

Laser Etching / Labelling

Station Group: Preparation and Marking
Document ID: STA-LE-001 | Revision: A | Date: 05/16/2025

Manufacturing Process

Input Fields

Field Name	Field Type	Description	Status
Work Order Number	Text/Numeric	Unique identifier for the work order	Required
Customer Name	Text	Name of the customer	Required
Part Number	Text/Numeric	Product part number	Required
Revision Level	Text/Numeric	Current revision of the product	Required
Serial Number Range	Text/Numeric	Range of serial numbers to be applied	Required
Date Code	Date	Manufacturing date code to be applied	Required
Operator ID	Text/Numeric	ID of operator performing the marking	Required
Marking Program ID	Text/Numeric	Identifier for the laser marking program	Required
Marking Power Setting	Numeric	Power setting for the laser marker	Required

Required data entry fields for Laser Etching / Labelling station

Checklist Items

Checklist Item	Verification Method	Acceptance Criteria	Status
Correct board type	Visual comparison	Matches work order and drawing	Required
Serial numbers applied	Visual inspection	Present, correct format, correct location	Required
Marking legibility	Visual inspection	Clear, readable, high contrast	Required
Barcode scan	Barcode scanner	Scans correctly, matches expected data	Required
Marking location	Measurement	Within ±0.5mm of specified location	Required
Board damage	Visual inspection	No damage to board from marking process	Required
Required information	Document review	All required information included	Required

Verification checklist for Laser Etching / Labelling station

Equipment

Equipment	Purpose
Laser marking system	Apply markings to PCB
Barcode scanners	Verify barcode readability
Magnifier	Inspect marking quality
ESD protection equipment	Prevent static damage

Required equipment for Laser Etching / Labelling station

Materials

Material	Purpose
Bare PCBs	Base material for marking
Labels	Alternative marking method
Documentation forms	Record process data
ESD materials	Prevent static damage

Required materials for Laser Etching / Labelling station

Repair Process

Repair Considerations

Issue	Repair Approach
Marking errors	Consult MRB for disposition. May require re-marking or use of alternative marking method.
Etching depth issues	Adjust laser power settings. If too deep, may require MRB review.
Re-marking procedures	Clean surface thoroughly before re-marking. Document original marking error.
Surface preparation for re-marking	Use approved cleaning method that won't damage board surface or components.

Common repair issues and considerations for Laser Etching / Labelling station

Repair Input Fields

Field Name	Field Type	Description	Status
MRB Number	Text/Numeric	Unique identifier for the MRB case	Required

Field Name	Field Type	Description	Status
Defect Description	Text	Detailed description of the marking defect	Required
Repair Method	Selection	Standard (IPC-R-700) or Non-standard	Required
Non-Standard Procedure Description	Text	Description of non-standard repair method	Conditional
Repair Technician	Text	Name of technician performing repair	Required
Engineering Approval	Text	Name of engineer approving repair plan	Required
Quality Approval	Text	Name of quality personnel approving repair	Required

Required data entry fields for repair at Laser Etching / Labelling station

Repair Checklist Items

Checklist Item	Verification Method	Acceptance Criteria	Status
Non-conformance documentation	Document review	Complete and accurate documentation of defect	Required
Repair feasibility	Technical assessment	Repair is technically feasible	Required
Customer requirements	Document review	Repair meets customer requirements	Required
Customer concurrence	Document verification	Customer concurrence obtained if required	Conditional
Surface preparation	Visual inspection	Surface properly prepared for re-marking	Required

Checklist Item	Verification Method	Acceptance Criteria	Status
Repair quality	Visual inspection	Repair meets IPC-A-610 requirements	Required
No collateral damage	Visual inspection	No damage to adjacent areas	Required

Verification checklist for repair at Laser Etching / Labelling station

Repair Process Reference

Applicable IPC-R-700 Sections:

- Section 5.1 - Marking Repair
- Section 5.2 - Surface Preparation

Repair Definition:

Correction of non-conforming material using specialized techniques to ensure that the requirements of form, fit, function, interchangeability and service are met.

MRB Process:

All assemblies or bare fabs considered for repair must be dispositioned as such by the Meritronics Material Review Board. Customer concurrence may be required.

Document Control Information:

Document Number: STA-LE-001 | Revision: A | Issue Date: 05/16/2025

Approved By: Quality Manager | Next Review Date: 05/16/2026

References: IPC-A-610, IPC-R-700, SOP23 Control of Non-Conforming Materials