


Readiness for first beam

Vacuum System


[EDMS 896391](#)

Vacuum Sector Valves & Interlocks

	Valve opening	Vacuum BIS Interlock
IP1	22/03/2023	
IP2	16 & 22/03/2023	
IP3	15/03/2023	
IP4	14/03/2023	
IP5	15/03/2023	
IP6	14/03/2023	
IP7	15/03/2023	
IP8	16 & 22/03/2023	


- Major changes during YETS
 - New radhard local cable and solenoid of all sector valves
 - New ion pump controllers in P6 (UA63/67)
 - Provide interlocks to the sector valves
 - 0-10V to 4-20mA Penning analog signals to MKB system
 - BGC in LSS4

Machine checkout

	Status
MPP/VAC - MC1 - User permit	
MPP/VAC - MC2 - Pressure source	
MPP/VAC - MC3 - Pressure interlock	
MPP/VAC - MC4 - User permit transition	
MPP/VAC - MC5 - Interlock propagation	
MPP/VAC - MC6 - Delay (interlock - beam dump)	
MPP/VAC - MC7 - Delay (not open - beam dump)	
MPP/VAC - MC8 - Delay (not open - closed status)	


		Action	Group(s) Responsible
1	S	Open all the sector valves of the affected BIC and check the transition of the Vacuum USER_PERMIT from FALSE to TRUE	BE/OP TE/VSC
2	S	Check the pressure source by switching OFF, one by one, each of the devices interlocking a sector valve	BE/OP TE/VSC
3	S	Check the pressure interlock of a sector valve by switching off N-1 devices interlocking this sector valve	BE/OP TE/VSC
4	S	Check the transition of the vacuum USER_PERMIT from TRUE to FALSE	BE/OP TE/VSC
5	S	Check the interlock propagation to the adjacent sector valves	BE/OP TE/VSC
6	S	Measure the delay between the detection of a pressure interlock and the beam dump request	BE/OP TE/VSC
7	S	Measure the delay between the status NOT OPEN of the sector valve and the beam dump request	BE/OP TE/VSC
8	S	Measure the delay between the status NOT OPEN and the status CLOSED of the sector valve	BE/OP TE/VSC

Machine checkout

 i	Status
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- LSS6 CTD62:
 - no pressure interlock for VVGSV.623420.R when VPIC.623528.R OFF
 - Wrong cable connection
- LSS7 R:
 - Bad pressure interlock logic for VVGRT.232.7R7.B and VVGRT.232.7R7.R from Q12/Q13 Penning gauges
 - Wrong by-pass plugs connected to the interlock crates
- LSS8 R:
 - BIS b2 not OK when all sector valves open
 - VR_BIC to CIBU inconsistent Vacuum user permit A+B (only b1 works, b2 frozen) => CIBU was in test mode

BIS link

	Status
MPP/VAC - BIS1 - User permit to BIC	
MPP/VAC - BIS2 - Beam info flag	
MPP/VAC - BIS3 - User permit	
MPP/VAC - BIS4 - Logging	

	Rep.	Action	Group(s) Responsible
1	S	Confirmation that the vacuum USER_PERMIT is correctly sent from the vacuum system to the BIC	TE/VSC TE/MPE
2	S	Confirmation that a change of the BEAM_INFO flag is correctly received by the vacuum system from the BIS	TE/VSC TE/MPE
3	S	Confirmation that when the vacuum USER_PERMIT is TRUE and the BEAM_INFO flag is TRUE, the vacuum USER_PERMIT can be set to FALSE and therefore the BEAM_INFO change from TRUE to FALSE.	TE/VSC
4	S	Confirmation of the reporting and logging of interlocks due to the vacuum system.	TE/VSC TE/MPE


RF link

	Status
MPP/VAC - RF1 - Pressure	
MPP/VAC - RF2 - Front ends	
MPP/VAC - RF3 - Signals	24/03/2023
MPP/VAC - RF4 - Logging	24/03/2023

} w/ D. Landre

	Rep.	Action	Group(s) Responsible
1	S	Confirmation of the pressure monitoring by the vacuum gauges	TE/VSC
2	S	Confirmation of the digital and analogue front end state reporting of the vacuum gauge controllers	TE/VSC
3	S	Confirmation of the reception of the vacuum signals by the RF system	TE/VSC BE/RF
4	S	Confirmation of the monitoring and logging of display digital and analogue signals	TE/VSC BE/RF


MKI link

	Status
MPP/VAC - MKI1 - Pressure	
MPP/VAC - MKI2 - Front ends	
MPP/VAC - MKI3 - Signals	21/03/2023
MPP/VAC - MKI4 - Logging	21/03/2023

} w/ M. Barnes

	Rep.	Action	Group(s) Responsible
1	S	Confirmation of the pressure monitoring by the vacuum gauges	TE/VSC
2	S	Confirmation of the digital and analogue front end state reporting of the vacuum gauge controllers	TE/VSC
3	S	Confirmation of the reception of the vacuum signals by the MKI system	TE/VSC TE/ABT
5	S	Confirmation of the monitoring and logging of display digital and analogue signals	TE/VSC TE/ABT

MKB link

	Status
MPP/VAC - MKB1 - Pressure	
MPP/VAC - MKB2 - Front ends	
MPP/VAC - MKB3 - Signals	28/02/2023
MPP/VAC - MKB4 - Logging	28/02/2023

w/ V. Senaj
N. Magnin

	Rep.	Action	Group(s) Responsible
1	S	Confirmation of the pressure monitoring by the vacuum gauges	TE/VSC
2	S	Confirmation of the digital and analogue front end state reporting of the vacuum gauge controllers	TE/VSC
3	S	Confirmation of the reception of the vacuum signals by the MKB system	TE/VSC TE/ABT
4	S	Confirmation of the monitoring and logging of display digital and analogue signals	TE/VSC TE/ABT

Thank you for your attention