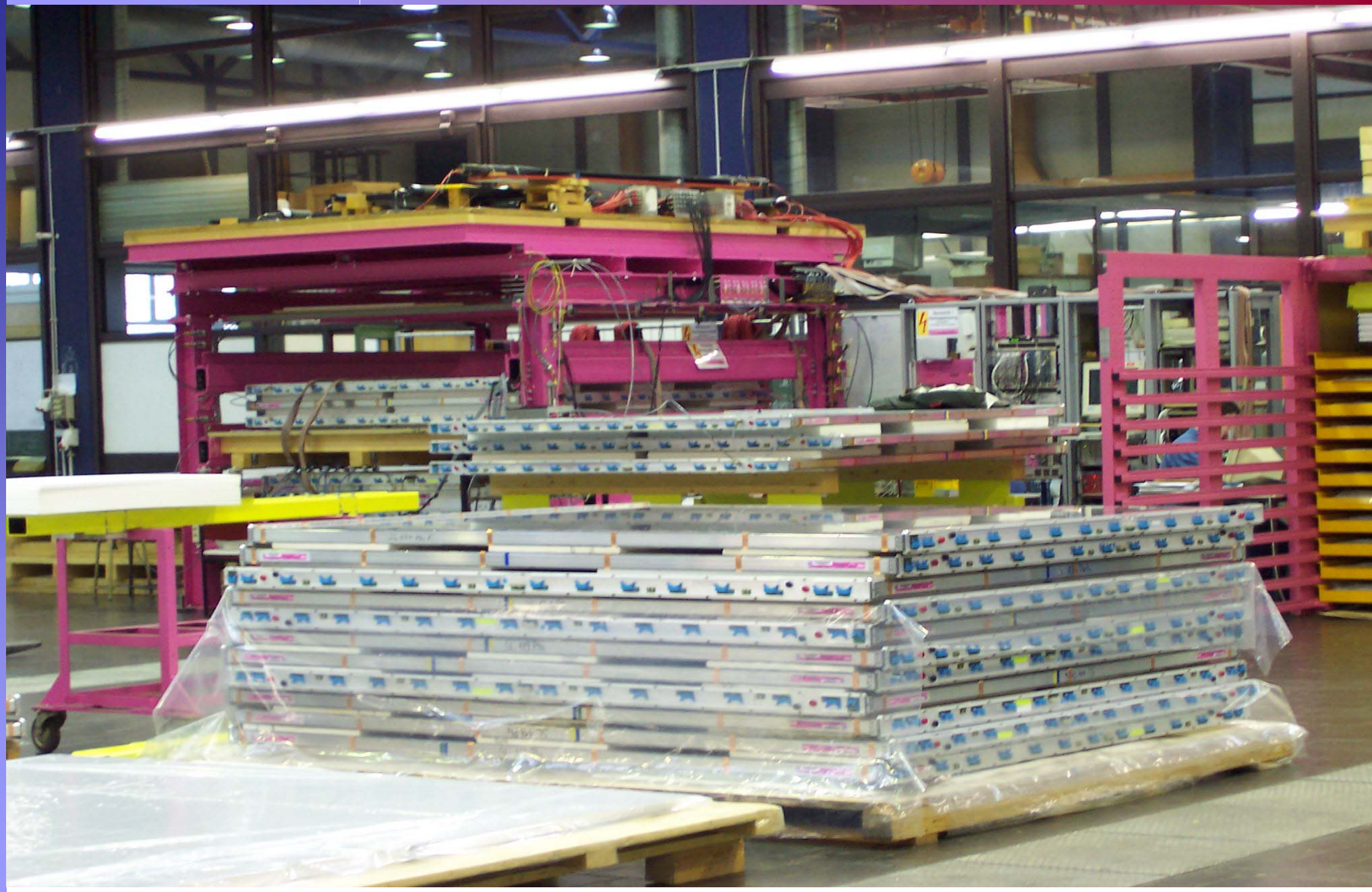
Aachen Production Site



Chamber Production Status @ Aachen

❖ Superlayers:

	End 2003	Status 15.03.04
Mechanics	123 SL	138 SL
Completely tested	113 SL	120 SL
HVB available for		129 SL**

** HVB from ISR chambers should become available mid April `04, waiting for HVB-20 from China

By mid April ~143 SL mechanically finished

Exchange of HVB at ISR for first batch (12 chambers) ~2-3 weeks (w/o tests)

