

Analytical Section Assembly Replacement

1 Introduction

This publication details replacing the Navigator 600 Series analyzer's analytical section assembly. The procedure must be carried out by a trained technician.

The contents of the analytical section assembly replacement kit are shown in Table 1.1:

Description	Qty
Analytical Section Assembly	1
Information Sheet – Analytical Section Assembly Replacement	1

Table 1.1 Analytical Section Replacement Kit AW601 113

3 Tools Required

- No. 0 Pozidriv screwdriver
- Small, flat-bladed screwdriver
- 6 mm open-ended spanner

2 Safety



Warning.

- Ensure personal protective equipment (PPE) such as **gloves** and **eye protection** are worn during any maintenance and that any spillages are cleaned-up using clean water.
- To familiarize yourself with handling precautions, dangers and emergency procedures, always review the Material Safety Data Sheets prior to handling containers, reservoirs, and delivery systems that contain chemical reagents and standards.
- Take care if cleaning any spillages and observe all relevant safety instructions.
- General cleaning of the instrument should be carried out using a damp cloth only, mild detergent can be used as a cleaning aid. Do not use Acetone or any organic solvents.
- Isolate electrical components before maintenance or cleaning.
- Observe all health and safety procedures for handling chemicals.

4 Analytical Section Replacement

4.1 Removal



Warning.

- Remove power from all supply and relay circuits before accessing or making any connections.
- Wear personal protective equipment (PPE) such as gloves and eye protection during this procedure and clean up any spillages using clean water.

1. Referring to Fig. 4.1, release thumbscrews (A) and open the analytical section door.

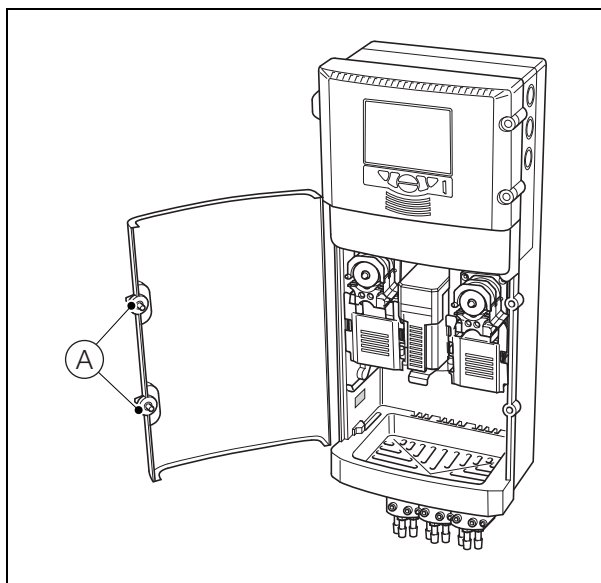


Fig. 4.1 Opening the Analytical Section Door

Note. Perform step 2 only if access to the analytical section hinge pins and retaining plate cannot be gained with the secondary calibration and cleaning solution bottles fitted.

2. Remove the bottle caps from the secondary calibration and cleaning solution bottles and remove the bottles.

3. Referring to Fig. 4.2:

- a. Remove the left-hand cover (B).
- b. Disconnect the sample tube (blue) (C) from the left-hand connector on the cleaning solution solenoid valve.
- c. Disconnect the cleaning solution tube (light grey) (D) from the right-hand connector on the cleaning solution solenoid valve.
- d. Disconnect the secondary calibration solution tube (yellow) (E) from the right-hand connector on the secondary calibration solenoid valve.

