

Hints and Tips - Painting 28mm Armies

Good results in less than 45 minutes per figure.

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Wargamers need to put several figures on a table before they can play. Even a small skirmish game needs fifty figures to form two opposing sides. Painting Guides often show you how to create a masterpiece in a few hours. However a few hours per figure, translates into several months before a game is playable. There are few guides to help you to paint a large number of figures to a reasonable standard in a relatively short time.

I paint and base a 28mm figure in about 45 minutes. WW2 soldiers take less time but usually medieval soldiers and Vikings take a little longer. I paint about 350 figures per year. Although the standard is not stunning, they do look presentable on a table.

To paint large quantities of figures in a relatively short time requires a little bit of a production engineering mentality. Choice of materials is important as is choice of tools. However, the best paints and the best tools do not get the job done. A well thought out sequence and a sensible batch size makes the job quicker.

As a last point, psychology is important. Figure painting is a hobby. It should be fun. Boredom means that projects do not get finished. Unfinished projects and a growing lead pile is a common frustration. I have developed my technique to maximise the sense of achievement early on in the process. I find that this helps to carry me through to the end result - a finished army.

Chapter 1 - Paints and Painting Techniques

I started painting figures about thirty years ago. At the time, the usual choice was Humbrol enamel paints. Now, most painters work with acrylic emulsion paints such as Games Workshop and Vallejo.

I use both types of paint but for different tasks.

Before I explain how I use the different paints, I need to explain the different techniques.



Left to Right - Tamiya Spray, Tamiya Primer, Humbrol and Revel Enamels, Enamel Thinner, Paint Selector Cards on black card, Games Workshop Acrylics, Vallejo Model Colour Acrylics

Painting Techniques

Priming

Figures come as unpainted metal or plastic. Before coloured paint can be applied a primer is needed. This forms a solid base firmly attached to the figure and a good bonding surface for the subsequent layers of paint. If the primer is already coloured it also serves as the undercoat.

Figures are made in moulds. Small amounts of silicon or oil based grease are used in the moulding process to help the figure to release from the mould. Many paints will not stick to this grease so the figures need to be washed in water and detergent (dishwashing liquid) before painting.

Some paints such as brush on enamels will bond strongly to the metal or plastic even if the surface has a small amount of oil or grease. Water based acrylic paints will not stick at all to oil or grease. Spray paints vary in chemical structure and usually only bond strongly to clean dry surfaces.

Undercoating

Undercoating can be done in any colour but black, grey or white are used commonly.

Undercoating in white makes the subsequent colours develop their true brightness. However it often gives problems that white shows through from the deepest recesses of the figure. These areas should be in shadow and adding shadow to an almost finished figure can be a problem.

Black is very commonly used, especially for painting large quantities of figures. Black is the darkest shade of shadow so most colours shade to black. Undercoating in black is easy as all of the deep areas are covered in the shadow. Later painting is easy because gaps in the paint or missed areas blend into the shadows. Black has a disadvantage as pale or bright colours need more layers to develop their true colour.

Undercoating in grey provides a half way step between the two extremes and is often useful for figures in light coloured clothing. Animals such as horses, bears and wolves can be undercoated in brown.

Master model maker, Calvin Tam, undercoats in black and then dry-brushes white onto the figure. This gives the best of both worlds.

Colour Blocking

Before shading and detail is applied, it is usually easiest to apply the colours in blocks so that hands, faces, weapons, clothing, and footwear are defined.

Shading

Most objects have areas of dark shadow, areas of colour and bright highlights. Shading can be achieved in many different ways. One easy method is to colour block the object in a dark shade painted into the deep detail and then paint the surface areas with the main colour and finally highlight the outermost details with a lighter shade.

Famous painter, Kevin Dallimore recommends having three pots of paint per colour - a dark shade, the colour and a highlight shade. This is a very good way to achieve consistency of colour over an army but is expensive as you will need three times as many paints.

Wet Blending

Wet blending is simply painting a second colour of paint onto a first colour before the first colour has dried. The two colours blend together to form subtle shading. Usually, light shades are painted onto darker shades of the same colour. Wet blending can achieve very flowing shades from shadow to highlight. Clothing with folds and creases often looks better with wet blending than other techniques. Wet blending is easier with enamels than with acrylics.

Dry Brushing

Dry brushing is a simple technique for highlighting areas. A very small amount of paint is applied to the brush. This is further reduced by brushing out the paint onto a piece of paper or card. When the brush has very little paint left on it, the model is painted in gentle strokes. The result is that the paint only sticks to the highest areas on the model. Dry brushing can be varied so that more or less colour is applied. It is worth experimenting with softer and stiffer brushes as the effects are quite different. Dry brushing usually works best when you paint at 90 degrees to the details rather than painting along the details.

