

How To Master **Airbrush Painting Techniques**



- *Beginner skills to advanced techniques*
- *Choosing and buying equipment*
- *Mixing and choosing colors and finishes*
- *Designing custom artwork*
- *Textures, stencils, and freehand techniques*

JoAnn Bortles of Crazy Horse Painting



Dedication

To Jeanmarie Kamm Begey, my mother who dragged me off to art lessons and opened my young eyes to all the wonders and possibilities. Thanks Mom.

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On the cover, main: Painting a photorealistic portrait is one of the most challenging projects an airbrush artist can undertake. **Inset:** Painting soft highlights in a graphic. Before spraying each highlight, the spray of the airbrush is tested on the stencil material off to the side.

On the title page: Airbrushing a flower is one of the easiest things to paint, yet the use of multiple masks results in surprisingly detailed results.

On the back cover: In this mural, accurately painted surface textures combine to create a dimensional image.

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And to my dad for buying me that first airbrush.

FOREWORD

Working in the world of custom automotive painting, a field traditionally dominated by men, JoAnn breaches many barriers with her savvy, yet practical approach. She marries the task of creating beautiful automotive airbrushed graphics and artwork with real world experiences in an intelligent and straightforward manner to which many people can relate. Although she instructs with automotive custom painters in mind, JoAnn provides a lot of useful information beneficial to everyone interested in airbrushing.

Working without the benefit of a mentor, JoAnn was often forced to experiment with the medium for herself, and in doing so invented solutions to custom painting that, while often unconventional, yield outstanding results.

JoAnn takes life's lessons and applies them to custom painting, and vice versa. Her techniques allow anyone, male or female, young or old, to comprehend and succeed in the world of custom paint.

If there is one lesson to be learned from JoAnn's experience, it is that tenacity is a major component of success. In many circumstances, her staunch refusal to give up has allowed her to discover unique solutions to the many challenges associated with airbrush artwork.

Dru Blair
www.drublair.com

INTRODUCTION: The Reality of Working as a Non-Starving Artist

Imagine New York City, 1978, Times Square. It was very different than it is now. Not the glittery polished high rise theatre/hotel district it has become. It was dirty, nasty, and smelly, with discount electronic and porn stores on each block screaming out at you. Pre-Giuliani NYC. You could not walk down the street without being accosted by some scammer begging for money or “just a minute of your time.” Now imagine a dingy, rundown boarding house one block down from that Times Square. That is where many of the paintings you’ll see in this book were painted.

I was a young idealistic, yet jaded, dreamer going to Parson’s School of Design. I worked a few blocks down the street tending bar. My dad had bought me a Paasche H single-action external spray airbrush. I had only one window in that room which overlooked the wall of the apartment building next door. Not very inspiring. But my mind was back in the world of a 1970s gearhead and my paintings

reflected that. Any spare moment I had, I went back there through my art. And much of it was done with that little airbrush and cans of compressed air.

One of my greatest thrills was going to the big Charette Art Store in Woburn, Massachusetts, with my dad. We’d roam the isles, seeking out the few treasures my dad could afford to buy me, such as wild ink colors like Dr. Ph. Martin’s Lake Scarlet watercolor. Over the years, the airbrushes improved as well as my airbrush technique. But somewhere along the way, I got lost. The Pink Floyd song that talks about having a look in your eyes, like black holes in the sky, very aptly describes the pitfalls of trying to be a working artist.

Writing this book has been a very different experience than the three previous books. It has been a trip through the past. I had to dig out artwork I had not seen in over 20 years. I found paintings and drawings I had thought were long gone. I showed some of it to visitors to my studio and



One of those early Times Square airbrushed paintings, 1978.

*View from the rear of a 1970
Mustang heading down the road,
1978.*



they were amazed by the rawness yet fire present in that artwork. Looking through all the older artwork, I was reminded of how I felt about art way back then, when I was young and full of hope. I painted and drew things that I lived for: my friends, my cars, my dreams. Back then I did not worry about painting things that were commercially viable. I painted for the love of it, not for the money.

Back when many of these early paintings were done I worked many various jobs: truck driver, airport services, welder, machine operator, bartender, even at a fast food joint. Note that artist is not listed. I did not become a full-time artist until much later in life, although I had tried several times. But art is not an easy gig. It takes real discipline, and for many artists, myself included, discipline is not one of our strong points. We are dreamers, and if we have a week of no clock punching, it is all too easy to get lost in the beauty that inspires us to paint. I would spend a morning, down at the Connecticut River, soaking up the wonder of its timeless atmosphere, and then sit down to paint, rather than spend the morning and afternoon painting and working.

Being a full-time artist is much more than painting. It is dealing with customers, paying bills, scheduling work, typing quotes, answering the phone and emails, running errands, scrambling when things go wrong, cleaning, grunt work. Most of the time the art business is the cold, harsh reality of real business, rather than that idealistic world we see in our paintings.

And so like many artists, I got farther and farther away from the factors that were present in my earlier artwork. I now had to paint what customers wanted. I had forgotten those passions that drove me to paint Mustang picture after Mustang picture years before. Yes, I was very into early Mustangs.

Driving fast and spending time with friends was what I lived for 30 years ago and my artwork reflected that. And along the road over those years, I have gotten farther and farther away from painting my passions, although, along the way, those passions did change. Yet my paintings now do not reflect my passions much of the time. And herein lies the problem.

