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Sandia National Laboratories

Suspect/Counterfeit Items Open House

Suspect/Counterfeit Items in Electronics and Electrical Components

August 18, 2015

Agenda

- What are Suspect/Counterfeit Items (S/CI)?
- Identifying S/CI in Electronics
  - Examples and Scenarios
- Identifying S/CI in Electrical Components
  - Examples and Scenarios
- Reporting S/CI
- Resources

What are Suspect/Counterfeit Items?

- **<u>Suspect items:</u>**
- May not conform
- May have been misrepresented
- Something just seems wrong about the item

What are Suspect/Counterfeit Items?

- **<u>Counterfeit items:</u>**
- Found to be a copy or substitute
- Knowingly misrepresented

Identifying S/CI in Electronics

- General Indications:
  - Looks used
  - Package damage (sanding marks, mold indents, sand blasted)
  - Blacktopping
  - Variations in frame style, die size, etc.
  - Delamination
  - Signs of remarking
  - Package and Die Markings are different
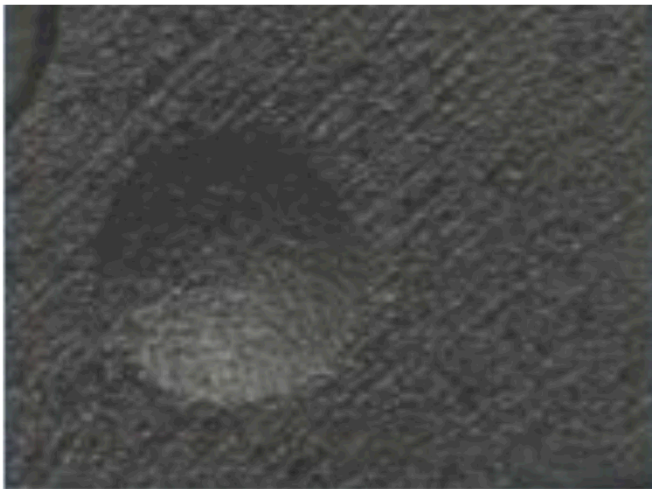
What's Wrong?

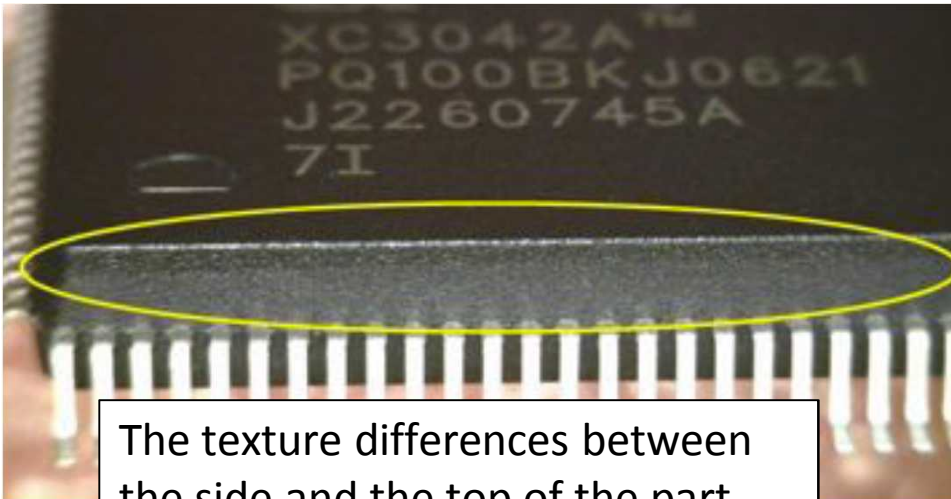Print easily smudges or rubs off

When first layer of print is removed you can see that this part had different markings underneath

