

No.2 PAINTING & DETAILING MODEL AIRCRAFT



Les Whitehouse

An Almark Publication

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Distributed in the U.S.A. by
Squadron/Signal Publications Inc.,
3461 East Ten Mile Road,
Warren, Michigan 48091.

Printed in Great Britain by
Staples Printers Ltd.,
Trafalgar Road, Kettering,
Northamptonshire,
for the publishers, Almark Publishing Co. Ltd.
49 Malden Way, New Malden,
Surrey KT3 6EA, England.

*Almark Publishing Co. Ltd.,
London*

Introduction

The plastic construction kit has by its ease of assembly, provided people of all ages and interests with opportunity to produce scale models for a relatively low outlay and very little manual effort. Nowhere is this more apparent than in the world of static model aircraft, where hundreds of kits are available. Now one does not have to shy away from the thought of hours sanding and carving merely to produce a shape which looks remotely like an aeroplane; for even in the worst cases the plastic kit offers a basic outline accuracy and surface finish previously unobtainable.

Thousands now enjoy the hobby yet few ever achieve a consistent standard of detail and finish comparable with the full size machine. The approach to such a pastime must always be personal and some are

happy in merely sticking together one model. Similarly it is also feasible for others to assemble and paint an enormous collection at a rate of 3 or 4 models per week by employing the basic colours and components offered in the kit. Many choose this path with some degree of resignation, possibly convinced of their inability to attain the level of additional skill required to produce a top class creation. Almost without exception however, the same group hold in envy an impression of the work of those who have set their sights upon quality of subject rather than quantity.

True; the correct finishing of a model requires an amount of skill and patience, but such is within the reach of anyone. It depends upon development of the correct techniques and approach rather than any

personal expertise on the part of the builder – which ultimately should only serve to separate the thin dividing line between a good and an excellent model.

In attempting to stir the imagination of the modeller this book presents a series of illustrations into painting and detailing methods. Complicated conversions and extensive diorama displays have been deliberately omitted. Similarly, scales are so numerous that it would be impossible to discuss them all. Fortunately however, the approach mirrored here remains the same for all sizes; the hope is that the ideas presented will stir an appreciation of the way in which subtle details and variations may be incorporated into any model attaining an ever clearer characterisation of the original.

Tools

There are a great range of hobby tools on the market and all have some use or other for which they are probably ideally suited. Before one rushes out to purchase great selections from this range however, consider for a few moments which tool will suit you best. Which will be the most useful, rather than which has the most handsome packaging.

Model aircraft may be constructed perfectly well using only a very few basic

items. In any event the modeller will find, as he gains experience, that he develops a greater skill and affinity with particular items at the expense of others. There is therefore little point in attempting to build up great ranges of blade shapes, assortments of files and tweezers, without first attempting to develop a technique of basic manipulation with the essential tools.

The selection of tools listed is perfectly

adequate for all of the jobs which are encountered in normal procedure. Other items will doubtless be acquired over the years but hasty purchasing will result in many lying discarded and unused as experience develops. The primary rule in choosing is to check what type others prefer and if possible get a chance to hold and try the particular tool before parting with hard-earned cash. In simple terms, if the tool feels comfortable and can be held

correctly then it is likely to be the one from which you will get the best results. Beware of gimmicky designs, the most attractive is quite frequently the least useful. Stick to practicalities.

It will be noted that scissors and large files have been left out of the list. These are normally found in any household and there is no need to purchase such items unless it is impossible to borrow them. Other extraordinary items sometimes come in useful. The author, for example, always uses a pair of wire cutters to remove parts from the 'sprue' – but,

would hasten to add, would not dream of purchasing a pair specifically for that purpose.

At some time the modeller is also likely to query the sense of obtaining two fairly expensive and exotic tools, namely the 'mini' power drill and the Airbrush.

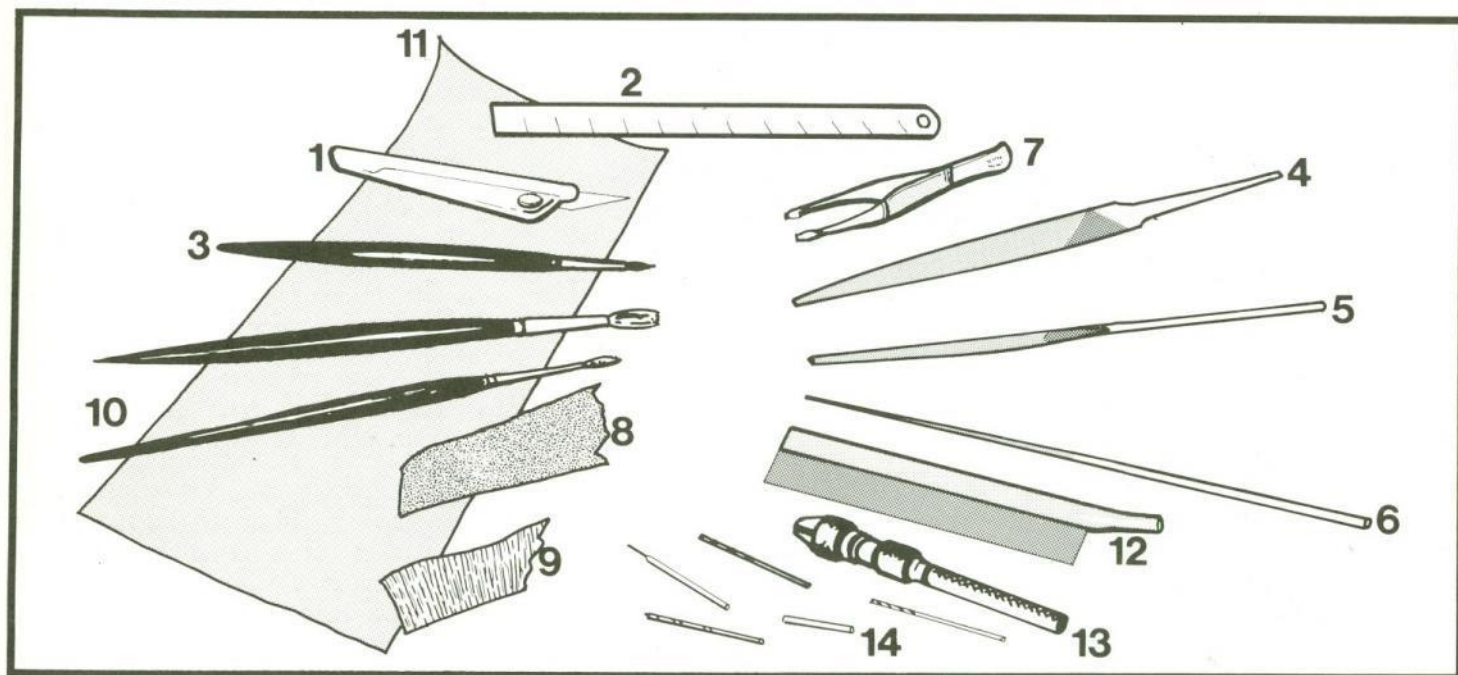
In the former far greater control may be applied with the simple hand-held Pin Chuck. Its use therefore is usually restricted to the grinding off of external lumps and internal material removal to simulate battle-damaged metal. With the exception of 'battle damage' all of the jobs

may be completed in a slightly more laborious manner with normal tools.

The Airbrush is a true scale-model maker's tool and well worth the attentions of the serious constructor. By all means invest in one but remember that it is not a substitute for poor brushmanship. A hand-finished model can still rival the skills of the airbrush even at professional level and there are numerous techniques for which the unit is useless. The principles of Airbrushing are beyond the scope of this volume having been adequately covered elsewhere.

List of Tools.

1. Modelling knife with replaceable blades (two alternate blade shapes are adequate for most work), 2. Rule – metal preferred, 3. Size 0 or 00 brush purely for the application of liquid cement, 4. Flat jeweller's file, 5. Triangular jeweller's file, 6. Round jeweller's file (called a 'rat-tail' file), 7. One pair of fine tweezers, 8. 200 grade Wet & Dry paper, 9. Sellotape or draughting/masking tape, 10. Two or three good brushes sizes 00, 0, 2, 11. Household Tissues, 12. A razor saw of the metal backed type, preferably without a handle as this impedes its use on small models, 13. A pin chuck, 14. Selection of small drills. [Items 1. to 11. will enable anyone to complete a basic model kit. Items 12. to 14. are the ones which are the essential additions for good detail work].



Materials

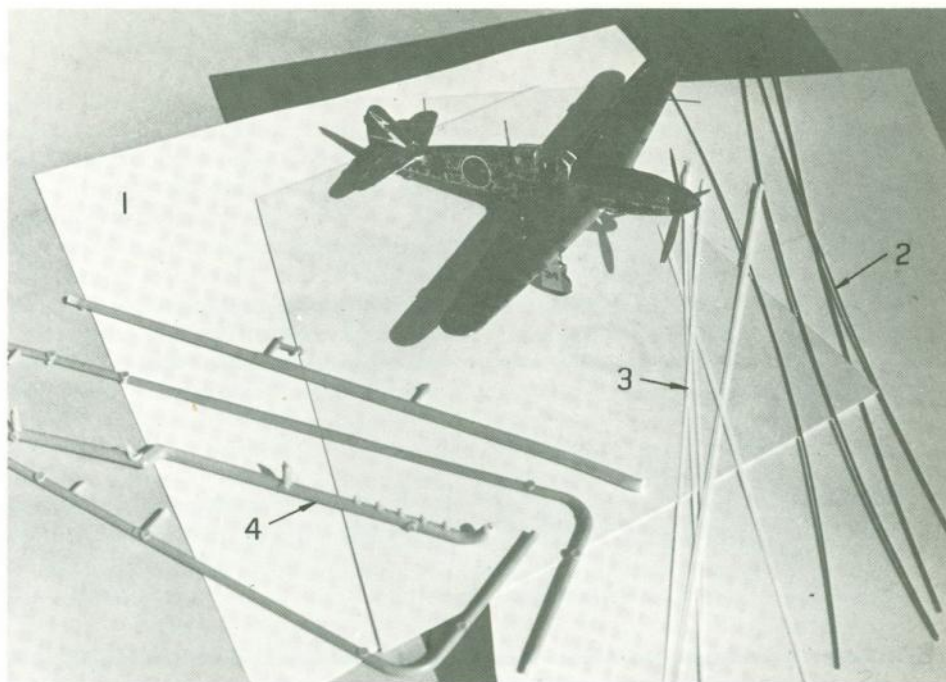
The choice of glues and solvents is probably the most important to be made when assembling a kit. Good clean joints are vital, so it is suggested that a liquid solvent should be the first item in the material list. Tube cements are best kept for any particular internal surgery where strong joints are required but will not be seen in the finished model. The best solvent is known by the name of Ethyl-Methyl Keytone but tends to be a little harsh on some plastics – try it on the sprue first. Fortunately less strong formulations of the basic solvent are available under various trade names such as 'Mek Pak'. For some assembly work, such as the fixing of acetate sheet which is not affected by normal solvents, a strong clear glue is required. Various types are available such as 'Uhu' and 'Seccotine' – the author's personal choice is 'Durofix'.

Plasticard is sold in various thicknesses from 5 thousandths of an inch upwards in sheets about 13" by 8". Its primary use is in the production of bulkheads, instrument panels, thin wheel doors and the like. The most useful sizes will be found in the range below 30 thou.

For small strips of plasticard handy packets are available usually called 'Micro' or 'Mini' strip, avoiding the tedious job of cutting strip by hand.

Plastic Rod is also on sale generally and consists of extruded plastic of constant diameter. Ideally one's first purchase should be an assorted packet. Individual packs of the most useful sizes may then be purchased to supplement stock.

Often overlooked by younger



A good working stock of plastic materials. 1. Plastic Sheet, 2. Extruded Rod, 3. Microstrip, 4. Plastic sprue cut into lengths for storage.

modellers, the most useful material for detailing models is available free in every kit purchased. This is the plastic tree or 'sprue', a product of the moulding process retained in the kit as security against loss of parts. With the careful application of heat, rods, wires and various intricate shapes may be produced from this material to represent parts of the aircraft. Examples of these are explained further on in the text.

No matter how well a model is assembled there are certain to be a number of joints and moulding flaws which can only be dealt with by the use of a filler. Essentially it is important to have a filler which is compatible with the model paints and plastic. Nothing is more

annoying than waiting for the paint to dry on a model only to find that the filled areas show up a different gloss, or soak the paint up altogether. The one which seems to give the best results for ease of working and drying is the type known as 'Green Stuff' – a material originally developed in the United States for minor repairs on full-size cars.

Most modellers tend to use old newspapers as the first line of defence against gouging up the dining room table but for really accurate cutting a firm base is needed. A square of hardboard or plywood about 18" by 18" can be obtained quite cheaply for this purpose from any hardware store.

Paint

Paints generally consist of a pigment, the colour of the specified shade, carried in a liquid which can be thinned as desired to allow it to flow more easily. The liquid is an oil-based varnish in the case of Enamels and mainly water in the more recently introduced 'water-based' paints. Evaporation of the volatile thinners or the water then allows the paint to solidify or 'dry' on the surface of the model (or in the tin if you leave the lid incorrectly fitted). This is obviously a grossly simplified explanation but sufficient for our purposes.

To remain realistic a scale model demands that each coat of paint be as thin as possible when dry and to a certain degree the thickness of a dry coat, correctly applied, is dictated by the fineness of the initial pigment. True modelling paints always contain carefully ground, ultra-fine pigments to ensure maximum quality of finish so it is important that the correct paints are purchased at all times. For aircraft work the correct paints to use are 'Model Enamels'. Water soluble paints such as 'Plaka' and oil paints tend to have more application to model figures where blending is important. Other types such as Cellulose or Lacquer-based mixtures are to be avoided by the general modeller as they tend to contain solvents which attack the surface of plastic kits. This is not to say that particular experts have not used them in the past – but rather an indication that they require personalised application techniques. In virtually all model aircraft situations Enamels will give fully

acceptable results and are used without reservation by the majority of experts.

There is nothing difficult in working with paint, but it is important that a few rules are observed in mixing and storing. The best idea is to work out a sequence of operations before using colour from any tin and to stick to this *every* time so that it becomes a habit. Firstly, always stir a tin – *never* shake it with the lid on before opening – this is particularly important with metallic colours as they can form vapour which causes the lid and an amount of paint to blow off when opened. This is a rare problem but even one silver painted face in a lifetime is no laughing matter (the author speaks from first-hand experience). So, always open a new can of metallic paint for the first time with a rag held over the lid. Once mixed the problem is unlikely to occur again.

Mix the paint thoroughly every time that a tin has to be used, even if it has only

been standing half-an-hour since its last stirring. Then try the shade on a piece of scrap sprue for shade, ease of application and, if a matt colour, for rapid drying and finish – blow gently on the sprue to promote rapid drying to check the latter item. If you are satisfied that all is well, particularly that a matt colour will dry matt without any patches, then go back to your tin and stir for a short while longer to make doubly certain.

The required thickness of paint will depend upon its use. For canopy frames a slightly thicker mix is advised to reduce the danger of runs onto the clear areas. In general a good paint should drip slowly from a stirring stick dipped into it (a piece of scrap sprue or a cocktail stick makes a good stirrer). If it is too thick then add drops of thinner to suit. To economise on thinner it is suggested that this is bought as a large can or bottle of White Spirit from chain stores such as Woolworths.



The author's compact tool/paint box holds the paints required for a particular project, a small bottle of thinners and liquid cement, plus basic tools. A simple biscuit tin, it enables the set to travel easily and the lid can double as a cutting surface. Cement and thinners are topped up from larger stocks and paint shades are rotated to suit the current model.

Research

Research has the two-fold function of stirring the imagination of the modeller as to the potential of his kit and of providing accurate information of details, enabling him to exploit that potential. It is therefore of vital importance to the success of a modelling project and provides the fundamental starting point for each creation.

With the upsurge of enthusiasm for the hobby sources of reference are expanding daily, so much so that it would be ridiculous for anyone to hope to purchase more than a small selection. Your choice will therefore be a very personal one depending upon budget and area of

interest. This is not as restrictive as it might seem as there are other, often overlooked, areas where research is possible. The primary one is the local Public Library. True, a library may not appear to have a comprehensive selection on your particular subject, but it is only a small part of a countrywide chain and is able to obtain virtually any book and many magazines on loan by requesting these from other libraries. Visits to museums and air displays are ideal as they generally allow close inspection of actual machines – a camera is useful here or at least a sketch pad and notebook. Nowadays, also, there are modelling

societies formed so that enthusiasts can regularly meet each other to exchange information and ideas. The International Plastic Modellers' Society is one such world-wide organisation which has area branches holding monthly meetings.

