Description: ED0030085--- 2S Procedure - HV tails gluing: Top & Bottom sensor

Document Category: Procedures

Division – Department:

PPD/MED/HPDE

DRAFT VERSION

ID: ED0030085 Revision: -

Revision Issue Date: 19-Sep-2023

Legacy Number:

Originating Author:	Bakshi, Abhishek Nandan	**Date:**	19-Sep-2023

Reviewer and Approver:	(Electronic Signatures and Dates on TC file) *

Revising Author:	Bakshi, Abhishek Nandan	**Date:**	19-Sep-2023

***** Electronic Signatures and dates on Teamcenter (TC) item signoff report (Audit File)

Fermilab

INTRODUCTION

This is the assembly procedure to be followed for the HV tail gluing steps of the 2S module assembly as per design TC#F10182534. Gluing process will be performed using the Nordson E3V dispensing robot.

PRECAUTIONS

The module subassembly is both physically fragile and sensitive to ESD damage. The following precautions below should be observed whenever directly handling modules. Handling of modules on their carrier plates during electrical testing is addressed separately in the procedure relating to testing. Observe the following precautions when working with Tracker modules:

- All team members who handle modules shall have up-to-date Electrostatic Discharge Training (Fermi # PDSI0001/CR/01 or equivalent)
- A grounded wrist strap shall be worn
- Lab D cleanroom work requires wearing a hair net, shoe covers, and an ESD-safe labcoat
- A facemask / beard cover shall be worn whenever working near an exposed module
- Powder-free nitrile gloves shall be worn when handling module hardware

In addition, the AlCF material used to fabricate the module's main and stump bridges is **HORRIFICALLY FRAGILE!** The very highest level of caution must be used when handling the module. Only authorized operators should be permitted to handle modules, and **NO UNPLANNED HANDLING** of a module should ever be allowed.

Parts required for HV tail gluing:

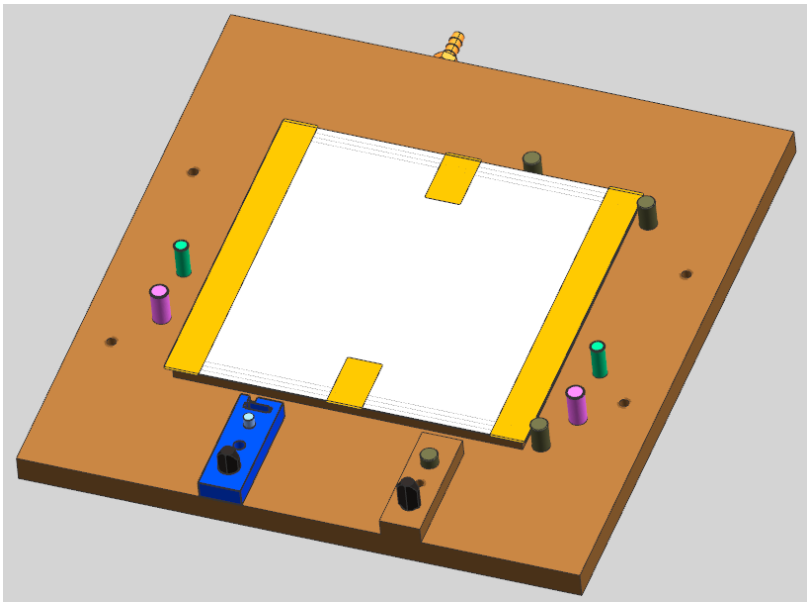
1. Assembly fixtures (as per Top level assy: F10182534---)
   a. Fixtures are labeled for identification. Fixtures required for this entire sub assembly process:

F10173548	HV tail gluing baseplate
F10181884	Top sensor HV tail positioner
F10180899	Bottom sensor HV tail positioner
F10190447	Top sensor HV tail top plate
F10173641	Bottom sensor HV tail weight plate
F10173642	Top sensor HV tail weight plate