Total delay in SL assembly at Aachen ~1 month

❖ Chambers

	End 2003	Status 15.03.04
Package of 3 SL + HC	38	40
Really glued chambers	36	38

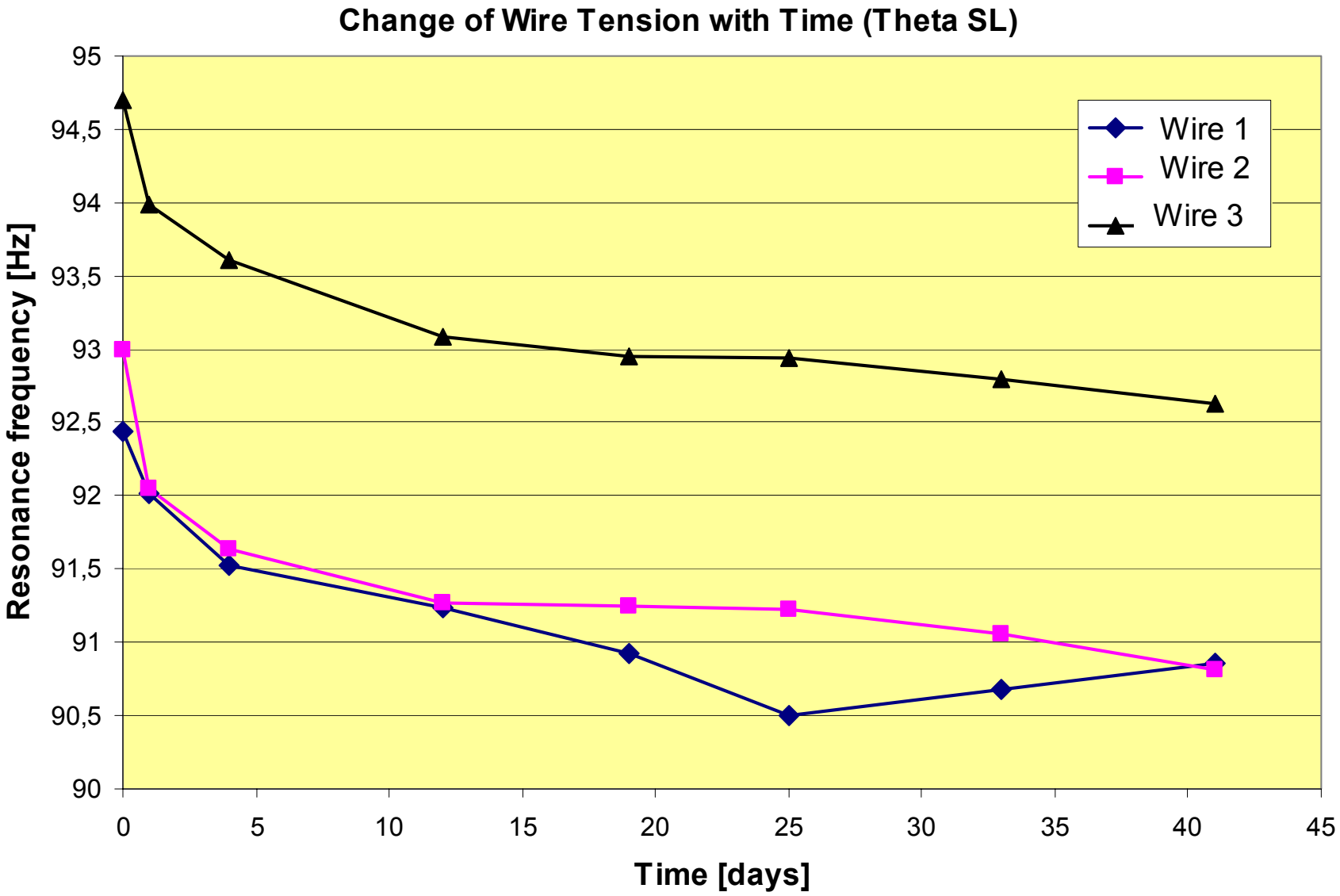
❖ Last 8 chambers to CERN 20.01.04

Material

Item	Needed	Remarks
Cathode contacts	19,000	for additional FE contact
Strip HV contacts	2 x 6,000	with/without pin, entire prod.
Cathode contact with pin	6000	for entire production
Gaspipes	7 theta, 5 phi	for entire production
LV bus bars	500 m	for entire production
Protection plastic	10 m	for entire production
Tapini	next batch 10,000	running prod.
FE-covers	batch in 03/2004	running prod.
HV-covers	7 theta, 5 phi	incl. spare chambers
HV connectors	2x14 + 2x10 + 1	incl. spare chambers
HVB	**0**	**running production**

Please, inform us, if wire, crimp blocks, corner blocks are needed.

