FDC Readout Modifications

15 December 2009

Wire Board Modifications:

1. Move HV capacitors away (inwards) from O-ring area on STBs.
2. Increase clearances (move back) between sense wire bias resistors and wire pads. Resistors should not interfere with wire winding.
3. Remove ground vias from inside of OD of gas spacer.
4. Remove wire and trace crossovers on top side of PCB. These feed field wire voltage at the edge of the PCB where step machining is required.
5. Modify traces connected to wire pads so that wires do not rest on traces/solder mask.
6. Remove traces from Top of PCB in O-ring contact area.
7. Add solder mask to tent vias in combination with size reduction and via fill to prevent glue contamination of surface area of PCB. All vias need to be sealed.
8. Change grouping of HV distribution on HVTBs. The current PCBs have 6 HV connections: 3 +HV (sense) and 3 –HV (field). Change to 4: 2 +HV and 2 –HV. Groups will be: 28S + 28F + 20S + 20F on left PCB; 20S + 20F + 28S + 29F on right PCB.
9. Add silk-screen circle at diameter = 1030 mm on front side of PCB to show O-ring contact area.
10. Add silk-screen circle at diameter = 1020 mm on back side of PCB to show glue keep out area.
11. Add silk-screen to number wires and also close to preamp card connector. Wire plane and cathode foil numbering scheme must be consistent.
12. Review/add fiducials.
13. Move components away from gas spacers.
14. Create clearance and add holes on PCB to secure plastic gas securing blocks.
15. Every other bolt hole (12 holes) on PCB will need to become 9mm in diameter. This is to allow ultra lowhead screws to be used to hold it flat for winding.
16. Consider plating bolt holes to aid gas seal if these have the final dimensions.
17. Clear ground pours around bolt holes.
18. Add or enlarge pads for wire deadening with spring-loaded contact block.
19. Consider changing grounding from Faston to soldered lead wires (for assembly - pads are OK).
20. Consider adding holes on periphery to secure wires (strain relief) - ground and HV leads.
21. Consider designing and assembling one STB and one HVTB. If not possible, need to move routing and/or bolt holes to avoid split (gas leaks) while maintaining 24 channel groups.

Cathode Foil Modifications:

1. Modify routing and hole sizes to allow stretching tolerances of cathode.
2. Add tabs to ground connections.
3. Add ring to assist in mounting to the tensioner.
4. Add straight line marks near the end of the copper strips at the joints to aid in positioning and gluing of panels.

5. Add unique alignment markings to prevent misplacement of foil panels when gluing.
6. Increase clearance diameter on copper pours around bolt holes.
7. Move the deliberate "open" in the pour on the right panel in between bolt holes (7.5 degree angle).
8. Move preamp slot outwards. Perhaps fold through slot to put connection on back.
9. Add cathode flaps to fold over panel edges to connect to ground on back of G10. Current process is conductive tape.
10. Add numbers (silkscreen or copper) to the cathode strips, connection side, to assist when testing. Cathode foil and wire plane numbering scheme must be consistent.