

PRIORITY SAFETY – REQUIRES IMMEDIATE REPAIR ACTION AND SPECIAL EFFORT TO CONTACT CUSTOMERS

81142A-01-S

S E R V I C E N O T E

Supersedes:
None

Product Number: 81142A High Speed Pulse Generator

Serial Numbers: DE45B00101 – DE45B00143

POSSIBLE FIRE HAZARD

WARNING

There is an unlikely possibility of an instrument catching fire due to a short-circuit

To Be Performed By: Agilent-Qualified Personnel Only

Parts Required:

P/N	Description	Qty.
NA		

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:			
PRIORITY SAFETY			
ACTION CATEGORY:	<input checked="" type="checkbox"/> IMMEDIATELY	STANDARDS:	LABOR: 0.5 Hours
LOCATION CATEGORY:	<input type="checkbox"/> ON-SITE <input checked="" type="checkbox"/> SERVICE CENTER	SERVICE INVENTORY:	<input checked="" type="checkbox"/> RETURN SCRAP <input type="checkbox"/> USED PARTS SEE TEXT
AVAILABILITY:	ALWAYS	NO CHARGE AVAILABLE UNTIL: ALWAYS	
AUTHOR: K.H.	PRODUCT LINE: PL24		
ADDITIONAL INFORMATION:			

© AGILENT TECHNOLOGIES, INC. 2007
PRINTED IN U.S.A.



August 9, 2007

Situation:

Agilent was alerted by a customer of a serious event involving one of their N4903A J-BERT units. The unit, which they had received in April 07, caught fire in a controlled lab environment. The customer reported a several inch large fire-ball inside the instrument. The fire was extinguished immediately with a fire extinguisher and did not cause damage outside the unit. The damaged product was shipped to Agilent for inspection.

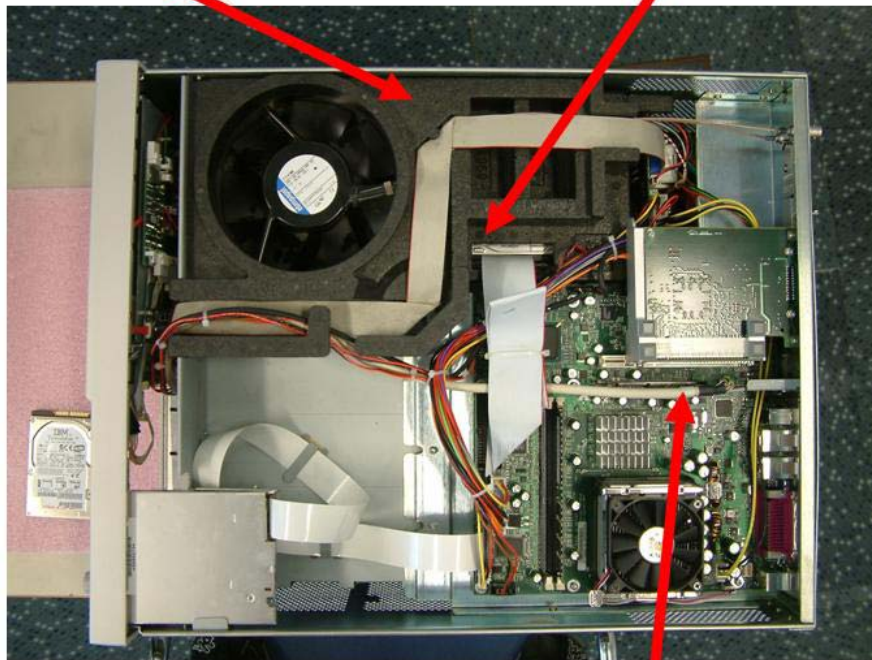
The root-cause analysis leads to the following result:

A surface-mount ceramic capacitor suffered physical stress during the manufacturing process, leading the capacitor to crack. During operation this crack placed stress on the internal structure of the capacitor, and caused the plates to short together. (The plates are separated by very little space, made up of very thin insulators.) This caused the capacitor to have very low residual impedance, resulting in a very high current conducted through the capacitor and the 12V path on the motherboard for some period of time. The low impedance didn't lead to a current high enough for blowing the fuse. Therefore the higher current was available long enough to create a very high temperature ($T > 300^{\circ}\text{C}$). The high temperature ignited the polyurethane molding used to conduct the airflow for cooling through the instrument.

The following photo illustrates the layout of the instrument. It shows the polypropylene molding, the graphics card and the starting point of the fire.

Polypropylene Molding

Start of Fire



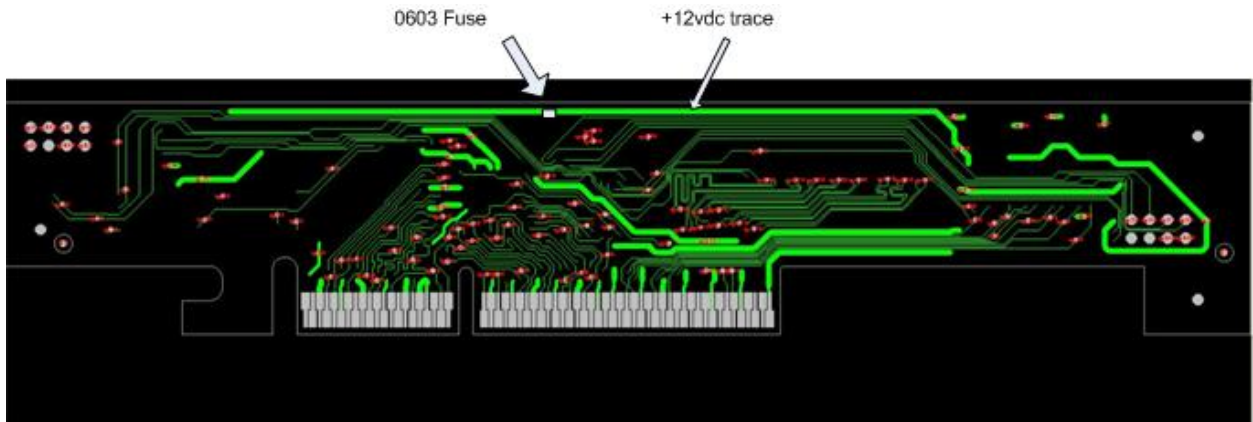
Graphics Card

All other potential root causes (cables, hard disk, fan, and modules) could be excluded after thorough investigation. Some parts of the equipment were even still operable.

Solution/Action:

The countermeasure for this issue is to exchange the graphics cards. The new graphics cards are produced with an improved manufacturing process eliminating the risk of micro cracks and have additional fusing to protect the 12V path. The graphics card can be exchanged by Agilent authorized personnel only.

The following picture shows the graphics card with the added fuse:



At the customer site:

- Users verify that the instrument(s) corresponds to the above models and serial numbers.
- If the users have an affected model, they contact the nearest Agilent Customer Care Center to schedule a repair service to correct this problem. Information and phone numbers can be obtained at: <http://www.Agilent.com/find/contactus>.
- When scheduling, please reference to Service Note Number 81142A-01-S

At Agilent:

A customer letter and a list of customers with affected products are available. The Agilent CCC will send the letter to the customers with affected products. In some cases the letter will be delivered by the FE. The letter:

- notifies the customers of the safety event
- asks the customers to contact the Agilent CCC and schedule a repair date.