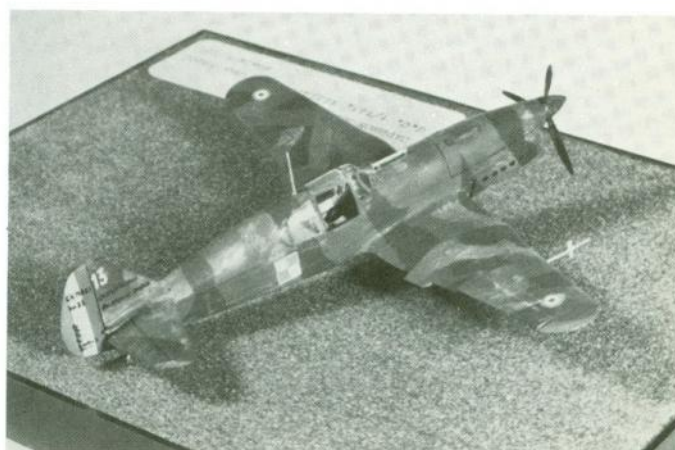
Files to hold articles and cuttings can be made up in various sequences, by general types and countries, companies etc. When a model is started it is more convenient to start a new file on that machine alone so that all material is to hand ready for instant reference during construction.

The research will become as rewarding as the actual construction of a kit so try not to get sidetracked.

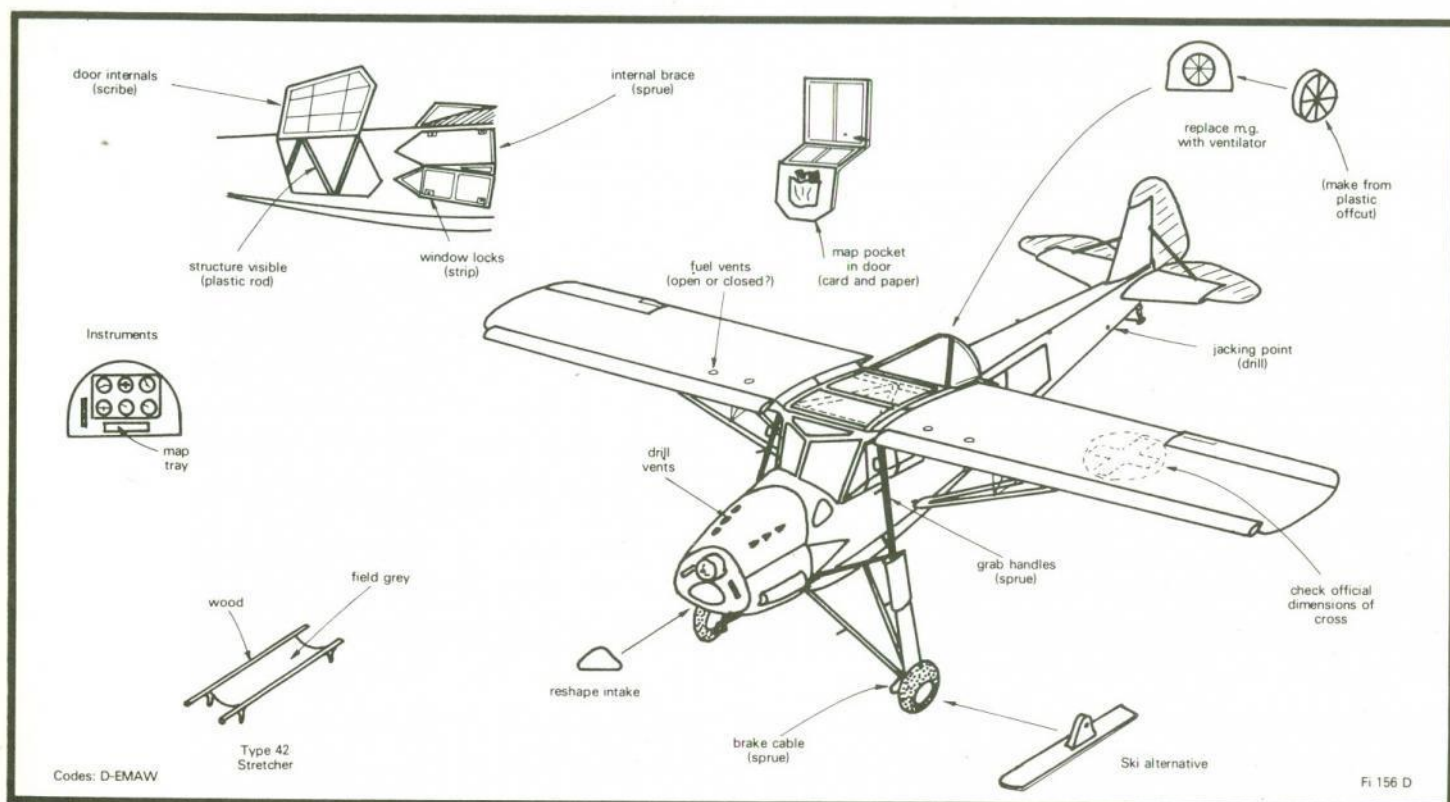


Keep all of the information for a model to hand in one file. A typical project folder here covers details of the Boulton Paul Defiant two-seat fighter and target towing aircraft, including history, camouflage details, structure and photographs of variants. Once this folder has served its purpose the individual documents can be returned to their particular publication series on the bookshelf or retained within as a permanent file on the design.

The correct attitude, camouflage and state of weathering of a rare Caudron, Renault MS461 fighter. Careful investigation has established sufficient information to portray an actual machine in service with GC1/145 during the Battle of France. Combining the knowledge from this research with a little common sense, subtle details such as the displaced ailerons and elevators (no control locks installed) and open canopy all help to achieve the feeling of purpose imparted by an aircraft on scramble alert (Model by Dave Jane).



Attention to Detail



The author's planning sketch for a Fieseler Fi156D. Sketching experience is obviously not essential, when planning a model, the idea being to have a 'visual' memo pad of the project.

When researching and planning your model, whether it is a modern airliner or a 'stick-and-string' multiplane, pay particular attention to every minor detail on the aircraft. Cross-check all of these details in references available and gradually build up an impression of the machine in your own mind. Even when a particular prototype has been chosen and

the model is under construction continue to refer to references – the amount of detail which can easily be overlooked right up to the final stages is quite surprising.

Planning is vital. Always incorporate as much as possible into the model both internally and externally within reason. A stage should not be rushed because a later one offers more interest – it will only be

regretted eventually. The extent of planning on details is self-evident in any completed model. If it helps, sketch out your intentions and the possible materials on a sheet of paper and file it with the reference material on the aircraft. Add or delete details as required.

Preparation

A

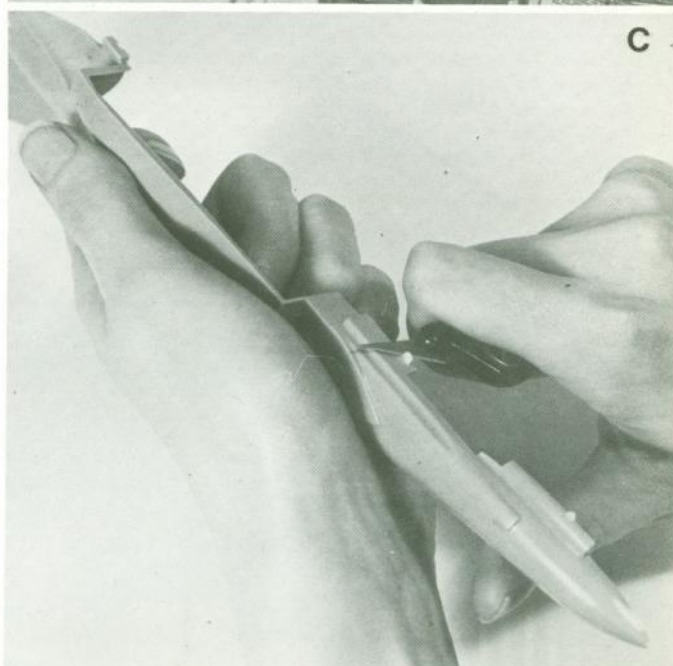
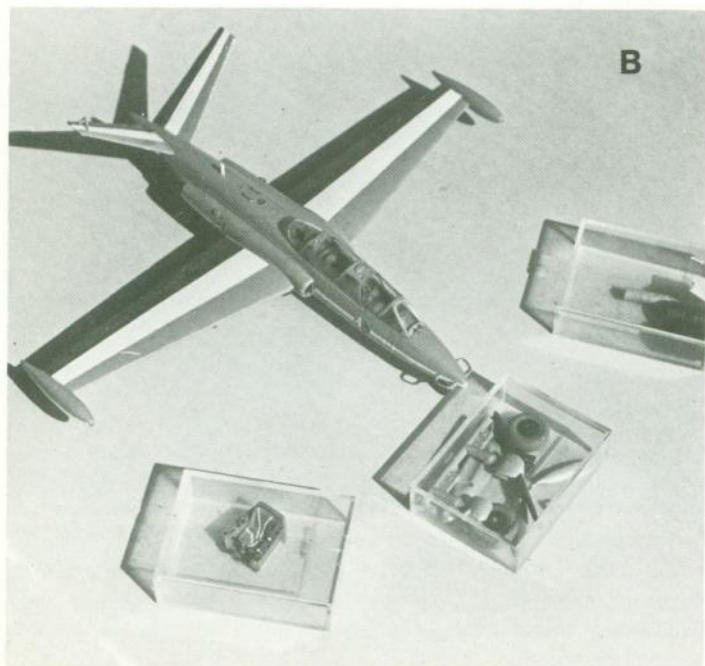
The first rule of model construction is patience, so resist all wishes to tear open the box and sort everything over immediately upon purchase. Keep the components in the box and always sort from box to lid and vice-versa. If a part is not needed then leave it on the sprue.

B

As work progresses it is inevitable that small parts will need to be detailed while other assemblies are drying and components will gradually become separated from the sprue. To avoid loss, one or two small boxes (such as those sold to hold amateur sporting medallions) should be purchased and used to retain small assembled components. If a part has to be left loose tape it to the box.

C

Remove items from the sprue by cutting into the sprue itself and then gently paring back to the model surface. Be particularly careful with transparent parts as these are brittle. Never be afraid to discard or remove an item if it does not look correct or will hinder work on the model. These are easily replaced with sprue and/or plasticard at a later date.



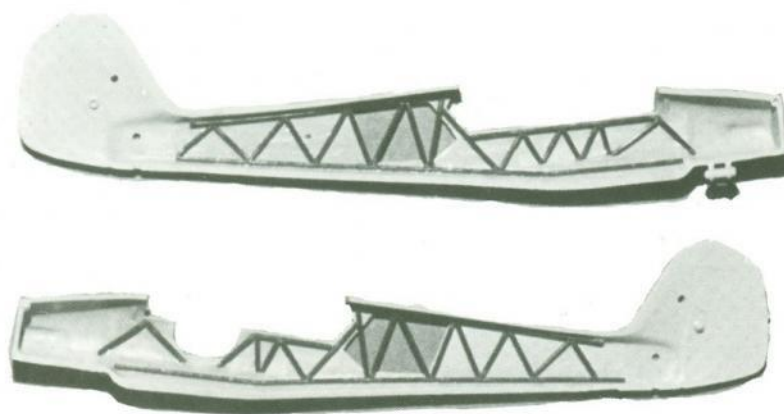
Interiors

Fabric airframes are of particular interest as they have a separate assembly of wood or tubing which is the main structure. Plastic rod is ideal for the longerons and struts of this framing as illustrated by the initial steps in detailing a Fieseler Fi 156 fuselage, but careful painting is essential if this is to look realistic. Angles need to be strictly correct only where this structure will be viewed directly at door and cockpit openings.

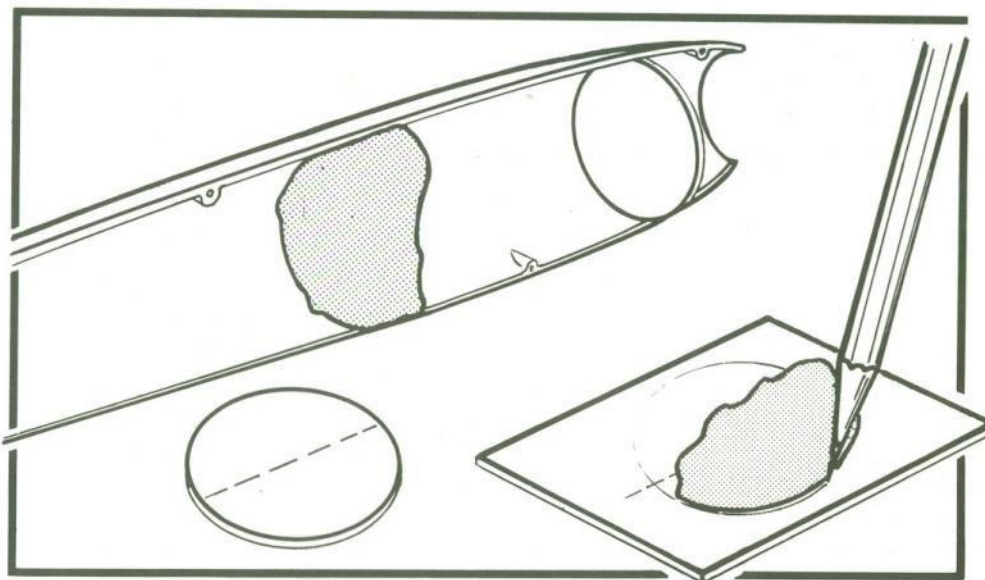
Aircraft are not solid chunks but delicate hollow structures with an individuality as important as their external shape and colouring. The advantage of a plastic kit over the original solid wooden model is that the spadework of any attempts to expand on this theme is already complete, leaving the modeller to generally clean up the interior surface and install simplified representative interiors where these are normally visible on the aircraft. Many companies are being converted to the idea that some of this detail should be provided on their mouldings – with excellent results, particularly in the larger scales. Naturally, these will rarely provide the ultimate so there is always room for improvements to be made.

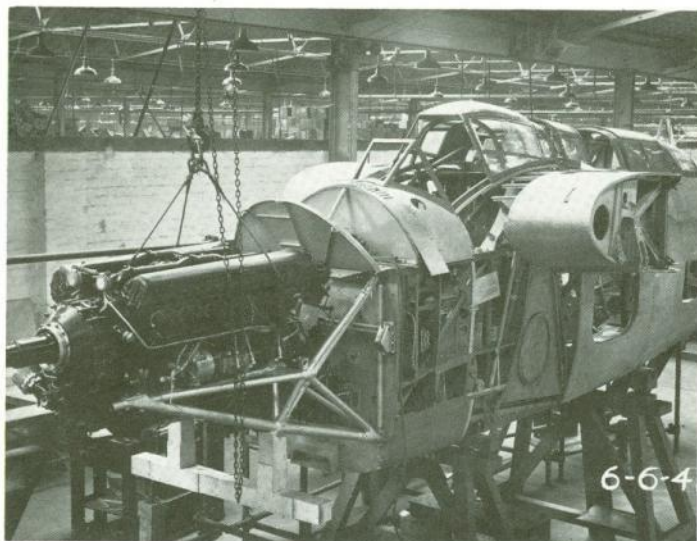
Strictly correct interior detail calls for a knowledge of the aircraft structure itself and it is here that your carefully prepared research comes into its own, delving into the intricacies of each machine. In the simplest of models it is at least possible to build up the cockpit detail as an improvement upon the 'seat and stick' usually presented. Plastic strip and sprue can be prepared to represent the basic frames and stringers which support the external skin, the same material being used to detail the cockpit flooring.

On top of the internal framing side consoles, fuse boxes and radio equipment are added from offcuts of sheet plastic. Wiring harnesses are possible with fusewire or stretched sprue and thin slices of masking tape will provide suitable seat straps when carefully draped over the model seat.

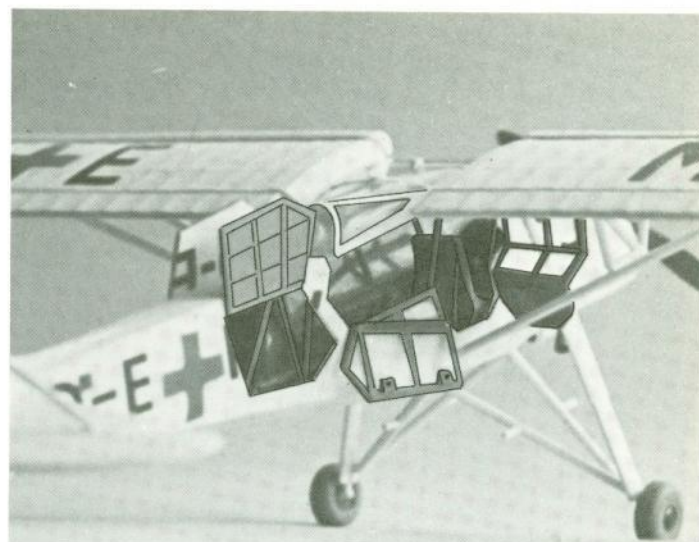


Detailing means blocking off areas as much as opening them up and the shapes of formers can be roughly estimated by pressing plasticene into the appropriate half to produce a 'moulding'. This is transferred to a piece of paper upon which the shape is drawn and used to produce the plasticard bulkhead. Trimmed to a good fit the bulkhead is held or located by small key strips cemented where they will not be seen after assembly.



