Mesh float (voltage) concept

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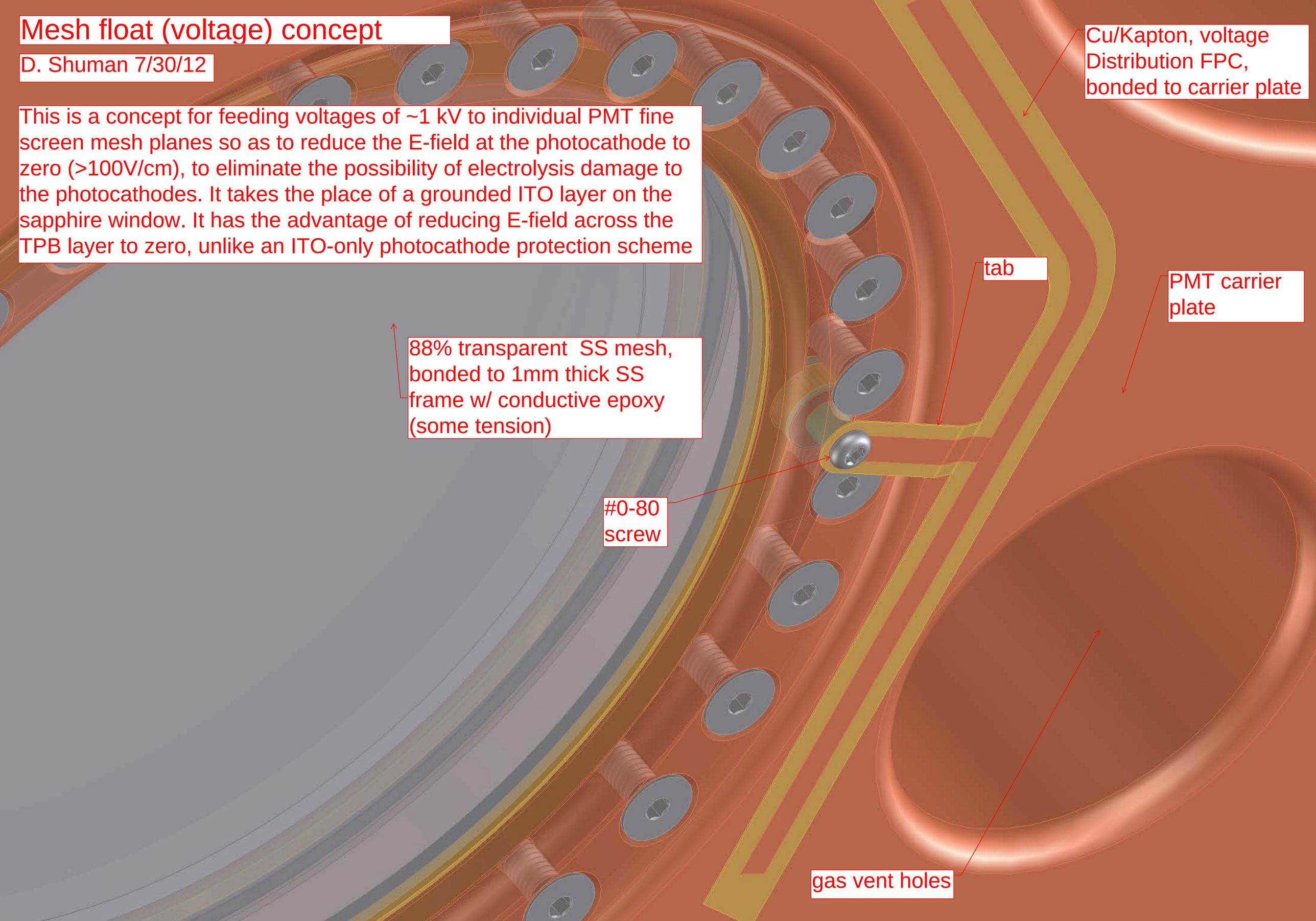
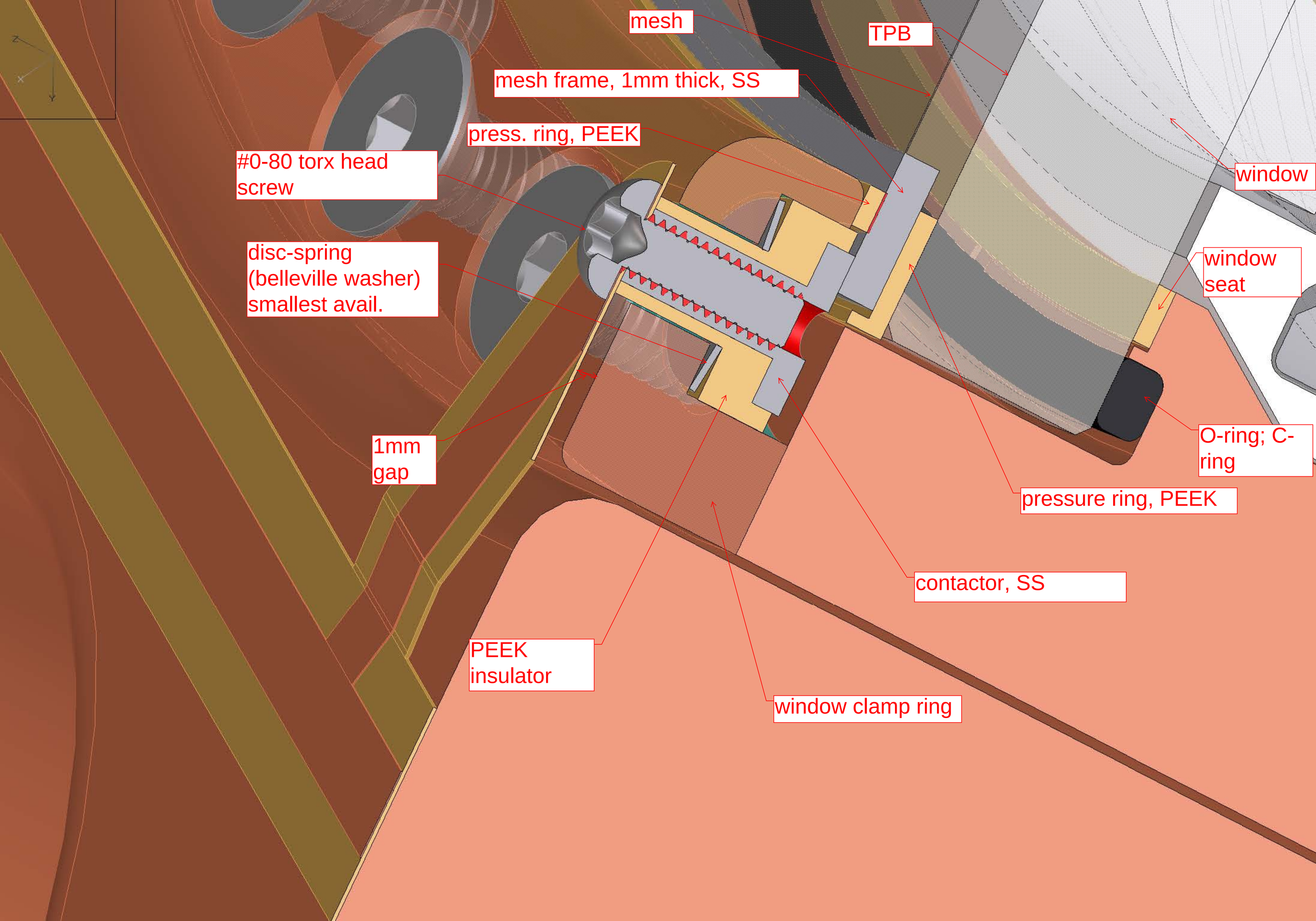
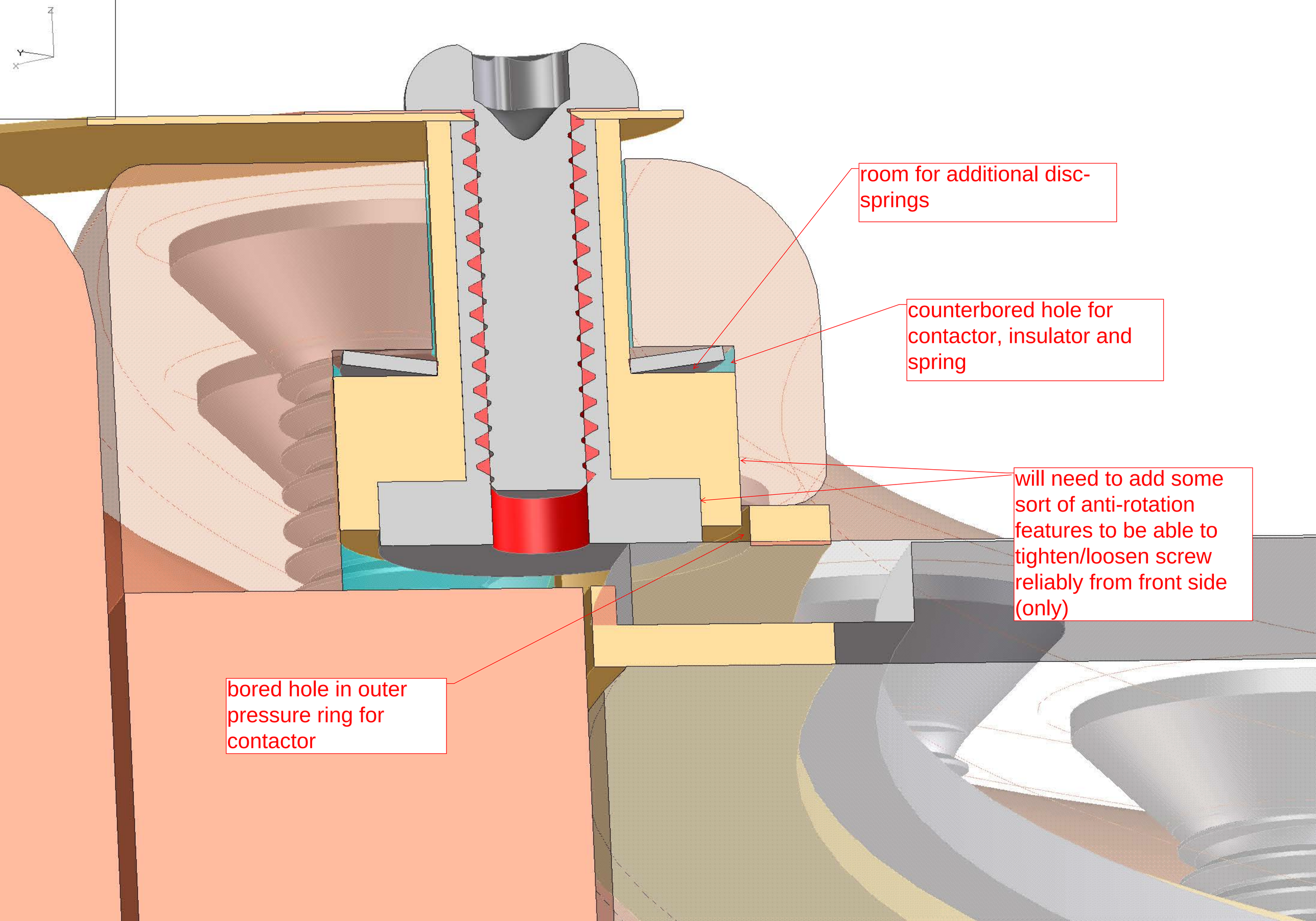
This is a concept for feeding voltages of ~1 kV to individual PMT fine screen mesh planes so as to reduce the E-field at the photocathode to zero (>100V/cm), to eliminate the possibility of electrolysis damage to the photocathodes. It takes the place of a grounded ITO layer on the sapphire window. It has the advantage of reducing E-field across the TPB layer to zero, unlike an ITO-only photocathode protection scheme




mesh
TPB
mesh frame, 1mm thick, SS
press. ring, PEEK
#0-80 torx head screw
window
disc-spring (belleville washer) smallest avail.
window seat
1mm gap
O-ring; C-ring
pressure ring, PEEK
contactor, SS
PEEK insulator
window clamp ring


room for additional disc-springs
counterbored hole for contactor, insulator and spring
will need to add some sort of anti-rotation features to be able to tighten/loosen screw reliably from front side (only)
bored hole in outer pressure ring for contactor