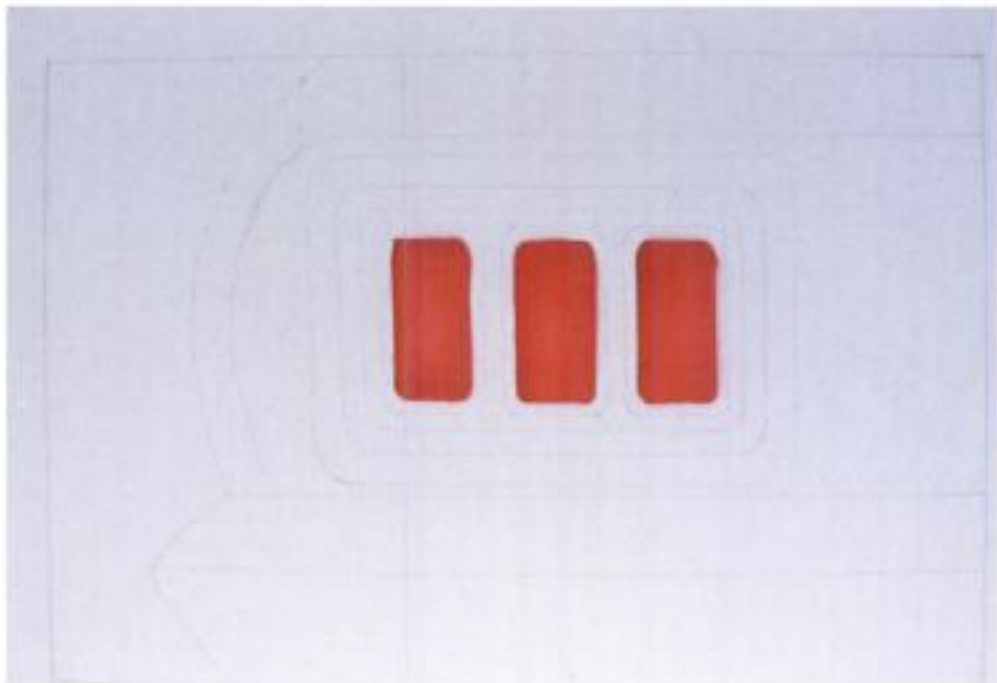
Most airbrush books deal only with the technical end of airbrushing. They don't address the psychological problems we deal with. Being an artist is stressful enough. But being an airbrush artist is far worse, because in addition to handling the problem of artistic stress, there is a huge mechanical factor involved due to all the problems that crop up whenever any kind of machinery (airbrushes, compressors, computers, etc.) is used. So in this book, I try to include ideas to deal with the emotional problems of airbrushing as well as the tech end.

So for new artists, I want you to look at the crudeness and roughness of my early work and compare it to how refined and polished my artwork has become. It was a long, long journey from the shaky lines on those Mustang paintings to the sharp ones in the Stevie Ray Vaughan bike tank. I didn't pop out of the box painting straight smooth lines. It is so easy to get discouraged, as you are not only dealing with learning a new craft; you are also learning how to deal with all the equipment problems that crop up.

For experienced artists who may read this book, use it to rediscover the passion that you may have misplaced along the way. Go through your old artwork, even the stuff you did as a teen or child. For every airbrush artist that is successful, there are many more who have given up. Their love for the craft extinguished by bad experiences that smothered what used to drive them to paint. For example, as I write



Painted in 1978, this is a gearshifter from a 1970 Mustang—my earliest attempt at metal-effect. Compare this to what you see in Chapter 6. My metal technique has come a long way indeed.



Painted in 1979. One of my favorite paintings, but no one else seems to get it or like it. It's a very fine pencil drawing, but I airbrushed the taillights lit up in red. It never mattered that no one liked it. I painted it for me and I still love it.

this, it is Sunday. I was enjoying a quiet morning of reflection and then the studio phone rang. It went to voice email, but it still took away the peaceful ambiance of where my mind had been. Reality barging in. This is the downfall that kills the passions we felt as young artists.

I think about that young 18-year-old girl, sitting on the floor in that nasty room in NYC, creating artwork fueled by passions she was completely unaware of. Only recently did I become reacquainted with that young artist I used to be. Maybe this time, I won't lose her. Maybe the trip I took in writing this book will not only help other artists, but will help me redirect my journey. The artist that reaches a point and says, "that's it, I'm here," is missing out on the best part.



World Trade Center mural on Suzuki tank done in 1996. Paint was airbrushed through screen mesh to create the windows.

They are stuck on the road. Art is a journey that begins at birth and ends at death. Do I want to know what lies ahead in my journey? No. And neither should you, because that is what fuels the passion and keeps it alive. Take the time to enjoy the journey. Unplug the phone for at least one day each week. Unplug from the world at large and live in your art. Go to those places that only your art can take you. And if your airbrush or other equipment breaks down along the way, take a deep breath and hope that you thought ahead to have a good spare packed in the trunk. It's a rollercoaster ride. Know that there will be lows along with the highs and plan accordingly. Don't get lost like I did.

CHAPTER 1

THE BASIC EQUIPMENT

Airbrushes work on a very simple principle. Compressed air is driven through a hose and into a tool that holds a pressure valve. The valve opens and closes, which draws paint material up through another valve, then into a nozzle where the paint mixes with the air and is propelled forward. Varying the elements of this equation determines just how the air/paint mixture is controlled.

The two main factors that affect controlling the mixture are the makeup of the airbrush and the thickness of the paint. For thicker paint, more air pressure is required for optimum atomization, or the conversion of fluid paint into a fine spray or mist. Higher air pressures (40–100 psi) will spray a finer paint pattern than lower air pressures (10–40 psi).

First off, let's go over the different types of airbrushes, from the simplest to the most complex. Airbrushes are divided up into two groups: external-mix and internal-mix.

EXTERNAL-MIX AIRBRUSHES

With this kind of airbrush, the paint and air are combined beyond the tip of the nozzle and outside of the airbrush. The paint is controlled by turning the round-knurled edge around the tip: turn forward to release more paint by opening the gap, and turn backward to close up the gap between the tip (the cone-shaped part) and the tapered needle valve, which is stationary. The tip basically fits over the tapered needle valve.



An external-mix airbrush, the Paasche HS#1 single-action.





Above left: The Richpen 013G, a single-action, internal-mix airbrush. Above right: A few different brands of dual-action airbrushes that I use and recommend, from left to right: Iwata Eclipse, SATAglyph 3, and Richpen 213C.

This is a siphon-feed airbrush, which means it picks up the paint from a bottle mounted below the airbrush. The bottle's cap has a hose that fits inside a hole on the end of the needle valve. The air is controlled by pushing down on the trigger.

External-mix airbrushes are usually single-action models. Many beginners start with an airbrush like this because it is very inexpensive (less than \$50). My first airbrush was an external-mix model.