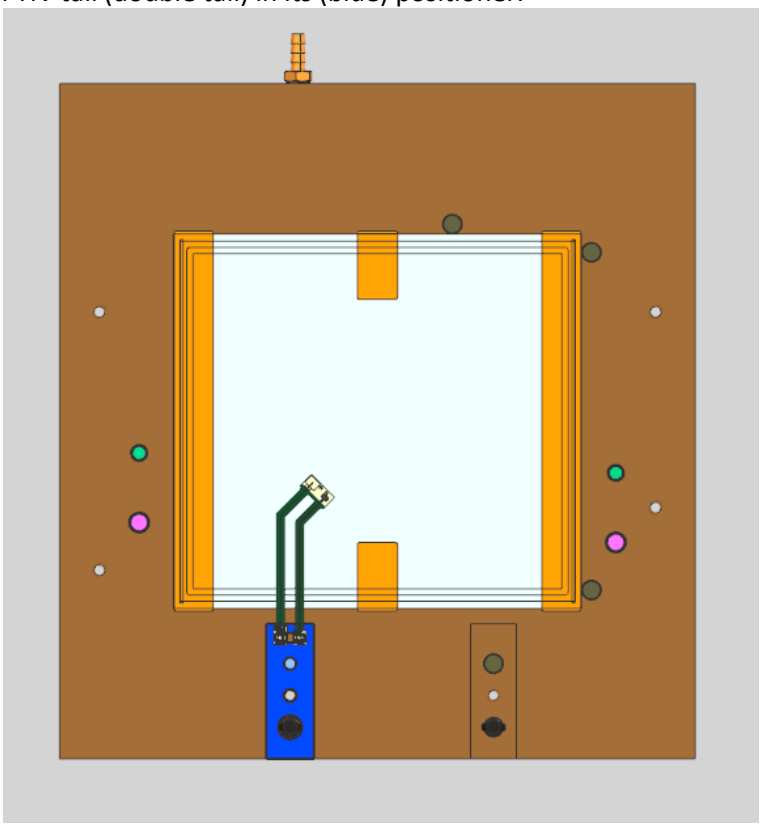
   b. Wipe the fixtures to be used with IPA prior to use.
2. Acquisition of sensors
   Silicon sensor: Qty: 1 {Sensor has long & stump isolators glued}
3. Acquisition of HV tails
   a. Single tail HV (For bottom sensor): Qty = 1
   b. Double tail HV (For top sensor): Qty = 1
4. Acquisition of Epoxy: TC 437