Dry brushing in a highlight colour will define clothing details such as collars and pockets.

Armour plate looks very effective if it is undercoated black and then silver is applied to the whole area using the drybrushing technique. The joints and details remain black and the flatter surfaces become metallic coloured. Chainmail also looks very effective using this technique.

Washes

Ink and paint can be diluted and applied thinly to emphasise outlines or create subtle shades. The colour will tend to gather if the wash includes some PVA glue, and will stick in the folds and creases to highlight the small details.

A mix of 5 drops of water to 1 of PVA glue and 1 of ink is a very useful medium. The proportions of ink, PVA and water can be varied to create subtle shades or deep harsh shadows.

Paints

Enamels

I use Humbrol matt enamel colours for priming, undercoating, colour blocking and wet blending.

Enamel paints are a coloured pigment suspended in oil based medium. The medium is similar to an oil based varnish. It can take several hours to dry but bonds well to most surfaces.

Enamel paint is very tough and bonds strongly to metal and plastic. Figures painted in enamels are very tough and will survive quite rough handling. Enamel covers exceptionally well meaning that one coat gives a solid opaque colour. Enamels also tend to flow into the tiny crevices in the figure so coverage is complete.

The disadvantage of enamel is mainly in the cleaning of brushes. With enamels, you need to use appropriate paint thinners. This is a smelly substance very similar to White Spirit used by decorators. Pots of enamel paint have an annoying tendency to dry up if the seal is not airtight. A small amount of paint on the lid or the paint pot rim is enough to allow this to happen. Spills and splashes of enamel are a problem as it does not come off clothing or furniture.

Enamels need to be thoroughly mixed before they are used. The coloured pigment settles out of the oily liquid and gathers as gunk at the bottom of the can. If the paint is not mixed thoroughly, it will not cover well and will dry glossy. I mix the paint with a cocktail stick and then using the stick transfer paint to the palette. Usually, my palette is simply a cardboard box lid.

Enamels take at least an hour to dry. This is a disadvantage if you want to apply more colours but a great advantage if you want to wet blend colours together to get subtle shading.

Humbrol and Revel enamels are commonly available in toy shops. I think that the paints are identical.

Acrylics

I use acrylics for fine details, dry brushing and highlights. I also use acrylics for colour blocking, if I want a very bright colour. If you are painting a small batch of figures, acrylics are quicker than enamels as the time taken to stir the enamel paint and clean the brushes is longer than the painting time.

Acrylic paints are a coloured pigment suspended in a mixture of PVA and water. You can make your own acrylic paints by mixing watercolour pigments with PVA and water.

As acrylics are water based, they do not require smelly or messy solvents. Brushes are easy to clean with water. Acrylics dry quickly and can be painted over with highlights after a few minutes. Acrylic splashes can be cleaned off clothing and furniture so long as the paint has not fully dried.

Acrylics tend to only partly cover a surface, so two or three coats are often needed. Acrylics stick only where they are painted and do not flow into crevices. This is an advantage for highlighting but makes the colour blocking process very slow. Water can be added to make the paint flow more easily.

Acrylics can be used straight from the bottle but it is usually best to use a palette so that you can more easily control the amount of paint on the brush.

Games Workshop paints are commonly available in a wide variety of colours. It is a good idea to paint a small round price label with the paint colour and stick it to the top of the lid. Stir the paint with a cocktail stick and then transfer it to the palette.

Vallejo paints are less common but their range includes several paints that are colour matched to historical uniforms. Vallejo has a Game Colour range which is very similar to Games Workshop colours

and a huge range of 220 model colours. Most professional painters favour Vallejo. Vallejo paints come in plastic bottles with a dropper top. Shake the bottle thoroughly to ensure that the paint is mixed.

You can also use acrylic artists' paints. Paints in tubes will need to be thinned with a little water for figure painting.

Metallic Paints

Metallic colours are often made with metal flakes suspended in the paint medium. I use acrylic paints for all metallic finishes. Acrylic metallic paints give a much better effect than enamel metallic paints, possibly because the metal flakes are smaller or possibly because the acrylic medium is thinner. Games Workshop metallic colours are commonly available and good quality.

Metallic paints often work best as drybrush effects over a black undercoat. Chainmail and plate armour are easily painted in this method. Swords and spear points work well as a drybrush because the black details remain visible. Guns and cannon look good with a mainly black finish highlighted a very subtle drybrush of silver to bring out the mechanical details.

Gold often looks best applied as the last coat on top of silver.

