

Navigator 550

Sodium wet-section



Spares replacement procedures

Measurement made easy

Navigator 550
sodium 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/ASO550-EN) for calibration instructions.
- Dispose of the old components in accordance with the guidelines contained in the Operating instructions (OI/ASO550-EN).

4 Replacement procedures

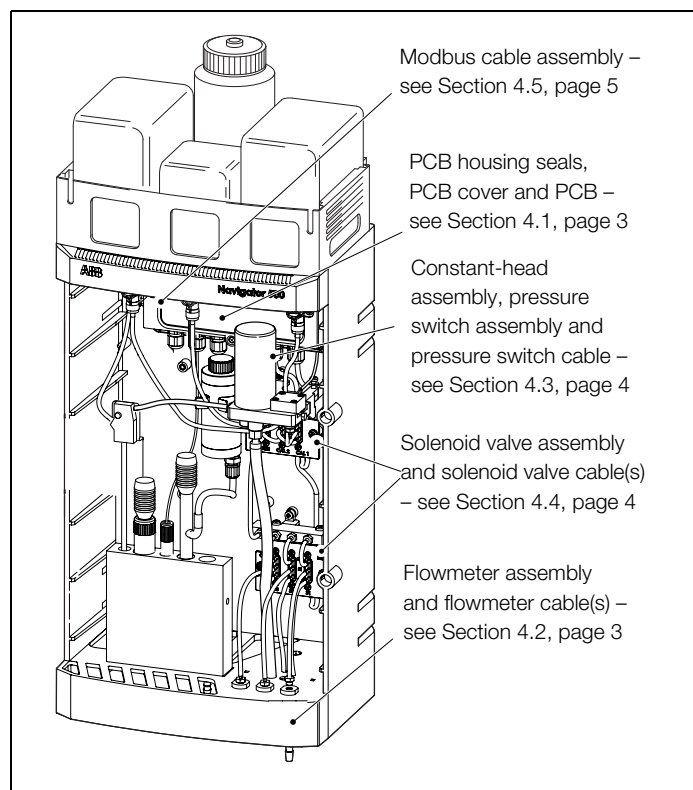


Fig. 4.1 Sodium wet-section – replacement procedures

4.1 Replacing the PCB housing seals, PCB cover and PCB

Part numbers:

- PCB housing seals: AW501 051
- PCB cover: AW501 052
- PCB: AW501 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.

