H.M.A. R100 - 1930

BRITISH INTERCONTINENTAL AIRSHIP

IN 1:700 OR 1:600 SCALE

R100 in brief...

(see www.airshipsonline.com/airships/r101
for much more information)

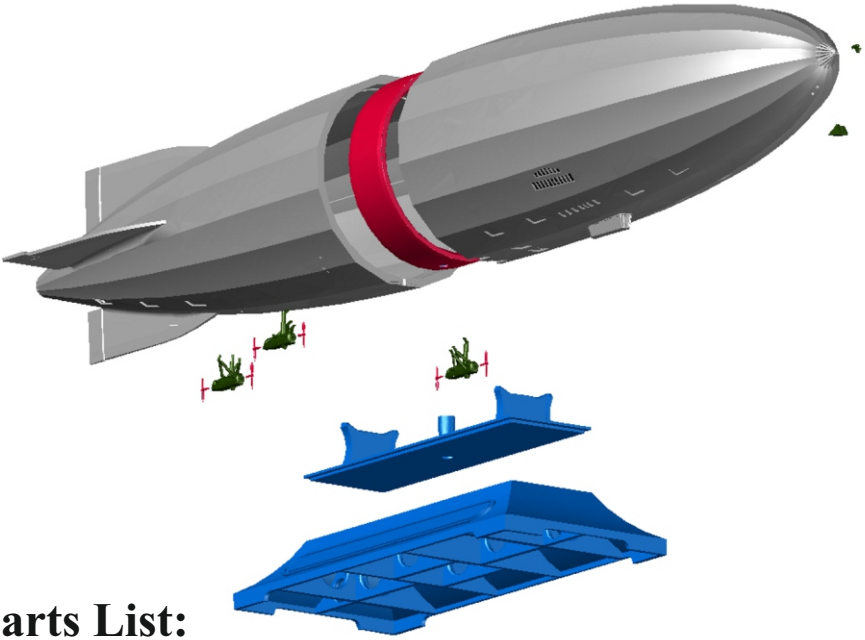
In 1924 the newly elected Labour government in Westminster, London launched it's "Imperial Airship Scheme." This was an ambitious plan to link the then enormous British Empire with an air service using a fleet of purpose built rigid airships, the first two being the **R100** and the R101.

The R101 was built at the public airship works at Cardington in Bedfordshire, England and was soon nicknamed the "Socialist Airship". Meanwhile **R100**, the "Capitalist Airship" was built as a private enterprise (with finance from Vickers) at Howden in Yorkshire. Setting up the two construction projects in competition with each other was a deliberate bid to encourage innovation in design and technical development.

His **M**ajesty's **A**irship **R100** was the simpler design of the two (but still had many groundbreaking features) and ultimately proved to have superior air handling qualities. On 16 December 1929 she was cautiously walked out of her shed by four hundred soldiers, trimmed and ready to make her maiden voyage. All went well and R100 was taken south to be moored at the new Airship Mast at Cardington where further test flights were completed. There was little that needed to be changed but one particularly prominent feature was that the original sharply pointed tail was replaced by a cleaner, rounded-off design after the former was found to suffer from severe aerodynamic stress. On 29 July 1930, **R100** left Cardington en route for St. Hubert Air Station, Montreal, where a mooring tower with refueling and gassing facilities had been provided by the Canadian Government. Although designed to carry 100 passengers in luxury, on this inaugural flight there were just 13 on board, plus a crew of 42. The airship reached Montreal on 1 August after surviving a violent thunderstorm as she was passing along the St Lawrence river. Whilst in Canada **R100** was visited by thousands of people and flew to Ottawa and Toronto and then over the Niagara Falls. She was back in England on 16 August, completing the return trip in 57 hours 56 minutes assisted by a tail wind. The outbound journey had taken 78 hours and 49 minutes. With this immensely successful trans-Atlantic voyage behind her, **R100** was put in her shed at Cardington and thoroughly overhauled in preparation for more intercontinental flights. Then came the R101 tragedy with its fatal crash on her inaugural flight to Karachi in October 1930 and the great promise of **R100** was never to be fulfilled...

