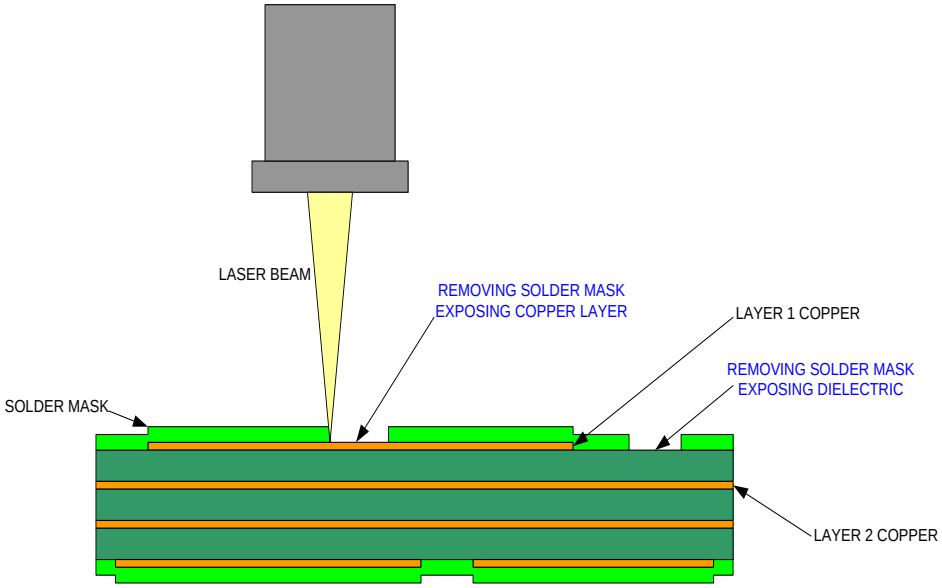
MICRON LASER TECHNOLOGY

Micron Laser Technology

Laser Rework Capabilities

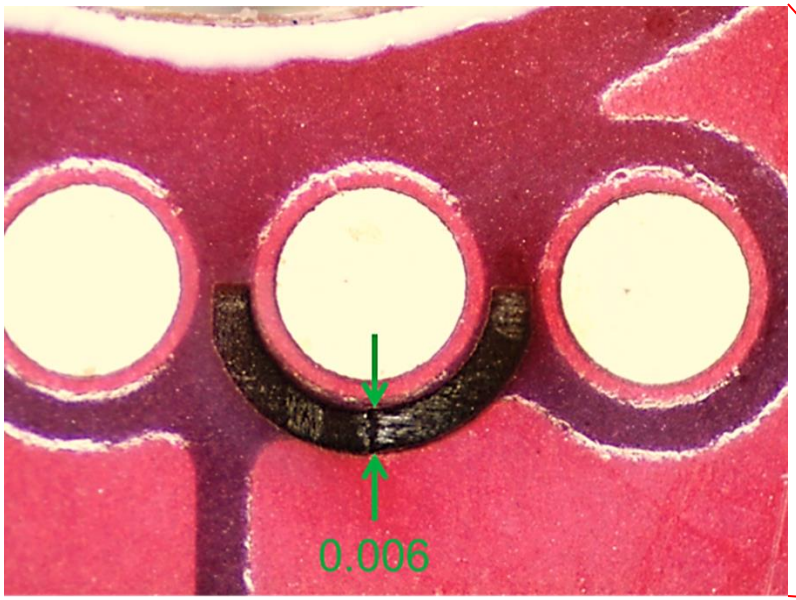
Solder Mask Removal

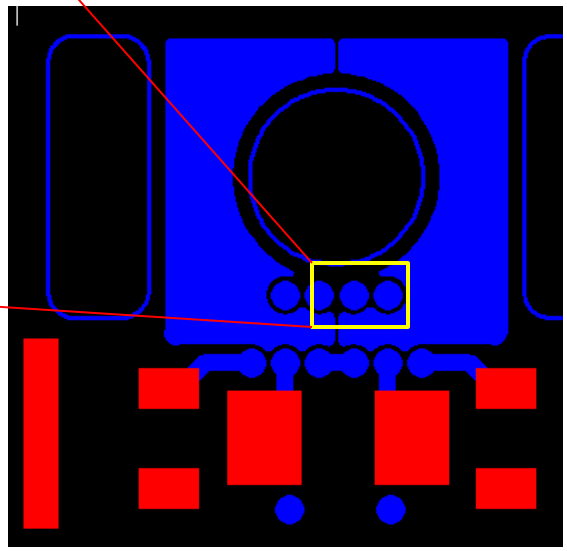


- Utilizing different laser wavelengths allow for selective removal of solder mask from metal surfaces leaving the metal surface intact and clean. Many other types of organic materials, dielectrics, and coatings may be ablated from metal surfaces.
- Selective laser removal can:
  - Add new openings or features to existing solder mask.
  - Create any geometry.
