ABB MEASUREMENT & ANALYTICS | INFORMATION | INF12/113-EN REV. C

Navigator 550

Low level dissolved oxygen wet-section

Spares replacement procedures

Measurement made easy

Navigator 550
low level dissolved
oxygen wet-section

1 Introduction

These procedures must be carried out by a trained technician.

Tools required

- Pozidrive screwdriver
- Slot-head terminal screwdriver
- Anti-static strap.

2 For more information

Further information is available from:
www.abb.com/analytical

or by scanning these codes:

Sales Service

3 Safety

Warning.

These procedures must be carried out by a trained technician.

CHEMICAL 

- Ensure personal protective equipment (PPE) such as **gloves** and **eye protection** are worn during any maintenance.
- Observe all health and safety procedures for handling chemicals.
- 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. Wipe up any spillages using clean water.
- Perform general cleaning of the wet-section using a damp cloth only – mild detergent can be used as a cleaning aid. Do not use Acetone or any organic solvents.

ELECTRICAL

- Isolate all high voltage supplies to the transmitter before performing replacement procedures.
- The wet-section is vulnerable to electrostatic damage. Wear an anti-static strap or dismantle the wet-section on an anti-static workbench.
- Ensure all electrical connections are kept dry at all times.

GENERAL

- Shut off the external sample supply to the wet-section before performing replacement procedures. When a procedure is complete, restore power to the transmitter, sample to the wet-section at the correct flow rate and, if necessary, calibrate the wet-section – refer to the wet-section Operating Instructions (OI/ADS550-EN) for calibration instructions.
- Dispose of the old components in accordance with the guidelines contained in the Operating instructions (OI/ADS550-EN).

4 Replacement procedures

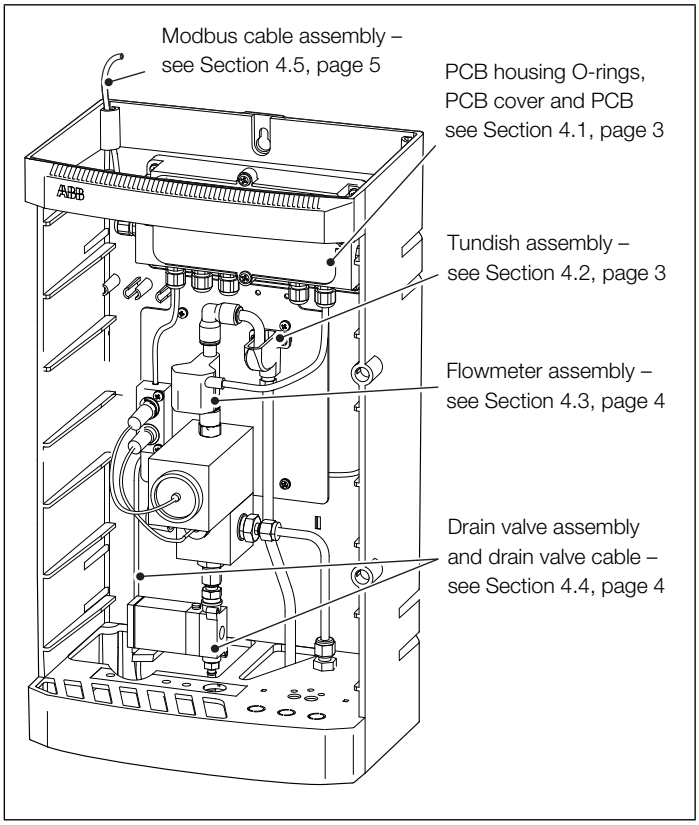

Fig. 4.1 Low level dissolved oxygen wet-section – replacement procedures

4.1 Replacing the PCB housing seals, PCB cover and PCB

Part numbers:

- PCB housing seals: AW502 051
- PCB cover: AW502 052
- PCB: AW502 050

Referring to Fig. 4.2:

1. Remove and retain the 4 PCB cover fixing screws and washers (A) and remove the PCB cover (B).
2. If replacing PCB housing seals, remove and discard housing seal (C).
3. Disconnect all cables from the PCB (D), loosen all cable glands and remove cables.
4. Remove and retain the 4 PCB housing fixing screws and washers (E) and remove the PCB housing (F).
5. If replacing PCB housing seals, lift PCB housing seal (G) out of the groove and discard.
6. Remove and retain the 2 PCB fixing screws and washers (H) and remove the PCB (D). If replacing PCB housing seals, fit the new (large) PCB housing seal (G) in the groove (a small amount of silicone sealant or grease can be used to help retain the seal in place).
7. Fit the new PCB to the rear of the main case using the 2 PCB retaining screws and washers (H).
8. Refit the PCB housing (E) using the 4 PCB housing fixing screws and washers (D).

