

# STEREO IMPACT

PROBLEM REPORT

PR-1017

SEP LVPS FM2

Aug 5, 2004

PR Numbers: 1xxx=UCB, 2xxx=Caltech/JPL, 3xxx=UMd, 4xxx=GSFC/SEP, 5xxx=GSFC/Mag, 6xxx=CESR, 7xxx=Keil, 8xxx=ESTEC, 9xxx=MPAe

<b>Assembly :</b> STEREO SEP LVPS FM2	<b>SubAssembly :</b> SEP Middle
<b>Component/Part Number:</b> SEP Middle	<b>Serial Number:</b> FM2
<b>Originator:</b> Selda Heavner	<b>Organization:</b> UC Berkeley
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## Failure Occurred During (Check one )

Functional test       Qualification test       S/C Integration       Launch operations

## Environment when failure occurred:

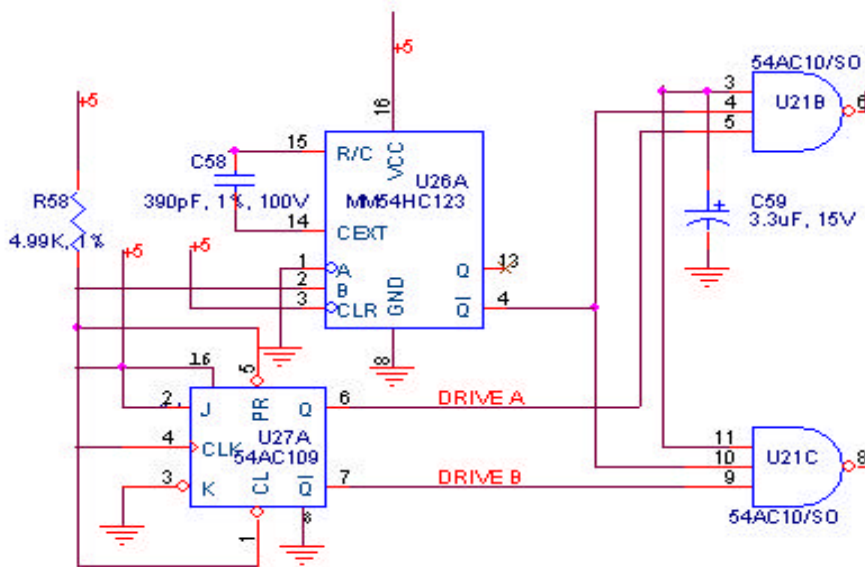
Ambient       Vibration       Shock       Acoustic  
 Thermal       Vacuum       Thermal-Vacuum       EMI/EMC

## Problem Description

SEP LVPS FM2 was placed in the temp chamber. The thermal test started with  $-40^{\circ}\text{C}$  with nitrogen flowing into an antistatic bag. When the cold temperature test was successfully completed the UUT was left at  $25^{\circ}\text{C}$  for an hour. The functional test was repeated at  $25^{\circ}\text{C}$ . The UUT passed the test. Then the chamber temperature was increased to  $+50^{\circ}\text{C}$ . The unit was left in the chamber for an hour. When the power was turned on SEPT-E 5.3V output was 6.3V with load.

## Analyses Performed to Determine Cause

The UUT was left at room temperature for an hour and powered on again after the failure occurred. The problem was repeated. SEP LVPS FM2 was disassembled. The drain waveforms of Q22 and Q15 were not as expected. The jumping wire for U27 (54AC109 flip-flop) per rework dated April 02, 04 was crushed. The resistance from pin 7 to ground was measured as  $0.73\text{K}\Omega$  where the properly functioning pins measured as  $2.6\text{M}\Omega$ . Only the U21 and U27 parts were stressed and need to be replaced.