  - Clean up squeeze-out or bleed-out from surface mount (SMT) pads.
  - Enlarge existing openings.
- The laser energy may be controlled to only remove the solder mask material to expose the dielectric underneath. This process provides the ability to perform control depth cutting or material removal on non-metal surfaces.

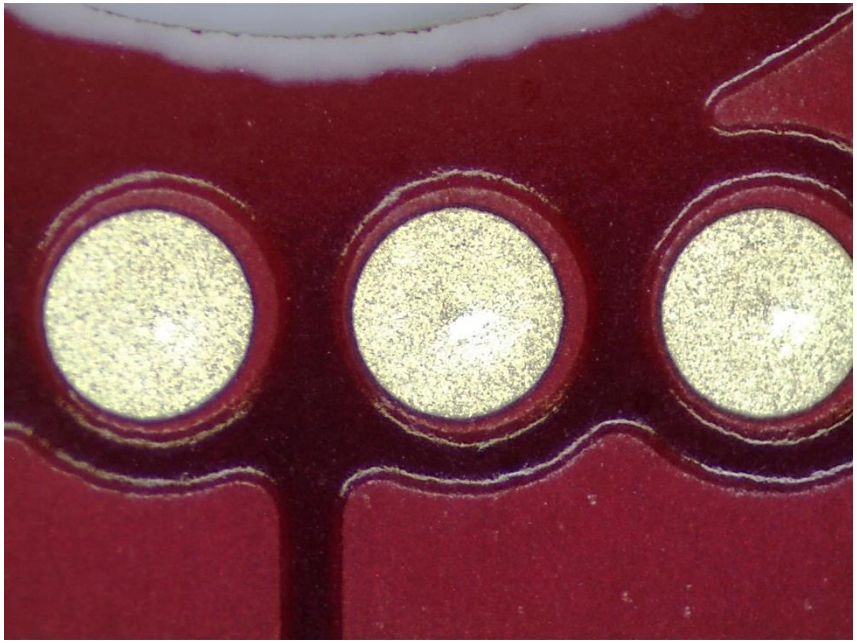
Solder Mask Removal

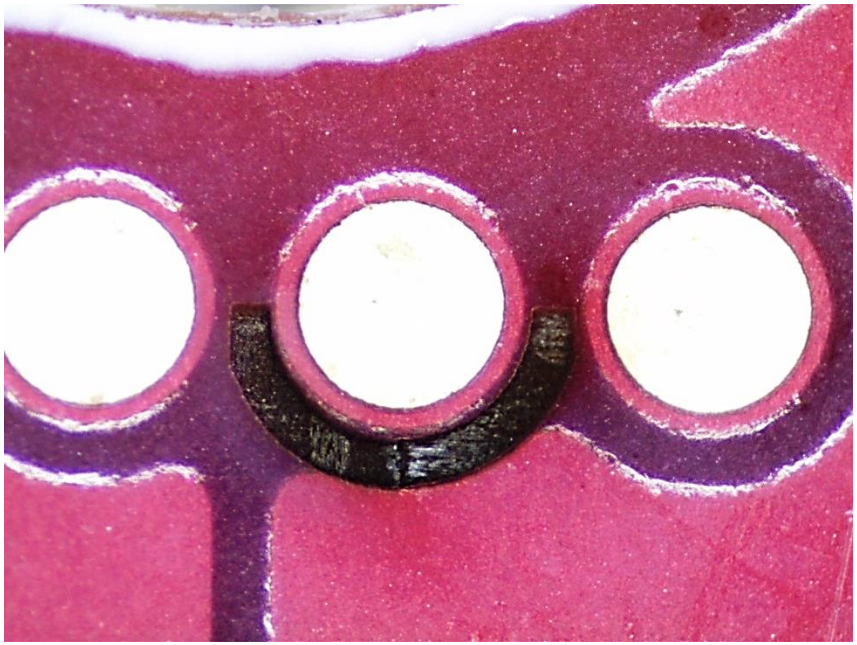
- Solder mask removal between a round pad and ground plane in an area of about 6 mil gap.
- Exposing dielectric below the surface.