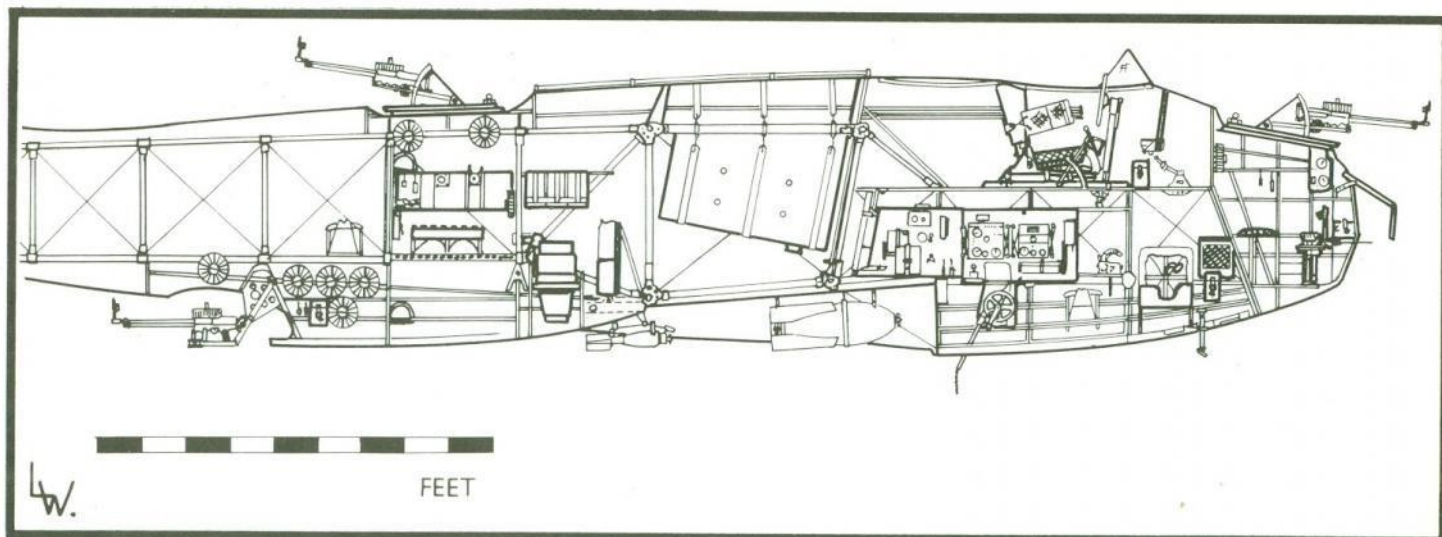


Even incomplete sections of aircraft offer useful information. What at first sight seems a rather poor shot of Barracuda production, yields shapes of engine mountings, hatches, structure and canopy construction.



The completed interior of the Fi156 model. Careful choice of the ambulance version allows this detail to be fully displayed. Attentions such as a scale map inside the door-mounted map pocket add that final finishing touch which separates a good model from the average.

The interior detail which it is possible to reproduce can be quite staggering. Here an interior view of the Sidestrand shows numerous items of equipment located within the production airframe.



Instrument Panels

A neat instrument panel and console layout is an important part of the interior detailing procedure. Simple hand-painting is unlikely to achieve this even in the smallest of scales.

A simple method for making clean, crisp panels, which is recommended to the newcomer, involves the purchase of a sheet of dry print transfers made up of variously sized black dots. A shaped piece of plasticard is painted in the basic panel ground colour and, when dry, appropriately dimensioned dots are applied to represent the instrument dials and switches. Details on the faces are carefully marked with a brush and white paint as finely as possible. It is inevitable that this will not be fine enough so, using a modern tubular nib pen such as a Rapidograph, lines should be carefully ruled in black ink on the instrument dial either side of each marking. Move the lines in towards each other until only a thin white line of the original paint remains. Once dry the ink blends perfectly with the black of the dry print dot. The same pen is useful to add outlines and lettering on the panel leaving only a few switch details to be touched in with coloured paint.

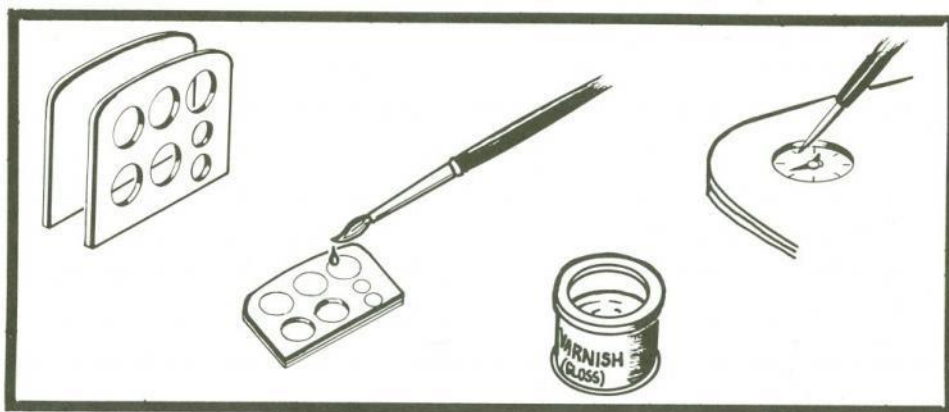
For larger models two identical panel outlines are cut and the instrument positions marked in one of them by drilling the correct sized holes. The back panel is painted black and sandwiched to the drilled one. Once this is dry, dial markings in the instrument holes can be scribed in with a pin or needle point and each hole filled up with gloss varnish to represent the instrument glass. Finishing then involves similar ink and dry print techniques as used above to represent switches and such.



The problem in question – a typical panel. In this case the Spitfire F.22.



Simple instrument panel and the technique for making larger units – both methods are described.

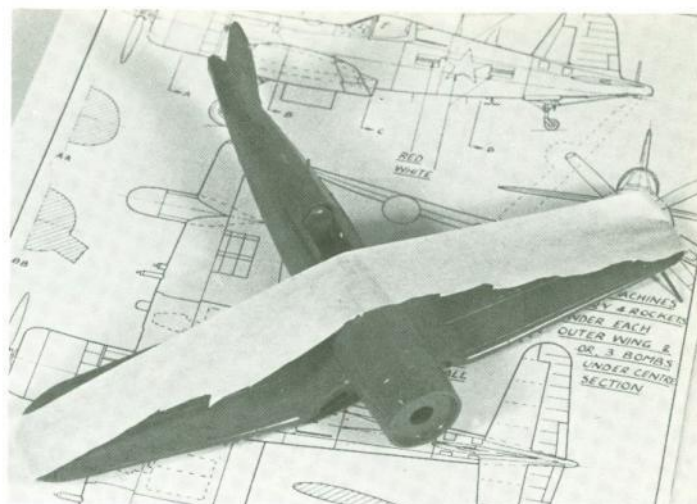


Alignment

Having reached the stage of major component assembly it is time to think about alignment. No matter how many accurate embellishments are built into a model kit the essential *basic* character of the full-size machine is still determined by simple angular relationships, the correct dihedral of a wing, positioning of an aerial mast, the way one wheel-door might hang at a slightly different angle to the other. These are primary points to be watched on assembly.

Therefore always dry-fit each section and adjust any obvious snags before proceeding. Never apply any cement until you are sure of your ability to keep the part in the right place. Refer to drawings and photographs and continue to 'eye-up' alignments as the components dry.

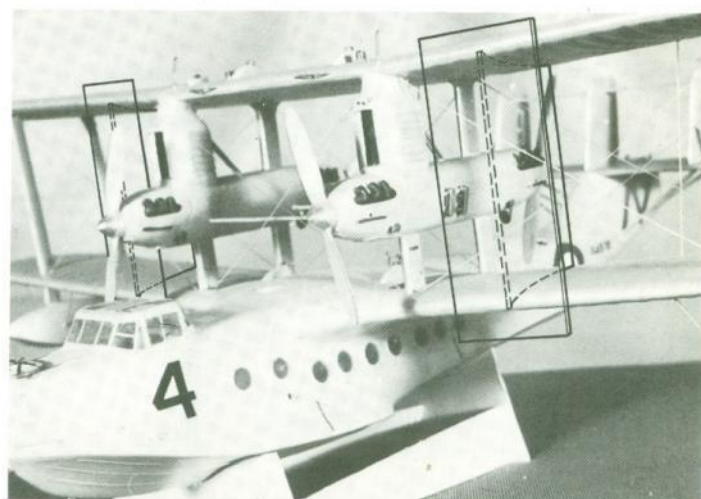
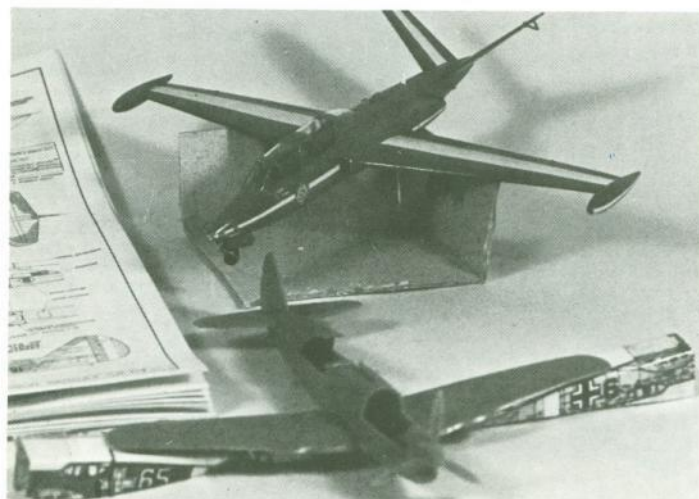
These constructional sequences cannot be rushed but one cannot sit for hours holding the parts together either. The simple solution is to use a combination of tape and temporary jigs. These can be simply made up from scrap card (old boxes from kits are ideal) as an alternative to guessing the angles and propping up bits on paint tins and matchboxes.



Tape in use to hold the correct dihedral on a model while it dries. This is necessary on some aircraft where a certain amount of tension is needed to 'force' the wing up to the right angle. The wing is tacked into position and taped to the angle. Then a final brush of cement is run along the joint. With care little filler is needed.

Surplus kit boxes provide card to make up simple construction jigs.

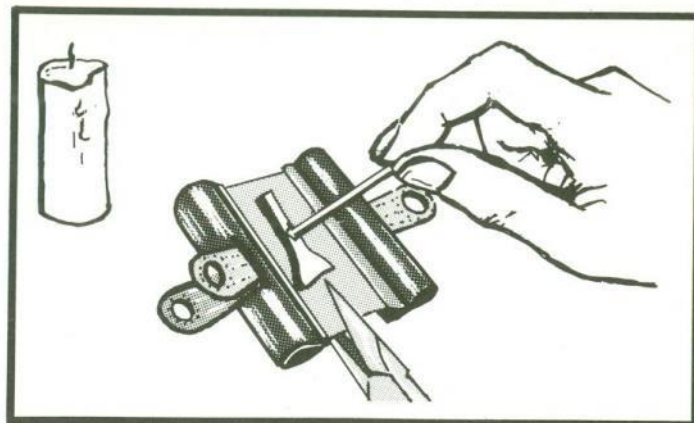
Assembly of biplanes is especially eased with a simple 'T' shaped jig taped in place to provide the correct interplane alignment and strength while the struts are positioned.



Undercarriage

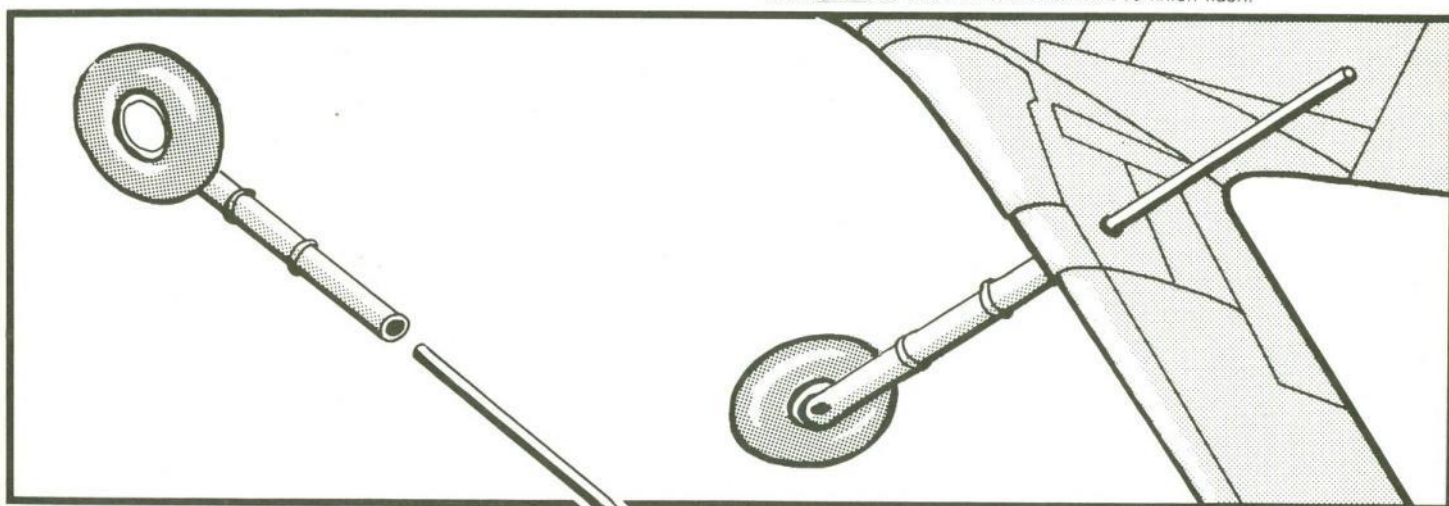
Wheel wells can be detailed in a similar manner to that used on the fuselage interior. Few models provide a correctly blanked off area but this is easily rectified by making the required panels from a suitable thickness of plasticard plus ribbing or stiffeners from plastic strip. Large aircraft also have considerable masses of piping passing through these wells, providing plenty of scope for the enthusiast to 'go to town'. Similar items such as brake cables, anti-torque links and retraction rods adorn the legs themselves. On models earlier than the Second World War period, one could even individually spoke the wheels and add the rubber bungee suspension.

Most wheel wells are a standard colour, primer, natural metal or the undersurface shade. This should be painted before the external finish to avoid mistakes although it is usually easier to paint the legs themselves last. Tyres always look more realistic as a dark grey rather than pure black and the section in contact with the ground needs to be flattened slightly by heating and filing to simulate the weight of the aircraft.



Most wheel doors are far too thick and should be replaced by simple plasticard substitutes. For shaped doors try glueing a sprue 'handle' to the back of the kit door and use this to press the door into a small section of thin heated plasticard pinned to a balsawood frame. This simple moulding can then be trimmed to shape using the kit as a pattern and added to the model.

Legs can be fragile and once one has broken it is likely to cause problems again. A simple solution is to pin the offending part when repairing or, if the legs are obviously weak, on assembly. To do this cut off the locating peg, file square and drill into the end of the leg. Choose a piece of rod, at least two inches long, which is a tight fit into the drilled hole and cement in place. Drill a similar hole right up through the wing and, when the leg has dried, feed the other end of the rod up through this hole. Pull the end out on top until the leg is butted tightly inside and cement again. Finally trim off the excess rod with one clean cut to finish flush.



Metal-Skins

While most silver aircraft can be represented by that colour mixed with greys there are certain periods where machines were utilised in a natural metal state, various areas being buffed to a mirror-like finish. The obvious way to imitate this is to actually cover the plastic with a layer of metal foil.

A few years ago the only way to this was for the modeller to carefully apply kitchen foil, burnished down over a tacky coat of matt varnish; a messy and difficult business at the best of times. The use of metallic sellotape was similarly awkward. However, a commercial product consisting of an adhesive metal foil with peel-off protective backing is now available under its manufacturers trade names such as 'Metalskin' or 'Bare Metal'. The beauty of this material is that it is ready to apply and can be cut easily to shape with a craft knife before the backing is removed.

