

Solar Probe Plus

A NASA Mission to Touch the Sun

EPL-Lo Instrument Sensor HV Review

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APL

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APPLIED PHYSICS LABORATORY



EPI-Lo Instrument Sensor HV Review

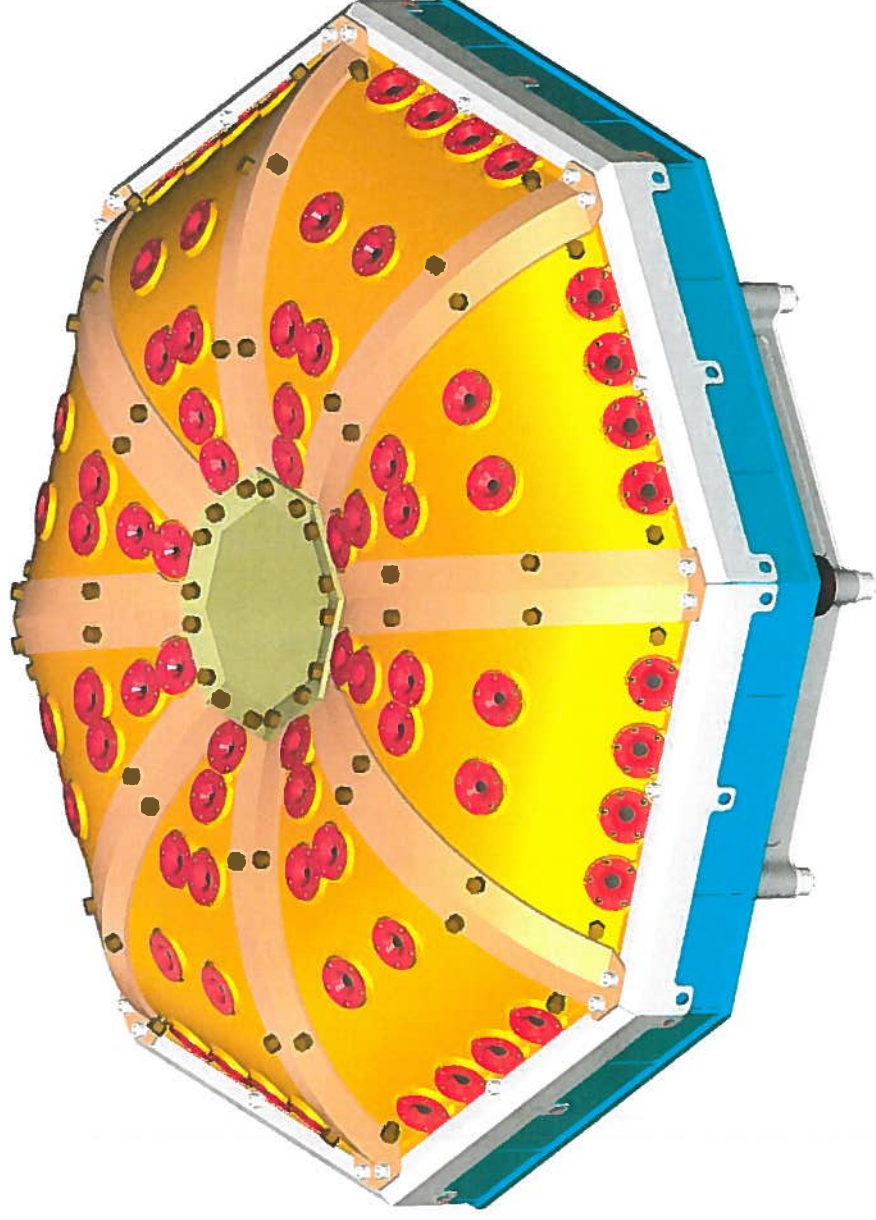
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Material Selection Properties

MATERIAL	CTE , Linear, $\mu\text{in/in-F}$
Stainless 303	9.56
Beryllium Copper	9.28
Titanium 6AL 4V	5
Aluminum, 6061	13.1
Aluminum, 2024	11.7
Magnesium	14.4
Ultem 1000	31
Ultem 2300	11
Torlon 4301	13.9
Torlon 5030	8.9
PEEK 1000	26
PEEK 2300	12.2

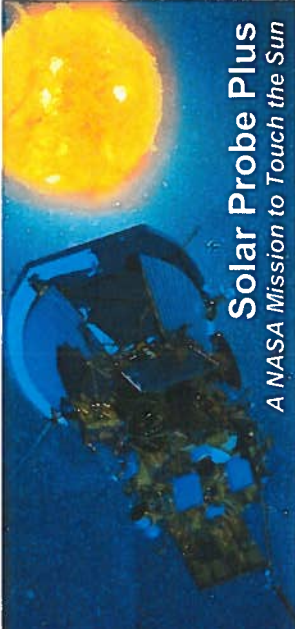
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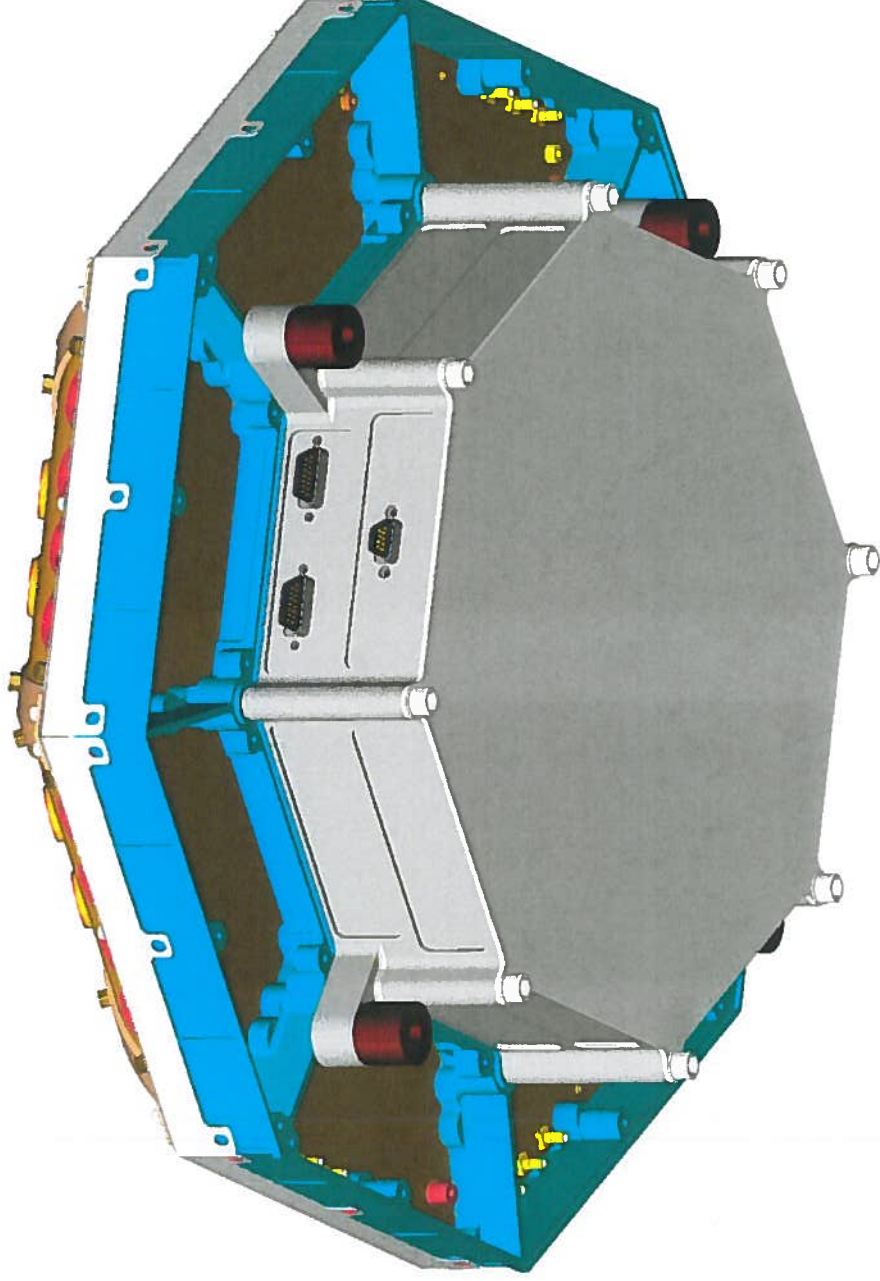


