

SERVICE REPORT

Job Number:	SE0724			Quote:	Sage:		
Customer:	Swiss Federal Research Inst. WSL, Zurich, Switzerland						
Contact:	Matthias Saurer, Manuela Oettli						
Instrument:	HS20-22, IsoEarth, CryoFlex & Teledyne 213 Laser						
Date of Visit:	25/08/2026					Days:	4
Engineer:	Thomas Iordanidis						
Reason for Visit:							
Service Visit							
Service Contract?	Yes / No	Expires:	30 NOV 2026				
Warranty?	Yes / No	Expires:	N/A				
Tick as Applicable:	Call Out / Routine Service / Warranty / Emergency / Contract Visit						
Details of Visit:							

SERVICE REPORT

Arrived on site and inspected instruments. All instruments in good working condition - PC is running very slow
 Customer mentioned issues with the autosampler not turning reliably and isoEarth low sensitivity – fan at the back of the IsoEarth also not working

Carried out 15N & 13C Pre-Service Ref Gas specs. Results as below:

CO2 Ref Gas (2/1) Peak Shape: PASS	Ref Gas CO2 (¹³C) Precision =0.012‰ S.D.
CO2 (2/1) Stability: PASS	Ref Gas CO2 (¹³C) Linearity =0.225‰ S.D.
N2 Ref Gas (2/1) Peak Shape: PASS	Ref Gas N2 (¹⁵N) Precision =0.016‰ S.D.
N2 (2/1) Stability: PASS	Ref Gas N2 (¹⁵N) Linearity =0.242‰ S.D.

IsoEarth found with lowered temperature furnaces – unable to run pre-service specs

Proceeded to vent instrument and carry out PM service.

Removed rotary pump, drained old oil and replaced for new – All OK.

Removed Source, removed old filament. Fitted new filament – All OK. Replaced grub screws holding the focusing magnets – All OK. Fitted new copper gasket and PTFE ferrules to inlets – All OK.

Source continuity checked on bench top and flight tube – All OK

Pumped down instrument. All OK. (1.0e-08 mBar vac achieved over night)

TCD heater tested since fuse was replaced during last service, responds and heats up fine – all OK

GC baked at 130°C overnight

Upon customer request only the IsoEarth Reduction tube was replaced – all OK

Pressure test with new reduction tube passes – drop of 2PSI in 300 secs – all OK

Ramped up furnace temperatures overnight to Combustion: 1000°C and Reduction 600°C

IsoEarth back panel 80mm Fan replaced – quote to be sent to customer – all OK

Day 2 arrival vacuum 1.0E-8. Emissions OK in standby mode at approx. 125uA with trap @ 50uA. Trap & Emission readbacks are stable. – All OK.

GC lowered to 70°C for dual operation

Retuned instrument as required – All OK

N2 poor precision – found small leak on autosampler, new water trap & new samples – all OK

Proceeded to carry out post-service tests and specs. Ran dual precision and linearity using 100ugN/400ugC and 100ugN/250ugC of Beetmix solution in tin capsules

Post Service Specs:

HS2022 (S/N 20402/1-2020/1238):

CO2 Ref Gas (2/1) Peak Shape: PASS	Ref Gas CO2 (¹³C) Precision =0.027‰ S.D.
CO2 (2/1) Stability: PASS	Ref Gas CO2 (¹³C) Linearity =0.161‰ S.D.
N2 Ref Gas (2/1) Peak Shape: PASS	Ref Gas N2 (¹⁵N) Precision =0.031‰ S.D.
N2 (2/1) Stability: PASS	Ref Gas N2 (¹⁵N) Linearity =0.067‰ S.D.

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ISOEARTH (S/N: 10202/11-2020/1238):

DUAL Precision

As Beet Mix (13C) Precision = 0.013‰ S.D.

DUAL Precision

As Beet Mix (15N) Precision = 0.093‰ S.D.

DUAL Linearity

As Beet Mix (13C) Linearity = 0.245‰ S.D.

DUAL Linearity

As Beet Mix (15N) Linearity = 0.091‰ S.D.

All Ref Gas specs & IsoEarth DUAL specs pass – OK

Teledyne 213 Laser/ CryoFlex (S/N: 10802/8-2020/1238):

Checked over system – All OK.

Good Ref Gas CO2 Peak Shape and Stability – Ref gas specs met with a trap of 600 for CO2 Precision (0.020‰ S.D.) & Linearity (0.136‰ S.D.) – all ok

Tested laser ablation on user samples (Cellulose IAEA&VWR) – sample size yield is of expected volume and good results

All functions of 213 laser and CryoFlex perform correctly - Handed system back to customer.

Recommendations:

Keep an eye on your autosampler, during my visit it did not stop turning after a few adjustments- if it stops rotating again please get in contact with us for further assistance/troubleshooting

Follow Up:

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

Parts Used:	Stock Number:	Quantity:	Charge:
80mm Fan	SI0793	1	Quote to be generated
Service Kit	SC9001	1	Included in service
Total:			TBC

Engineer: Thomas Iordanidis

Date: 28/08/2026

Signed:



Customer:

Date:

Signed:



28/08/2026

NOTES: N/A