E 60

Basic maintenance of the analyzer cell

The frequencies of preventive maintenance tasks are listed in section D 10.

Components

- Filament
- Double electron collector
- Special elastomer seal

F section "Measurement"

Special precautions

Disconnect the detector from the main power.

The analyzer cell is very sensitive to any form of contamination, particularly to dust and electrostatic discharge.

When assembling, to avoid gettering due to dust or finger prints, you are advised to work:

- in a clean room,
- on lent free paper,
- with unpowered vinyl gloves (clean room gloves),
- to blow off each part with filtered dry air,
- to block all the openings in the vacuum lines and the VHS preamplifier.

The operator must take all necessary measures to avoid transferring electrostatic charges during the operation.

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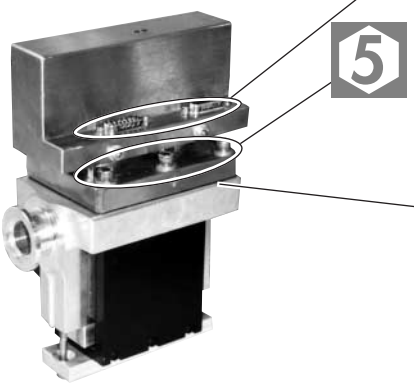
Basic maintenance of the analyzer cell

Replacement of the filaments and the electron collector

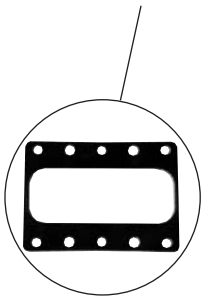
Cell disassembly



■ Disconnect the spectro electrically (2 connectors).

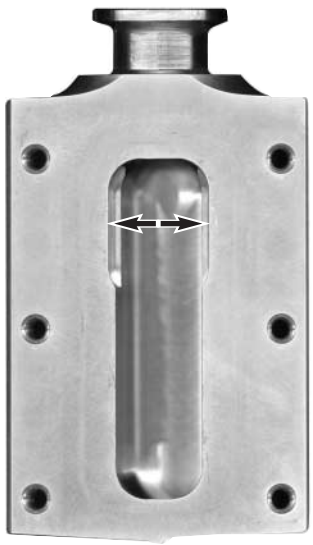
■ Unfasten the 6 securing screws and their washers using a 5 mm Allen key and carefully extract the flange from the body (pull along the vertical axis).

■ Place the seal on a surface protected from any contamination.



Cleaning the body

The internal duct of the body may show traces of metallization beside the filament. If traces are present, clean using abrasive paper (grit 180), aspirate the residue and complete the cleaning with alcohol.
Clean the special metal seal bearing surface with alcohol.



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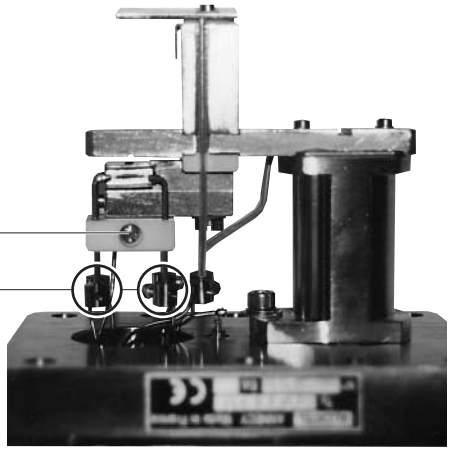
Basic maintenance of the analyzer cell

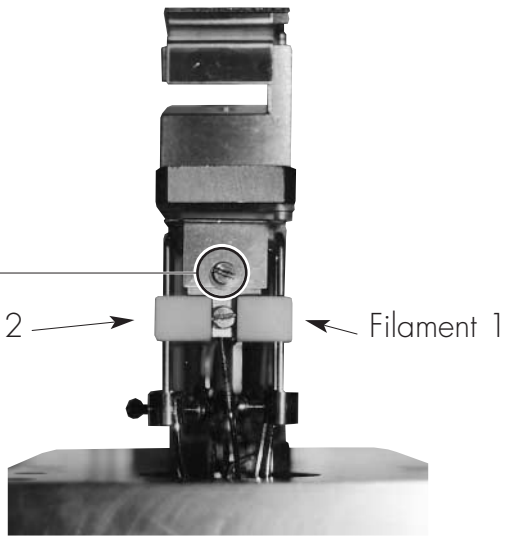
Disassemble the filaments

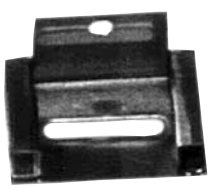
For each filament:
Remove the attachment screw and unfasten the 2 connection screws.



