throttle/mixture levers and wall framing (and the obligatory sheep-skin seat cover found in most Kiwi aircraft). Note the bracket for holding the side window when open. A very basic cockpit!
33. Another view of the right side of the engine.
34. Another view showing strut and rigging detail.
35. Lefthand rear bottom of undercarriage nacelle showing outlet pipe, access panel for the fuel drain (raised panel) and indented circular panel beneath it.
36. Tailwheel and bottom of rudder area. Note rudder actuating arm that must be added to model.
37. Instrument panel and control column. Whole panel is black, as are the control column handles. The compass, inset into the bottom left of the instrument panel, is grey and the enclosure is white; the rest of the control column is aluminium. The instrument panel fits flush with the front of the canopy. Rudder pedals are aluminium.
38. Rear fuselage detail. Note control wires attached to rudder, and tailplane rigging.
39. Cabin ceiling showing spars and circular roof hatch.
40. Right side of cockpit and cockpit entrance. Note red fuel on/off switch and aluminium seat lever.
41. Wingwalk on left wingroot trailing edge.
42. Overall shot of rear fuselage.

Refer to boxtop for side-view drawings of AA, KLM and Tainui schemes.

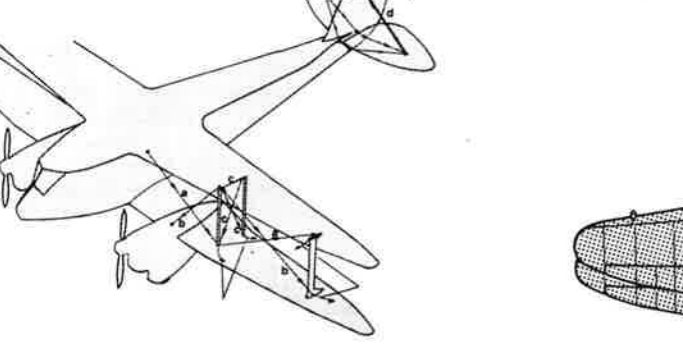
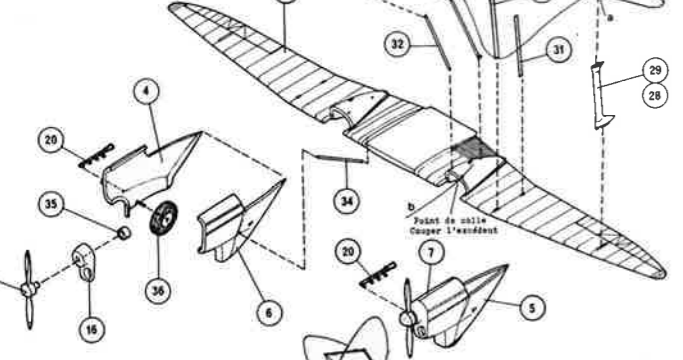
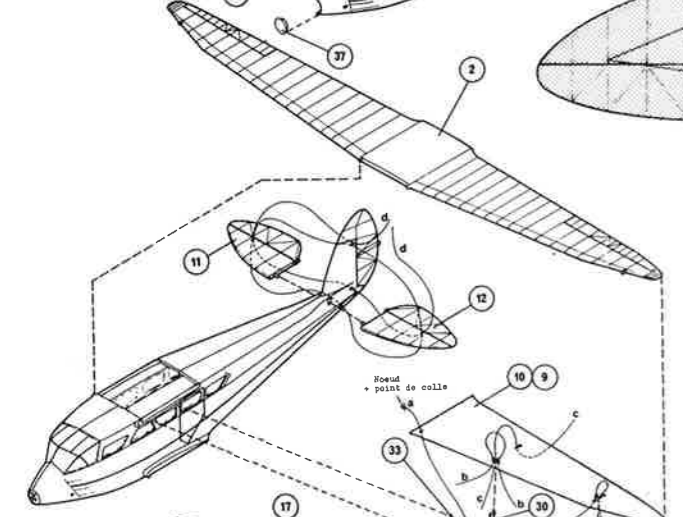
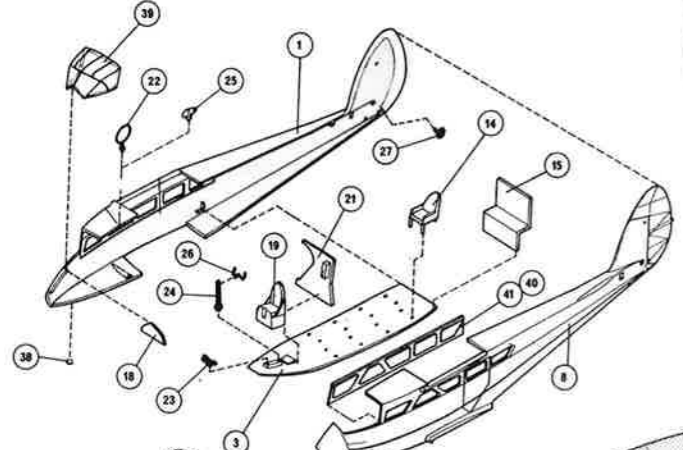
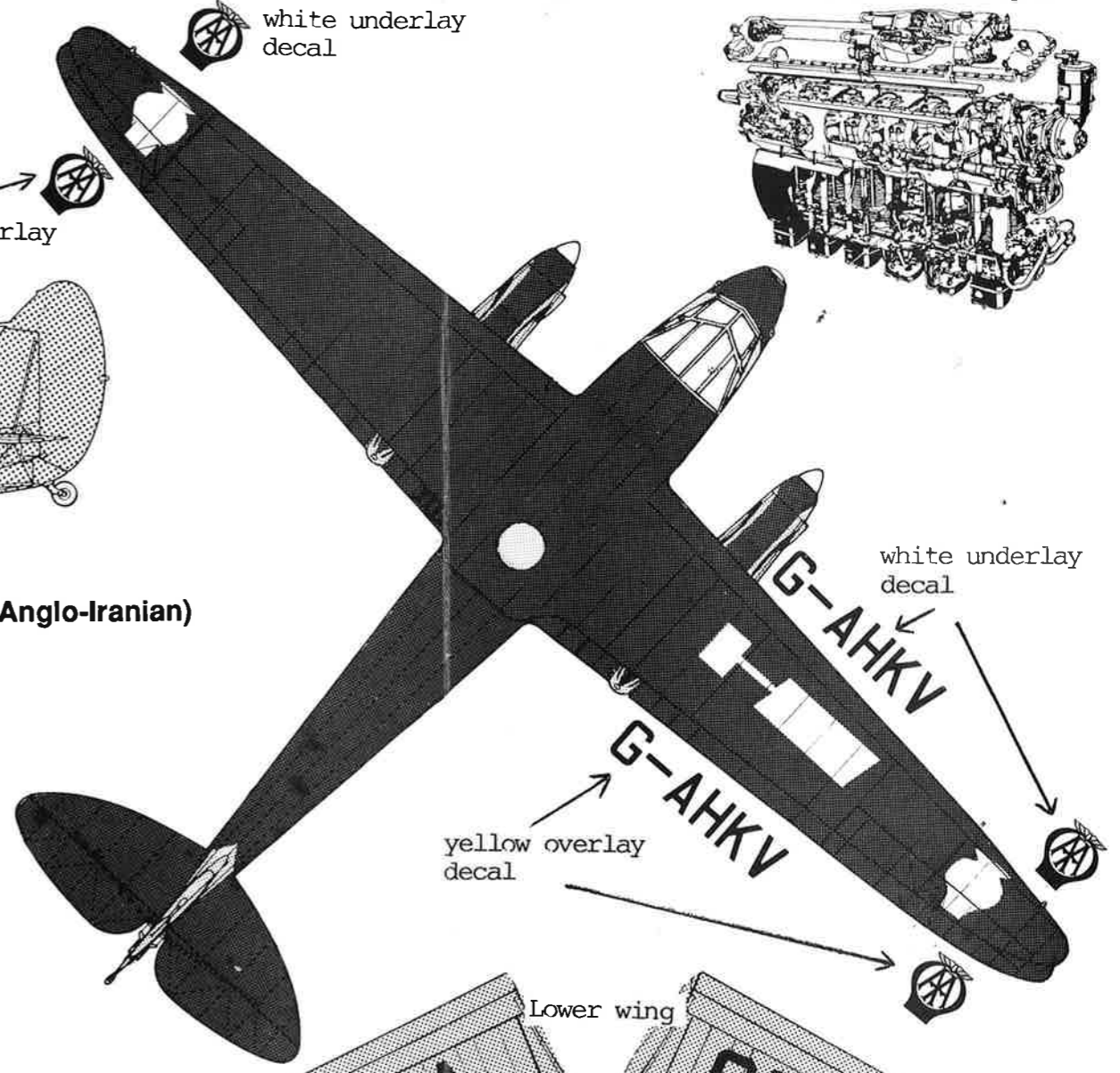
	Black (AA)		Dark Green (Tainui)
	Yellow (AA)		Orange (Tainui)