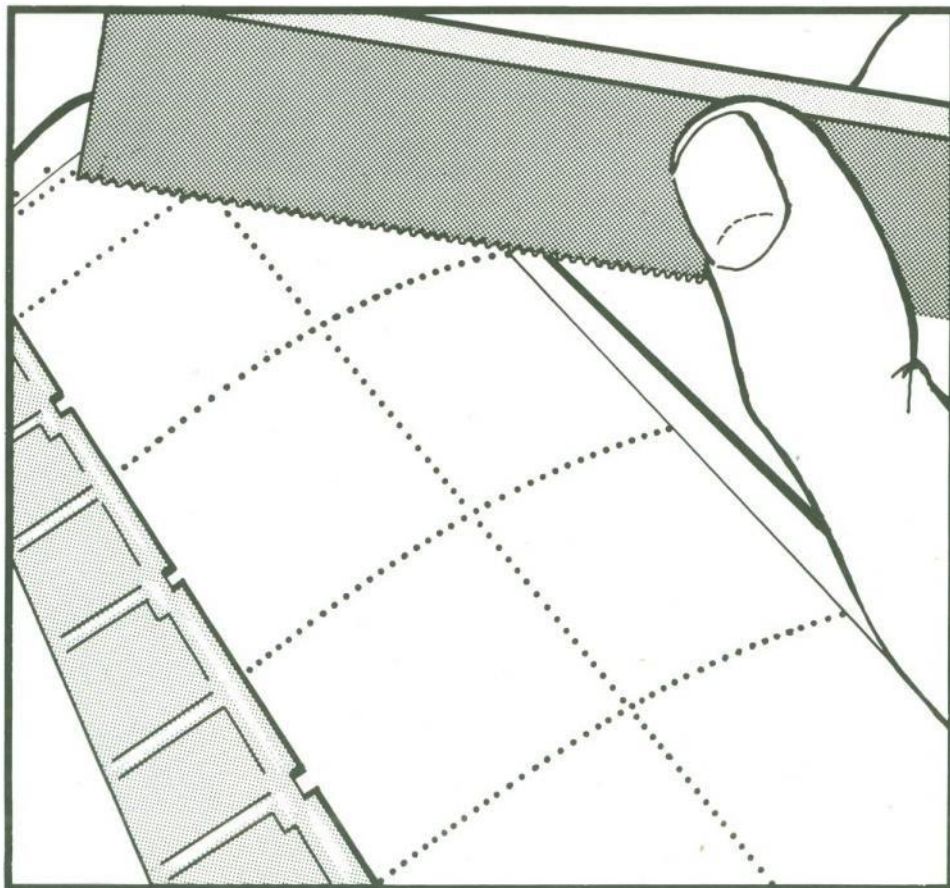
The model must first be assembled up to the base structure stage with all internals complete and every external surface detail removed. After filling a final coat of liquid cement is given and the model covered in a series of small panels, working back along the fuselage and out along the wings. Each piece is positioned lightly and adjusted before burnishing down with a soft tool such as a balsawood rod. The material has a definite 'grain' so by utilising this in differing directions a pronounced panel effect can be created – a typical sequence and grain direction for an aircraft is illustrated.

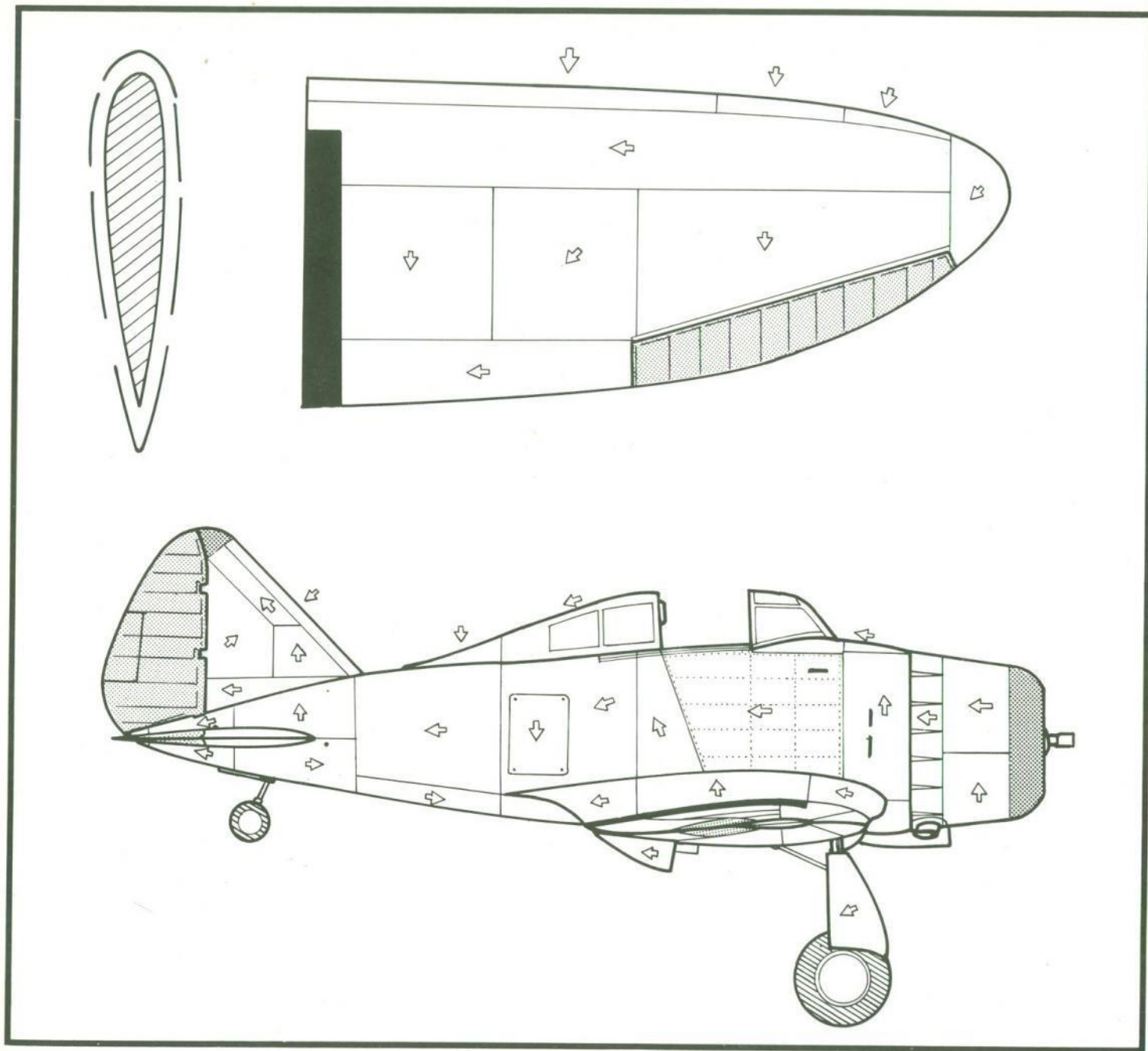
As one would expect difficult component curves are not attainable so these minor

areas must be painted instead, the panel sequence adequately hiding this fact.

After covering, straight rivet lines can be impressed with the toothed edge of a razor saw. The main drawing shows one panel treated in this way. For best results the following points should be remembered:–
(a) Use a sharp knife and always cut in

straight lines with a steel rule. (b) Only apply a panel when it is cut correctly. (c) Wrap around airfoil leading and trailing edges. (d) Keep each panel small. (e) Clean a scrapped panel area with thinner-soaked cotton wool – but sparingly. (f) Don't burnish to hard or the panel will stretch.





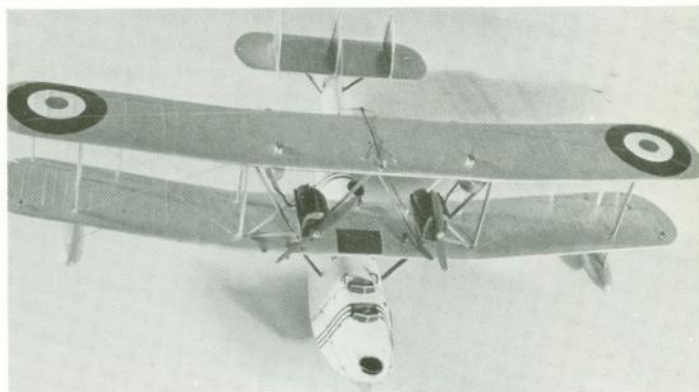
External Panelling

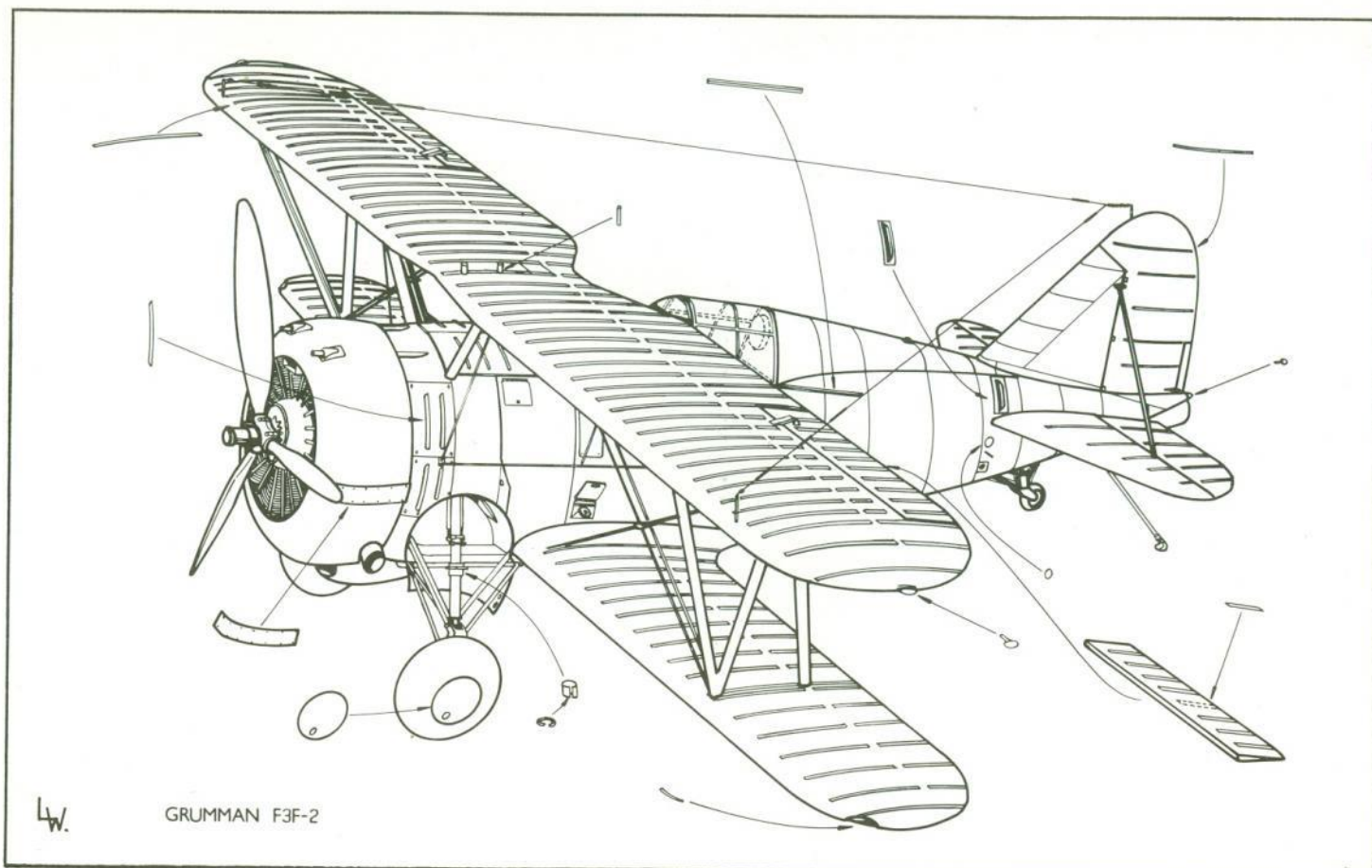
On metal monocoque aircraft individual panels may be applied where necessary with 5 thou plasticard or sellotape – to illustrate a raised radio hatch for example – but the best method for the general structure in this case is to finely score in the panel lines on the original surface. Scribe with a sharp point such as a modelling-knife blade or a needle set in an old paint-brush handle, but remember to clean up and align each section of panels on assembly, rescribing any which are lost in the rubbing down process. The thinner coats of paint available by airbrushing offer a distinct advantage for this method of panelling but brush painting is acceptable if applied correctly.

A small strip of 10 thou plastic is flexible enough to bend around most compound curves and makes a handy straight-edge to scribe in panel lines on a plastic kit. The choice must be made between retaining the kit lining and applying your own – it is not usually feasible to mix the two.

A completed Supermarine Southampton incorporating all of the techniques described on these two pages to simulate both raised and inscribed structural shapes on what would otherwise have been a very plain surface.

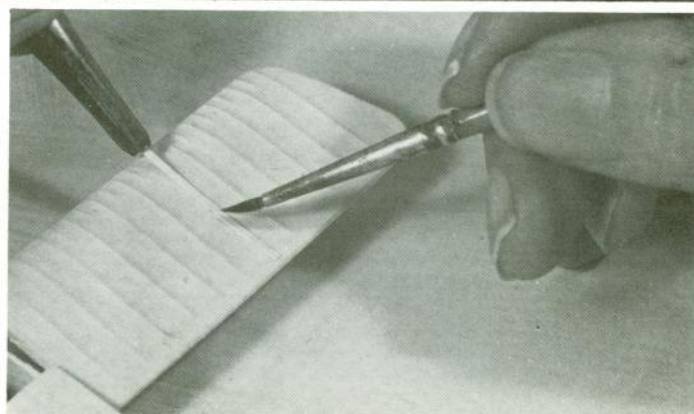
Metal aircraft are constructed from a series of individual panels rivetted together. Some joints are permanent while others exhibit gaps or are raised above the general surface. This Blackburn Roc in a silver-sprayed finish illustrates the whole range of variations and details, including fabric-covered control surfaces, which could be employed on a model.





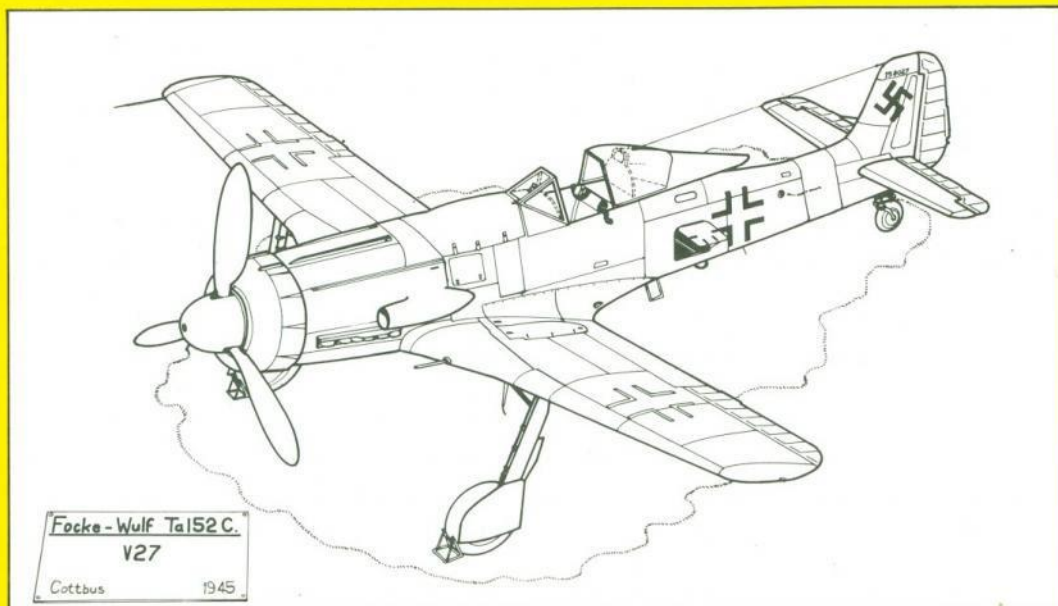
Fabric sections of an aeroplane require another approach as this material is usually strengthened with extra strips – called rib tapes or patches – laced and tautened. The kits usually supply a simulated fabric-weave pattern with some indication of a sag between each rib but few other details. To make rib tapes plastic strip is used and stretched over a candle flame just like sprue. This produces a very fine tape which retains the original flat cross-section of the strip. Cut into the correct lengths it is then cemented in position allowing the liquid glue to be drawn along the piece by capillary action as it is placed onto the surface.

