

Litho NOTES

A newsletter for Navy Lithographers.

US NAVY
September 1992

MANAGEMENT

The heart of the press is your ink rollers. Are ink rollers the operator's problem? If the press operator is knowledgeable about rollers, that is splendid. But, what if the press operator has not grasped the entire story? It could be an expensive experiment and it brings in the shop supervisor. Most press operators pay little attention to the ink rollers until a difficulty occurs. To save production time and unnecessary expenditures for a possible early replacement or repair, practice problem prevention.

A press's inking system sometimes makes you wonder. Why all the ink rollers? Do you want the real truth, they are all needed. Ink in the fountain must be considered a raw compound. It must be broken down into a smooth, even consistency that is a finished product. The ink roller system cannot be made any simpler and still do the required job.

A press's inking system is comprised of three parts: (1) the ink fountain and its adjusting keys which controls the amount of ink metered to the ductor roller. (2) The ductor roller transfers the ink to the distribution rollers. These rollers shear the ink, breaking it down, smoothing, readying the uniform ink film for delivery to the form rollers. (3) The distribution system has a hard metal or plastic roller in contact with each soft rubber roller. The action between these rollers, plus the movement of the oscillator rollers, work the ink in a conditioning fashion. Most form rollers are a little softer than the distribution rollers and they usually vary in diameter to help prevent ghosting.

You must keep all press rollers in good condition. If any roller is in poor shape, it will cause a break in the roller train and the proper ink film will not be deposited on the printing surface. Problems that plague rubber rollers and lead to a poorly printed image include an uneven roller surface, too

soft or hard durometer readings, flat spots, cracks, or missing pieces of rubber. The hard rollers, made of plastic or metal, often suffer from gum glaze, scratches, and dents.

You will find that one of the most common ink roller problems is swollen roller ends—and in a quick glance the roller ends do appear to have become larger than the circumference. Actually, unless something out of the ordinary has happened, the ink roller ends have become a little smaller than when they were new and the center circumference has become even smaller.

Ink tends to remove a roller additive (called plasticizer) and roller ends run less ink than the centers.

Ink rollers are made round, in balance, and with a surface designed to work the ink into a usable compound. In the ink roller unit they should be held firm, free from end play, and vibration. You should notice that they are driven by friction with each other. They should never be driven by friction contact with the printing surface.

A new rubber ink roller feels soft and has a velvet-like texture. This texture is caused by millions of microscopic tendrils of rubber. When they become glazed, clogged with dry ink or lint, they will trap ink color and will bleed it into the next color. You will first see halftones, solids, and color work drop in their quality.

Deformability determines how the roller will behave in the nip. Nip is the area where two rollers meet and ink shearing action takes place. Remember rubber tends to change with age. Normal use and good care will harden rollers by removing plasticizer.

The hardness of the ink roller is measured with a durometer. It is a spring-loaded tool that drops a truncated cone on the rubber surface and hardness is measured on a scale. When properly used, the tool is accurate and can determine if the rollers are capable of doing their job for true quality reproduction. You will find that most ink rollers will perform their best at about twenty-five to thirty durometer. Distributors should be about thirty to thirty-five on the durometer scale. A higher or lower durometer reading will indicate imminent problems.

○ A Pressman's Tip ○

To combat oil on ink rollers, you should oil up at night before the press is washed. Believe it or not, this will work, providing your washup chemicals do not get into the bearings.♦

Rubber is used for ink rollers because it is not compressible but can be deformed under pressure and cause a nip at the point of contact. Hard rollers require excessive pressure to cause a proper nip. Normal hardness, specified durometer, is important for duplicators

since only the form rollers and ductor rollers are adjustable. Too much pressure will cause excessive wear and cause heat build-up. This build-up may cause ink to dry or separate early on the rollers. You should set your ink rollers as light as possible to transfer ink properly. Any extra pressure will cause a wider nip and will not improve ink splitting. It will only cause problems.

Rubber ink rollers are at their best when used properly. How they are used will determine its life. When placing your ink roller in storage cover them with paper to retard oxidation. Store them in a cool, dark, damp place. Rest them on their journals and rotate 180 degrees once a week to keep their shape and balance. Excessive heat or freezing can ruin your ink rollers. Ozone (a form of oxygen generated by high voltage dis-

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charges from electric motors and other electrical sources) can cause rubber to crack, weaken and deteriorate your ink roller in a hurry.

Keeping nip pressure uniform and minimal will help your ink rollers last longer. Rollers that can be reground, should be. This will conserve the rubber in its lively state and remove any oxidation. When not in use, your ink rollers should not be placed under pressure. This will avoid flat spots. Keep your ink rollers clean. Oil and bearing lubrication will cause your ink rollers to weaken. This does not mean that the bearings should not be lubricated. Heat delivered to a roller shaft from an unlubricated bearing will cause more trouble.

