## MAINTENANCE TRACKING TOOL

## Chamber

Time:

Date:

Survey

EOB		Date:		Time:			H:	Time	after EOB in I	hour :	
Survey point		1	2	3	4	5	6	7	8	9	10
Probe dose rate (mSv/h)		0	0	0	0	0	0	0	0	0	0
Targets	• Disconnect all	targata from 4	ha comica De	n							
	• Disconnect all	targets from t	ne service PC								
	• Switch off the	manual water	valves to the	targets on the	water manife	old (the large	wall mounte	d water man	ifold)		
	NOTE! 18F2 I	Deuteron targ	get system r	equires NEO	N gas flush	ing before o	pening of c	onnections.			
	NOTE: 19E2 I	Proton torget	evetom	uires ADCON	N gas flucki	ng X 3 hofe	e ononine	fconnectio	ne		
	NOTE: 18F2 F	roton target	system requ	III US ARGUN	y gas nushi	ng A 5 belor	e opening (	or connectio			
	NOTE! Do not	t disconnect t	he C11CH4	target, any a	tmosphere	entering this	s target may	y ruin the t	arget.		
	- Dhami an like dian		ata fuana tha		(		المعالم معاني				
<ul> <li>Physically disconnect all targets from the cyclotron and transport them to safe/shielded location</li> <li>Verify condition and functionallity of the beam exit valves (BEV), repair or replace as required</li> </ul>											
	DEV & Commerced air Tubing annual realeannant for DEV/2 reasons the second for sin tubing										
	BEV & Compr	essed air Tubi	ing: annual	renlacement	for RFV/3	vears renlac	ement for a	ir tubing			
	BEV & Compro	essed air Tub	ing: annual	replacement	for BEV/ 3	years replac T1	ement for a	<mark>ir tubing</mark> 2	ТЗ	T4	4 T5
	BEV & Compre Target position Date of the last	essed air Tub BEV replace	ing: annual ement:	replacement :	for BEV/ 3	<mark>years replac</mark> T1	ement for a	<mark>ir tubing</mark> 2	T3	T4	4 T5
	BEV & Compre Target position Date of the last Action Perform	essed air Tub BEV replace red (Y/N)	ing: annual ement:	replacement	for BEV/ 3	<mark>years replac</mark> T1	ement for a	<mark>ir tubing</mark> 2	T3	T4	4 T5
	BEV & Compre Target position Date of the last Action Perform Date of the last	essed air Tub BEV replace ed (Y/N) compressed a	ing: annual ment: air tubing r	replacement t	for BEV/ 3	years replac T1	ement for a	ir tubing 2	T3	T4	4 T5
	BEV & Compre Target position Date of the last Action Perform Date of the last Action Perform	BEV replace BEV replace ed (Y/N) compressed a red (Y/N)	ing: annual ment: air tubing r	replacement eplacement	for BEV/ 3	years replac T1	ement for a	ir tubing 2	T3	T4	4 T5
Cyclotron	BEV & Compre Target position Date of the last Action Perform Date of the last Action Perform WARNING! Pin	BEV replace BEV replace ed (Y/N) compressed a ed (Y/N)	ing: annual ement: air tubing r	replacement	for BEV/ 3	years replac T1	ement for a	ir tubing 2	T3		4 T5
Cyclotron	BEV & Compre Target position Date of the last Action Perform Date of the last Action Perform WARNING! Pin • Check the scree	BEV replace BEV replace (Y/N) compressed a red (Y/N) nch hazard. www.between yo	ing: annual ement: air tubing r	replacement eplacement and cyclotron's	for BEV/ 3	years replac T1	ement for a	ir tubing 2	T3 damaged replace	T4	ise put them
Cyclotron	BEV & Compre Target position Date of the last Action Perform Date of the last Action Perform WARNING! Pin • Check the scree back.	BEV replace BEV replace ed (Y/N) compressed a red (Y/N) nch hazard. ews between yo	ing: annual ment: air tubing r	replacement eplacement and cyclotron's	for BEV/ 3	years replac T1	ement for a	ir tubing 2	T3	them, otherw	4 Ts
Cyclotron	BEV & Compre Target position Date of the last Action Perform Date of the last Action Perform WARNING! Pin • Check the scree back. • Remove the m	BEV replace BEV replace (Y/N) compressed : ued (Y/N) nch hazard. ews between you	ing: annual ement: air tubing r oke actuator a t, inspect for	replacement eplacement and cyclotron's damage. If dat	for BEV/ 3	years replac T1 nove them, in	ement for a T: spect for dar	ir tubing 2	T3 damaged replace	T4	t T5
Cyclotron	BEV & Compre Target position Date of the last Action Perform Date of the last Action Perform WARNING! Pin • Check the scree back. • Remove the mag	BEV replace and (Y/N) compressed a and (Y/N) anch hazard. as between you agnet door bol gnet door funct	ing: annual ement: air tubing r oke actuator a t, inspect for ionality, the p	replacement eplacement and cyclotron's damage. If dam play between th	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, re	ement for a T spect for dar therwise reg adjust as re	ir tubing 2	T3 damaged replace e it prepared for a d play	T4	4 T5