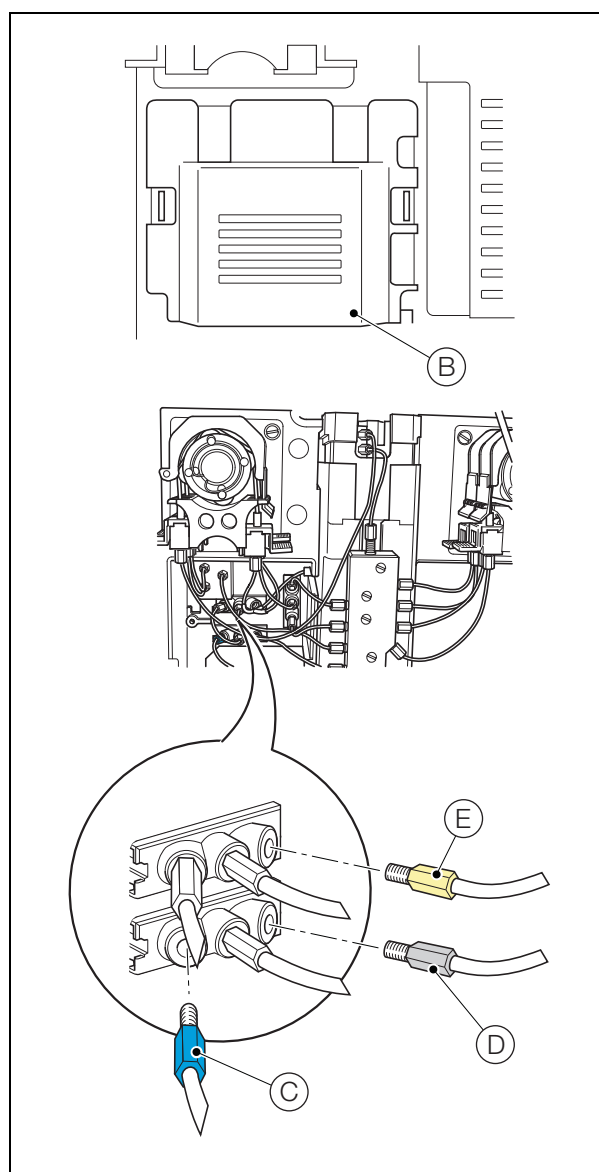


Fig. 4.2 Disconnecting the Solenoid Valves

4. Referring to Fig. 4.3:
 - a. Remove the right-hand cover (F).
 - b. Disconnect the 4 reagent tubes (G) from the peristaltic pump connectors.

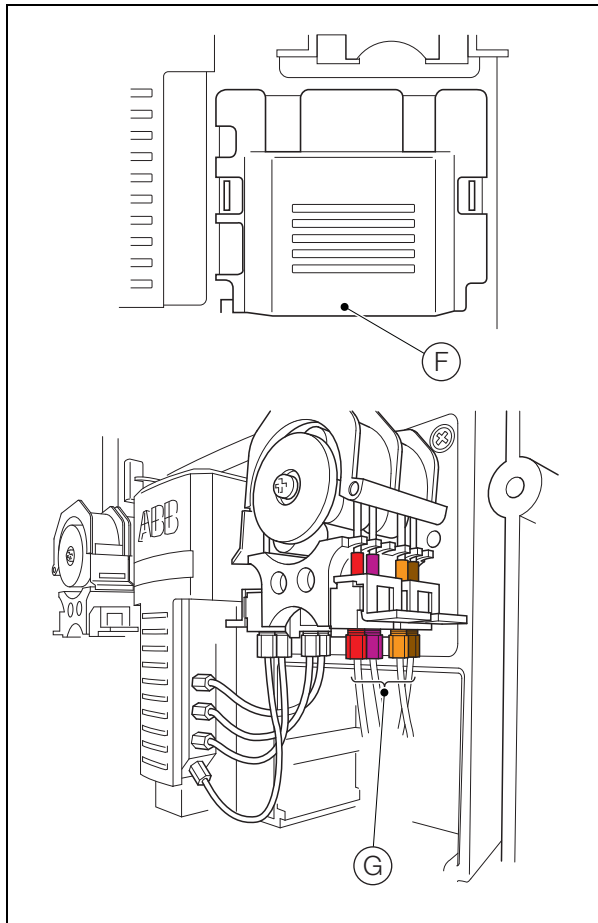


Fig. 4.3 Disconnecting the Reagent Tubes

5. Referring to Fig. 4.4:
 - a. Unlock catch (H) and pull the analytical section forward using handle (J).
 - b. Carefully lower the analytical section until it rests against its stops.

