MAINTENANCE TRACKING TOOL

Pre-Maintenance

Usage/Calendar based maintenance (UBM/CBM)
NOTE! Refer to the PETtrace Service Manual - Maintenance (direction 2169049-100) for detailed instructions, apply LOTO and use PPE.

System ID: NE209962

Maintenance performed in accordance with instructions as outlined in the PETtrace Service Manual - Maintenance (direction 2169049-100) (signature (typed and signed)):

Location	Action	Labor time (min.)	Sign.	For only optional operations note down if the operation is performed or not
Vacuum	**NOTE! Hydrogen gas flow should be on as for normal production.** • Read and record the vacuum pressure • Perform a BEV leak check : open the BEV for 2 minutes and close it. After 10 minutes open again the BEV,the vacuum value must not reach the value of 1.0*E-5	50		

Vacuum pressure readout — **Gas flow(sccm):** 123.0

Gauge number	Pressure (x10-) without gas	Pressure (x10-) with gas
A1 (4 on TCS 1001):	1	5
A2 (13 on TCS 1001):	2	5
B1 (14 on TCS 1001):	3	6

TPG parameters

	Low limit (x10-)	High limit (x10-)
A1:	1	2
A2:		
B1:		

• Press OFF on the VCU, followed by VENT, read and record the current VENT time

Vacuum VENT time

System software

Subsytem	Version
Master:	v1.34
ACS:	dsf
Service System:	sdf
Manager:	sdf
Informix (only applicable to SUN-Master Station):	sdf

VENT time: 2022-11-15 08:44

Comments:	
PHOTO:	

MAINTENANCE TRACKING TOOL

Vacuum

Test of vacuum tightness on PSS

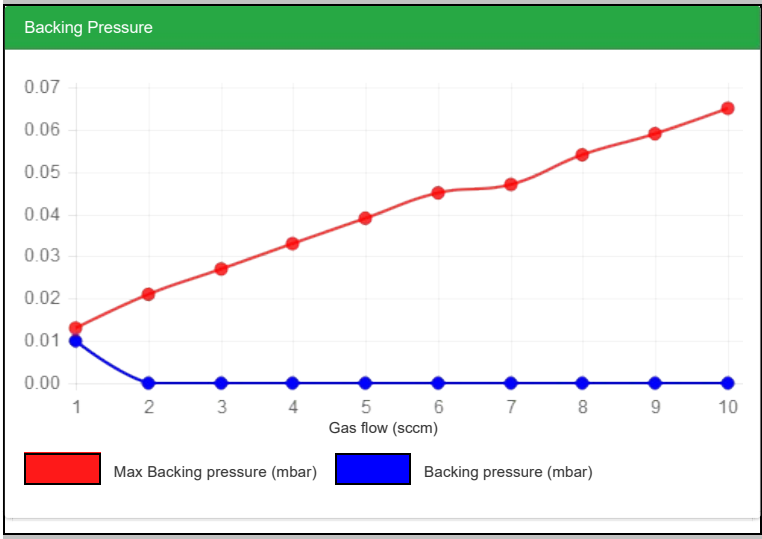
Plot vacuum pressure as function of gas flow from 1sccm to 10 sccm.
Vacuum pressure vs gas pressure should be a linear relationship.

