SERVICE REPORT

Job Number:	SE0774 Quote: Sage:		
Customer:	University of Ghotenburgh, Sweden		
Contact:	Elizabeth Robertson		
Instrument:	2022,GSL,HT/EA		
Date of Visit:	29.09-01.10.2026 Days: 3		
Engineer:	Robert Kameny		
Reason for Visit:			
Service Visit			
Service Contract?	**Yes** / No	Expires:	30.09.2027
Warranty?	Yes / No	Expires:	n/a
Tick as Applicable:	Call Out / Routine Service / Warranty / Emergency / Contract Visit		
Details of Visit:			

Sercon Ltd
Europa House, Coppicemere Drive
Crewe, Cheshire
CW1 6GZ U.K.
Company Registration No.: 4290072

Phone: +44 (0) 1270 580008

www.sercongroup.com
VAT No.: 771 1100 74

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Service 09_2026

Reason for visit: Filament failure and reported autosampler issues.

Autosampler: The sampler intermittently skips forward and backward, preventing the sample from entering the chute at random intervals.

Attempted to loosen the metal push rod and mounting block.

Optimal configuration identified: tight mounting block with a loose push rod. This setup reduces random skipping, but the issue persists intermittently after extended use.

Customer returned the item to Sercon in 2025 for similar issues. Although the sampler was subsequently returned, the issues reoccurred shortly afterwards when running longer batches.

No obvious issues were identified during the engineer's visit in December 2025.

Day1

As Found: Structurally damaged and blown filament confirmed upon arrival. The cause of failure remains unknown.

Fitted new filament, conditioned around 2.0e-07mBar, but very poorly (abrupt continuous pressure oscillations for 10 secs when source on)

Emissions observed relatively withing normal/ expected parameters after conditioning +- 180uA with Trap of 50

Engineers demonstrated a filament swap to lab personnel

Left unit pumping down overnight

Att. zero readbacks on HT,HP Focus and Emag

Day2

Vacuum after pumping overnight: 1e-08 mbar

emissions stby mode after overnight 168uAmp (Trap 50)

Att. issue with zero readbacks persists even after restarting the system controller multiple times,

Visually inspected and re-seated the source cable and EMAG cable (no improvement)

Att. CO2 sensitivity tuning is only 1/2 the sensitivity: 3.52e-04 m/z 44 (compared with the tuning from post-service Dec 2025)

CO2 peak shape is good, showing good beam coincidence and a flat baseline, which suggests correct EMAG position and tuning parameters.

Att. HP: is at -60V for CO2, which is considered excessive, and it will need further inspection (any further adjustments lead to poor beam alignment)

Focus: only gives the best sensitivity around 80% of the total HT value (considered very low, and it will need further inspection)

IR: gives the best baseline only around -6.5 V (any other adjustments lead to excessive distortion of the baseline without achieving greater sensitivity

or better-looking peak shape, which would produce better results)

Best tuning parameters on the day (CO2): HT:2027,HP(-60),FOCUS:80,TRAP:200,eV:(-80),IR(-6.4),EMAG:13550

Specs achieved CO2 ref gas precision & linearity: 0.03 ‰ STD & 0.16 ‰ STD

N2 peak shape shows a good amount of sensitivity (compared to post-service Dec 2025): m/z 28 +- 1.03e-08

Att. unable to achieve persistent symmetrical peak shape (right-hand corner keeps dropping off) despite numerous attempts to adjust/ shift/relocate magnet

Zeroing the head amplifier seems to give the best smooth coincident lines across the peak shape, but only when slow scan

Att. similar issues with the tuning when compared with the CO2 mode

HP: is at -60V for CO2, which is considered excessive, and it will need further inspection (any further adjustments lead to poor beam alignment)

Focus: only gives the best sensitivity around 80% of the total HT value (considered very low, and it will need further inspection)

IR: gives the best baseline only around -9.5 V (any other adjustments lead to excessive distortion of the baseline without achieving greater sensitivity

or better-looking peak shape, which would produce better results)

Att. Suspected abnormal/ excessive age of the ion source. Instrument installed in 2014, probably still using identical source (will recommend sending the source out to be professionally cleaned and tested)

Best tuning parameters on the day (N2): HT:3146,HP(-60),FOCUS:80,TRAP:600,eV:(-88),IR(-9.5),EMAG:13550

Specs achieved N2 ref gas precision & linearity: 0.07 ‰ STD & 0.19 ‰ STD

EA:

Found in the full readiness state

Att: old water trap was found heavily discoloured (colouring varied from bronze /orange to heavy deep blue), all of which suggests heavy acid/ H2O ingress from the unknown samples

Decided to run a quick Dual precision using recognised standard (wheat flour) @4.0mg

System achieved a good spec on the dual reproducibility 15N & 13C: 0.15 & 0.14‰std

Replaced the filament last thing on day 2. New filament conditioned in 10 µA steps (zero - 50 µA) in order to avoid over pressurizing the chamber and damaging new filament

Good conditioning emissions observed at 150uAmps (Trap stby. 50)

Day3

Observed tuning after fitting new filament

(N2): HT:3137,HP(-55),FOCUS:80,TRAP:600,eV:(-85),IR(-10),EMAG:13550,Emissions:1736.3uA

Sensitivity m/z:28: 6.29e-09

Stability: very good

Peak shape: good, right hand corner has tendency to drop off despite numerous attempts to re-tune or move a magnet, slow scan seems to give better shape overall

N2 ref gas lin: 0.19‰std

N2 ref gas prec:0.02‰std

(CO2): HT 2024,HP(-60),FOCUS:82,TRAP:150,eV:(-80),IR(-4.4),EMAG:13550,Emissions:415.1uA

Sensitivity m/z:44: 1.31e-08

Stability: very good (improvement from day2)

CO2 ref gas lin: 0.32‰std

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CO2 ref gas prec:0.04‰std

Dual EA specs wheat flour @4.0mg

System achieved a good spec on the dual reproducibility 15N & 13C: 0.08 & 0.05‰std

System released back to service day3 pm

Recommendations:

- System controller readbacks issue (recommended action: send back to Sercon for a further testing and fix)
- Source (poor tuning characteristics, sensitivity drastically reduced when adjusting focus, suspected area: ion Repeller damage/ contamination), Half plates required -60V, need replacing (recommended actions: send back to Sercon to be tested, cleaned and inspected suspected areas)
- Autosampler (unreliable since delivery 4 yrs ago, recommended actions: negotiate replacement with Sercon

Follow Up:

Parts Used:	*Stock Number:*	*Quantity:*	*Charge:*
Filament		2	n/a
Large copper o ring		2	n/a
		Total:	n/a

Engineer: Robert Kameny Date: 06.10.2026

Signed: 

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Customer: Philipp Wanner	Date: 6.11.2026
Signed:	

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