Cyclotron	BEV & Compre Target position Date of the last Action Perform Date of the last Action Perform WARNING! Pin • Check the scree back. • Remove the m • Verify the mag	BEV replace ed (Y/N) compressed a red (Y/N) nch hazard. ews between you agnet door bol gnet door funct	ing: annual ment: air tubing r oke actuator a t, inspect for ionality, the p	replacement eplacement and cyclotron's damage. If data play between th	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, re	ement for a T: spect for dar therwise reg adjust as re	ir tubing 2	T3 damaged replace e it prepared for d play	them, otherw	4 TS
Cyclotron	BEV & Compre Target position Date of the last Action Perform Date of the last Action Perform WARNING! Pin • Check the scree back. • Remove the m • Verify the mag	BEV replace and (Y/N) compressed and and (Y/N) anch hazard. asynet door bol angnet door funct angnet door funct	ing: annual ement: air tubing r oke actuator a t, inspect for ionality, the p	replacement eplacement and cyclotron's damage. If dat blay between th	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, re	ement for a T. spect for dar therwise reg -adjust as re	ir tubing 2	T3 damaged replace te it prepared for d play	them, otherw	4 T5
Cyclotron RF flaps	BEV & Compre Target position Date of the last Action Perform Date of the last Action Perform WARNING! Pir • Check the scree back. • Remove the m • Verify the mag	BEV replace ed (Y/N) compressed a red (Y/N) nch hazard. wws between yo agnet door bol gnet door funct: t play	ing: annual ement: air tubing r oke actuator t, inspect for ionality, the p Reco	replacement eplacement and cyclotron's damage. If dam blay between th rded play (mm	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, re	ement for a T Spect for dar therwise reg -adjust as re	ir tubing 2 nage and if of rease to mak quired, recor	T3 damaged replace e it prepared for d play	them, otherw	4 TS
Cyclotron RF flaps	BEV & Compresentation         Target position         Date of the last         Action Perform         Date of the last         Action Perform         WARNING! Pine         • Check the screet back.         • Remove the measure         Yoke to magnet         • Verify flap and	BEV replace ed (Y/N) compressed a red (Y/N) nch hazard. ews between you agnet door bol gnet door funct t play	ing: annual ment: air tubing r oke actuator a t, inspect for ionality, the p Reco	replacement eplacement and cyclotron's damage. If dat olay between th rded play (mu	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, re	ement for a T T spect for dar therwise reg adjust as re Limit 2-10 d and record	ir tubing 2 2 nage and if o rease to mak quired, recor mm the current	T3 damaged replace e it prepared for : d play	them, otherw	4 T5
Cyclotron RF flaps	BEV & Compre Target position Date of the last Action Perform Date of the last Action Perform WARNING! Pin • Check the scree back. • Remove the m • Verify the mage Voke to magnet	BEV replace and (Y/N) compressed a and (Y/N) anch hazard. asystem you agnet door bol gnet door funct: a play d flap drive fun	ing: annual ement: air tubing r oke actuator a t, inspect for ionality, the p Reco	replacement eplacement and cyclotron's damage. If dat blay between th rded play (min ite, repair and/o	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, re	ement for a T. spect for dar therwise reg -adjust as re Limit 2-10 d and record	ir tubing 2 nage and if of rease to make quired, recor mm the current	T3 damaged replace te it prepared for d play	them, otherw	4 T5
Cyclotron RF flaps	BEV & Compresentation         Target position         Date of the last         Action Perform         Date of the last         Action Perform         WARNING! Pire         • Check the screet back.         • Remove the me         • Verify the magnet         • Verify flap and         Flap motor currer	BEV replace ed (Y/N) compressed a red (Y/N) nch hazard. wws between you agnet door bol gnet door funct: t play d flap drive fun rent	ing: annual ement: air tubing r oke actuator a t, inspect for ionality, the p Reco action, calibra	replacement eplacement and cyclotron's damage. If dam blay between the rded play (mm ite, repair and/o	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, re	ement for a T T spect for dar therwise reg -adjust as re Limit 2-10 d and record	ir tubing 2 nage and if of rease to mak quired, recor mm the current p 2	T3 damaged replace e it prepared for d play	them, otherw	4 TS