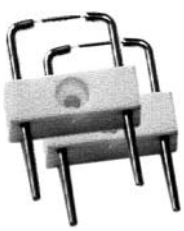
Disassemble the electron collector

Remove the attachment screw.





Electron collector



Filaments

Ion emitter

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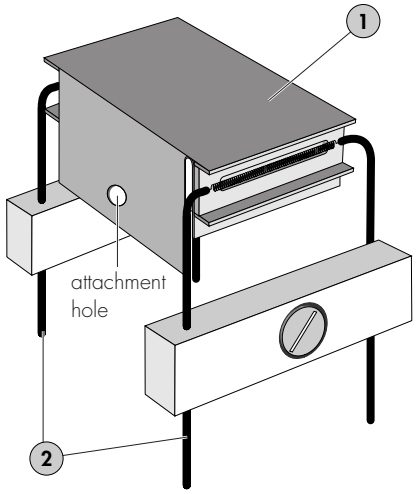
Basic maintenance of the analyzer cell

Replace the electron collector and the filaments

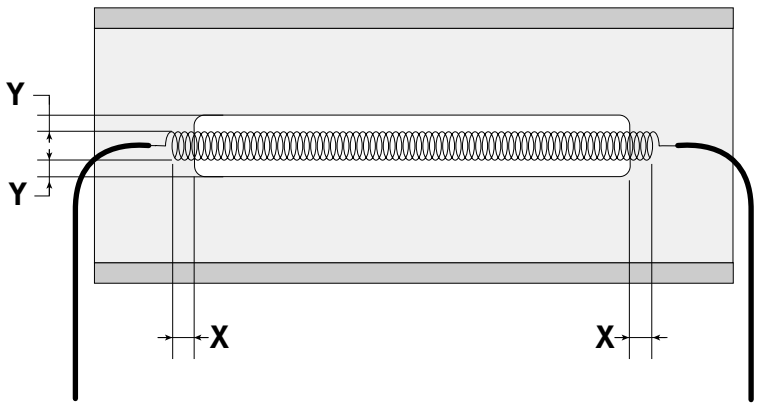
Fit the electron collector (1) on the ion emitter by inserting the screw without tightening it completely.

Fit two new filaments (2) (do not fasten the connections).



The good condition and correct setting of these components are decisive factors in maintaining the detector's characteristics.

The turns of each filament must be centered exactly opposite the electron collector slot:



- The **X** values must be equal.
- The **Y** values must be equal.

To obtain this setting on each filament, adjust the relative positions of each filament and the electron collector before the final tightening.

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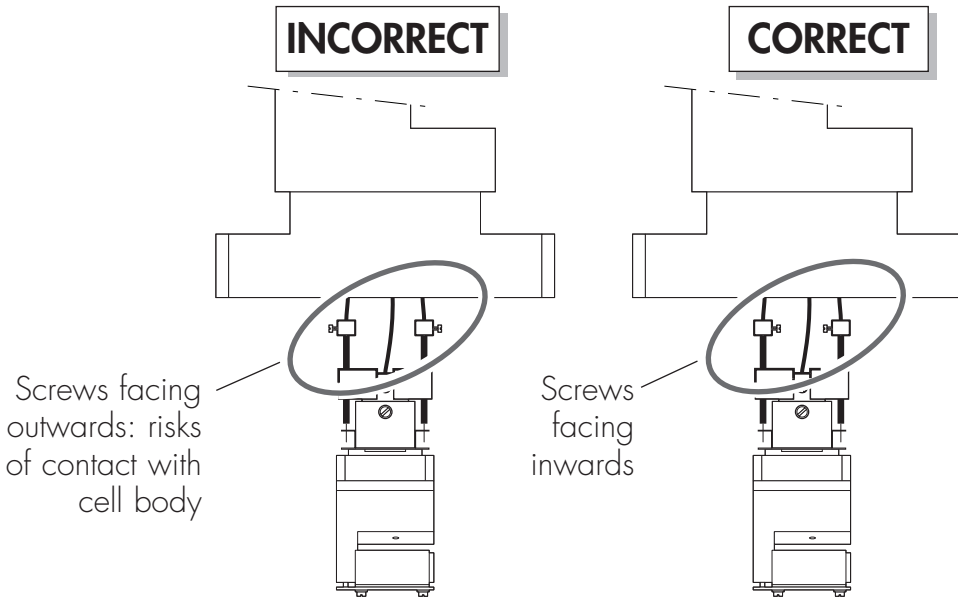
Basic maintenance of the analyzer cell

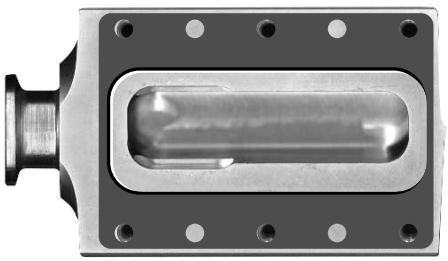
Tighten all the connection screws

■ Make sure that all the connection screws are facing inwards and are not in contact with each other.