Numerous details indicating the construction of the aircraft are reproduceable with plasticard, heat formed strip and sprue. Although rib tapes usually wrap around a wing the alternative method illustrated can be used to show rib and spar positions visible on some designs.

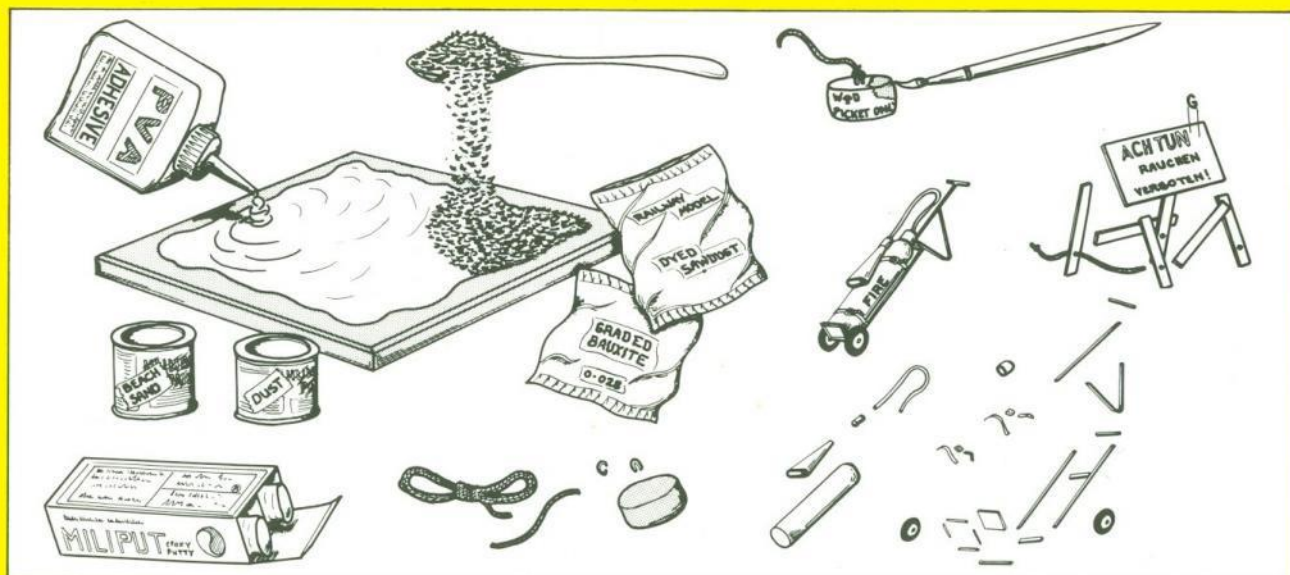




Brush applied camouflage and weathering techniques can be developed to a stage where they will compare directly with an airbrushed model. The general rule is always to understate the weathering on an aircraft rather than spoil the overall finish and to use a series of techniques as experience develops to cater for differing effects. This Focke Wulf Fw 190D-9 assembled from a Revell kit in 1:32nd scale shows the end result of various brush and colour effects. A mixture of kit and commercial transfers have been used with the exception of the wing uppersurface crosses which have been built up from individual lengths of white rub-down colour strip. Research is vitally important to retain the impression of a full size aircraft finish and to ensure the correct interpretation of seemingly dubious information. Initial examination of basic data on JG3 for example indicated that, with the exception of IV gruppe, the Messerschmitt Bf109 was in use. Deeper investigation however revealed the photographically recorded existence of both a Ta152H in II gruppe markings and an FW190D-9 as illustrated, enabling completion of the model in the basically simple but historically correct finish shown.



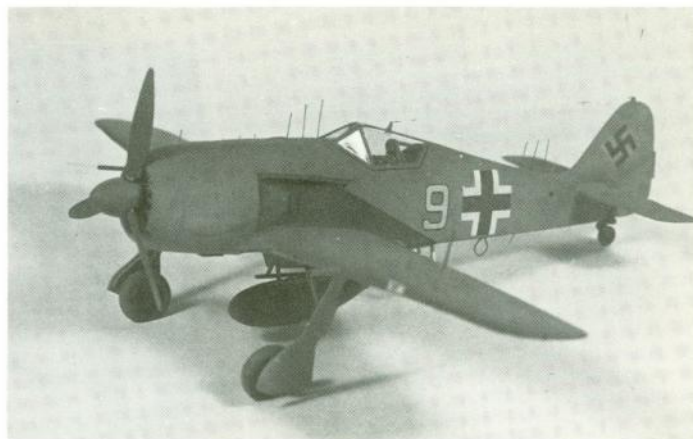
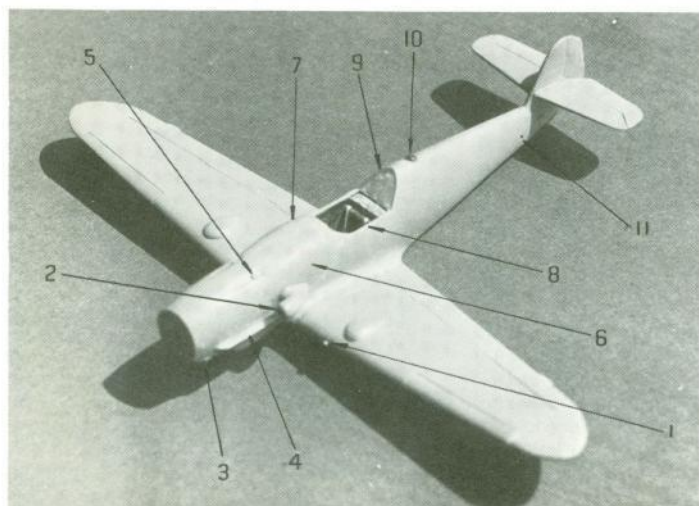
Kawasaki Ki61-1 Kai 'Hien' representing one of Major Kobayashi's aircraft in service with the 244th Fighter Regiment. With the exception of the gear door numbers all of the markings have been painted on by hand using techniques described in the text and the kit canopy replaced by a simple moulding. Even relatively old kits such as this Revell model can be transformed without the need to invest in expensive tools or materials.



External Details

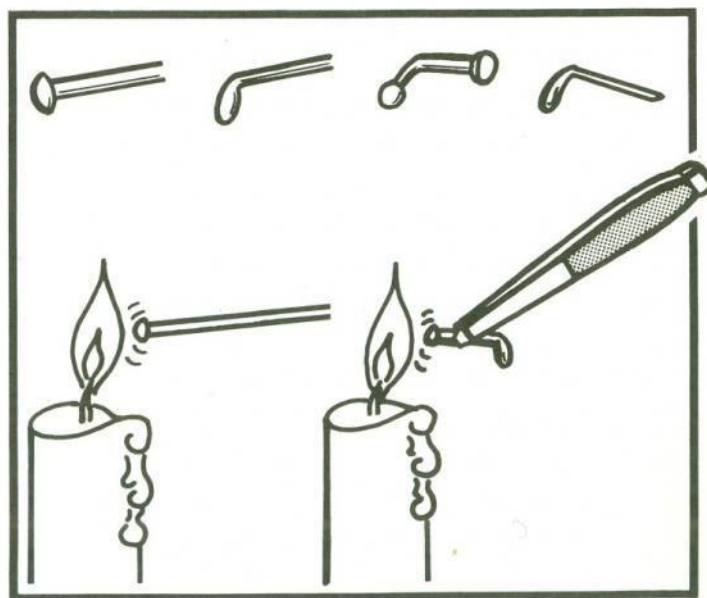
In parallel with panelling work, the techniques used to detail the interior are equally applicable to the exterior of the aircraft. Details may vary for each machine but the basic requirements of intakes, vents, radio masts, rear view mirrors, control horns, exhaust stacks and the like remain the same. All can be created using the basic materials where they are not provided in the kit or the components prove unsuitable. A little individual forethought is necessary with each model as it may be expedient in some cases to provide location holes for an item but only place it in position after painting when it will not create masking or handling problems.

A Messerschmitt Bf109G by Heller showing detailing work in progress. Attention is drawn to various points, the majority of which are dealt with at this stage. 1, Camera gun – a length of rod inserted into a drilled hole with the end redrilled. 2, Supercharger intake scooped out to the correct size by careful scraping with a modelling knife. 3, Circular blister added as a rivet of formed sprue. 4, Exhaust stacks replaced from earlier scrap kit as these were inaccurate. 5, Machine gun troughs sharpened with a file and the ends of the guns drilled out. 6, New fairing shape built up with filler and sanded down. Note that all external joints have been scraped and rubbed down. 7, Starter crank hole drilled on starboard side. 8, Cockpit detail completed before assembly. 9, Rear bulkhead joint filled on assembly. 10, Loop aerial location added from heat formed sprue. Aerial will be located after basic painting. 11, Jacking hole drilled both sides.



Ultimate detailing. Radar aerials on a rare model of a Focke Wulf Night Fighter. Added after painting.

Using a candle to form small fairings from sprue or rod.



Transparencies

Having lavished an amount of your care on the interior of a model some thought must be given to the areas where this detail will be seen. The transparencies, canopy, windows, turrets, are prime access points to the interior which can be marked and scratched easily so they must be handled carefully. Opening up the hatches and panels which form part of these transparencies allows more of the interior to be seen and adds to the realistic pose of the aircraft.

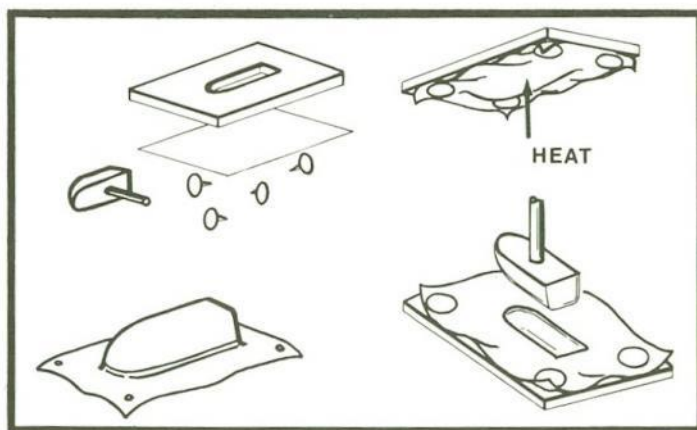
Cuts should be made with the razor saw to produce the cleanest edge and no attempt to cut through should be made until a shallow cut has been completed all the way round – this reduces the danger of cracking. To guard against the odd slip the sides of the intended cut should be lined with tape. Finally square up the ends with a fine file.

A small drill twisted gently at the back of the landing light transparency will produce a conical hole which looks like a lamp when installed.



Where possible add canopies last and always paint the framing before gluing to the model. If solvent is spilled on the clear areas it must be left to dry. It can then be polished out with toothpaste and a soft cloth. Items can be made from clear sprue filed to shape and polished back to clarity by this method.

Moulding replacement canopies is not difficult and does not require engineering tolerances. A balsa block is shaped and mounted on a cocktail stick so that it will pass through an outline of itself cut in sheet balsa. A heated piece of clear plastic pinned to this sheet is then pushed into shape by the block. The correct heat is reached when the hot plastic assumes a rubbery texture. When heating keep the sheet moving to ensure even temperatures overall.





Open canopies and well planned interior enhance what could well have been a fairly drab model of a Messerschmitt Me262B-1a 'Yellow 30' in service with EJG2 for pilot training during 1944-45. Externally each of the panel lines on the model has been carefully cleaned up at various stages of assembly, some requiring complete filling and repositioning to give the correct appearance. This aircraft also illustrates a little trick to ease handling, a disc of scrap plastic rivetted into the bottom of each tyre serving as a temporary base on what would normally be a tail heavy model. In this case all markings are from the Letraset 'Dry Print' range.

A Messerschmitt Bf 110C assembled 'straight from the box' shows the component join line problems which are likely to appear without a systematic approach to assembly. Here cowling and tailplane joints have not been cleaned up and are glaringly obvious once the paint has dried.

In this case the model was completed very quickly with no interior detail or correction work and was painted with a matt black aerosol, a technique which cannot be recommended for high class models as the paint film is difficult to control and obscures fine detail. Representing a night fighter of Lehrgeschwader 1, the model serves to illustrate the standard normally reached by the general modeller and should be compared with the other aircraft presented throughout this volume.



Good masking in evidence on a Hawker Siddley 125 in Royal Air Force service as the Dominie. Clean, crisp colour divisions are an essential feature of modern civil and military transport aircraft together with a smooth, dust free surface on the model.

Many models fall down because insufficient time is allowed between coats for the paint to actually dry and harden over. Over enthusiastic removal of the masking tape is also a common fault which aggravates any potential blemishes in the the surface. Consistently thin coats of paint are required to achieve the minimum of edge thickness at colour joins and an overall smoothness of appearance.

Fortunately the semi-gloss finish of this type of aircraft provides the optimum base for waterslide transfers and kit or commercial sheets can be used to their maximum advantage. On this model even individual stencil markings are provided by the basic sheet. (Model by Dave Jane).



Realistic worn camouflage finish is possible without the use of an Airbrush by employing a deliberately excessive amount of thinners added to a minute amount of paint and carefully flooding the resultant precipitate on to the model. In practice the original camouflage pattern must be allowed to dry thoroughly for a number of days before the weathering mixture is applied and allowed to dry. Any slight blistering of the surface, which may occur under certain conditions, tends to disappear on drying if the model is left alone.

A carefully corrected Henschel Hs 129B-2 constructed from a combination of Airfix and Lindberg kits serves as an excellent example of this method and the pleasing results. Open canopy and cockpit interior have also been incorporated from plastic sheet. The only non-plastic items in the model being the engine exhaust pipes which were made from brass tubing, cut to length and realistically burnt by heating in a gas flame prior to attachment. The aircraft depicted served with Panzer SG9 in Russia during 1943-44.

Finish

No matter what subject is being tackled the approach to painting remains the same.

To maintain the impression of scale the minimum number of coats which will give the correct finish are needed, but these must be thin coats showing an overall smoothness of surface and no brushmarks. They must add to the surface of the model as little as possible, particularly on small scale models. Experience shows that this overall fineness of colour application is achieved by holding the brush lightly and gently 'stroking' the paint onto the model. With dark colours or over a lighter colour only a single coat may be needed. Very light or thin shades may require more. This situation can be put to advantage in the majority of cases by sticking to a 'light colours first' rule where possible.

Depending upon the machine the finish should be either matt or semi-gloss. Very high gloss tends to produce an apparent thickness and depth of colour which is totally out of character on an aircraft model destroying the overall effect of the scaling down

process. Even on a highly polished aircraft an egg-shell surface is to be preferred. This is more readily obtained with well-thinned light coats.

Whichever approach is chosen the aim must be for a general consistency of finish throughout a particular model and to always understate the differentials between various finishes when they occur on one aircraft. The differences between an anodised polished cowl and silver doped fabric area when scaled down, for example, could probably be simulated in virtually the same colour by the merest polish with a tissue when the paint has dried.

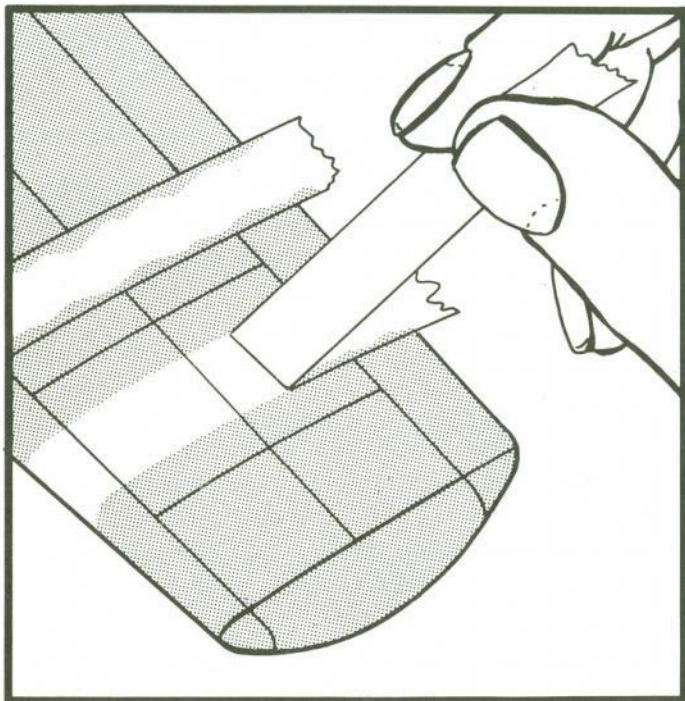
Obviously it is impossible to copy a scheme down to every little brushmark. Plan the work to be accurate where it is possible to do so i.e. on lettering style, marking sizes, and to create the impression of accuracy where actual details are arbitrary, scuffmarks, exhaust stains, freshly painted panels, etc.