Part is blacktopped-
- You can see sanding marks
- Pin mark is too shallow
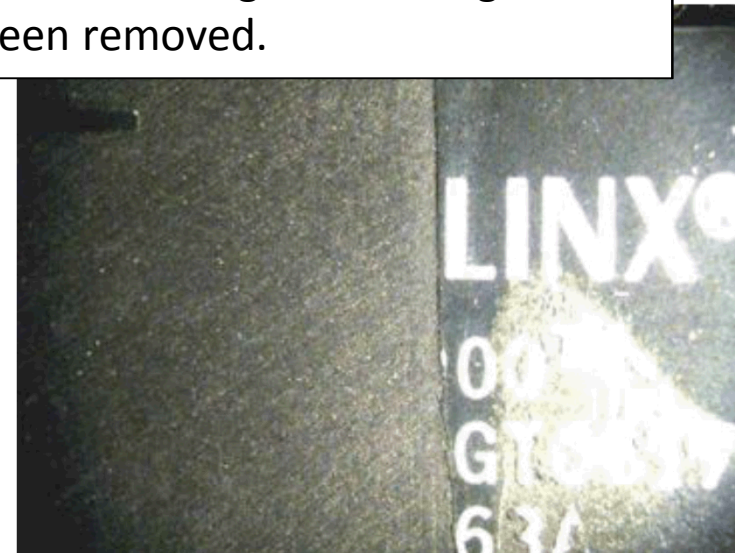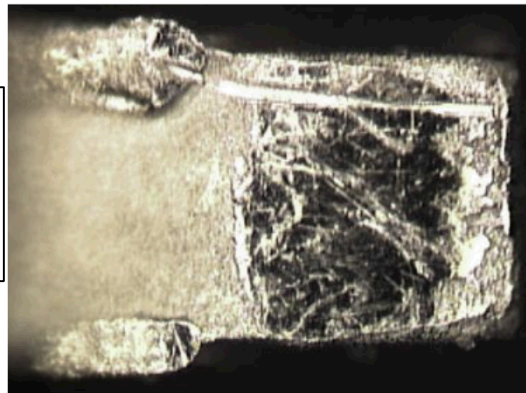- Bottom is the same texture as the top

What's Wrong

XC3042A™
PQ100BKJ0621
J2260745A
7I

The texture differences between the side and the top of the part indicates blacktopping

Be careful about requesting new date codes on parts especially if they are considered obsolete. This part was a genuine part that was remarked to change the date code. This is visible when the markings were removed using a solvent there were sanding marks where the original markings had been removed.

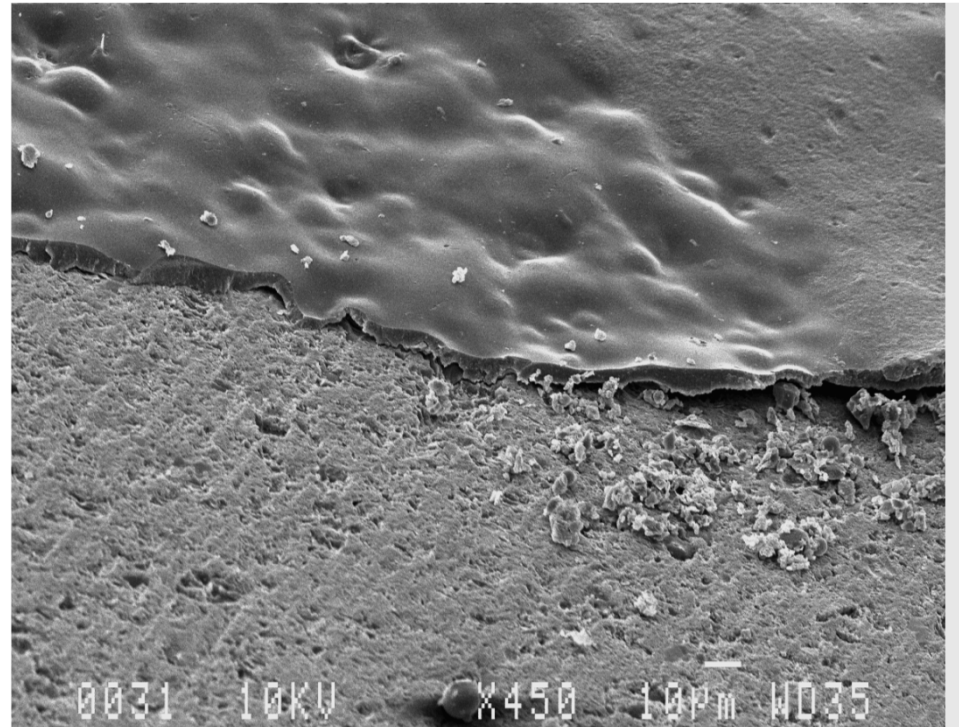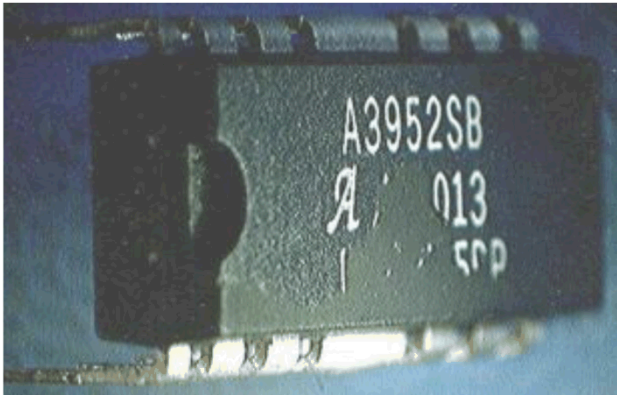Lead still has solder that is clearly visible under magnification