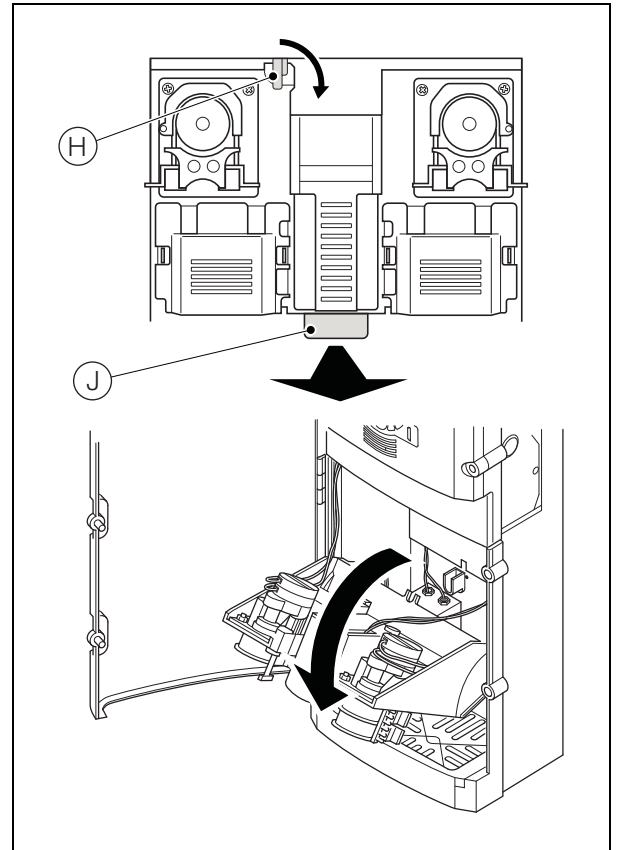


Fig. 4.4 Opening the Analytical Section

6. Referring to Fig. 4.5:
 - a. Disconnect the 'Reagent Motor' connector (K) from the connection board.
 - b. Remove the screw securing cable clip (L) and release the clip from the loom.
 - c. Disconnect the 'Sample Motor', 'Wash Solution Valve', 'Zero Solution Valve' and 'Span Solution Valve' connectors (M) from the connection board.
 - d. Remove the screw securing cable clip (N) and release the clip from the loom.
 - e. Disconnect the 'Measuring Cuvette', 'Heater PT100' and 'Heater' connectors (O) from the connection board.
 - f. Disconnect the 'MC Reference Diode' and 'MC Measure Diode' coaxial connectors (P) from the connection board.