Reassemble the flange

■ Reposition the special elastomer seal on the body. If it is damaged, change it.



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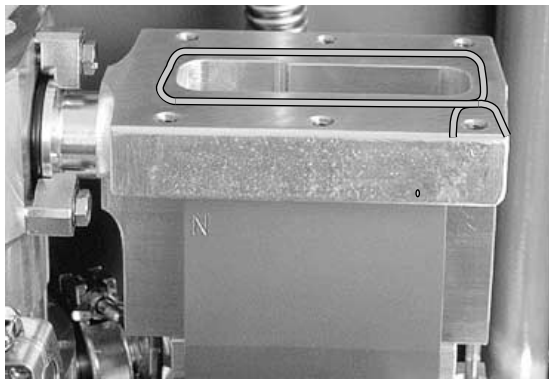
Basic maintenance of the analyzer cell

In case the analyzer cell is equipped with the optional metal seal:

- Prepare the new special metal seal according to the figure below or using the seal former. **F 130**
- The ends of the metal seal must only cross once (no twist). Check that the ends cross near one of the six screws holes, one end on either side of the hole. Place the metal seal on the cell body seal seat.

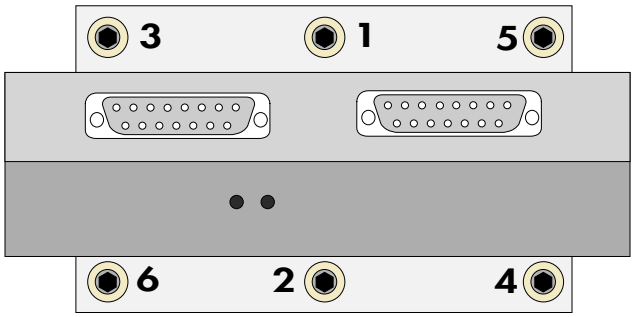


- Install the flange, taking care to lower it into the duct without touching the sides.
- Install the 6 screws.

Tighten all the securing screws

5

- Tighten the screws with their washers in the sequence shown below to a torque of 0.7 m.daN for the special elastomer seal (0.8 m.daN or 8 ft. lbs for the metal seal).



6 screws tightening order

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Basic maintenance of the analyzer cell

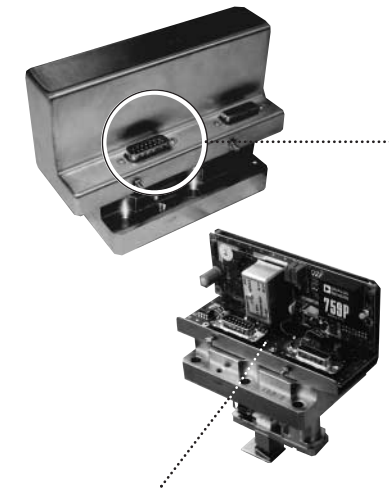
Restart and check proper operation of the analyzer cell

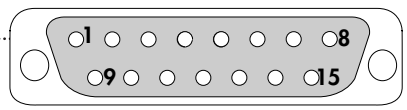
- Connect again the 2 plugs to the analyzer cell.
- Start the leak detector.
- Initial filament start and auto-calibration may fail due to exposure of the inside of the analyzer cell to atmospheric pressure during the maintenance process.

  Let the detector run for a few minutes to obtain proper vacuum inside the analyzer cell.

  If the filament did not light, reset it and run an auto-calibration.

Symptoms and probable cause	Remedy
Filament does not light	
■ Gross leak	■ Check the torque of the screws of the analyzer cell, sealing surface (spray helium to check it) and elastomer seal status.Change it if necessary.
■ Electrical short circuit	■ Check electrical connections on the sub-D 15 pin male plug J2 located on the top of the analyzer cell. Dismantle and relocate correctly the internal wires and/or connections.





J2 sub-D male plug

J2 plug		corresponding
Pins	**functions**	**feed-throughs**
1	Triode	7
2 to 6	Ground	-
7	Not used	-
8	Filament 1 point B	2
9	Brake	3
10	Collector	6
11	Pirani	8
12	Filament 2 point A	4
13	Filament 2 point B	5
14	Ground	-
15	Filament 1 point A	1

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Basic maintenance of the analyzer cell

Symptoms and probable cause	Remedy
Auto-calibration failure (refer to defect message displayed)	
■ Lack of sensitivity	■ Check filament alignment.
■ High background: internal degassing	■ Let the leak detector run for a few minutes more and start another auto-calibration.
■ High background: leak	■ Spray helium around the sealing surfaces.