Austral airlines BAC111, G-AXPH, red and black trim lines, white topping grey fuselage and wing shades, black lettering and penguin logo's, two pale blue flashes above logo on the fin, natural metal engines, grimy black radome.



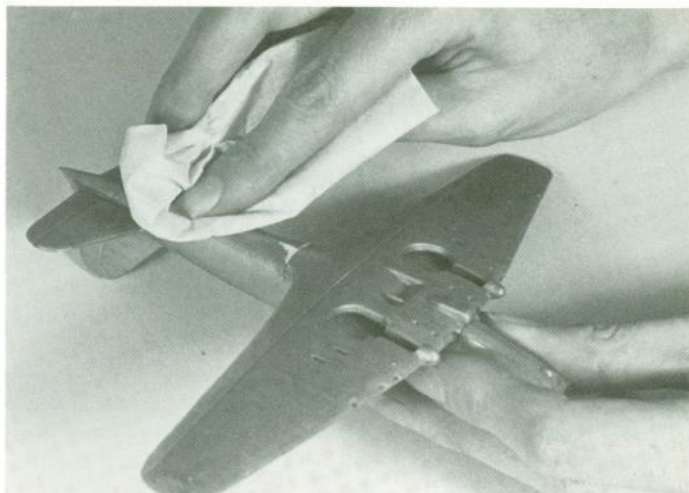
Masking and Basic Coats

With modern enamel colours priming is virtually unnecessary on most plastic models and is only useful to indicate possible surface flaws where considerable modification and filling has been carried out. Similarly many sources advocate washing a model in soapy water to remove grease – normally an excellent tip but rather risky with a detailed interior. Simply wiping down with a dampened tissue and then polishing lightly with a dry piece works just as well. However, once painting has commenced, all handling should be done by holding the model with a clean tissue to avoid fingerprints.



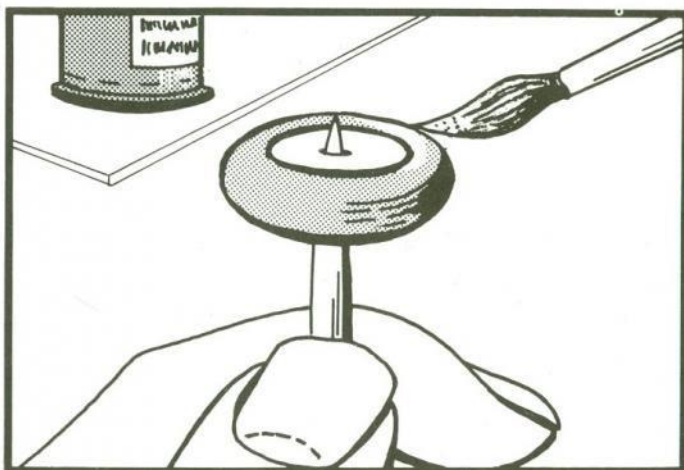
Painting should be carried out in long slow strokes, spanwise on the wings and lengthwise on the fuselage. Try not to recoat an area with more than two or three strokes particularly once the paint starts to dry. Additional coats can be easily applied but removal of excess material is very difficult! Two or three thin coats are therefore to be preferred to one thick one.

Wheels and other circular items can be tackled by sticking these on paintbrush handles for ease of rotation. Other minor items should be dealt with while attached to the sprue.



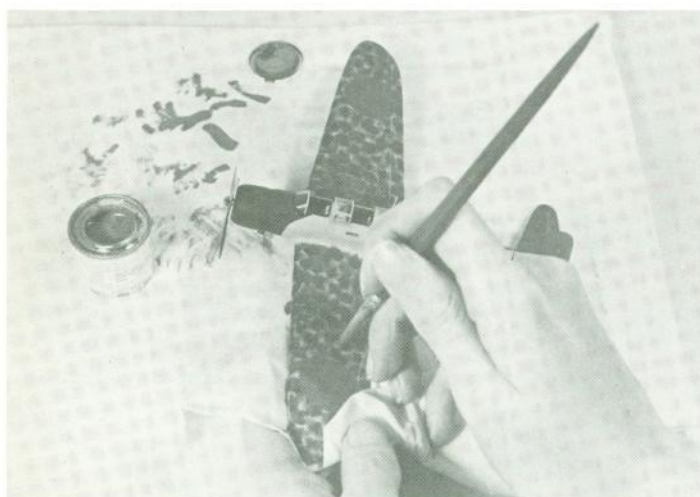
Masking can be done either with thin masking tape or sellotape. The latter produces the sharpest edge but is difficult to apply around curved areas so the particular model and colour scheme dictates the choice. The ground rules for painting are: 1. Clean Model, 2. Clean Brush, 3. Correctly mixed and thinned paint, 4. Firmly pressed down tape edges, 5. Paint away from the masked edge, 6. Steady tape removal with the tape doubled back upon itself, 7. Sufficient drying time before masking other colours. All failures with lifting paint can be traced to the incorrect application of these seven rules.

For curves follow the shape with a narrow strip of tape and then fill in the centre areas with larger pieces. Wads of tissue in the centre of larger areas reduce the quantity of tape required and the possibility of marking the existing surface.



Camouflage and Colouring

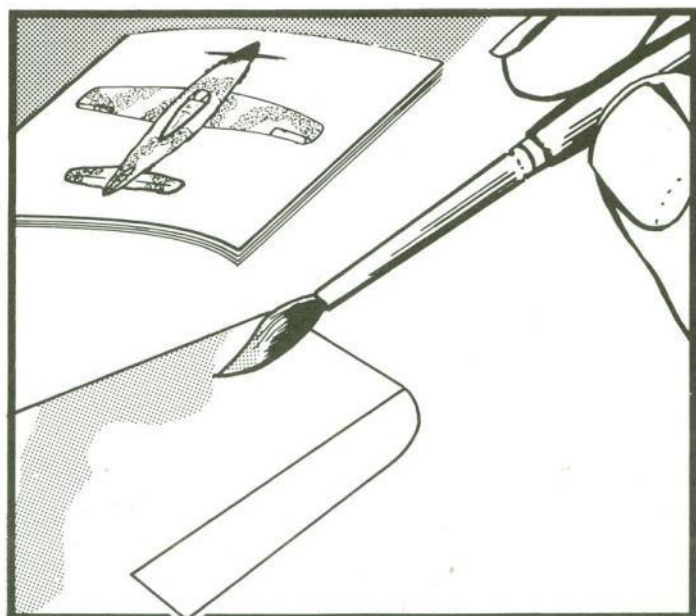
The correct application of camouflage is a tricky subject for the inexperienced modeller because newcomers frequently fail to appreciate the general military 'correctness' of many of the schemes and apply random patterns which destroy the character of the model. In all cases photographs of the machine and officially reported camouflage diagrams should be referred to when applying a colour pattern. The combination of the two will assist in deciding the pattern in areas not covered by illustrations of the actual aircraft.



Air-brushing is the ultimate method of applying mottle but a good alternative can be substituted using a fairly stiff brush cut down to 1/8" long and trimmed around the edges. Rest the model against the joints of the index finger – protecting the existing finish with a piece of tissue – and lightly touch the surface of the paint with the end of the brush. Wipe off immediately on a piece of newspaper and dab the end of the brush about until only light marks are visible on the paper. Then *lightly* touch the area of the model to be mottled in a dabbing movement. Repeat the process after a few moments. In this method it is advisable to start with a lighter colour than necessary and gradually build up a broad mottle then stipple over the centres of the colour areas with the correct shade to achieve a fading patch of colour similar to that normally achieved with a spray gun. Periodically completely clean and reshape the brush before continuing.



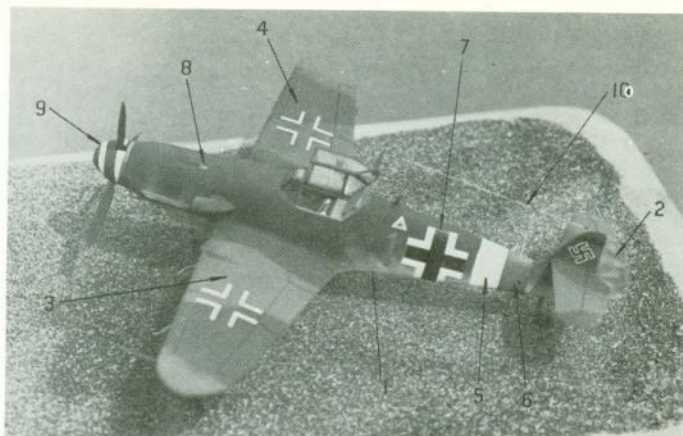
By referring to the official diagrams when applying a shadow shade pattern the areas can be followed easily, outlining with the brush and filling in as work progresses. It is important to ensure that the lighter shade has already fully dried otherwise it will be dissolved by the second colour and continued brushing will cause a mixed streaky finish to appear. Even with splinter camouflage freehand painting can produce acceptable straight edges. NEVER apply a second coat without plenty of drying time, although in most cases it should be unnecessary to do so anyway.



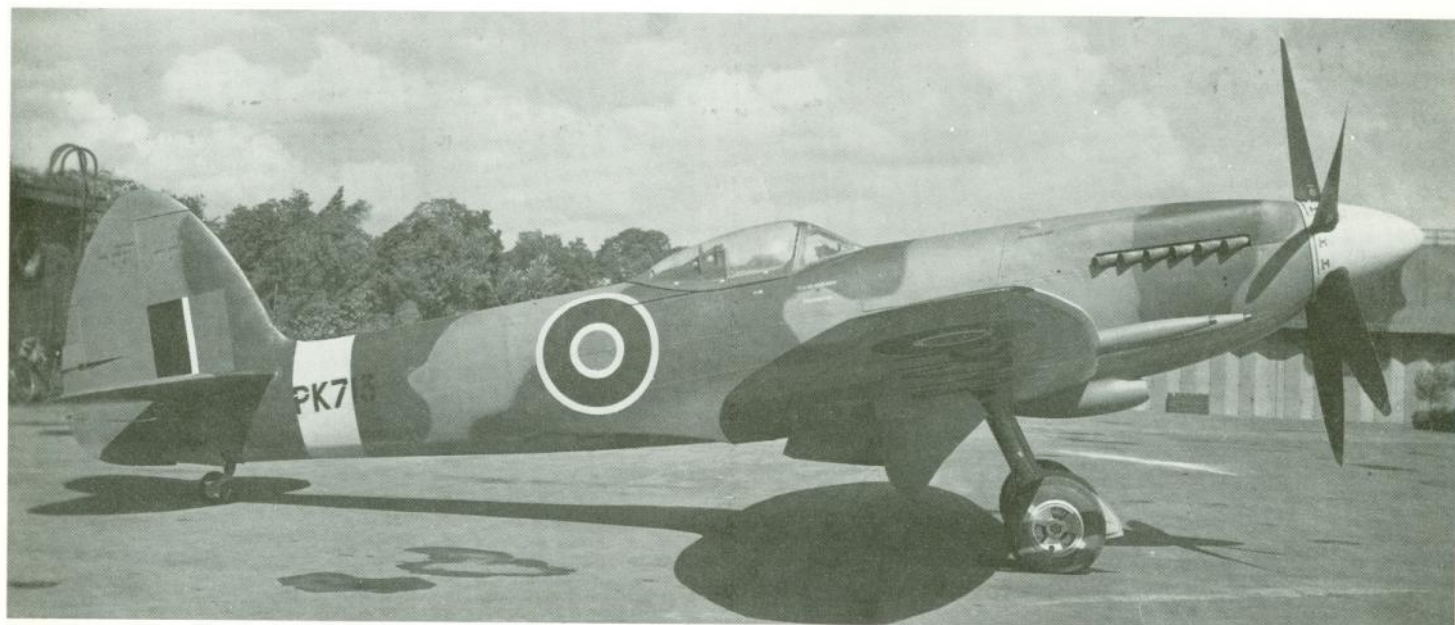
The range of colours available is large but inevitably certain shades will have to be mixed. If this is so then it is always important to mix more than is required and to store the surplus as it is impossible to match the first colour by remixing. Old paint tins can be cleaned out and relabelled to keep the mixed colours so that any mistakes at a later stage can be retouched. Remember also that colours on a model look different when dry than wet, particularly matt paints, so try out the mixed shades first before using them on a model. Strictly, they also need to dry out a slightly lighter shade than the original full-size finish to allow for the scaling effect.

Silver finishes on metal aircraft are rarely pure silver but rather a protective coating which displays metallic shades of grey. The same applies to fabric covered machines which were sealed with 'aluminium' dope. The general effect in model form would be of a pale metallic grey rather than the harsh silver. This is obtained by adding amounts of matt white or pale grey to the silver – up to 50% for fabric and to a slightly lesser degree for metal panels – so that the texture is altered. This has a helpful side-effect of making the colour easier to handle and therefore suitable for both brush and spray application. It is essential however that the two colours are mixed very thoroughly to prevent streaky effects.

The individual panel tones on machines can be reproduced in this method by slightly varying the amount or even shade of the matt colour added – but remember that these changes are only slight so keep the overall effect consistent.

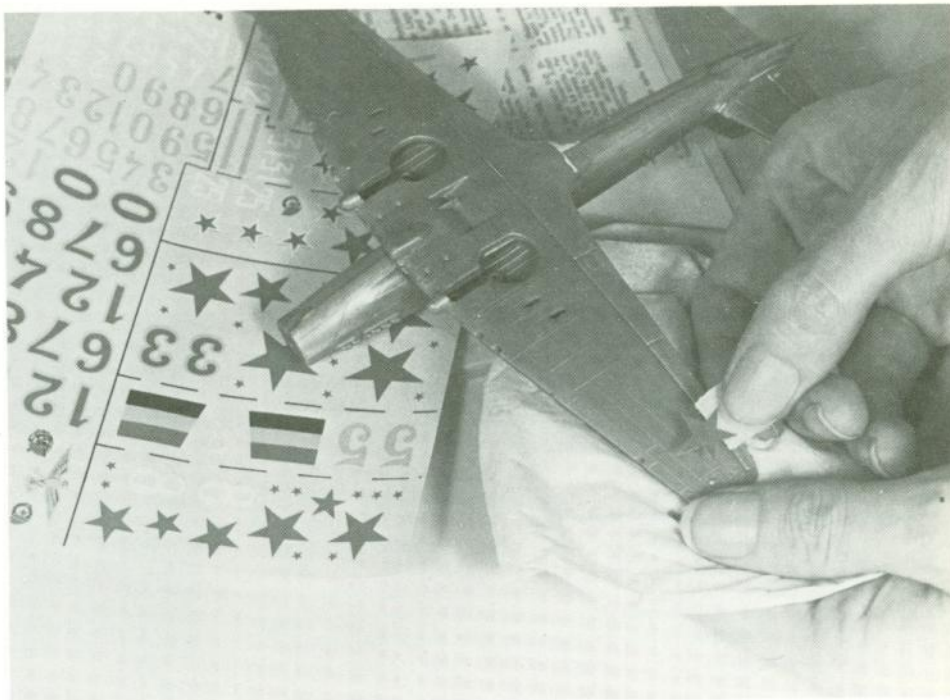


The sequence of applying colours should be worked out beforehand to keep to a 'light shades first' rule – except where special effects are required when mottling or airbrushing. A typical sequence is shown here. 1. Undersurface 2. Special effects on rudder and undercowling – mask off afterwards 3. Lightest uppersurface shade 4. Darker shade 5. Special effect white band 6. Green band 7. Apply markings 8. Paint exhaust stacks, guns etc., individually 9. Add spinner, canopy etc., completed separately 10. Add final details rigging, airdials etc. A variation on this when brush painting could well be to apply the bands 5 and 6 before any other painting is done.



Markings

Anyone who has ever opened a model kit will be familiar with the waterslide variety of transfer marking systems and realise that by interchanging sheets between various kits almost any type of marking can be obtained. The standard of printing and adherence of transfers vary however and a combination of marking systems seem to be the best approach to any model. Good results with waterslide transfers require each item to be cut from its surrounding carrier film, moistened with a small amount of washing-up liquid added to the water and blotted carefully with a soft cloth. Certain manufacturers have developed their own methods using liquids and varnishes but all can be fraught with disadvantages so ultimately the choice must remain with the builder.



Undoubtedly the best modern marking system is the dry print type where thin films of colour are applied by the application of a little light rubbing on the backing sheet when positioned on the model. This type of marking adheres well and is more permanent over the years than the waterslide transfer. Its one disadvantage is that it is removed by masking and must therefore be applied after all of the tape has been removed. No commercial kits contain this type at the moment, dictating that the builder purchase his own sheets separately.

