



THE

Secrets

of Contamination-Free Paint Jobs

Before you blame the spray booth company, take a look inside your own shop first.

“My new spray booth causes dirt in my paint jobs!”

This is perhaps the most difficult issue we, as a booth service/installation company, have to address.

I know that the spray gun specialists and paint reps often hear this same lament, with “spray gun” or “paint” being substituted for “spray booth.” (I hope the spray gun companies and paint reps don’t mind me speaking on their behalf.) Let me be very clear: Your new paint booth, spray gun, or paint is *not* causing any new dirt problems you didn’t have before.

» by Jim MacDonald



1. Good practice—the floors are clean, there is nothing in the corners, and the parts racks are placed directly over pit.



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2. A good example of employees creating a little storage area in a corner of a booth—that is what a *paint mix room* is for! Although this corner is quite clean, rags hang over the edge of the garbage can, and the hoses left laying on the floor are a huge contaminator.

3. Here is an example of potential contamination sources left on the floor inside a booth. “Stuff” always seems to be pushed into a corner, and people often think this will not contaminate the inside of the booth, but it has been our experience that it will.

PHOTOS: JIM MACDONALD

My last couple of columns have dealt with all the high-tech stuff you can add to your shop to make you more productive. In this column, I will step back and review issues that can always cause problems, no matter what equipment you might have.

I do not mean to sound smug or defensive. In the last few years, spray booths have undergone lots and lots of changes (HVLP spray guns, breathing air systems, clear coats, water-based paints, etc.). As refinish professionals, you have been attending clinics and trying to stay on top of the changes. With all of this, it is easy to sometimes forget the basics.

Dirt/contamination does not magically appear. Global Finishing Solutions and Garmat do not put dirt in their booths. ITW, DeVilbiss, and SATA do not put dirt in their spray guns or cups, and the paint companies certainly do not put dirt in their materials.

I am not denying that these problems

occasionally occur, but before you make accusations, look at your own shop first. Go back to the basics, and, in CSI fashion, review your practices and your facility. I can almost guarantee that is where you will find the answer.

The change that has most affected our sensitivity to contamination is the common use of clear coat finishes. Clear coats are akin to laying a magnifying glass over our finishes. They have very little (if any) tolerance for contamination. Particles as small as 14 microns will appear as visible contamination on a clear coat paint job.

Unpressurized Versus Pressurized

The first place to look, regardless of which you choose from the vast array of spray booths on the market today, is the source of air being drawn into the booth. You have probably heard the terms “unpressurized” and “pressurized” when referring to spray booths. An unpressurized system is the old cross draft or semi-downdraft system with door-mounted or plenum-mounted intake filters that filter the shop air that is being drawn into

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the booth when the fan is turned on. The air source for an unpressurized system is *your shop*. The contamination that is hanging in the air in your shop will be drawn into the booth when the fan is on and will make its way into the cabin, no matter how clean you keep the shop. This system is definitely not friendly to “contamination-free” paint jobs.

Therefore, the first big step to contamination-free finishes is purchasing a “pressurized system.” It doesn’t matter if it is downdraft, semi-downdraft, cross draft, or upside downdraft (just kidding on that last one). What does matter is that the air source is *outside the shop* and that the air being drawn into the cabin is clean, fresh, temperature-controlled air. This does not totally eliminate contamination, but it goes a long way to isolating your spray booth from the potential of a dirty (that is, a normal) shop interior. With proper balancing and regular maintenance, pressurized systems will actually repel shop-generated contamination, as opposed to drawing it in.

When considering a new booth or pressurizing your existing system, make sure you think about the air source. We have actually found cases where the makeup air units were sucking in contaminated outside air. In one case, the shop was experiencing periodic “fish eye” issues, which led us to believe something was in the air contaminating the finishes. After some investigation, we found that the wall-mounted air intakes were in line with where the diesel car carriers would park when unloading cars for the dealership. The intakes were sucking the diesel fumes from outside the building and blowing them directly into the booth! A second case involved a neighbouring concrete plant that was constantly crushing stone. Depending on which way the wind was blowing, the rooftop air makeup unit would suck in the stone dust and blow it directly into the booth. Both of these cases are the exception, but they do illustrate the many and varied origins of contaminated paint jobs.

