

## **Title: LONG TERM STORAGE OF ELECTRONIC DEVICES – the challenges and solutions**

### Outline:

This article explores the risks to components that have been in storage for over 2 years. What are the internal control standards of major OEM's/CEM's, are there specific standards that address this issue? What are the risk mitigation solutions?

### Shelf-life evaluation of components:

Many organisations treat the 2-year storage rule as a norm due to reasons associated with terminations degrading, oxidation, poor wetting, dry joints, solder joint brittleness, component functions and performance.

What also seems to divide the manufacturers are two different approaches written in the internal mandates - one approach is the parts get scrapped once they go over the date - even if they are in acceptable condition, while the other approach is to have a quality mandate to re-tin the parts if they have been in storage for over 2 years.

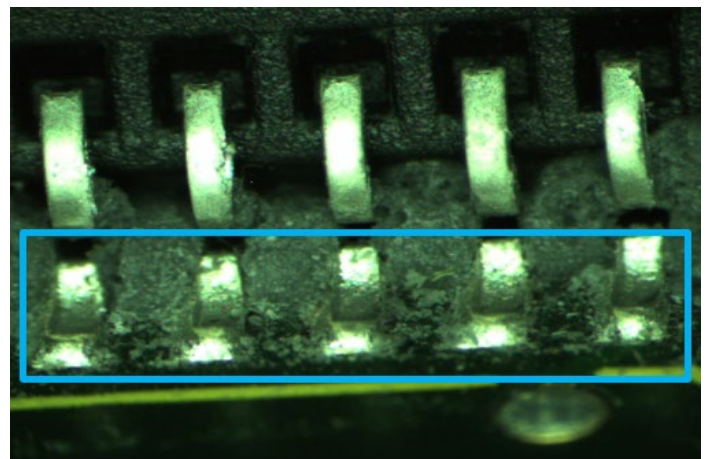
GEIA-STD-0003 outlines long term storage (over 1 year) of electronic devices that help minimise their degradation. The standard is designed to assist OEMs, particularly in the military and aerospace, who often need to store electronic parts for more than a year and occasionally several years due to last-time buy opportunities and to provide spares and repair capability and it is exactly for these reasons the approach to re-tin/hot solder dip the parts is the most sensible and practical.

### What are the causes & risks?

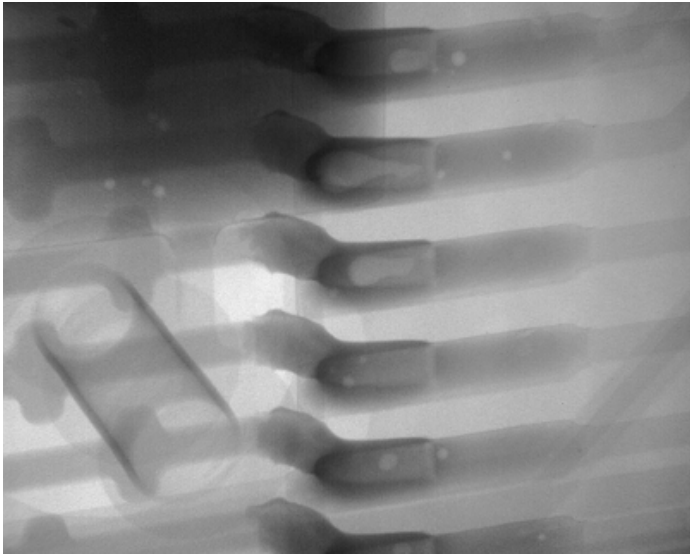
Product life cycles have become short with new products being released sooner than ever before, contract manufacturers for military, oil and gas, railway, automobiles, avionics and other hi-rel sectors need to guarantee the availability of replacements parts for a number of years, this leads to excess purchase and extended storage of components to counteract obsolescence issues that plague the industry.

How the components were stored, how they were originally handled, what kind of packaging was used, what is the alloy - all such factors have an impact. Due to rapid changes in component design and to guard against obsolescence, companies often must turn to long term storage of devices.