Metallic enamel paints should be used with caution. Sometimes the metal flakes bleed into other areas if you spray the figure with a gloss varnish

Inks

Inks are similar to paints but dry as a transparent medium. Standard pen inks can be used but their uses are limited. Artist's inks, especially in brown shades allow a variety of effects to be achieved quickly and easily. Games Workshop inks are easily available in a good range of colours.

Inks can be used straight from the jar but the effect is often harsh and undesirable.

A mix of 5 drops of water to 1 of PVA glue and 1 of ink is a very useful medium. The ink colour will settle in the folds and crevices left by the sculptor providing deep shadows. The proportions of ink, PVA and water can be varied to create subtle shades or deep harsh shadows.

A mix coloured with flesh ink over flesh coloured paint will bring out the sculpted lines of a face.

A mix coloured with brown ink over brown will give an excellent leather effect on boots, bags, belts and leather armour. The same brown mix painted onto sand gives an earth or soil effect.

Both mixes can be used over brown paint to give a wood effect on bows, spears, axe shafts and rifle butts. Varying the ink and paint shade can simulate light or dark woods.

Inks applied over metallic paint can also be interesting. Brown ink applied over silver paint gives an appearance of cast bronze.

Varnish

Spray polyurethane varnish is easy to use. It is available from many suppliers in Gloss, Matt and Satin versions. Two thin coats of gloss varnish will protect your figures against rough handling. A third coat of matt varnish gives a flat surface and prevents shine in photographs.

Spray Paints

Spray paints are useful for painting vehicles. Use a spray primer first. Tamiya make a good range including various military colours.

Chapter 2 - Tools and Other Materials

Tools



Left to Right - Palette from food carton, OptiVisor, Paintbrushes, Needle Nosed Pliers and Side Cutters, Beautician's Nail Clippers, Tweezers, Tamiya Model Saw, Pin Vice, Ruler, Swan Morton Scalpel, Files, Emery Board and Sculpting Tools.

Notebook

A notebook is useful for shopping lists and reminders. Keep it with your model making kit. When you are painting an army in batches, make a note of the paint colour numbers so that future batches match the first batch.

Light

Good light is very important. I use an angle poise reading lamp which is screwed to the workbench.

Tool Boxes and Paint Organisers

I use a plastic desktop organiser for brushes and small tools. Paints are kept in small organiser trays (Ikea Rational). Some paints have coloured tops, others do not. It is a good idea to paint a small area on the lid of the paint pot so that you can see the actual colour. I stick round price labels onto the top of GW paint pots. Inks have rectangular labels.

Paper Towel

A roll of kitchen paper or toilet paper is useful for cleaning brushes and spills. Hang it close to where you work.

Paintbrushes

During the painting process, you will need several sizes of brushes. Generally, you should start with large fairly stiff brushes and work down through the sizes to small soft brushes.

Brushes come with various types of bristles. Gold sable is a little bit stiffer than brown or red sable. Usually the gold haired brushes hold a fine point for longer than the dark haired brushes.

For undercoating, a big brush e.g. #6 is ideal. A medium sized #4 brush is Ok for rough work. Colour blocking #2 or #1 is usually OK. Highlighting and detail work will need #0 or #00. Some modellers use very small brushes #0000 and smaller.

Thirty years ago, cheap paintbrushes were rubbish so the general advice was to choose the most expensive brushes that you could afford. Nowadays, many cheap brushes are surprisingly good. If you can, buy brushes from a display where you can choose individual brushes. When you choose a brush, moisten the bristles to check that it comes to a nice point. Don't be tempted to buy brushes that are too small. The point is more important than the size. Often, a 0 or a 00 sized brush will come to a better point than a 0000.

Palette

A palette is a tray for mixing paint. Use it to adjust the amount of paint on the brush rather than dipping the brush into the paint pot. You can buy an artist's palette but this is unnecessary. I use plastic food trays for figure painting. For scenery painting, I use yogurt pots. For ink washes, where the wash needs to remain wet, I use upturned yogurt pots. For enamels, a cardboard box lid is OK.

OptiVisor

A magnifying glass is useful for fine work but very inconvenient to use. Many professional painters and sculptors use magnifying glasses mounted on a headband. OptiVisor is a popular brand and a very good product. These are available via Front Rank.

Sandpaper

I use coarse grade sandpaper (120 grit) for flattening the base of figures. Packs of sandpaper for electric orbital sanders are often the more economical than individual sheets.

Emery Boards

Emery boards are sandpaper glued onto a wooden or plastic stick. They are sold in beauty shops for shaping fingernails. The best ones are used by nail technicians for sculpted fingernails. These are made from plastic board approx 25mm wide and 150mm long.

