

**P.P.AEROPARTS  
MODEL  
ACCESSORIES**



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GA703 RAF Oxygen Trolley  
GA704 RAF Nitrogen Trolley

These highly detailed kits of ubiquitous RAF ground equipment feature a number of finely cast white metal parts, and a fret of photo-etched components, all designed from measurements taken from examples of the real equipment at RAF Marham in 1985. Also included are water-slide transfers, wire and fully detailed and illustrated instructions. All you need to add will be some paint, glue and a couple of evenings time.

We hope that you enjoy assembling this kit and are sure that it will be a useful and realistic addition to your dioramas and model collections. If you have any comments regarding this kit, or suggestions for additions to our range, please do not hesitate to drop us a line. We have several other kits in preparation and these will be announced in the model press, so watch our adverts!

Whilst every care has been taken in the manufacture and packing of this kit, please check the parts supplied before assembly. Any broken parts should be returned to us for immediate replacement. A number of the smaller parts are duplicated to cover items lost or damaged during assembly, and additional parts are available at nominal charge should these be required; write for details.

A catalogue of the rest of our range of model aircraft accessories is available, price 40p, from your supplier or directly from us. Send 40p and a C5(A5) sized, Stamped Addressed Envelope to the above address; Overseas customers send 4 IRCs.

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**Parts List GA703 and GA704**

Etching fret.

1 Steering Linkage  
1 Box  
1 Box Lid  
1 Box Shelf  
2 Instrument panels  
1 Tow Shackle(+ 1 spare)  
1 Disc(+1 spare)  
2 Latches (+2 spare)  
1 Brake Handle (+1 spare)  
1 Brake Bracket (+1 spare)  
4 Bottle Stay Handles  
(+4 spare)  
2 Pannier Lid Handles  
(+2 spare)  
  
1 Short Thick wire  
1 Long Thin wire  
  
1 set Waterslide Transfers

White Metal Castings

Bag 1      4 Gas Bottles  
            (2 pannier boxes GA704)  
  
Bag 2      1 Chassis  
            1 Front Axle  
            1 Back Axle  
            1 Tow Bar  
  
Bag 3      4 Wheels  
            4 Springs (+2 spare)  
            2 Bottle Frames  
            1 Arrow Frame  
            1 Gas Manifold  
            4 Bottle Stays

4 pages instructions

Casting General Instructions

The white metal castings included in this kit are made from a high quality alloy to ensure that the fine detail is accurately portrayed. However this alloy is quite hard and requires careful handling, in particular the finer components such as the towbar end springs. 2 spare springs are included in case of breakage.

Any mould marks and sprue break marks can be cleaned up with a flat Swiss file, and a scalpel can be used to trim the metal parts if required. This may be done only if any excess pressure applied could distort or break a casting.

Assembly is best achieved using Cyanoacrylate instant type glues, although Epoxy 5 minute glues could be used. Soldering cannot be recommended unless you have a temperature-controlled soldering iron, low-melt solder and some previous experience in this technique!

Etching Instructions

The photo-etched components included in this kit are produced from 8 thou(0.2mm) brass sheet and require special handling during assembly. Several of the smaller parts are duplicated in case of loss or damage.

To remove parts from the surrounding brass, use a very firm cutting surface such as perspex or thick plastic card and a sharp strong blade such as a Stanley knife or 1/4" chisel. While keeping a finger or piece of balsa wood on the part to prevent it flying off your work surface, carefully cut through the locating tags as close to the edge of the part as possible. Any scars left can be cleaned up with a flat Swiss file, holding the component in a pair of pliers.

Folding of components can be made in several ways. All folds are indicated by half-etched grooves on the inside of the fold. Small parts can be held in tweezers or pliers and the fold made with a finger-tip or fine screwdriver blade. Larger parts require more support either side of the fold to prevent distortion. This is best achieved by supporting the surface with a thick piece of plastic card right up to the fold line, and while pressing down very firmly, lift the protruding section with a scalpel blade or steel rule, making the whole fold in one go to the required angle. Any attempt to work along the fold will distort the part beyond repair.

Fixing parts is best achieved with Cyanoacrylate (Superglue) type adhesives, applied to the joints with a scalpel blade tip or pin. Do not use the glue directly from the tube as you will flood the model! Very small parts can be "speared" onto a scalpel blade tip, dipped onto a small drop of glue to apply the adhesive and then very carefully lowered into place. The brass parts can be soldered but cannot be recommended unless you have previous experience with such fine work; remember that the brass may distort with the heat, and require defluxing before painting.

