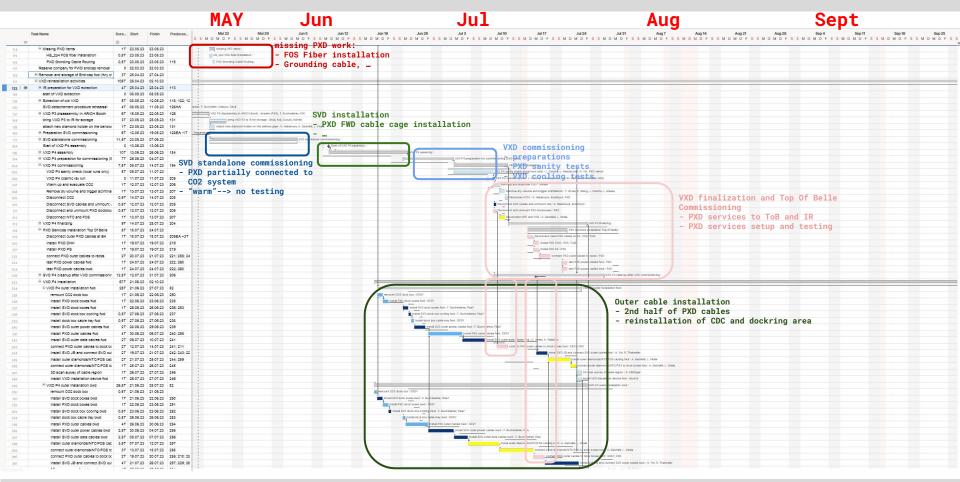
VXD Commissioning Outlook

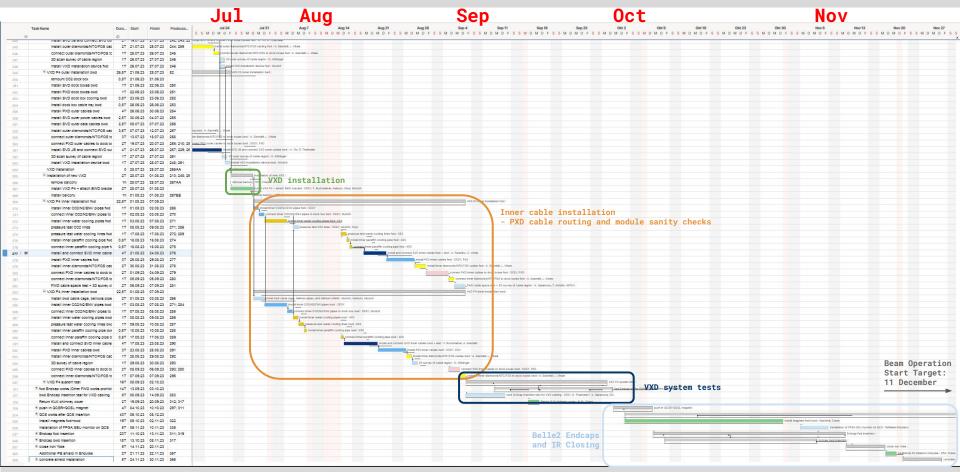
22.05.2023



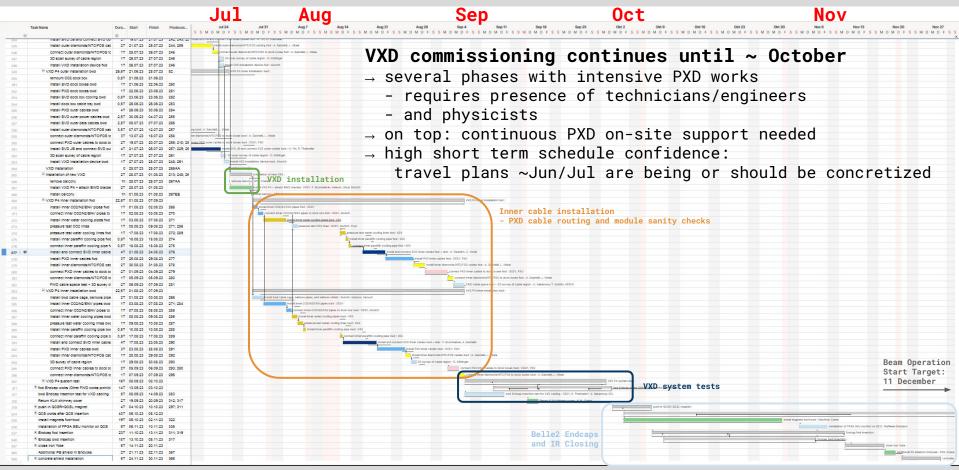
VXD Reinstallation Schedule



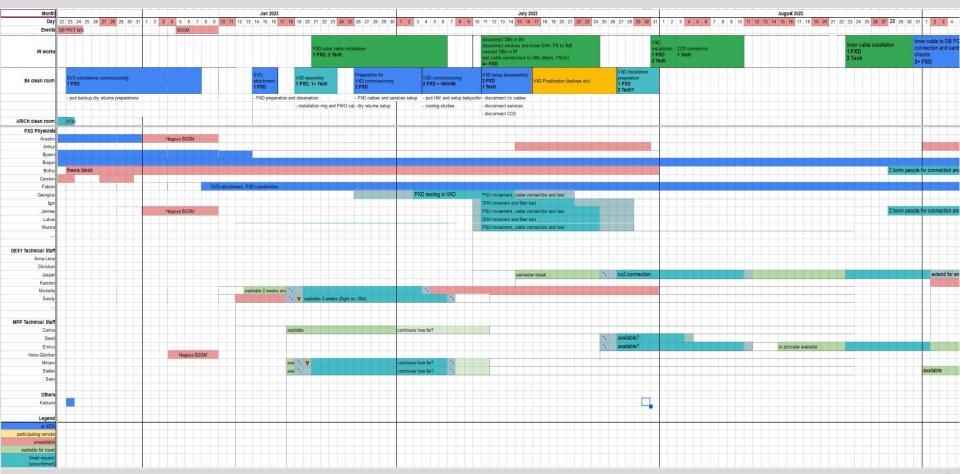
VXD Reinstallation Schedule



VXD Reinstallation Schedule



Person Power Needs (First Estimate, WIP)

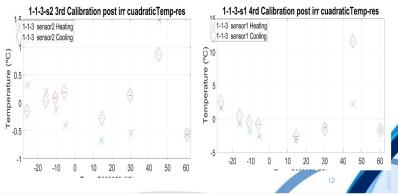


PXD 2 FOS Fibers

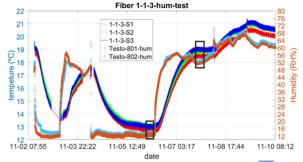
- \bullet 5 new FOS fibers have been prepared by IFCA for PXD2
 - o for (only) temperature measurements at 3x4 in z x rphi positions (4 fibers)
 - \circ not installed on PXD half shells for transport but brought to KEK separately
 - \circ exhibit some non-understood calibration instabilities
 - \circ exhibit some not fully understood dependence on relative air humidity
- Fiber choice and installation
 - \circ needed to install fibers on bottom HS_1p4 before BP rotation
 - \circ chose (good) 5th PXD1 backup fiber and "best" of the new fibers
 - for to HS_2p4 plan to reuse PXD1 fibers (after discussion with ICFA experts and SVD)
 - \rightarrow already take off from PXD1
 - $\ensuremath{\scriptstyle\rightarrow}$ opportunity to install next week



Fibers calibration: Bad calibration curves



Humidity sensitivity after temperatura compensation



🕑 IF(A

if(A)

PXD Grounding: Details By Anselm



- PXD2 grounding cable connected to SCBs at grounding ring
- sandwiched between L1 and L2 Kaptons
- last minute ad-hoc "solution"
- no cable routing past brass mount block foreseen