(a) Assembly steps: With Top sensor HV tail

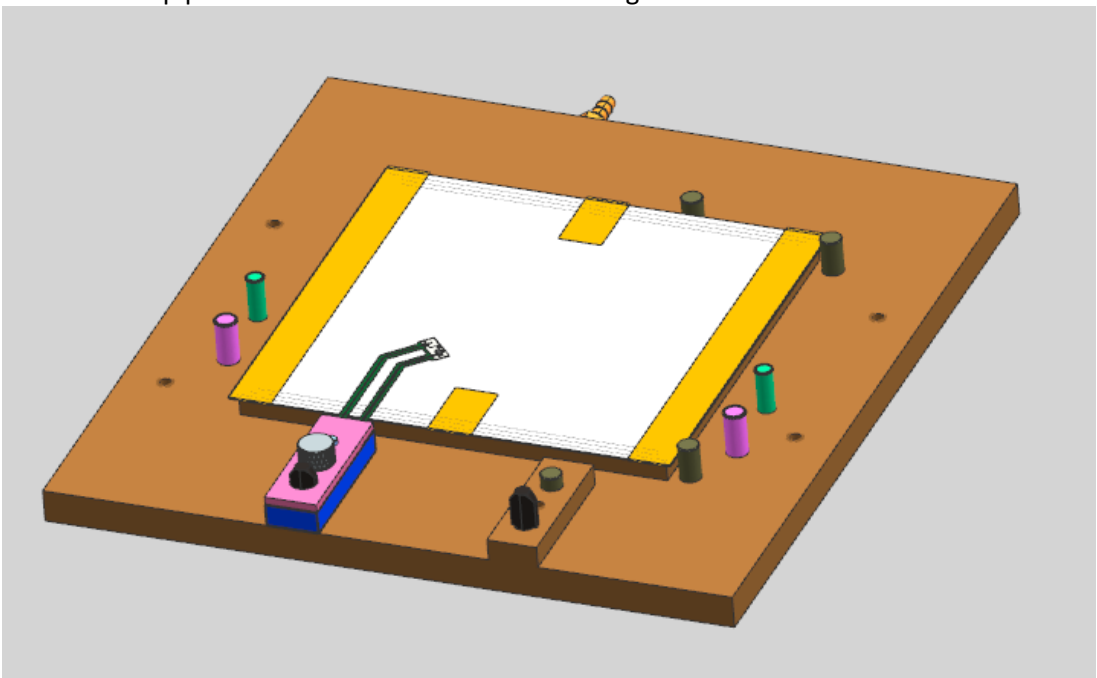
1) Position top sensor on the fixture baseplate against the three dowel pins and turn on the vacuum.



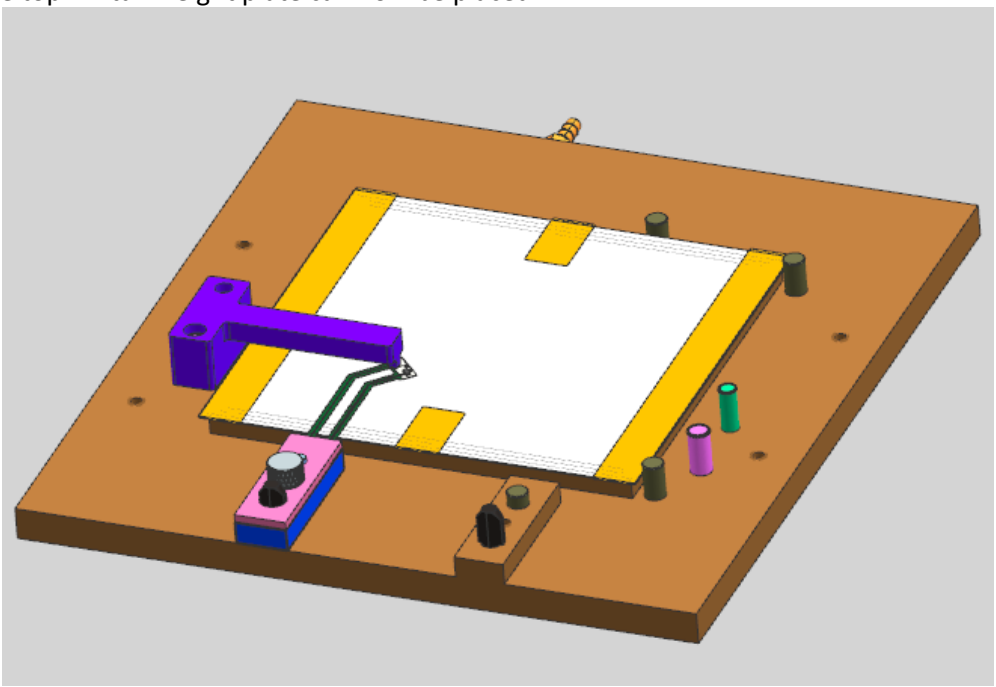
2) Position top sensor HV tail (double tail) in its (blue) positioner.



3) Place the top plate to avoid the HV tail from moving.



4) Lift the tail up and dispense a drop of the TC-437 epoxy in the gold pad region. Lower the tail in place.
5) The top HV tail weight plate can now be placed.

