

AW503

Hydrazine cell



Refurbishing the cell assembly

Measurement made easy

— Navigator 500 hydrazine analyzer

Introduction

This publication provides the refurbishment procedure for the Navigator 500 hydrazine analyzer's cell assembly and must be used in conjunction with the analyzer's Operating Instruction [OI/AHM550-EN](#).

For more information

Further publications for the Navigator 500 hydrazine analyzer are available for free download from:

abb.com/analytical

or by scanning this code:



Search for or click on

Data Sheet Navigator 500 Hydrazine analyzer	DS/AHM550-EN
Operating Instruction Navigator 500 Hydrazine analyzer	OI/AHM550-EN
Commissioning Instruction Navigator 550 Hydrazine wet section	CI/AHM550-EN
Commissioning Instruction Navigator 540 Transmitter	CI/AWT540-EN

1 Refurbishing the cell assembly

WARNING

The reagent used in the monitor is extremely caustic and must be handled with great care. Gloves, protective clothing and eye protection must be worn throughout this procedure.

Note. Before removing the cell assembly, either:

- close the sample isolating valve upstream of the monitor and allow the constant head unit to drain
- or
- pinch off the sample inlet line from the constant head unit to the cell assembly.

Removal

Referring to Figure 1:

- 1 Disconnect the hydrazine sensor (A) (red) and temperature sensor (B) (blue) electrical connectors.
- 2 Pull the hydrazine cell assembly (C) out of its mounting clip (D) on the sub-panel.
- 3 Holding the sensor over a suitable container, pull the inlet tube off inlet nipple (E) and allow the tube and sensor cell to drain into the container. Place the end of the inlet tube in the container.

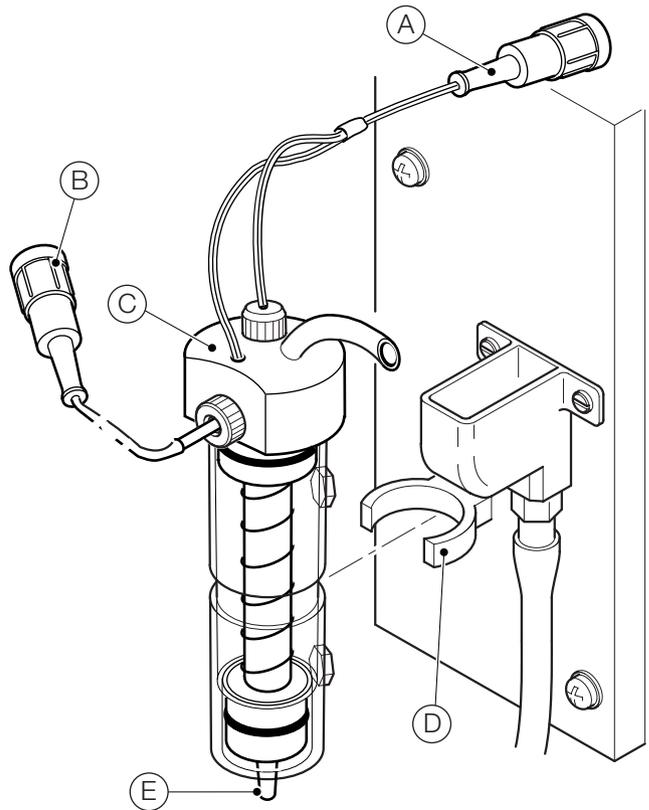


Figure 1 Hydrazine cell removal

Dismantling and cleaning

Referring to Figure 2:

- 1 Remove the 2 x 10-32 UNF blanking plugs (A) and (B).
- 2 Hold outer jacket (C) and carefully push the sensor assembly up from the inlet nipple (D) end to remove sensor from outer jacket.

⚠ WARNING

The gel in the hydrazine cell assembly contains silver oxide and sodium hydroxide. The gel is caustic and stains skin and clothing. Wear gloves, protective clothing and eye protection.

