Pin Cleaning Prior to Printing

**Purpose:** Before each print run, we have found it is critical to perform a simple pin-cleaning procedure. We have experimented with a variety of processes, and there are commercially available systems for cleaning pins that WORK WELL. What we describe here is a customized and slightly empirical process that has proven to be robust, produces the maximum number of spots, improves spot morphology, and does NOT harm the pins (Telechem: SMP3).

**Scope:** Using GeneMachines OmniGrid and Telechem SMP3 pins.

1. Turn on instrument and set humidity to desired level.
2. Make sure that wash water is filled, and that the sonicator water is clean and fresh. Both should be NanoPure water NOT deionized.
3. Fill a small 50ml tube cap with Windex (Windex No Drip Glass Cleaner with Ammonia-D, located underneath the sink in the array lab)
4. Place the Cap full of Windex onto the deck of the arrayer near the rear left (close to the pins)
5. Open the gridder software and log on as administrator.
6. In the window that opens click on the Administrate button (“Perform Administrative Functions”)
7. In the following Calibration and Maintenance Options Window, click on the “Slide Origin” button found within the “Calibrate” window:
8. The Position Print Head and Table window will then open, and you should carefully observe the Arrow keys located at the top of the window within the “Adjust” box.
9. Note that in each direction there are two speeds used to move the print head containing the pins, or the table. Buttons with two arrows move much faster than the buttons with one arrow. Use the Y Axis (Print Head) and the X Axis (Table) to position the pins directly above the Windex. Slowly lower the pins towards the Windex, stopping several times to be CERTAIN that the pins will not hit the sides of the cap. Only
contact the Windex solution. Slowly immerse the pins up to the top of the machined pin slots. NOTE: DO NOT SAVE any of these settings. This control is simply used to set the pins into the cleaning solution (Windex).

10. Allow the pins to soak in this solution for 30 minutes to several hours. Soaking overnight is strongly discouraged. Instead, pins can be conditioned up to 24 hours in advance of a print run with good results.

11. When soaking is complete, the pins must be rinsed thoroughly. Raise pins using the arrow keys. Immediately (before the pins can dry) close the Position Print Heads and Table window, and then the Calibration and Maintenance Options window. Immediately click on the “Test” button in the Genemachines main window. When the Test Gridder window opens click on the “Wash#1” button and the pins will go directly to the wash station and begin rinsing. Rinse for 15 seconds, and then click on the “Sonicate” button. The pins will move to the sonicator and the sonicator will turn on. Sonicate the pins for about 15 seconds, and then click on the “Wash#1” button again. Continue cleaning the pins by pressing the following buttons in the order shown, and for the time given:

- **Wash#1** (from above).. 15 sec
- **Sonicate** 15 sec
- **Wash#1** 15 sec
- **Dry** 1 sec
- **Wash#1** 15 sec
- **Dry** 1 sec
- **Dry** 1 sec
- **Wash#1** 15 sec
- **Sonicate** 15 sec
- **Wash#1** 15 sec
- **Dry** 1 sec
- **Dry** 1 sec
- **Dry** 1 sec
- **Dry** 1 sec
- **Dry** 1 sec
- **Dry** 1 sec
- **Stop/Home** 30 sec

Exit all Gridder Windows. Pins are ready to print. Remove Windex solution and discard.