

## **STEP BY STEP MAKEREADY PROCEDURES FOR A DUPLICATOR**

### **1. OBTAIN JOB TICKET AND/OR INSTRUCTIONS**

- a. Make sure that you find out the following things from the job ticket: *size of paper, color of ink, quantity to be run, and all other details.*
- b. If no job ticket is provided, make sure you ask your supervisor for all this information.

### **2. OBTAIN REQUIRED INK AND PAPER**

- a. Make sure that it is the correct ink and paper specified on the job ticket or instructions.
- b. You may need to cut paper to size or mix Pantone colors.

### **3. PLACE THE FOLLOWING CHEMICALS AND SUPPLIES ON THE PRESS TABLE OR ON THE ORGANIZER:**

- a. CHEMICALS: FPC, Gum Arabic, Blanket Wash squirt bottle, Blanket Wash pump can, Scratch Remover, fountain solution bottle (fill with fresh solution).
- b. SUPPLIES: Water bowl filled with clean water, cotton pads, disposable rags, and wash-up sheets (one new, one preused).

### **4. PERFORM SAFETY CHECK/TURN OFF NIGHT SWITCHES**

- a. Prepare yourself for safe operation: remove jewelry and long sleeves and protect your clothing and hands.
- b. Make a visual inspection of the press.
- c. Turn off night switches.
- d. Turn the press by hand using its handwheel and check for loose objects.

### **5. PERFORM DAILY LUBRICATION IF REQUIRED BY THE PRESS' HANDBOOK.**

### **6. SET THE SHEET CONTROL SYSTEM USING THE APPROPRIATE PROCEDURES FOR THE PRESS YOU ARE RUNNING.**

- a. Use waste paper the same size and weight as the job requires. Color of the paper or whether it has been previously printed doesn't matter.

- b. Don't proceed until the paper feeds perfectly.

### **7. FILL THE INK FOUNTAIN WITH INK.**

- a. Install the ink fountain.
- b. Gently tighten the keys from the center one outward until the fountain blade is snug against the fountain roller.
- c. Remove the layer of skin from the top of the ink can (if applicable).
- d. Dispose of the skin properly.
- e. Remove the ink from the can using a circular motion.
- f. If necessary, rotate the hand wheel until the ductor roller moves away from the fountain roller.
- g. Put the ink on *the fountain roller* and turn the fountain roller knob to place the ink into the fountain.
- h. Adjust the ink fountain keys until an *even* film of ink covers the rollers when you turn the fountain roller knob by hand.
- i. If not already installed, insert the ductor roller. Some presses are equipped with an ink ductor roller latch. If this is the case, turn the latch to the *on* position at this time.
- j. Turn the handwheel until the ink ductor contacts the ink fountain roller.
- k. Turn the fountain roller knob until the fountain roller inks up the ductor roller. Check to see that the coverage on the ductor is *even*. Readjust the keys as necessary.

### **8. INK UP THE ROLLERS**

- a. If you are using a standard ABDick Duplicator (copper dampening roller), make sure the water ductor roller is engaged. If you are using an ABDick Pro (stainless steel dampening roller), make sure the water ductor roller is *not engaged*.
- b. Start with the ink ratchet control in the center.
- c. Start the press power (not the vacuum) and let the rollers ink up.
- d. Readjust the ink fountain keys as necessary to provide an even flow of ink.
- e. When the ink on the rollers starts to *siz-*

*zle like bacon frying*, stop the press.

- f. The ink on the rollers should look like fine sandpaper.

## **9. SET UP THE WATER FOUNTAIN.**

- a. If you are using an ABDick 360 Pro or any other press except a standard ABDick 360, apply a layer of gum arabic to the fountain roller and buff it dry.
- b. Obtain the correct water fountain bottle for your press.
- c. Be sure the bottle is filled with clean fresh dampening solution.
- d. Put the fountain bottle into its holder.
- e. If not already done, install the dampening ductor roller.
- f. If necessary, turn on any water dampener night switch or latch.
- g. Move the dampening solution feed control lever or switch to its center position.

## **10. CONDITION THE DAMPENERS—**

### **MOLLETON-COVERED DAMPENERS ONLY**

- a. If you are using a dampening system with molleton-covered rollers, pre-dampen the water ductor by turning the water fountain roller knob (be sure the ductor is touching the water fountain roller) until the molleton is wet.
- b. Start the press power and allow the water rollers to pick up water. Start with the ratchet control in the center.
- c. Allow the press to run about one minute to predampen the molletons, then stop the press.

## **11. INSTALL THE PLATE.**

- a. Locate the head of the plate. Look for the edge closest to the image or for the holes used by the image registration system.
- b. Place the head of the plate in the head plate clamp and secure it.
- c. Turn the handwheel in the direction the press turns when it is operating until the tail clamp is visible.
- d. Place the tail of the plate in the tail clamp.
- e. Tighten the tail clamp. Do not tighten too much as this may tear the plate.
- f. Start the press and let it run several revolutions.