LINX

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Courtesy & Copyright Custom Analytical Services

Electronics
Examples & Scenarios: Source

*Stacks of Scrapped Circuit Boards

**Components Being Removed From Boards

*Components Being Washed In River

*Market Place for Components

*Components Being Sorted

* Bags of Various Components

Electronics
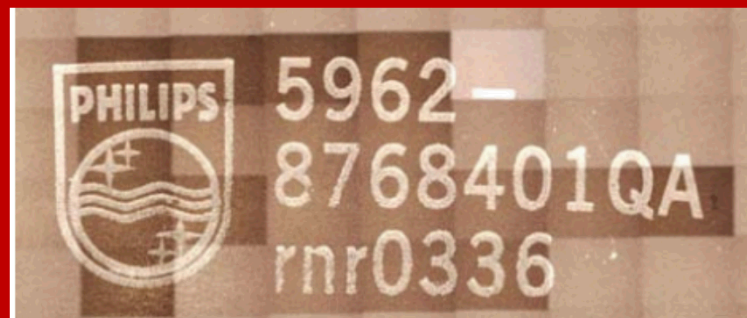# Examples & Scenarios: Blacktopping

Courtesy © Thomas Lee

Electronics
Examples & Scenarios: Markings
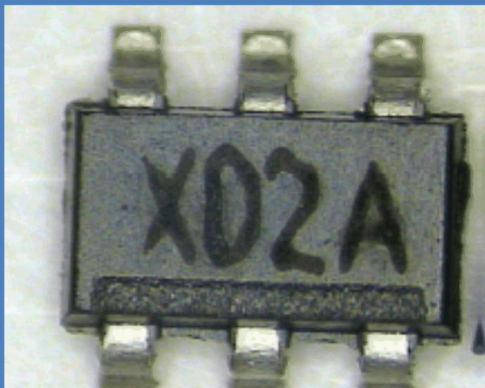
Handwritten Markings

Laser etched markings have been stamped over with ink
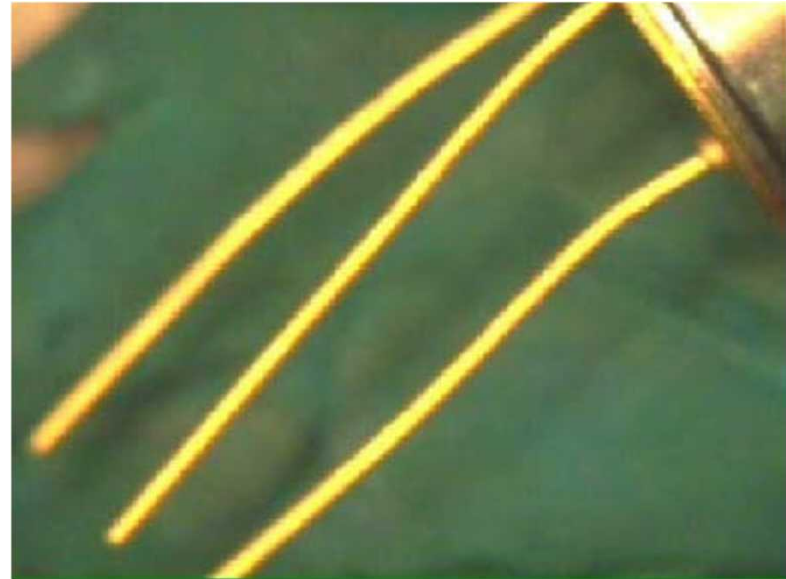

Package Marking

Die marking on same part has different manufacturer

Electronics Examples & Scenarios: Incorrect Materials

Part supplied without gold leads

Genuine part should have been supplied with gold leads

Identifying S/CI in Electrical Components: General Indications

- Screwdriver marks on terminals
- Different screw types or materials on terminals
- Handwritten or typed rather than stamped tags
- Missing tags (usually UL approval tag)
- Pitted or worn contacts and lugs
- Not in manufacturer's box or container
- Signs of paint or smoke
- Insufficient nameplate information
- Missing terminals
- Screws used in place of rivets
- Body worn or discolored
- Rough metal edges