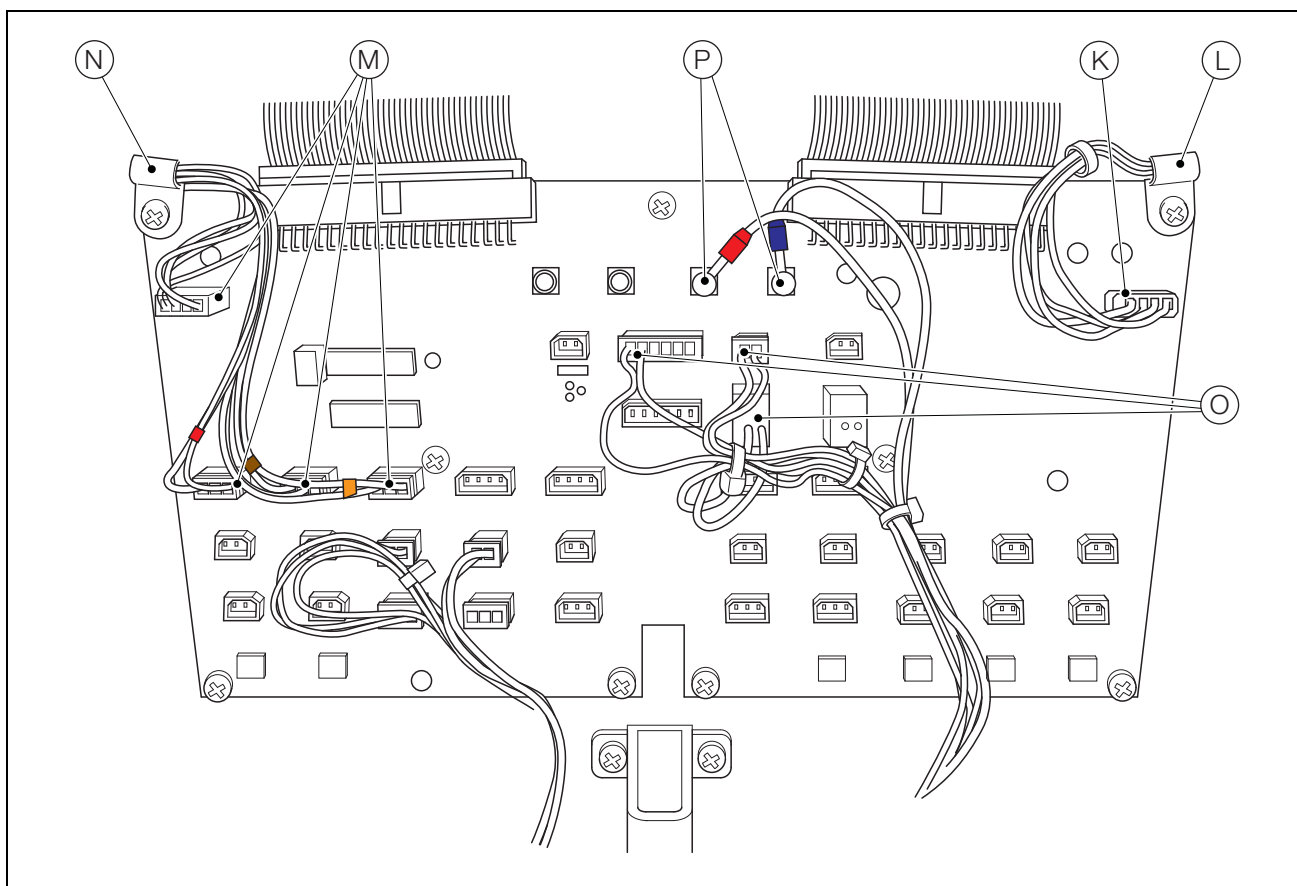


Fig. 4.5 Disconnecting the Analytical Section Electrical Connections

7. Referring to Fig. 4.6:

- a. Remove screw (Q) securing the analytical section retaining plate (R) to the analyzer case and remove the plate.

Note. Fig. 4.6 shows the left-hand side of the analyzer case (viewed from the front) but steps b to d apply also to the analytical section fittings on the right-hand side.

- b. Turn hinge pin (S) counter-clockwise until it is clear of slot (T) in the analyzer case.
- c. Raise the analytical section to move pin (U) to the bottom of track (V).
- d. Push the analytical section back until pin (U) is aligned with slot (W), then lower the analytical section carefully to disengage the pin from the slot.
- e. Carefully lift the analytical section clear of the analyzer case.