Needle Files

These are also known as jewellers' files and are useful for removing flash and mould marks. These are available from the tools department in local home improvement store.

Side Cutters

Side Cutters are pliers with cutter ends used by electricians, small versions for electronics are best for model making. These are available from the tools department in local home improvement store.

Needle Nosed Pliers

Needle nosed pliers have pointed ends and like side cutters, small versions for electronics are best for model making. These are available from the tools department in local home improvement store. Check that the points come together without gaps.

Tweezers

In contrast to paintbrushes where cheap items are often very good, cheap tweezers are often useless. Check that the points come together without gaps.

Model Maker's Saw

A fine saw is useful for cutting through figures. Model maker's saws are very thin.

Scalpel

Scalpels are very sharp knives. You can use them to cut flags, trim away flash and to remove parts from the sprue. I use Swan Morton #3 handles with #10A blades for most things. I have a larger scalpel for terrain and scenery modelling. Be careful not to twist the blades as they will snap.

Pin Vice

A pin vice is a small drill holder which is rotated in your hand. Often you will need to drill small holes to fit spears and flag poles. A pin vice with a 1.5mm drill bit is often the easiest tool for the job. Large metal models need to be pinned together as well as glued. If you can, buy one with a four jaw chuck and a palm swivel.

Dremel

A model maker's rotary power tool is an important tool for scenery and model building. It can be used with drill bits, cutting wheels, grindstones and cutting tools. Dremel is the leading brand. A cordless model is usually easiest to handle. Diamond cutters are very good but expensive. It is worth investing in a fully adjustable chuck (Dremel 8844) to speed up tool changes.

A Dremel can be used for drilling out holes for spears but it can be too powerful. A Pin Vise is less likely to damage you or the figure.

Remember that power tools are dangerous. Be very careful how you hold the model. Think about what could happen if you slip. A 1.5mm drill makes a very neat hole in your finger.

Grinding wheels and cutting wheels spit debris in all directions so always wear safety glasses. Keep safety glasses in the box with the Dremel so that you do not forget to wear them.

Glue

PVA

Poly Vinyl Acetate (PVA) is water based glue which is widely used in craftwork and woodwork. The glue is a white liquid and is commonly called "white glue". It dries transparent and sticks a wide variety of porous materials. PVA can be diluted with water to lengthen the drying time and spread the glue more thinly. Thin coats dry transparent. .

PVA has many uses. It can be used as the basis for papier-mâché. Mixed with sand or sawdust, it can be used as filler or modelling putty. Commercial wood fillers are often chalk or sawdust mixed with PVA. PVA is also the base for acrylic paints. PVA mixed with water can be used as a varnish.

Superglue

Cyanoacrylate adhesives are commonly called Superglue. Superglue bonds metals, plastics, fabrics, paper and wood. Superglue dries transparent but the glued areas are very hard. There are several brand names. There are two principle types, a clear liquid and a clear gel type. Liquid is better for small parts and can be applied from the tube or sometimes with a brush applicator. A larger bottle with a brush applicator tends to be more useful than a small tube. Liquid superglue dries in seconds. Superglue liquid is useful for attaching arms and weapons to figures.

Gel superglue takes longer to dry and the gel fills spaces between the bonding surfaces. Gel superglue is usually the best option for gluing figures to their bases.

Great care is needed as Superglue will easily bond flesh and glued fingers are difficult to separate. Superglue does not stick to polyethylene so spills can be smeared onto a plastic bag. Soap and warm water will usually be enough to separate joined fingers but if this is not sufficient the only solution is medical help. Accidents with Superglue can result a visit to hospital.

Putty and Filler

There are three principle types of modelling putty - Plaster of Paris, polymer clays and epoxy putty.

Plaster, Spactel, Polyfilla

Plaster of Paris is available as powder or as various ready mixed forms in tubes and tubs. Most of the ready mixed forms (Spactel, Polyfilla) are basically plaster with PVA and water. Plaster of Paris has many uses in scenery building but is of little use in wargames figure modelling.

Fimo, Sculpty

Polymer clay is available under several brand names such as Fimo, Sculpty and Cernit. All are a chalk filler combined with a thermosetting polymer. They all require heating to about 120°C for about twenty minutes to harden the polymer. Polymer clay is cheaper than epoxy putty and easier to sculpt making it useful for scenic items, such as sand bags, but it has few uses for figure modelling.

Green-Stuff, Milliput,

Epoxy putty is very important for figures. Epoxies are two part thermo set plastics. Once mixed the two parts harden at room temperature to a tough heat resistant plastic.