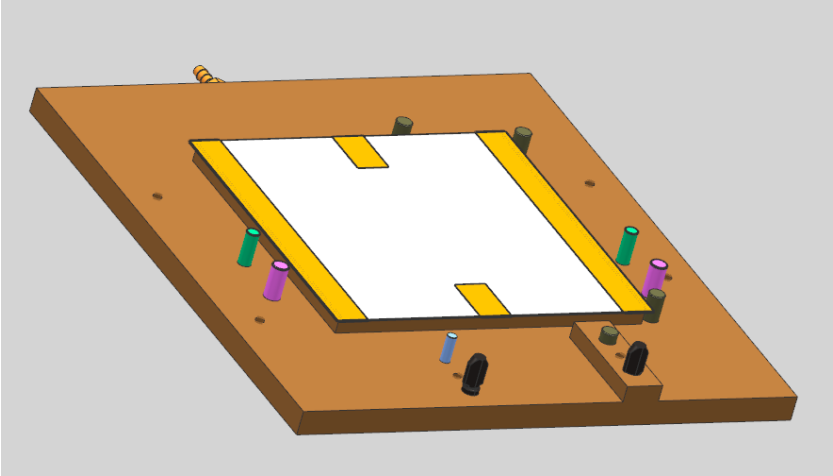


6) Check for excess epoxy squeeze out and allow TC-437 to cure for 30mins.

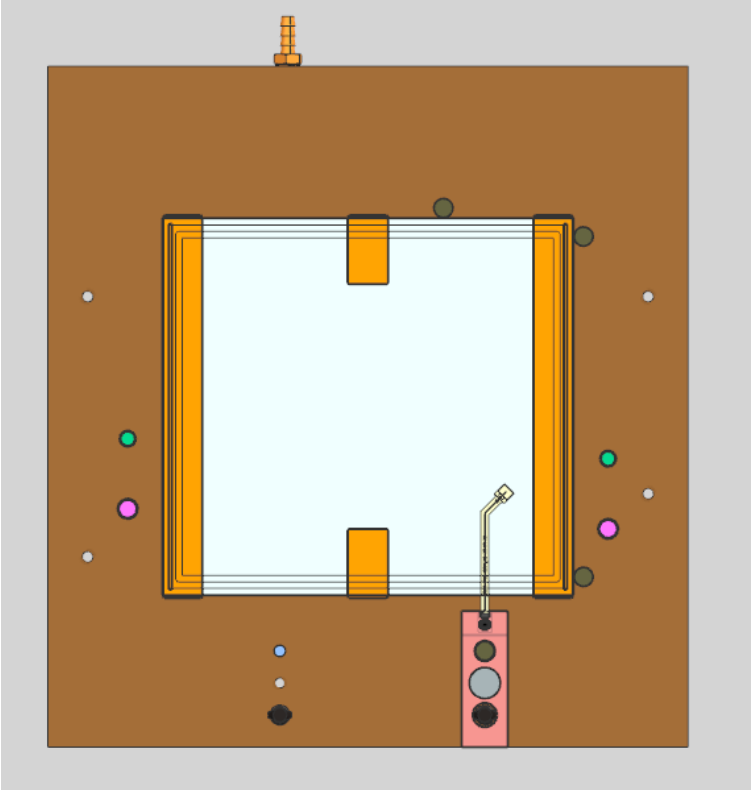
7) Document HV tail serial no., epoxy batch in module traveler.