Change of Wire Tension



MB1 Chamber Repair at ISR

ISR Repair Action for MB1: 02. - 13. February 2004 with 2 people

Status end 2003: 36 MB1 chambers at ISR, 28 in need of repair,
5 chamber OK, 3 without cosmics yet

Problem types:

1. HV problems, high noise [13 chambers -14 SL]
2. Missing testpulses [6 TP + 5 single cells]
3. Bad cathode contacts [13]
4. Low efficiency cells [2]
5. New dead cells [6]

→ About 50% of reported failures investigated and repaired

Thanks to Mary Cruz and Madrid for allowing us to use their equipment!

HV Problems

In total 13 chambers (14 SL): either drawing current, discharges or „clicking“

Statistics:

- 4 HVB exhanged due to short in HVB
- 4 SL with discharges → HV is OK
- 1 SL after 2 days training OK with stand-alone system (SL063)
- 1 „clicking sound“ after training OK with stand-alone system (SL075)

⇨ 10 SL OK

- 1 cathode drawing current at 1.4 kV in gas (SL081)
- 1 cathode: discharges disappeared after training but re-appeared after 2 days, now sparking (SL113)
- Chamber 038 various problems apparently depending on time and HV system

⇨ 3 SL still to be done

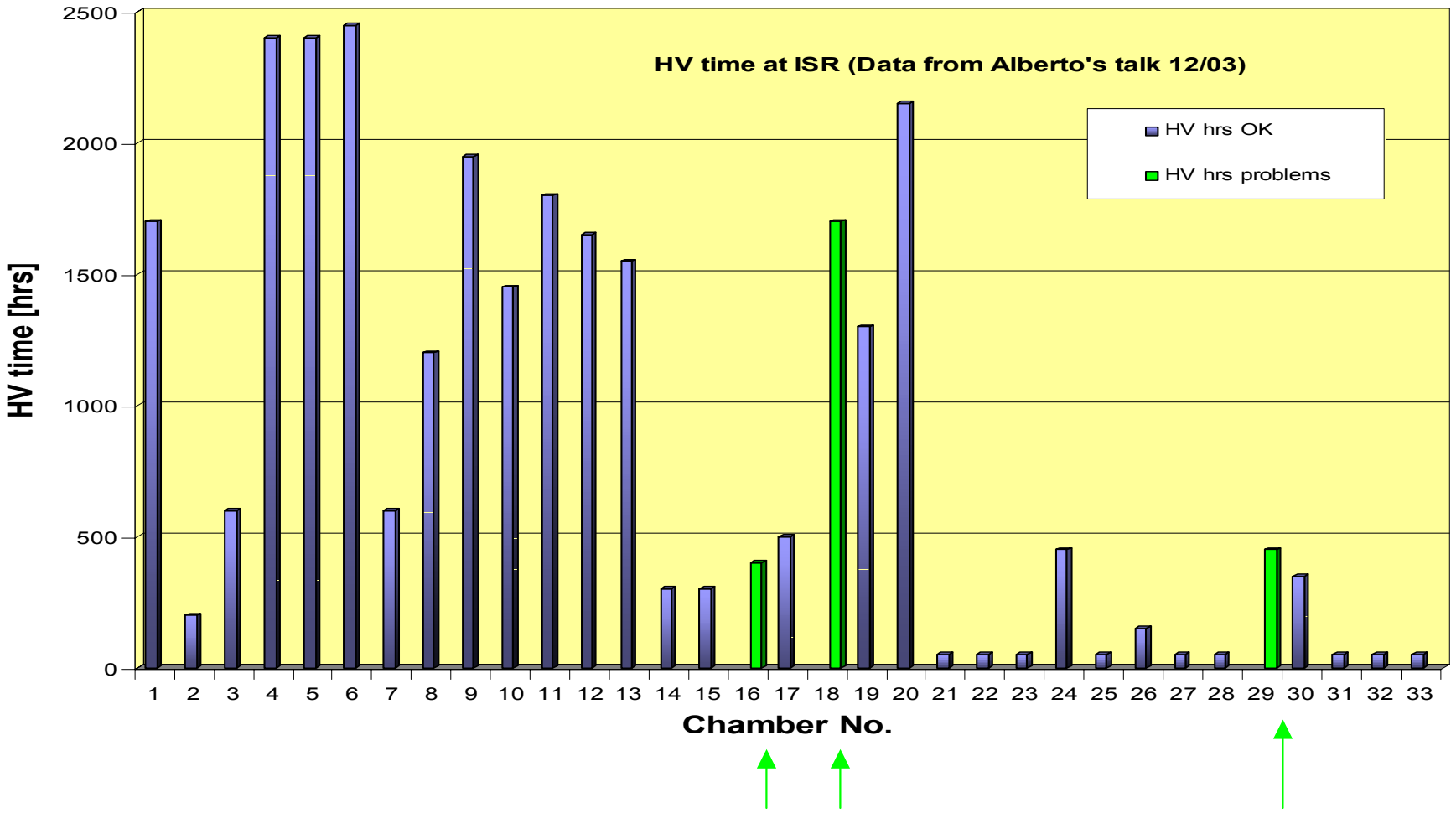
Chamber 017 all HVB-16 exchanged with HVB-I (until 04.03. HV → OK)

