

PFR-054 Title: SST Sensor Damaged During Assembly Process

Assembly : THM-SST-FLT-005	SubAssembly :	
Component : Attenuator Pivot Shaft	Units Affected:	Units fixed:
Originator: R. K. Lee	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Organization: Mechanical Engineering	Date: 05/13/2005	
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Failure Occurred During (Check one ✓)

☐ Functional test ☐ Qualification test ☐ S/C Integration ☐ Launch operations ☒ Other (Flight Assy)

Environment when failure occurred:

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

Problem Description

(In this section it is important to document the specific symptoms which exhibited the problem. In the event we see it happen again, we would like to know as much as possible.)

SST sensor unit (THM-SST-FLT-005) was dropped onto the floor from the B-20 calibration facility cleanroom workbench (approx. height: 30 inches) during the mechanical/electrical integration phase. Unit landed on outer attenuator which caused a large moment on pivot shaft. Figures 1 and 2 show the damaged pivot shaft and outer attenuator. Note that the sensor unit had not yet undergone any environmental tests.

Problem list:

1. Unit was not secured to workbench when ground strap cord became tangled with the unit.
2. Workbench clutter led to reduced work area located too close to workbench edge.

Analyses Performed to Determine Cause

(How do we know how the failure happened? Was it a bad part, bad handling, what?)

Mechanical engineer, who was performing the mechanical/electrical integration process witnessed the accident and is the author of this failure report.

Corrective Action/ Resolution

(How do we fix the unit? And how do we make sure it doesn't happen again?)

Corrective actions:

1. Sensor units shall be secured to workbench during mechanical/electrical integration.
2. Workbench shall be cleared of unnecessary hardware and tools during mechanical/electrical integration.

Mechanical engineer recommends that the attenuator mechanism on THM-SST-FLT-005 be completely rebuilt and tested per normal flight buildup per mechanical assembly procedure THM-SST-PRC-010.

Acceptance:

MAM: Ron Jackson _____ ; MSE: Ellen Taylor _____

PM: Peter Harvey _____ ; Cognizant Engineer _____

Date of Closure _____

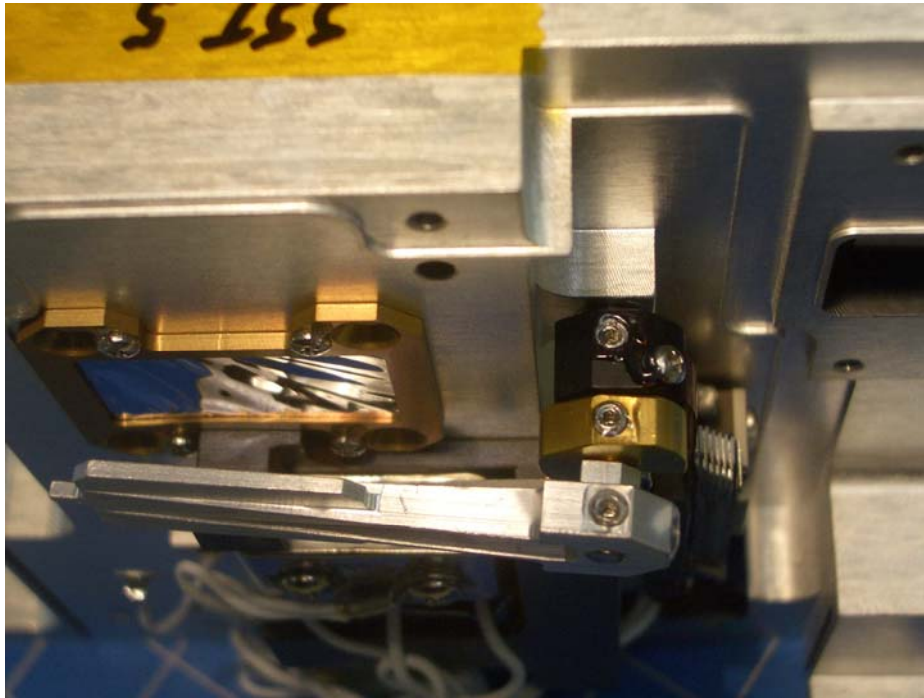


Figure 1. Deformed pivot shaft and outer attenuator (TOP VIEW)

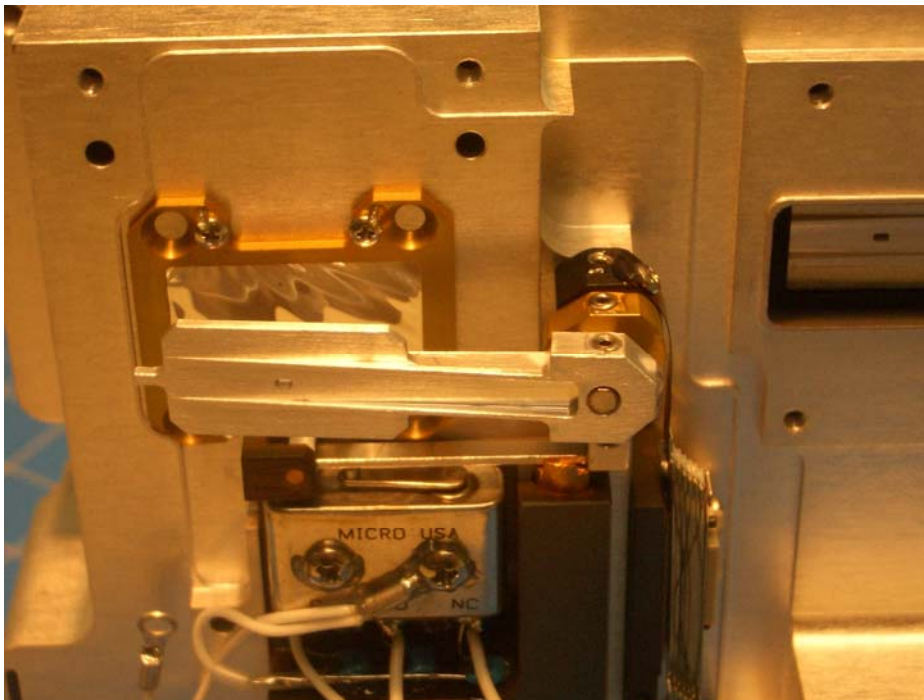


Figure 2. Deformed pivot shaft and outer attenuator (FRONT VIEW)