Solder Mask Removal



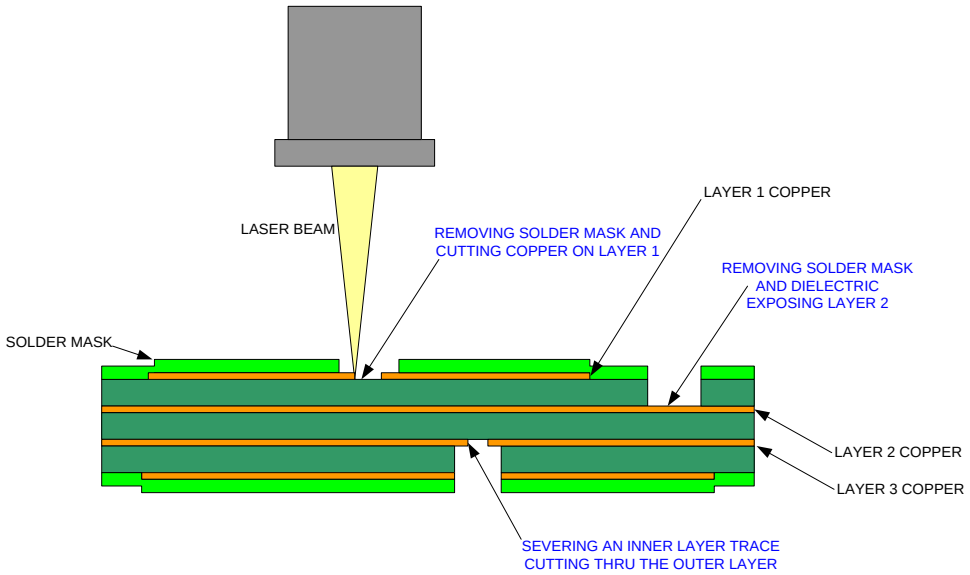


Before Laser Ablation

After Laser Ablation

MICRON LASER TECHNOLOGY
Company Proprietary & Confidential

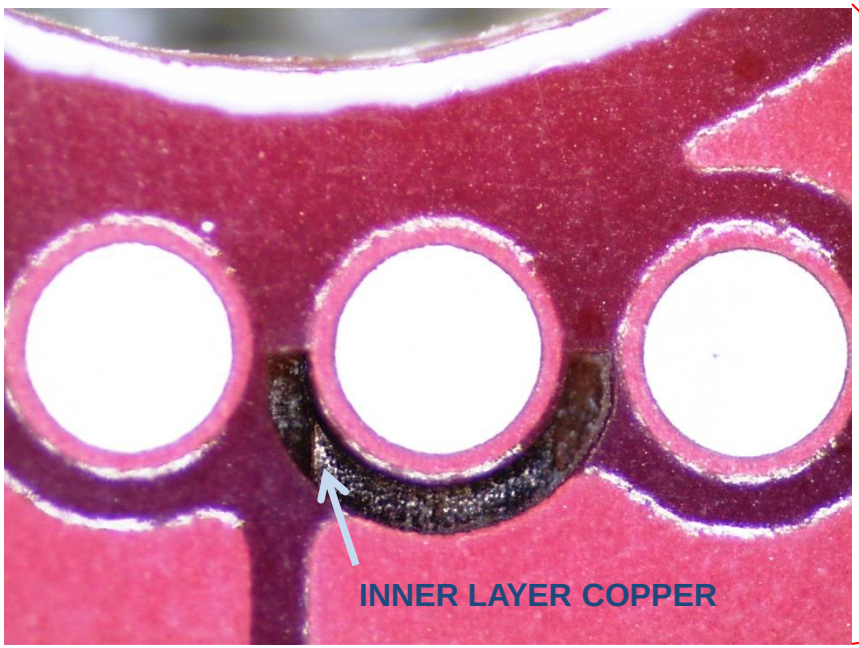
Outer and Inner Copper Layer Rework

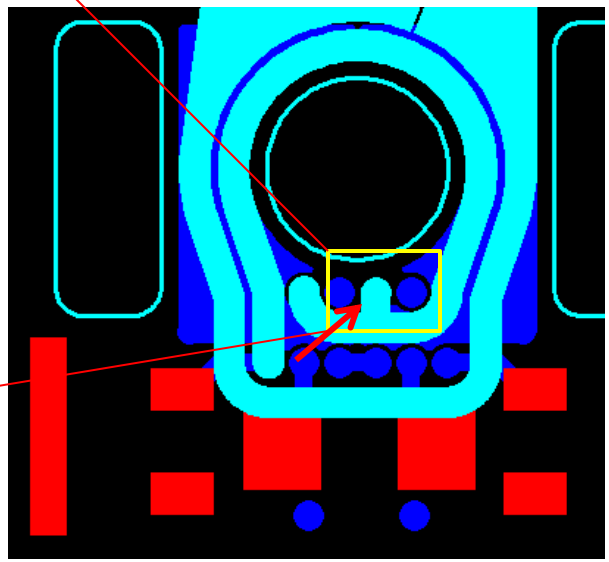


- Utilizing CAD/CAM data, a program can be generated to accurately cut traces at any specific point of the Printed Circuit Board.
- Traces may be severed on the outer layers as well as the inner layers of the circuit board. CAD