Tools you will find useful for the assembly of this kit.

Stanley Knife, scalpel, fine tweezers, small pliers, 6 inch steel rule, thick styrene sheet, Swiss files, pins, fine scissors, good quality paint brushes (Size 0.1 or similar)

Painting

Metal parts are best primed using an etching primer paint such as that marketed by Compucolour. This material chemically attacks the metal surface as it dries, pitting the surface to key the paint onto the metal. Subsequent colours applied over the dry primer will adhere much more effectively than if applied without primer.

COLOUR NOTES

These notes are based on the equipment studied during the preparation of this kit at RAF Marham in 1985. These colours should be applicable for the last decade or so, but these items have also been painted blue and yellow, so please check your references if you are modelling a 1960's or early 70's period aircraft. Gas bottle colours would be applicable to all periods.

- Chassis, box, frames, wheels, tow bar, bottle stays, pannier boxes - Matt dark green
- Tow ring, tow shackle, brake release handle, bottle stay handles - Matt red
- Tyres, hoses, brake cables - Matt dark grey (rubber)
- Oxygen bottles - Black, white end (valve), brass valve
- Nitrogen bottles - Light grey, black end (valve), brass valve

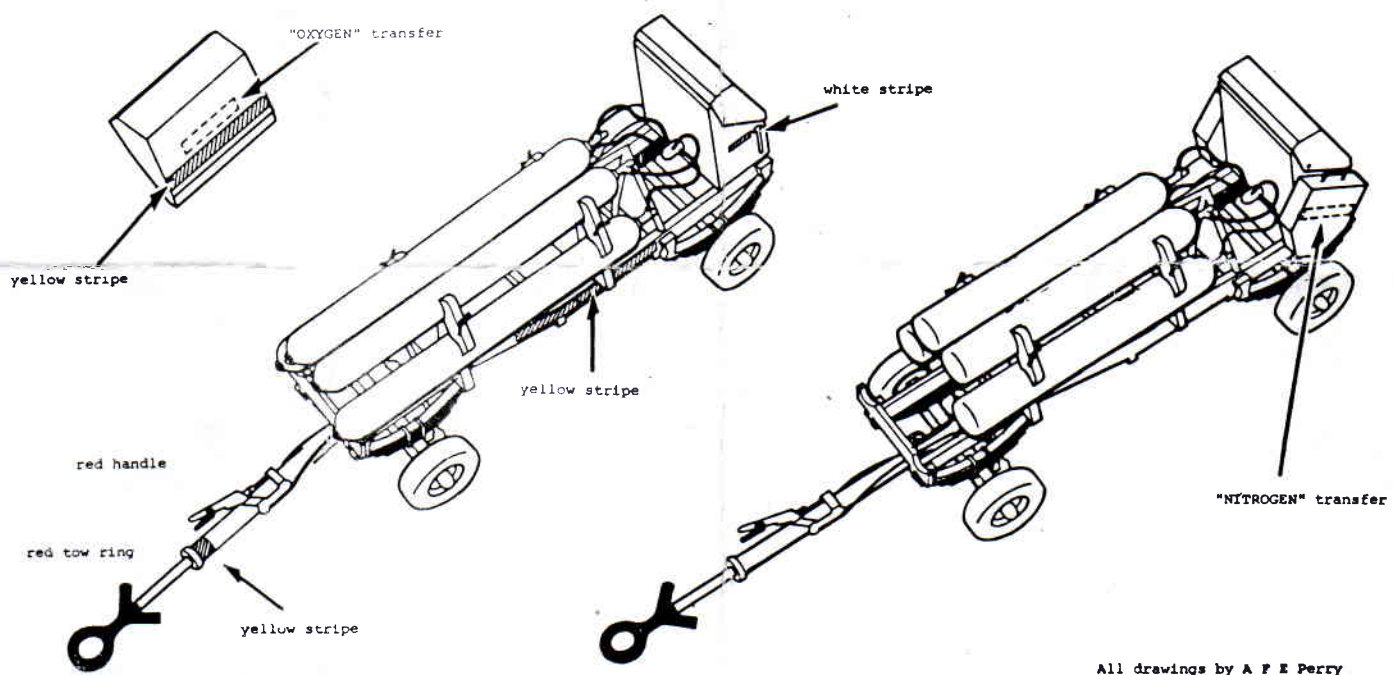
The yellow stripes supplied as transfers were only applied to the oxygen trolley at Marham. Also the paint finish was less than pristine, wear and tear being evident on both, with rust patches and scratched paint and lettering. Be careful not to overdo any weathering, however!