The Most Common Problem

The most common problem we find is an improperly balanced booth. Dirty pit or exhaust chamber filters will not allow the air to properly pass through and exit the booth. If this occurs, the wet overspray that does not exit has to go somewhere. In a downdraft booth, it will usually go along the floor and up the booth wall and then be forced back down toward the floor by the downdraft. As this wet overspray gets caught

in this circular vortex, it air dries. As it goes around and around and more painting is done, this vortex widens off the wall towards the vehicle. Eventually, the air-dried overspray lands on the wet surfaces and appears as a “sandy” contamination. Where did this sand come from? It is *not* sand. It is simply air-dried overspray that could not make it out through the loaded filters! The solution to this problem is simply changing the filters!

Hair in the Paint Job?

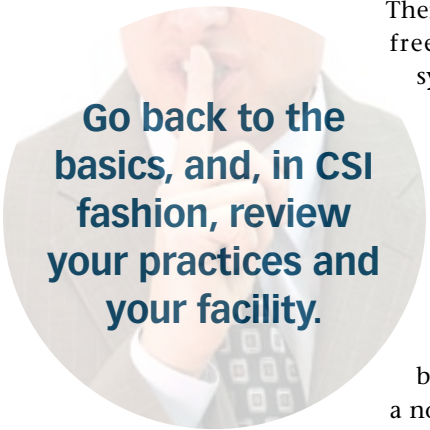
Another very common observation is: “My paint job is contaminated with hair-like objects.” When you look at an imperfection in the paint with your eye or even under a magnifying glass, it often appears fibrous. Do not be fooled. It’s usually *not* a hair and is more likely air-dried overspray or dirt from some other source. Due to the air movement in the booth, the small particles will hit the wet surface and “slide,” making a trail in the paint. To our eyes, these trails appear fibrous.

Other Sources of Contamination


Another common source of contamination is improperly prepped cars. This problem is usually amplified in the winter if cars are not properly cleaned of salt and dirt.

Here are some other areas you might want to investigate:

- **Improper gun washing.** Whether you wash your gun manually or use a gun washer, if you use improperly recycled or dirty solvents, microscopic paint particles will get caught in the fluid passages of the gun and then be spit out onto the wet surface when you are painting.
- **Improper paint straining.** This comes from not straining the paint or straining with cheap fibrous strainers. In the second case, fibres from the strainers get into the material and are spit out onto the wet surface when you are painting.
- **Blowing off the car in the booth.** This stirs up contamination and makes it airborne just before you are going to paint.
- **A dirty paint suit or no paint suit.**



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• **Dirty hoses or cups.** This often happens if you leave them sitting on the floor. Take the time to wipe down the hoses with solvent, and keep the guns and cups off the floor.

• **Poorly cleaned, tacked, or masked vehicles.** Dirt on the car will be stirred up by the airflow. Cheap tack rags can actually leave pieces on the surface you will be painting. Paper is made of fibres, and exposed, ripped edges may release fibres inside your booth.

• **Mopping the floors.** Cotton mops will leave hundreds of fibres on the floor of your booth. Use a stiff broom or vacuum to clean the booth floors.

• **Mixing tables.** It is very common to have a little table inside the booth piled with dust rags, towels, cans, etc.—all collecting dirt and dust and then releasing them into the air.

• **Dirty wheel covers or parts racks left in the booth.** Remove anything you do not need in the booth for the paint job. The booth is your “clean room.” Keep it that way.

• **Not adhering to the paint companies’ recommendations/formulas.**

• **Wooden paint stirrers.** Wood breaks down and can leave resin or fibres in mixed paint. Use synthetic paint stirrers.

• **Leaving hardener cans open.** They will oxidize, causing small granules to form.


• **A desiccant air dryer.** The desiccant materials (chemical drying agents) can break down over a period of time and become “sandy.”

• **An improperly maintained compressed air system.** You need to drain the compressed air lines and air compressor and regularly change the oil and service the air compressor. This is the heart of your system, and if it is passing contaminated air, it will definitely affect your paint jobs.

• **Traffic.** Restrict all unnecessary traffic in and out of the spray booth.

Usually the sources of contamination problems are inside the shop. They are often due to a new practice or some other change. Sometimes it is as simple as a new painter still getting used to doing things “your” way or getting used to “your” booth.

As you can see, there are many

potential sources of contamination. The booth, the gun, and the materials or only as good as the people using them. We all need to make an effort to use them properly. 

Jim became North American Service Manager for DeVilbiss when they created separate Spray Booth Divisions in the late 1980s. He went on to become Canadian Sales Manager for DeVilbiss Spray Booth Products, which became Team Blowtherm in 1997. He spent four years with Team Blowtherm and joined Ontario Spray Booth as partner/sales manager in 2002, where he has been ever since.



General Manager

The Need

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- Mentor efficiencies & improvements

Hiring Criteria

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- Knowledge of estimating systems preferred

Please forward resume in confidence to:

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