Referring to Fig. 4.3 and Table 4.1 for terminal connection details:

9. Make cable connections at the new PCB.

Referring to Fig. 4.2:

10. If replacing PCB housing seals, fit the new (small) PCB housing seal (C) between the PCB cover (B) and PCB housing (F) (a small amount of silicone sealant or grease can be used to help retain the seal in place).
11. Refit the PCB cover (B) using the 4 PCB cover fixing screws and washers (A), ensuring PCB housing seal (C) is located correctly in its groove.

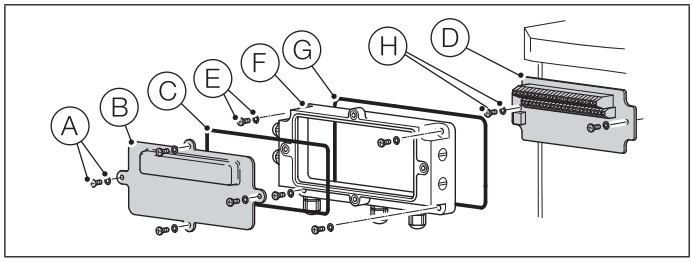

Fig. 4.2 Replacing the PCB housing seals, PCB cover and PCB

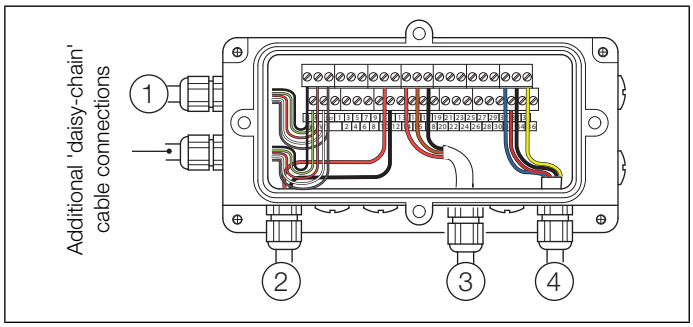

Fig. 4.3 Wet section PCB cable entries

Entry	Cable	Color	Terminal	Description
(1)	Serial (Modbus) – refer Operating Instructions (OI/ADS550-EN) for multiple wet-section setup.	Red Black Green White Screen	R B G W SCR	24 V 0 V Data +ve Data –ve Screen
(2)	Drain valve	Red Black	9 10	+ve –ve
(3)	Flowmeter (if fitted)	Red Brown Black	13 15 17	+ve GND –ve
(4)	Sensor block	Blue Red Black Yellow	31 32 33 35	+ve –ve Pt1000 Pt1000

Table 4.1 Wet-section cable terminal connections

4.2 Replacing the tundish assembly

Part number: AW502 065

Referring to Fig. 4.4:

1. Rotate the sample outlet tube (A) until the open end is free of the tundish assembly (B).
2. Disconnect the drain tube (C) from the tundish assembly (B).
3. Unscrew and remove the 2 tundish retaining screws (D) taking care to retain the spacers (E) located between the rear of the tundish assembly and the main case.
4. Remove the old tundish assembly (B) and fit the new tundish assembly in the reverse order of removal.

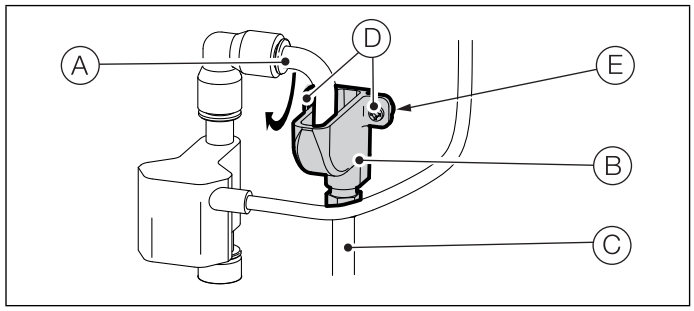

Fig. 4.4 Replacing the tundish assembly

4.3 Replacing the flowmeter assembly

Part number: AW502 060

- Flowmeter assembly: AW502 060

Referring to Fig. 4.6:

1. Depress the manual override button (A) on the drain valve assembly to drain the wet-section.
2. Remove the wet-section PCB cover as detailed in step 1 of Section 4.1, page 3.

