

Pixel Commissioning

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Pixel connection and sign-off: Overview

- ✓ **Phase 1 (Feb):** connection and test of the electrical services (LV, HV, NTC/Opto, ENV) -> done
- ✓ **Phase 2:** monitoring of connected cables, connection of fibers and cooling pipes
- ✓ **Phase 3:** cooling commissioning and 'final' pixel sign-off
- ✓ **Phase 4:** ID Endplate is permanently closed and ATLAS may start being closed

- ✓ **Many problems after the cable connection:**
 - ✓ Grounding failure
 - ✓ Optofibers swap and remapping at the BOC
 - ✓ Pipes corrosion
 - ✓ Low power produced by BOC lasers

- ✓ **New schedule even tighter than before**

Fibers wrong mapping

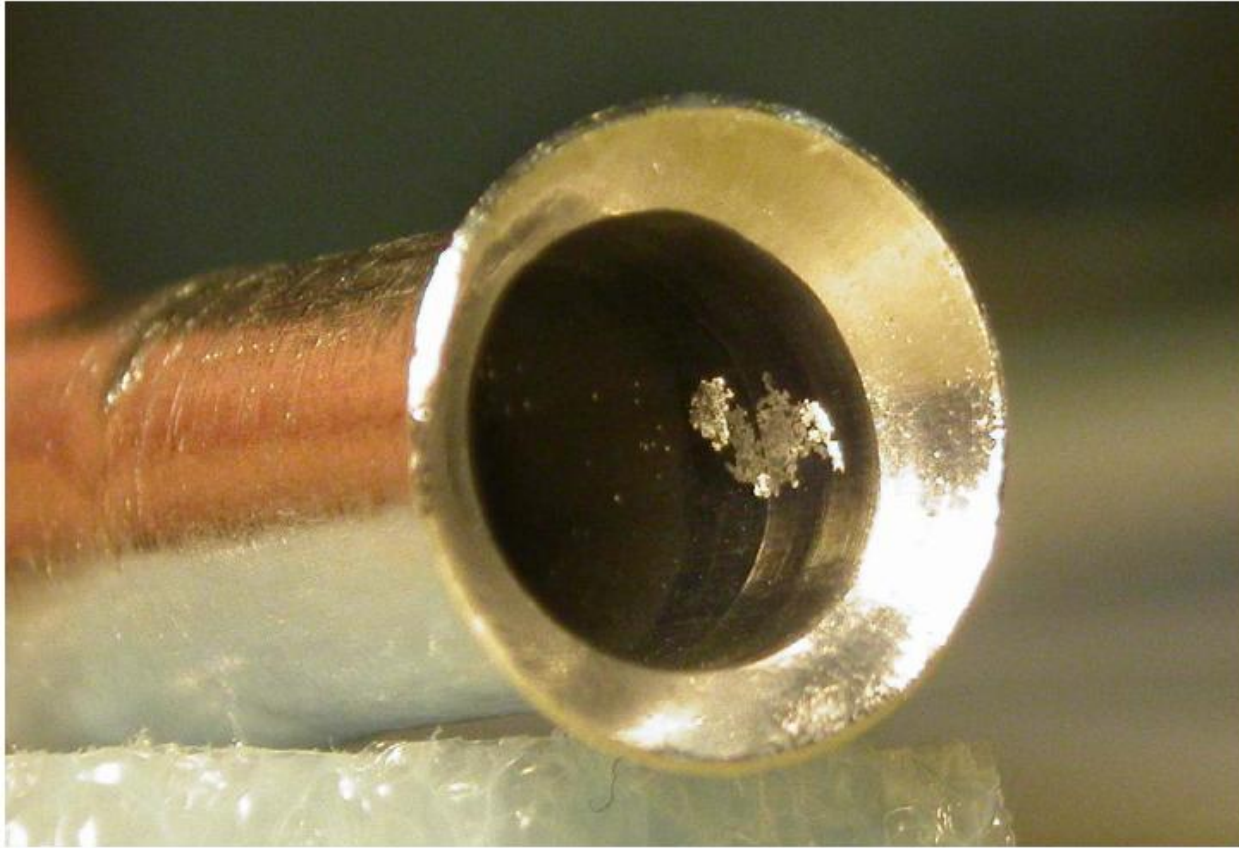


- Wrong mapping of MT16 to 2xMT8 inside the connectivity
- Found during first tests on Monday 17th
- Corrected in 4 days from Wednesday 19th to Saturday 22nd
- Only those Fibres reconnected which had to be moved, some via database (eg. L0 data)



PP1a-b corrosion

- Clear signs of corrosion seen in outlet pipes. Rough estimate of rate is about 20%, but this is based on incomplete visual inspection. The real rate could be higher.