SINGLE-ACTION INTERNAL-MIX AIRBRUSHES

Single-action means just that—there is only one element controlled by the trigger. The trigger is pushed down to release air. The external-mix airbrush keeps the paint outside of the airbrush body, but the internal-mix airbrush runs the paint inside the airbrush body. The tapered needle runs through the center of the airbrush body, through a hole in the trigger stem, and it seats into a tip that is precisely contoured to fit the end of the needle. This creates a valve that the paint flows through. The opening between the needle and tip is controlled at the rear of the airbrush by loosening a lock knob that the end of the needle passes through, adjusting the needle and then tightening the lock knob. Move the lock knob forward for a finer flow, or backward for a thicker flow.

Like the external-mix airbrush, the paint is still fed into the airbrush with a bottle, but now the hose fits into an inlet that projects from the airbrush body. The paint flows up into a paint chamber that is inside the airbrush, where it flows along the needle and through the tip. It mixes with the air in the tip and is atomized. The air is directed

through passages in the airbrush body and into the airbrush's head. The head holds the tip in its center so that the airflow surrounds the tip.

Many new airbrushers start with a single-action airbrush because only one movement is needed to operate the airbrush. Less airbrush experience is needed to paint with a single-action brush. They also work well for repetitive use, such as for assembly line work. For situations that require less fine detail, such as taxidermy, handicrafts, and model painting, a single-action internal-mix airbrush can be ideal.

When you are considering what airbrush to buy, use common sense. You will want to think through many factors such as: How serious are you about airbrushing? Is this something you are merely curious about, or have you wanted to learn to airbrush for a while? Is this an art-work technique that you'll be sticking with? What kind of budget do you have to work with? Keep in mind, you'll be needing more equipment than just the airbrush. You'll need an air source (most likely an air compressor), hoses, the regulator, a fan or ventilation system to remove the paint fumes, and, of course, the paint. The costs do add up, so it is best to put some thought into the exact goals you have for airbrushing. Also, remember that it's very easy to upgrade your airbrush after you've become more experienced. You'll learn which airbrush works best for your purposes. The air system you choose will work with any airbrush, so don't be afraid to start with a less expensive airbrush and upgrade later. That way, you will have two airbrushes!



This is a cutaway view of a gravity-feed double-action airbrush, an Iwata HP-C. The red represents the paint. It flows from the color cup into a paint passage in the airbrush body, passes around the needle valve, and then flows into the tip. Note the chuck assembly behind the trigger; the chuck holds the needle valve. When the trigger is pulled back, the spring around the chuck gets compressed and maintains pressure on the needle so it can "spring" back when the trigger is released. The end of the airbrush or handle is actually a removable cover with a tailpiece that unscrews to allow access to the chuck assembly and needle valve. Air pressure comes up from beneath the airbrush and through a hose that connects an inlet on the bottom. The spring in the lower part of the airbrush keeps the pressure on the up and down movement of the trigger, which controls the air. The air passes into passages that allow the air to flow around the tip, where it meets up with the paint just beyond the end of the tip. Illustration courtesy of Iwata Media

DUAL-ACTION INTERNAL-MIX AIRBRUSHES

The trigger for a dual-action internal-mix airbrush has two functions. Not only does it control the air, the trigger also controls the paint flow. When the trigger is pushed down, the air valve opens and allows air into the air passages. Pulling the trigger back draws the paint material into the airbrush. The artist can separately control both the air and paint flows, based on the amount of pressure placed downward on the trigger and how far back the trigger is moved. These airbrushes allow the artist to continually adjust the amount of paint flowing through the airbrush with the slightest finger movements on the trigger.

Experienced artists can make countless adjustments in paint flow or spray patterns as they are working. The movements of the trigger are so slight, it would be hard for someone watching to even notice.

The first action is pushing the trigger down to release the air. The paint will not come out until the trigger is pulled back. The second action is pulling the trigger back to start the paint flow, while still holding the trigger down. The paint combines with the air, and as the trigger is pulled farther back, more paint can mix with the air and flow out.

This "push down and pull back" technique takes some getting used to. Its difficulty level is the reason many people don't recommend dual-action airbrushes for beginners. To learn the technique requires patience and practice, plus it can be very discouraging for new airbrushers because it is very hard to get good results immediately. Whereas with the single-action



This is a gravity-feed airbrush, sometimes called a top-feed. These are very popular for automotive airbrushing. The SATAgraph 3 is pictured here. This is the most popular style of dual-action airbrush.



This side-feed airbrush is a big favorite of fine artists for super realistic airbrushing. The Iwata HP-B Plus is pictured.



This is a siphon-feed airbrush, also known as a bottom- or bottle-feed. T-shirt airbrushers tend to prefer this airbrush because they use a wide variety of colors at once, and the bottle-feed makes it possible to quickly and easily change colors using one airbrush. Pictured is an Iwata Eclipse HP-BS.

airbrushes, immediate results are easier to get, as not as much trigger control is needed. Professional artists prefer to use dual-action airbrushes. With enough practice and use, movements that seemed complex will become second nature.

PAINT FEED STYLES

There are three different ways that paint gets fed into an airbrush: Top- or gravity-feed, side-feed, and siphon- or bottom-feed. Each kind has its advantages. Siphon-feed airbrushes use a capped bottle that is attached to an outlet on

the underside of the airbrush body. The cap, which screws on the bottle, has a fitting that a hose slides over. The paint flows from the bottle up through the hose, through the fitting, and into the airbrush. The big advantage is that multiple bottles can be used, so the artist can easily change colors. Many different colors can be used with one airbrush, which is the reason a siphon-feed airbrush is a good, economical choice for new airbrushers. Most external-mix and single-action airbrushes are siphon-feed. The nozzle sizes on siphon-feeds range from 0.1 to 0.5 mm. A



Many companies make an airbrush designed specifically for ultra-fine detail artwork. It can present a problem for thicker paints, such as some water-based automotive paints, unless the paint is drastically thinned down. SATA's SATAGraph 1 and 3 airbrushes are designed for these situations. SATA worked very closely with Auto Air Paints during the design and testing of these brushes. The result is a very unique passage from the color cup into the airbrush body that allows for a constant, even flow of paint. For use with Auto Air paints, the SATAGraph 1 or 3 with a 0.45-mm nozzle is recommended. The 3 also has an adapter that allows it to be used as a siphon airbrush. The adapter can be fitted right onto a bottle of Auto Air Color to pull paint directly from the bottle.

good, all-purpose size is a 0.35 because it can be used for a wide range of applications.