Referring to Fig. 4.5:

3. Loosen cable gland (A) at the wet-section PCB housing (B).
4. Disconnect the flowmeter cable (C) from wet-section PCB terminals 13 (red, +ve), 15 (brown, GND) and 17 (black –ve) – see Fig. 4.3, page 3 and remove cable.
5. Depress the QD coupling collar (D) on QD coupling (E) and lift the top QD coupling (E) complete with sample outlet tube (F) away from the flowmeter (G).
6. Depress the QD coupling collar (J) on QD coupling (K) and lift the flowmeter away.
7. Fit the replacement flowmeter into the QD coupling (K) and refit QD coupling (E) to the flowmeter outlet.

   Note. The orientation of the flow arrow on the flowmeter must be upwards.

8. Pass the flowmeter cable through the cable gland (A) at the wet-section PCB housing (B) and terminal connections to PCB terminals 13 (red, +ve), 15 (brown, GND) and 17 (black –ve) – see Fig. 4.3, page 3.
9. Refit the PCB cover as detailed in step 11, Section 4.1, page 3.
10. Ensure the sample outlet tube (F) is located correctly in the tundish assembly (I).

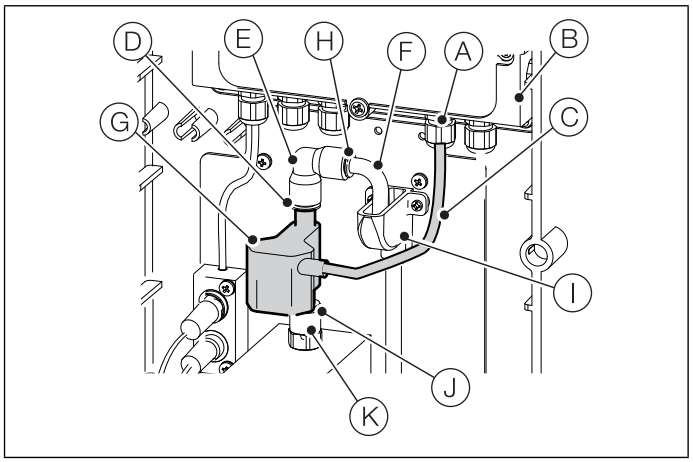

Fig. 4.5 Replacing the flowmeter assembly and flowmeter cable

4.4 Replacing the drain valve assembly and drain valve cable assembly

Part numbers:

- Drain valve assembly: AW502 056
- Drain valve cable assembly: AW502 085

Referring to Fig. 4.6:

1. Depress the manual override button (A) on the drain valve (B) to drain the wet-section.
2. Disconnect the clip-on cable connector (C) from the end of the drain valve coil housing by depressing the clip (D).
3. Disconnect the drain tube from the barbed outlet connector (E) on the bottom of the drain valve (B).
4. Lock hex coupling (G) and rotate nut (H) clockwise to release couplings. Remove the valve assembly, complete with coupling (G). Remove coupling (G) from the valve assembly and fit to new valve, complete with new bonded seal (I).
5. If fitting a new drain valve cable assembly, remove the wet-section cover as detailed in step 1 of Section 4.1, page 3 and loosen the drain valve cable gland in the wet-section PCB housing and proceed with steps 7, 8 and 9 below.

   If using the existing cable, re-connect the clip-on cable connector (C) to the end of the drain valve coil housing.
6. Disconnect the drain valve cable from the terminal block – see Fig. 4.3, page 3 and discard the cable.
7. Feed the replacement drain valve cable through the cable gland and make connections to the black, red, screen, green and white PCB wet-section terminals (see Fig. 4.3, page 3) and at the transmitter (see OI/ADS550-EN).
8. Connect the drain valve clip-on cable connector (C) to the end of the drain valve coil housing.