(b) Assembly steps: With Bottom sensor HV tail

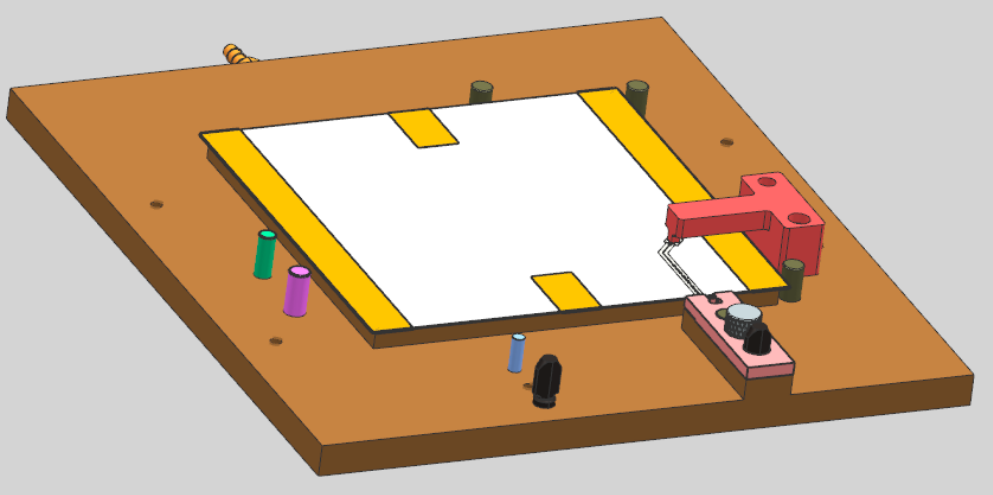
1) Position bottom sensor on the fixture baseplate against the three dowel pins and turn on the vacuum.



2) Position bottom sensor HV tail (single tail) in its (peach) positioner. Note: The connector should seat inside the precision cut out of the positioner.

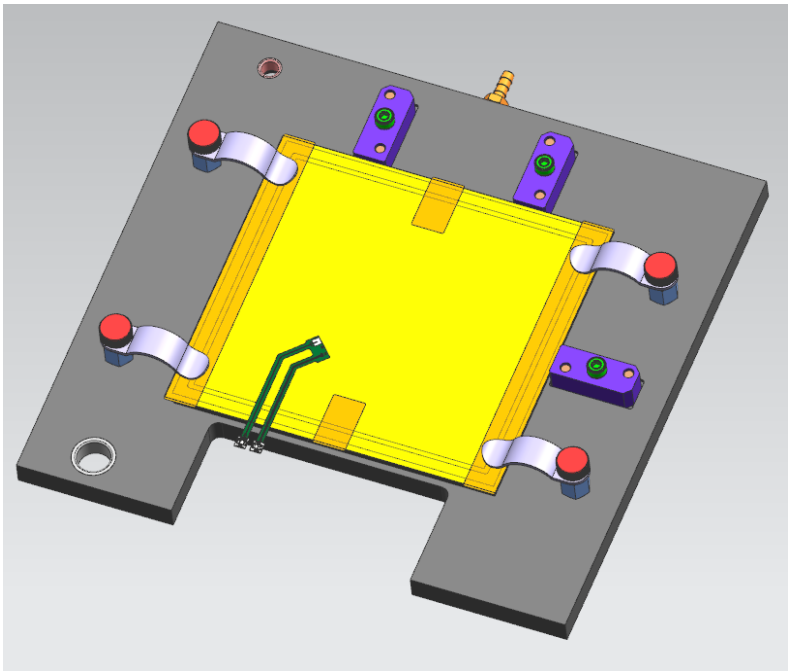


3) Lift the tail up and dispense a drop of the TC-437 epoxy in the gold pad region. Lower the tail in place.
4) The bottom HV tail weight plate can now be placed.



5) Check for excess epoxy squeeze out and allow TC-437 to cure for 30mins.
6) Document HV tail serial no., epoxy batch in module traveler.

HV tail wire bonding transfer fixture (F10108303-A-)



The standoffs and clips are used to hold the sensor while being transferred to the wirebonding station. Care should be taken such that clips are installed straight down on to the sensor and not swung in from the side to avoid catching the sensor edge accidentally.
Aditionally, the HV tail gluing fixture also has provisions to serve in HV tails wirebonding (shown below).