- g. Stop the press, Re-tighten the tail clamps as necessary.
- h. Check to see that there are no loose areas of the plate. If there is, it means the plate is loose or is mounted on the cylinder crooked and must be straightened.

## **12. WASH THE GUM OFF THE PLATE AND INK UP.**

- a. Wash the gum off the plate with a water-dampened cotton pad.
- b. Start the press and turn on the dampening forms (non ABDick presses) or move the ABDick Control Handle to the third position (image). Allow the press to turn about a minute.
- c. Turn off the dampening forms (or move the ABDick Control Handle to the Neutral position) and stop the press.
- d. Lightly blow on the surface of the plate. You should see the water dissipate from the plate in a couple of seconds after you start blowing. If there is no water on the plate, more must be added. If the water takes too long to dissipate, you have too much water.
- e. Based upon your observations in step d, increase or decrease the water feed control and repeat steps b–d.

## **13. ADJUST INK AND WATER UNTIL BALANCE IS OBTAINED.**

- a. Start the press, turn on the water forms, wait a few revolutions, then turn on the ink forms (on ABDick presses, move the Control Handle to the third (image) position.
- b. As soon as the ink rollers touch the plate, check for the following by observing the plate as the press is running:
  - 1. ink covers the non-image
  - 2. no ink on plate
  - 3. water dripping all over the place.
- c. If there is ink on the non-image areas, you probably do not have enough water. Turn off the ink and water forms (ABDick: move Control Handle to neutral) then stop the press. Clean the plate with FPC and a wet cotton pad. Turn the water feed control to a higher setting and repeat steps a–b.

- d. If there is no ink on the image areas of the plate, the problem could be too much water or too much ink. Check the water dissipation rate. Check to see if the ink on the rollers looks like fine sandpaper. This problem can also be caused by a blinded plate (gum dried over the image) or by incorrect roller settings. *If you suspect these problems, see your instructor or supervisor.*
- e. If there is water dripping all over the place, you have too much water. If you are using molleton-covered rollers, remove the form roller and dry it by rolling it on absorbent paper. If you are using an ABDick press, turn down the water feed (you may need to run the press a while with the water ductor turned off so that the excess water can evaporate).
- f. When you have the correct amount of ink and water so that *the image area is solid and clean and the non-image area is clean and free of ink*, you have obtained INK-WATER balance.

#### 14. STARTING TO PRINT

- a. Start the press power (not the vacuum).
- b. Turn on the dampener forms (ABDick: move Control Handle to third (image) position).
- c. Turn on the ink forms (ABDick: move Control Handle to the third (image) position).
- d. Turn on the vacuum pump.
- e. Many presses have a lever to stop paper feeding. Be sure to engage the feeder.
- f. Run about 10 sheets then, in order:
  - 1. Turn off the feed-engage lever
  - 2. Turn off the vacuum pump
  - 3. Turn off the ink forms
  - 4. Turn off the water forms
  - 5. Turn off the press power.

#### 15. CHECK IMAGE REGISTRATION

- a. You have to check for the following registration errors:
  - 1. image off-position top-to-bottom
  - 2. image off-position side-to-side
  - 3. image crooked
- b. Use one of the following methods to

check image position and registration:

- 1. *Center-of-stock-marks method*: If these marks are available, fold the sheet in half both horizontally and vertically. The center marks should fall exactly on the folds. If the marks do not fall on the folds, the distance they are off is the distance the image must be moved.
  - 2. *Proof method*: Obtain a proof that has been approved by the customer. Align the press sheet to the proof and check to see if the images align (you might find a light table helpful). If not, the variation in position represents the distance the image must be moved.
  - 3. *Two-sided method*: If the press sheet was previously printed on the other side (assuming that the front side was properly registered), the image on the back should align to the image on the front (either register marks or blocks of text may be used to align images front-to-back). Place the printed sheet on a light table and check to see if both front and back images align. If not, the variation in position represents the distance the image must be moved.
- c. Adjust the press as necessary:
    - 1. Image off top-to-bottom: Roll the cylinder (on some presses, you roll the plate cylinder, while on others the blanket is moved). Loosen the lock bolt(s), roll the cylinder, tighten the lock bolt(s), wash the blanket, then try printing again. Repeat steps b–c until registration is obtained.
    - 2. Image off side-to-side: Move the side guide, then try printing again. Repeat steps b–c until registration is obtained.
    - 3. Image crooked: Some presses may require you to square the plate clamps, square the plate in its clamps, or move the front stops.

#### 16. STONE-OUT UNWANTED IMAGES.

- 1. Register marks *may* need to be removed if they will not be trimmed off the finished press sheet.

2. Use plate image remover (sometimes it's in a squirt bottle and is applied with a pencil eraser; other times it's in a felt pen-like tool so that the fluid can be applied directly) to dissolve the unwanted images. Be careful to protect images to be retained so they don't get erased. *Don't allow the liquid to drip all over.*
3. Apply scratch remover to the erased areas with a damp cotton pad. Buff the area dry with a dry cotton pad.