The side-feed airbrush has a cup attached to either side of the airbrush body. The cup can be rotated to any angle, which allows the artist to work at odd angles. The big advantage with this airbrush is that it uses a very small amount of paint. This is due to the fact that the color cup is smaller and located so close to the head of the airbrush. Very little paint is needed. It's a great choice for fine detail work like photorealism, where the work proceeds slowly and the colors are changed frequently. Nozzle sizes for this airbrush tend to run from 0.10 to 0.35 mm.

Gravity-feed airbrushes are the most widely used airbrushes. It is the best all-purpose airbrush because it can be used for fine detail and overall work. The gravity system of paint flow tends to give a better flow when using very fine

All the airbrushes I use for motorcycle painting are gravity-feed. Since automotive paints are thicker than many other artists' paints, the gravity-feed provides the consistent flow needed for the fine detail.

tips and needles, which is why most artists prefer to use gravity-feeds for ultra-fine detail work. The airbrushes do not tend to clog, but care must be taken to use the cover caps so that paint does not spill out of the color cup. The cap is pressed onto the color cup, and the brush is basically spillproof. Most dual-action airbrushes on the market are gravity-feed. Nozzle sizes range from 0.10 to 0.35 mm.

In this book, I'll be using a dual-action gravity-feed airbrush for all the exercises. For serious artists, I recommend starting out with a dual-action airbrush because this is what an artist will eventually be using. Dual-action airbrushes can be found for very low prices, so most people can afford them.

I've used inexpensive dual-action, siphon-feed airbrushes for many years and have done some amazingly detailed artwork with them. Most of them cost less than \$75. Iwata's Revolution Series of airbrushes feature dual action, yet they are all priced well under \$100. They also come in both gravity- and siphon-feed styles. Dual-action airbrush prices can range from \$50 to over \$300, so do research online or at the art supply store before you make a decision. Eventually, if you stick with airbrushing, you'll be using the higher priced airbrushes because they have the features that experienced artists require. I started out with a \$30 Paasche HS and quickly moved up to a \$50 Badger 150. I now use airbrushes that range in price from \$200 to \$400.

Go online and look over the selections on the airbrush pages. You'll see the many choices available for most price ranges.



Another style of airbrush is a pistol-grip airbrush like the Richpen GP-2. For artists or painters used to spray guns, this style of airbrush may be easier to use since they are already familiar with the trigger action.



This is the SATA dekor artbrush. It has its own stand that also holds the gun when the siphon-feed bottle is attached.

AIRBRUSH MAINTENANCE

All kinds of things can go wrong with airbrushes, but dried and clogged paint is usually the biggest problem. Know your airbrush. Learn how to take it apart and thoroughly clean it with whatever cleaner is designed for the paint being used. For automotive paint, use lacquer thinner. For water-based paint, use water. Some paint companies sell specialized cleaners for their paints.

I remove the needle and use quality cotton swabs to clean out the color cup on my gravity-feed airbrushes. Little round-bristled brushes can also be used to clean out passages.

See Chapter 14 for detailed information on how to clean and maintain your airbrush.

SPRAY GUNS

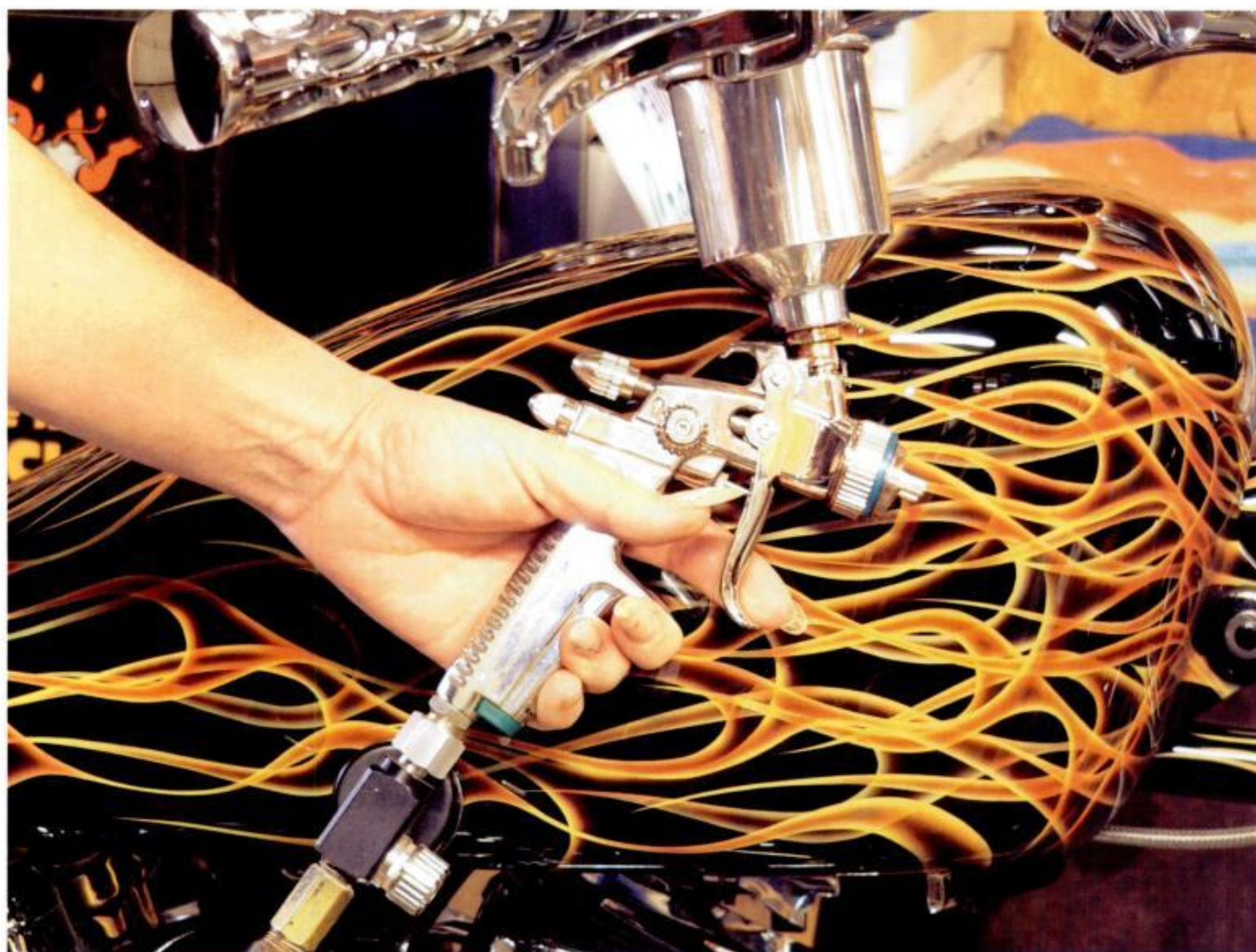
While airbrushes will take care of most detailed airbrushing, there are occasions that will require larger applications of paint. Wall murals, and some artwork done on cars, need tools that will apply paint evenly over large surface areas. Also, in many situations, such as automotive paintwork, clear coat will need to be applied over the artwork with spray guns to protect it. Spray guns come in different sizes to accommodate various needs, but they require higher air pressures than airbrushes. It is important to consider the required air pressures when choosing your air compressor.

