



MAINTENANCE TRACKING TOOL
PETTRACE800

Date:2024-03-04

Country: Italy	Site: VEN
Intervention:	Programmed maintenance: UBM/CBM <input checked="" type="checkbox"/>
Subsystems:	

PRE-MAINTENANCE

Registration Date: 2024-03-04

Gas flow(sccm):

TPG Settings Verifications

	Low limit (x10-)	High limit (x10-)
Piranni 1 (TPG300 A1):	-	
Piranni 2 (TPG300 A2):	-	-
Penning:	-	-

Notes

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Gauge number	Pressure (x10-) without gas	Pressure (x10-) with gas
A1 (mbar):	-	-
A2 Under Range:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A2:	-	-
B1 (mbar):	-	-

System software

Subsystem	Version
Master:	
ACS:	
Service System:	
Manager:	
Informix (only applicable to SUN-Master Station):	

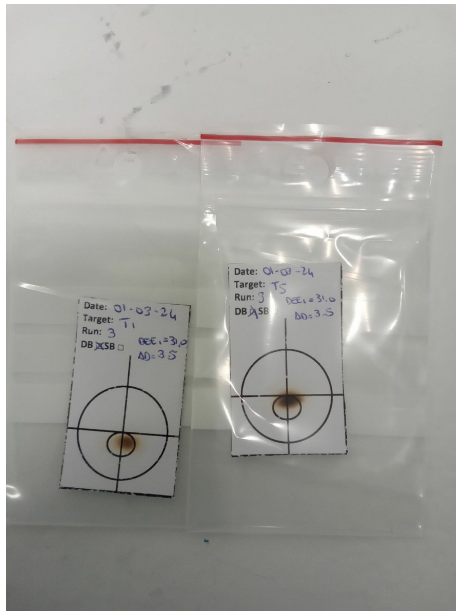
Comments

Paper burn done on friday

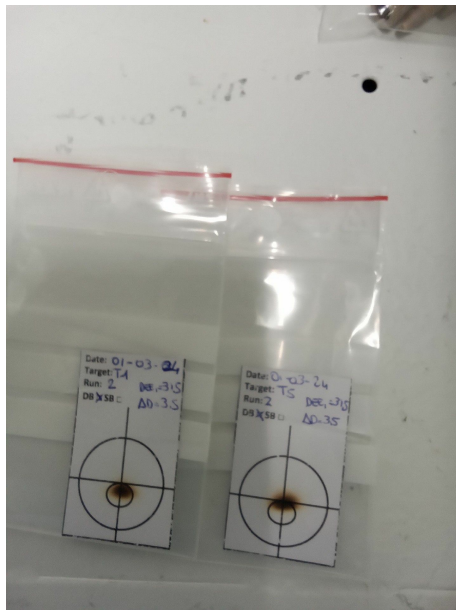
Paper Burn Before PM



Paper burn



Pburn



Diffusion pump & HVV timing

TimeInto	HeatingTime	PumpingTimeBeforeOpenHVV (Min)	TimeToOpenHVV
Pump		13.0	

RP & DP pump oil condition

Date last rotary oil change: 2024-03-04

Roughing pump oil mist filter cleaned	Roughing pump oil is in good color and condition
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Last DP maintenance: 2021-03-04