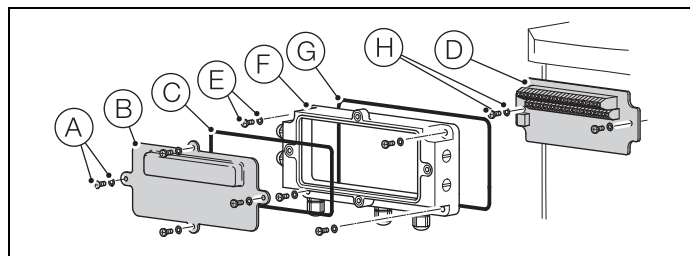


Fig. 4.2 Replacing the PCB housing seals, PCB cover and PCB

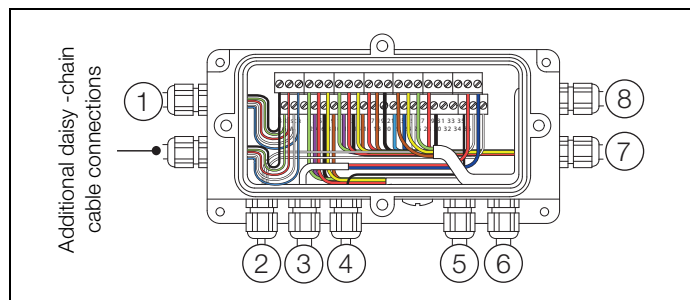


Fig. 4.3 Wet section PCB cable entries – see Table 3.1 for connections

Entry	Cable	Color	Terminal	Description
①	Serial (Modbus) – refer to Operating Instructions (OI/ASO550-EN) for multiple wet-section setup	Red	R	24 V
		Black	B	0 V
		Green	G	Data +ve
		White	W	Data -ve
		Screen	SCR	Screen
②	Sodium electrode	Screen	34	N/A
		Core	36	
③	Pt1000 temperature sensor	Red	33	N/A
		Blue	35	
④	Reference electrode	Black	32	N/A
⑤	Pressure switch	Red	25	N/A
		Black	26	N/A
⑥	Calibration valve	Green	7	Valve 1 +ve
		Brown	8	Valve 1 -ve
		Red	9	Valve 2 +ve
		Black	10	Valve 2 -ve
		Yellow	11	Regen. +ve
		Orange	12	Regen. -ve
⑦	Stream switch valve – single-stream	Red	1	Valve 1 +ve
		Black	2	Valve 1 -ve
	Stream switch valve – multi-stream	Green	1	Valve 1 +ve
		Brown	2	Valve 1 -ve
		Red	3	Valve 2 +ve
		Black	4	Valve 2 -ve
Flowmeter – stream 1	Yellow	5	Valve 3 +ve	
	Orange	6	Valve 3 -ve	
⑧	Flowmeter – stream 2 (multi-stream)	Red	13	+ve
		Brown	15	GND
		Black	17	-ve
Flowmeter – stream 3 (multi-stream)	Orange	20	+ve	
	Yellow	22	GND	
	Green	24	-ve	
Flowmeter – stream 3 (multi-stream)	Blue	19	+ve	
	Violet	21	GND	
	Grey	23	-ve	

Table 4.1 Wet-section cable terminal connections

4.2 Replacing the flowmeter assembly and flowmeter cable(s)

Part numbers:

- Flowmeter: AW501 068
- Single-stream cable: AW501 086
- Multi-stream cable: AW501 087

Referring to Fig. 4.4:

1. Disconnect the flowmeter cable (A) from the flowmeter (B) and remove the sample inlet tubing (C) from the flowmeter inlet spigot (D). If replacing cable(s), refer to Section 4.1 for cable disconnection details and remove / discard the cable(s).
2. Disconnect the flowmeter (B) from the QD connector (E) by pressing the ring and pulling the flowmeter away.
3. Fit new flowmeter(s) / cable(s) in the reverse order of removal – ensure the correct cable type (multi-stream or single-stream) is connected at each flowmeter.

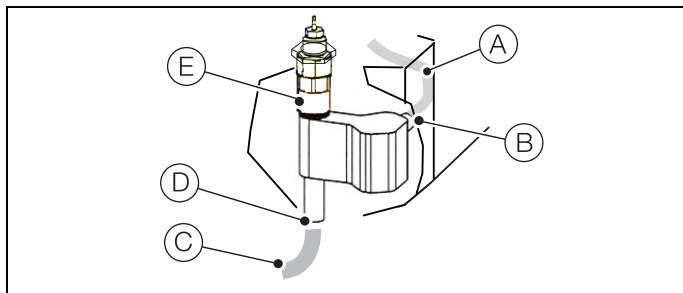


Fig. 4.4 Replacing the flowmeter assembly and flowmeter cable(s)

4.3 Replacing the constant-head assembly, pressure switch assembly and pressure switch cable

Part numbers:

- Constant-head assembly: AW501 061
- Pressure switch assembly: AW501 062
- Pressure switch cable: AW501 085

Referring to Fig. 4.5:

1. Remove all tubing (A) to the constant-head assembly.
2. Carefully disconnect the 2 spade connectors (B) at the rear of pressure switch (C). If replacing the cable, refer to Section 4.1, page 3, for cable connection details and remove / discard the cable.
3. Unscrew the 2 securing screws (D) on the upper faces of the constant head body support arms (E) and remove the constant-head assembly, complete with pressure switch.
4. If replacing the pressure switch, unscrew the 4 retaining screws (F) (note that the nuts (G) are constrained in the support bracket and may fall out when screws are removed).
5. Fit a replacement pressure switch and new O-ring (H) in the reverse order of removal – note the orientation (LOW) is always uppermost.
6. If replacing the cable, fit in the reverse order of removal and connect the 2 spade connectors (B) to the rear of the pressure switch, otherwise re-connect the existing spade connectors.
7. Secure the constant-head assembly complete with pressure switch, in the reverse order of removal.