- \checkmark \rightarrow tightest space to SVD wirebonds

PXD2 Proposal

- solder to copper clamp
- flat cable fit through Kapton fixation
- fix on inside of heavy metal

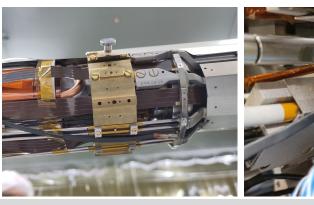






PXD1 Setup





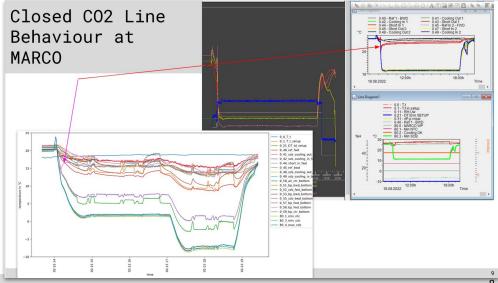
SVD Standalone Commissioning

- Plan to keep PXD CO2 lines connected but close inlets at manifold.
- Tested at DESY: closed lines are not being cooled down
- Remains to be closely observed at KEK, in particular during cooldown
- Backup dry volume to be set up, N2 flow only
- PXD interlock to be used as backup?
- Shifting:

 \rightarrow should have person "present" during cooldown \rightarrow on-call shifter suffices otherwise imo

- Schedule:
 - $_{\rightarrow}$ start and duration of cooling run???
 - \rightarrow not before end of week





VXD Commissioning

Requires again mechanical PXD support and PXD operation

- SVD installation
 - \circ PXD safety observer and assistance
 - Some clearance issues still: grounding cable, PXD screws
 - \circ Installation of installation ring and FWD cable cage

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0 ...
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- VXD Testing
 - \circ PXD cables and services connection
 - \circ Dry volume setup
 - \circ PXD observation and sanity checks $_{\rightarrow}$ remote support needed also
 - \circ Cooling study (CO2 -20 vs -25 C) \circ ...
- Preparation for commissioning • PXD cable packing
 - ο ...