- 3 Wash all components thoroughly with high-purity water to remove all traces of gel.
- 4 Unscrew knurled nut (E) and withdraw sleeve (F) and the platinum electrode, taking care not to damage the electrode or the electrical connection.
- 5 Insert the brush supplied in the sensor kit into the bore of the ceramic tube, rotate gently and withdraw. Immerse the platinum anode in a test tube containing 50 % nitric acid for a few minutes until clean.

⚠ WARNING

Nitric acid is extremely caustic and must be handled with great care. Wear gloves, protective clothing and eye protection.

- 6 If the silver cathode is tarnished or blackened, dip a cotton wool bud in 50 % nitric acid and rub over the wire to restore it to a matt silver finish. Rinse thoroughly with high purity water.
- 7 Soak the ceramic tube for one hour in 2 % sodium hydroxide solution and rinse with high purity water.

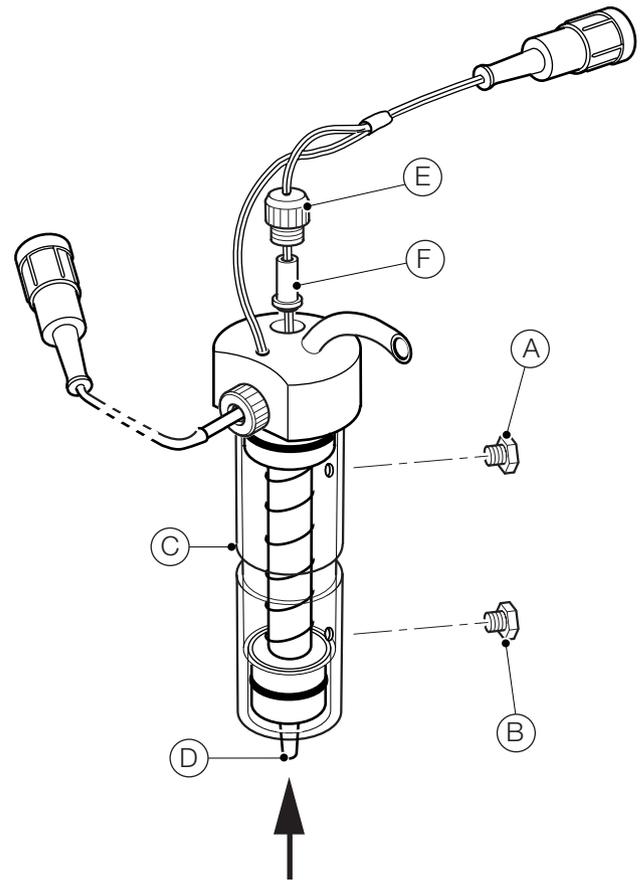


Figure 2 Hydrazine cell dismantling

...1 Refurbishing the cell assembly

Reassembly

Referring to Figure 3:

- 1 Carefully insert the platinum electrode into the ceramic tube, taking care not to damage the electrode or the electrical connection. Refit sleeve (A) and secure with knurled nut (B).
- 2 Carefully slide outer jacket (C) onto cell assembly.
- 3 Fill the cell assembly with fresh gel as follows:
 - a Holding the black closure cap tightly in place on the filling syringe, snap the syringe plunger into position and remove the black closure cap.
 - b Slowly inject the filling gel through the lower hole in the outer jacket until it reaches the top hole.
 - c Remove the syringe and replace its closure cap.
 - d Refit lower 10-32 UNF blanking plug (D).
 - e Refit upper 10-32 UNF blanking plug (E).