Cyclotron RF flaps	BEV & Compresentation         Target position         Date of the last         Action Perform         Date of the last         Action Perform         WARNING! Prine         • Check the screet         back.         • Remove the mme         • Verify the magnet         • Verify flap and         Flap motor current	essed air Tub BEV replace red (Y/N) compressed a red (Y/N) nch hazard. ews between you agnet door bol gnet door funct: agnet door funct: agnet door funct: agnet door funct:	ing: annual ment: air tubing r oke actuator a t, inspect for ionality, the p Reco action, calibra Recorde	replacement eplacement and cyclotron's damage. If dat blay between th rded play (mi ite, repair and/o d current (m.	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, re required, read	ement for a T T spect for dar therwise reg -adjust as re Limit 2-10 d and record	ir tubing 2 1 1 1 1 1 1 1 1 1 1 1 1 1	T3 damaged replace e it prepared for : d play	them, otherw	4     T5       -     -       -     -       vise put them
Cyclotron RF flaps	BEV & Compre Target position Date of the last Action Perform Date of the last Action Perform WARNING! Pin • Check the scree back. • Remove the m • Verify the mage Voke to magnet	essed air Tub BEV replace red (Y/N) compressed a red (Y/N) nch hazard. ews between you agnet door bol gnet door funct: t play d flap drive fun rent	ing: annual ement: air tubing r oke actuator a t, inspect for ionality, the p Reco ection, calibra Recorde	replacement eplacement and cyclotron's damage. If dat blay between th rded play (mit ite, repair and/o d current (m. entire law between th	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, re required, read	ement for a T. Spect for dar therwise reg adjust as re Limit 2-10 d and record Fla 0	ir tubing 2 nage and if of rease to make quired, recor mm the current p 2	T3 damaged replace the it prepared for the d play	them, otherw	4 T5
Cyclotron RF flaps	BEV & Compresentation         Target position         Date of the last         Action Perform         Date of the last         Action Perform         Date of the last         Action Perform         WARNING! Pin         • Check the screet         back.         • Remove the magnet         Voke to magnet         • Verify flap and         Flap motor current         • Verify the flap	BEV replace ed (Y/N) compressed a red (Y/N) nch hazard. wws between you agnet door bol gnet door funct: t play d flap drive funct rent to DEE play, 1	ing: annual ement: air tubing r oke actuator a t, inspect for ionality, the p Record action, calibra Recorde readjust as re	replacement eplacement and cyclotron's damage. If dam blay between th rded play (mm ite, repair and/o ite, repair and/o d current (m. quired, read an	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, re required, read	ement for a T T spect for dar therwise reg -adjust as re Limit 2-10 d and record Fla 0	ir tubing 2 nage and if of rease to mak quired, recor mm the current p 2	T3 damaged replace e it prepared for d play	them, otherw	4 TS
Cyclotron RF flaps	BEV & Compresentation         Target position         Date of the last         Action Perform         Date of the last         Action Perform         Date of the last         Action Perform         WARNING! Pin         • Check the screet         back.         • Remove the m         • Verify the magnet         Yoke to magnet         • Verify flap and         Flap motor curver         • Verify the flap         • Verify the flap	essed air Tub BEV replace red (Y/N) compressed a red (Y/N) nch hazard. ews between you agnet door bol gnet door bol gnet door funct: t play d flap drive fun rent t o DEE play, p	ing: annual ment: air tubing r oke actuator a t, inspect for ionality, the p Recorde readjust as re	replacement eplacement and cyclotron's damage. If dat blay between th rded play (min ite, repair and/o d current (m. quired, read an	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, read required, read Flap 1 0	ement for a T T spect for dar therwise reg -adjust as re Limit 2-10 d and record	ir tubing 2 2 nage and if o rease to mak quired, recor mm the current p 2	T3 damaged replace e it prepared for : d play	them, otherw	Image: state