data is used to identify areas where there may be openings to allow accessibility through the layers without disturbing any other layer circuitry.
- Laser circuit repair can:
  - Inner layer exposure to allow connectivity or repair.
  - Design changes eliminating connections and isolating nets.
  - Ability to rework bare boards and loaded boards.

Outer and Inner Copper Layer Rework

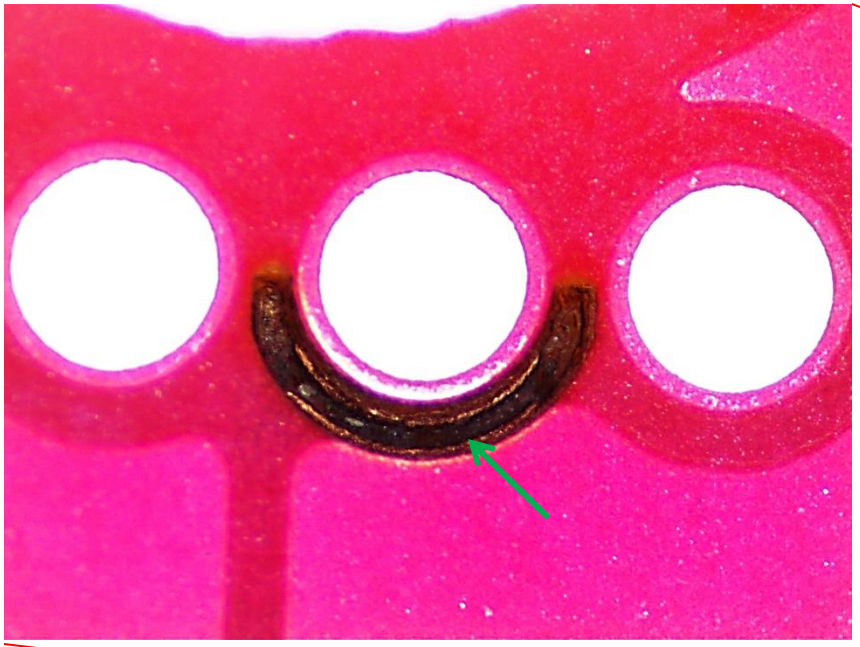
- Removing solder mask and dielectric to expose copper on the copper layer below.