EPI-LO TOP VIEW ISOMETRIC

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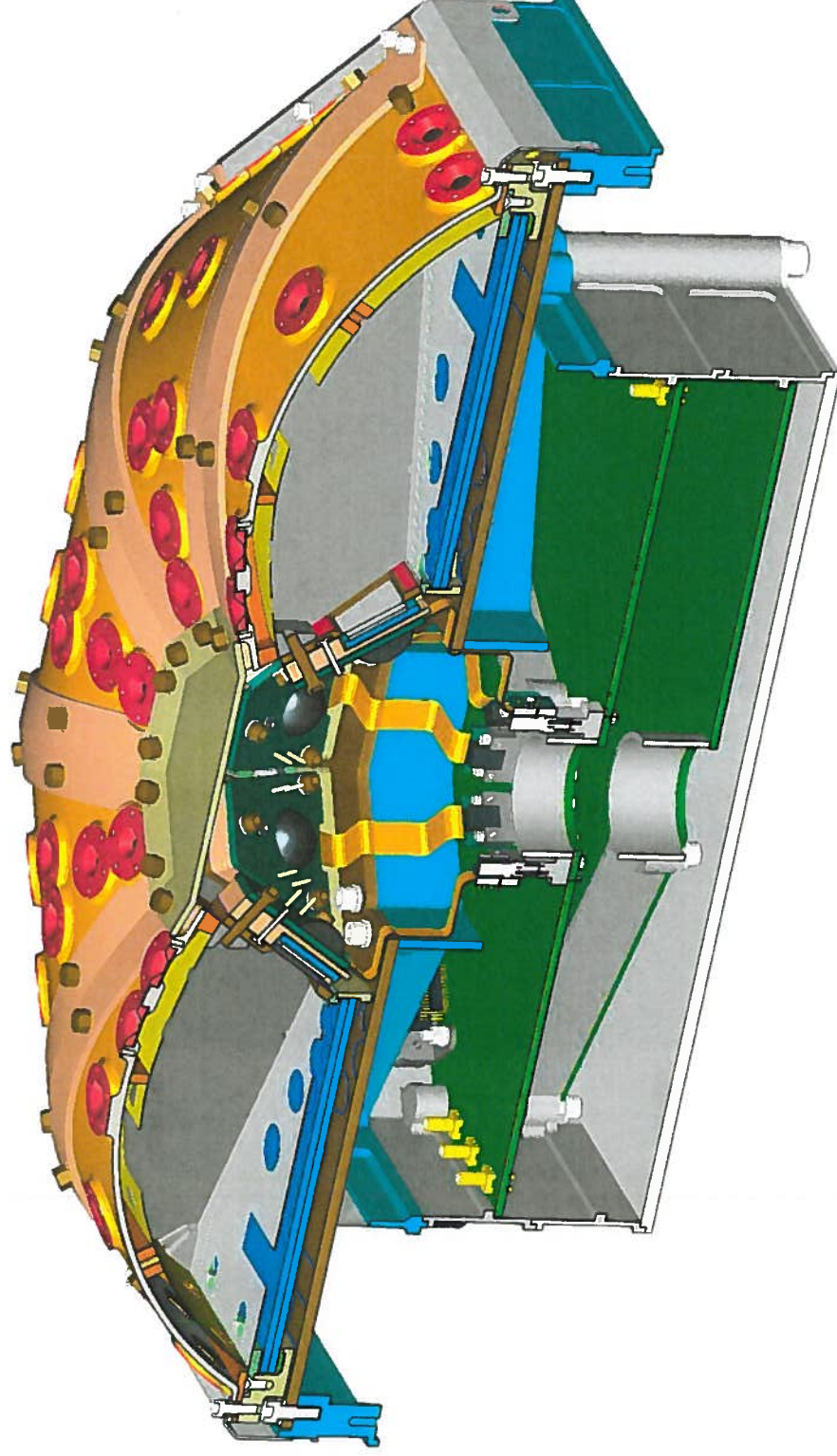
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EPI-LO BOTTOM VIEW ISOMETRIC

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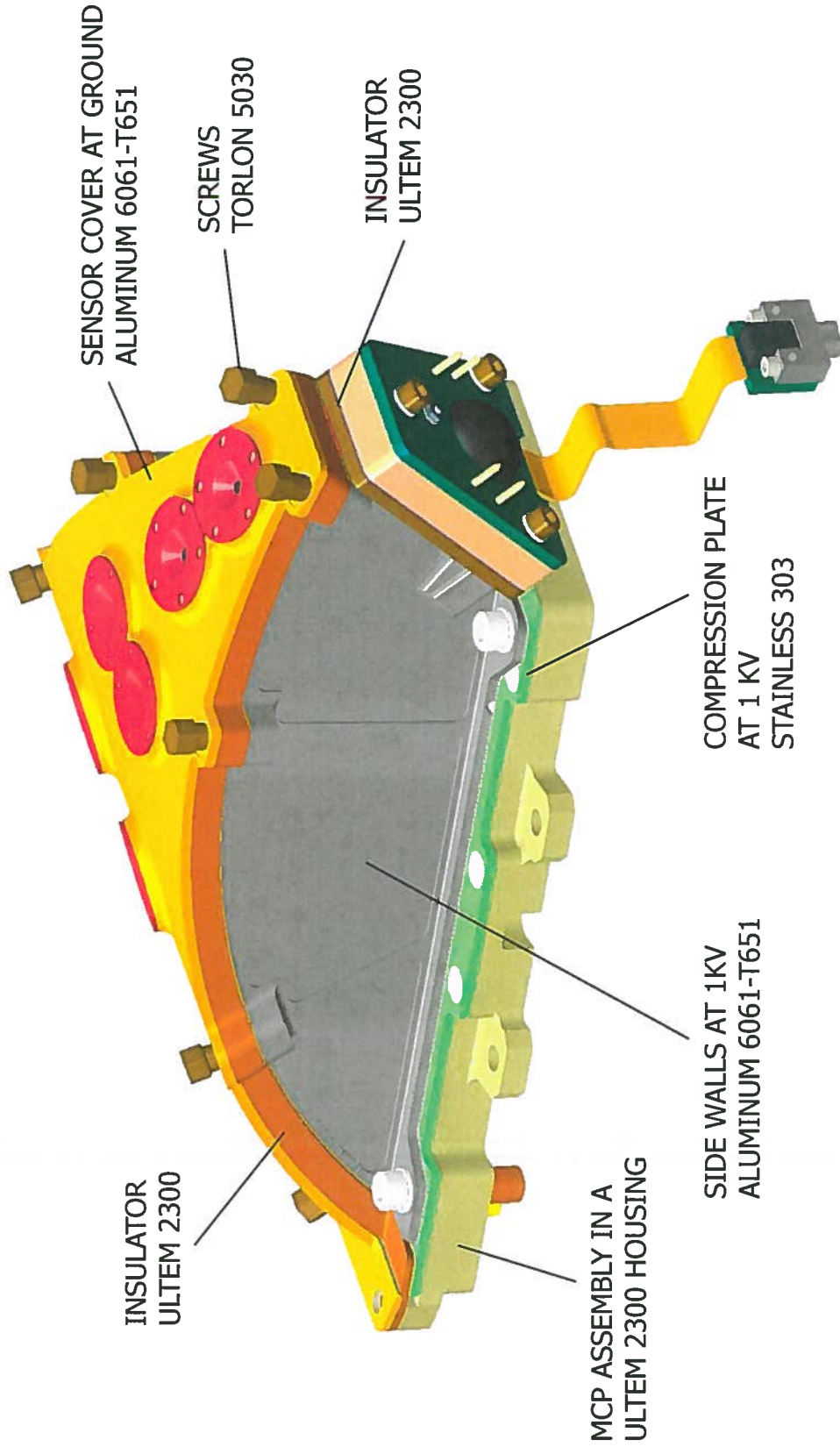
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EPI-LO CROSS-SECTION VIEW ISOMETRIC