DP oil is in good color and condition	
	<input checked="" type="checkbox"/>

RP Photo



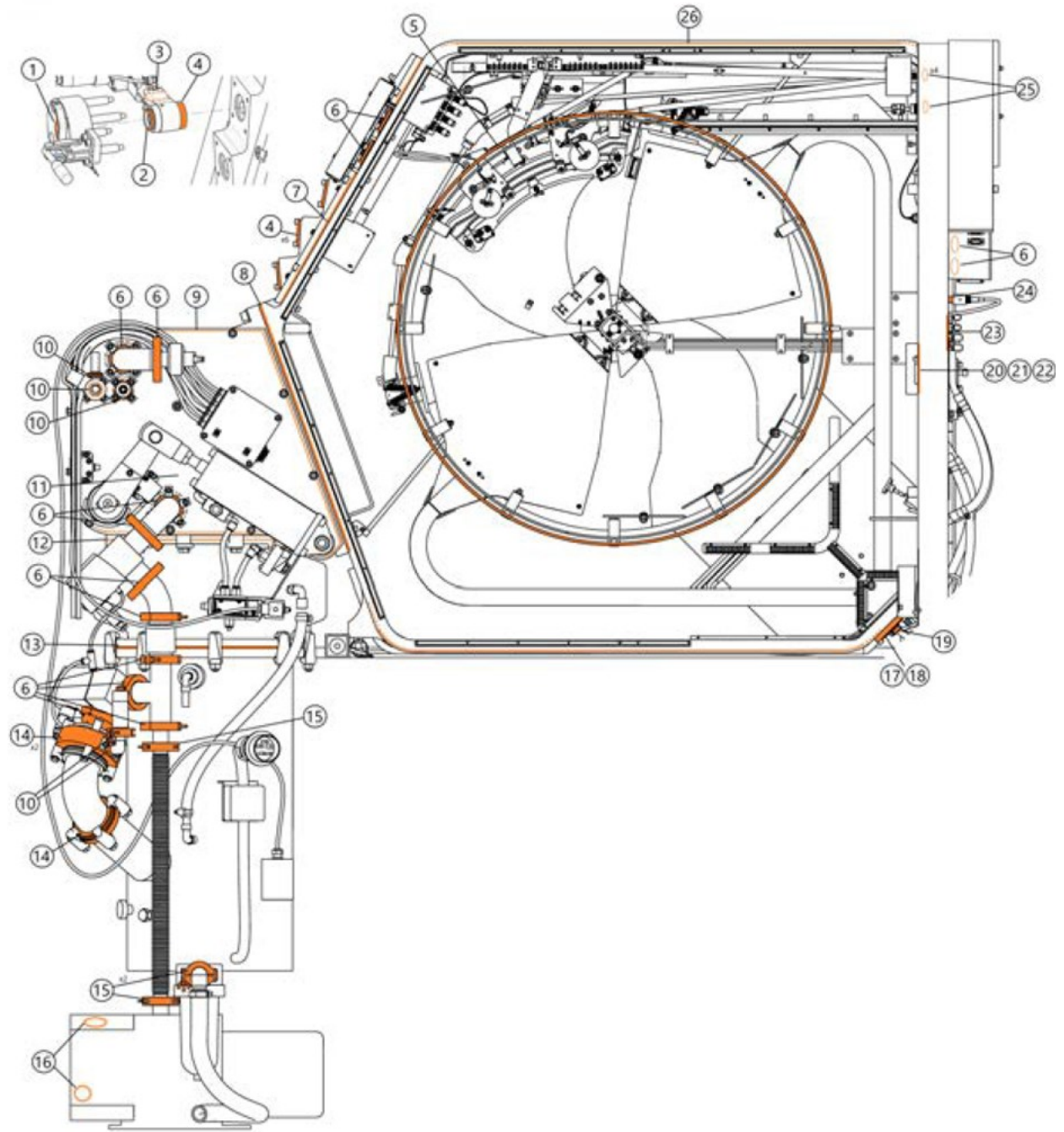
DP Photos

[Photo DP](#)