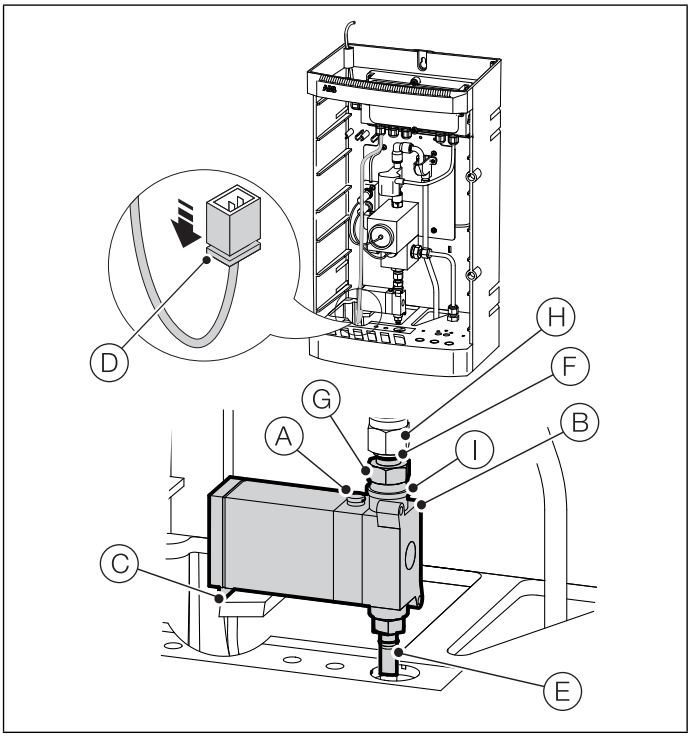

Fig. 4.6 Replacing the drain valve assembly and drain valve cable

4.5 Replacing the Modbus cable assembly

Modbus cable part numbers:

- AW502 090 / 1.5 m (4.9 ft.)
- AW502 091 / 5 m (16.4 ft.)
- AW502 092 / 10 m (32.8 ft.)
- AW502 093 / 20 m (65.6 ft.)

Referring to Section 4.2, page 3:

1. Remove the wet-section PCB cover.

Referring to Fig. 4.7:

2. Loosen cable gland (A) at the wet-section PCB housing (B) and disconnect the Modbus cable (D) from the terminal block connections (C) marked black, red, screen, green and white.
3. Withdraw the Modbus cable (D) from the PCB housing and main case assembly and discard.
4. Feed the replacement Modbus cable into the main case via the guide channel (E) at the top, feed through the gland and remake connections to the black, red, screen, green and white PCB wet-section terminals and at the transmitter.
5. Refit the PCB cover by reversing the removal procedure.

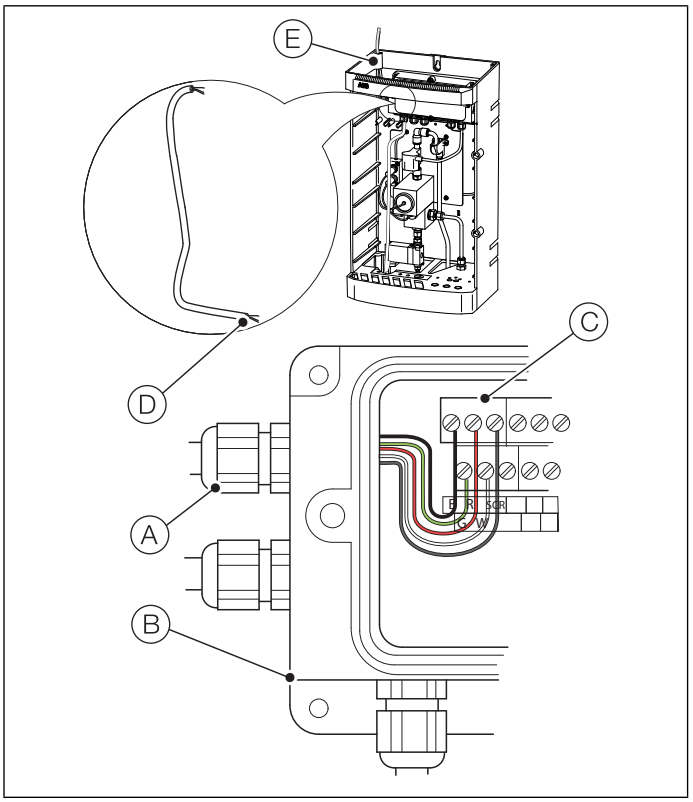

Fig. 4.7 Replacing the Modbus cable assembly

Notes

Notes

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