Length (with new tail) = 695 feet
Diameter = 133.5 feet
Gas Volume = 5,156,000 cubic feet

R100 in 1:700 scale or 1:600 scale...



Parts List:

Envelope Front Half
Envelope Rear Half
Envelope Joining Sleeve
Set of Detail Parts*
Display Stand Base
Display Stand Lid
Decal Sheet

*Detail Parts:

The Engine Cars, Propellers, Nose Pin and Gangplank arrive still connected to their print supports which need to be carefully snipped away.

See the individual diagrams on the following pages for more detail.

NOTE that the print is actually all in ONE color

R100 in 1:600 or 1:700 scale

...preparing the Envelope parts.

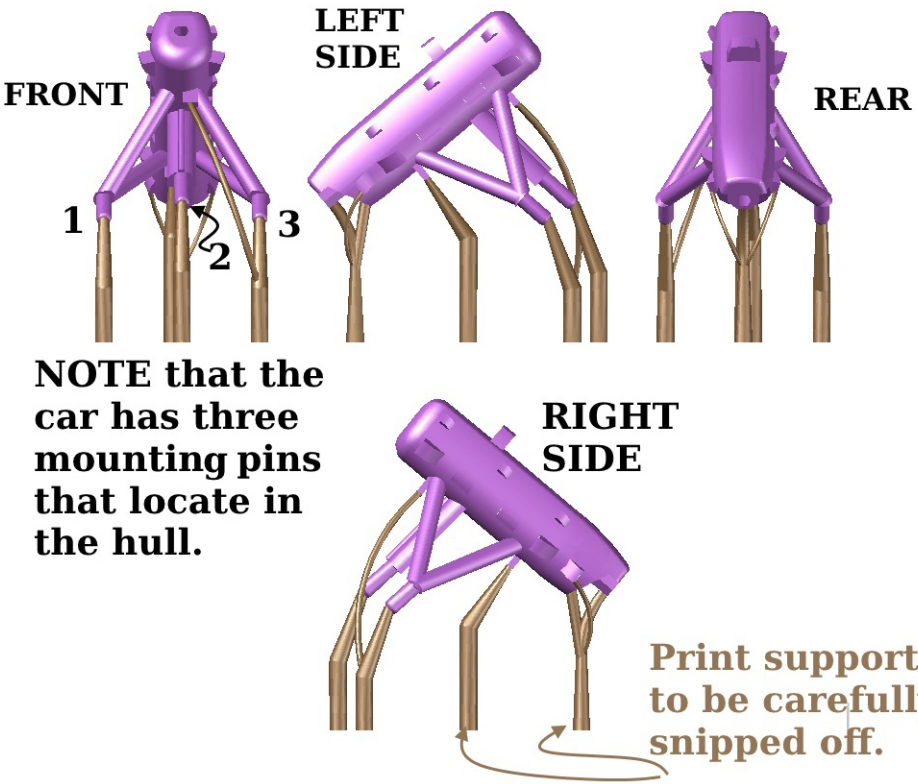
The Envelope parts arrive with the Print Supports removed however, they leave an imprint that should be removed.
Part A of the Construction Guide on page 9 gives details of how this is done.

Detail Parts trim diagrams...

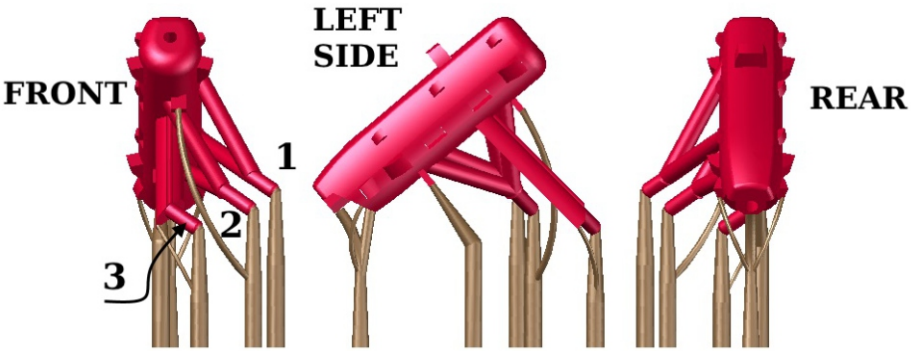
To keep these tiny parts safe they are supplied still attached to the print 'raft' and have to be carefully separated from it using sprue cutters or flush face snips.