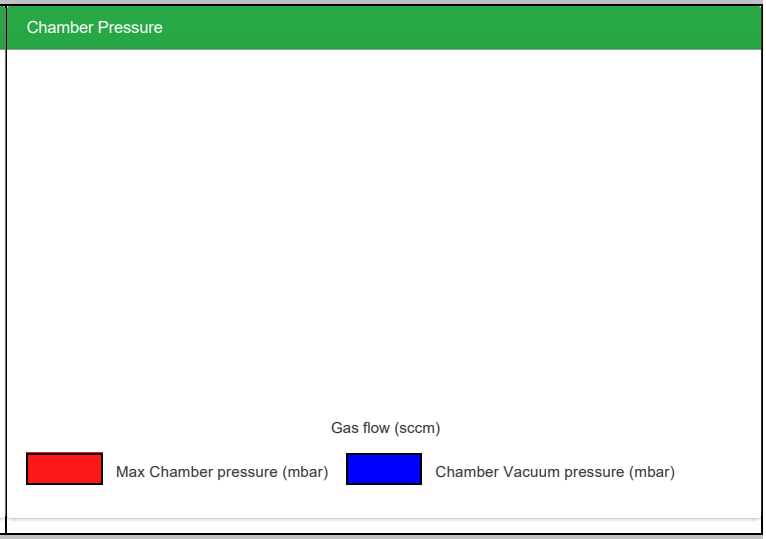
Gas flow setting: 5,0 +/- 1 sccm

Gas flow	Chamber vacuum pressure (mbar)	Backing pressure	Max Chamber pressure (mbar)	Max Backing pressure (mbar)
1	3.0E-6	0.01	3,60E-06	1,30E-02
2	0	0	6,10E-06	2,10E-02
3	0	0	8,90E-06	2,70E-02
4	0	0	1,10E-05	3,30E-02
5	0	0	1,30E-05	3,90E-02
6	0	0	1,50E-05	4,50E-02
7	0	0	1,60E-05	4,70E-02
8	0	0	1,80E-05	5,40E-02
9	0	0	2,00E-05	5,90E-02

10	0	0	2,20E-05	6,50E-02

OK value | Too low value



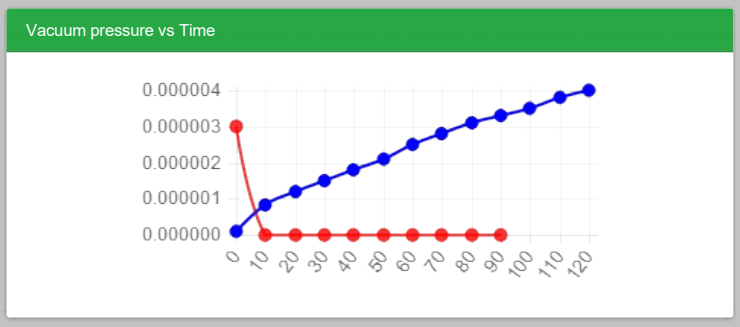


Pass critera: Linear relationship between vacuum pressure and gas flow. (Blue line should be below red line)

Vacuum leak test performed on PSS
With the vacuum system operating in pump mode with all BEV closed and without gas flow.

Set Vacuum system on VCU to Standby and observe the leak rate into the cavity (using pressure as proxy)

Time from Set Standby (sec)	Vacuum pressure (mbar)	Max leak rate
0	0	1,80E-07
10	0	1,00E-06
20	0	1,50E-06
30	0	1,90E-06
40	0	2,30E-06
50	0	2,70E-06
60	0	3,00E-06
70	0	3,30E-06
80	0	3,60E-06
90	0	3,90E-06
100	0	4,20E-06
110	0	4,60E-06
120	0	4,90E-06



Pass critera: Time to reach 1.0E-5 mbar > 10 s (Blue line should be below red line)

Vacuum	• Switch on the water cooling to the diffusion pump • Press STANDBY on the VCU, record time
	Standby time
	Actual standby start time: 10:27
	• Verify that the green DP-lamp on the VCU lights up within 30min, re-adjust DP temp-switch as required
	DP-lamp activation time
	DP -lamp activated in (min): 0 **Max 30min**
	• Press PUMP on the VCU and note the following values:
	Pumping down
	Time before HVV opening 11 **10-15 min**
	Actual time for HVV opening: 0 **<30s**
	Actual time to reach 1.0*E-5 0
	• After reaching the vacuum value of 1.0*E-5 open the IS gas flow at 10sccm for 15 minutes

Vacuum	**WARNING! Diffusion pump may be very warm, verify that at least 2hrs has passed since pump shutdown.** **WARNING! Rotary and/or diffusion pump oil may be radioactive, verify activity level by performing an activity survey!** **NOTE! Verify that all cables are free from interference with the diffusion pump, interference may cause cable melting and/or electrical shortcut** • Verify the oil level and the color of the rotary pump oil, re-fill or change as required, record re-filled or changed volume
	Rotary pump oil level
	Date of the last replacement of oil: 2022-11-07
	Volume filled/changed (ml): 0
	Maintenance of the diffusion pump: to be performed every 5 years
	Last maintenance of the diffusion pump
	Ventilate the diffusion pump by removing Pirani 1

NOTE! Verify that the water cooling is shut off before disconnection of the diffusion pump
• Remove the diffusion pump and drain the oil
NOTE! Measure the lenght of the Jet assy before it is disassembled. The lenght is critical to pump performance.
• Disassemble and clean the diffusion pump
• Replace the heater
• Reassemble, reinstall and fill the diffusion pump with new oil

Diffusion pump oil replacement	
Volume filled/changed (ml):	0

• Verify the condition of the rotary pump oil mist filter, clean, inspect or replace as required
• Verify the condition of the rotary pump oil mist filter O-ring, clean, inspect for damage and/or deformation, replace as required
• Verify the functionality of the pirani gauges and the penning gauge, clean, inspect or replace as required

Comments:	
PHOTO:	**Photo name: test foto**