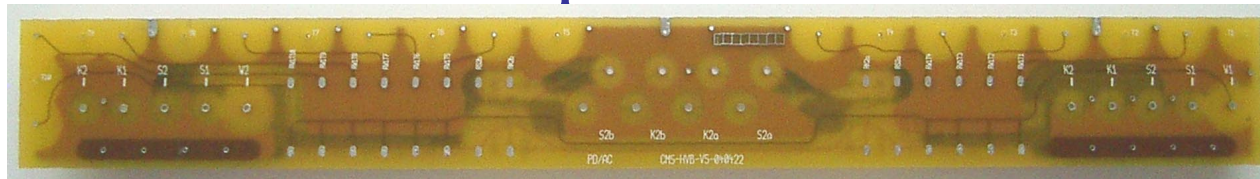




DT Session, CMS Week 041206-10

Status of HVB production

Hans Reithler



- For 267 DT chambers (incl. 17 spare DTs) need 11246 (16-,20-ch) + 344 (8-ch) HVBs.
- Add: HVBs for validation tests, losses, later maintenance
- Subtract: wheel YB+2 has chambers with older HVB_v2.
- Today's PCB procurement status - ~ **all HVB_v5 ordered**:

Firm	Ordered	Delivery Status
1	2,025	received
2	200	received
2	350 (8 ch.)	received; are all the 8-ch.
3	2,000	received
2	4,000	1,000 this week
3	2,800	560 next week
Total Ordered		11,375
Total Received		4,575

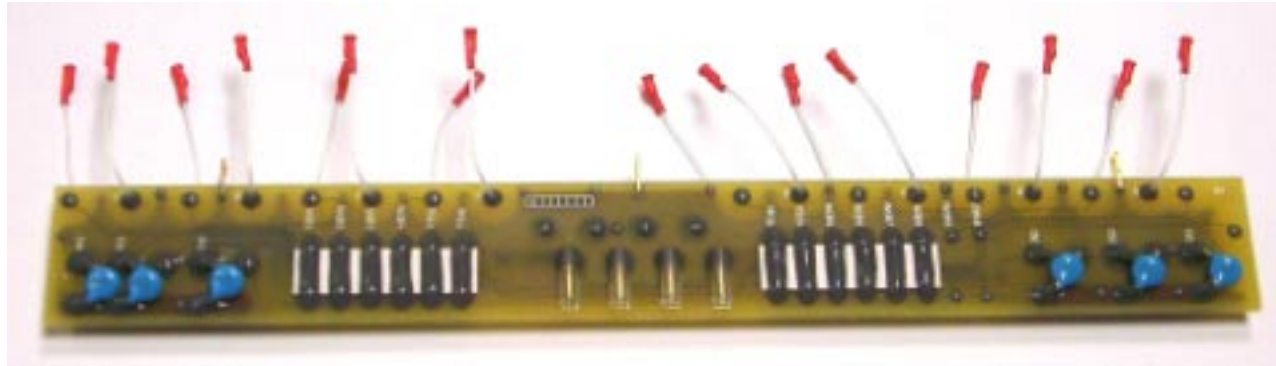
Suppliers:

1: product o.k., but then offered lower rate and higher price.