We have discovered corrosion in this short pipes that connect the detector to the cooling system.

They affect (hopefully) only the outlets (investigation on the inlets is still on-going but preliminary results are positive).

A new production of pipes has been done and they will be bent at CERN starting today.

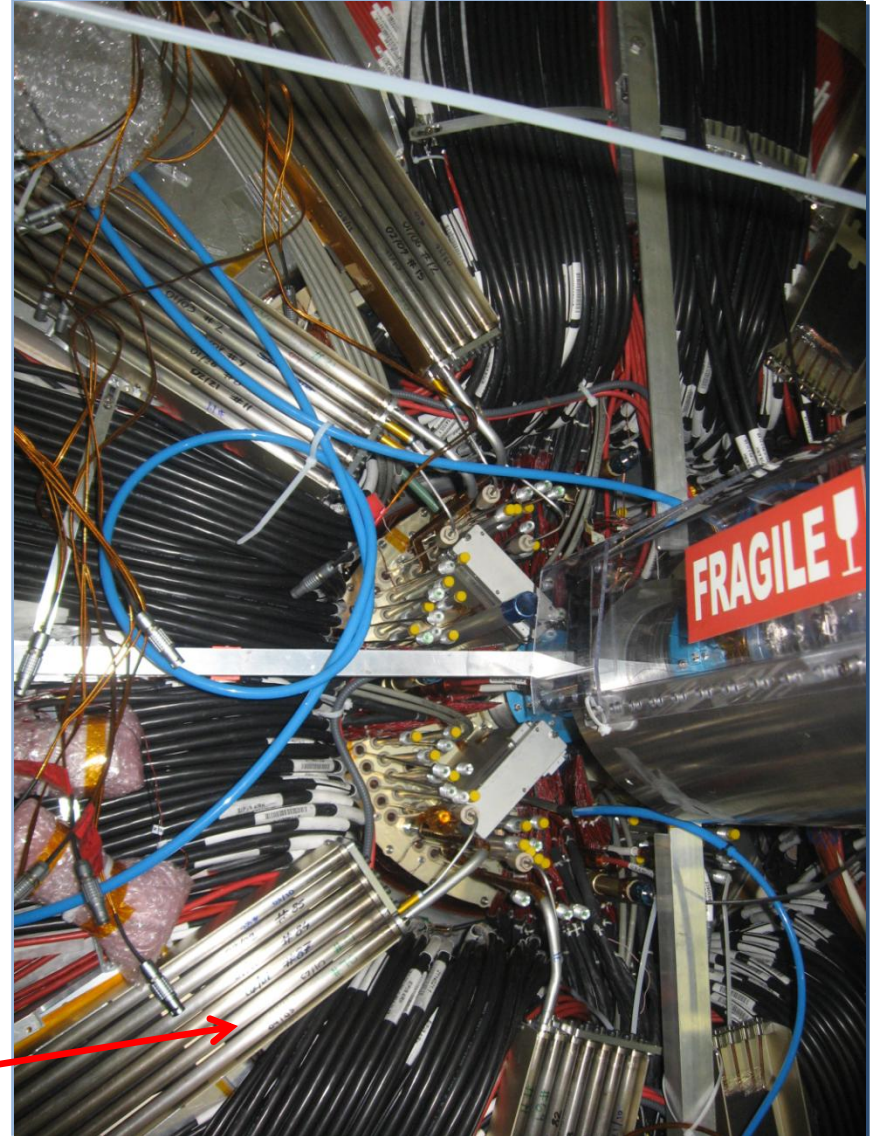
Phase 2: connection status

C side US: trays heaters installed

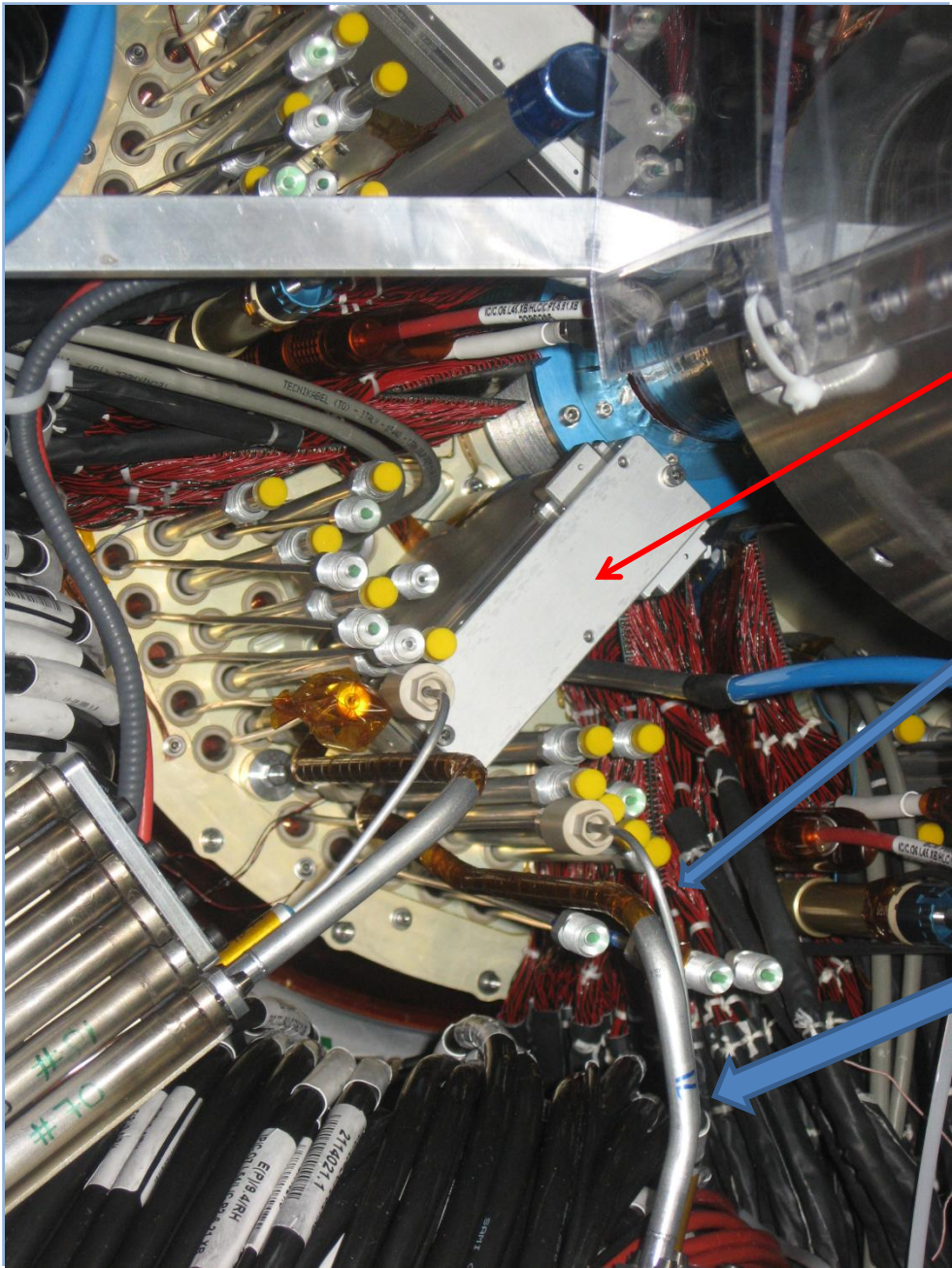
8 cooling circuits connected to the detector.

Cooling outer services are installed but not connected to the detector.

Fiber installation is on-going and we plan to finish during the weekend.



Heaters trays



Zoom in of the pp1 connection location for fibers and cooling pipes.

Faceplate hides a 10x4 matrix where 40 fiber ribbons has to be connected

Inlet pipe

Exhaust pipe

Pixel connection and sign-off: Overview

- ✓ **Phase 1 (Feb):** connection and test of the electrical services (LV, HV, NTC/Opto, ENV) -> **done**
- ✓ **Phase 2:** monitoring of connected cables, connection of fibers and cooling pipes
 - ✓ Connection of fibers restarted yesterday-> will end during the weekend
 - ✓ Pipes installation will restart tomorrow/Saturday. Leak down and pressure test (36 hours test per loop, loops in parallel)
 - > **END DATE is 18 April!**
- ✓ **Phase 3:** cooling commissioning and 'final' pixel sign-off
 - ✓ Cool down of one circuit at a time: stable cold operation, then use modules as heat load (Power 1W/module then 4W/module up to 26 modules/loop)
 - ✓ Run some scans; Threshold scan, noise occupancy, high power configuration
 - ✓ Repeat for 88 loops
 - ✓ Run on groups of loops at the same time
 - ✓ Cool down the b-layer while beam pipe test (heaters to 50C)
- ✓ **Phase 4:** ID Endplate is permanently closed and ATLAS may start being closed -> **~30 April**