Transfer (Decal) application

Transfers included in this kit are standard waterslide-type decals. Items required should be cut from the main sheet with fine scissors or scalpel, dipped into water for a few seconds and slid into place when loosened from the backing sheet. Decals will adhere better to a gloss finish, and can then be sealed with a matt varnish when dry.

Acknowledgements

Our grateful thanks to Squadron Leader Tim Boon and Major Lindsay Smith of 617 Squadron, RAF Marham, for their permission and assistance with the researching of this kit. Also David Brewer for his note taking, holding tape measures and driving, and to Alan Perry for his help in preparation of the instruction sheets.

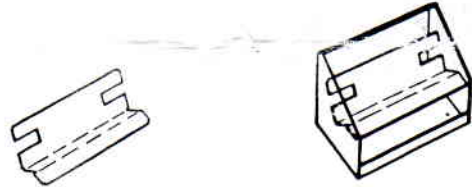
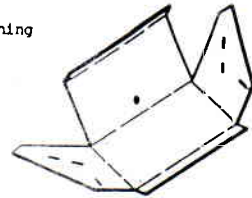


All drawings by A P E Perry

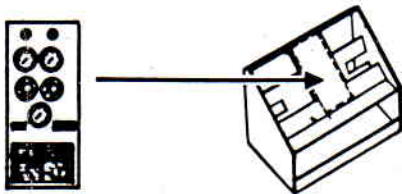
**3) Instrument Box assembly instructions**

- a) Fold the sides, front and lips of the main box as shown, ensuring that the angled joints all match, and the box is "square". Fold the interior shelf to match the half-etched slots on the inside of the box sides. After checking the fit, locate the shelf into place, the spring of the sides holding the shelf in position. Then carefully glue the box corners and shelf together.
- b) Paint the interior and the instrument panel, referring to the colour notes. The area covered by the instrument transfer (decal) should be painted very light grey, to show through the transfer when it is applied. After the transfer has dried, trim any excess varnish from around the panel and if required seal the transfer with clear matt varnish. The instrument panel can then be glued into place, its bottom edge resting on the first fold of the shelf, its top on the inside front face of the box.
- c) Very carefully glue the latches and disc etchings into place on the sides of the box.
- d) Cut the large sprue from the manifold casting as arrowed, then glue the manifold into the hole in the front of the instrument box.

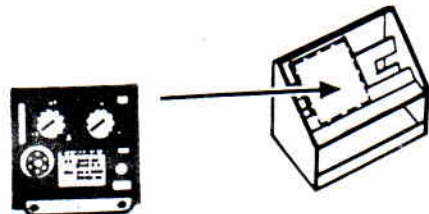
Box etching



Shelf etching



Nitrogen instrument panel



Oxygen instrument panel

e) In a similar manner to the box, fold up the lid etching as shown gluing the joints when they are satisfactory. Paint the interior of the lid and when dry glue into place on the box, open or closed as desired.

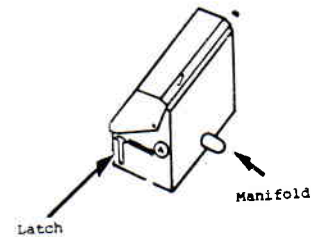
f) Glue the box onto the rear of the chassis, ensuring it is level and square, and aligned with the very end of the chassis. For the Nitrogen trolley, glue the two pannier boxes onto place either side of the box, as shown, then add the handles onto the lids of the panniers. Then paint the exterior of the box.

g) Cut a 40mm length of thick copper wire, coil into a circle about 5mm diameter, paint black and when dry glue into place on the bottom shelf of the box, under the instrument panel.

