



X-Ray Application

We recently investigated a PCB that our client found to have intermittent system failures related to a batch of units. The failure mode was identified to this particular board, and traced further to a group of ICs. The failure seemed to be affected by board temperature.

Using real time x-ray techniques, the claim was validated by identifying a BGA location with open joints (Fig.1 arrows). The views also showed no evidence of solder paste being deposited on the adjoining PCB pads.

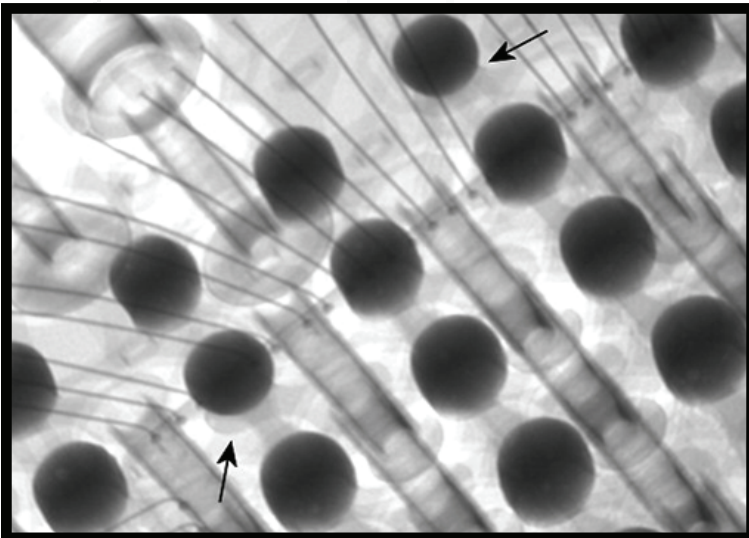


Fig. 1 BGA location with open joints

Pic O' the Week

Can you identify the below x-ray image?

Send your guess to picoweek@inspex-inc.com. Picture identity to be announced in our next issue.



FYI

During a recent trip, flying at 39,000 feet, we noticed that the radiation levels were much higher than previously measured. After further investigation into the matter and casual conversation with the passenger sitting next to us, we had found they had undergone a heart stress test the day before and had been injected with a radioactive isotope and was measuring more than 3 times the FDA limit.

The Nuclear or "Thallium" stress test is used to show how well blood flows to the heart muscle. It's usually done along with an exercise stress test on a treadmill or bicycle. When the patient reaches his or her maximum level of exercise, a small amount of a radioactive substance called thallium is injected into the bloodstream. Then the patient lies down on a special table under a

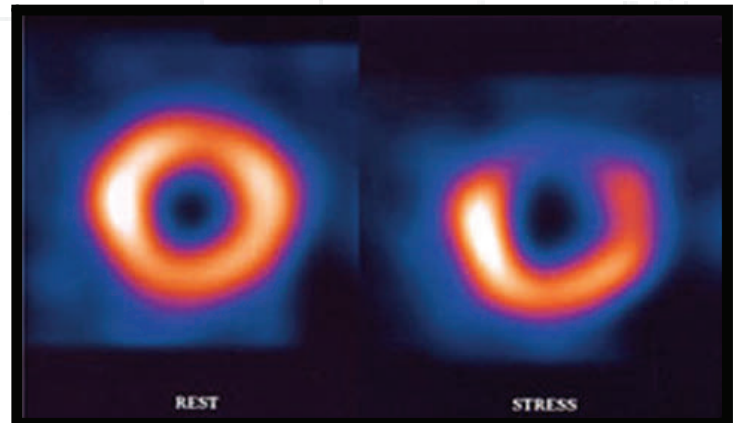


Fig. 2 "Gamma Camera" images

camera, a "gamma camera", which can see the thallium and make pictures (Fig. 2).

The thallium mixes with the blood in the bloodstream and heart's arteries and enters heart muscle cells. If a part of the heart muscle doesn't receive a normal blood supply, less than a normal amount of thallium will be in those heart muscle cells.

Congratulations to Randy Tiffany of Tiffany Associates for exactly identifying last issue Pic O' the Week as a small, hand held stapler.

The following persons mentioned stapler in their description:

Andrea Weir, Myron Corporation
Douglas Forman, ResMed (continued...)



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Jim Cassi, ResMed
George McLachlan, X-Ray Associates, LLC
Thomas D. Hedge, L-3 Communications
Christine Martinez, TT electronics, BI Technologies
Jeff Mirliss, Carestream Health
John Williams, JDW Productions
Bob Maziuk, VJ Technologies
Dennis Beaumont, S.C. Johnson & Son Inc.
Winfield Scott, Evans Analytical Group Inc
Peter K. Koenig, Boeing Company
Richard D. Ekblad, Boeing Company
Wesley Lee, Boeing Company
Ron Gonzales, Revco Products
Carlos Salinas, Revco Products
Glen Griswold, Interconnect Systems, Inc.
Charles Iglesias, Teradyne
Riki Brown, Golden West Technology
Mike Kutzle, Golden West Technology
Marci Jellison, VersaLogic Corporation
Karina Pedder, VersaLogic Corporation
Shawn Johnson, VersaLogic Corporation
Michael Davis, Express Manufacturing, Inc.
Zahra Ali, Microsemi Corporation
David Haralson, L-3 Communications, Ocean Systems
Kevin Laughton, Datron World Communications
John Midgett, Enthaus Enterprises