Notes

PETtrace800 O-Rings analysis

Pins

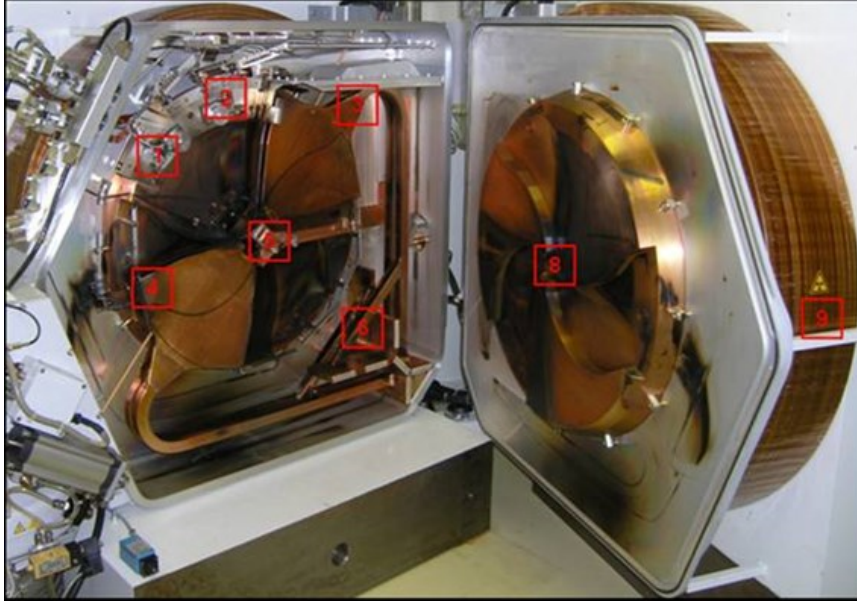


CHAMBER

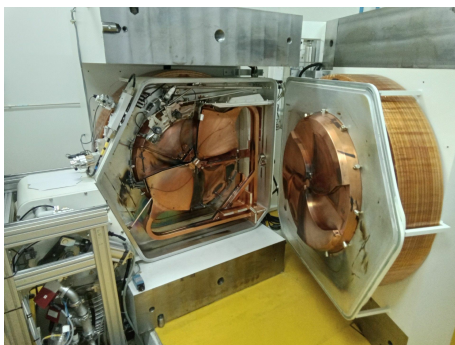
Chamber Opening

Measure yoke play, adjust if needed: -

Dose rate mapping (positions 1-9, [$\mu\text{Sv/h}$])



Position 1: At 36 cm from Extraction trolley	-
Position 2: At 36 cm from Carousel	-
Position 3: At 36 cm from Dee 2-stem junction	-
Position 4: At 36 cm from Deel upper corner	-
Position 5: At 36 cm from Central region	-
Position 6: At 36 cm from Stems coupler	-
Position 7: At contact with central region	-
Position 8: At 36 cm from magnet pole	-
Position 9: At contact of magnet coil	-

Photo documentation & visual inspection**Vacuum chamber****Beam exit valve tests****Visual inspection of tubing****Visual inspection of opening/closing**

FlapsFlap 1

Calibrate flaps, record minimum and maximum motor current:

Minimum current [mA]	113
MaximumCurrentMA	121

Record flap to dee distances for 0%, 50%, 100%

0% value [mm]	4.4
50% value [mm]	-
100% value [mm]	-

Notes

Flap 2

Calibrate flaps, record minimum and maximum motor current:

Minimum current [mA]	69
MaximumCurrentMA	89

Record flap to dee distances for 0%, 50%, 100%

0% value [mm]	4.27
50% value [mm]	-
100% value [mm]	-

Notes

Central Region

Visual inspection of flip-in probe	<input checked="" type="checkbox"/>
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Measure flip-in probe position (a,b,c,d,e)

A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
-	-	-	-	-

Dismount ion source and mount dummy ion source	<input checked="" type="checkbox"/>
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Measure central region distances (A, B, C, D) [mm]

A [mm]	B [mm]	C [mm]	D [mm]
0.95	0.2	0.3	0.95

Visual inspection and photo of H-puller	<input checked="" type="checkbox"/>
If needed: H-puller replacement	



If needed: Adjustment of central region and record A, B, C, D again

If needed: Adjustment of central region and record A, B, C, D again	<input checked="" type="checkbox"/>		
A [mm]	B [mm]	C [mm]	D [mm]
1.05	0.55	0.3	0.95



If needed: Ion source maintenance or replacement	<input checked="" type="checkbox"/>
Install back ion source	<input checked="" type="checkbox"/>



Restore and record flip-in probe position

Restore and record flip-in probe position			
A [mm]	B [mm]	C [mm]	D [mm]
0.95	0.2	0.3	0.95