HVB Exchange

Observation: high current in HVB (limit), can easily be spotted with both HV systems → in all cases HVB exchange fixed problem

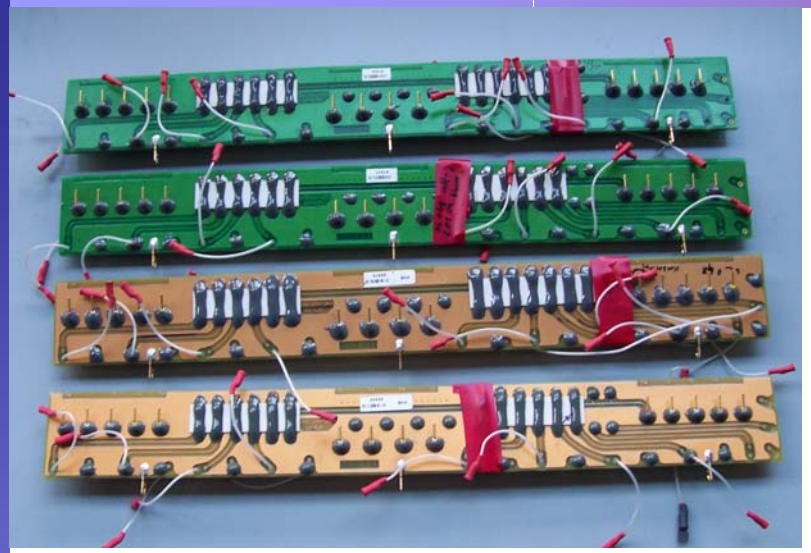
- **Chamber 016 +z, phi 2 = SL048**
  400 hrs ISR-HV + 300 hrs AC-HV = 700 hrs HV as problem occured
  HVB old (green) 01531
- **Chamber 016 +z, phi 1 = SL049**
  400 hrs ISR-HV + 100 hrs AC-HV = 500 hrs HV
  HVB old (yellow, not therm.cycled) 05979
- **Chamber 018 +z, phi 2 = SL055**
  1700 hrs ISR-HV + 280 hrs AC-HV = 1980 hrs HV
  HVB old (green) 01507
- **Chamber 029 F, phi 2 = SL087**
  450 hrs ISR-HV + 60 hrs AC-HC = 500 hrs HV
  HVB old (yellow, not therm.cycled) 06965

