Title:

Work in Process Material Handling

Revision	Description of Change	Date Effective	Author
A	Initial Release	06/07/1999	S. Gomez
B	Added 8.2. Modified 9.2 and 9.3.	09/02/1999	S. Gomez
C	Modified 9.4.2, 9.4.5, 8.1, 9.3 Added 8.3, 4.5, 9.4.2.1, 9.4.2.2, 9.4.5	03/07/2024	Mario Baltier

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Originator

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Title:

Work in Process Material Handling

1.0 Purpose

1.1 The purpose of this procedure is intended to ensure uniform, and safe handling methods for all Work-in-Process assemblies and components at Meritronics.

2.0 Scope

2.1 This procedure applies to Meritronics personnel, in all areas (office areas as well as the manufacturing floor) when handling any Work-in-Process items.

3.0 References

3.1	SOP22	Electrostatic Discharge Control (ESD)
3.2	SOP23	Control of Non-Conforming Material
3.3	QAP008	Processing of Non-Conforming Material at Meritronics Sunnyvale
3.4	IPC-A-610	Workmanship Standards Manual or any other Customer supplied workmanship criteria.

4.0 Definitions

4.1 Boards – Any bare, completed, or partially completed printed circuit assembly. These items can also be termed: PCB's, PCA's, Fabs, Assemblies, or sometimes by the product name.

4.2 Parts – Any item that is part of a printed circuit assembly. These items can also be termed as IC's, chips, and components.

4.3 Racks – An item used to store and move several printed circuit boards together. Also, can be referred to as tilt-racks. Normally used for small to medium sized assemblies.

4.4 Trays – An item that is part of a material handling cart. Also known as bakers' trays.

4.5 MERDOC – A Database used to link documents from a controlled network drive.

5.0 Responsibilities

5.1 It is the responsibility of all employees to follow this procedure at all times on all Meritronics premises.

5.2 It is the responsibility of every Vice President, Director, Manager, Supervisor, and Lead to make all their direct reporting personnel aware of the provisions of this procedure and to ensure compliance.

6.0 Equipment

6.1 Tilt-racks.

6.2 Gloves (Cotton or Latex)

6.3 Anti-Static shielding bags or Customer approved Anti-Static packaging.

7.0 Materials

7.1 N/A

8.0 Records

8.1 The total retention period for records is reflected on the Master Form Listing (PDOC025) under the column Record Retention. If the status is inactive, the records will be forwarded to Document Control and filed/maintained in accordance with SOP 29.

8.2 Job ID Label - PMTL014

8.3 WIP TAG - PMFG002

9.0 Procedure

9.1 Electro-Static Discharge (ESD) Precautions - All personnel are required to become familiar with and follow all rules as stated in SOP 22 (Electrostatic Discharge Control). When transporting static sensitive items into or through an ESD hazardous area, they must be completely enclosed inside Anti-Static bags or material to prevent ESD damage.

9.2 IPC-A-610 addresses the handling of electronic assemblies. There is a visual aid which shows the proper ways in which to physically hold a board. Follow all general rules listed in the IPC-A-610 manual.

9.3 In order to identify the correct assembly's number/name and current revision for the product to be run, follow the Production Schedule, Job ID Label (PMTL014) or WIP TAG (PMFG002), (attached to the product carrier (e.g., bin, box, etc.). Obtain the correct assembly document from the controlled files in MERDOC. You can make a photocopy of the controlled assembly document for reference purposes or if it is needed to mark up a specific word or number during First article inspections, Work process, etc. The photocopy needs to be stamped by Document Control and destroyed after use.

9.4 Specific Requirements - The following are specific requirements in addition to the general requirements in the IPC-A-610 manual:

9.4.1 When using Tilt-racks, do not put boards larger than 12" X 12" in them, or if the board shape causes the rack to become unstable. While putting PCA's on tilt racks, start from the end and make sure PCA's are tilted to the back.

9.4.1.1 Do not install the boards in the rack in such a way that the installed components can be damaged, this must be done carefully.

9.4.1.2 It is very easy to install a board in a tilt rack and damage the board to the point that it must be scrapped.

9.4.1.3 When installing boards that have just exited the reflow oven, or wave solder machine, you must wait until the board is cool or just barely warm to the touch.

9.4.1.4 If a board is installed into the tilt racks when it is hot the board will warp making it unusable.

9.4.1.5 Never stack loaded tilt-racks on top of each other when PCA's are more than 6" tall.

9.4.1.6 Never try to carry a fully loaded tilt-rack if it is too heavy for you, ask for help.

9.4.1.7 Always place loaded tilt-racks fully on a flat surface, don't let the rack hang over a edge.

9.4.1.8 Never let assemblies rock back and forth in a tilt-rack.

9.4.2 ESD gloves

9.4.2.1 If you are picking up boards with bare hands, ensure your hands are free of hand cream or lotion. Cream/Lotion can contain silicon and will contaminate the boards. Only use ESD lotion which is available on the floor.

9.4.2.2 If a customer requires gloves to be used, this instruction will be stated in the customer Job packet. All Departments will need to follow this customer requirement.

9.4.3 One should NEVER pick-up an assembly with soldered components with one hand so that the board will flex or bend, ALWAYS use two hands. Any flex or bending in the board after the components are soldered can cause fractured or broken solder joints or even damage to PCA's.

9.4.5 Whenever handling any Organic Solder Protectant (OSP) coated board or boards being processed with NO-CLEAN solder, always handle the PCB by the edges and do not touch any solderable surface with your bare hands, some departments may need to use ESD gloves like QC/FQA where handling is required. You will be able to tell if the board is OSP coated as it will look as if the pads and traces are of a copper color, not silver colored. All personnel is require wearing ESD coats on production floor and prevent any unnecessary handling of any product to prevent (FOD).

9.4.6 If you should notice loose components in a foam or on a work surface whereby you think they have come from a board in the tray, or in the area close by, do not allow the board to proceed any further in the process until the component is reinstalled or the board in question is verified complete. If there is any doubt about whether the component is correct, do not allow the board to proceed.

9.5 The most important thing is common sense! Electronic components and boards are VERY, VERY fragile and can be damaged easily by simple mishandling! If you are placing something where you are not absolutely sure that the item is completely safe, or handling a product in such a way that you think there's a risk of damaging it, take the steps necessary to fix the situation. Don't allow product or components to become damaged because of simple mishandling. If you ever witness anyone mishandling materials, report it to your Supervisor.