

DIY Paper Un-Curler Plans v2.1

I first planned on doing one of the other home-brew solutions such as an empty paper roll, window shade roller, etc. but decided I did not want to risk a print on such a thing with at best inconsistent results. Looking further into the roller product everything seems to be emulating, I planned my own solution based on the intent of the design and material choices of the original product.

The original design is that such that the sheet materials have a sticky side facing up and a slick side facing down. This allows the material to be rotated and slid on the table as you are using it, and also prevents the top of the print sticking to the next layer.

The original product uses a slipperier material than I chose for the bottom layer, and thus actually requires help becoming more sticky. It uses silicone rubber like strips along the edges to help the roll stay together as you use it. My material choice is a little stickier, without risking the print surface, yet sticks to the roll layers all on it's own without the need for the helper strips.

I have included instructions for making strips should you find you need them for your size of roller, or material of print, in any case.

I will not be making or selling these for anyone but myself.

Tools needed:

Razor Knife
Hacksaw (or other tool to cut PVC)
Marker
Tape Measure
Paper Towels
Windex or similar
Sandpaper (or file, emery, etc.)

Materials needed:

1 ½" PVC pipe
Vinyl Sheet
Static Cling Window Film
Super Glue
3- Pak Putty knife set

Optional for making silicone helper strips:
Silicone Adhesive



Step One - Materials

Most of the materials can be found at Wal-Mart. From the fabric section, look to the roll display of vinyl for furniture covering. Get the middle thickness designated 'Deluxe' and by the Three Star rating for thickness. Get one more foot than you plan on making prints – I got 5 feet.

5' clear vinyl sheet = \$3.28

From the Paint Department get a 3 pack of putty knives for \$0.88 and the cheapest super glue they have. Mine was a 4 pack for \$1.00.

Optional for silicone helper strips:

From Automotive get a tube of regular clear silicone adhesive for \$3.47

From Home Depot (or elsewhere, it's where I found mine) in the Window section get the width of your choice of static cling window film. I got 3' wide in the cheapest color which was Smoke. \$11.95

From Plumbing get a 5' length of 1 ½" PVC pipe for \$1.45

So without the strips (see if you need them first) it's a total of \$18.56

With the strips it's \$22.03

Step Two - Assembly

You need a large flat, fairly clean work area. I happen to have a large box.

Before you start assembly you need to take some measurements. I have a 24" printer and will usually be making prints less than 4 feet long. Take the width of your printer roll and add 5 inches. This will be the cut width of your materials. Length is completely up to you.

First mark and cut your pipe width (mine was 29").



Next, sand down the cut edges and wipe the whole pipe clean with a wet paper towel. Don't use it dry, you'll just charge it up with static.

Now unwrap and spread out your vinyl sheet. Don't worry about the bottom getting dirty, it'll all be cleaned later. Fold it almost in $\frac{1}{2}$, making sure the side edges are perfectly lined up. The top and bottom edges have been cut by our good friends at Wal-Mart, so they will not be perfect. Keep folding it until you have several layers neatly together, exposing the rough top and bottom edges. Trim the top and bottom edges as close you can. Then measure your working length from one side and cut through the stack.