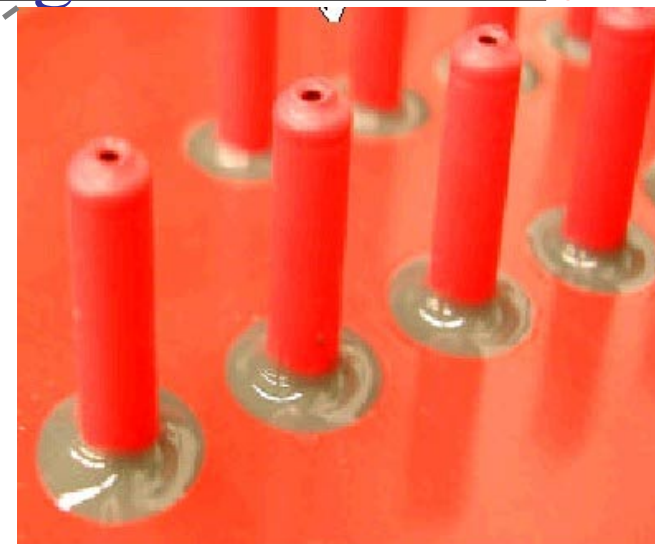
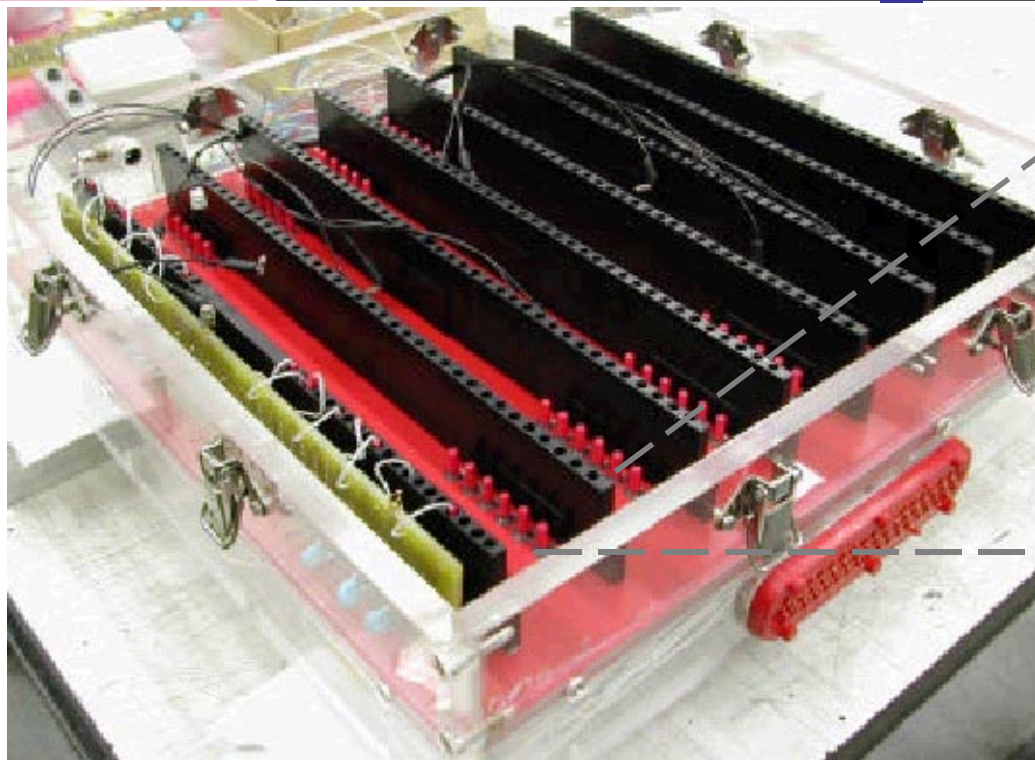
2: delivered batches o.k., but now got a delay (material problem).

3: product and schedule o.k., great! Au instead of Sn on pads (avoid deposit on FR4).

Multivendor was essential!



- All other components (HV resistors, HV capacitors, wires, connectors, shrinking tube, GND-clamp, contact pins, pin protections, glue, ...) available.
- Updated documentation on assembly procedure and on test jig available.

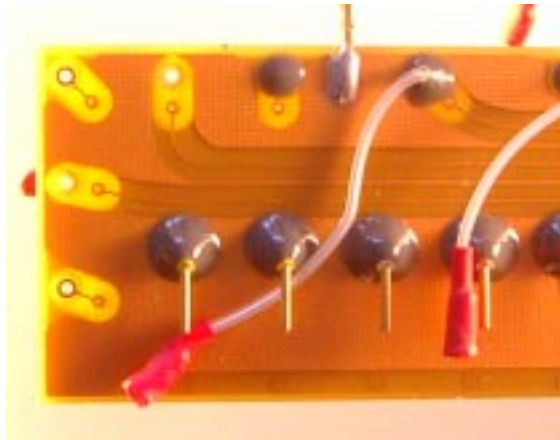


New: the shape of these contacts, to match the HVB pins with pin protection.

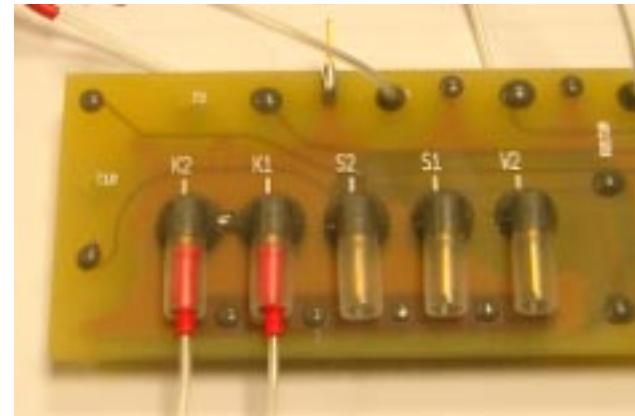
Updated HV test jig for 16 HVB_v5 (one HVB inserted), as prepared at Legnaro.