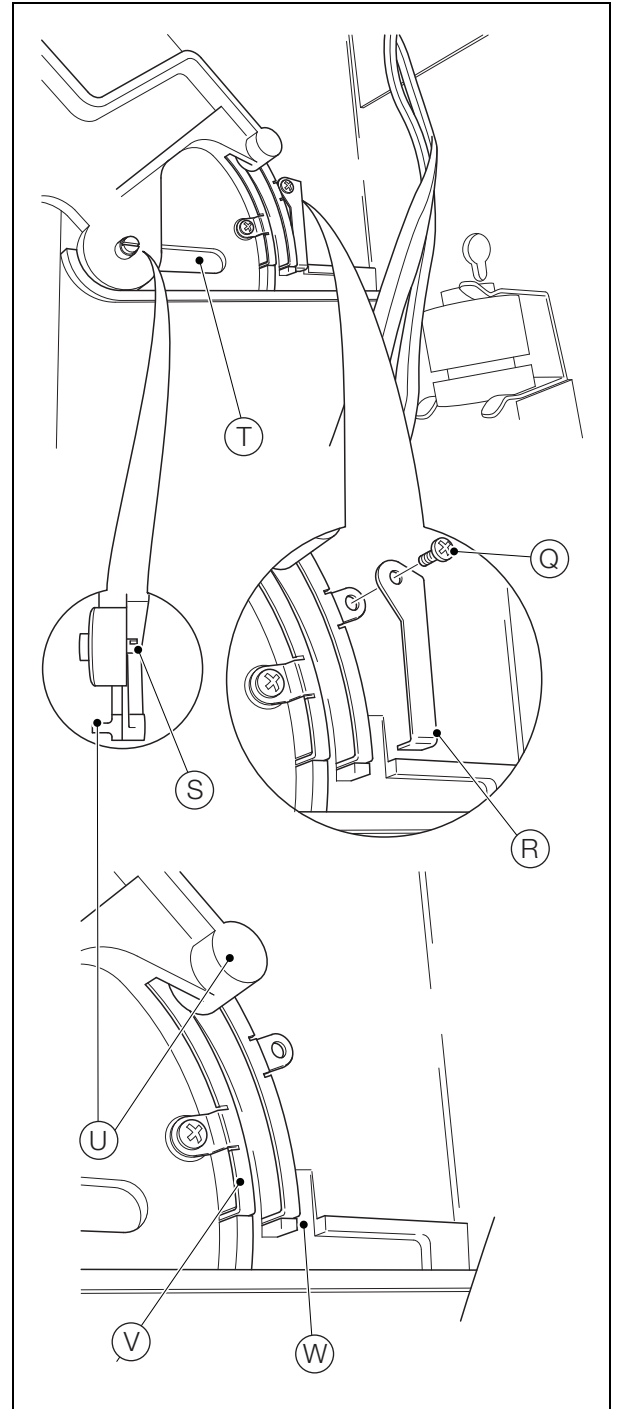


Fig. 4.6 Removing the Analytical Section

4.2 Fitting

Note. Fig. 4.7 shows the left-hand side of the analyzer case (viewed from the front) but steps a to f apply also to the analytical section fittings on the right-hand side.

1. Referring to Fig. 4.7:
 - a. Retract hinge pin (A) as shown.
 - b. Carefully insert the analytical section into the analyzer case, ensuring pin (B) is positioned to the rear of track (C) and aligned with the top of slot (D).
 - c. Raise the analytical section ensuring pin (B) passes through slot (D) into the track below.
 - d. Pull the analytical section forward to position pin (B) beneath track (C), then lower the analytical section ensuring the pin enters the track.
 - e. Carefully lower the analytical section fully until it rests against its stops.
 - f. Turn hinge pin (A) clockwise, until it is fully engaged in track (E), ensuring the end of the pin does not contact the analyzer case and that the analytical section is free to rotate and free to move along track (E) without binding in the analyzer case.
 - g. Fit the analytical section retaining plate (F), ensuring it is positioned as shown. Secure with screw (G).