The SATA dekor 2000 artbrush is very similar to a single-action airbrush, but it has a pistol grip or spray gun trigger. For me, it works fantastically for shading in larger areas like painting flames.

Another feature of the dekor artbrush that I love, in addition to using a gravity-feed color cup, is that it also comes with siphon-feed capped bottles that fit onto a tube.



One thing I love about the SATA artwork system is its quick-disconnect hoses. You can quickly switch from the dekor artbrush to the SATAgraph airbrush.



The SATA Minijet 4 spray gun.

The tube threads right into the same fitting as the color cup. This design allows the artist to easily change colors while working by switching bottles.

The dekor kit includes the bottles, fittings, and color cup. The kit retails for around \$350. It is lightweight, easily maneuverable, and the perfect complement to any airbrush—

a happy medium between a mini spray gun and an airbrush. The SATA dekor artbrush has a wide range of nozzle sizes from 0.2 to 1.0 mm. It is incredibly effective for airbrushing flawless fades.

For some larger surface areas, a mini spray gun might be needed, especially if painting wall murals, cars, or

Know your needs. Keep in mind that less expensive equipment will not hold up over time, but that quality tools cost more. If you are serious about airbrushing, look over your needs and design a budget based on the equipment that you need most. For example, a high-quality air compressor paired with several high-quality airbrushes and spray guns will last for years. If the budget is tight, try getting one good, quality spray minigun and a cheaper, larger spray gun, and pair it with one high-quality and costly airbrush. But if you are simply trying out airbrushing and not sure if you want to do it indefinitely, a less expensive airbrush and spray gun paired with a good-quality compressor should work just fine.

For the serious commercial artist, the last thing you want is equipment failure in the middle of project. If your equipment does fail, it will happen at the worst possible time such as on a Friday afternoon just before everything closes for the weekend. And the customer will be expecting to pick up the job on Monday morning. So, take that \$200 or so that you were planning to blow on a weekend out on the town, and spend it on equipment instead.



The SATAjet 2000 HVLP spray gun.

motorcycles. It works great for spraying base coats on motorcycle sheet metal or bicycle frames, and backgrounds on wall murals or large paintings. I use a SATA Minijet 4. It is an HVLP spray gun, which means it is a high-volume, low-pressure gun. It will spray at low pressures, about 10 psi at the air cap, which minimizes overspray. This means that less paint goes into the air, and more material lands on the surface. The Minijet 4 can be fitted with nine different nozzle sizes from 0.3 to 1.1 mm. I use a 1.0, and I can adjust the circle pattern from a small spot to over a foot wide. They are also designed for water-based paint. The paint needle and nozzle are made of stainless steel, and the nickelplated gun body has been refined with a special coating. It is a very durable gun and with proper care will last a lifetime. It retails for about \$300. There are many different brands and types of miniguns to choose from depending on your budget and your needs.

For covering the largest areas, an automotive spray gun is preferred. There are countless brands of guns. I use HVLP guns from SATA. I like the way HVLP guns really break up the paint. For water-based paints, HVLP is a must. For most airbrush artists, this is an area where the artist needs to know his or her needs. For auto painters and



This is my homemade setup. I run five airbrushes and use a Binks regulator that is located within five feet of my airbrushes. A filter or water separator is mounted farther back with about three feet in the airline to keep out any moisture. I use a homemade air manifold made out of pipefittings. There are commercial manifolds on the market, but these tend to be pricey. A little common sense goes a long way. At some discount stores, you can find aluminum blocks with quick-disconnect fittings already installed. If you go to most quality auto parts or hardware stores, you can go through their air hose or pipefitting trays. Take along the fittings for your airbrush hoses and design your own setup.

OK, this is very important! Do not use automotive water-based paints, like Auto Air, in airbrushes and spray guns that have been used with solvent-based paints. Solvent-based paints and thinners will contaminate the paint passages so that they will not react well with the water-based paint. If you want to use a product like Auto Air, it is best to designate a gun and airbrush for Auto Air use only. I highly recommend Auto Air because it is a great product. However, to get the intended results, it must be used correctly. More information on automotive water-based paint is in Chapter 2.

This air manifold is available at Bearair.com. It comes with choices of 4, 8, or 16 air outlets and retails for \$49 to \$99. It's a good choice for those who are not mechanically inclined, or do not have access to good hardware stores.



For wall mural artists who paint a large volume of work, a high-quality gun is needed. For occasional use, a less expensive gun will work fine.

