Airbrushing

Equipment and supplier

If you have ever been to a custom car show you will know how beautiful and extraordinary the sprayed designs are. I vaguely knew they were air-brushed but little else. I bought a simple Badger brush once that was powered by a car tyre, but had little success.

I don't really like aerosol cans. They are difficult to control perfectly, as well as being expensive and environmentally damaging. I watched with dismay as the paint from one dissolved the foam onto which I was spraying it, fortunately just a piece I was using as a stand. Then I happened across a video demonstration of airbrushing and thought it looked fun and satisfying. I found a well reviewed machine at a decent price. I had a couple of models that needed painting so decided to take the plunge.

This is the machine. It cost £60 on eBay with one Iwata dual action airbrush. Dual, or double, action means the button has two movements. Push it down to turn on and control the air. Pull it back to turn on the paint and control the flow. This gives you more control than single action where the button does both at once. The supplier is Voilamart from Hong Kong, though delivery is from a UK address and so is quite speedy.

Paint

I decided to use acrylic paints and settled on the Vallejo Premium brand paints. These used to be sold in 60 ml bottles by Hobby King at extremely good prices (about £4). They are not stocked at present but smaller bottles can be bought elsewhere, such as eModele https://emodele.net/pl/producer/VALLEJO/95. The paint goes a long way. The bare paints give a matt surface. This can be given a satin or gloss finish using sprayed varnish. An alternative make is Tamiya though the pots are tiny. They seem to make the best colour matches for scale models.

Methods

Though there are several excellent web-based video courses (for example 'How to Airbrush' by Don Johnson on YouTube), I bought two books as well ('How to Use an Airbrush' by Robert Downie ISBN 978-089024-287-2 and 'Airbrushing and Spray Painting' by Ian Peacock ISBN 978-085242-802-3). I find a written manual better when I am learning from scratch as I can go backwards to re-read bits and look at two pages at once. Downie demonstrates mostly on model cars but the skills are transferrable. I particularly liked a section on making a car look really muddy. Looked like my car. Peacock's book is very thorough, covering safety, equipment, materials and techniques. It is over thirty years old so some of the equipment looks a bit dated, but the author has updated details of the paints and other finishes. You don't get to techniques until more than half-way through the book. Then there are excellent exercises to develop your skills. My only criticism is that the pictures are monochrome and some are not as sharp as they might be.

The big pain in the neck is cleaning the paint pots and the airbrush between colours and at the end of sessions. There are no short cuts. The paint and varnish dries quickly, so cleaning must be done immediately. After emptying the paint back into the bottle I rinse out the jars with cleaner then wipe out with a paper towel. Then I refill with cleaner and screw it back on the airbrush. Follow the instructions for your brush. With mine I spray the cleaner through. Then I cover the nozzle with a finger and bubble air back through the pipe into the cleaner. Then I dismantle the nozzle and clean it with a wetted cotton bud and/or pipe cleaner. I repeat if necessary. I intend to try using a different jar for each colour and leave the paint in it with a screw cap on. A further jar will hold the cleaner. This should make changing colours much quicker and save on cleaning time.

A key skill is to thin the paint correctly. With a 0.3 mm needle you need to add a few drops of thinner to each 10 ml fill. Then stir well. You need to find this out by experiment for your choice of paint and airbrush. A calibrated dropping pipette is a good option for larger quantities. Its a good idea to record the quantities when you get it right. I have found a half full 22 ml jar needs about five drops of thinner. That's about 0.3 ml so the ratio is about 35:1. I haven't tried other needle sizes yet.

Take time to practice before you use the paint on a model. The handpiece controls are:

- the air flow by pushing down the button
- the flow of paint by pulling back on the button
- the size and density of spray pattern by moving the brush nearer to, or further away from, the surface

Two other variables are:

- how much to thin the paint
- what size needle to use

One good thing to try is to spray ‘daggers’ on scrap paper or card. Start by spraying maximum from far away, then sweep the brush across the surface as you move it closer and ease up on the paint. Then practice dots of differing sizes and densities. Then draw fine lines between the dots. You soon learn not to spray too much and cause runs. It is good practice to clear the nozzle each time with a burst of air before each spraying movement. Properly applied the paint dries instantly so you can make several passes in the same session to get the colour as solid as you want.

