



Top 10 PCB Rework Mistakes

1. Mistake: Trying to fix what is not broken.

Fix: Don't rework a good solder joint that just "looks funny" Fix: Know the IPC-610 workmanship standards and what class you inspect to. Then do not try to fix a solder joint that passes. Adding another heat cycle is not to make it look prettier is not good for long term reliability.

2. Mistake: Excessive pressure or pressing down with the solder iron.

Fix: Use light pressure only. You can't drive more heat in by pushing the tip into the pad. You only increase the chance of lifting the pad or measleing the board.

3. Mistake: Using a higher temperature to solder faster.

Fix: Cranking up the heat does not necessarily make the solder flow better. In fact, if you crank it too high, it will reduce the flow because the tip oxidizes too quickly and the higher temp burns off the flux too soon. The best way to get maximum flow and hole fill is a combination of the right temperature (usually 700-770F) and dwell time (usually 2-5 seconds).

4. Mistake: Not being properly ESD protected.

Fix: Maintaining the same electrical potential between the operator, work surface, and ESDS device is critical. Very easy, wear a wrist strap and use an ESD table mat that are properly connected to a common point ground. What good is it to fix a defect perfectly but cause a latent ESD failure that will manifest itself in the field. Proper ESD protection is simple and inexpensive so be sure to get grounded.

5. Mistake: Improper use of flux.

Fix: Make sure to use the appropriate flux before soldering. This will eliminate oxidation which harms solderability. It will also add in wetting and improve your technique. It is also important to remove the flux with an appropriate cleaner in order to eliminate the chance for dendritic growth.

6. Mistake: Improper tip size.

Fix: Select the largest tip that will not extend over the annular ring. It takes a few extra seconds to change the tip but don't be lazy, it will pay off in better workmanship

7. Mistake: Not cleaning and shocking the tip.

Fix: Every solder station should have a wet, sulfur free sponge to clean and thermal shock the tip immediately prior to soldering. This will help the solder flow, aid in heat transfer and prevent FOD.

8. Mistake: Not cleaning after rework or touch up

Fix: Always clean the flux off of hand soldered PCB's even if you use no clean flux. No clean flux can only be left on when it is fully cured. In hand soldering, unlike in the reflow oven, all the flux is not cured so ionic contamination and/or dendrite growth will occur.

9. Mistake: Collateral damage

Fix: With the densely packed PCB's today, the operator must be extra careful not to displace or reflow adjacent components. It may even be necessary to tape off adjacent components to protect them.

10. Mistake: Improper training.

Fix: Get the proper training for the job! If you have a scalpel, it doesn't mean you are a brain surgeon. If you have a solder station, it doesn't mean you are a rework technician. Fortunately, you don't need medical school to be an excellent rework technician. A 1 week IPC-7711 class will give you the skills to fix almost any PCB rework problem.

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