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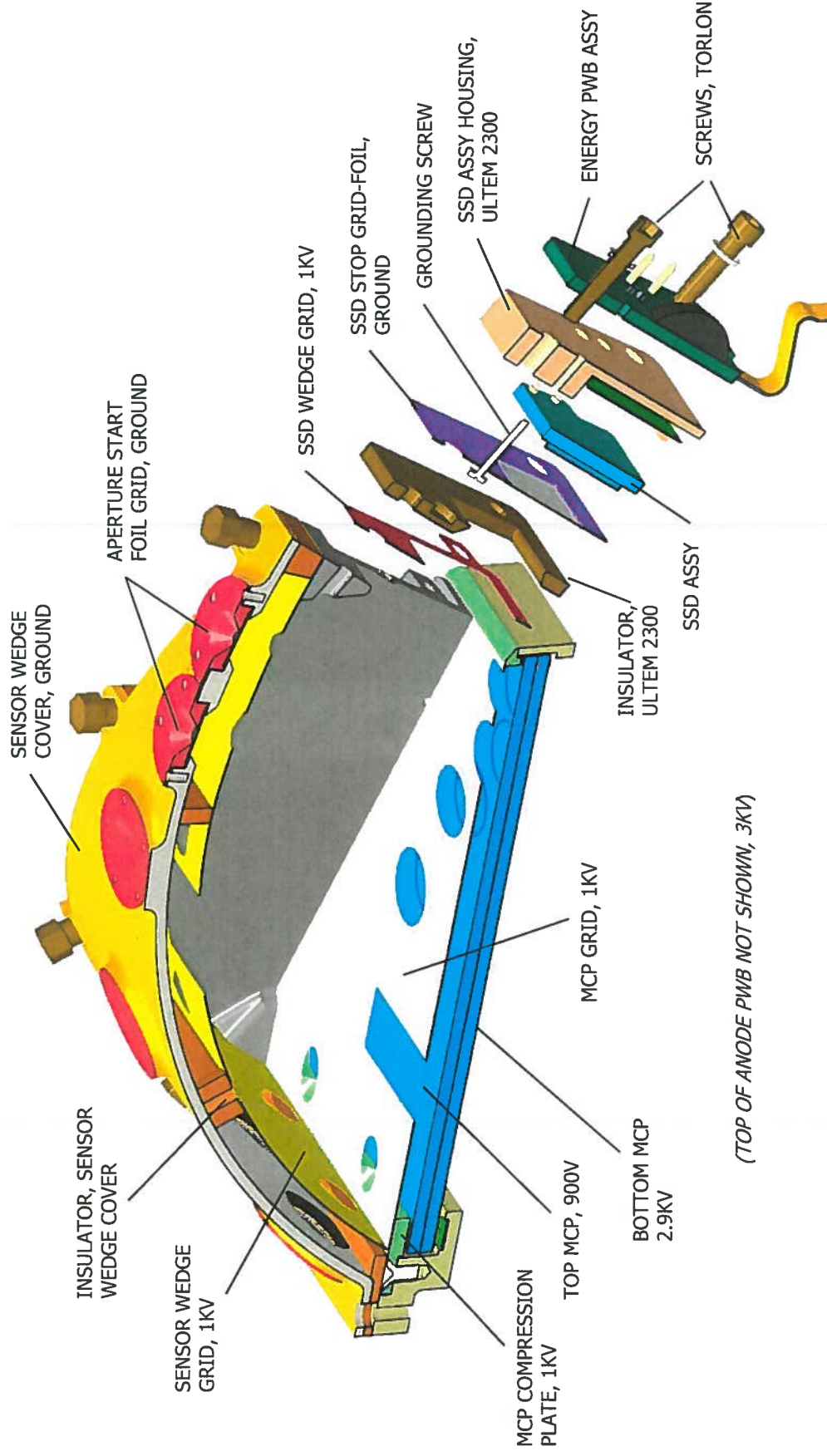


EPI-LO INDIVIDUAL SENSOR WEDGE ASSY

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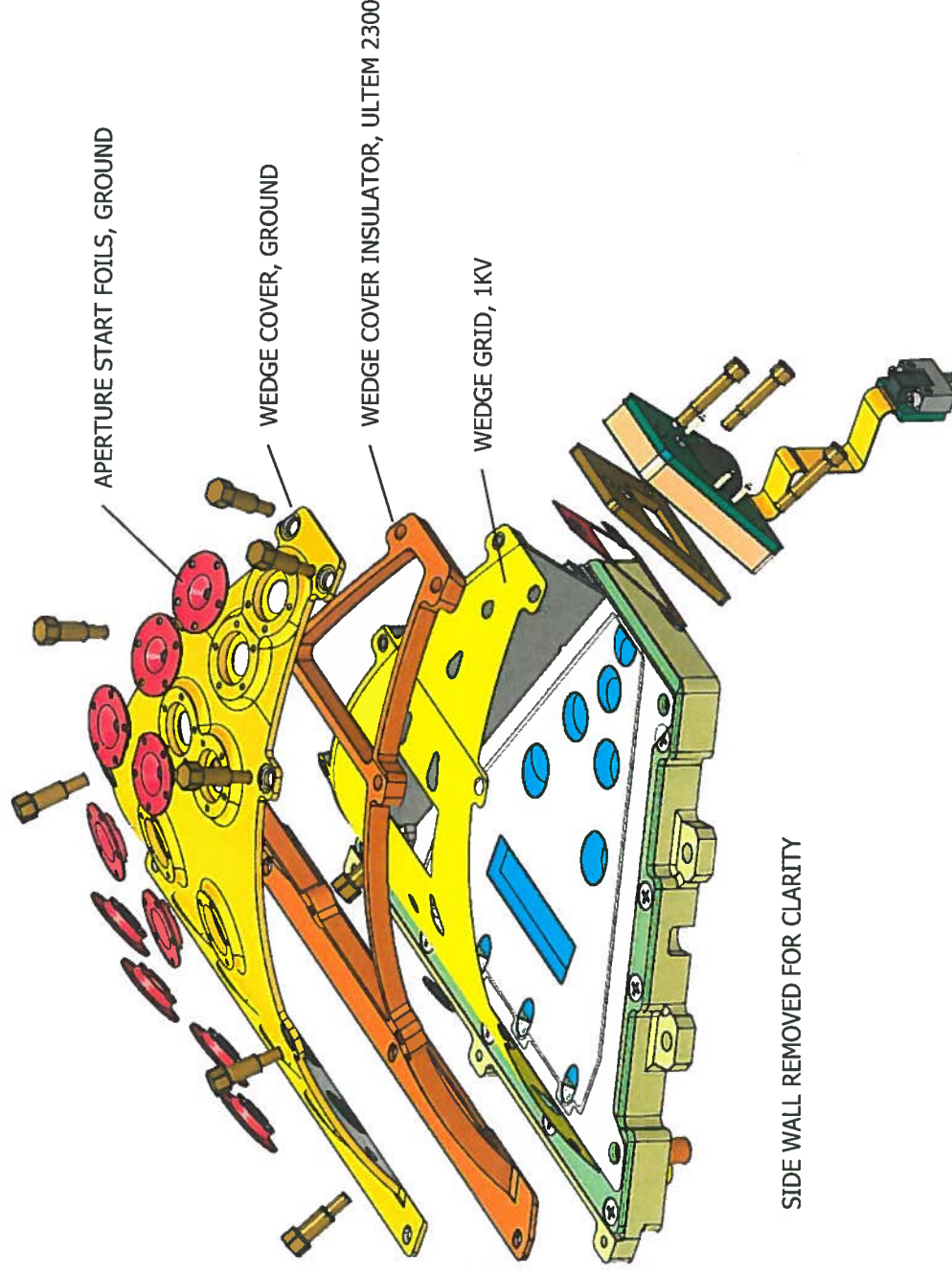


