LEAD / TIN INSTRUCTIONS

500-011 - PL901 10” x 12” Lead / Tin Plating Line
500-077 - PL902 12” x 18” Lead / Tin Plating Line

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USERS GUIDE

Lead Tin Instructions

Processing Instructions

1 Produce the through hole plated board in the PL903D/PL904D copper plating line as Normal.

2 After copper plating for 10 minutes, remove the board from the copper plating bath rinse and thoroughly dry.

3 If the surface has any grease or oxidisation on it, gently scrub clean with a Scotchbrite pad, making sure all dust generated by the pad is removed with paper towels.

4 Dry film laminate the board.

5 Register the artworks (using a positive artwork, right reading emulsion down), with the drilled board as Normal and expose for 20 seconds.

6 Develop the board in the dry film developer for 3 – 4 minutes, then spray rinse.

7 Place the board in the Cleaner Tank 1 in PL901/PL902 tank (25 – 30ºC) for 1 minute, then remove and spray rinse.

8 Place board in the Micro-etch Tank 2 (20 – 30ºC) for 1 minute then remove and spray rinse.

9 Place the board in the Sulphuric Acid Tank 3 (Room Temp.) for 1 minute

10 Remove the board and place it in the Copper Plating Tank.

11 Set the time for 26 minutes and reset the current meters for each side at 3A / dm^2 depending on the area of tracks and pads to be pattern plated. This is usually about 20% of the whole panel area, unless you have big earth planes.
Then Press the RUN button.
N.B. Some CAD packages can calculate this area.

12 Remove the board when timer buzzer sounds and Spray Rinse.

13 Place the board in the Fluoboric Acid Tank 4 (room Temp.) for 2 minutes

14 Remove and place in the Lead / Tin Bath Tank 5. (20 – 30ºC)

15 Set the plating time to 15 minutes and the current at: 1.5 Amps / dm^2 of surface area to be plated.
Then Press the **RUN** button.

16 When timer buzzer sounds, remove the board, spray rinse

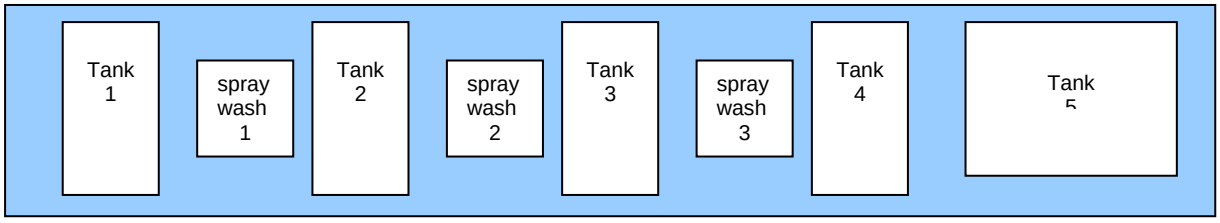
17 Strip off the photoresist in suitable stripping tank or spray
stripping unit, then spray rinse.

18 Etch the board in Peroxide Sulphuric etchant our HB120 mix (see following sheet for makeup details) for a tank and HB130 mix for spray etcher

19 After etching, thoroughly spray rinse the board.

The board is now ready to be reflowed.

PL901 / PL902 Tank Layout



Tank 1 : Cleaner Tank.
Tank 2 : Micro-etch Tank
Tank 3 : Sulphuric Acid (10%) Tank
Tank 4 : Fluoboric Acid (5%) Tank
Tank 5 : Lead / Tin Plating Tank
Spray Wash Tanks : 1, 2, & 3

HB120 Peroxide Sulphuric Etchant Instructions
For 5 Litre Tanks

1) Makeup:

1.65 Litres	HB120M
500 ml	HB120R
2.85 Litres	De-ionised water
5 ml	HB121

Mixing Instructions:

Pour the 1.65 Litres of HB120M into the tank. Add 2 Litres of De-ionised water then 500ml of HB120R.
Top up with de-ionised water, so that the liquid level is 20 cms below the lip on which the tank lid sits.
Finally add the 5ml of HB121.

2) Procedure for using the Etchant and Replenishment.

1) Heat the tank to between 46 – 52ºC. There should have about a 25mm Foam Blanket on top, which is caused by the HB121 Stabiliser
2) Place the lead / tin plated board in the tank and the board should be fully etched in 8-10 minutes (normally 6 – 8 minutes for 35 microns of copper). When etched, completely remove the board and rinse with water.
   The board should now be ready do be reflowed.

3) Replenishment Procedure

When the bath is freshly made-up, it will etch 1 square metre of 35 micron copper surface before the solution reaches its maximum copper saturation of 280 grams. At this point follow the procedures below.

1) Drain the tank into a 5 litre plastic bucket or container and allow to cool down to 16ºC. To achieve this place the container in a cold water bath.
2) At 16ºC, 81 grams of copper will have precipitated out into the bottom of the container.
3) Carefully pour the solution back into the tank, making sure the precipitated copper crystals do not get back into the tank.
4) Add 125ml of HB120R and 68 ml of 98% concentrated Sulphuric Acid.
5) You can now continue etching up to 0.29 square metres of copper surface, before repeating steps 1-4 above. This would be typically about 0.8 square metres of circuit board copper surface area.
6) If the foam level drops, add 2-5ml of HB121

Reflow Steps

1. Place the board in Tank 1, which is the Flux Tank, for 5 – 10 seconds (room temperature).

2. Remove the board, allowing excess flux to drain back into the Flux Tank.

3. Place the board in the Pre-heat Tank 4 for 30 seconds (Temp: 150 – 155ºC)

4. Remove the board from Tank 4 and immediately place it in the Reflow Tank 5 for 30 seconds (temp:220 – 225ºC).

5. Remove from Reflow Tank and return board to Pre-heat Tank for 15 seconds.

6. Remove and place in hot detergent Wash Tank 3 (temp: 50ºC) for 30 seconds.

7 Spray rinse in Tank 2 for 20 – 30 seconds.

8. Dry the board.

Tank layout for Hot Oil Reflow Unit.