- Scratched or marred surfaces
- Metal color inconsistencies
- Modified or re-stamped nameplates
- Improper fastening of nameplates
- Plastic parts of different colors
- Discolored or faded manufacturer's labels
- Past due calibration stickers (internal and external)
- Broken or damaged solder terminations
- Broken or damaged termination lugs
- Contact surfaces that do not mate properly
- Lubrication that appears to be old
- Shipping in plain packaging (no manufacturer bar code)
- Used or damaged parts in new packaging
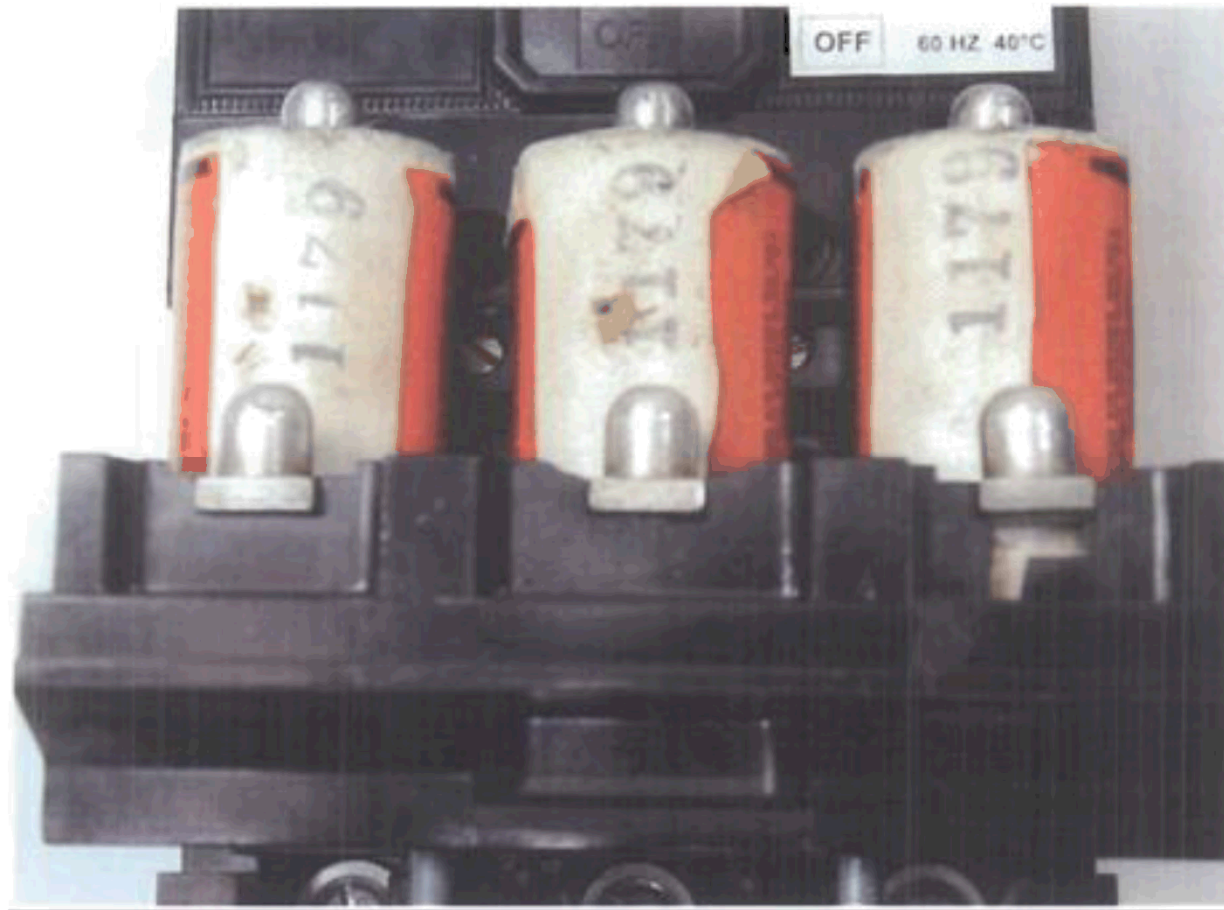
Electrical Components
Examples & Scenarios: Markings