EPI-LO INDIVIDUAL SENSOR WEDGE ASSY CROSS SECTION

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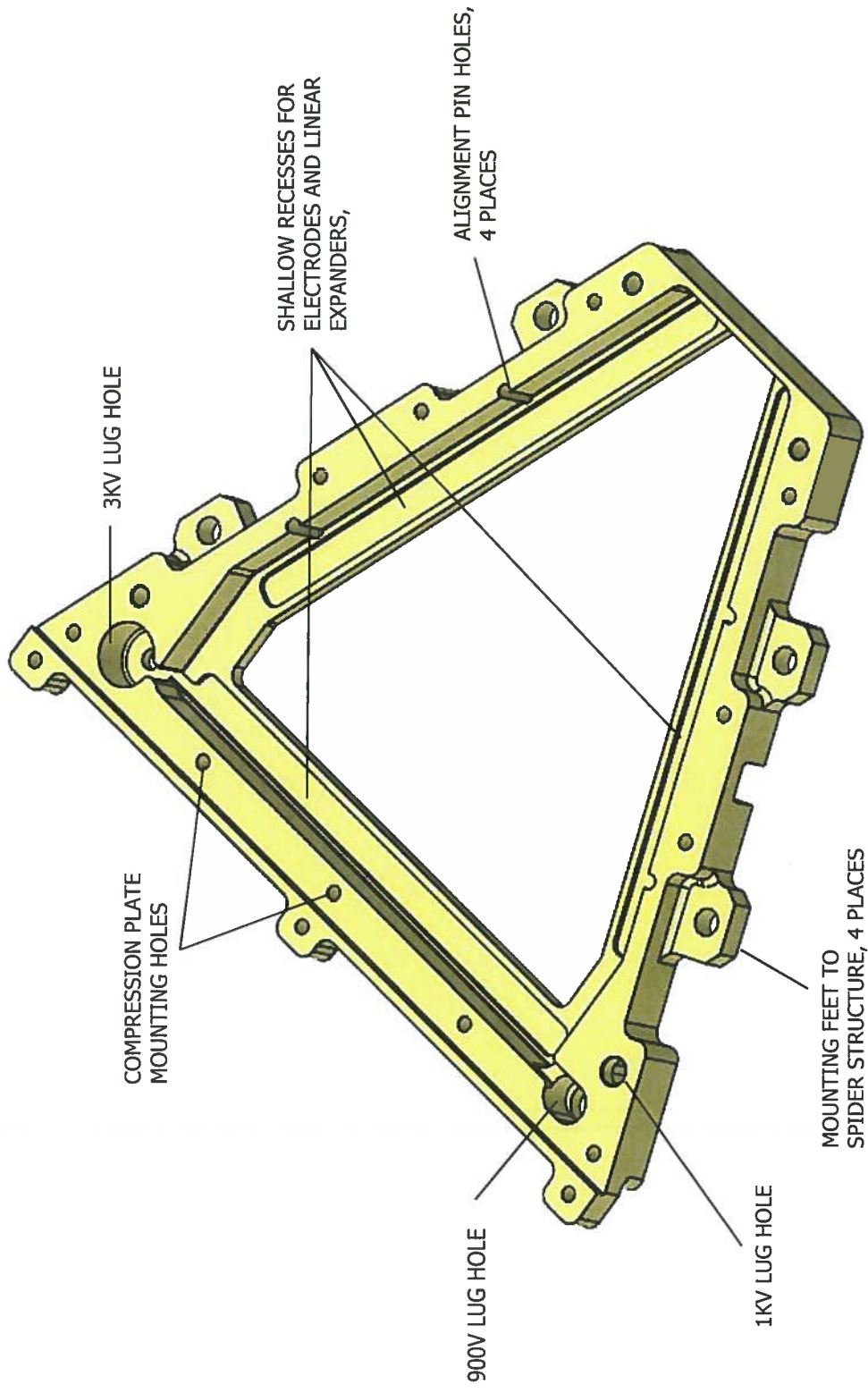


EPI-LO INDIVIDUAL SENSOR WEDGE ASSY CROSS SECTION

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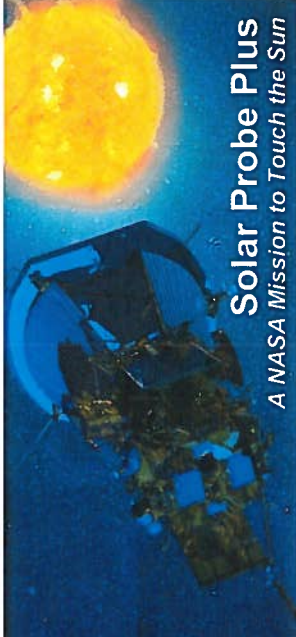
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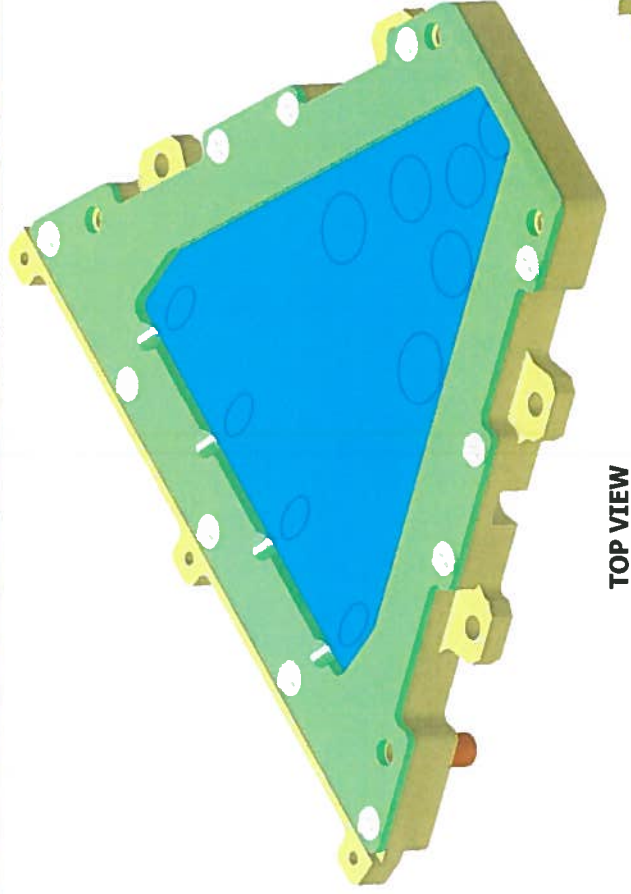


MCP HOUSING DETAILS, ULTEM 2300

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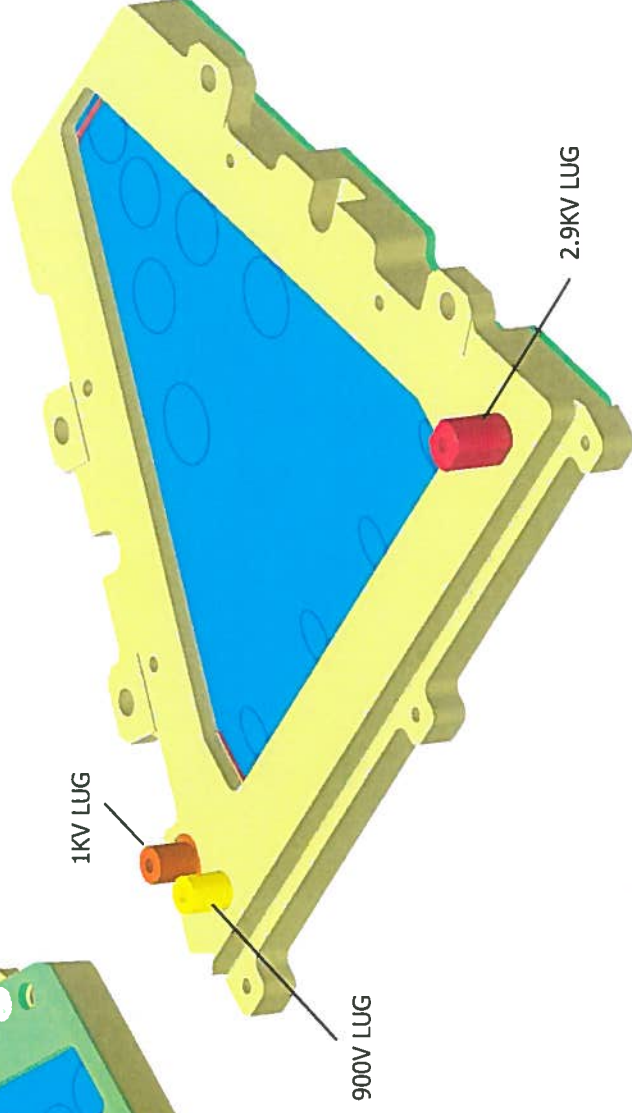


