HVLP Gun Set-up: An Important Step

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The EPA's new **Paint Rule** governing the collision repair industry requires the use of High Volume Low Pressure (HVLP) or other compliant technology paint spray guns.

Spray Gun Requirements for Reduced Air Emissions

Use High Volume, Low Pressure (HVLP) spray guns to meet the Paint Rule requirements and to maximize spray paint efficiency. Good spray technique and the use of 65-percent-efficient HVLP guns have proven to reduce paint costs and improve finish quality.

Prior to HVLP guns, spray guns using air compressors did not have a way to regulate the air pressure coming through the gun. Material shot from the gun with such force produced problems, including large amounts of overspray and blowback. Overspray not only wastes material, but it requires more prep work to protect surrounding areas from paint. Blowback occurs when paint hits the surface so hard that it bounces off, leaving a disturbed surface that is not smooth and even. Delivering a high volume of product with low pressure solves these problems, saves money in material consumption and reduces air emissions.

The transfer efficiency of HVLP spray guns is stated at 65 percent. This means that, at optimum operation, 65 percent of the paint in the cup goes on the part and 35 percent escapes into the air as emissions. This is true – in the hands of an extremely efficient painter.

The purpose of the Paint Rule is to reduce emissions of lead, nickel, cadmium, chromium and manganese. These chemicals are designated hazardous air pollutants (HAPs) known or suspected to cause adverse health effects. HAPs are found in paint used in the automotive refinishing industry. The use of an HVLP spray gun aids in the reduction of emissions, and a reduction in air emissions equates to a reduction in paint use.

The first deadline was to notify the EPA that a shop is governed by the Paint Rule by sending in an Initial Notification form by January 11, 2010. If your facility has not yet filed the Initial Notification form – **do it now**. The form can be downloaded at http://www.epa.gov/collisionrepair/pdfs/initialnotification.pdf.

HVLP Gun Set-up

High Volume, Low Pressure or HVLP spray guns are the industry standard for painting vehicles. An HVLP gun contains a high volume of paint and utilizes low air pressure to spray the paint in a fine mist onto the target part. A high-quality paint job is only achieved if the controls on the paint gun are adjusted properly. Proper

painting technique is also important; however, initial gun set-up makes a big difference between a good paint job and a great one.

Spray guns are designed to be adjusted by the painter to achieve optimum atomization for the job at hand. The painter must adjust the spray gun to match the material being sprayed, the size and shape of the substrate and the temperature, humidity and air movement in the booth. Begin with adjusting the spray pattern size first, followed by the fluid flow, followed by the atomization pressure.

HVLP spray gun patterns generally have a larger wet area in the center and less of the dry ring at the edges of the pattern than conventional guns. To adjust the pattern, turn the horns of the air cap. Spray a test pattern on a fresh sheet of masking paper each time before starting to paint to make a visual assessment of the pattern size and shape. Adjust the pattern size to match the shape of the part being painted. In other words, don't try to paint one-inch tubing with a full-size pattern.

Once the fan pattern is set to the appropriate size, adjust the amount of fluid flow and strive to deliver enough fluid to suit your natural pace. Adjust the atomization pressure to suit the fluid delivery. Less is more. Large fluid openings require large amounts of air to atomize, which means more overspray or waste. Use an air-pressure gauge to get the best results. You cannot – successfully – adjust HVLP spray gun pressures by sound. If you try to, the results will be high volume with high pressure, which will result in higher emissions levels and larger volume of paint used.

When used correctly, HVLP technology can improve productivity and reduce emissions. The benefits include:

- ✓ Compliance with the new Paint Rule (NESHAP 6H)
- ✓ Reduce material consumption resulting in cost savings
- ✓ Reduced air emissions and healthier work environment
- ✓ Better quality finish through optimum transfer efficiency

For More Information Go to:
CCAR-*Green*Link "Paint Rule" page

EPA Collision Repair Campaign web site

Visit the Design for the Environment website for more information at
http://www.epa.gov/dfe/pubs/auto/trainers/sprayguncheck.htm
http://epa.gov/dfe/pubs/auto/spraygun/index.htm

Code Citation: 40CFR63 Subpart HHHHHH of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for *Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources*.

E-mail your questions to: paintrule@ccar-greenlink.org