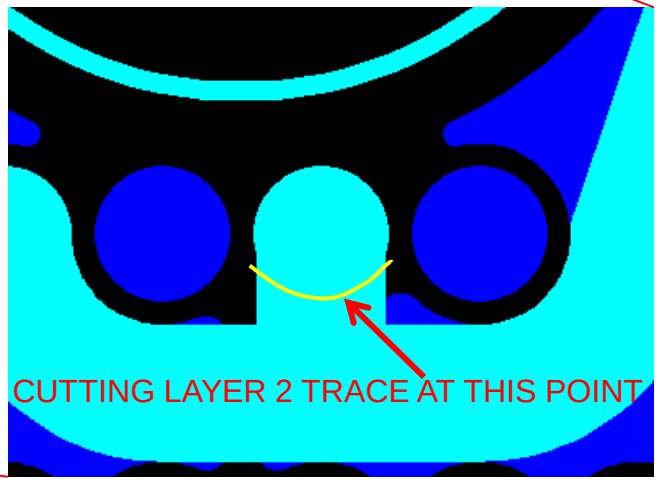




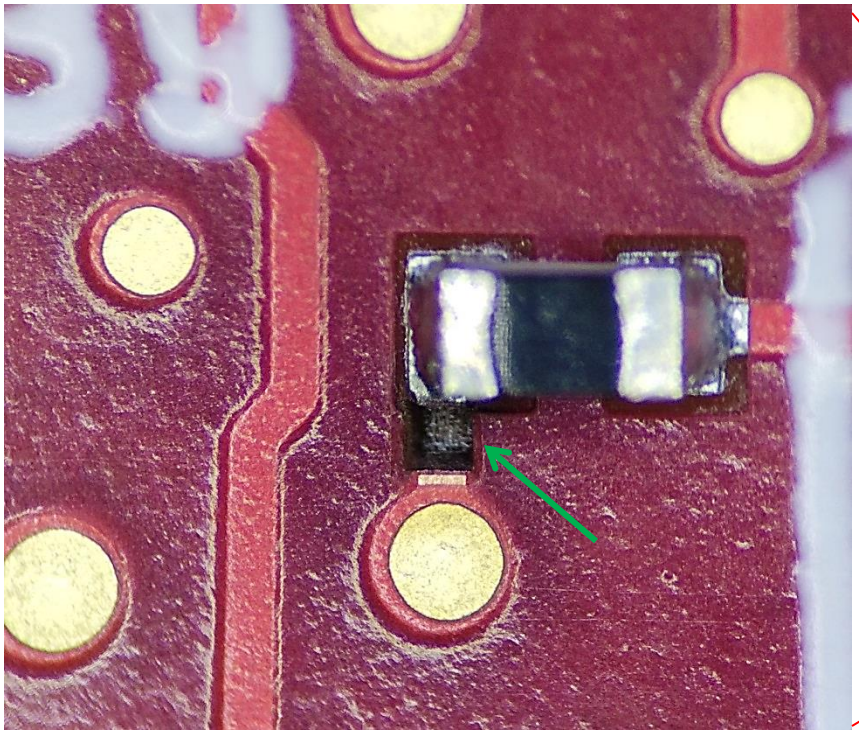
Outer and Inner Copper Layer Rework

- Severing an inner layer trace thru a 6 mil gap on the outer layer.