Markings can be hand painted with care where suitable methods of outlining are available. Circular devices such as roundels are a relatively easy start using a pair of springbow compasses and ordinary modelling paint. Working inwards the appropriate colours are outlined and then quickly filled in with the brush. The compass point should be pivoted on a small piece of masking tape to reduce damage to the model surface. Finally remove the tape and fill it the centre colour.

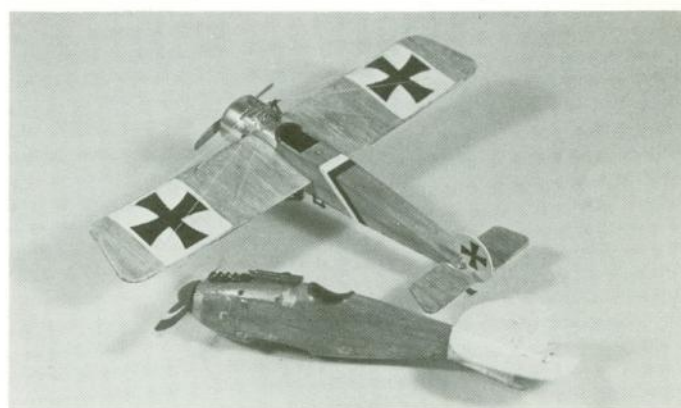
Typical selection of commercially available marking sheets which provide the raw material for a model.





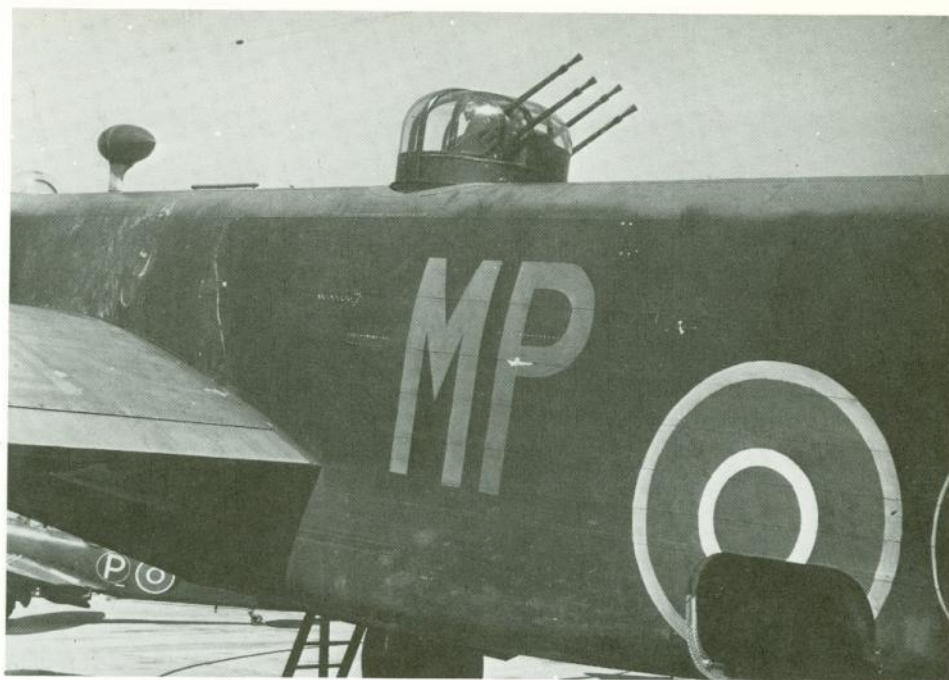
Civil aircraft and airliners usually require the highest standard of masking and lining as the majority of schemes consist of straight-edges and geometric patterns. If the basic ground rules already covered are followed carefully however no problems are likely to arise. Fortunately the semi-gloss finish required on these types takes most readily to transfer systems because of its greater surface adhesion compared with matt colours and it is rarely necessary to hand paint very fine linework. Coloured trim strips can be cut from sheet transfer or adapted from other kit sheets or dry print and the application order worked out so that any irregularities in paint masking are covered by these. If your choice is a final coat of semi-gloss varnish then check particularly that this will not darken any of the existing colours and take care not to pick up the paint underneath by excessive brushing; metallic colours and reds are particularly prone to this.

A useful method of simulating wood grain on varnished fuselages and propellers is both simple and effective, using a combination of two colours. The area to be marked is first painted with a thin coat of pale matt yellow and allowed to dry thoroughly. Gloss or matt brown is then rubbed or brushed on top in very small amounts to give a streaky grain effect. Each application must be virtually dry before it is applied and all of the streaks should be in the same direction on the component. This is a refinement of a technique known as 'dry brushing'. With practice all sorts of effects can be simulated, even using fingers and tissues to work the paint – such as the unbleached and castor oil soaked fabric of Immelmann's Fokker Eindecker or the plywood texture on an Albatross DIII fuselage.

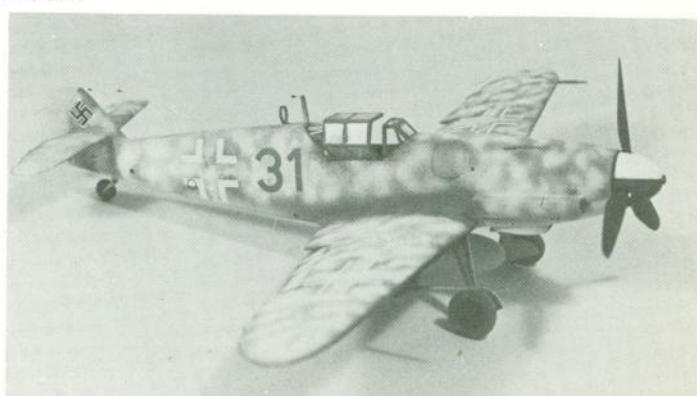
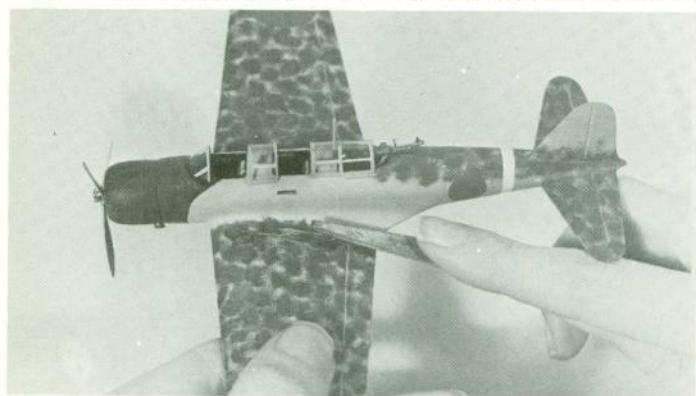


Weathering

All aircraft deteriorate in finish during their life between maintenance periods, each in a way connected with their characteristic design. These differing details of weathering, fading, chipped paint, exhaust stains, all require developments of the basic painting approach. It is very easy to overdo this however and the best advice which it is possible to give is 'if in doubt - don't'. Ideas for weathering appear as much by accident as by design and each technique must rely upon individual development to perfect its variations. It is an advantage therefore to develop any new ideas on old kits before risking them on an expensive model.



Above: Exhaust stains are easy of course, using ordinary mottling methods to build up various coloured streaks. Similarly tyres can be 'dusted' on the treads with an almost dry brush to give the impression of mud or dirt and the same methods, carefully applied, will tone down the harshness of a plainly coloured cowling and engine or introduce airfield spray scattered by the machines propellers such as seen on this Halifax. Bottom Left: As a simple technique do not forget the effectiveness of scuff marks on the walkway areas introduced merely by lightly applying a file to the top coat of paint. Bottom right: Fading can be introduced in the initial paint mix by keeping the colours light or added at the end with brush work and washes of thinner - at first thought a daunting prospect, but one which can work effectively with knowledge of its limitations. A method used by the author for worn and dusty finishes involves the introduction of very small amounts of paint in large quantities of thinner; as much as 30 or 40 to 1. Because of the ratios this mixture when allowed to stand, does not want to dissolve and the colour forms a minute globular precipitate or suspension in the thinner. This can then be washed or floated onto the model and allowed to dry producing in its variations anything from a patchy white winter camouflage to the equivalent of a fine overspray of midsummer dust. When fully appreciated the technique effectively rivals even the best airbrushed finish.

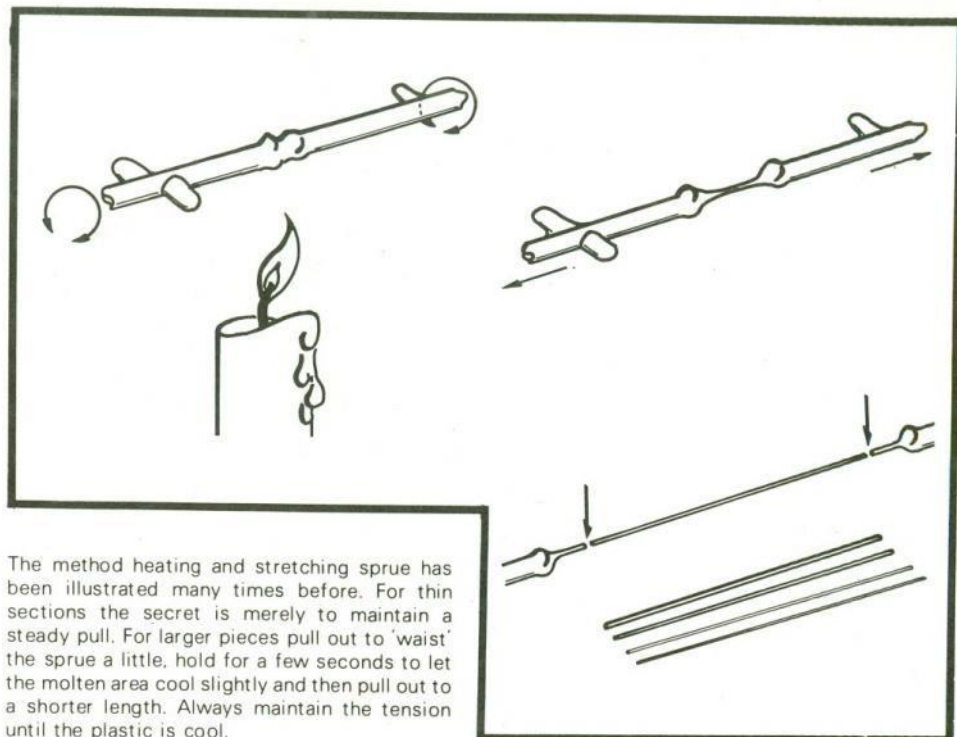


Rigging

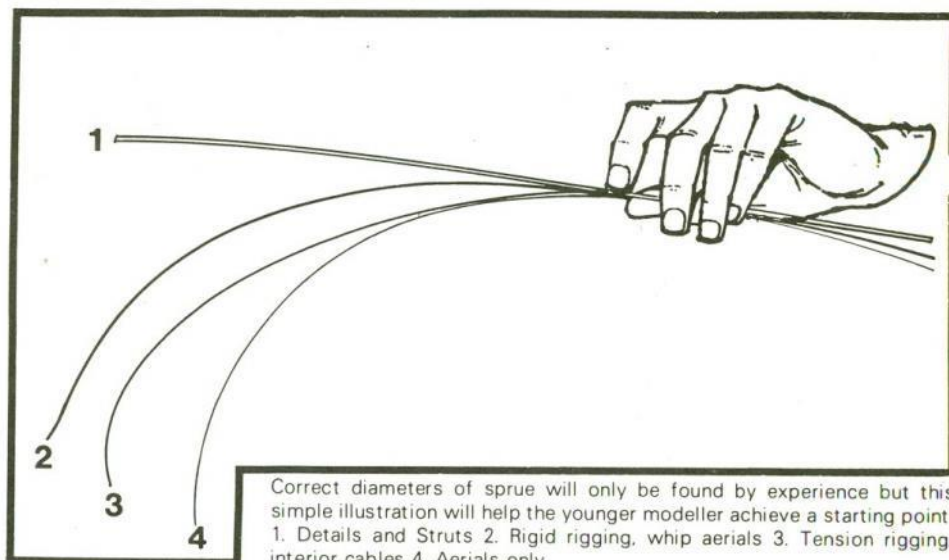
The most common methods of rigging an aeroplane are to use nylon monofilament knotted and wedged into predrilled holes prior to painting, or to fall back upon the old standby of stretched sprue, cemented into position on the painted model. The latter method tends to be preferred, using a fairly rigid piece of sprue pre-cut to length and held in position with a touch of cement at each end. An easier method, which allows thinner sprue to be used has been developed by the author. A flexible length is cut oversize and one end cemented into place. After allowing this to dry for a few moments the filament is tensioned by pulling it over the second attachment point and attached by a second drop of cement. Still holding on the tension another drop is applied at this second point so that it eats into the filament at the joint. Now by gently twisting the loose end between the fingers it will break away where the cement has eaten into it, leaving the completed piece of rigging in place and correctly tensioned.

The same method can be used to make aerials and insulators and these are easily built up with simple blobs of paint gradually formed into a spherical shape by repeated application.

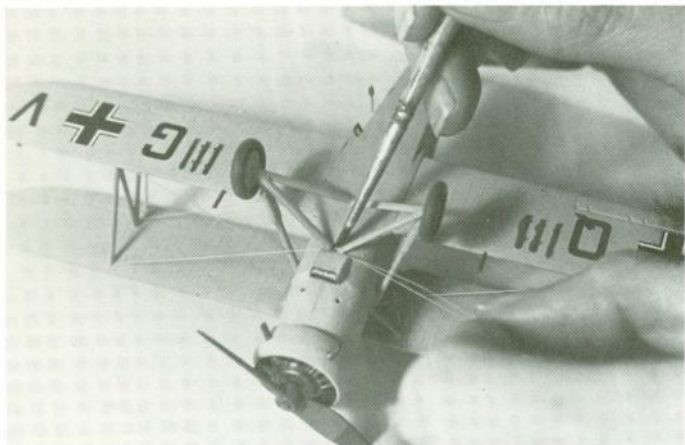
This process, once perfected, will provide a rigged model with no more than two or three strands being rejected and reapplied. Touching up with the ground colour increases the security of each individual joint.



The method heating and stretching sprue has been illustrated many times before. For thin sections the secret is merely to maintain a steady pull. For larger pieces pull out to 'waist' the sprue a little, hold for a few seconds to let the molten area cool slightly and then pull out to a shorter length. Always maintain the tension until the plastic is cool.

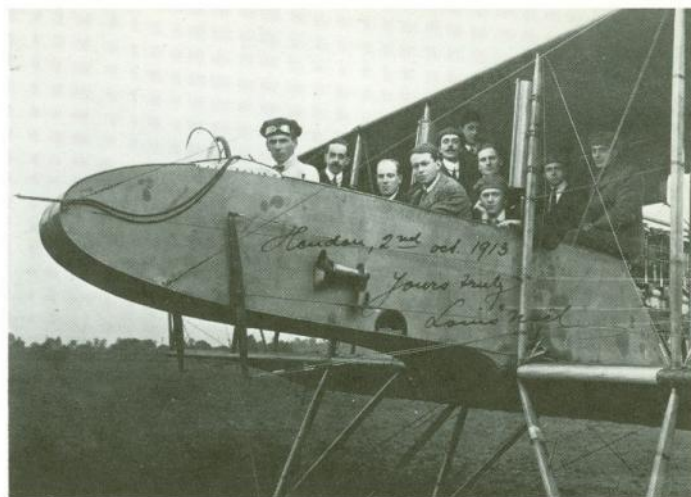
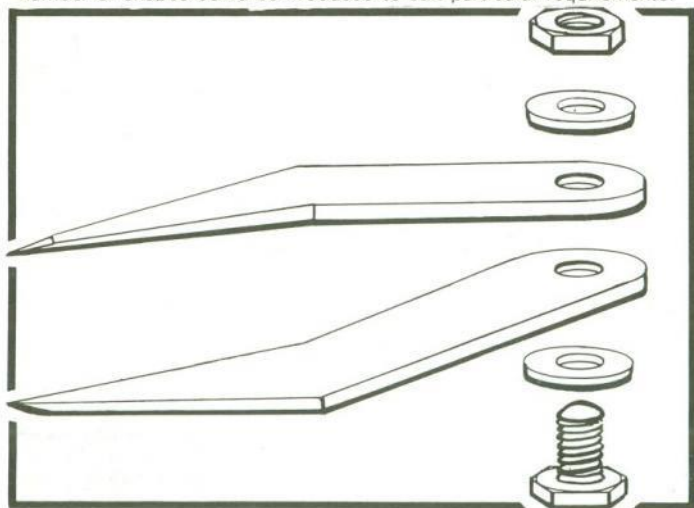


Correct diameters of sprue will only be found by experience but this simple illustration will help the younger modeller achieve a starting point. 1. Details and Struts 2. Rigid rigging, whip aerials 3. Tension rigging, interior cables 4. Aerials only.