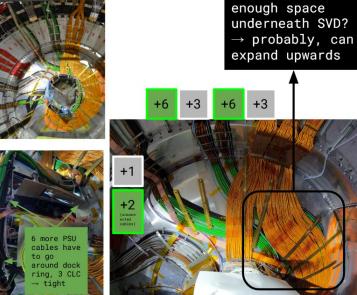
Outer Cables Installation

- Start in parallel to VXD commissioning in B4 as soon as CDC work completed
- PXD1 cables removed from CDC wall last year
- amount of cables roughly doubled
 - \rightarrow some tight spaces at dockring, cable trays, edges, ...
- some cabling <u>details</u> (WIP)

FWD Dock Area and Outer CDC Wall

- Power cables` jackets removed
- at some DBs space for going out cables might be a bit tight





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Services Installation and Test on Top of Belle

PXD Services Preparations: Power Supply System

- last week: pushed service teams (power supply, DHH, env monitoring, ...) to get things working minimally for mechanical HS_2p4 tests
- → approach safe and fast but incomplete
- this week: make everything perfect and prepare and test full PXD services system



- All cabling done + cleaned up (Confluence B4 Rack Configuration Equipped all dockboxes
- OVP tests for all PSs completed
- PSs full-power tests still 48/50 completed (probably 50/50 by meeting)
- some debugging (individual weird DB PCB, PSUs, or cables ...) still ongoing



DHH rack

- PXD services need to be disconnected from B4, moved and installed in IR and
 - Top Of Belle \rightarrow DHH rack expansion needed
- Tight integration w/ outer cable installation for cable testing

DHH Rack

- 40 CLC routed to DHH rack

- All dockbox fibers routed to DHH rack

- Cleaned up all DHH rack Connections

- Fiber to optical switch tests completed

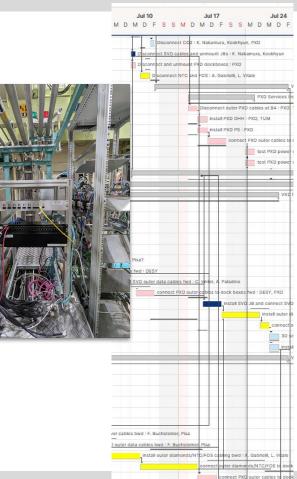
- optical switch to DHH tests pending (need modules)

- Debugging ongoing (config, single cards not fully behaving yet)



• 40 +spares \rightarrow not all modified





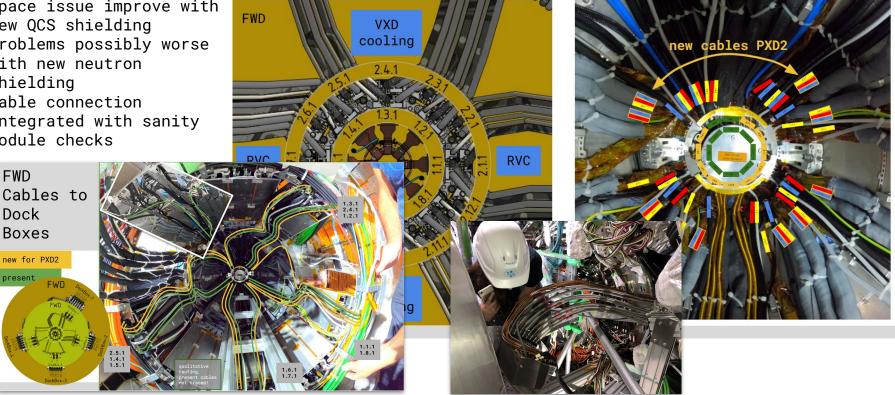
VXD Installation



Inner Cable Installation and Connection

- Inner cables double \rightarrow already 2018 cable laying quite challenging
- Space issue improve with new QCS shielding
- Problems possibly worse with new neutron shielding
- Cable connection integrated with sanity module checks