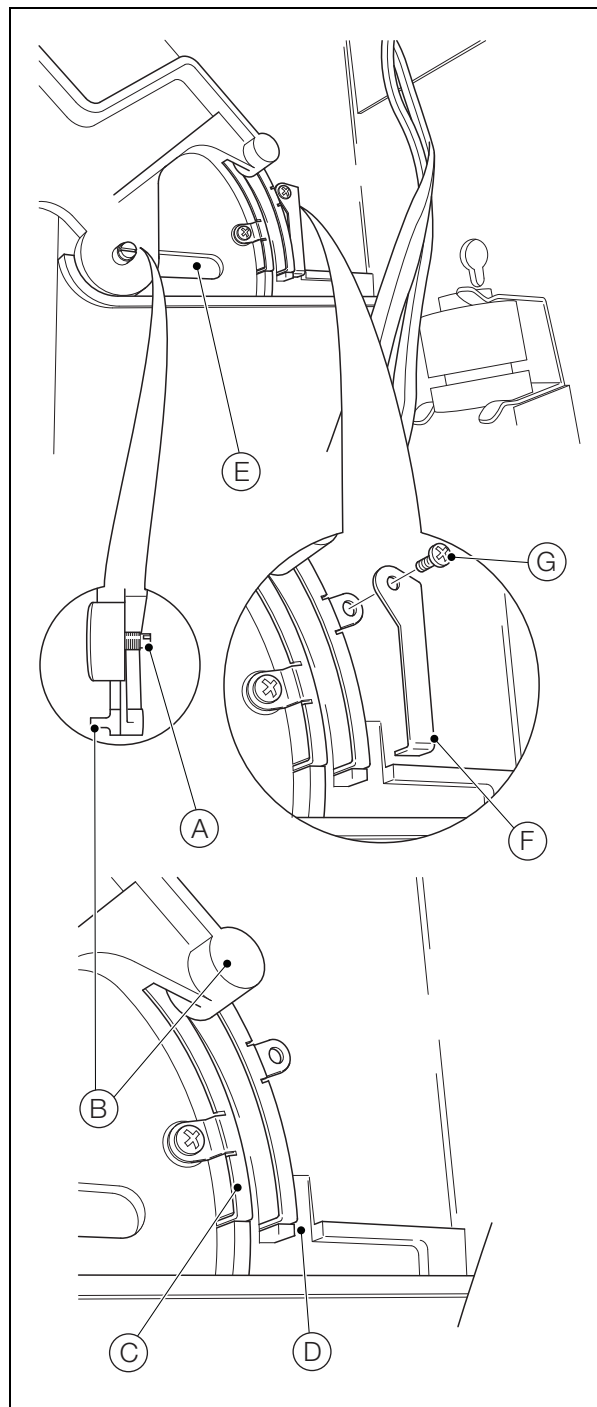


Fig. 4.7 Fitting the Analytical Section

2. Referring to Fig. 4.8:
 - a. Connect the red-sleeved coaxial connector to the 'MC Reference Diode' and the blue-sleeved coaxial connector to the 'MC Measure Diode' coaxial sockets (H) on the connection board, .
 - b. Insert the connectors into the 'Measuring Cuvette', 'Heater PT100' and 'Heater' sockets (J) on the connection board.
 - c. Insert the connectors into the 'Sample Motor', 'Wash Solution Valve', 'Zero Solution Valve' and 'Span Solution Valve' sockets (K) on the connection board.
 - d. Position the cable loom in the cable clip (L) and tighten the clip securing screw – see Note.
 - e. Insert the reagent motor connector into the 'Reagent Motor' socket (M) on the connection board.
 - f. Position the cable loom in the cable clip (N) and tighten the clip securing screw – see Note.

Important. Ensure cable clips are fitted to prevent plugs working loose when the analytical section is opened / closed.