- One test jig for 16 HVB_v5 available at Legnaro
- Test jigs for a total of 64 HVB_v5 being set up at IHEP, following the design above.
- Updated test jigs are subdivided in **more** HV channels (better diagnostics) and permit to plug HVB_v5 **with** pin protection.

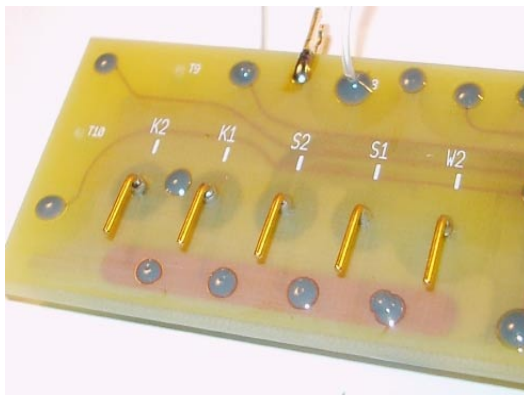
- HVB_v5, **with** pin protection, cannot be plugged directly on former test jigs.
- Decided in July: until availability of pin protections and of updated test jigs, assemble HVB_v5 without pin protection, like former HVB_v1 and HVB_v2:



HVB_v1:
Unprotected
HV pins



HVB_v5:
HV pins have
protection.
Will use
dummy plug
where no
female
plugged



- Tests reported in September have shown that HVB_v5 can stand the nominal test voltage when there is glue everywhere **but** on the contact pins (photo).
- Since pin protections are available (since September), in case the updated test jig is not yet operational, could test the HVBs as shown and glue the pin protection after the test.



- IHEP prepared to assemble ~1200-1400 monthly.
- Present status of shipments to IHEP and delivery of finished HVB_v5, for the PCBs available today:

Quantity	Status	Delivery
130	done (at Aachen) (*)	received
200	done	received
1281	assembling	Dec./Jan.; 400 this week.
1444	awaiting shipment of comp.	Feb./Mar. 2005
1370	packaging to ship comp.	Mar./Apr. 2005
Total Sent / to be Sent to IHEP		4,295
Total Received		330

(*) HVB_v5 complete with pin protections.

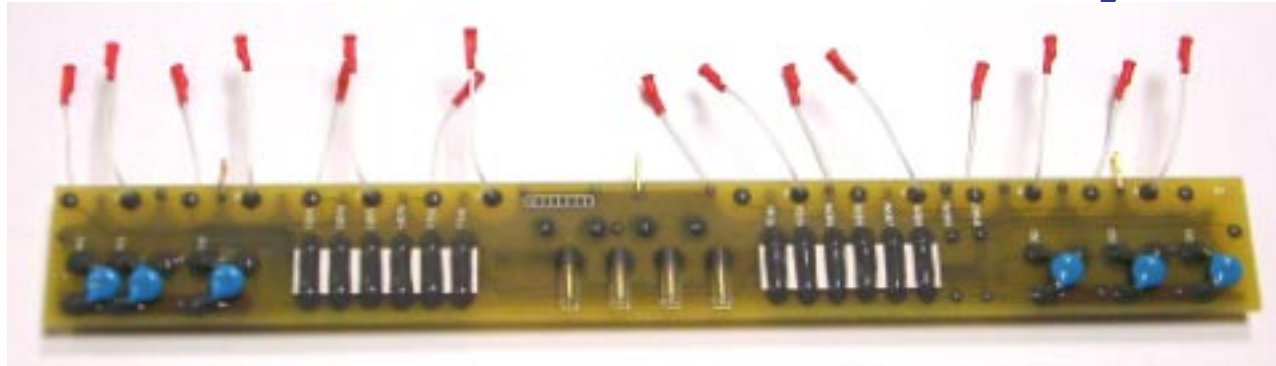


Positive experience:

- Tests done so far showed no problem (see status report September 2004)
- Tests confirmed need of careful drying of the PCBs
- No material-related failure reported so far, on limited statistics of ~700 HVBS

A warning, however:

- Not **all** tests finished at Legnaro (manpower).
- Not a very long time test done yet (100 HVBS assembled for this at Aachen had to be invested for retrofitting chambers for installation).



- ~11,300 PCBs (= all) ordered, now.
- ~4,500 PCBs received.
- Pin protections received in September.
- All other components also available.
- Test jig updated at Legnaro, being updated at IHEP.
- Still assembling **without** pin protection, at IHEP; protection should be included asap.
- HVB_v5 delivered for chamber retrofitting: 130 (Aachen) + 200 (IHEP).
- Next batch of 400 (IHEP) expected these days; 1200-1400/month soon.
- Retrofitting in chambers is critical work (time, **schedule**).
- No failure of materials reported so far - neither from assembly nor from test.
- **Warning:** not all validation tests done yet.