Cyclotron RF flaps	BEV & Compro         Target position         Date of the last         Action Perform         Date of the last         Action Perform         WARNING! Pin         • Check the screet         back.         • Remove the mage         Yoke to magnet         • Verify flap and         Flap motor curr         • Verify the flap         Flap to DEE play	essed air Tub BEV replace red (Y/N) compressed a red (Y/N) nch hazard. esws between you agnet door bol gnet door bol gnet door funct: t play d flap drive fun rent to DEE play, 1 ay Flap nu	ing: annual iment: air tubing r air tubing r bke actuator a t, inspect for ionality, the p Reco action, calibra Recorde readjust as re umber	replacement eplacement and cyclotron's damage. If dat blay between th rded play (mi ite, repair and/o d current (mi quired, read an	for BEV/ 3	years replac T1 nove them, in r or replace, o the magnet, re required, read Flap 1 0	ement for a T. Spect for dar therwise reg adjust as re Limit 2-10 d and record Fla 0	ir tubing 2 1 nage and if of rease to mak quired, recor mm the current p 2 - < 2mm)	T3 damaged replace e it prepared for d play	them, otherw installation.	4     T5       4     1       5     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       7     1       8     1       9     1       9     1       9     1       9     1       10     1       11     1       12     1       13     1       14     1       15     1       15     1       16     1       17     1       18     1       19     1       19     1       10     1       10     1       10     1       10     1       10     1       10     1       10     1
Cyclotron RF flaps	BEV & Compro         Target position         Date of the last         Action Perform         Date of the last         Action Perform         WARNING! Pin         • Check the screet         back.         • Remove the m         • Verify the magnet         • Verify flap and         Flap motor curr         • Verify the flap         Flap to DEE play	BEV replace ied (Y/N) compressed a ied (Y/N) ich hazard. wws between your agnet door bol gnet door funct: t play d flap drive funct rent to DEE play, 1 iy Flap nu	ing: annual ement: air tubing r oke actuator a t, inspect for ionality, the p Recorde readjust as re umber	replacement eplacement and cyclotron's damage. If dam blay between th rded play (mm tte, repair and/o d current (m. quired, read an	for BEV/ 3 for BEV/ 3 s chassis: ren maged repain he yoke and t m): for replace as for	years replac T1 nove them, in r or replace, o the magnet, re required, read Flap 1 0	ement for a T T spect for dar therwise reg -adjust as re Limit 2-10 d and record d and record Fla 0	ir tubing 2 1 nage and if of rease to mak quired, recor mm the current p 2 - < 2mm)	T3 damaged replace e it prepared for : d play 100% (>26mm)	them, otherw installation.	4 T5

Ion source adjustment (v	vith dummy anode)				
Location	Recorded distance (mm) After	Typically (mm)			
A: B:		0,9-1,2 0,3-0,5 0,4,0,6			
C. D:		1,1-1,3			
• Verify flip-in probe condi	ition, position, insulatio	on and functional	lity, reposition and/or replace as requ	ired, read and record	
Flip-in probe insulator su Recorded reading (kΩ):	urface reading Typically 29,4kΩ				
Read and record DEE se	ttings, adjust as require	ed (refer to origi	inal factory settings, if adjusted re-r	ead and record	
• Read and record DEE se DEE settings	ttings, adjust as require	ed (refer to origi	inal factory settings, if adjusted re-re-	ead and record	Ver
• Read and record DEE se DEE settings Measurement point	ttings, adjust as require Height (mm)	ed (refer to origi	Theoretical midplane from pole	ead and record Actual midplane from pole	Var
Read and record DEE se     DEE settings     Measurement point     Deel tin ton (A):	ttings, adjust as require Height (mm) 0.00	ed (refer to origi Thickness (mm) 0.00	Theoretical midplane from pole (mm)	ead and record Actual midplane from pole (mm)	Var
• Read and record DEE se DEE settings Measurement point Dee1 tip top (A): Dee1 upper corner (B):	ttings, adjust as require Height (mm) 0.00 0.00	ed (refer to origi Thickness (mm) 0.00 0.00	Theoretical midplane from pole (mm) 58	ead and record Actual midplane from pole (mm)	Var
Read and record DEE set DEE settings Measurement point Dee1 tip top (A): Dee1 upper corner (B): Dee1 lower corner (C):	ttings, adjust as require Height (mm) 0.00 0.00 0.00	ted (refer to origing) Thickness (mm) 0.00 0.00 0.00	Theoretical midplane from pole (mm) 30 58 30	ead and record Actual midplane from pole (mm)	Var (