STUDY the trim diagram for each part carefully ***before cutting*** to avoid losing any of the detail. Do not twist sprues off unless advised otherwise in the diagram.

R100 Rear Engine Car:



Forward engine Cars:



NOTE that each Engine Car has three mounting pins that

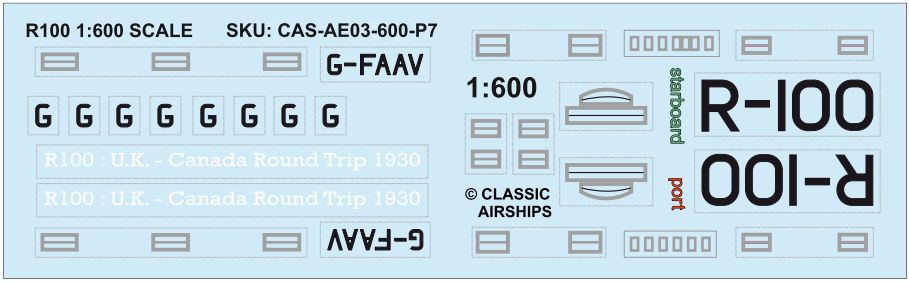
Propellers:
Fit the larger (17ft) props at the front of the Engine Cars, the smaller (15ft) to the rear. There is one spare of each size.

The Nose **Gangplank** is optional (fill holes if not required.)

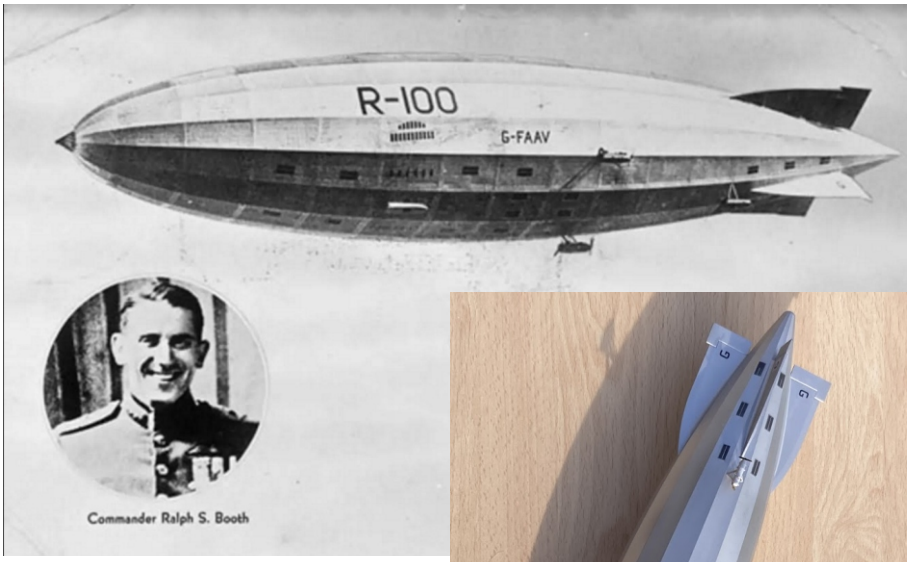
Carefully align the docking cone on the **Nose Pin** to hang vertically (inline with the passenger Gangplank holes.) There is one spare Nose Pin.

Waterslide Decals

Use sharp scissors to cut around each marking just within the dotted gray line.