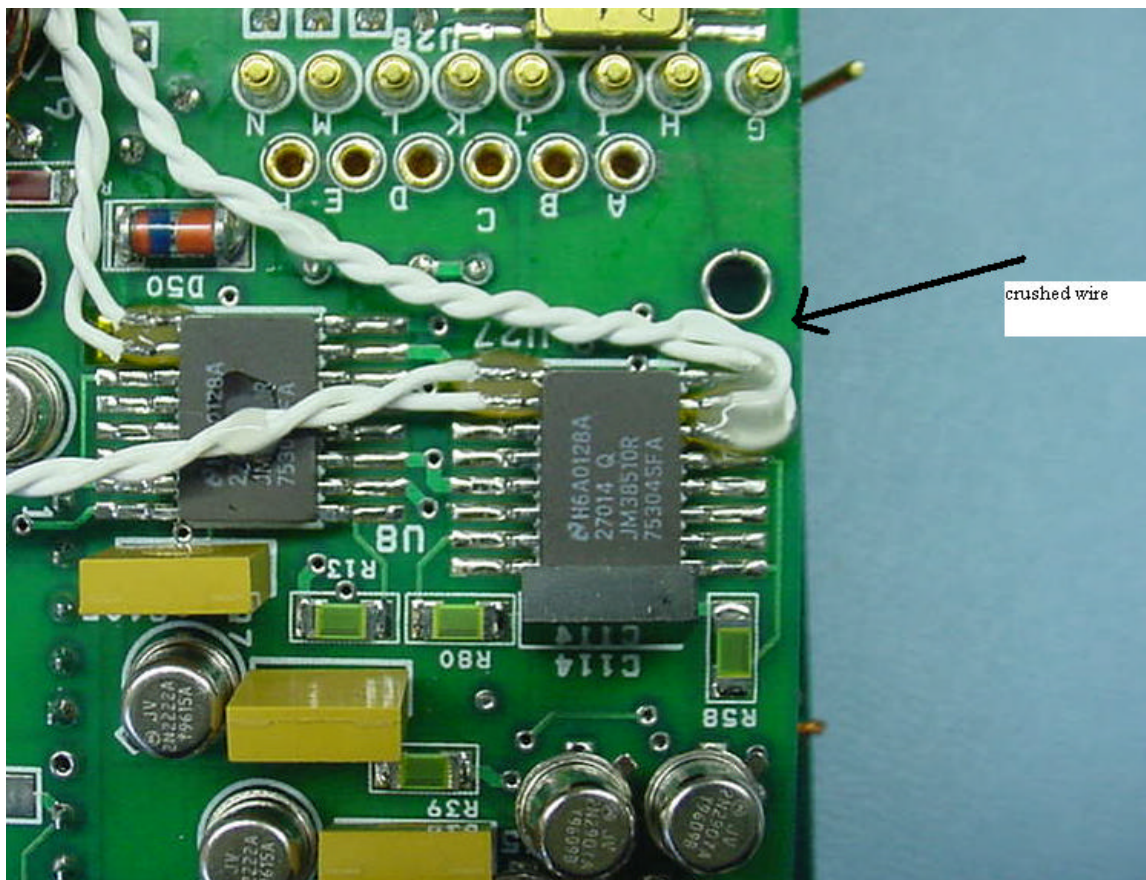
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## Corrective Action/ Resolution

√ Rework                      Repair                      Use As Is                      Scrap

- 1- Removed and replaced U27.
- 2- Removed and replaced U21.
- 3- Removed the damaged wire. Rerouted wires to avoid crushing.
- 4- Staked the wires with Uralane 5753 to avoid any movement.
- 5- Completed board level tests. Repeated box level thermal test.

**Date Action Taken:** \_\_\_\_ August 12, 2004 \_\_\_\_ **Retest Results:** Successfully completed board level tests and repeated thermal tests. Successfully completed box level tests.

**Corrective Action Required/Performed on other Units**      Serial Number(s): \_\_\_\_n/a\_\_\_\_

## Closure Approvals

Subsystem Lead:	_____	Date:	_____
IMPACT Project Manager:	_____	Date:	_____
IMPACT QA:	_____	Date:	_____
NASA IMPACT Instrument Manager:	_____	Date:	_____