Read and record DEE set DEE settings Measurement point Dee1 tip top (A): Dee1 upper corner (B): Dee1 lower corner (C): Dee1 tip lower (D):	ttings, adjust as require Height (mm) 0.00 0.00 0.00 0.00	ed (refer to origi Thickness (mm) 0.00 0.00 0.00 0.00	Theoretical midplane from pole (mm) 30 58 30 30 30	ead and record Actual midplane from pole (mm)	Var (
Read and record DEE set DEE settings Measurement point Dee1 tip top (A): Dee1 upper corner (B): Dee1 lower corner (C): Dee1 tip lower (D): Dee2 lower tip (E):	ttings, adjust as require Height (mm) 0.00 0.00 0.00 0.00 0.00	ed (refer to origi Thickness (mm) 0.00 0.00 0.00 0.00 0.00 0.00	Theoretical midplane from pole (mm) 30 58 30 30 58 30 58	ead and record Actual midplane from pole (mm)	Var (
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Read and record DEE set DEE settings Measurement point Dee1 tip top (A): Dee1 upper corner (B): Dee1 lower corner (C): Dee1 tip lower (D): Dee2 lower tip (E): Dee2 lower corner (F): Dee2 upper corner (G):	ttings, adjust as require Height (mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	ed (refer to origi Thickness (mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Theoretical midplane from pole (mm) 30 58 30 58 30 58 30 58 30 58 30 58 30 58 30 58 30 58	ead and record Actual midplane from pole (mm)	Var (
Read and record DEE set DEE settings Measurement point Dee1 tip top (A): Dee1 upper corner (B): Dee1 lower corner (C): Dee1 tip lower (D): Dee2 lower tip (E): Dee2 lower corner (F): Dee2 upper corner (G): Dee2 upper tip (H):	ttings, adjust as require Height (mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	ed (refer to origi Thickness (mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Theoretical midplane from pole (mm) 30 58 30 58 30 58 30 58 30 58 30 58 30 58 30 58 58 58	ead and record Actual midplane from pole (mm)	Var (
Read and record DEE set DEE settings Measurement point Dee1 tip top (A): Dee1 upper corner (B): Dee1 lower corner (C): Dee1 tip lower (D): Dee2 lower tip (E): Dee2 lower corner (F): Dee2 upper corner (G): Dee2 upper tip (H): Stem 1 (I)	ttings, adjust as require Height (mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	ed (refer to origi Thickness (mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Theoretical midplane from pole (mm) 30 58 30 30 58 30 58 30 58 30 58 30 58 30 58 30	ead and record Actual midplane from pole (mm)	Var (
Read and record DEE set DEE settings Measurement point Dee1 tip top (A): Dee1 upper corner (B): Dee1 lower corner (C): Dee1 lip lower (D): Dee2 lower tip (E): Dee2 lower corner (F): Dee2 upper corner (G): Dee2 upper tip (H): Stem 1 (I) Stem 1 connecting block (J)	ttings, adjust as require Height (mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	ed (refer to origi Thickness (mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 NA NA	Theoretical midplane from pole (mm) 30 58 30 58 30 58 30 58 58 58 58 58	ead and record Actual midplane from pole (mm)	Var (
Read and record DEE set DEE settings Measurement point Dee1 tip top (A): Dee1 upper corner (B): Dee1 lower corner (C): Dee1 tip lower (D): Dee2 lower tip (E): Dee2 lower corner (G): Dee2 upper corner (G): Dee2 upper tip (H): Stem 1 (I) Stem 1 connecting block (J)	ttings, adjust as require Height (mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	ed (refer to origi Thickness (mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 NA NA NA NA	Theoretical midplane from pole (mm) 30 58 30 58 30 58 30 58 58 58 58 58	ead and record Actual midplane from pole (mm)	Var (

Extraction	Verify foil	condition, in case of >3 broken foils; 1	replace the carou	sel and transport the replaced unit to a safe/shielded	location for decay				
	• Verify functionality and status of the limit switches, repair and/or replace as required								
	Verify capton cable condition, repair and/or replace as required								
	Verify carousel turn mechanism functionality, repair and/or replace as required								
	• Verify that the carousel insulation, repair and/or replace as required, read and record resistance								
	<b>Carousel ins</b>	ulation (ground resistance)							
	Recorded re								
	Recorded re								
	Recorde								