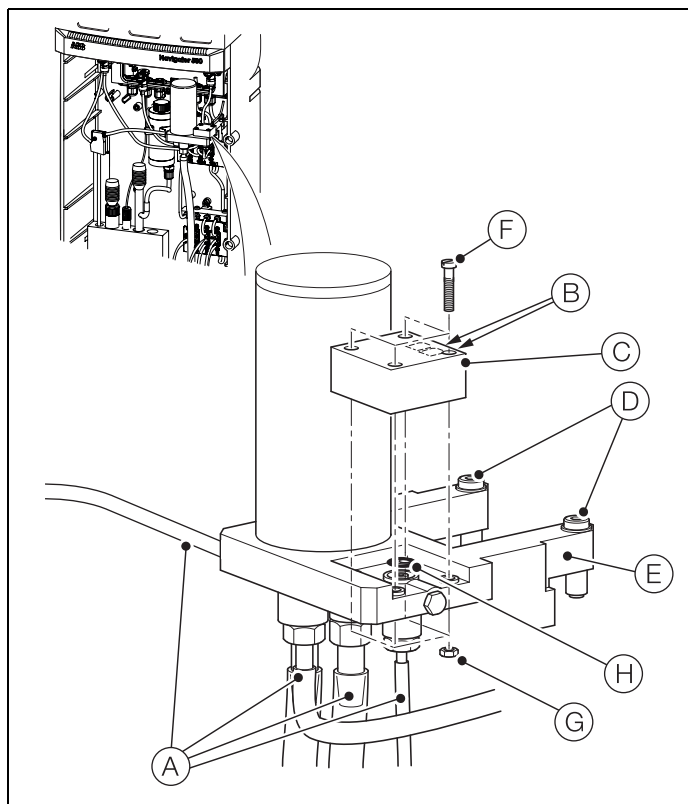


Fig. 4.5 Replacing the constant-head assembly, pressure switch assembly and pressure switch cable

4.4 Replacing the solenoid valve assembly and solenoid valve cable(s)

Part numbers:

- Sodium multi-stream solenoid valve: AW501 053
- Cable for multi-stream solenoid valve: AW501 081
- Sodium single-stream solenoid valve: AW501 077
- Cable for single-stream solenoid valve: AW501 080
- Cable for calibration and reagent solenoid valve: AW501 082

Note. Valve port configuration: on the single-stream solenoid valve only (part number AW501 077), the N/C port is closest to the electrical connector.

Referring to Fig. 4.6:

1. Remove all tubing connected to the valves (A).
2. Unclip the valve cable connectors (B) from the underside of each solenoid valve body. If replacing cable(s), refer to Section 4.1 for cable connection details and remove / discard the cables.
3. Unscrew the 2 retaining screws (C) that hold plate (D) to bracket (E) and withdraw the valves complete with plate (D).
4. For each valve, unscrew the 2 valve securing screws and nuts (F) and remove the valve.
5. Ensure the valve cable connector for each valve is facing downwards and fit each new valve assembly to the plate (D) using the 2 valve securing screws and nuts (F) – refer to **Note.** above for single-stream valve port configuration.
6. Refit plate (D) to the bracket (E) using the 2 retaining screws (C).
7. If replacing cable(s), fit in the reverse order of removal and re-clip cable connector(s) (B) to the underside of each new valve body. Ensure the correct cable type is connected at each solenoid valve.
8. Reconnect all tubing to the new valves.