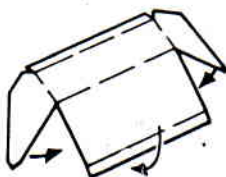
Cut here



Manifold casting



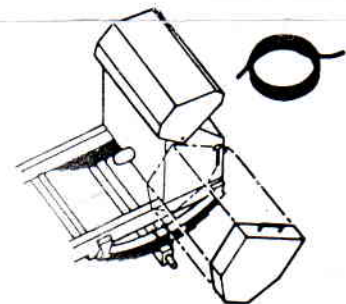
Coil of thick wire



lid etching

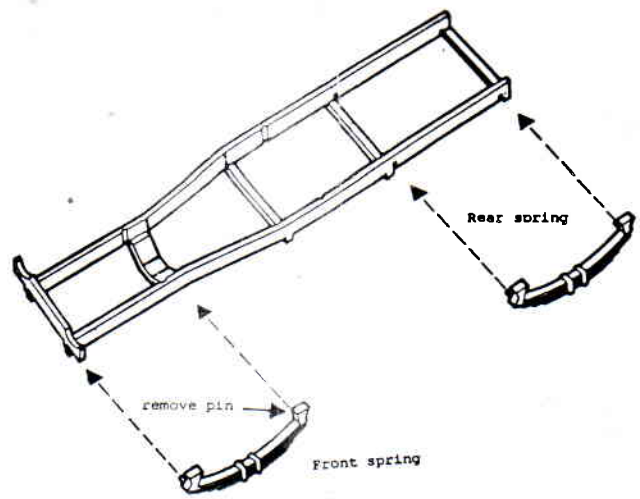


Nitrogen pannier box



### 1) Chassis Assembly

- a) Check the chassis casting for straightness and if required correct any misalignment by very careful bending between the fingers.
- b) Glue the two rear springs into place, locating the pins on the back of the hangers into the notches in the chassis. Check that the springs are level with each other.
- c) The front springs require the rearward pins to be removed, as there are only notches in the front edge of the chassis side members. The pins are best cut away with a sharp scalpel, but this must be done very carefully as the spring castings are very delicate. 2 spare springs are included in case of breakage. Then glue the springs into place, again ensuring that they are level with each other.

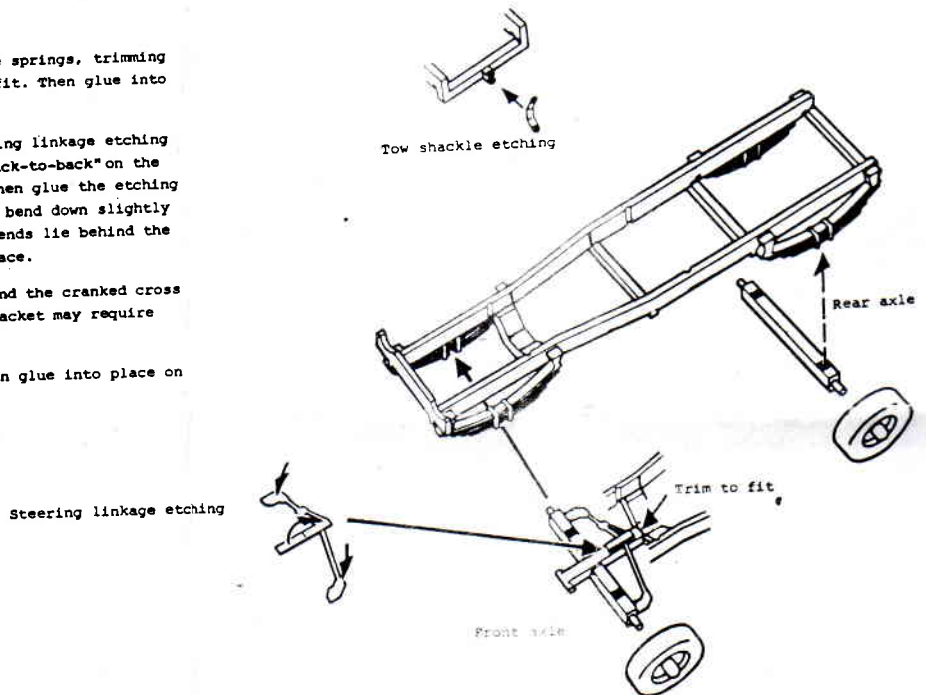


d) Test fit the rear axle into the notches in the springs, trimming with a Swiss file if required, to obtain a good fit. Then glue into place as shown.

e) Fold up the bracket on the front of the steering linkage etching away from the etched groove, and glue in place "back-to-back" on the rest of the bracket to give a double thickness. Then glue the etching onto the top of the front axle casting. Carefully bend down slightly the steering arms so that the quadrants on their ends lie behind the axle, level with the wheel pins, and glue into place.

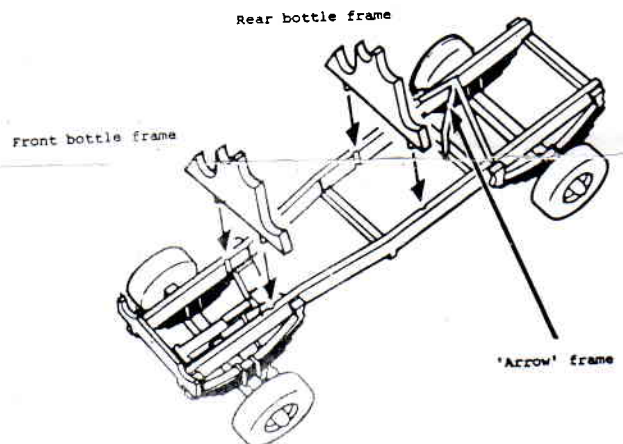
f) Test fit the axle between the front springs and the cranked cross member of the chassis. The rear of the tow bar bracket may require slight trimming to fit. Then glue into place.

g) Fold the tow shackle etching as shown and then glue into place on the rear cross member of the chassis.