	• Verify extraction drive mechanism functionality, the balance functionality, repair and/or replace as required, calibrate, read and record the motor current								
	Extraction a	nd balance motor current							
		Maximum recorded current extr	raction 1 (mA):	Limit 50-200 mA					
		Maximum recorded current extr	action 2 (mA): balance (mA):	Limit 50-200 mA Limit 100-300mA					
Collimators	Verify collimator condition, openings, re-adjust, repair and/or replace as required, read and record insulation								
	<b>Collimator r</b>	eadings							
	Collimator position	Insulation (recorded ground resistance) (typically 29,4k $\Omega$ )	Horizontal opening (mm)	Vertical opening (mm)					
	1 (lower)	0	0						
	1/2	0	0						
	3/4	0	0						
	4/5	0	0						
	5/6	0	0						
	6 (upper)	0	0						
	Verify targe	et clamps insulation, repair and/or repl	lace as required,	read and record insulation					
	Target clam	ps insulation (ground resistance)							
	Target clamp position	Recorded resistance (typically $20,4k\Omega)$							
	T1								
	T3								
	T4								
	T5								
Tank	T6								
Turnx	• Verify that document by	no parts are; burned, covered by alum photo	iinum oxide (sput	ttered), foreign material and/or other contamination,	, replace parts as required and				
	• Verify that	no damage, contamination and/or def	formation are pre-	sent on the vacuum tank o-ring, replace as required	, otherwise clean and regrease				
	• Verify that the finger contacts are properly secured in place and that no damage and/or deformation are present, reinstall and/or replace as required								
	• Verify that the silicon baffles are properly fitted and tightly secured at their locations and that no damage are present, tighten and/or replace as required								
	• Verify that if required tig	the the screen plate and the screws for ghten and/or replace	or the covers at the	he top right inside of the tank are securely attached	and that no damages are present,				

Water cooling	• Switch on the secondary water cooling (Swedewater), let it run for at least 10 minutes, verify normal operation'						
	• Verify that no leaks are present on the water manifold (target panel), the magnet connections, the RF system, the ion-source system, the PSMC, repair and/or replace as required						
	• Verify the condition of the water cooling lines for the targets, if hard or brittle, replace as required						
	• Turn off the main water cooling pump on the secondary water cooling system (Swedewater) (optional: perform only in case of cooling problems)						
	• Inspect and replace filter Z2 at the Swedewater (optional: perform only in case of cooling problems)						
	• Inspect and clean filter Z1 and Z3 at the Swedewater (optional: perform only in case of cooling problems)						
	• Verify water conductivity and flow at the Swedewater, if conductivity error has occurred/occurrs during production, replace the ion exchanger resin (normally once a year)						
	• Off mode: Verify water level and pressure at the Swedewater, re-fill and/or adjust as required, read and record						
	Secondary water cooling system (Swedewater) system off data						
	Water volume filled (ml): If fill is not required, mark N/R Static pressure compressed air (kPa): Limit 40-200 kPa						
	On mode: Verify water cooling system readings, adjust as required, read and record						
	Secondary water cooling system (Swedewater), system on data						
	Expansion vessel BP1 (bar):						
	Main pump pressure BP2 (bar):						
	System temperature BT1 (degree C):						
	Temperature alarm (degree C):						
	Cooling water out temperature BT2 (degree C):						
	Cooling water in temperature BT3 (degree C):						
	Deonizer flow BF10 (liter/min):						
	Conductivity BQ1 (μS cm-1):						
Targets	Replace LTF peek (Optional operation)						
	• Verify the condition of the water cooling tubes, if hard or brittle, replace as required						
Annual maintenance:	For the PDU, yearly check to be done:						
PDU terminal	• If Vacuum still OFF, stop the swedewater pump and then turn off the power of the PDU						
screws	Put the gloves and helmet for electrical interventions						
	• Check and if needed tigthen the terminal screws inside the PDU						
End of inside- bunker	• Install the paper burn target						
operations	• Verify the sealing of the target gasket						
	• Close the bunker before restart the vacuum						

Comments:	
PHOTO:	