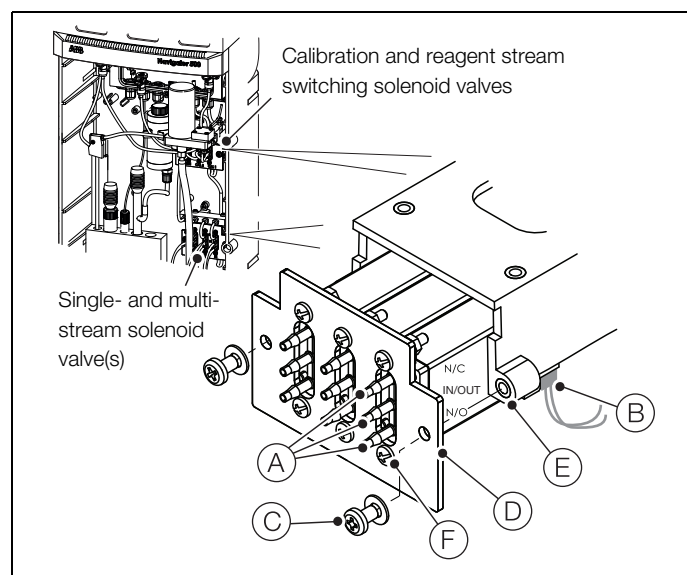


Fig. 4.6 Replacing the solenoid valve assembly and solenoid valve cables (multi-stream version shown)

4.5 Replacing the Modbus cable assembly

Modbus cable part numbers:

- AW501 090 / 1.5 m (4.9 ft.)
- AW501 091 / 5 m (16.4 ft.)
- AW501 092 / 10 m (32.8 ft.)
- AW501 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.

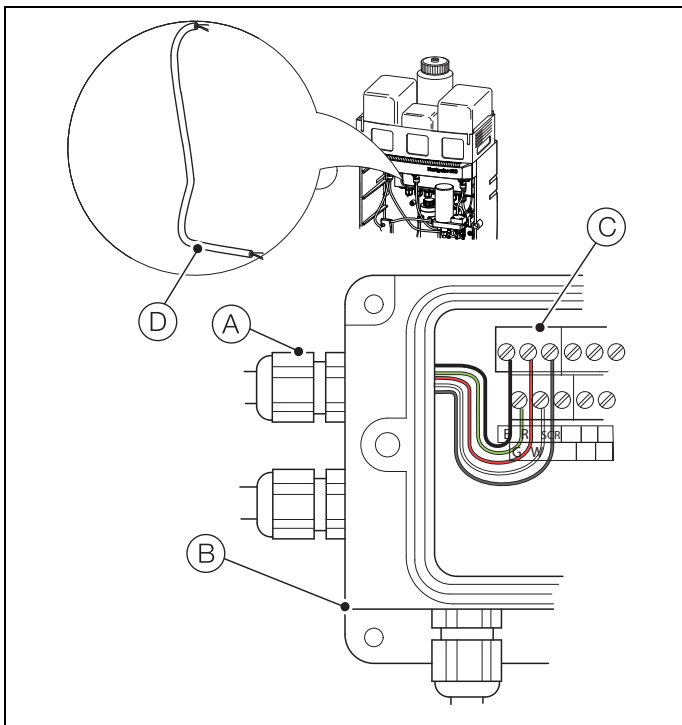


Fig. 4.7 Replacing the Modbus cable assembly

Notes

ABB Limited
Measurement & Analytics

Oldends Lane
Stonehouse
Gloucestershire
GL10 3TA
UK
Tel: +44 (0)1453 826661
Fax: +44 (0)1453 829671
Email: instrumentation@gb.abb.com

ABB Inc.
Measurement & Analytics

125 E. County Line Road
Warminster
PA 18974
USA
Tel: +1 215 674 6000
Fax: +1 215 674 7183

abb.com/measurement



We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.

© ABB 2018