FWD Situation @ PP Connectors/Inner Cable Cages



VXD Sanity Tests in Belle 2

| | Task Name | Dura | . Start | Finish | Predeces | Aug 28 | Sep 4 | Sep 11 | Sep 18 | Sep 25 | | kt 2 | | Okt |
|---------|--|------|----------|----------|-----------|---------------------------|----------------------------|-------------------------------|-----------------------------------|------------------------------------|-------------------|----------------|----------------------------|----------|
| | | | | | | S S M D M D F S S N | 1 D M D F <mark>S</mark> S | MDMDFSS | MDMDFS | SMDMDFSS | MDM | DFS | SMD | MD |
| 293 | install inner diamonds/NTC/FOS cables t | 1T | 28.08.23 | 29.08.23 | 292 | install inner diamonds/NT | C/FOS cables bwd : A. Gabr | rielli, L. Vitale | | | | | | |
| 294 | 3D survey of cable region | 1T | 29.08.23 | 30.08.23 | 293 | 3D survey of cable re | gion : D. Kittlinger | | | | | | | |
| 295 | connect PXD inner cables to dock boxes | 2T | 05.09.23 | 06.09.23 | 293; 280 | | connect PXD in | ner cables to dock boxes bwd | i : DESY, PXD | | | | | |
| 296 | connect inner diamonds/NTC/FOS to doc | 1T | 07.09.23 | 07.09.23 | 295 | | connect inn | ner diamonds/NTC/FOS to doc | ck boxes bwd : A. Gabrielli, L. V | Vitale | | | | |
| 297 | VXD P4 system test | 16T | 08.09.23 | 02.10.23 | | | | | | | VXD P4 s | system test : | | |
| 298 | close warm dry volume | 0,2T | 08.09.23 | 08.09.23 | 282; 296 | | close warn | m dry volume : DESY | | | | | | |
| 299 | start flushing dry volume | 0,2T | 08.09.23 | 08.09.23 | 298 | | start flush | hing dry volume : K. Nakamura | , DESY | | | | | |
| 300 | dry out the volume (+ possible necessary | 2,4T | 08.09.23 | 12.09.23 | 299 | | + | dry out the volume | (+ possible necessary improve | ement of tightness) : Katsuro Na | ka | | | |
| 301 | cool down VXD P4 | 0,2T | 12.09.23 | 12.09.23 | 300 | | | cool down VXD P4 | : Munich, Cryo | | | | | |
| 302 : 🗭 | VXD P4 system test | 5T | 13.09.23 | 20.09.23 | 301 | | | 1 | VXD P4 syste | m test : PXD, H. Yin, L. Corona, H | Kookhyun, J.S. P | elle (remote), | remote : | |
| 303 | VXD P4 cosmic ray run | 5T | 21.09.23 | 27.09.23 | 302 | | | | + | VXD P4 cosmic | ray run : PXD, L | Corona, Koc | okhyun, ren | mote shi |
| 304 | check+improve the thermal isolation of C | 5T | 21.09.23 | 27.09.23 | 314AA | | | | | check+improve | the thermal iso | lation of CO2 | lin <mark>e : M</mark> uni | ich |
| 305 | temporally stop IBBelle for dry-volume tig | 1T | 26.09.23 | 26.09.23 | 304AA +3T | | | | | temporally stop IBB | elle for dry-volu | me tightnems | ss check : | |
| 306 | check+improve the dry-volume tightness | 1T | 26.09.23 | 26.09.23 | 305AA | | | | | check+improve the | dry-volume tigh | itness of CO2 | lin <mark>e : M</mark> un | lich |
| 307 | warm up VXD P4 | 0,8T | 02.10.23 | 02.10.23 | 303; 315 | | | | | | warm up \ | VXD P4 : | | |
| 308 | check the dry-volume tightness of CO2 lir | 1T | 02.10.23 | 02.10.23 | 307AA | | | | | | check the | e dry-volume | tig <mark>htne</mark> ss r | of CO2 I |
| 309 | stop flushing dry volume | 0,1T | 02.10.23 | 02.10.23 | 307 | | | | | | stop flust | hing dry volun | ne : | |
| 310 | open warm dry volume | 0,1T | 02.10.23 | 02.10.23 | 309 | | | | | | open wa | rm dry volume | e : | |
| 311 | | 14T | 13.09.23 | 03.10.23 | | | | | | | fwd | Endcap works | s (Other FV | ND work |
| 317 | bwd Endcap insertion test for VXD cabling | 5T | 08.09.23 | 14.09.23 | 283 | | + | bwd Endca | ap insertion test for VXD cabli | ng : DESY, R. Thalmeier?, K. Nak | amura, ECL | | | |

• No detailed plans yet.

- \rightarrow should invest time to understand switcher problems in 1041/1042
- $_{\rightarrow}$ and glitch pedestals in 2122 and 2042
- \rightarrow enough time?
- First cosmics data expected.
- Person power (on site, remote) availability and requirements...