AIR REGULATORS

Not all artists recommend air regulators for airbrushes. I do. Many air compressors come with a regulator. A quality air regulator will maintain constant pressure in your airline, and this regulator needs to be located within 10 feet of your airbrushes. Why is that necessary? If the regulator is too far away, or if a small or cheap regulator is used, pressure can build up in the line. Then when you press down on the airbrush trigger, all that air will rush out until the line pressure equalizes to the desired level. It's very annoying. The Binks regulator I use is heavy duty and meant for use in a body shop. It costs about \$53 and less than 5 feet of hose length runs between it and my airbrushes. The setup allows very accurate and consistent air pressure, which translates into better control while airbrushing fine detail.

Badger's Propel with screw-on adapter valve attached to the can.



Canned air propellants and CO₂ tanks cannot be used with spray guns. Large volume spray guns will quickly empty a tank of its air pressure.

AIR SOURCES

The first thing to consider when deciding on an air source is the type of equipment you will be using. Will you stick with only airbrushes and maybe a mini spray gun? How much air brushing will you be doing? Do you live in an apartment? Will noise bother the neighbors? And again, how serious are you about airbrushing? How much can you afford to invest in equipment? An air compressor is easily the single most expensive piece of equipment you'll be buying. So take these air sources into consideration before making a decision.

To get the most effective result out of your airbrush, air pressure is everything. It sounds like it would be fairly obvious, but insufficient air pressure is one of the biggest causes of airbrush problems. Air line pressure must be consistent for an airbrush to work properly. The air pressure at which the paint is sprayed (psi = pounds per square inch) determines the fineness of the paint pattern (or how grainy it appears). As I've mentioned, thicker paints require higher air pressures. In order to evenly cover large surface areas, high air pressure is also needed. Let's start out with air sources for hobbyists and work our way up to the big stuff for commercial shops.

Canned Propellants

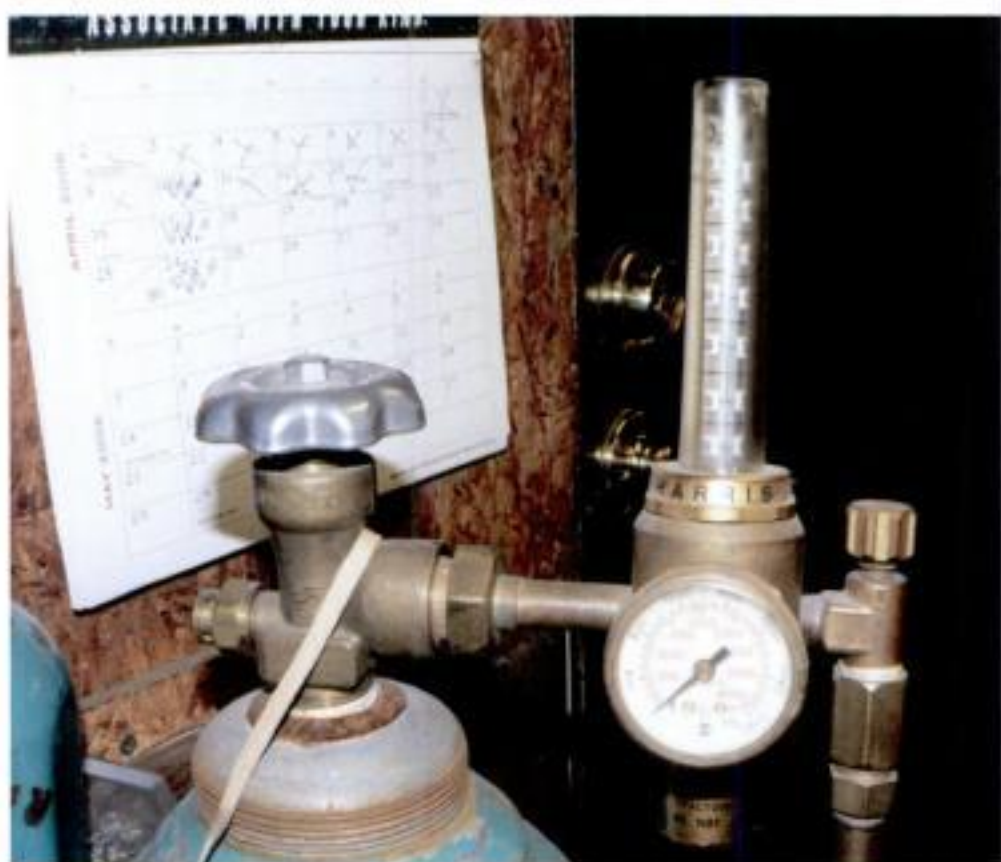
Small, compressed air canisters were my first air source when I started airbrushing. The canisters can be used for small or simple projects, and they work great for places where no electricity is available. They're also good for an artist who wants to try out airbrushing, but doesn't want to invest in a compressor.

While canisters are convenient, they are the most expensive air source for long-term use. They run down rather quickly, and once the can is empty, it cannot be refilled. The cans usually contain about 10 to 15 ounces and cost from \$5 to \$10.

You'll also need a small pressure valve that will attach to the airbrush hose, and the hose screws into the top of the can. A knob on the valve is opened, and the air flows out of the can and into the airbrush hose.

Compressed Air or CO₂ Tanks

For airbrushing on a small to medium basis, CO₂ tanks are a great choice. Like the canned air propellant, no electricity is needed, and they are quiet. There's no noise to bother that



The top of a CO₂ tank with a welding regulator.

pesky neighbor in your apartment building or condo. For airbrushing on location, say at a festival or flea market, they are ideal. The tanks aren't expensive, and large tanks last for months when they are used with a single airbrush. The tanks come in different sizes, so if you live in a second floor apartment, a smaller tank can easily be carried up the stairs.