### Examples:



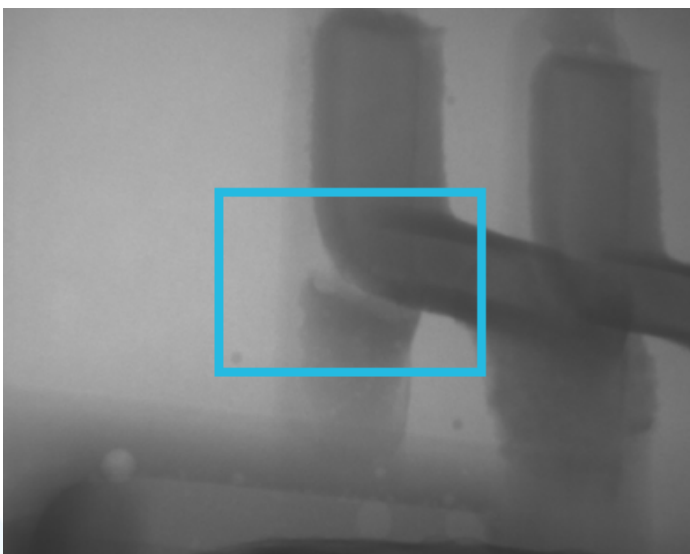
Early Solder Joint Failure - One of our customers operating in the oil/gas sector found that some J Leg devices could be flipped off the board without minimum leverage, leaving a perfect imprint of a solder joint behind. After investigation it was found that the legs of the IC's were oxidised, this created poor solder joints.



Voiding under gull wing legs caused by oxidisation on legs



Poor solderability and de-wetting on toe joints



Shows heel joint separated from leg after temp cycling and vibration

## Solution – Robotic Hot Solder Dip & Solderability Test

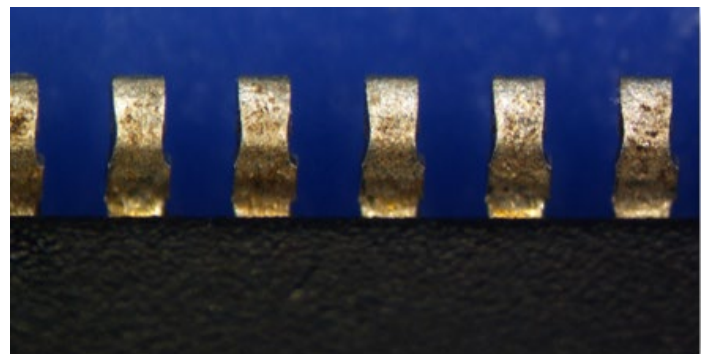
There are several issues that can be caused as a result of long term storages as detailed above, what Retronix offer is managing of your long term stored devices to avoid the loss of these valuable devices due to any of these issued caused by the need to store for over two years.

We can schedule in the re-tinning/reballing of these components if the date information is shared with us, we can even offer a reminder to you that these devices are due for re-tinning and then carry out the re-tinning processes, re pack to industry standards and re apply a label to confirm the date of re-tinning along with the date these would be due for re-tinning again.

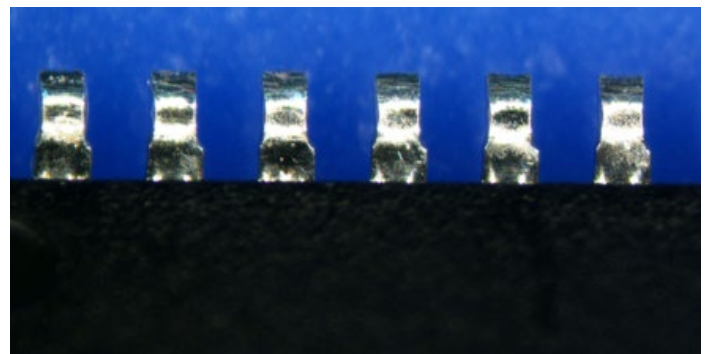
[Click Here to know more](#) – Robotic Hot Solder Dip

[Click Here to know more](#) – Solderability Test

- Before -



- After -



**\*Retronix are willing to undertake FOC sample trials for you to enable you to see if our service is your solution\***

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The diagram features the word 'RETRONIX' in a large, stylized font at the top. Below it, a horizontal line connects eight icons: a location pin, a lightbulb, a brain, two people talking, a group of people, two hands shaking, a bar chart, and a target. Below each icon is a label: IDEAS, EXPERTS, KNOWLEDGE, ADVICE, EXPERIENCE, SUPPORT, POTENTIAL, and SUCCESS.

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A row of logos for industry certifications and memberships: nqa AS9100 AIRCRAFT & DEFENCE, JOSCAR REGISTERED, iiom, ecsn Electronic Components Supply Network, eraI MEMBER, and IPC MEMBER ASSOCIATION CONNECTING ELECTRONICS INDUSTRIES®.