Most figures start out as sculptures made from Green-Stuff. Green stuff is a very expensive and concentrated form of epoxy putty. It is very strong, even in small sections and is easy to sculpt. Green Stuff is supplied as a ribbon about 30mm wide of green on one side and blue on the other side. The two are kneaded together to form a dark green putty. This putty is easy to work for the first thirty minutes and then gradually hardens becoming progressively stiffer. After about two hours it is quite hard.

Milliput is a trade for another type of epoxy putty. This is supplied as two sausages of yellow and grey putty. Equal parts are mixed to form grey putty. Like Green-Stuff, this is soft and sticky to start with and gradually becomes stiffer as it hardens over about an hour. Chemically, the epoxy parts of Green-Stuff and Milliput are identical; the difference is in the filler. Milliput is filled with about 80% chalk to bulk out the material whereas Green-Stuff has very little filler. Milliput costs about a tenth of the price, weight for weight in comparison with Green-Stuff. Milliput is an English brand name but there are various similar products, often used as a durable filler material in plumbing. I actually use a German product, called Fordo Two Part Epoxy Putty, which I can buy from the local home improvement store.

I reserve Green-Stuff for tasks which require high strength such as filling gaps and repairs to broken parts. I use Milliput for tasks where more material is needed but strength is not as critical. I use Milliput for basing figures.

Basing Materials

Base sizes are usually governed by the rules of the wargame. Round 25mm bases are used in many skirmish games. 20mm and 25mm square bases are used in Warhammer Fantasy and Warhammer Historical games. Horses are often mounted on 25mm x 50mm rectangles or sometimes on 40mm round bases.

Slottabases

Slottabases are originally a Games Workshop creation. They are small plastic plinths in round, square or rectangular versions. They have a great advantage that each figure is on a uniform base size and that each base is identical. They also present each figure nicely. They have a disadvantage that they are 3mm thick and it can look like every figure is standing on a podium.

Slottabases can be bought from Games Workshop but there are many other suppliers. EM4 offer bases at good prices and give quick service via their internet shop.

Washers and Coins.

Many gamers prefer to use thin bases. 25mm diameter metal washers are popular. In America, these are called 1 inch fender washers. Coins are another popular option with the British 2p piece being particularly popular.

Wooden Bases

Several suppliers offer bases cut from thin plywood. These are popular with historical games and available in sizes to suit various sets of Rules.

Sand

Sharp sand is commonly used for covering figure bases. Games Workshop sells little bags of sand but you can use beach sand or builders sand. Before you start, paint the base brown and let it dry. Cover the surface with diluted PVA and then dip the figure into a small container of sand. Carefully remove the figure from the sand and place it somewhere to dry. Paint over the sand with a mix of 50:50 water and PVA, coloured with a few drops of brown ink. This will fix the sand strongly to the base and also colour it into shades of brown.

Static Grass

Static grass is fine fibres of plastic thread coloured to look like grass. This is easy to apply. Add patches of diluted PVA to the base of the model then shake on the static grass.

Flock

Flock is essentially sawdust coloured with inks. It is often used by railway modellers to simulate grass and soil. Some wargamers used to use flock for bases, but it has gone out of fashion as sand and static grass gives a much better effect.

Clump Foliage

Model railway builders use coloured latex foam to simulate foliage on trees and as small plants. This is available as packs and can be used as plants on figure bases.

Other Useful Materials

Transfers

Transfers provide a quick and easy way to add complex details to models. Transfers allow detailed heraldic designs and insignia to be made easily.

There are three principle types- waterslide transfers, stickers and rub on transfers. Waterslide transfers are the type provided in plastic kits of aircraft and tanks.

Waterslide transfers for wargames figures are frequently single colour. Waterslide transfers from Veni Vidi Vici cost £1.80 for 24 transfers making them approx £0.08 (US\$ 0.14) each. Brigade Games make transfers for WW2 insignia including shoulder badges for US Airborne units.

Another type of transfer is the transparent sticker. Some of these are wonderful full colour paintings miniaturised to stick on shields and flags. The disadvantage is in the cost which is three times as much as waterslide transfers. LBM (Little Big Men Studios) charge £3.00 for a sheet of 12 transfers making each one £0.25 (US\$ 0.46) each. Remember that LBM transfers must be applied to a flat white surface.

Dry rub transfers are similar to Letraset. Archer Transfers make insignia for vehicles.

Flags

At one time, flags were cast onto the figures and very difficult to paint. Now paper flags are very easy. You can buy pre-printed sheets of flags and banners or you can print your own using a computer printer.

Many figures come with cast on flags. Sadly, unless you are very skilled as a painter, they rarely look good. Nowadays, I cut away cast on flags and replace them with paper ones.