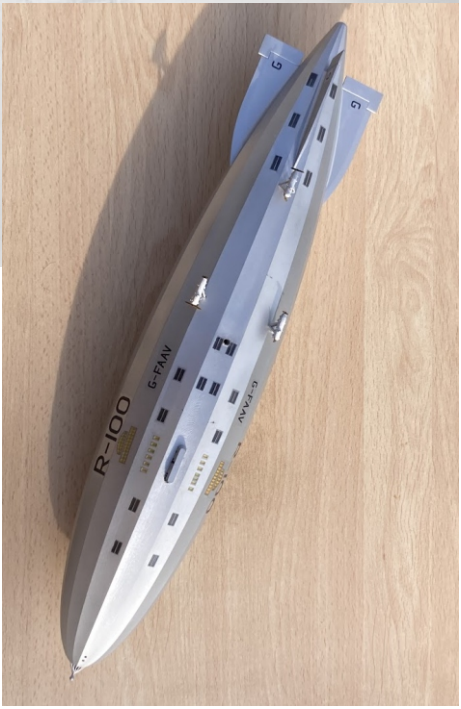
1:600 scale decals shown; 1:700 scale are similar.



Note that the "R100" port and starboard markings are different.

The country registation letter ‘G’ (United Kindom) on the horizontal tailplanes is positioned with the bottom of the ‘G’ toward the body of the airship.

The large vents along the bottom of the envelope were covered in mesh or netting. In this scale , the decal film is the best representation of this.



Applying Waterslide Decals

The ultimate success of a model depends very much on how nicely its' decals are applied. The keys to this success are first to have just a few essential tools to hand and second, to be ready to be patient.

TOOLS REQUIRED:

Sharp scissors.
Shallow dish or saucer.
Soft artists' brush, around size 5.
Pointed tweezers.
Decal softener (such as Revell "DECAL Soft" or Tamiya "MARKFIT STRONG")
Soft cloth or paper towel.
PLUS, for models with a lot of surface detail or irregular finishes, a fine needle and a sharp straight blade scalpel or craft knife.

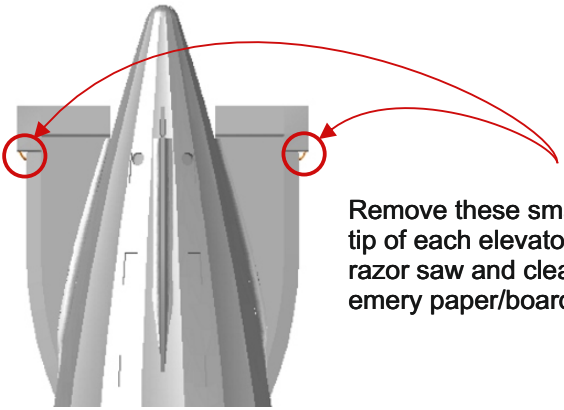
- Cut out the decals individually and only as they are needed.
- Part fill the dish with room temperature water and submerge the decal.
- Use the brush to wet the area where the decal is to be applied **with decal softener**.
- In just a few seconds the decal will start to lift from its' backing paper. Before it does, remove it from the water using the tweezers and offer it up to the model in position as close as possible to the one required.
- Hold the decal in position with the tip of a finger and gently pull the backing paper from underneath it using the tweezers.
- If there is still a lot of water around the decal 'wick ' some of it away with an edge of the paper towel.
- Using gentle strokes of the brush over its' surface, move the decal into it's final position - be patient, each stroke of the brush may move the decal only very slightly but movement will be there.
- Once in position carefully dab the decal with the paper towel to squeeze out any water still remaining beneath it. For larger decals use a squeegee action to smooth the decal from its' center outwards.
- If adhesion of the decal does not appear to be very good load the brush again with a little decal softener and paint it over the decal. Wait a few seconds and then dab it again with the towel and smooth the decal from the center out towards its edges.
- If the decal is covering small details or irregular surfaces, use the needle to pierce the decal film to release air from any hole; use the scalpel to cut small slits as necessary. Brush with a little softener and use the tissue to push the decal onto the surface.
- Do not be afraid to 'refloat' the decal on the model if you are unable to get it into position first time: load the brush with a little water and apply it around the edge of the decal. Tease the edge of the decal with the bristles of the brush and water will get under it again and 'lift' it off of the surface of the model; use the brush to push the decal into the correct position and then wick away the excess water with the paper towel, ready to start the fixing process again.