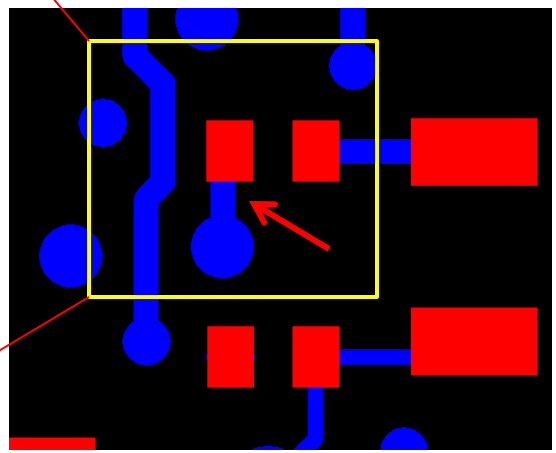




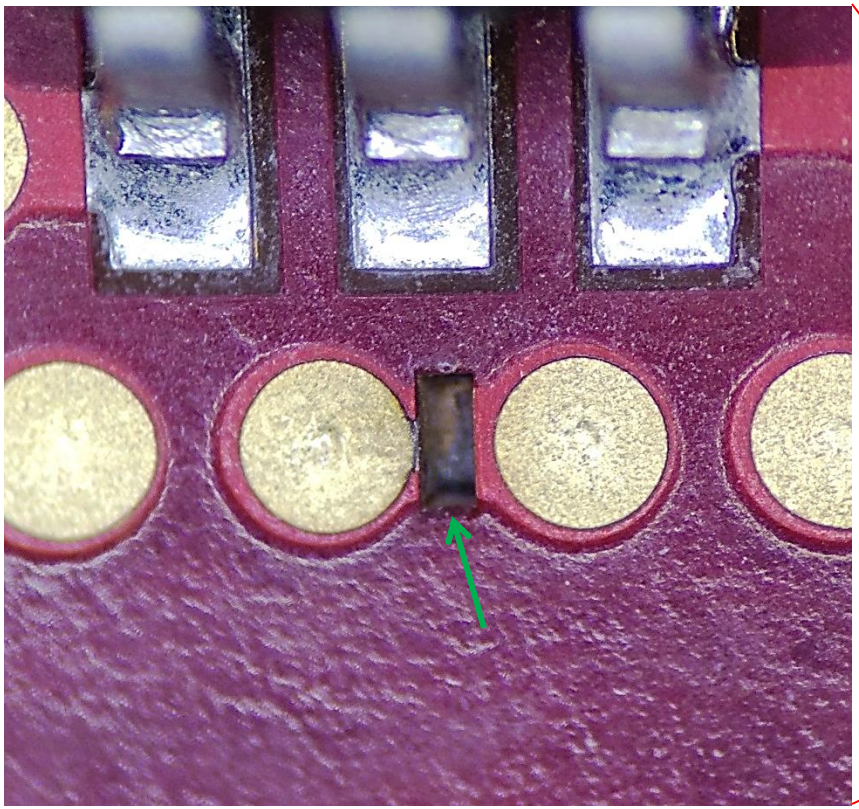
Outer and Inner Layer Rework



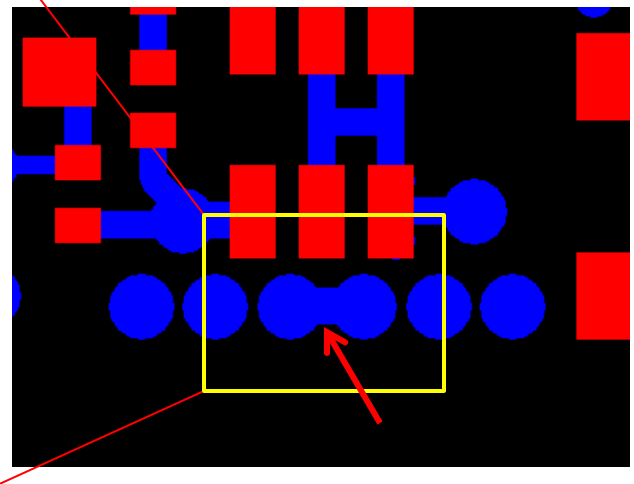
- Severing a trace on the top layer to isolate a pad.