### 17. BRING THE COLOR UP.

- a. Run about 50 sheets of waste paper.
- b. While the press is running, make adjustments to the ink and water to get a good clean background and dark image that is consistent throughout the entire run. *Each printed sheet should be the same color.*

### 18. OBTAIN AN OK (PRESS CHECK).

- a. When you are satisfied with the image, show the instructor or supervisor a good copy. *(In industry, the customer or the customer's representative will be present.)*
- b. The instructor, supervisor, or client must sign the sheet. If changes are required, those changes must be made before the sheet is OK'd. *No job can be printed without an authorized OK.*
- c. Keep the OK'd sheet to put into your portfolio.

### 19. RUN THE JOB.

- a. Begin printing. Place a flag in the delivery stack to indicate the beginning of the good impressions.
- b. Zero the counter.
- c. Run the specified number of impressions plus \_\_\_\_\_% spoilage allowance.
- d. Pull samples of the job during the run. Check for registration and to see if the sample *reasonably* matches the OK sheet. *(Reasonable variation is dependent on the quality-level required for the job.)*

### CLEAN UP STEPS

1. Turn all ratchets (ink and water) off.
2. Place a flag on top of the good sheets in the delivery.
3. Sheet-off the ink from the plate by running

paper through the press with the impression turned on but the ink and water turned off. Continue running until the paper comes out uninked.

3. Remove the printed sheets from the delivery, turn over the top sheet, and write your name, press name and number and date on it.
4. Take the printed stack to the bindery area.
5. Place any spoilage sheets that are reusable on the shelf under the press worktable. Throw any unusable sheets in the *recycling containers*.
6. Remove the plate from the press.
7. Clean the plate:
  - a. Use a damp cotton pad. Use FPC to clean the plate..
  - b. Gum the plate with Gum Arabic using a damp cotton pad, then buff the Gum dry with a dry cotton pad.
  - c. Turn the plate over and repeat steps a-b.
8. Remove the dampening solution from the fountain.
- 9a. On ABDick presses, remove the water fountain.
- 9b. On presses with molleton-covered rollers, remove those rollers and clean them properly. Clean all other rollers with solvent, then apply Gum Arabic and buff dry. Replace cleaned molleton-covered rollers.
10. Remove the ink from the ink fountain.
11. Loosen the ink fountain keys slightly (start from the outside of the fountain and work toward the center), then remove the ink fountain from the press.
12. Turn the ink ductor latch to the *off* position. If no ink ductor latch is provided, *remove the ink ductor*.
13. Clean the ink fountain roller and the ink fountain.
14. Replace the clean ink fountain.
15. Wash up the ink rollers:
  - a. Mount a used wash-up sheet on the plate cylinder.
  - b. Start the press.
  - c. Apply a small amount of roller wash to the ink rollers.
  - d. Turn the ink form rollers to the *on* position (ABDick presses: move Control Handle to the third position). *This will allow the dirty solvent to be absorbed by the*

- wash-up sheet.*
- e. Turn off the ink form rollers (ABDick presses: move Control Handle to the neutral position); stop the press; remove the wet wash-up sheet; turn it over; remount the wash-up sheet on the plate cylinder; and wash the rollers again.
  - f. A complete wash-up requires the use of at least two wash-up sheets: one used and one new. This makes a total of *four* wash-ups.
16. Put the wash-up sheet that you used for the first time into the used wash-up sheet box. Throw the older one into the trash.
  17. Use a clean, wet-with-solvent, solvent rag to go over the rollers to make sure they are completely clean *Be sure to clean the ends of the rollers especially well.*
  18. Replace the ink ductor (if you had to remove it).
  19. Replace the water fountain (if you removed it).
  20. Clean the plate, blanket, and impression cylinders extremely well, especially at the ends around the gears.
  21. Clean the outside guards, knobs, handles, hand-wheel, and any other part of the press that you touched.
  22. Turn on all applicable night switches.
  23. Recycle any recyclable paper that might be lying around the press or on the work table.
  24. Throw away any soiled disposable rags, cotton pads, and any paper that is too messed up to recycle.
  25. Dump the water bowls into the waste water drain.
  26. Clean the ink can, spray the top layer of oil-based ink with anti-skin spray, and put the ink can away.
  27. Put any new paper away.
  28. Clean and straighten your work table. There should be nothing on top of the table except the FPC, Gum Arabic, Blanket Wash squirt bottle, Scratch Remover, fountain solution bottle, and tape dispenser.
  29. If equipped, straighten your work organizer. Replenish cotton pads and rags, and fill the solvent pump can.
  30. Double check your work area to make sure everything is neat and tidy.
  31. Make sure all tools are put away.
  32. Get permission from your instructor or supervisor before leaving.