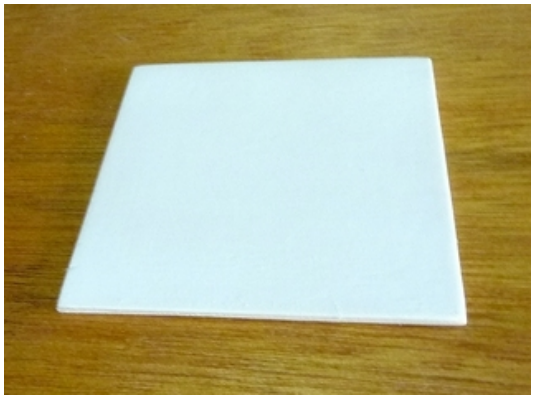
If you are using a single plain colour there is no need for masking. In most cases models have patterns on them. You could overlay the plain colour finish with film. However using masking tape and lightish paper, for example an old newspaper, it is quite easy to lay out shapes. No more difficult than cutting film to the right shape. Peacock’s book is very good on masking. It is important to make sure the edges of the paper are well stuck down or you will get faint colour shading from the paint going underneath. If you don’t want sharp edges you can cut stencils from thin card and hold these close to the surface. However you must take great care to avoid spray going round the edges of the stencil. It is best not to use masking tape where you have applied Eze-Kote on foam. It doesn’t stick as well as on wood so might peel off when you remove the masking tape. Perhaps priming with CA or PVA glue might improve adhesion. I’ll try. At the end there is a hint at removing the tape that causes less damage.

Spray booth and personal protective equipment

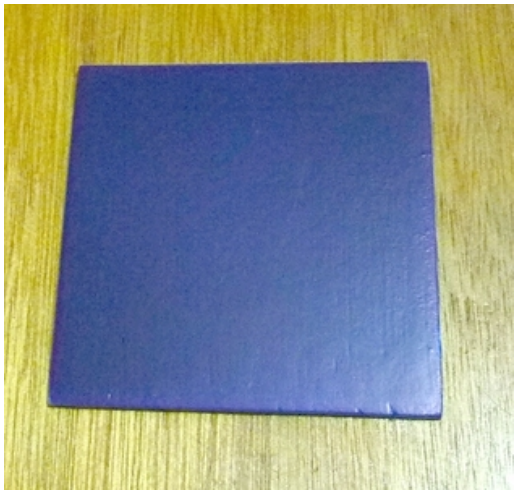
Acrylic paint isn’t particularly dangerous but it’s probably best to protect your lungs and eyes. The simplest dust mask will be fine and, if you don’t wear glasses, a pair of light goggles is a good idea. I don’t know if acrylic can affect the skin and of course people vary. Thin disposable plastic or nitrile goves will stop your hands getting coated with paint, though you might find it more difficult to control the airbrush.

For the spray booth you don’t need anything posh. If you keep any large cardboard boxes you get, you can flatten them to make a crude but effective spray booth. Here is one I made earlier. It’s long enough to take the 1.5 m Mustang wing.

Testing



This is the Eze-Kote and glass coated square after spraying with acrylic primer before sanding.



This has had the acrylic paint applied, before varnishing.

After gloss varnish. I think I will rub this down with 1200 grit and spray on another couple of coats. The varnish seems to weigh very little.

Weights

Bare wood	11.03 g
After first coat, sanded	11.77 g
Weight of one coat of Eze-Kote	0.74 g (74 g per m2)
Square of glass	0.41 g (more than 0.24 g because of the excess)
After third coat, sanded	12.60 g
Weight of coating and glass	1.57 g
Weight of coatings and glass per m2	157 g
Weight with acrylic primer and top coat	12.98 g
Weight of primer and top coat	0.39 g (39 g/m2)
Weight with finish varnish coat	13.04 g
Weight of gloss varnish coat	0.06 g
Total weight of glass and coatings	2 g (200 g/m2)

I am a beginner so I am making mistakes, mostly over masking and flatting. I practiced on the rough and ready model I had to repair so the faults didn't matter. I should make a better job of the next one.

Lessons I have learned

1 The sprayed acrylic finishes are very thin. The bare surfaces need to be prepared as perfectly as possible. Any grain or dents will show through.
2 Experiment with the viscosity of the paint by adding thinner.
3 Practice before you spray a model. Be willing to waste some paint.
4 Wear gloves. If not your hands will finish looking like a werewolf's without the hair.
5 Always give a quick blast of air before starting a spraying pass, ideally onto scrap paper or the card of the booth.