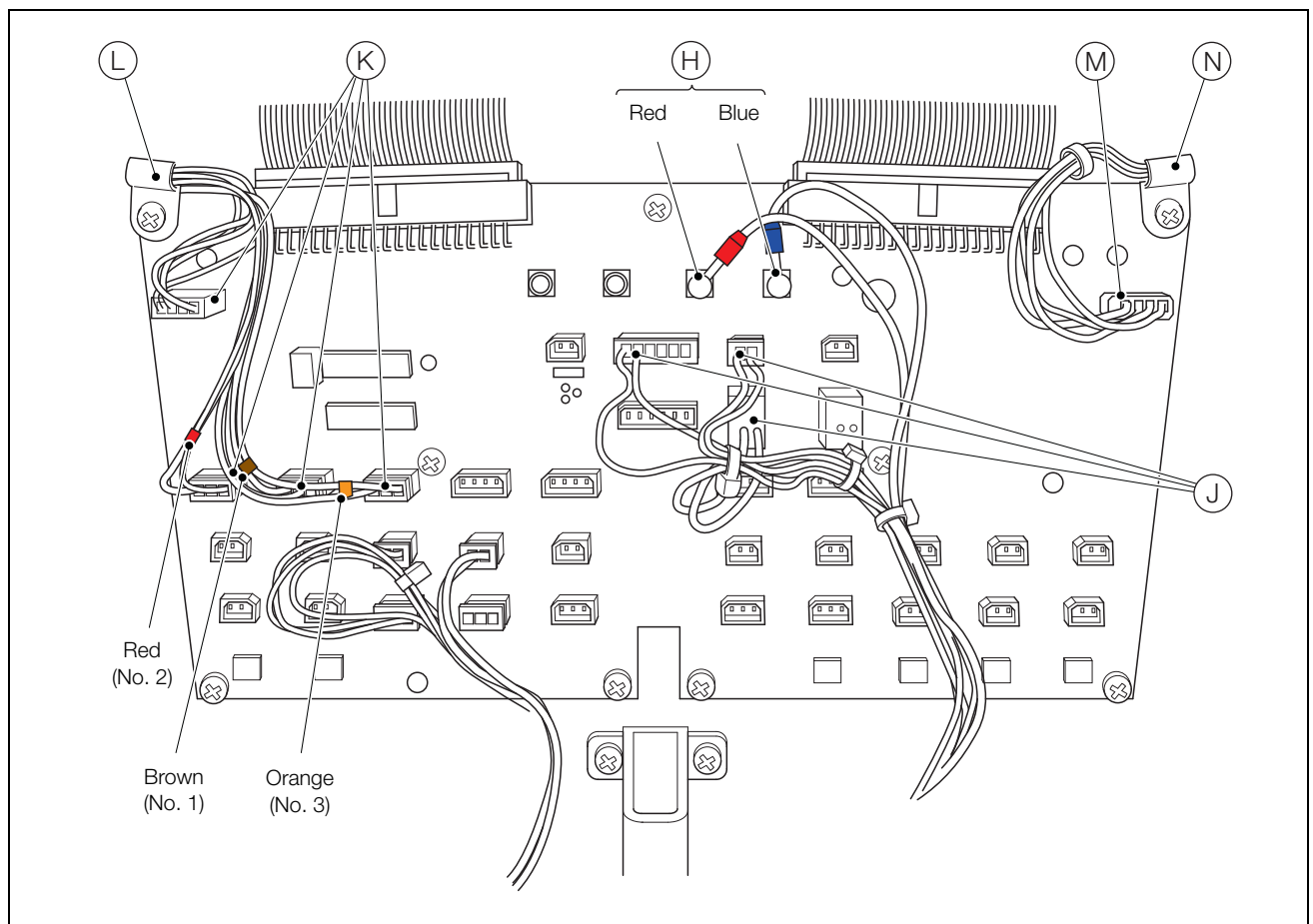


Fig. 4.8 Analytical Section Electrical Connections

3. Referring to Fig. 4.9:
 - a. Carefully raise the analytical section.
 - b. Push the analytical section rearward using handle (M) and secure in position with catch (N).

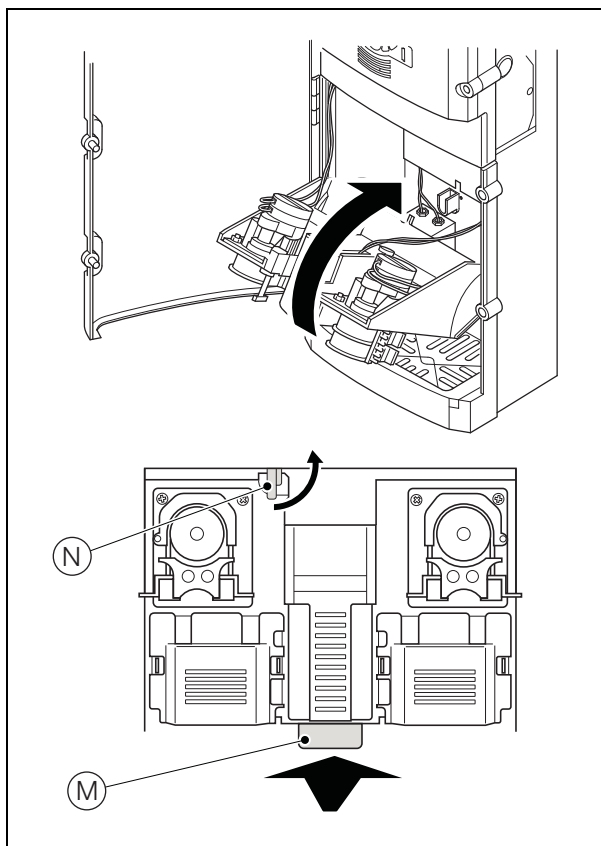


Fig. 4.9 Closing the Analytical Section

4. Referring to Fig. 4.10:
 - a. Reconnect the 4 reagent tubes (P) to the peristaltic pump connectors ensuring the color-coded sleeves are matched correctly. Tighten the tubing connectors finger-tight then, using a 6 mm open-ended spanner, tighten the connectors by a further $\frac{1}{6}$ turn. **Do not overtighten.**
 - b. Refit the right-hand cover (Q).

