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Document Title		
Bias Circuit Preparation		

Bias Circuit Preparation

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Change History Log

Revision	Effective Date	Description of Changes
1	Sept. 10, 2004	Initial Release
2	Sept. 28, 2004	Roughness and baking

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1 Purpose

The present document describes the preparation of the Kapton bonding surface on the Tungsten Tiles

2 Scope

The goal is to increase the bond adhesion, avoid contamination during the process.

3 Acronyms and Definitions

EM	– Engineering Model
GLAST	– Gamma-Ray Large Array Telescope
Plyform	– Trays Manufacturing
MEK	– Methyl Ethil Kethone
IPA	– Isopropyl Alcohol
TKR	– Tracker
TVAC	– Thermo vacuum Test

4 Applicable Documents

Documents relevant to the development of this procedure include:

[1] LAT-PS-01584, Mid Tray Assembly Procedure

[2] Tart Report, Pisa 09/02/2004

5 Introduction

Evidence suggests that the adhesion of the bond to the bias circuit is strong. Gross delamination of the bias circuit to the tray face sheet has only been observed in trays taken to 85C in TVAC. However, good bonding practice to Kapton requires roughening or removing the shine of the Kapton surface. No roughening has been used in bias circuit bonding to date.

5.1 Bias Circuit Moisture Removal

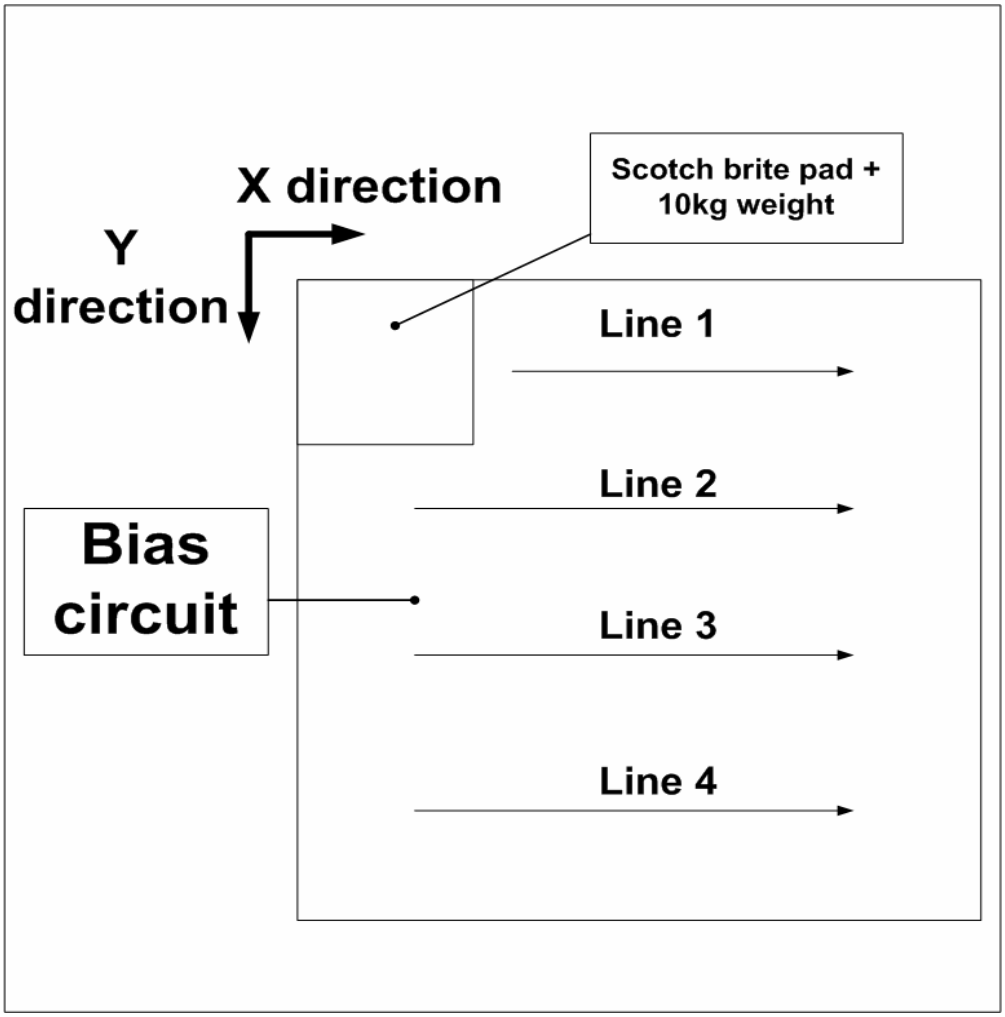
Kapton absorbs moisture up to about 1% by weight. This moisture presents a potential source of gases that could cause bubbles or delaminations at the elevated temperatures of the TVAC test. Bias circuit bonding preparation included no bake out of the circuit to remove this moisture.

6 Bias Circuit Preparation

All the following steps have to be performed using the gloves:

6.1 Roughen

a. Put one Scotch Brite pad of 100x100 mm dimension in a corner (Fig.1);
b. Put on the Scotch Brite pad a Stainless Steel weight of about 10 Kg (100x100x130 mm);
c. Move the Scotch Brite pad along the line 1, then repeat along line 2,3,4.
d. Repeat the previous step along the Y direction ;
e. Repeat once more the previous steps *c* and *d.*



6.2 Clean and Bake

The following steps *a* and *b* have to be performed using the polyethylene gloves:

a. Clean with acetone wipe followed by IPA wipe;
b. Bake 60°C for 6 hours;
c. Clean with acetone wipe followed by IPA wipe;
d. Wait ~30 minutes for solvents to evaporate;
e. Bond.