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Common Spray Gun Problems

Don't be a drip – learn how to keep your equipment in fine working order.

In the last issue I showed you how to maintain and clean a spray gun. Keeping parts oiled and the spray gun free of gummy or solidified finish is critical for achieving good results. Problems can still occur, however, even with a clean spray gun.

The most common problems are unevenness in the spray pattern, pulsating spray and a gun that drips. Following is a discussion of how you can identify and correct each of these problems.

Spray Pattern That's Heavy at the Ends or in the Middle

Spray normally exits a spray gun in an oval pattern, often called a “fan” because it resembles the shape of an unfolded hand fan. To get an even coating on the wood, the fan pattern should be even from end to end.

Uneven spray patterns that are heavy at both ends or heavy in the middle and light at the ends are common problems, especially if you use a compressor (instead of a turbine) to supply the air. The uneven pattern is caused by the air pressure you are using not being appropriate for the viscosity of the liquid you're spraying.

Too much air pressure will push the liquid to the ends of the spray pattern. Too little air pressure will leave the liquid bunched in the center of the spray pattern.

With this explanation, the correction is obvious. If the fan pattern is heavy at the ends, decrease the air pressure or increase the viscosity of the finish (add less thinner). If the fan pattern is bunched in the middle, increase the air pressure (if you are using a compressor) or add thinner to decrease the viscosity of the finish.

If you are using a turbine to supply air to your spray gun, you have to thin the finish to correct a center-heavy fan pattern because you can't increase the air pressure.

To test your spray pattern, spray a short



Photos by the author

burst of finish onto paper, cardboard or scrap wood. The goal is to create an elongated and evenly shaped oval pattern.

Spray Pattern Heavy at One End

If the spray pattern is heavy at only one end, there is an obstruction in the air cap or fluid nozzle, or one of these parts is damaged.

To determine which part has the problem, spray a short burst of finish onto paper, cardboard or scrap wood. Then rotate the air cap one-half turn and spray another burst. If the disrupted pattern stays the same, the problem is in the fluid nozzle. If the pattern reverses, the problem is in the air cap.

Try cleaning the part that is causing the problem. If this doesn't work, the part is probably damaged (usually the tip of the fluid nozzle), and you will have to replace it.

by Bob Flexner

Bob is the author of "Understanding Wood Finishing" (Reader's Digest) and a contributing editor to Popular Woodworking.

Pulsating Spray

A pulsating or fluttering spray is usually caused by blockage in the spray-gun cup's air-inlet hole. When finish is being drained from the cup as you spray, the volume has to be replaced by air. If the air-inlet hole is blocked, the replacement air can enter only through the fluid passageway and this results in a pulsating spray. (It's similar to the “gluck, gluck” when you pour paint thinner rapidly from a full can.)

The solution is obvious. Clean the air-inlet hole on the cup.

Pulsating can also be caused by air getting into the fluid passageway and mixing with the finish. There are three ways this can happen.

- The most common is tipping a gun with a low liquid level in the cup too far as you spray. Be sure that the angle of the bend in the tube running into the cup is forward, and add more stain or finish if necessary.

- The cause can also be a needle packing (the gasket that surrounds the fluid needle

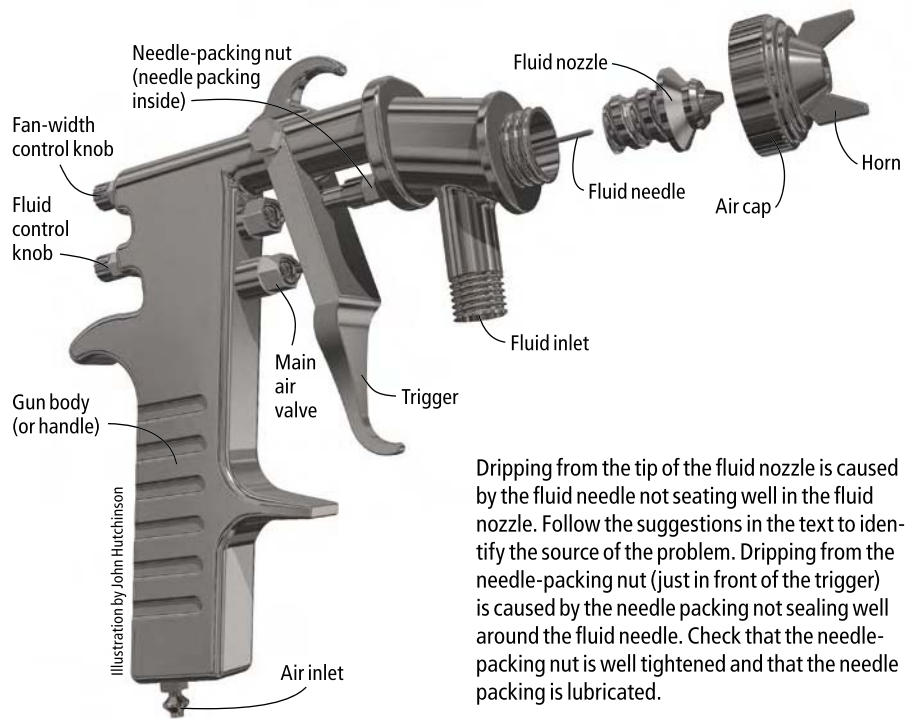
just in front of the trigger) that is dry or too loosely compressed by the needle-packing nut, or an untightened or damaged fluid nozzle. Check the tightness of the needle-packing nut and fluid nozzle, and if this doesn't solve the problem, oil or replace the needle packing or replace a damaged fluid nozzle.