### 2) Bottle Frames, Arrow Frames, Wheels

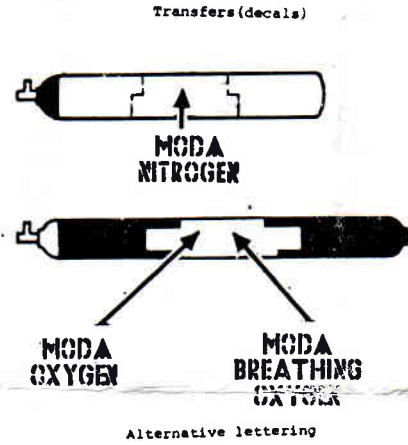
- a) The bottle frames are cast with two pairs of pins to cater for both front and rear locations. For the rear frame, remove the inner pair of pins, for the front, remove the outer pair. Test fit the frames on the chassis, the pins locating into the notches on the insides of the chassis members. Trim the pins with a fine file until a snug fit is obtained, checking that the frames are square to the chassis and level with each other. Then glue the frames into place.
- b) Fit the Arrow frame into position, the middle member locating against the front of the fourth chassis cross-piece, the outer members resting on the top of the chassis frames. Check for squareness from both above and from the sides, then glue into place.
- c) Chassis is best painted at this stage, together with the wheels. see the colour notes for the details.
- d) Glue the wheels into place.



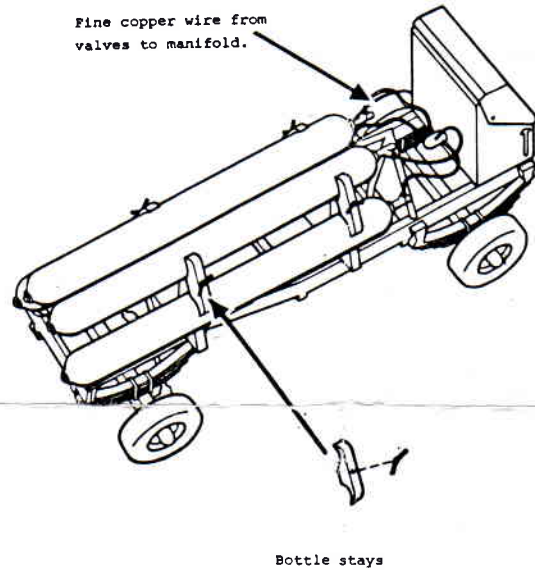


**4) Gas bottle assembly instructions**

- a) Referring to the colour notes, paint the bottles and when dry apply the appropriate lettering transfers (decals). Seal the transfers with semi-matt varnish when they are dry.
- b) Glue the lower pair of bottles into place on the frames so that the valves are approximately level with the "arrow" frame, and that the bottles are parallel and level with each other. Cut two lengths of fine copper wire 10mm, bend into random "squiggles" and then glue into place leading from the bottle valves to the manifold on the front of the instrument box.
- c) Repeat b) for the upper pair of bottles, being careful not to dislodge the wires already in place.



- d) Paint the bottle stay pieces and when dry glue into place on the bottles in line with the frames underneath.
- e) Paint the bottle stay handles (best done before they are removed from the surrounding brass!) then carefully bend the handles upwards to form a "wing nut". Then very carefully glue these parts onto the bottle stays. Spare parts are included in case of loss.



**5) Tow Bar assembly**

- a) Fold the hand brake bracket etching as shown and glue into place 7mm from the U bracket, as indicated. Ensure the etching is level and not twisted.
- b) Glue the brake handle into place on the bracket.
- c) Using the thin copper wire, add brake cables running from the underside of the brake bracket, back along the sides of the tow bar and over the U bracket. Leave about 20mm of wire beyond this point as the cables eventually lead to the rear of the front wheels.
- d) Paint the tow bar, see the colour notes, and apply the yellow stripe transfer if required.
- e) Glue the tow bar into place, checking that it rests at the required height, i.e. on the ground for a parked trolley, or at tow hook level if the trolley is to be under tow.