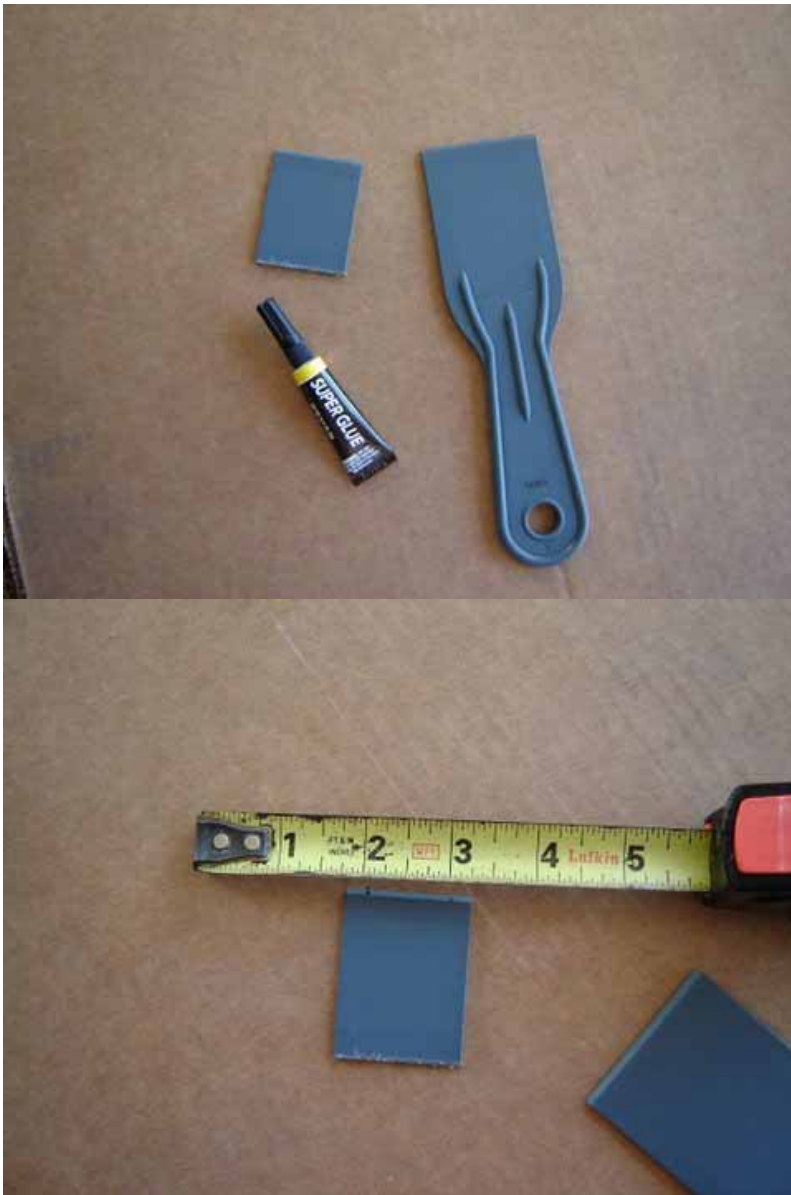
Now spread the sheet back out and wipe the top surface clean with wet and dry paper towels. This surface will be bonded to the static film, so it needs to be in great shape.

The static film comes on a paper backing. There is no difference between the sides. Using your Windex or similar soapy water spritzer, soak the vinyl sheet with mist. Unroll the static film and flop it over the vinyl completely covering it. The edges should all have hangover. Unpeel the paper from the static film and discard it. Lift the static film in sections and spritz it completely on both sides. Use the large putty knife as a squeegee and slowly & firmly go from the center out working all the air and water from between the layers. Keep the top wet as you squeegee so the surface doesn't get damaged. After you get done the first time, rewet and do it again. It is critical, that ALL the air and water is out from between layers for a proper adhesion and performance. Next trim the static film to match the vinyl.



OPTIONAL for Helper Strips;

Should you wish to make the helper strips, here's how. First we need to make a tool out of the small and medium putty knives. Cut the end off the small knife and mark a 1" point on the beveled edge. Use the razor knife to cut out ONLY the bevel section between your marks. You are making a guide. Now super glue the small knife guide to the medium knife back, so that the bevel sections line up together.





OK, now clean off 6" of the film at one end and place the pipe. Carefully start the roll making sure it's perfectly even. There is no need to bind the film to the pipe in any way, it will stick very securely from static, and will not be fully unrolled.

If you need to take this to a cleaner area at this point, do so. Other wise now is where everything must be perfectly cleaned. Make sure your work surface is clean, then layout the assembly right side up. Thoroughly clean each side and dry them. You should have zero air pockets or moisture between the layers, and no debris on either side. Separate each corner of the assembly at the unrolled end and superglue them with a very light corner bead.

If you want the helper strips, cut the applicator strip of the tube at the smallest diameter and lay beads down each side 1" from the edges. Run over the beads with your putty knife tool, using the bevel side. You'll get a feel for it quickly. This will leave approximately a 0.75mm thick strip of silicone. **LET IT CURE FOR 24 HOURS BEFORE DOING ANYTHING ELSE.**

Now that the strips have cured or if you did not need them, enjoy your new un-curler 😊