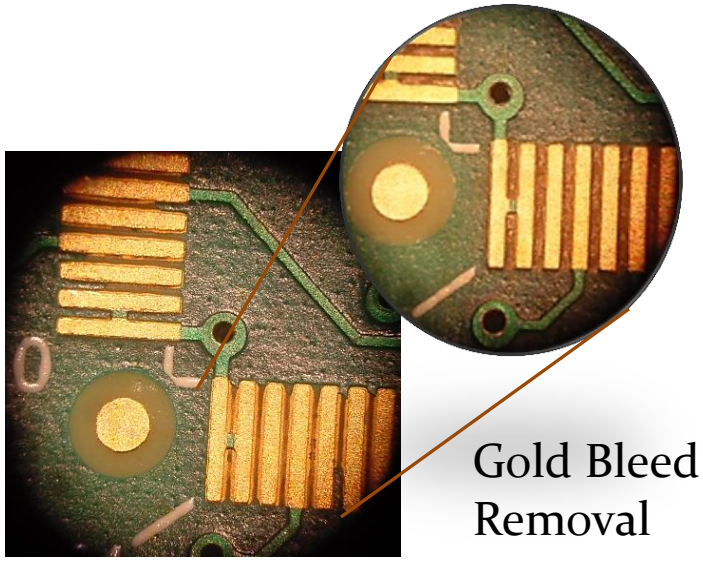
Outer and Inner Copper Layer Rework



- Severing a trace on the top layer to isolate pads from each other.