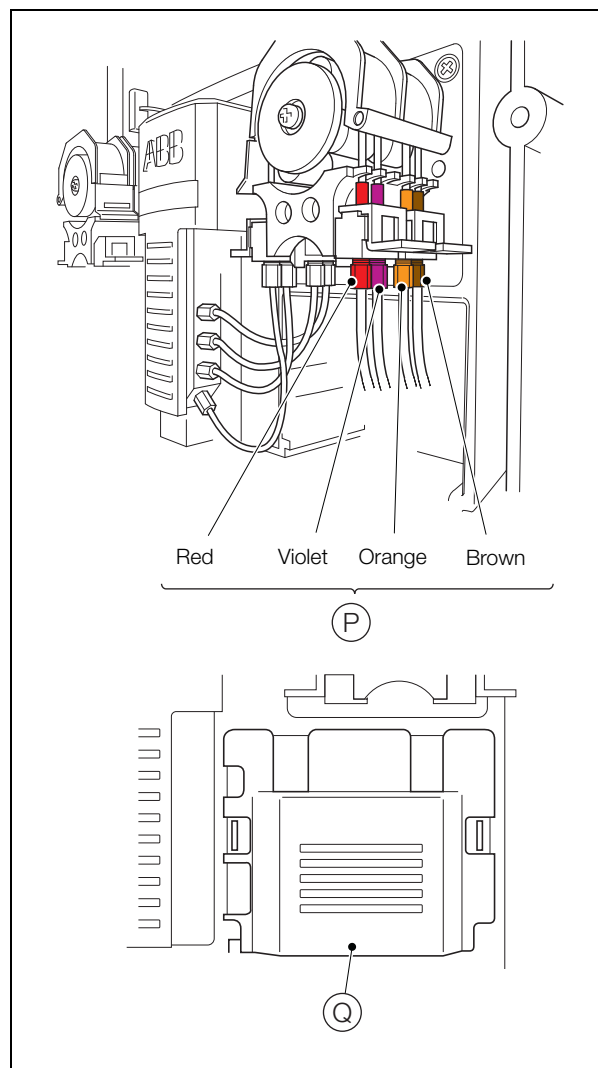


Fig. 4.10 Reconnecting the Reagent Tubes

5. Referring to Fig. 4.11:
 - a. Loosely reconnect the secondary calibration solution tube (yellow) (R) to the right-hand connector on the secondary calibration solenoid valve.
 - b. Loosely reconnect the cleaning solution tube (light grey) (S) to the right-hand connector on the cleaning solution solenoid valve.
 - c. Loosely reconnect the sample tube (blue) (T) to the left-hand connector on the cleaning solution solenoid valve.
 - d. Tighten all tubing connectors finger-tight then, using a 6 mm open-ended spanner, tighten the connectors by a further $\frac{1}{6}$ turn. **Do not overtighten.**
 - e. Refit the left-hand cover (U).

Note. Perform step 6 only if the secondary calibration and cleaning solution bottles were removed for access during Section 4.1, step 2.

6. Replace the secondary calibration and cleaning solution bottles on the solution tray and refit the bottle caps.
7. Referring to Fig. 4.1, close the analytical section door and secure with the thumbscrews.
8. Refer to Section 3 of the User Manual (IM/NAV6S) and prepare the analyzer for operation.
9. Check for leaks.

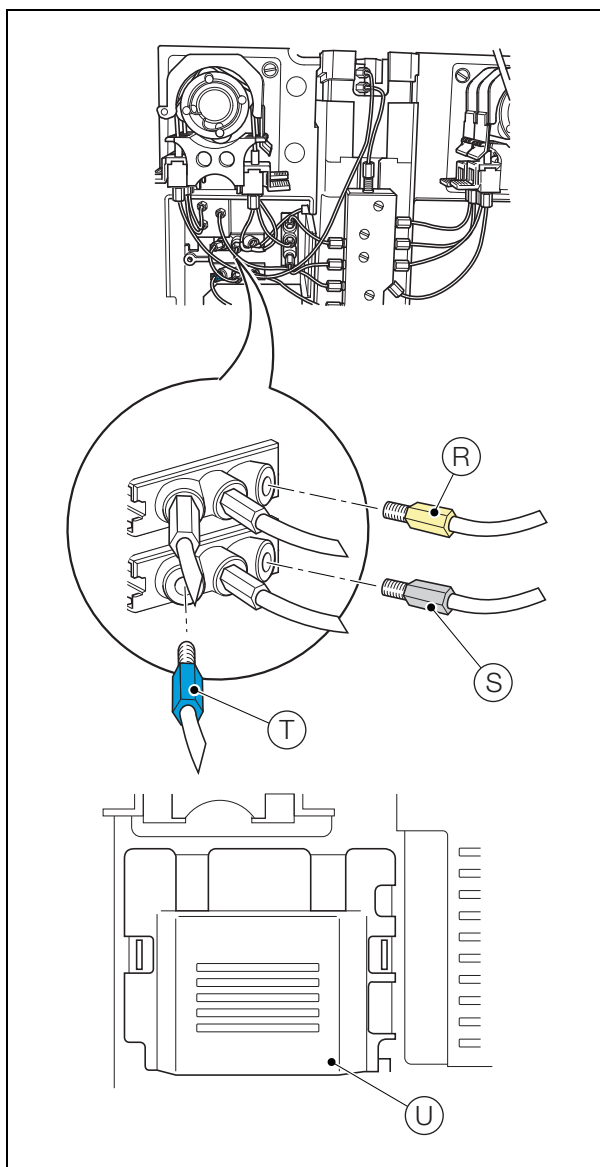


Fig. 4.11 Reconnecting the Solenoid Valves

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