It's a simple matter to find the tank that will meet your airbrush needs. A 20-pound tank will work fine for most situations. The amount of pressure being used and the frequency of airbrushing will determine how long your tank will last. For fine art that uses low pressure, a tank might last a month or so. For airbrushing T-shirts all day, where you're constantly working, it may last only for that day. You can either buy or rent a tank. Renting will cost about \$50 per year. Buying a tank can cost around \$200, but then you own it. Filling the tank with CO₂ will run about \$20 to \$25. Since the gas contains no water vapor, a water trap is not needed. The tank will run out, but it is easy to get it refilled or drop it off in exchange for a full tank.

A CO₂ tank will require a welding regulator to control the air pressure. These regulators cost about \$65 to \$75. A full tank will contain up to 1,200 pounds of pressure. Regulators designed for electric air compressors will not endure that kind of air pressure and can, in fact, be dangerous. Welding regulators have very small orifices that only let a small amount of gas through. Yet, airbrushing uses far more gas than welding.

Once the regulator is securely threaded into the outlet on top of the tank, attach the airbrush hose to the outlet end of the regulator. Only open the valve on the tank a small amount so that the gas is pre-regulated before entering

the regulator. Then use the regulator to adjust the amount of pressure required for your airbrush. Check for leaks—you may need to wrap Teflon tape around the threads of the fittings. If you are using more than one airbrush at a time, ice will tend to build up on the regulator. A clamp light with a 100-watt bulb can be used to heat up the regulator and prevent ice buildup. Be sure that the light does not allow the regulator to get too hot, or it could cause damage and create a dangerous situation. Simply direct the light at the regulator, and up to eight people can airbrush at once using one CO₂ tank.

Always make sure the tank is secured so it cannot fall over. Larger sized tanks can be very heavy and cause damage if they fall over. Always remember to turn off the tank valve when you're done airbrushing because the tank will leak down quickly if the valve remains open for long periods of time.

COMPRESSORS

This is not the place to attempt saving money. I cannot say enough about buying a quality compressor. Unlike an airbrush, there are many moving parts that can wear out or break at the worst possible time. Evaluate your budget and needs so that you can make the best possible choice. I've had air compressors that last for years and others that barely lasted one year. Bargain compressors are usually no bargain. When the noise from a compressor is about to drive you or your neighbors insane, you'll wish you'd done more research and spent the extra \$100 or so to purchase a very quiet air compressor.

Carefully look over the details of the compressor that you plan to buy, and make sure it has the features you need. Go online and do research. Companies are always advancing compressor technology, so what was out of reach price-wise last year, could suddenly be affordable this year. There are several styles of air compressors to consider.

Diaphragm Compressors

These compressors use a reciprocating diaphragm to pump air into the air system. They are the least expensive kind of compressor and can be bought at most hobby shops. They

No matter what type of compressor you get, read the manual. Make yourself familiar with the different parts, the recommended maintenance, and how to properly use it. Lots of moving parts mean many things can go wrong. I know it may sound overly cautious, but don't learn the hard and costly way. Read the manual before the compressor is turned on.

Iwata's Smart Jet model of piston air compressor. This style has no storage tank, yet it has an oil-less design, a water trap, and a pressure gauge. This is the least expensive style of piston compressor, with some brands and models starting at \$200.



work great for small projects that require less than 45 psi. They are not suitable for projects that require large volumes of air or nonstop airbrushing.

Some models have a storage tank, and some do not. Models without a storage tank will run constantly. Air is replaced at a slow rate, and only one airbrush at a time should be used with a diaphragm compressor.

These compressors can be pretty annoying, because many are loud. Most compressor companies have switched over to piston-driven compressors. Even small, single-airbrush compressors that retail for less than \$200 now feature a piston-driven design.

Piston-Driven Air Compressors for Airbrushing

With this kind of compressor, a piston inside an air-cooled cylinder is driven by an electric motor. The air leaves the cylinder and goes to a storage tank. After the pressure inside

the tank builds up to a certain psi, an air-pressure sensor switch will automatically switch the compressor off. The air is warm as it enters the tank, and as it cools off, condensation quickly builds up. A quality filtering system must be used in order to remove any oil or moisture that builds up. Water from this condensation runs to the bottom of the storage tank, and it is drained out by opening a valve in the bottom of the tank.

WHAT TO LOOK FOR WHEN BUYING AN AIR COMPRESSOR:

- How much pressure does it produce? (one airbrush: 30 to 40 lbs; two or more: 70 to 114 lbs)
- What is the horsepower? A big tank needs a 5-horsepower or more motor. Smaller tanks require less.
- Is it oil-less?
- Is it silent? What are the decibels it produces (noise level)? Over 55 decibels is pretty loud.
- What kind of vibration level does it have? You want it to be low.
- Does it have a replaceable air filter? Does it even have an air filter?
- Does it have a moisture trap, a regulator, and a bleeder valve? (Tank models only.)



Iwata's PowerJet compressor features a storage tank and it is oil-less. It has dual pistons, puts out about 70 psi, and can run two airbrushes. It features an air pressure gauge and a water trap, and it retails for around \$640.

Compressors with storage tanks shut off automatically when the pressure in the tank builds up to a certain psi. Piston air compressors with storage tanks do not run constantly and are priced from \$300 to \$700, depending on the size of the storage tank.



Iwata's Great White Shark compressor. This piston-driven compressor is from their line of silent compressors. It puts out about 114 psi and can run up to four airbrushes at once. It is a good air compressor for small retail airbrushing shops, such as T-shirt shops. It has a 4-gallon storage tank and comes with oil and water filters, and a pressure regulator already in place. If possible, when shopping for compressors, look for one that has these features so that you can take the guesswork out of setting up your air system.

As these compressors get more use over time, seals and rings on the piston wear down and result in more oil entering the air system. Oil contaminates paint and the painted surface, so don't try and save money by skimping on a quality filtering system. By now, many of the compressors by Iwata, Polar Bear, and some models of Silentaire, feature an oil-less design. So look for that feature when choosing an airbrush compressor.

There are two styles of piston-driven compressors; one style is designed specifically for airbrushing only, and the other style is designed for use in garages and bodyshops to operate air tools and spray guns. Iwata, Silentaire, and Bad-

Some of my compressors have lasted for more than 10 years, but overworked compressors will not last. A piston-driven compressor cannot run constantly or it will overheat and damage the internal components. Check your air line and hookups for leaks and if you hear air hissing out, even if it's a small amount, get out the Teflon tape to repair those connections.