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TOP VIEW

BOTTOM VIEW

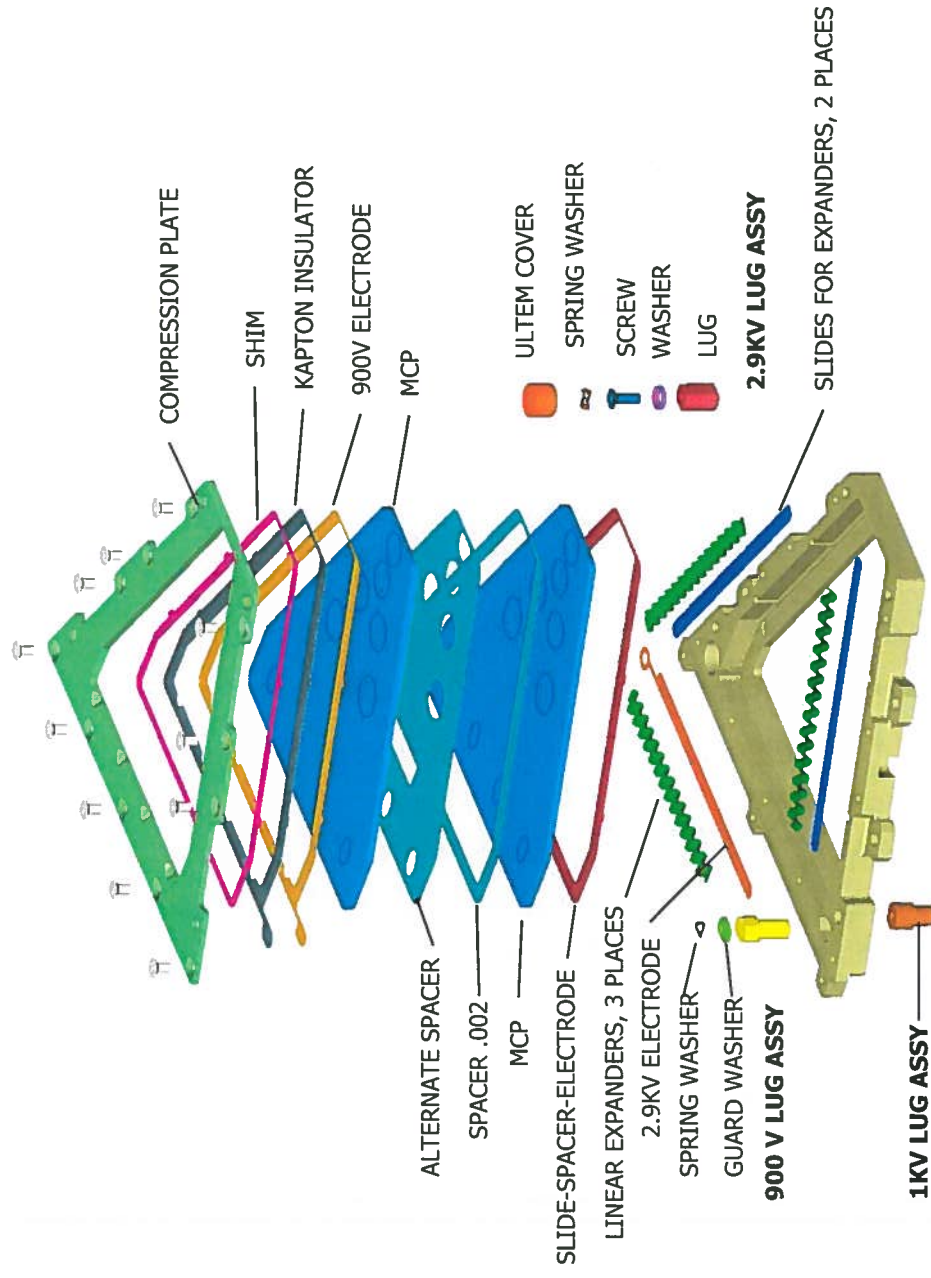


MCP HOUSING

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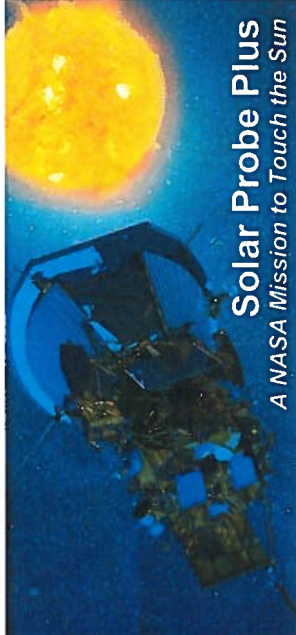
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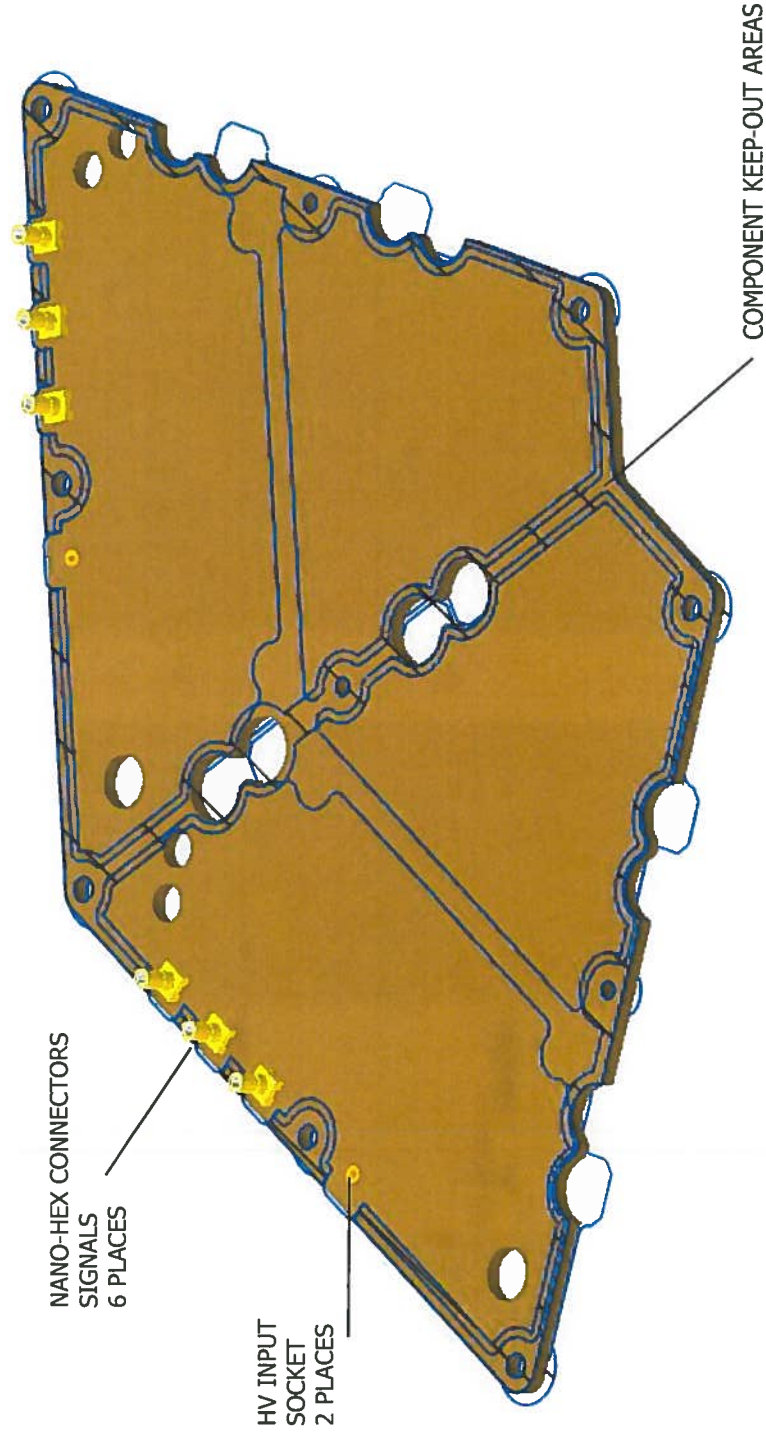
EXPLODED VIEW MCP ASSEMBLY