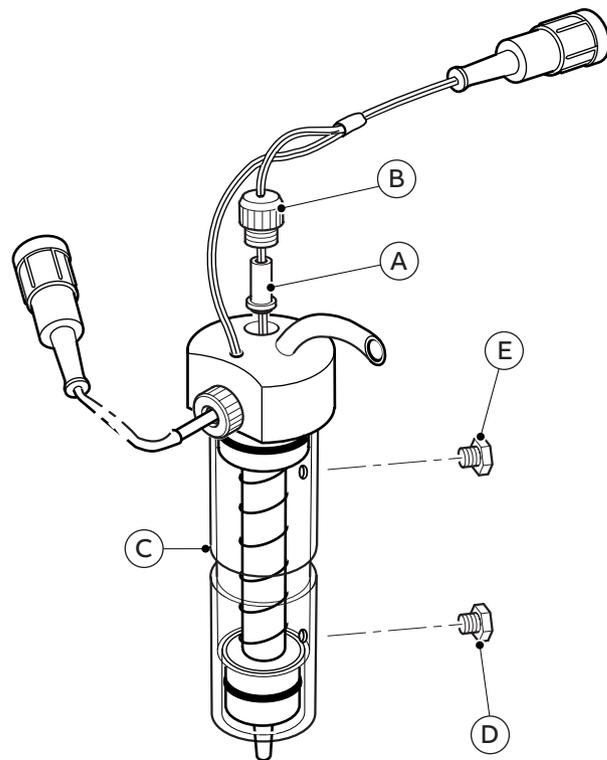


Figure 3 Hydrazine cell reassembly

Refitting

Referring to Figure 4:

- 1 Push the hydrazine cell assembly into clip (A) on the sub-panel, ensuring cell outlet tube (B) is positioned above drain tundish (C).
- 2 Reconnect the inlet tube to inlet nipple (D).
Note. Hold the sensor firmly at the top so that the center portion is not pushed out when the tube is connected
- 3 Reconnect the hydrazine sensor (E) (red) and temperature sensor (F) (blue) electrical connectors.
- 4 Fill the reagent and calibration solution containers with their respective solutions.

WARNING

The sample is dosed with sodium hydroxide and the concentration, although small at first, increases if any spillage is left to evaporate. Dispose of the outflow safely.

- 5 Open the sample isolating valve upstream of the monitor and adjust the sample flow rate until sample is overflowing from the constant head unit but not from the emergency overflow.
- 6 Ensure that the sample is flowing through the sensor at the correct rate – refer to the monitor User Guide, [OI/AHM550-EN](#).
- 7 Close and lock the monitor door.
- 8 Carry out a calibration sequence – refer to the monitor User Guide, [OI/AHM550-EN](#).

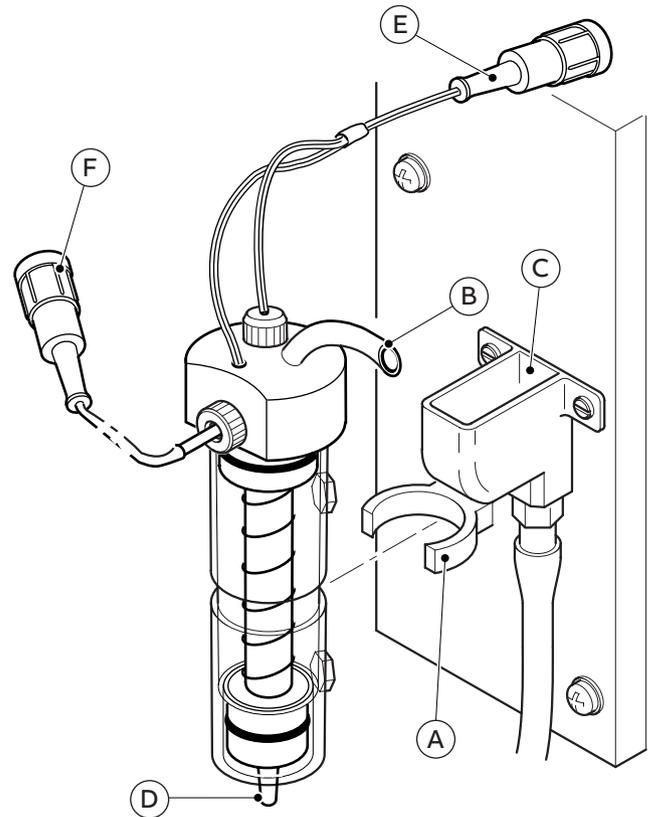


Figure 4 Hydrazine cell refitting

Notes

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