There are several websites which have flags available to download free of charge. To make a paper flag, simply print out the chosen design onto ordinary printer paper. A laser printer produces the best results because the image is very sharp and the inks are water resistant.

Before you start, cut a flag pole from 1.3mm brass rod or 1mm steel wire. File or grind the ends to a nice finish. It is a good idea to paint the flagpole before adding the flag.

Cut out the flag carefully and fold it in the middle. Paint a thin layer of PVA glue on the inside surface and join the two halves taking care to line up the edges. Start from the edge farthest away from the centre and close the flag towards the fold line. Don't forget to insert the flag pole before you finish closing the loop.

The flag can be bent and shaped to look like it is waving in the wind before the glue dries. For a final professional result, paint the edges and paint over some parts of the flag so that the shading effects match your style of figure painting.

Brass Spears

White metal spears and lances bend easily. After a few times of bending and straightening, they tend to snap. I find it easier to replace white metal spears before I paint the figure. These can be obtained from Perry Miniatures, or you can make them yourself.

To make a spear, cut a piece of 1.3mm diameter brass rod to a length of about 40mm long. For a pike cut the rod 75mm long. Knights lances are circa 60mm. Place the brass rod on the anvil part of a vice and hammer the end to flatten it out like a spade. Then using side cutters trim the spade to a spear point. Clean up the cut metal at both ends using a file, or a Dremel with a grinding bit. For a professional result the spear head can be finished by rotating the brass wire against the grinding bit to leave a ring around the spear 5mm from the tip. Blunt the spear slightly so that it will not injure you in the future. Lances for medieval knights can be made in the same way with the addition of a tapered hand-guard made from Green-Stuff.

Parts of a casting

Sprue
Riser
Vent
Flash
Mismatch

Mould risers are a feature of white metal castings. They are caused by small ventilation tubes drilled into the mould to ensure that the small details are fully filled. Better quality figures have two or three per figure. They look like small silver hairs and are typically found on hands, feet and weapons.

Flash is a web of plastic or metal which forms across the joins in the mould. Usually flash is found between the legs or between the arms and the body. Flash usually indicates that the mould is worn. A small amount of flash is common.

Mismatch is a more serious problem. Mismatch happens where the two halves of the mould did not fit together properly. The two halves are displaced and this usually shows up as distorted faces and helmets. Mismatch should have been found by the quality control in the manufacturer. If you get several figures with obvious mismatch, complain to the manufacturer and ask for replacements.

Chapter 3 - The Painting Sequence

The Painting Sequence

A good painting sequence will achieve two things. Firstly, your work should always contribute to the final result and not destroy the work that you have already done.

The second is psychologically very important and is often neglected. If you paint in an appropriate sequence, you can see the results of your work and this will motivate you to continue.

Batch Sizes

The right batch size is one which allows you to complete stages quickly and efficiently. The batch size should be large enough to justify the set up each stage but small enough so that you can complete a stage in about an hour. I often clean, undercoat and base batches of 40 to 50 figures. Painting appears to work best in batches of 12 to 24 depending on the complexity and uniformity of the figures.

1. Inspect the figures for mould risers, mismatch, and flash.
2. Remove the figure from the sprue with side cutters. Remove mould risers, mismatch, and flash. Mould risers are typically found on hands, elbows, feet and weapons. Sometimes they can be flicked off with a fingernail but usually tweezers or needle nosed pliers are needed. Occasionally they must be filed away with a needle file. Flash is usually easily removed with a scalpel.
3. Sand the base flat. Easiest way is to place a sheet of coarse sandpaper on a workbench. Hold the figure firmly and vertically in your right hand and push it over the sand paper. Two or three strokes should be enough to give a flat base. The base is flat when the underside is covered in scratches from the sandpaper.
4. Glue on arms and weapons. I replace pikes, lances and spears with my own items made from brass rod. If pikes, halberds and spears obstruct access to the clothing then it is probably best to add them later. Liquid Superglue applied with a brush or dropper is usually the easiest method. Shields can be glued on at this stage but it is often easiest to paint shields separately and add them later. If necessary, fill any gaps with Green-Stuff.
5. Glue the figure to the base. I use Slottabases which are small plastic plinths. Other wargamers prefer washers or coins or squares of plywood. The choice of base size and shape is often governed by the rules for the wargame to be used. I glue the figure on top of the base using Gel Superglue. Slottabases often have flash and a visible moulding point. Both should be removed with a file or emery board.
6. Add putty to blend the cast figure onto the base. Milliput is the cheapest and most durable solution. The figure will usually come moulded onto a small base which simply needs filling in so that there is a smooth contour to the edge of the washer or base. Try to avoid covering the figure's feet. If you do, wait for about an hour. The Milliput will be hard enough to cut with a scalpel so it is easy to clean up around the feet.
7. Prime and undercoat the figure. If you use enamel paint it is not necessary to wash the figure first. For other types of painting including spray painting, it is advisable to wash and dry figures before priming and undercoating. I find the quickest and best method is to apply Humbrol Matt Black 33 with a brush. This serves as both primer and undercoat. I wear a disposable glove on my left hand and use a very large brush (a number 14 decorator's "filch" that is 10mm wide) in my right hand. I stir the paint thoroughly with a cocktail stick and transfer paint to a cardboard palette (an old box lid). Sometimes I thin the paint with enamel thinners. I paint vigorously with a scrubbing action to ensure that every recess is covered. As I paint, I turn and tilt the