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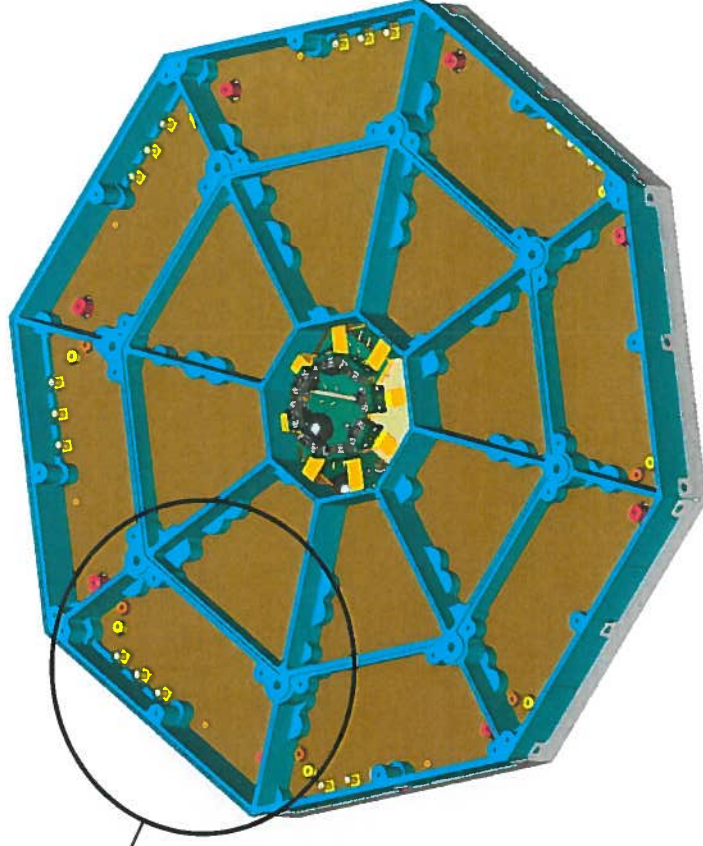
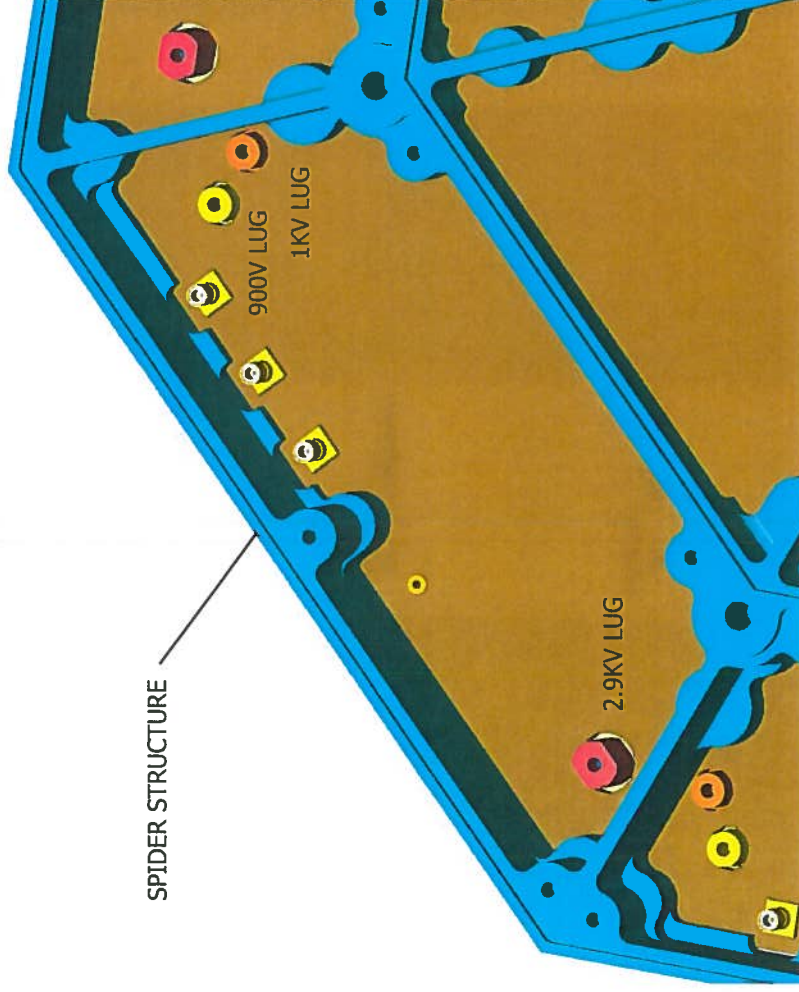
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**ANODE PWB ASSEMBLY, BOTTOM-
SECONDARY SIDE SHOWN**