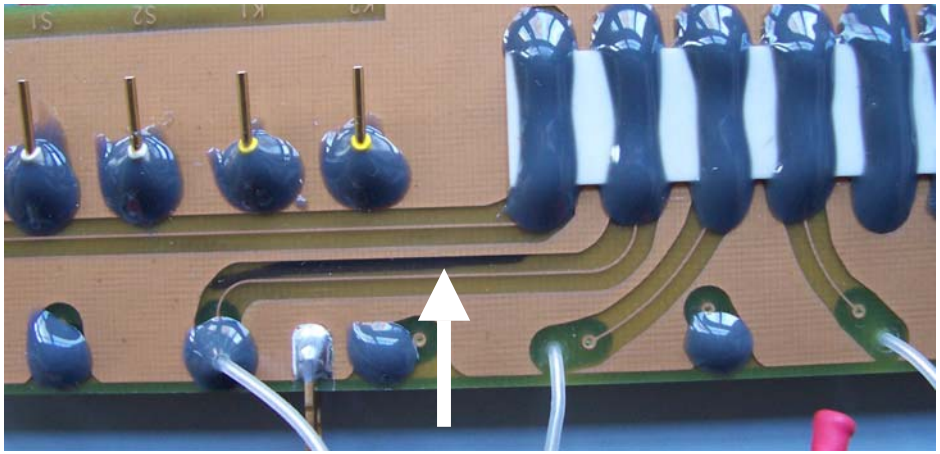
HVB Exchange vs. HV Time

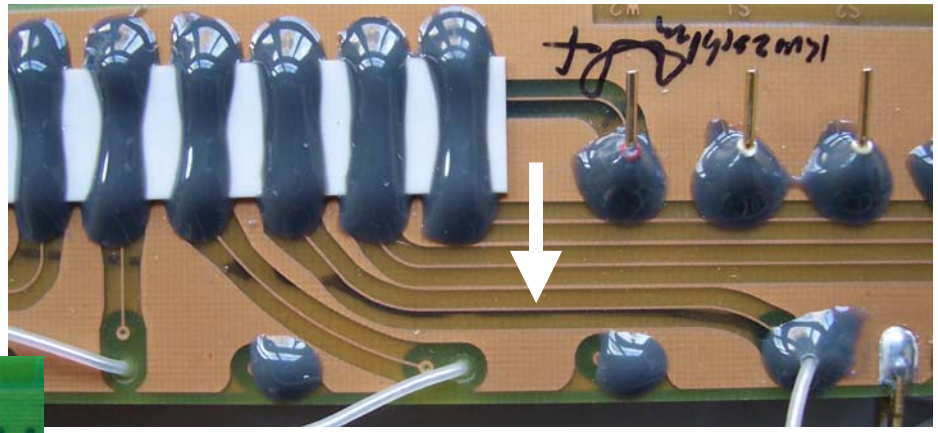


3 chambers (4 SL) where HVB got exchanged

4 Exchanged HVB



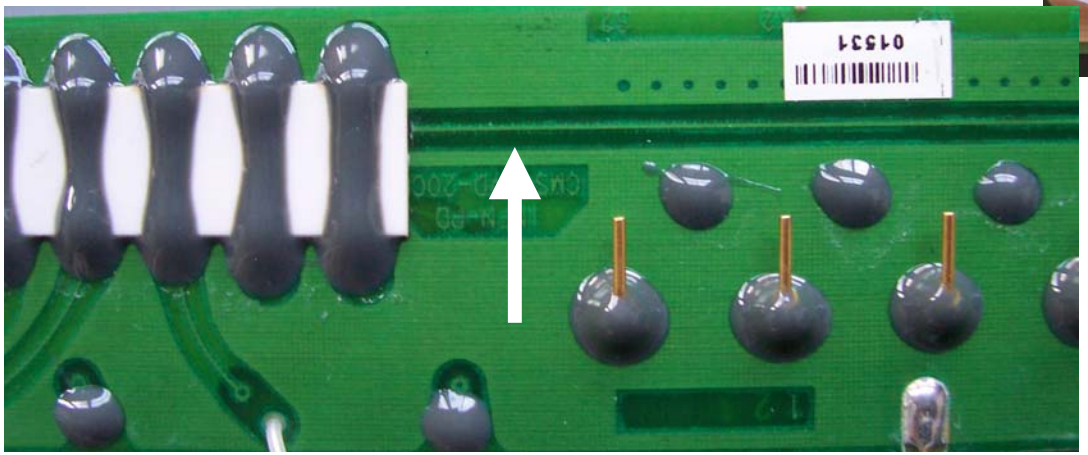




Different locations of same HVB

All 4 HVB draw current I_{max}

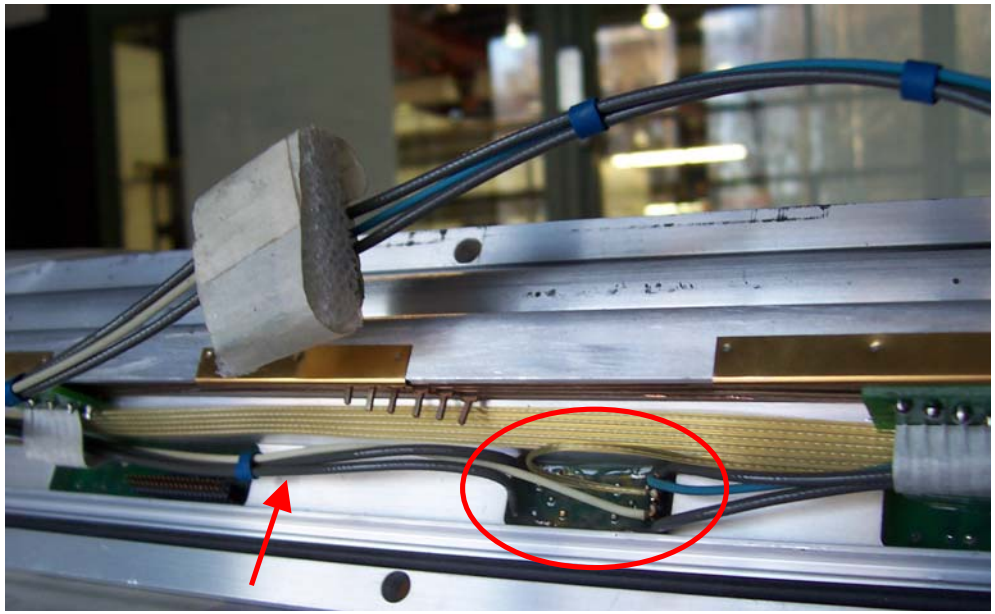
Visual: 1 yellow HVB shows black lines
1 green HVB weave pattern



Failures other than HV....

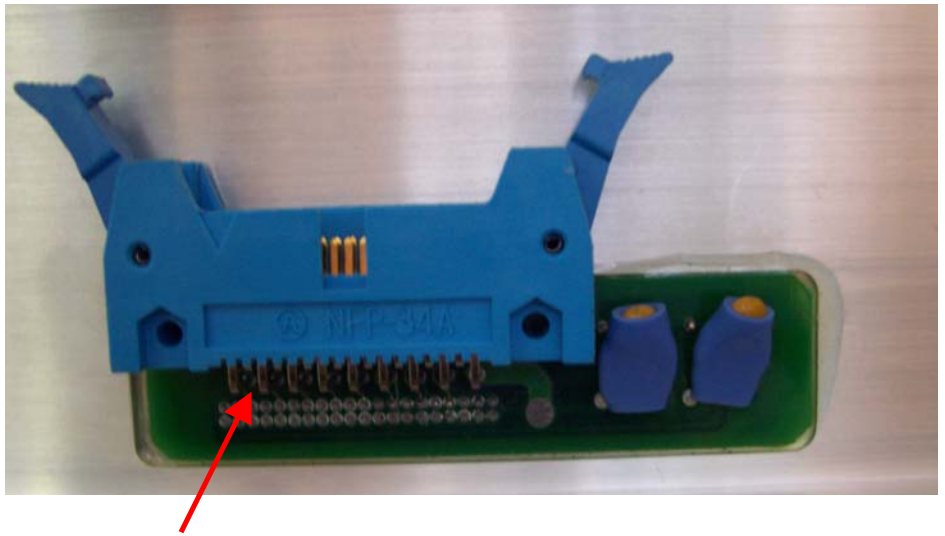
Missing test pulses [6]

- groups → TP feed-through [2]
  TP cable damaged [3]
- 1 groups appears working
- single cells [5] → with scaler and AC LED system functioning



Low efficiency cells [2]

- short in signal feed-through caused wrong signal width W_CRTL
- 1x soldering, 1x exchange
- 2 FEB out of ~1300



What's next

- 10 MB1 + 2 MB4 9/11 needed for 1.installation functioning
- Exchange HVB-16 and HVB-20 (all SL) → mid April

  11 chambers = 2 weeks with 2 people

  HVB needed for production at Aachen
- Test these chambers again after opening

- Remaining problems to be fixed
  - dead cells
  - remaining (and potentially new) HV failures
  - cathode contacts ...

- Exchange remaining HVB

  24 chambers = 3 weeks with 2 people

  Test again after opening

CMS barrel muon workshop April 28-30, 2004

http://www.physik.rwth-aachen.de/~hebbeker/muonweek.html

Time:

April 28 morning - April 30 afternoon
(Wednesday - Friday)

Place:

Physikzentrum = Physics Department,
University Aachen
Huyskensweg 16
D-52074 Aachen

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