R100 CONSTRUCTION Guide and suggestions:

A Sanding the envelope

The Envelope halves arrive with the 3D print supports removed however, the joining faces need to be sanded smooth to ensure a good fit. This is easily done using a sheet of 240 grit emery paper held flat on a perfectly smooth surface (e.g. toughened glass table top, shelf, bathroom scales...) by scotch-taping it at the four corners. Hold the envelope half like an upside down cup and move in circles over the paper applying light pressure as evenly as possible. Turn it occasionally in your hand to help ensure a uniform effect over the sanded face.
Check the face to determine when all of the support marks have been erased. The whole exercise takes no more than a minute or two per envelope half.
The joining sleeve does NOT need this treatment. Blow away any debris from the two halves, particularly around the location key and check the sleeve for fit.

B Tailplane desprueing



Remove these small print supports at the tip of each elevator. Use flush cutters or a razor saw and clean up with swiss files or emery paper/board.

C Envelope assembly

Before assembling the Envelope ensure that the halves are completely clean of dust inside which might otherwise spill out and ruin a perfect paint finish later on. Use SuperGlue (cyanoacrylate adhesive) for assembly, preferably one that has some viscosity so that hairline gaps are filled. ‘Mitreapel’ is one such brand but do not use the accelerator supplied as recommended because even a hint of it on the joining surfaces will result in an immediate bond, removing any ‘wiggle room’ for getting the best possible fit. Even so, normal air drying is pretty rapid (the less glue the faster it is) so make sure to do a dry run first so that you are confident as to how things fit together. This particular glue has about the same hardness as the resin which makes sanding the join smooth straightforward.

D

Put the Envelope aside now to harden thoroughly while you tackle the Display Stand: Check around the bottom outside edge of the stand base for any print supports that might not have been properly removed and clean up with a craft knife or scalpel.

D cont. Display Stand assembly

The Display Stand Lid is supported in the 3D printer along the edge of one of its' long sides and also with a few supports on the same side of the three uprights.

Using the taped down sheet of 240 grit emery paper again, hold the **Lid** at right angles to it whilst applying even pressure along the long side to remove all traces of the print supports that might have been there. Check the uprights and clean them up as necessary.

Note that the tallest upright goes to the rear of the central pillar through which a screw can locate with the hole that is in the bottom of the envelope.

A screw is not supplied with the kit but it is a good idea to fit one so that the stand can be semi-permanently attached and provide protection for the Engine Cars and other details once they are in place. Without the stand attached it also serves as a very useful 'handle' for when the model is being painted.

The screw can be of any wood or self tapping type between 2.5mm and 3.5mm outside diameter and a minimum of 25mm long. The hole in the envelope is a nominal 2mm diameter - ream it out as necessary to match the outside diameter of your screw MINUS 0.5mm. Gently drive the screw into the Envelope allowing it to cut a thread. If the hole is not big enough or the screw is tightened too aggressively to begin with, there is a danger of the Envelope halves being forced apart around the hole, resulting in cracks that need to be filled and smoothed over.

Check the lid for fit on the base and be ready to hold it firmly in position after the SuperGlue has been applied. (Be careful of using tight elastic bands for this - they can cause local deformations of the lid that will be visible after the glue is set.

E Sanding the Envelope join

Check the Envelope join for gaps and fill as necessary. (The Mitreapel type of glue is good for this - using the accelerator this time!- because it is viscous enough to stay within the cracks and hardens quickly enough to be sanded almost immediately. Some acrylic based fillers do not sand particularly well and tend to be 'pulled' out of position by the sanding process.)

Sanding the join has to be done carefully, avoiding 'rounding off' or even removing the detail of the longitudinal girders of the airship. As a face is sanded check the impact on the adjoining two faces to see if the line of the girders has been altered. If so, sand these faces accordingly. Manicurist emery boards can be particularly useful for this job although they tend to be a bit coarse at around 180 grit. After using them improve the surface finish with 240 grit paper or finer.