To clean ink rollers, the ink that is solvent removable must be removed. Gum, that which is water soluble, but not solvent soluble, must also be removed. Note, the same cleaning material will not do both jobs. Washing the press should be accomplished with a slow evaporating solvent so pigments and varnish are removed. You should beware of weakened, partially removed pigments. Any residue will be redeposited in an oily film that will end up plugging the ink roller tendrils. There are plenty of solvents on the market that simply evaporate too rapidly to do the job right.

One of these solvents is blanket wash used in and automatic blanket cleaning system. When completing the wash up, jog the press or rotate by hand to ensure no chemicals are trapped in the ink roller nip. Doing this will also prevent sticking.

Gum glazing must be removed with a deglazing solvent that will cause the gum to go back into a solution form. Water is the solvent for gum and there are many mild gum solvent chemicals on the market that will do an excellent job. However, should your gum-ink problems persist, try a stronger deglazer made for deep cleaning. Follow directions carefully and completely when you are using deglazers. A pressman's tip, a once-a-week wash up of this type should keep your ink rollers in good condition. If you have to use this procedure more often, check ink chemical compatibility and operating procedures.

Use the solvent recommended by the manufacturer of that particular ink to remove hard, dry ink. Pumice powder, caustic solutions and other abrasives should only be used as a last resort. Too often ink rollers are ruined by over-rubbing with abrasives. Regrinding larger ink rollers is the best answer. Good rubber cleaning will pay off. It is preventative maintenance and a key to top quality printing. ♦

AS I SEE IT LICM R. D. Carr, USN

Where do you stand on continuing your education and training? Did you know that according to the U.S. Small Business Administration, businesses large and small spend an estimated \$25 billion a year to bring employees up to the standards of high school graduates. That is a scary thought; but it is true. Many sailors lack basic education in reading, math, writing, critical thinking, and problem-solving skills.

I found that the lack of these basic skills were the number one cause of the high attrition rate at the LI "C" school. It was not the fact that the student did not know how to operate the equipment but the fact that the student lacked basic education and training skills.

Who's at fault, I don't have the answer to that; but I do have the solution. As a supervisor and a Master Chief it is my responsibility to show sailors that continuing a pursuit of basic skills and technical training is a fact of life. As an individual it is my own responsibility to ensure that my skills are adequate for the job that I have been detailed to whether it is a Command Master Chief billet or as a shop supervisor aboard a carrier. Bottom line, the solution is you.

A training revolution is taking place in the graphic arts industry. Seldom do you see an equipment manufacturer install, instruct, and pass out a "fact sheet." Most vendors see training as a product, much like the equipment they sell. Take advantage of these programs, training is an investment that pays large dividends in terms of productivity and a more motivated worker.

The crucial element is training and education are predictable: you will have a better educated work force; you will have a better chance to advance which puts more money in your pocket; and you will gain a more efficient organization. ♦

LI CONFERENCES

Make your plans now to attend one of the LI Rating Assessment Conferences. The Atlantic Fleet (Norfolk, VA) conference is tentatively scheduled for 14 January 1993. The Pacific Fleet (San Diego, CA) is tentatively scheduled for 28 January 1993.

Contact John Dominick, DPSMO, for more information or if you have an item that you want to see added to the agenda. John's phone number is (C) (202) 433-7411 or (DSN) 288-7411 or drop him a note at Defense Printing Service Management Office, Code 31, Naval Supply Systems Command, Washington, DC 20376-5000. See Litho Notes (July 92) for information on the conferences held in 1992. ♦

LASER PRINTER

Tips for the first time user:

1. Remember to wait for the full page to be composed before it prints and feeds out. (The printer takes about 45 seconds to warm up and up to 20 seconds thereafter to print a page of text.)

2. Adjust your software's lines-per-page setting to 60. (You may have used a lines-per-page setting of 66 with your dot matrix printer. For most application software, you may need to reduce the lines-per-page to 60 when using a laser printer.)

3. On a rare occasion, a print job may require an extra push. (Some print jobs, the printer may not print even though data has been sent to the printer's memory. Take the printer off-line and the press on-line and the press the feed to print.)

4. Have an extra toner cartridge on hand before you reach 5000 copies. (Do I really need to explain this?)

5. Add extra memory to the printer, especially if you use a complex page layout or graphics program.

6. Take advantage of your printer's special features. Read The Manual. It is an important factor in dealing with something that is new. ♦

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