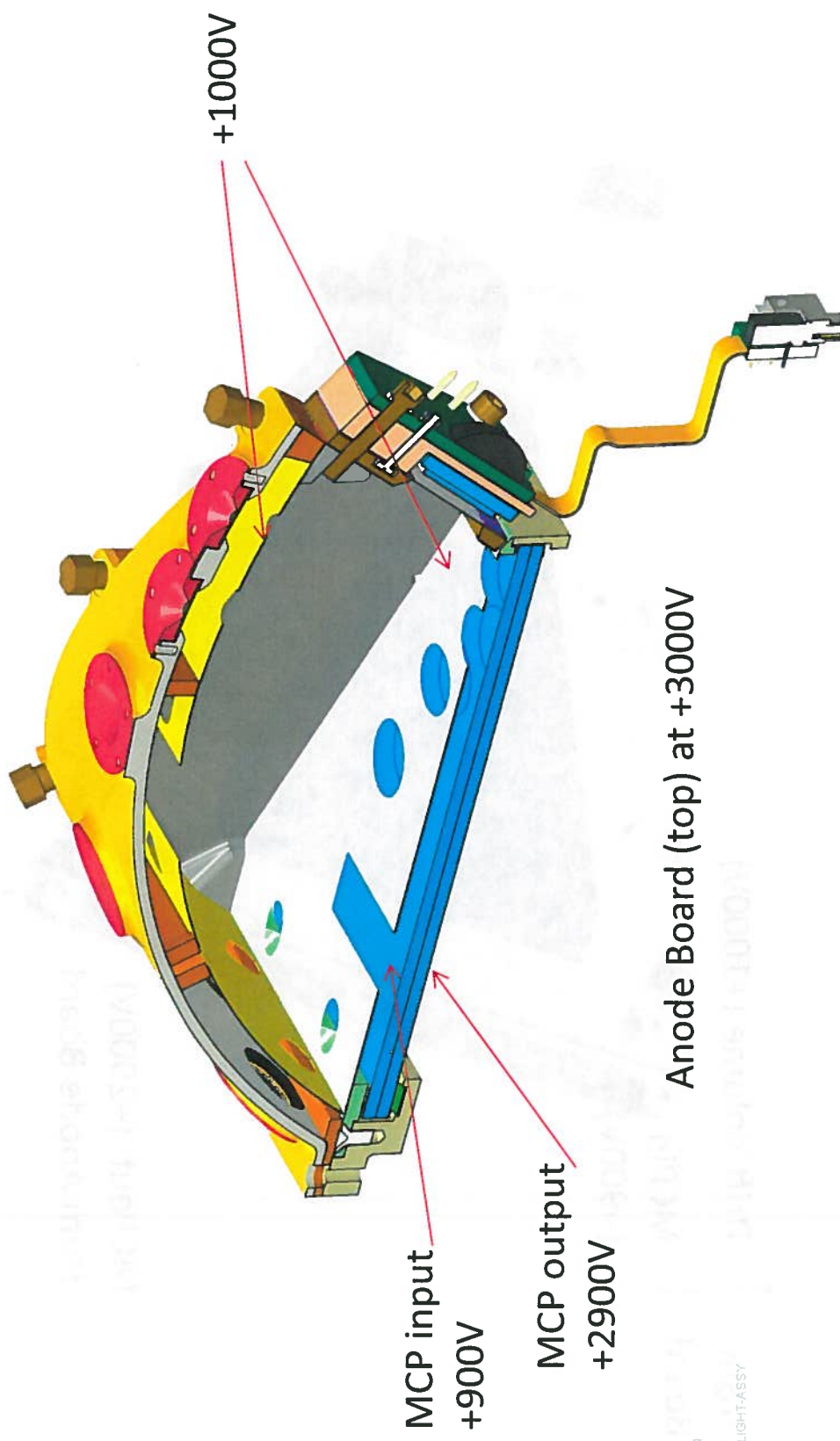
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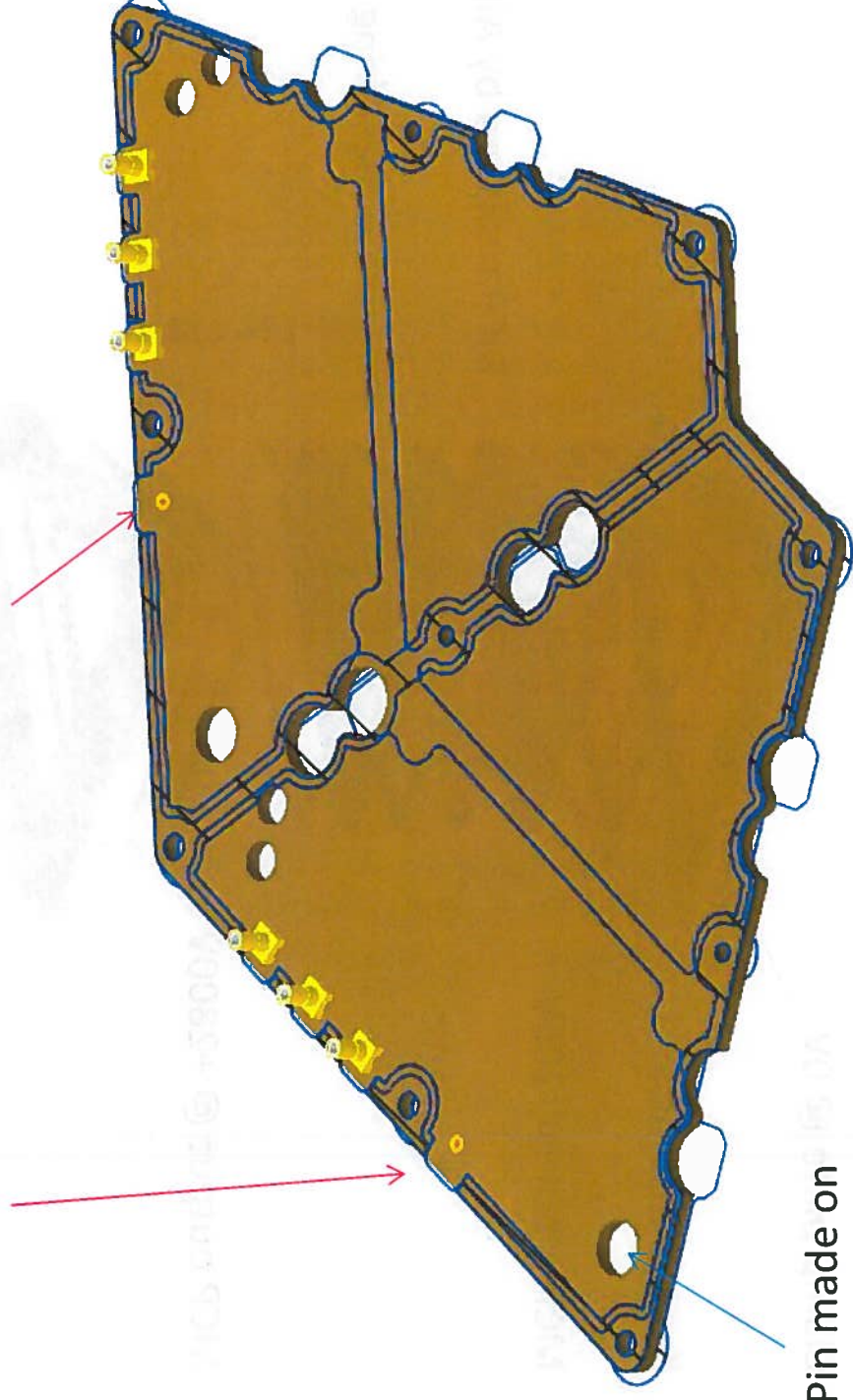
**ANODE PWB ASSEMBLY, BOTTOM-
SECONDARY SIDE SHOWN
MOUNTED TO SPIDER FRAME**

HV potentials in a Wedge



Anode bias (+3000V) supplied by wires from HVPS board.

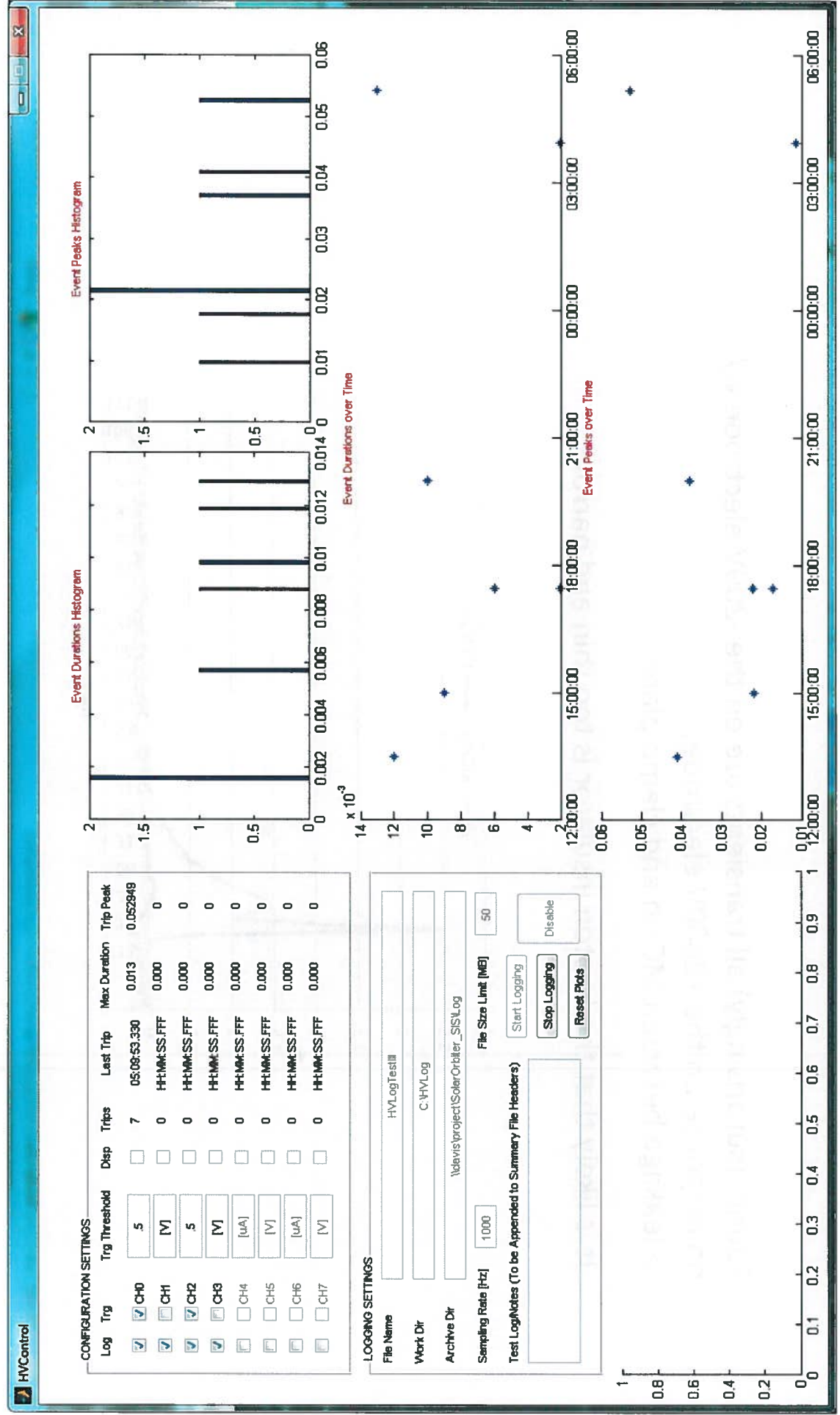
Connection made by pin and socket.