Reset the filament information timer

After the basic maintenance of the analyzer cell, reset the filament information (timers).

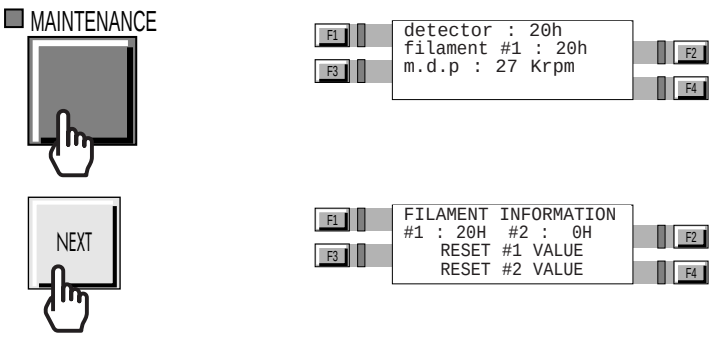
Access authorization

Do you have access to this operation? **C 30**

Procedure

Reminder ***Operating principle of the control panel*** **C 20**

Press the key — activated



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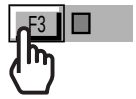
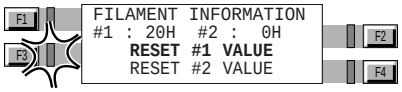
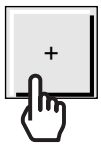
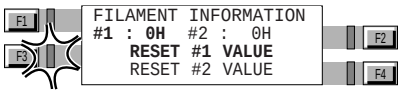
Basic maintenance of the analyzer cell

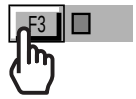
Reset filament #1

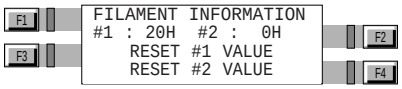






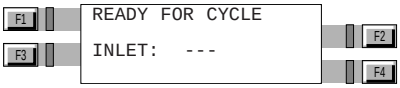






Reset filament #2

The procedure is the same as for resetting filament #1 but instead of pressing F3 , press F4 .



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Basic maintenance of the analyzer cell

Switch on/off the filament

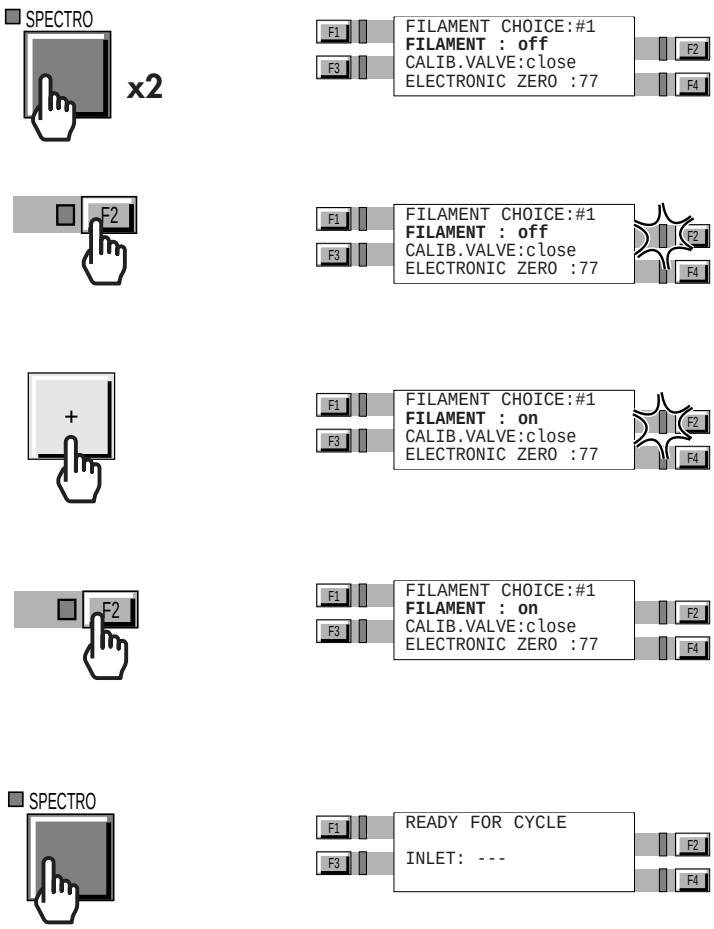
Access authorization

Do you have access to this operation? C 30

Reminder *Operating principle of the control panel* C 20

Press the key — activated

Switch off the filament



Switch on the filament

The procedure is the same as for resetting filament #1 but instead of pressing , press .

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