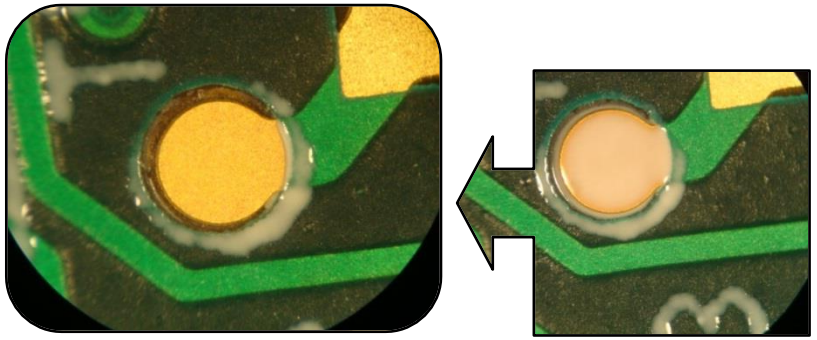


MISCELLANEOUS REWORK EXAMPLES

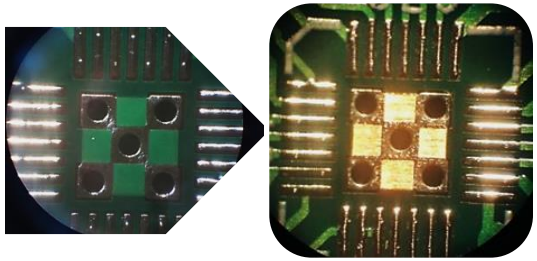


Gold Bleed Removal

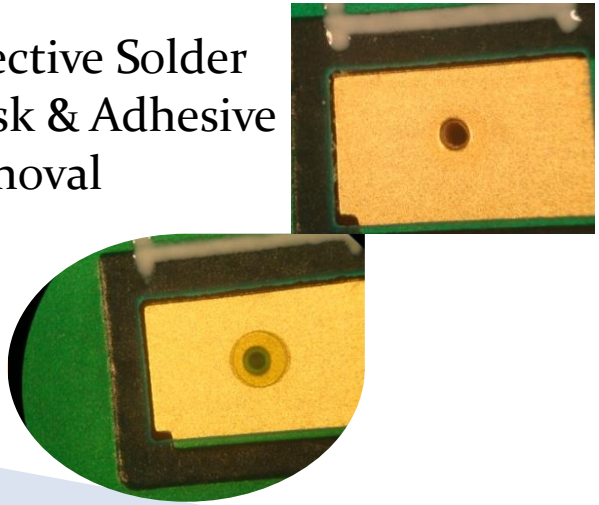
Silk Removal



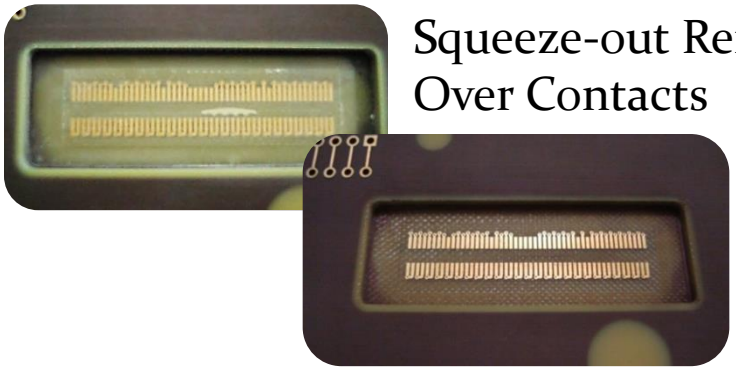
Eliminate Probe Contact Interference



Selective Solder Mask & Adhesive Removal

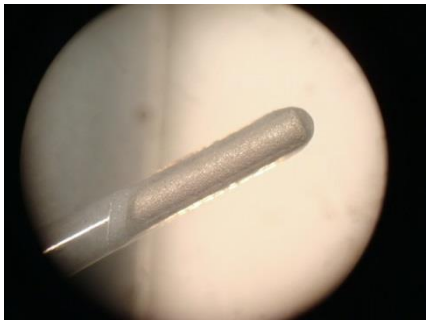


MISCELLANEOUS REWORK EXAMPLES

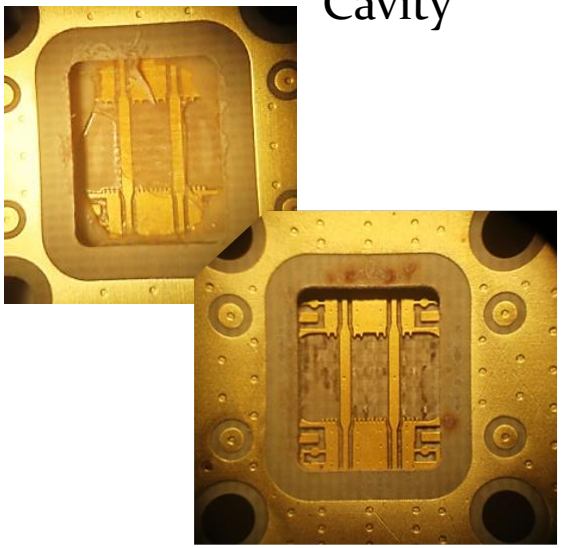


Squeeze-out Removal
Over Contacts

Halar Removal

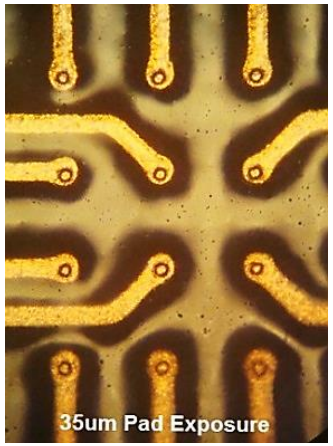


FEP Removal in
Cavity



Soldermask Removal
Leaving Silk Screen

Kapton Removal



MLT Laser Rework Capabilities

- Utilizing various wavelengths, spatial/temporal beam profiles, and programming techniques has expanded MLT's PCB rework skills and techniques beyond what is commonly available in the industry. MLT laser rework technology provides the ability to precisely ablate most any PCB materials with the least amount of heat affect or impact to the surrounding rework area regardless of feature sizes or density. Fully loaded or populated boards can be safely process with minimal risk to damaging components.
- Following is a list of rework an repair options available:

  - SOLDER MASK REMOVAL
  - SILK SCREEN REMOVAL
  - CONTROL DEPTH MATERIAL REMOVAL
  - CLEAN UP OF SOLDER MASK PLUGGED HOLES
  - COPPER AND OTHER METALS SURFACE CLEAN UP
  - COPPER TRACE SEVERING AND REMOVAL (OUTER AND INNER LAYERS)
  - CAVITY SQUEEZE-OUT CLEAN UP