

# CHROME ROLLERS

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Down inside of most dampener systems there's a couple of chrome plated rollers that most operators take for granted until something goes wrong. Sometimes a press will run for many years with no attention to these rollers, then with no warning ink begins to build up on dampener rollers and in extreme cases ink collects in the fountain solution. Many operators don't know what to do about these problems simply because chrome roller problems have not occurred during their time at bat.

Troubleshooting and maintenance of chrome rollers is very easy if you understand how they function. Metal rollers in a dampener system have to be hydrophilic or water loving. This means that whenever there is water (fountain solution) and grease (ink) present, the surface will attract and hold water which will in turn repel grease. The chrome surface of a roller acts the same as the non-image area of an offset plate. The surface of pure chrome is desensitized with a solution of gum and acid in the same manner as an offset plate. The gum/acid molecule adheres to the chrome surface and in the presence of water, repels grease. The bond between the gum/acid molecule is so strong that the only way it can be removed is by wear or abrasion. Under normal running conditions the gum/acid molecules are replaced from the fountain solution as wear occurs and so it is rare to have problems with a well balanced unit.

However, there are times when it is possible for the gum/acid molecules to be removed and the unprotected chrome can oxidize. Chrome oxide is oleophilic or oil loving and it attracts ink even when there is plenty of fountain solution present. Oxidation usually occurs when the chrome roller has been allowed to dry and remained dry without the application of a protective layer of gum. Over a period of time, this microscopic amount of oxidation may accumulate to the point that symptoms begin to appear. The first symptom is the accumulation of ink on the rubber pan roller in alcohol type dampeners, the inability to keep mollet rollers clean on conventional dampeners. Symptoms of extreme oxidation are when the ink adhering to the chrome oxide is so dense that it becomes visible on the chrome roller. By that time, another common symptom is the appearance of globs of ink in the fountain solution after long runs.

Simple preventive maintenance steps will eliminate the possibility of problems with chrome rollers. Getting in the habit of gumming the chrome rollers after each cleaning will greatly reduce the possibility of oxidation. Even better, after you clean the roller with solvent, etch it with 3M Scratch Remover, then gum it; treat it just as you would treat a plate that you were preparing for down time or storage.

In case your roller has already oxidized to the point of problems, it will be necessary to etch it with an acid gum mixture. This is the same method that is used at the

factory to get the roller working in the first place. You'll be using a very dangerous acid in this procedure, so be sure that you have all the safety materials present before beginning.

**Safety Materials:**

Safety goggles  
Rubber gloves  
Rubber apron  
Emergency eyewash  
Large container (gal. or more) of water/baking soda solution  
Water source (hose, sprinkler, etc.)

The hose and soda solution are to neutralize any acid that is spilled or that gets on your skin.

**Etch Formula:**

Use about 2 oz. of each  
one part Hydrochloric acid  
one part water  
one part Gum Arabic

**DANGER!** Please be sure you have your rubber gloves, apron and goggles on before you start. Be sure that you are working in a well ventilated area. Vapor from acid can cause damage to lungs, skin, and eyes. It will also cause tools and other iron or steel in the area to rust. Pour the acid into the water. If you pour the water into the acid, it will react just as if you were pouring water into hot grease!

Remove the chrome roller and support it on v-blocks in a sink or other container. Clean the roller with solvent. Etch the roller using a cotton wipe to apply the etch solution. Rotate and continue to swab the roller with etch solution for about 3-5 minutes, making sure that all of the working surface of the roller is treated. Rinse the etch off with water, then apply a coating of gum arabic and wipe dry.

When you are finished with the etch, neutralize it by mixing it with the gallon of soda water, and dispose of as dangerous waste.

Etching the chrome roller is a normal maintenance procedure that many people are not aware of. It can be done on a regular basis, once a year or so; or better yet, as necessary. Of course if you plan to do it as necessary, be sure that everyone understands how to tell "when it is necessary". And **PLEASE BE CAREFUL!**  
**ACIDS USED IN THIS PROCESS ARE DANGEROUS TO YOUR LUNGS, SKIN, AND EYES!!!**