model to ensure that all parts are covered. There is no need to paint the base as that will be done in brown enamel later. It takes about thirty seconds per figure. I have tried spray paint as an alternative but the paint bond is weaker and in practice it takes longer to set up and then to touch up the missed parts after spraying.

8. I usually set about twenty shields on a piece of wood and secure them with Blu Tack. You can also fold masking tape so that the sticky side is exposed and use this to secure the shields. I undercoat the front of the shields in black enamel. The backs can be undercoated in brown enamel later.
9. Drybrush the black figure with a pale colour (cream, pale grey or white). I usually use Humbrol enamel for this. This provides a dark and light base which makes the later stages quicker
10. Paint the dominant colour. As this is done first, the painting can be quick and sloppy. Take care to avoid painting over items which will be black on the finished model. The method chosen depends upon the subject. With WW2 figures, this is usually the base uniform colour. For uniforms, paint a dark shade of the uniform. Mix the correct uniform colour with black to get a dark shade. Using a large brush, paint all of the uniform areas. With medieval and Dark Ages figures, this is usually the armour. For plate armour and Chainmail, drybrush the whole figure with dark silver (e.g. GW Chainmail).
11. Paint the base brown using Humbrol Enamel Brown 186 using a large #4 brush. This serves as both undercoat and colour blocking. If the boots are brown, I paint them at the same time. I also paint the backs of the shields brown at this stage.
12. Paint the flesh. Faces, hands and legs are block painted in a basic flesh colour. I use acrylic (GW Dwarf Flesh for Europeans, GW Bronzed flesh for Asians). For large quantities of figures, Humbrol Enamel Flesh can also be used.



13. The next step is not logical in the sequence but I find it psychologically important. Add flesh ink to detail the face and hands. Ink is applied with a 50:50 mix of PVA and water.

By the time this stage is dry, the figure should already look like a soldier, in uniform with a defined face and hands, standing on a brown base. This is an important motivational step.

14. Now is the time to decide if you want to paint eyes. For rank and file 28mm soldiers, painting eyes is usually unnecessary work. For command figures and characters that will be examined closely, the effort is worthwhile. Paint a small white blob using acrylic paint into the eye socket. If you are accurate and the figure has good definition, the paint will sit onto the eyeball. Don't worry if you end up with too much white, this can be easily fixed later. Now add a black dot to the centre of the eye. A pin or the point of a cocktail stick is probably the easiest way. Some people use a fine drawing pen or a small paintbrush. You should have eyes with a black dot in a white eyeball. They probably look ridiculously large.

15. Carefully paint flesh coloured highlights above and under the eye over painting over the white until the eye is reduced to a more normal looking size. At the same time add paler flesh highlights to the forehead, nose and chin (GW Elf Flesh). If you want, paint the cheeks with a slightly pinker flesh tone and add stubble by mixing grey with flesh.
 16. The next step is to fill in the colours. Usually, it is easiest to start from the deepest and work outwards to the surface details. In other words, start with the shirt and trousers then do the jacket before the coat. I usually block in the colours with enamel as one coat provides a strong colour. If you use acrylic paint, you may need two or three coats of paint so the process will take longer. Use the biggest brush that you can manage as this will hold paint much better than a small brush. A 1 or a 0 size should be OK. With Dark Ages and Medieval figures, a variety of clothing colours looks best. To do this task quickly - sort out the figures into groups before painting. Then paint the groups in a sequence - e.g. group A gets blue trousers, group B gets grey trousers, group c gets green trousers and group D gets red trousers. Next, sort the figures into new groups and do the same again for jackets.
 17. Brown again, but this time with a smaller #0brush. The aim here is to block colour all of the brown parts on the finished model - the weapons, hair, quiver, bags, leather armour, boots and lastly, touch up the base.
 18. I like to use brown ink over the basic brown to create leather, hair and wood. Ink is applied with a 50:50 mix of PVA and water.
 19. At this stage, I return to the shields and paint the fronts with a basic colour. If you are going to add transfers, you will need to highlight the shield and then apply some varnish. A thin coat of spray varnish is usually easiest. I like to finish the shields to a reasonable level before gluing them to the figure. Glue the shield to the figure before you start the highlight process. Glue on any remaining pikes and spears at the same time. Superglue sticks best with metal to metal contact, so it is a good idea to scrape away paint from the bonding surfaces.
- By the end of this process, you will have a full coloured figure. From a distance of one metre (three feet), he probably looks very good. On closer examination, you will probably also have a few misplaced blobs of colour where you made mistakes.
20. Switch to a smaller brush and acrylic paints, say a 0 or a 00 and start to add the highlight shade to all of the colours that have been blocked in. Again, it is easiest to work from the inside details outwards. The highlights will also cover most of your mistakes which means that you will have very little touching up to do at the end.
 21. Once the clothing, faces and armour are complete, I turn my attention to the remaining straps and bags. These are painted with a small brush and then highlighted as necessary.