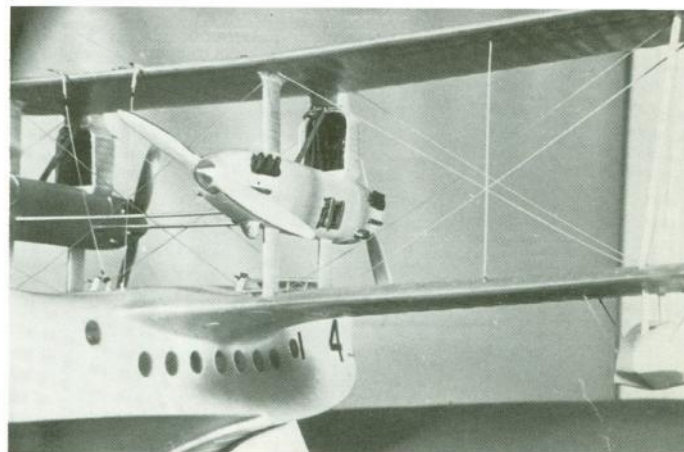
Rigging being applied. The solvent is just softening the second end of the 'wire' which has been pulled around the strut to provide a point for it to break away. This is encouraged by rolling the excess length around in the fingers until fracture occurs, leaving the correct length in tension.

If lengths of sprue have to be measured on the model a simple pair of dividers should be made from 10 or 20 thou plastic and a small bolt. This allows direct sizes to be taken without scratching the surface and a number of shapes could be produced to suit particular requirements.



Extremely careful scrutiny of photographs and drawings is necessary to determine the true runs of rigging and it is advisable to work out a sequence of application before starting. Failure to do this could result in some inner areas, such as on this Graham-White 'Charabanc', becoming unreachable after a few outside wires have been applied.

Touch up the ends on completion in the correct ground colour – in this case a metallic silver grey.

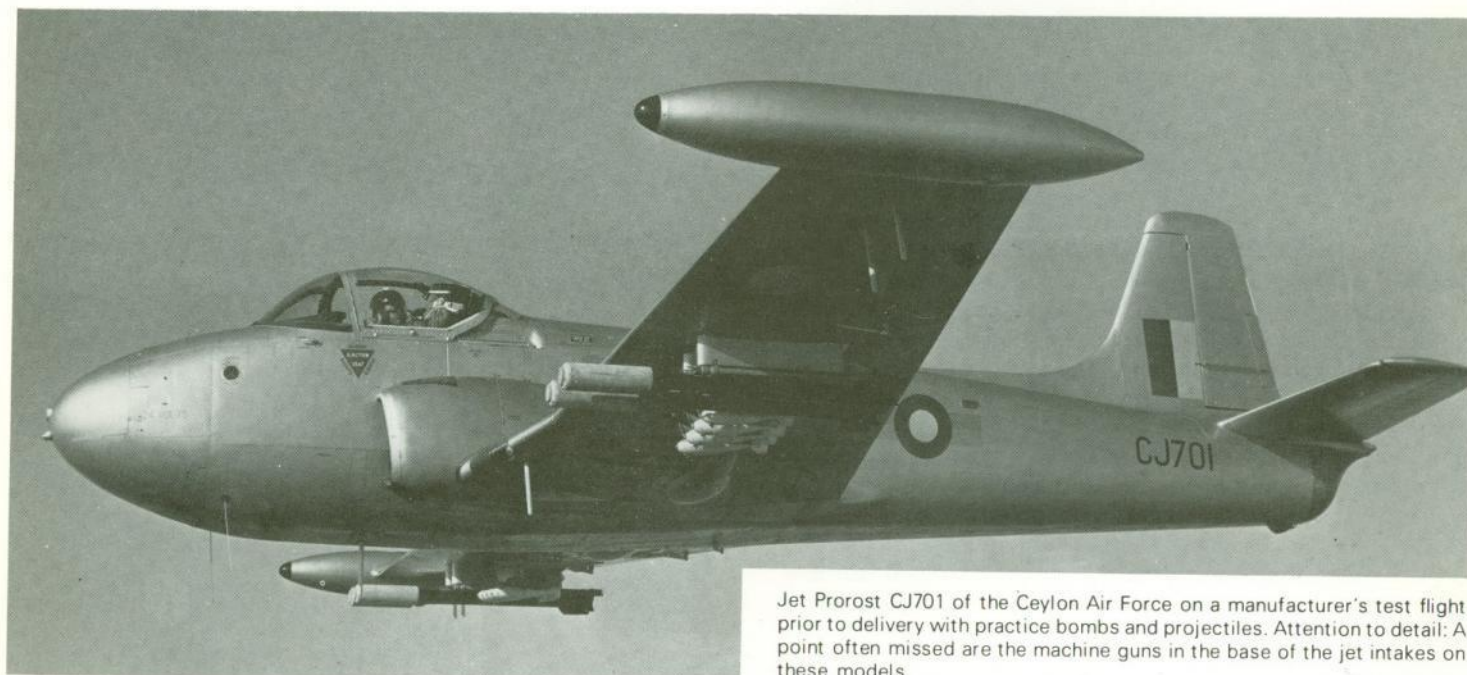


Stores/Weapons

When carried stores are very important embellishments on an aircraft and deserve as much careful thought as any other part of the machine. Do not spoil the effect by rushing to complete a model at this point adding plain grey tanks or 'black' bombs. Weapons are normally painted in certain colours for good reason, camouflage, contents identification. They are not as smooth and cylindrical as one might consider. To perform their function they require fuse pockets, bolts for lifting, strengthening and bracing bands. Also, of course, such weapons are always identified by serial numbers, batch sequences, inspectors stamps and the like stencilled onto their outer surface. Look for unusual fittings and placement of items. Noting in references that a particular unit flew certain missions with stores containers add these rather than bombs, but check the feasibility carefully – test or practice stores on a combat sweep are rather unlikely!



What you leave off is equally important. Empty racks, carefully detailed add as much to the character of a model as a wing full of weapons. Here a bare drop tank rack on a Bf109G has connectors and fuel pipes hanging free to provide a point of interest.



Jet Provost CJ701 of the Ceylon Air Force on a manufacturer's test flight prior to delivery with practice bombs and projectiles. Attention to detail: A point often missed are the machine guns in the base of the jet intakes on these models.

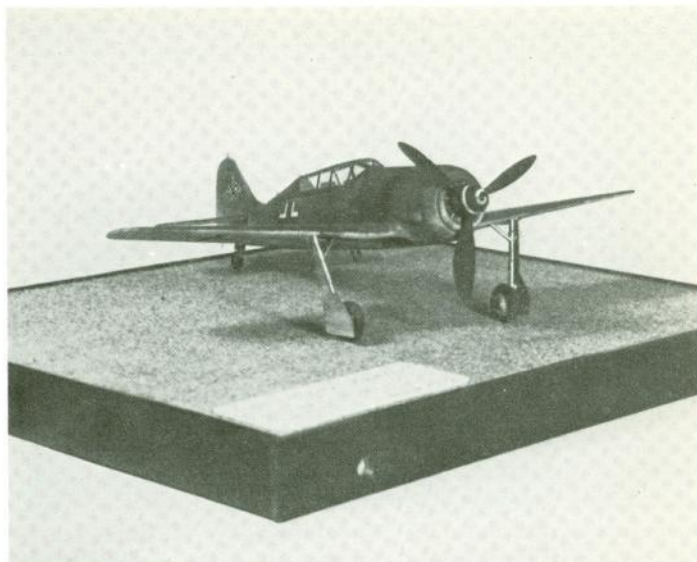
Simple Display

Display is usually the last item to be considered by the modeller if indeed it is given any thought at all. Sadly, nothing is guaranteed to distract more from a detailed model than the absence of any form of presentation – however small – when the subject is displayed. Although the display item can be produced at the completion of a project it is worth a few moments of appreciation at the beginning if only because its implications may effect the basic approach.

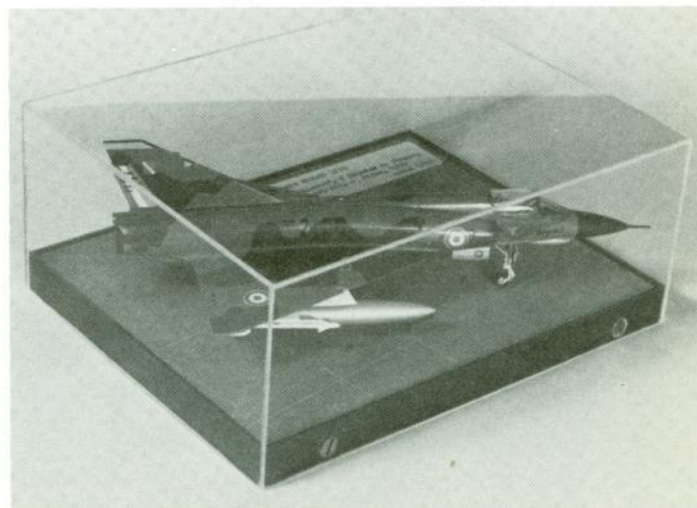
One school of thought suggests that unless an aircraft is flying, difficult to simulate in model form for obvious reasons, it is always in contact with some area of the ground and should therefore be displayed in a setting of simulated runway, field or whatever. This does not dictate that the method of display be an extensively detailed diorama – attractive though these are their creation goes far beyond the scope of this volume – the simplicity of a plain area of grass or a section of carrier flight deck with no other 'accoutrements' will complement a model very well using a small area of wood or a plasticard platform to provide the basic base. The same base could even be used for a number of models which are unlikely to be displayed at the same time.

Conversely, if model aircraft have a valid place as a form of art, then some simple abstract methods of display can offer a most attractive alternative. A model could be displayed on a simple polished wood plinth, on a section of scale drawing of the full-size machine, a map of its area of operations or a single colour base – the colour chosen to enhance or complement the colours of the model. One of the most obvious interpretations is to use mirror tile to reflect the underside of a particularly colourful model. Or you might prefer to show an aircraft on a base together with a full-size pilot's breast badge, the airline insignia, or a Farman biplane on a copy of a pilot's certificate of the same era – all that is required is a little imagination.

Dust is the arch enemy of a model. To keep expensive models clean consider making simple cases with a standardised base size. These can be constructed relatively cheaply from balsa wood, plasticard and clear perspex sheet as a range of permanent storage and display boxes.



Base displayed models of a Focke Wulf Fw190S-8 and a Mirage IIIE showing grass and concrete effect, the latter with its protective display cover fitted. The value of plasticard and perspex used is usually at least three times the purchase price of the kit protected but is still cost effective considering the time and effort put into a good model (Models and case by Dave Jane).



Appendices

Appendix 1: Kits

The availability and trade names of model kits and materials obviously vary considerably from one country to another.

Airfix (UK)
Aeroform (USA)*
Airframe (Canada)*
Airmodel (Germany)*
AMT (USA)
Aosima (Japan)
Aurora (USA)
Eidai (Japan)
Entex (USA)
Faller (Germany)
Formaplane (UK)*
Frank Model (Germany)*

Frog (UK) – see Nova (USSR)
Fujimi (Japan)
Hanaoka (Japan)
Hasegawa (Japan)
Hawk (USA)
Heller (France)
J & L (USA)*
Jo-han (USA)
Imai (Japan)
Italaerei (Italy)
K.P. (Czechoslovakia)
Kurthaufe (East Germany)
Life-like (USA)
Lindberg (USA)
Matchbox (UK)
Monogram (USA)

Nichimo (Japan)
Nitto (Japan)
Nova (USSR) – ex Frog moulds
Nova (USA)*
Otaki (Japan)
Rareplanes (UK)*
Revell (UK, USA, Germany & Japan)
Ruch (Poland)
Slipstream (UK)*
Supermodel (Italy)
Sutcliffe/Conrail (UK)*
Tamiya (Japan)
VEB (East Germany)
Williams Bros. (USA)
* Vacform rather than injection moulded kits

Appendix 2: Decals (Transfers)

ABT-Max (France)
AIR (USA)
Dri Dec (UK, USA)*
ESCI (Italy)
Microdecal (USA)
Modeldecal (UK)
Plasty (Germany)
Squadron (USA)
Stoppel (Denmark)
*Rub down type

Appendix 3: Art Lettering

Alfac (France)
Letraset (UK, USA)
Blick (UK)

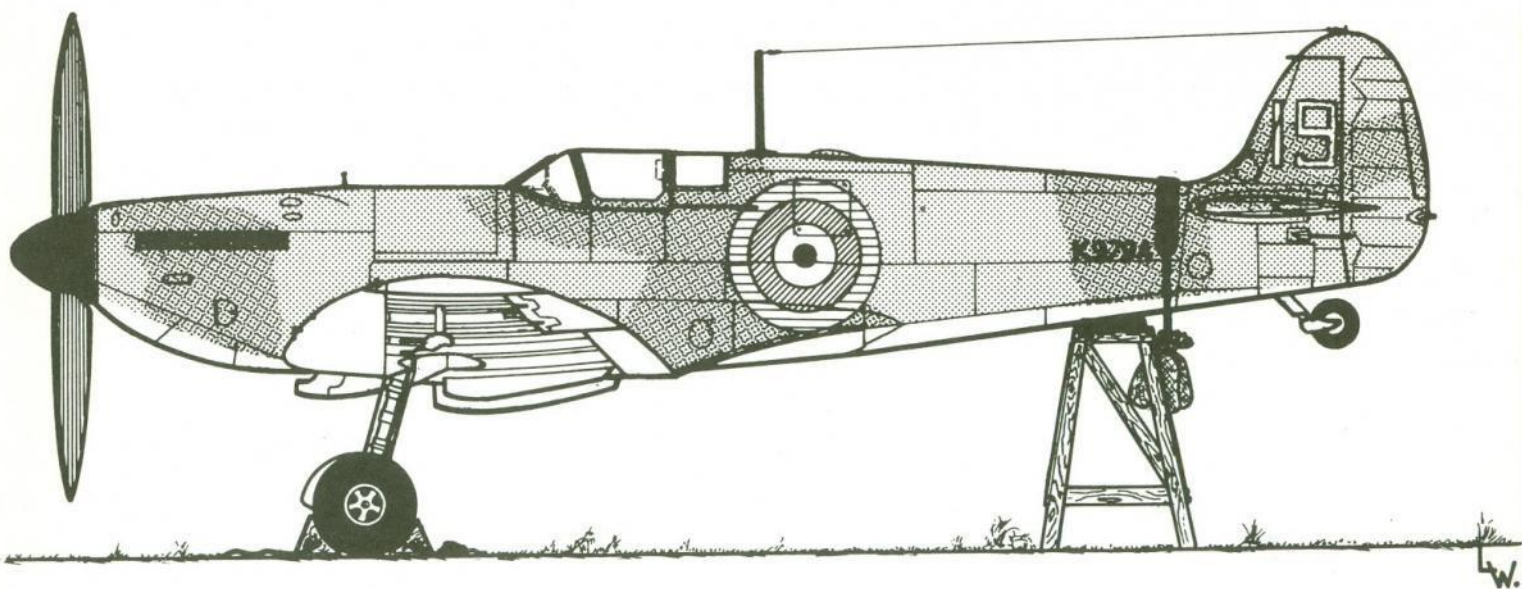
Appendix 4: Paints

Airfix (UK)
Floquil/Polly S (USA)
Heller (France)
Humbrol (UK)
Imrie/Risley (USA)
Revell (USA)
Testors (USA)
Official (USA)
Pactra (USA)

Acknowledgements

The Author would like to thank all those who have contributed to this volume with advice, suggestions and enthusiasm. In particular he would wish to mention Dave Jane and Hugh

Markham, who contributed photographs to supplement the writer's modest selection and illustrate individual points.





The construction of plastic scale model aircraft is a hobby enjoyed by literally thousands of people and yet few ever achieve a standard of detail and finish comparable to that displayed by the full size machine.

Like most modelling techniques the correct finishing of a plastic kit requires a certain amount of skill and patience but it is a skill which is within the reach of anyone once a presentation of the basic ideas has sparked off the imagination and enthusiasm of the builder.

The author explains in general terms the method of approach and degree of detail which may be built into any model aircraft kit. He does this in the order which one would employ in assembly and gives many useful hints which will help the modeller avoid unnecessary effort and expenditure. In all cases the materials used are those easily available to the enthusiast and all the steps covered require no skills which would not normally be developed in simply putting together an undetailed kit.

This book will prove a valuable addition to the bookshelf of any modeller whose aim is greater satisfaction in his work and character in his creations.

ISBN 0 85524 291 4

U.K. Price £1.50