Pictures	
Image	Comments
CentralRegion_1007.jpg	
CentralRegion_1008.jpg	
CentralRegion_1009.jpg	
CentralRegion_1010.jpg	Dummy anode
CentralRegion_1011.jpg	

Dees

Visual inspection of dees, internal and external baffles	
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	Measure dee thickness	Measure dee height
A	33.19	46.74
B	33.32	75.3
C	33.97	47.67
D	33.3	47.59
E	33.09	75.35
F	34.5	46.74
G	34.5	74.14
H	34.19	75.01

Pictures	
Image	Comments
Verify tightness of dee- and stem screws	

Extraction

Replace extraction foils of carousels	✓
Visual inspection of extraction cables	✓

Calibrate balance, record minimum and maximum motor current [mA]

	Calibrate balance, record minimum and maximum motor current	Calibrate extraction 1, record minimum and maximum motor current [mA]	Calibrate extraction 2, record minimum and maximum motor current [mA]
Minimum current [mA]	117	96	116
Maximum current [mA]	138	107	121

Diagnostic system checks

Target ID	
Visual inspection of collimators and collimator cables	✓
Check collimator screws tightness	✓
Measure flip-in probe resistance	29.45
Target Resistance	20.45
Lower Collimator Resistance	29.43
Upper Collimator Resistance	29.45
Horizontal Collimator Opening	-
VerticalCollimatorOpening	-

	Resistance Measurement	Insulation Measurement
Extraction 1	29.43	29.5
Extraction 2	29.5	-

Comments	

Chamber Clean-up

Carousel repositioning

Install back carousels	<input checked="" type="checkbox"/>
Foil change test on each carousel	<input checked="" type="checkbox"/>
Reset foil counter	<input checked="" type="checkbox"/>

Cabinets

Swedwater

Inspect cooling water system for leaks	Bunker water manifold, Magnet coil water connections, Water connections to vacuum chamber, Target water manifold
If needed inspection of cooling water filters	

Record of water cooling system performance

Record expansion vessel pressure BP1 [bar]	-
Record water level [mm]. Adjust if needed	-
Record main pump pressure BP2 [bar]	-
Record system temperature BT1 [°C]	-
Record temperature alarm setting [°C]	-
Record cooling water out temperature T2 [°C]	-
Record cooling water in temperature BT3 [°C]	-
Record deionizer flow BF10 [l/min]	-
Record conductivity BQ1[μS/cm]	-
Replace deionizer vessel if needed	

Ion Source

Record H2 gas pressure

Set point [SCCM]	Reading at MFC [bar]
-	-

Turn on Magnet, set probe in, turn on RF, turn on gas.

Magnet current [A]	DEE1 voltage [kV]	DEE2 voltage [kV]	Gas flow [scm]	If ion source was maintained, perform ion source conditioning (ramp up from 30 mA to 100 mA in 30 minutes and from 100mA to 200mA in 10 minutes)
431	31.5	35	5	<input checked="" type="checkbox"/>

Record Ion Source Performance

IS current [mA]	IS voltage [V]	Flip in probe current [μ A]
20	1150	3
30	1230	9.1
40	1305	18.4
60	1343	32
70	1316	75
80	1265	100
90	1200	125
100	1146	152
110	1063	187
120	1012	215
130	969	240

Paper Burn Test

Install paper burn target	<input checked="" type="checkbox"/>
Perform paper burn test in SB and DB	



Install paper burn target
Image_1008.jpg

If needed, adjust collimators and repeat	
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LTF

Identifier	LTF4
LTF	Install back targets
Inspect the movement of all LTF compressed air actuators	

Starting pressure [psi]	Pressure drop [psi / h]
73.2	1

If needed: Perform target fill tests and adjustment for each target	-
If needed, adjust and repeat test, record adjustment value	-

Pictures	
Image	Comments

Beam Conditioning

Photo name	Add Comment
Image_1004.jpg	No comments

PMDebriefing

Record additional tasks performed not recorded elsewhere	Record open tasks and issues	Record spare parts / consumables to be ordered	Record worker dosimetry