22. Lastly, add small details such as gold trims on sword hilts and edges of armour.
23. Spray the whole figure with a thin coat of gloss varnish.
24. Now it is time to cover the base with sand. Cover the surface with diluted PVA and then dip the figure into a small container of sand. Carefully remove the figure from the sand and place it somewhere to dry.
25. Once the PVA is dry, over-paint the sand with a 50:50 mix of water and PVA coloured with a few drops of brown ink. This will fix the sand strongly to the base and also colour it into shades of brown.
26. Highlight the base by dry brushing with a pale colour (e.g. GW Bleached Bone.)

The figure is ready to play. I usually leave them at this stage for several weeks before applying matt varnish and static grass.

27. Before you apply matt varnish and static grass, study the figure and look for your mistakes. I find that you see more mistakes after a week or two. Touch up the mistakes. If you have done a lot of touching up, you will need a second coat of gloss varnish.
28. Spray the figure with matt varnish.
29. Lastly apply static grass and clump foliage.



Further Reading

Books

Kevin Dallimore; Foundry Miniatures Painting and Modelling Guide (Foundry)

Kevin Dallimore is a master painter of 28mm figures and also the designer of Foundry's paint system. His book contains hundreds of pictures and explains in detail how to paint like a pro.

Calvin Tan; Osprey Modelling 23: Modelling Waffen SS Figures. (Osprey Publishing)

There are many modelling guides by Osprey. This one is a master class for detailing and painting 54mm scale figures.

Games Workshop "How to paint Citadel Figures" (Games Workshop)

Games Workshop is the biggest company in the wargames industry and provides some excellent guides and tutorials in their books and magazines. A very good book, but as you would expect, strongly biased to their own figures, paints and tools. Many Games Workshop rulebooks contain a summary of this book.

Websites

TMP The Miniatures Page

<http://theminaturespage.com>

TMP is a news forum and discussion site for miniature wargaming of all types. It has a large and active membership and good trade support. It is probably the first site with industry news and new product releases. The forums (Message Boards) are superb and most questions will get useful answers within an hour or two. The Message Boards can also be searched so that you can look up previous threads on a subject.

The Last Alliance

<http://www.thelastalliance.com/index.php>

Although this website is dedicated to Lord of the Rings and, in particular, to the Games Workshop game of the same name, the site has excellent painting tutorials and scenery making guides ranging from beginners projects to outstanding masterpieces.

Silicon Dragons

http://colors.silicon-dragons.com/full_line.php

This website contains a very useful paint matching tool where you can compare colours from different manufacturers.

Good results in less than 45 minutes per figure. By Michael Farnworth. Original January 2007, Updated January 2008. I paint and base a 28mm figure in about 45 minutes. WW2 soldiers take less time but usually medieval soldiers and Vikings take a little longer. I paint about 350 figures per year. Although the standard is not stunning, they do look presentable on a table. To paint large quantities of figures in a relatively short time requires a little bit of a production engineering mentality. Choice of materials is important as is choice of tools. However, the best paints and the best tools do not get the job done. A well thought out sequence and a sensible batch size makes the job quicker. As a last point, This study was undertaken to determine whether a less extensive delay procedure would be as efficacious as the standard delay procedure in breast reconstruction. Between July 1996 and February 1999, 15 patients underwent delay procedures prior to breast reconstruction. Six patients underwent the standard delay procedure. Nine patients underwent a less extensive skin delay procedure. Transverse [Show full abstract] rectus abdominis myocutaneous (TRAM) reconstruction was performed 1 week after delay procedures. Average operating time was 28.7 minutes for the standard delay and 19.7 minutes for