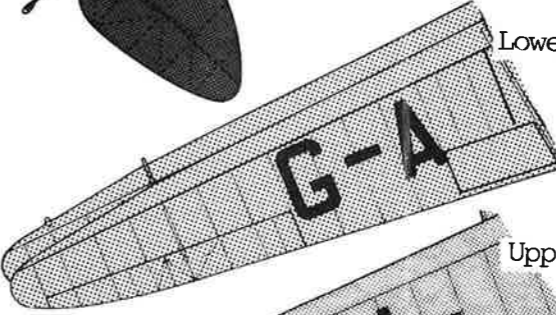
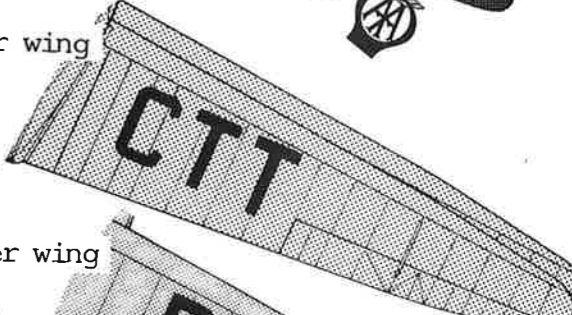
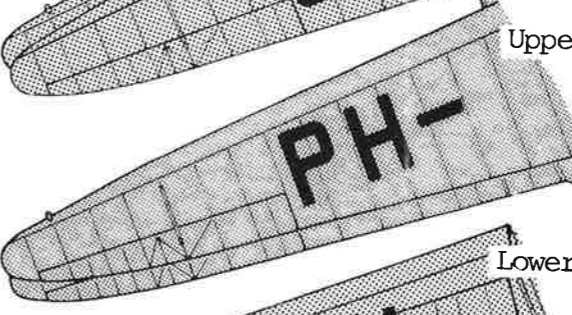
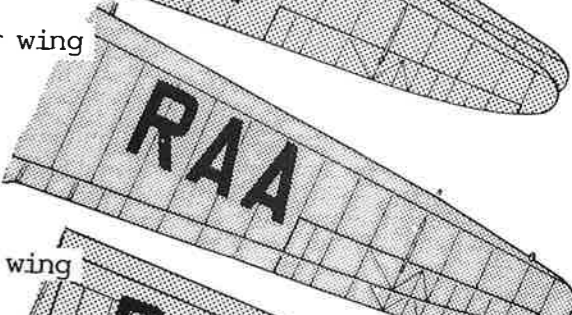
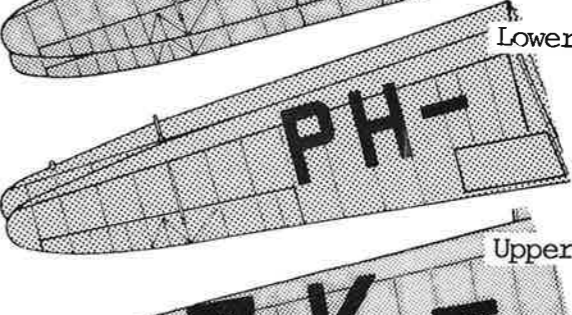

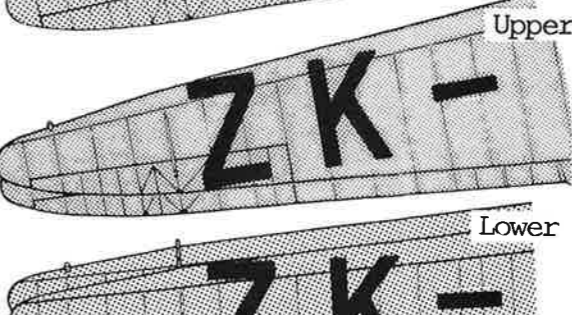
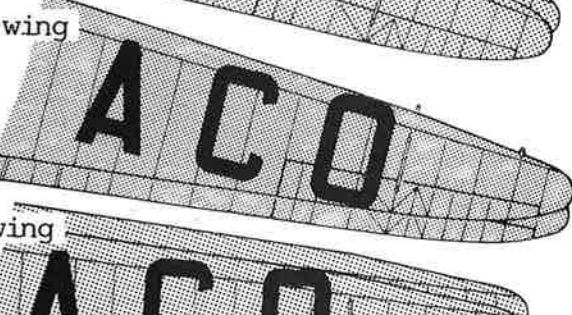


De Havilland Gipsy Queen III Aero Engine

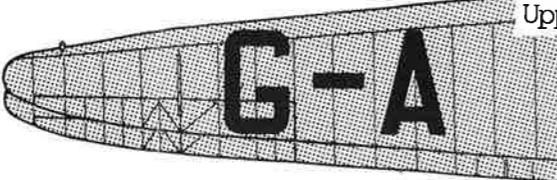
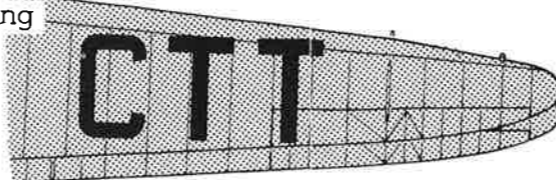


	Bright Red (Anglo-Iranian)
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Cockpit/cabin interior is Humbrol HD1 (Cockpit Green)



	
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