

REPRINTED WITH PERMISSION

JUNE 2022

I-Connect007
GOOD FOR THE INDUSTRY

SMT007

M A G A Z I N E

COLLABORATION

AND PARTNERSHIPS



Resourceful Solutions During Nationwide Shortages

The Manifest

by Emmalee Gagnon, MANNCORP

As supply chain issues and chip shortages continue plaguing the world, companies are still struggling to get SMT components. A variety of solutions have risen to combat these struggles. The main methods being used are preservation of existing parts, reworking of PCBs, reclaiming of placed parts, and—if surface-mount technology isn't enough—turning to through-hole technology to fill the gaps.

Secure SMT Production With Counters, Dry Boxes, and Rework Machines

Preservation of existing parts, as well as reuse and reclamation of placed boards, are all critical elements of getting through the shortage. Keep precise count of components, keep them protected from moisture, and be ready to rework when necessary to retain the number of parts you have with the right equipment.

Here are the top three equipment categories for achieving these goals.

Preserve

- **Component counters:** Having accurate counts of your components ensures control over inventory, which means management is aware when specific parts are running low (so they can order ahead of time and prepare for wait times appropriately) and can catch shrinkage through misuse, theft, or waste of SMD parts.
- **Dry boxes:** It is crucial to keep components safe from moisture damage, especially in this time of short supply. Ensure the parts you have are usable by storing them safely in dry boxes and using baking dry boxes to restore affected moisture-sensitive devices.



Rework and Reclaim

• Rework systems

1. Reworking boards in need of repair, or that need to perform a new function, helps to reduce the number of PCBs disposed of and the number needing to be ordered.
2. Reclaiming the placed parts (including SMDs, BGAs, QFPs, and LEDs) on existing boards limits the number of new parts that must be sourced. Previously placed parts can be cleaned of residual solder after salvage and then re-balled with either tin-lead solder, or lead-free solder to be reused on new boards.

Printed circuit boards often contain valuable and difficult-to-source electronic components. You can avoid letting any of these parts go to waste by having control over inventory, reworking existing parts and boards, and by keeping critical components safe from moisture. The result will be fewer parts needing to be sourced, combatting unnecessary drains on the already-parched system.

Replace the SMT Parts You Can't Get by Converting to THT Parts

In cases where preservation and reclamation of SMT parts are not enough to keep produc-

tion going, some manufacturers have begun converting to through-hole parts over surface mount technology as a short-term solution. Equipment suppliers are now seeing an uptick in orders of through-hole equipment, especially for lead-forming and soldering equipment. Here's why it may be a good idea to look back in time to look forward in manufacturing.

By repurposing existing parts to function as through-hole technology, manufacturers can combat the current crisis—not letting the part shortage halt production. The top pieces of equipment needed for this part conversion (which are being purchased at a rate not seen in over a decade) include:

- **Wave soldering machines:** With either single or dual waves, wave soldering machines permit automated lead-free or tin-lead processing of through-hole and surface-mount boards.
- **Selective soldering machines:** Selective soldering is a precise, low-price-point, benchtop alternative to hand soldering; in this time of labor shortage, selective soldering machines reduce the number of workers needed by doing the work of four to six people doing hand soldering.

Secure SMT Production



Component Counters



Rework Systems



Dry Boxes

Convert SMT Parts to Through-Hole



Wave Soldering



Selective Soldering



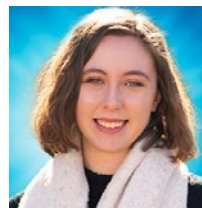
Lead Formers

- **Lead formers:** Axial and radial lead-forming machines are available to efficiently cut, bend, and form taped and loose components for through-hole assembly.

As many companies with in-house production (and those looking to start with their own product assembly) have been confronted by shortages of parts, through-hole (THT) production has emerged as a possible solution for many. Since the components necessary for THT are more readily available than those for SMT, reconfiguring can help manufacturers reduce wait times and increase output. If your company has been struggling to get the SMT parts necessary for production, it may be worth considering adding THT capability to your production.

Continuing Production Despite Shortages

In this time of short supply, American manufacturers have shown resiliency and ingenuity. Equipment suppliers are ready to meet the changing needs of the market by supplying the necessary tools. With the right equipment, manufacturers operating in-house equipment can continue production. By taking precautions to safeguard the components available, and by being able to have the flexibility to pivot from SMT to THT when necessary, small and medium manufacturers can survive despite adversity. **SMT007**



Emmalee Gagnon writes about SMT-related topics and customer stories for Manncorp. To read past columns or contact Gagnon, [click here](#).

jobCONNECT007

Companies seeking talent with circuit board industry experience post their jobs with us.

jobconnect007.com

Problems solved!



PCBO07 MAGAZINE MARCH 2022
MATERIALS & TECHNOLOGY
They go together like...

PCBO07 MAGAZINE APRIL 2022
UPSKILLING
EDUCATION
Attend a conference. Take a workshop. Become certified.

PCBO07 MAGAZINE
GOLDEN ROI OPPORTUNITIES

DESIGN007 MAGAZINE MARCH 2022
DESIGN EDUCATION: Making Your Next Move

DESIGN007 MAGAZINE APRIL 2022
Additive

DESIGN007 MAGAZINE MAY 2022
Designing in a Vacuum

SMT007 MAGAZINE APRIL 2022
WELCOME TO THE FUTURE NOW

SMT007 MAGAZINE MAY 2022
LOW VOLUME MANAGING YOUR HiMiX

SUBSCRIBE NOW