Check the entire Envelope for print layer lines spoiling the surface finish in places and smooth them off using 240 grit paper . Layer lines can sometimes become more apparent after priming but they can be tackled again at that point. (See stage G.**)**

Decide now if the model is to have the passenger 'gangplank' in position under the nose or not. If not, fill and sand smooth the two holes provided for it. If yes glue it in position now.

F Trimming

Consult the Trim Diagrams on pages 5 and 6 and carefully remove the Engine Cars from the print raft. Remove one of the Propellers (there is one spare of each size) making sure that the connecting sprue is completely removed from the prop shaft. Use this to check that the holes in each Engine Car are clear and ream them out if necessary. Offer each Car up to its approprate position on the Envelope and check that the mounting pins fit properly in the holes provided. Clean the holes and pins as necessary.
Choose how each Engine Car will be held for painting - e.g.: 'helping hands', self-grip tweezers, cocktail sticks (prop shaft hole) loop of wire through the mounting struts, etc. - and set them safely aside.

G Priming

The choice of paint type is very much down to personal choice but I strongly recommend acrylics and can testify that Vallejo colors are an excellent option. Everything can be painted by hand however, spray painting, particularly using an airbrush if you are lucky enough to have one, has to be the best method.
Gather the Envelope, the Display Stand and the Detail parts including the Engine Cars together, ready for painting with a primer. The model shown in the photographs was primed with a few light coats of black polyurethane primer. (Vallejo 74.602)
The primer will show up unwanted layer lines that were missed earlier and they can be sanded away now and the surface reprimed. Leave the primer to cure for 12 hours before starting a top coat.

H Painting

The model illustrated was finished with two to four light coats of acryllic paint as follows (all ***before*** final assembly.)...

Envelope : Vallejo 'Metal Color' 77.706 White Aluminium
Engine Cars : Vallejo 'Metal Color' 77.707 Chrome
Display Stand : Vallejo 'Premium' 62.020 Black

The smaller details were hand painted: Propeller blades are wood/brown, the Nose Pin is steel gray and the Control Car windows have been picked out in black.
To represent incandescent electric lighting at night time on the passenger decks, the window recesses were painted light yellow. This is effective with the model in a display cabinet but you might prefer black.
The air vents along the bottom of the Envelope were picked out in black taking care to leave the central bars aluminium.
No attempt has been made to give the model a special paint finish or weathering because the model is to illustrate what any enthusiast can easily achieve without having to master advanced techniques.

I Decals

Apply all of the decals ***before*** fitting the Fine Detail items to the Envelope.
Study Page 7 **carefully**: it gives details of the decal sheet plus positioning notes and photos.
The Display Stand decals are simply centered within the panels provided on the base.
Page 8 gives advice on how to best apply decals.

J Engine Cars

With all of the decals applied and the display stand ready for use, the Engine Cars, Propellers, and Nose Pin can now be fitted. Do a dry run again to check that everything is a smooth fit.

Do NOT to use glue for fitting these item. Instead use thinned (normal airbrush consistency) paint of the same color used for the Envelope. Load a size 00000 brush with enough paint to twirl it around and coat the sides of each hole (don't let it spill out onto the outer surface of the Envelope.) If the hole is then covered over with a surface tension 'bubble', that is about right. Push the part home. If significant paint oozes out then you have overdone things a little - the ideal is for it to simply seal all of the gap between each mounting pin and its' location hole. Under normal household temperatures the paint will dry rapidly gripping the parts in place.

For the Nose Pin ensure that the docking cone is hanging down vertically and in line with the center line of the Gangplank.

With everything fitted, fit the Display Stand to the Envelope so that the completed model can be safely set down without risking damage to the Control Cars and their Propellers.

After allowing 24 hours for everything to dry and ensuring that the model is dust free, its' paint finish and decals can now be protected with a spray coating of good quality varnish.

K Finished!

MANY CONGRATULATIONS
on completing your superb model of the **R101**.

Dorek