Counterfeit

Genuine
Pre-2003 breakers do not have white paint

Examples & Scenarios

- Counterfeits Can Kill- Video
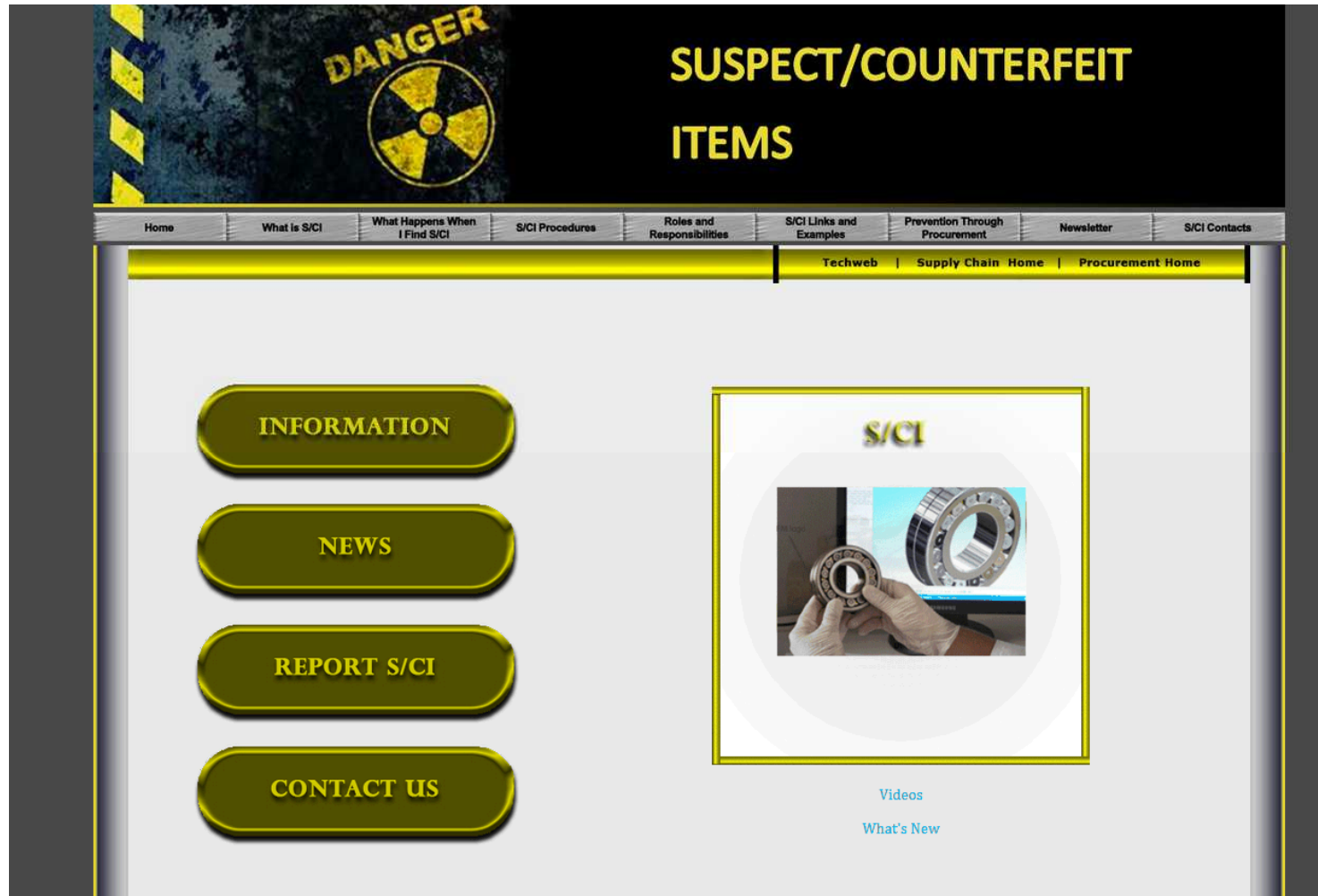
Examples & Scenarios: Used

Reporting Suspect/Counterfeit Items

- Call the Suspect/Counterfeit Items Program Coordinator: Gabrielle Holcomb
  - Phone: 505-284-2586
  - Email: sqasci@sandia.gov
  - Or
  - Visit our webpage: http://cfo.sandia.gov/procure/SCI/pages/index.html and hit the button "REPORT S/CI"

Resources

- Suspect/Counterfeit Items Webpage: http://cfo.sandia.gov/procure/SCI/pages/index.html

- DOE Order 414.1D: http://energy.gov/sites/prod/files/em/DOEOrder414.1D.pdf

- For additional information or questions call or email the Suspect/Counterfeit Items Program Coordinator: sqasci@sandia.gov or 505-284-2586

Find the resources you need on our webpage!

Questions