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Gravity Probe B Relativity Mission

DETECTOR MOUNT ASSEMBLY
REPAIR PROCEDURE

P0 444 Rev. A

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Procedure P0444
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Section 1 SCOPE

This procedure describes the re-work at the DMA level of part # 25681.

The procedure consists of two parts: 1) Construction of a shim 2) Insertion of this shim into the DMA.

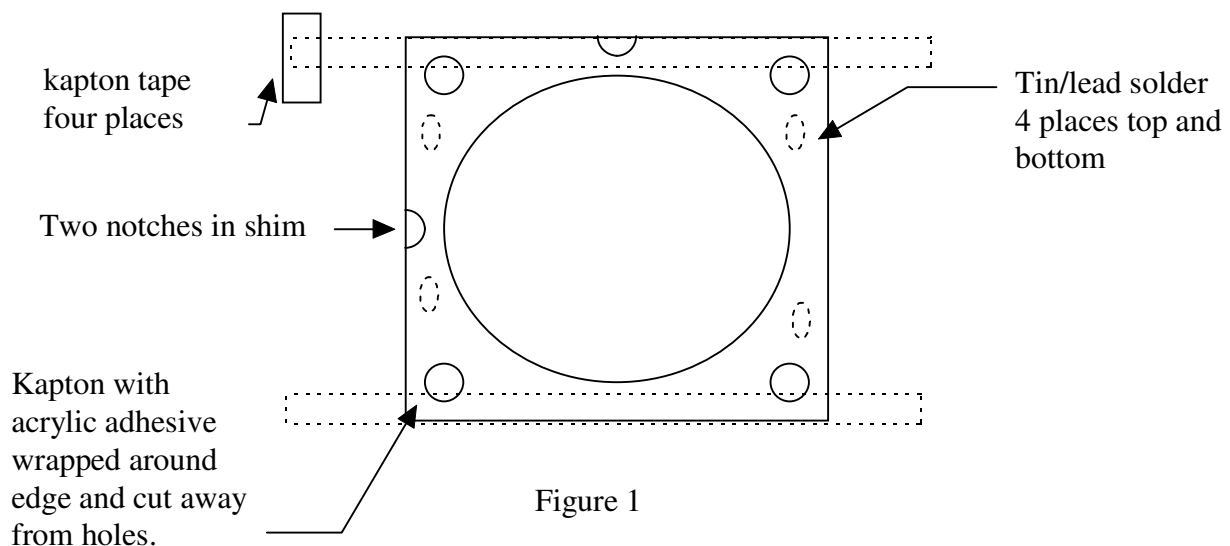
Section 2 FABRICATION OF THE SHIM

Materials:

1. Beryllium copper shim .002 inch part 25491-201
2. Dupont Kapton coverlay
3. Ceramic blade #2
4. Indalloy #2 80 In/15Pb/5Ag
5. Indalloy Tacflux 006
6. Glass shims .009 inch slide covers
7. Vise and C clamp

Procedure:

1. Ultrasonically clean shim in micro # 8790 cleaner. Rinse in DI water and dry.
2. Cut two pieces of Kapton with acrylic backing. Fold into a V shape with acrylic on inside. Press fold between two blocks to crease.



3. Trim each piece until edge bisects holes as shown in Figure 1.

4. Clamp between two blocks.
5. Cure at 180 C for two hours. Let cool. Trim off excess Kapton film.
6. Using Indalloy #2 and tacflux, solder 4 small bumps on each side.
 - a) Set hotplate to 230 C
 - b) Reflow solder by placing corner on hotplate.
7. Clean in ultrasonic cleaner with isopropyl alcohol.
8. Clamp between two blocks in order to reduce the bump height.
9. Clean DI water and dry. Bag part and place in box until insertion.

Section 3 CLAMPING

Make the solder bumps uniform by clamping in a vise with a .008 or .009 inch glass shims (See figure 2).

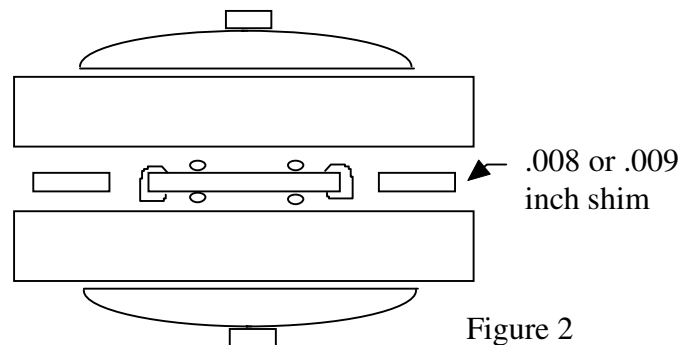


Figure 2

Section 4 INSERTION

Cut shim in two places making a 1/16 inch notch. The shim is inserted into the DMA between the flex cable and the metal base of the mount. Orient the shim so the notches correspond to the notches on the base. The incision allows for a small amount of bending as the part is passed around the pins.

Before starting electrical tests secure the assembly with nylon screws and brass nuts. Use a non-flight base behind the flex cable. This combination will prevent shorting through the fasteners.

Section 5 VISUAL INSPECTION: The Kapton should completely cover the edges of the flex cable.

Section 6 ELECTRICAL TESTS

- a) Set ohm meter to 20 Megaohm scale and measure resistance between EMI shield and ground plane. The isolation should be greater than 20 Megaohm.

b) Set ohm meter to 200 ohm scale and measure resistance from EMI shield to pin 20. This resistance should be less than 8 ohms. This concludes insertion and testing.