Other ways to prevent overheating:

- Be sure that your compressor is a good match for your needs. Do not overwork a small compressor when a larger one is what you really need.
- Make sure your compressor has an automatic shutoff switch that turns off the motor when the tank pressure reaches a certain psi. On some compressors the automatic shutoff can be adjusted, but most of the time these are preset at the factory and should not be tampered with. Changing it can result in damage to the compressor or ruin things around it, including the artist.
- Some compressors have a high-temperature limit safety switch. This will immediately shut off an overheated motor if it has been overworked or operated on low voltage. The motor will not run again until it has cooled.
- Lastly, make sure the compressor is properly plugged in. If possible, plug the compressor directly into an outlet. If you have to use an extension cord, make sure it is heavy duty and designed for this kind of use. Not only will a proper plug give you better results, it is also a safety issue. When choosing your compressor, look at the plug. Some large piston-driven compressors need a 220 outlet, like the kind a dryer uses. Know if the compressor you're about to buy is 110 (regular household outlet) or 220.

ger are just some of the brands out there that are designed for airbrushing.

Many of these larger piston compressors are "silent" compressors and are available at art stores and online. But they can be pretty pricey, with many costing \$1,000 or more. These compressors are not designed to run air tools like grinders or buffers.

Airbrush and Custom Paint Shop Compressors

For most automotive airbrushing, you will need a piston-driven compressor with a motor that is 1 horsepower or more, as higher pressures will be required to operate spray



This Sears Craftsman single-stage compressor is designed for the small shop. It features a 5.5-horsepower motor. It will run spray guns, grinders, and, of course, airbrushes. A small compressor like this is a good choice for the automotive custom painter who does not run air tools like grinders and air wrenches every day. These single-stage compressors range from 2 to 5 horsepower. The prices range from \$300 to \$500. Many come with a pressure regulator, but I recommend also adding a water trap. Many of the newer models even feature an oil-free pump, which means not having to change the oil.



This is the two-stage, piston-driven air compressor that I use. Instead of one cylinder, it has two. Two cylinders allow for the compressor to provide air more quickly. The large storage tank means I can airbrush for over an hour before the motor turns on again. For my shop, this is a great choice because I can do just about anything with it, including run air tools like grinders and buffers. There is never a shortage of air. Most airbrushers will not need a compressor this big. They run about \$800 to \$1,000 at discount home improvement stores.

guns. These bigger compressors are like cars because they must be serviced; piston-driven air compressors need regular maintenance. If this maintenance is ignored, your most expensive piece of equipment will not last long. A good compressor should last for years.

What is the most forgotten maintenance for any air compressor? Draining the water from the storage tank. A compressor that is used for a whole day to run air tools and paint guns must be drained at the end of each workday. Compressors used mostly for airbrushing should be drained several times a week. One sign that a compressor needs to be drained is that it comes on more often than usual. Water is taking up space in the storage tank where air would normally be.



For the larger compressors that do not come with regulators and filters, you will need to install them no more than 50 feet away from the spray gun, or 10 feet for airbrush setups. SATA's 0/444 modular system of lined-up filters makes it easy. The first filter pre-cleans down to five microns. The second stage filter goes down to 0.01 microns. The setup even includes two outlets; there's one for your gun hose and one for an air-supplied respirator.

The heat from a running compressor will cause moisture to build up, and an overheated compressor will superheat the air. This super-hot air will not allow water drops to form, the moisture will not be trapped in the water separator, and it will pass into the airline where it will cool and build up. This water will eventually find its way to the end of the airline and spit out of the airbrush or spray gun at the worst possible moment.

Regular oil changes are also needed if the compressor pump runs oil to lubricate it. It is just like a car. The user's manual will explain how to change the oil (where the drain plug is, how much of what kind of oil, where to pour it, etc.). The air filter also needs to be blown out occasionally. If the filter is stiff with age or full of crud, it should be replaced. Many times a hard-to-diagnose problem, like the compressor making an unusual noise, or sounding like it's working too hard, can be traced to an air filter that needs to be replaced. So, buy a pack of two and keep a spare handy. These filters are very inexpensive.

Piston-driven compressors with motors that are over 1 horsepower are loud. Very loud. Compressors like the small, red, 5.5-horsepower compressor in the picture are actually louder than the big, red 7-horsepower one. If you live where the noise will bother your neighbors (or you), careful considerations must be made regarding your compressor selection. Since I've been around auto shops my whole life, I know it's such a relief when the compressor stops running, and you can talk again or hear or think. My big compressor is located in a barn, on the back of my property, that is about 200 feet away from my house. The air runs through an underground pipe to my shop and studio.

FILTERING EQUIPMENT

Hoses

Most airbrushes come with hoses. Braided nylon hoses are easier to handle and more durable than thin plastic airlines. For most projects, a 10-foot line is plenty.

For large projects, such as working on a car, you have two options. You can set up your airbrushes and regulator on a cart and run a shop airline to it. Or, for projects such as wall murals, you can add more hose using quick-disconnect fittings.

Lighting

Good lighting will save your sanity. I know this from experience. I use two clamp-on lights with one to the left of me and one to the right, both pointing at my work. One has a spiral fluorescent natural light bulb in it. The other has a 100-watt incandescent bulb. The overhead light in the room also has a spiral natural light in it. Between the three lamps providing two different kinds of light, I can really see the whole surface I am working on because there are no shadows.

One shop expense many artists don't think about is how much it will cost to run your compressor. Big compressors that have 1 or more horsepower will use more electricity while running compared to a smaller compressor. Most compressors will use about the same amount of power as running a clothes dryer. If you have any doubts about how much power your compressor will be consuming, turn on your dryer and then go outside to look at the electric meter. How fast is it spinning? Now turn off the dryer, turn on the compressor, and look at the meter. You'll be surprised to see how fast the dials turn or spin. Lighting, ventilation, and air pressure all use power. Go over your needs carefully before deciding on the airbrush system you wish to purchase.



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