- An obstruction in the fluid passageway may also allow air to enter the fluid stream. Try "backflushing" the passageway by pressing your finger over the center hole of the air cap while spraying a short burst. If this doesn't remove the obstruction, take the gun apart and do a thorough cleaning.

Dripping from the Front of the Gun

The cause of fluid (stain or finish) leaking from the tip of the fluid nozzle at the front of the spray gun is the fluid needle not seating well in the fluid nozzle. There are a number of possible causes. Here are the most common in rough order of their frequency.

- The packing that surrounds the fluid needle may be squeezed so tightly by the needle-packing nut that it prevents the needle from moving freely. Loosen the nut a little.
- The needle packing may have dried and hardened to the point that it doesn't allow the needle to close tightly. Lubricate the needle packing with a non-silicone oil such as mineral oil. Apply the oil to the fluid needle and



Dripping from the tip of the fluid nozzle is caused by the fluid needle not seating well in the fluid nozzle. Follow the suggestions in the text to identify the source of the problem. Dripping from the needle-packing nut (just in front of the trigger) is caused by the needle packing not sealing well around the fluid needle. Check that the needle-packing nut is well tightened and that the needle packing is lubricated.

move it back and forth several times with the trigger, or remove the needle and needle-packing nut and apply several drops of oil directly to the packing.

- There may be dirt, paint or finish stuck in the tip of the fluid nozzle that prevents the fluid needle from seating fully. Clean the fluid nozzle.
- The tip of the fluid nozzle or the tip of

the fluid needle may be badly worn or damaged, which prevents proper seating. Replace the damaged part.

- The spring that pushes the fluid needle closed may have weakened or broken. This spring is located just inside the screw-knob on the back of the gun that controls the fluid needle. Replace the spring.
- The fluid needle may be too small or too large for the fluid nozzle, which prevents proper seating. Change parts so the two seat well. Fluid needles and nozzles are sold as sets meant to work together. You can buy them from the manufacturer of your spray gun.



To get an even coating using a spray gun, the spray pattern should be an elongated oval that is even from end to end.



If the spray pattern is heavy on the ends and light in the middle (called a "split" pattern), there is too much air pressure for the viscosity of the liquid. Reduce the pressure or add less thinner.



If the spray pattern is bunched up in the center even with the spray-gun controls wide open, there isn't enough air pressure for the viscosity of the liquid. Increase the air pressure (if your air is supplied by a compressor) or thin the liquid.



If the spray pattern is heavy at one end, there is an obstruction in the fluid nozzle or air cap, or one of these parts is damaged. Clean the gun. If this doesn't solve the problem, the damaged part must be replaced.

Dripping from the Packing Nut

If the needle packing isn't sealing well around the fluid needle, fluid will pass through and drip from the needle-packing nut. There are two possible causes.

- The needle-packing nut may not be screwed on tightly enough to press the needle packing into contact with the needle. Try screwing this nut tighter (but not so tight that it interferes with the easy movement of the needle).
- The needle packing may be worn or dry. First, try lubricating the packing with a non-silicone oil such as mineral oil. If this doesn't work, replace the packing with a new one, which you can get from your spray-gun supplier or from an auto-body supply store. **PW**