MCPin made on
Anode Board using a
100V zener.

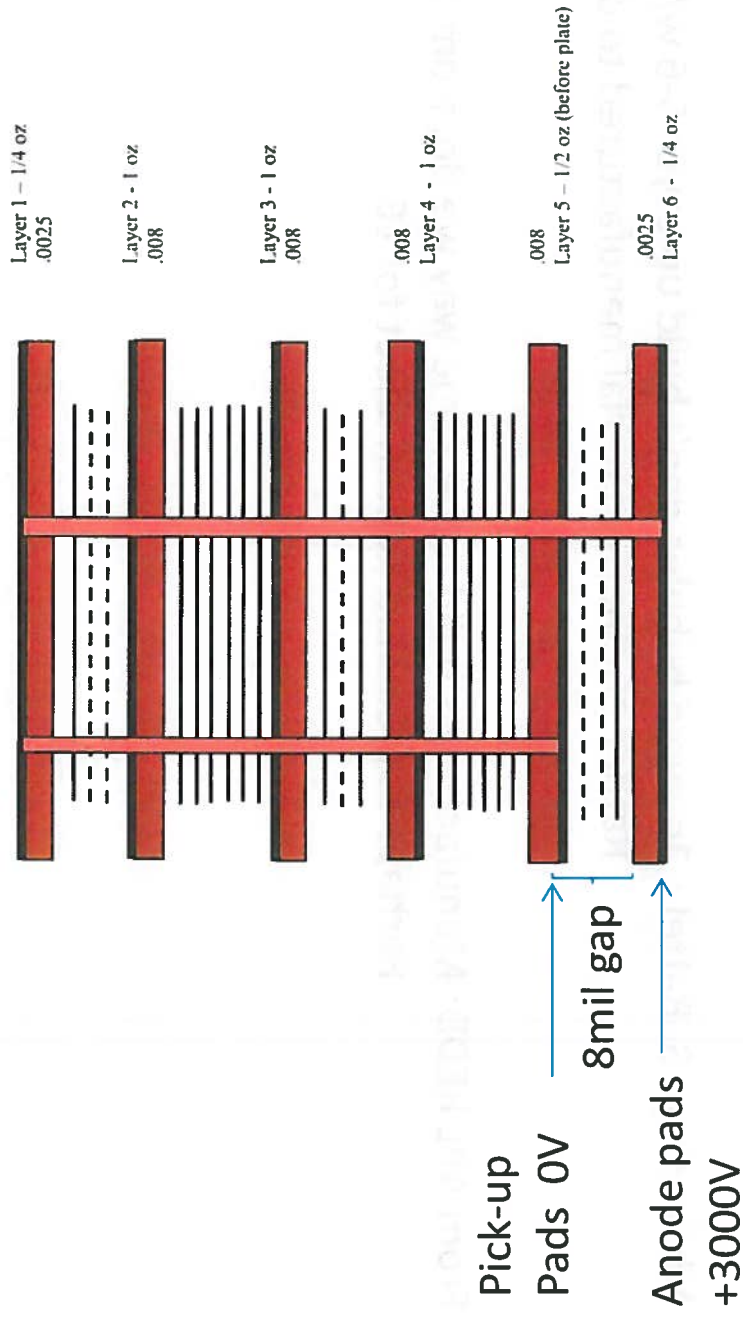
Test in vacuum < 1E-6

Log current monitor output of CAEN 1741 supply w/ 1msec resolution

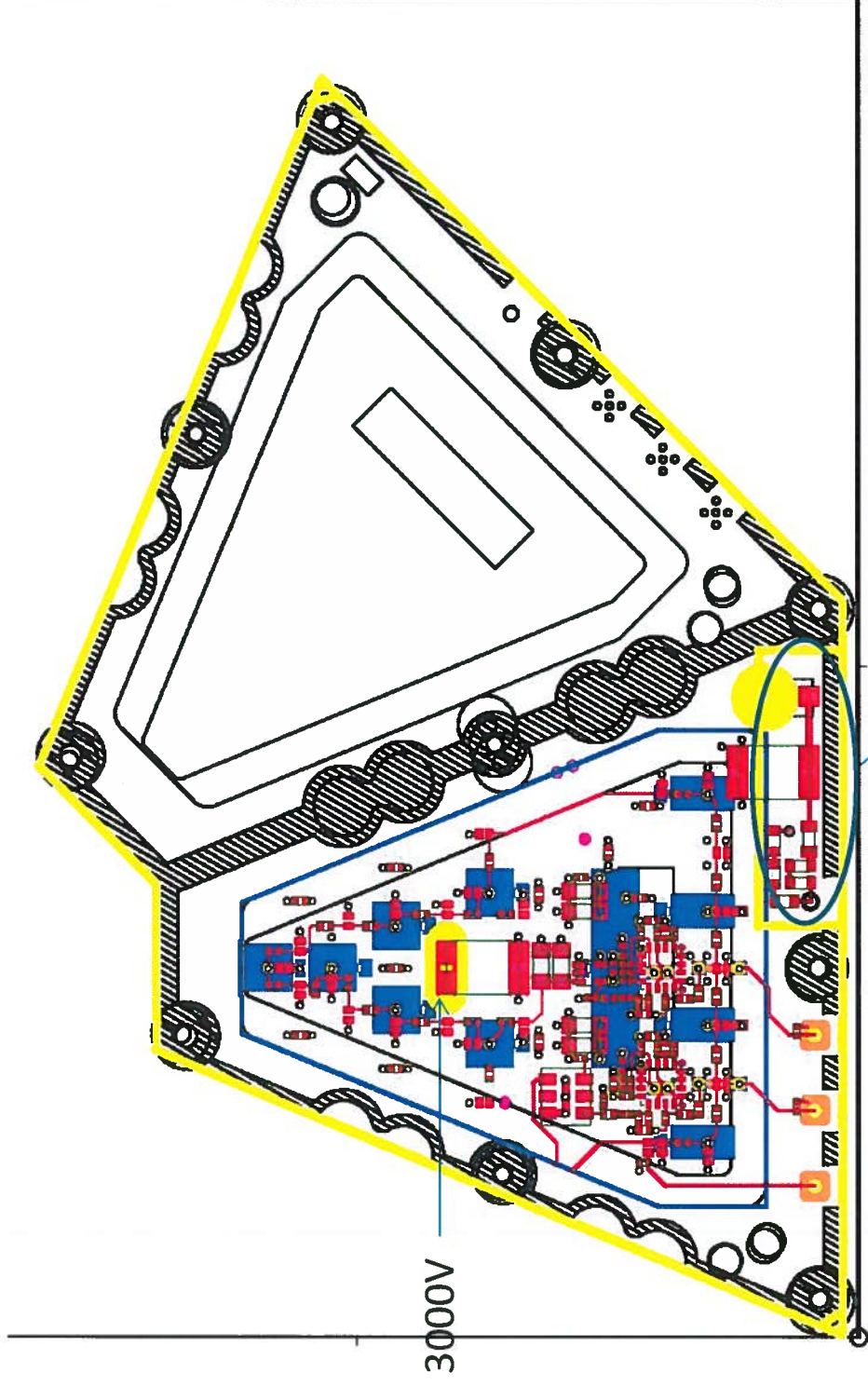


Prototype Anode Board Stack-up

REDD 1296
6-layer rigid, blinds 1-5 and 1-6
Arlon 85N
.093 ± .009



Two HV regions on Component Side



3000V

HV capacitors on L-leads