Other equipment needed

I soon discovered that you need a lot of other bits as well as the compressor and handpiece.
This is my current list (mostly eBay prices):

- Vallejo paint thinner, also called 'reducer' (you only need a small bottle) (£11 per 200ml)
- Airbrush cleaner (you need lots of this. I suggest Medea 545 ml for £12)
- Lubricant for the tip after cleaning (Badger Regdab Needle Juice on eBay at £9.42 plus £3.60 post or Paasche Airbrush Lube on Amazon at £8.32)
- Wooden paint stirrers (about £3 per 250)
- 3 ml droppers for liquids (possibly - thinner bottle has a dropping nozzle) (£2.50 per 100)
- Cotton wool buds (for cleaning the nozzle) (about £2 per 200)
- Pipe cleaners (for cleaning pipes and nozzles) (about £1.50 per 50)
- Spare 22 ml paint jars with lids (about £1 each)
- Masking tape (£1.89 at Toolstation)
- Thin card for making stencils
- Paper towels or kitchen roll
- Some sort of spray booth, probably large old cardboard boxes
- A mask , preferably one having an FFP2 grading (about £1 each)
- Disposable gloves, preferably latex or nitrile ones (about £5 per 100)

Air supply hoses and adaptors

The Voilamart compressor has an air outlet the same as the one on the supplied Iwata airbrush. This is a ¼” BSP (why not measure it in millicubits if you want antique units?). I bought a second airbrush of higher quality, this time a Badger Model 150. The hose supplied with it had totally different connectors. The airbrush end is I think a Badger own design. The other end is ½” BSP to fit on a Badger compressor. I had two choices. I could butcher the Badger hose and fit a ¼” connector. However a better option is to buy an adaptor that screws into the ½” end of the Badger hose and the ¼” end of the Voilamart one. This is what one looks like and can be bought on eBay for about £3. One advantage of doing it this way is that I now have a longer hose. It would have been tight spraying the length of the one piece Mustang wing with just one hose.

Discovery recovery

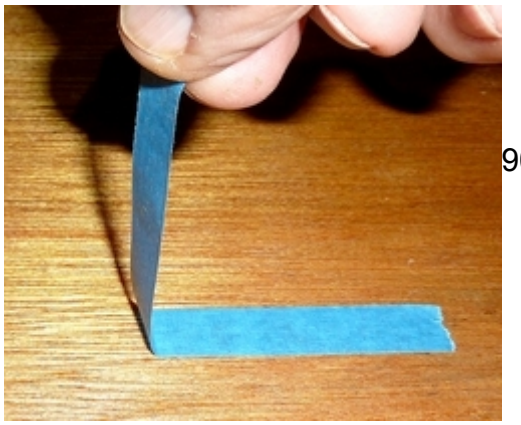
This is the damaged Discovery that I used to practice Eze-Kote, glass fibre and airbrushing on. The damage was to all of the fuselage from the leading edge forwards, though the spraying goes back to the trailing edge. It is all a bit rough but not too bad.

Hints and tips

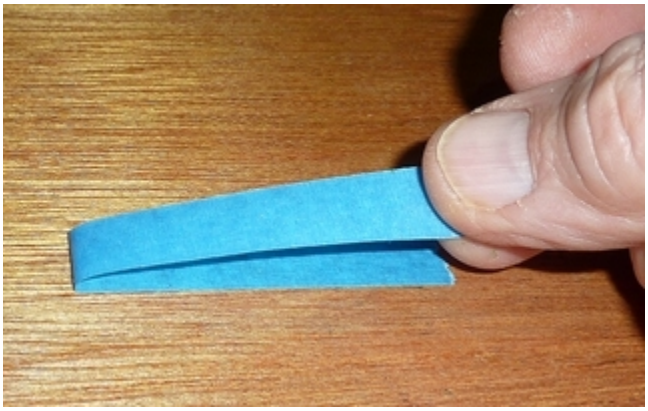
As I have blundered my way into air brushing I have started a list of hints and tips that come from bitter experience. Here are the first five.

1 Removing masking tape

On some surfaces, particularly the waxy surface of foam, it is possible to pull the paint off when removing the masking. It is best to remove at 180 degrees to avoid this.



90 degrees. Likely to pull the surface off



180 degrees. Much less likely.

2 Warmth

In the winter building season your workshop is likely to be cool. It is best to warm it up when spraying. Even acrylic takes quite a longer time to dry in low temperatures. On the plus side wet acrylic paint doesn't seem to be sticky, unlike other paints. I use a fan heater but so far haven't had any dust adhering.

3 Drying

Wait until the whole paint surface is matt before handling the painted object. Until it is fully dry it is easy to smudge and allow the underlying surface to show through.

4 Capillary action

It has proved tricky to mask on some foam surfaces. This is especially true when it is bumpy after hot water treatment to expand crushed foam when repairing. In one place I got a tree effect as the paint spread out under tape. I had to brush paint it to cover it. The irony is that the nearer you get to close masking the stronger the capillary effect. I think that a couple of coats of primer prior to masking might help but haven't tried that yet.

5 Colour change when drying

Acrylic paint is water based and is a bit like emulsion. Strong colours darken as they dry. Don't be alarmed if new wet paint looks different from the old dry surface of the same paint.

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