

ABCA2 Maintenance Report

Job Number:	SE0738 Visit 2 (ABCA 2 Service) & ABCAs 1 & 4 Fix		
Customer:	CERBA, Paris, France		
Instrument Serial #	20602/2023/1297	Gas Box Serial #	60101/1-2023/1297
ASX 7400 Serial #	N/A (VerSa)	Software Version	V800.9.0.18975
Contact:	Thomas Le Picard		
Date of Visit:	07/07/2026	Days:	3
Engineer:	Thomas Iordanidis		
Pre Maintenance Checks			
Initial Tuning Parameters:			
HT	2575	IR	-6.5
Focus	87	eV	-86
HP	40	Trap	150
Emission	525		
Vacuum	1.0 E-8 (2.5 E-6 with v10 open)		
Initial Performance Evaluation			
Peak Shape	Good	Sheet Number 1	
Stability	Good	Sheet Number 2	
Ref Gas Precision	0.02	Sheet Number 3	
Linearity	0.08	Sheet Number 4	
Breath Precision	0.07	Sheet Number 5	

Maintenance Checklist			
Filament Change	Initial: TI	Date: 07/07/2026	
Oil Change	Initial: TI	Date: 07/07/2026	
Filament Condition	Initial: TI	Date: 07/07/2026	
Tune Optimisation	Initial: TI	Date: 08/07/2026	
Replace Syringe O Rings	Initial: TI	Date: 08/07/2026	
Gas Flow Check and Optimisation	Initial: TI	Date: 08/07/2026	
Magnet Position Optimisation (If Applicable)	Initial: TI	Date: N/A	
System Leak Check	Initial: TI	Date: 08/07/2026	
Final Performance Evaluation			
HT	2577	IR	-6.5
Focus	87	eV	-86
HP	40	Trap	150
Emission	571		
Vacuum	1.0E-8 (2.5 E-6 with v10 open)		
Final Performance Evaluation			
Peak Shape	Good	Sheet Number 6	
Stability	Good	Sheet Number 7	
Ref Gas Precision	0.02	Sheet Number 8	
In Tube Precision	0.02	Sheet number 9	
Sensitivity	13nA	Sheet Number 10	
Linearity	0.21	Sheet Number 11	
Breath Precision	0.03	Sheet Number 12	

Faults and Issues:**ABCA 2 Service (S/N: 20602/2023/1297):**

- System in good condition with good pre-service specifications
- Service commenced – Changed rotary pump oil, filament, grub screw on filament side (Trap side rounded so unable to check filament positioning), copper gasket, sample inlet ferrule & source screws
- Filament conditioned at a vacuum of $\sim 8.2\text{E-}8$ & continuity checked – all okay
- Vacuum reached $1.0\text{E-}8$ by the start of day 2
- Syringe cleaned with methanol as was found dirty, new O-rings on plunger and block, wing nut installed to keep block stable, leak checked – all okay
- System passed all specifications with new filament (see results above)
- Calibration warning cleared and system handed back over to customer

ABCA 4 (S/N: 20602-2016/1119):

This system was serviced back in March 2026 but customer reported a compressed air leak possibly affecting results. Replaced leaking part for new (SI1251 Autosampler Solenoid Valve) with new elbows but new part is also leaking, gaskets look fine. Ran specifications to assess system performance with obtaining good CO₂ Peak Shape & Stability, Long Reference Gas Precision of 0.05 and Breath Precision of 0.11. Told customer to submit a batch to see how the system is performing since my tests were good.

Results look good after a full run of samples (09/07/2026)

ABCA 1 (S/N: 20602/1-2016/1134):

At the beginning of day 2 (08/07/2026), customer informed me that they had issues with the system during an overnight run. After inspection of the data beam areas were seen to be too small. Ran CO₂ Peak Shape and Stability which both seemed fine and Ref Gas Precision came to 0.06 but with consistent low beam areas of $\sim 5.7\text{E-}8$. It was found that the syringe does not open fully. Syringe removed, O-ring had disintegrated and dirty. Syringe and block O-rings changed for new and lubricated, Syringe plunger and body cleaned with methanol. Re-fitted and syringe opens fully without leaks detected. Ref Gas Precision 0.04 with beam areas of $\sim 1.36\text{E-}7$ and Breath precision 0.07. System handed back to customer for normal use after fix.

Results look good after a full run of samples (09/07/2026)

Follow Up:

Regarding issues with the new tubes – I ran a breath batch of 5 samples 4 new tubes and one of my breath with the normal tubes – new tubes gave beam areas $\sim 2\text{-}4\text{E-}8$ (they were already pierced) whilst mine gave out ($1.07\text{ E-}07$) – this points either to an issue with the new tubes (septum), or inaccurate sampling since my breath and samples give out normal beam areas/results.

Please contact us at service@sercongroup.com if you have any future questions or problems with this system going forwards

Engineer:	Thomas Iordanidis	Date:	09/07/2026
Signed:			
Customer:	Thomas Le Beaud	Date:	09/07/2026
Signed:			