

6 Disassembly and reassembly

6.1 Disassembly guidelines

Field service of the module frame is limited to replacing faulty circuit boards or mechanical parts only.

WARNING Attempting a field repair on a PCB or a factory sealed component or assembly could jeopardize the safe and effective operation of the module, and void the warranty.

NOTE: Only a qualified service technician should perform field replacement procedures.

NOTE: Perform the checkout procedure described in chapter [3. Maintenance and checkout](#) after you have disassembled and reassembled the module.

6.1.1 Serviceable parts

- The miniCO2 assembly, including the following components (CPU board, mini CO2 sensor, pump unit, tubing unit and zero valve and pressure transducers)
- tubing unit
- pump unit
- zero valve
- air filter
- Mini D-fend O-rings
- Nafion tube
- Mini D-fend
- mechanical parts listed in the service parts chapter

6.1.2 Service limitations

The following parts are not serviceable:

- miniC sensor and CPU board can't be replaced separately.

NOTE: The CPU contains factory calibration data for the miniC sensor. In case of failure, the complete miniCO2 assembly should be replaced. Attempts to repair or calibrate the unit elsewhere will adversely affect operation of the unit. The information provided in this document is for reference only.

6.1.3 ESD precautions

All external connectors of the module are designed with protection from ESD damage. However, if the module requires service, exposed components and assemblies inside are susceptible to ESD damage. This includes human hands, non-ESD protected work stations or improperly grounded test equipment. The following guidelines may not guarantee a 100% static-free workstation, but can greatly reduce the potential for failure of any electronic assemblies being serviced:

- Discharge any static charge you may have built up before handling semiconductors or assemblies containing semiconductors.

- A grounded, antistatic wristband or heel strap should be worn at all times while handling or repairing assemblies containing semiconductors.
- Use properly grounded test equipment.
- Use a static-free work surface while handling or working on assemblies containing semiconductors.
- Do not remove semiconductors or assemblies containing semiconductors from antistatic containers until absolutely necessary.
- Do not slide semiconductors or electrical/electronic assemblies across any surface.
- Do not touch semiconductor leads unless absolutely necessary.
- Semiconductors and electronic assemblies should be stored only in antistatic bags or boxes.
- Handle all PCB assemblies by their edges.
- Do not flex or twist a circuit board.

6.1.4 Before disassembly

- Note the positions of any tubing parts, wires or cables. Mark them if necessary to ensure that they are re-assembled correctly.
- Save and set aside all hardware for reassembly.

6.1.5 Required tools



- pozidrive screwdrivers
- flat blade screwdriver
- pincers
- antistatic wristband

6.2 Disassembling and reassembling procedure

Disassembling the airway module (see the exploded view of the module in chapter [7. Service parts](#)):

1. Remove the two screws from the back of the module.
2. While pressing the release latch: pull the module casing slowly backwards and remove it from the main body.

To reassemble the module, reverse the order of the disassembly steps.

Check that:

- all screws are tightened properly
- all cables are connected properly
- tubes are not pinched and there are no sharp ends on them

- all tubes are connected properly
- there are no loose objects inside the module

6.2.1 Replacing the pump unit

1. Detach the front cover of the module by releasing the snaps that hold the front cover to the front chassis unit by using a small flat blade screwdriver. There are 2 snaps on both sides of the module and 1 snap on the top.
 2. Remove the module casing, see page 10-28.
 3. Unplug the two tubes from the back of the front chassis.
 4. Detach the front chassis from the metal frame by removing the two screws.
 5. Unplug the hose of the pump.
 6. Disconnect the pump's cable from the CPU board.
 7. Remove the two screws that connect the pump unit to the board.
- To reassemble the module, reverse the order of the disassembly steps.

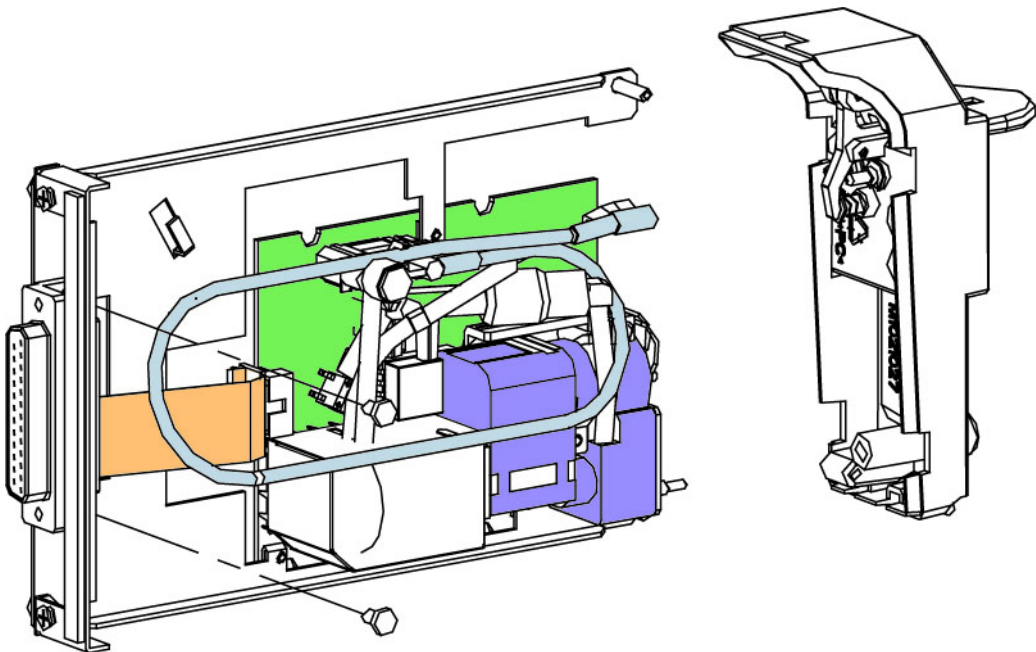


Figure 8 Uncovered E-miniC module

6.2.2 Replacing the miniCO₂ assembly

1. Detach the front cover of the module by releasing the snaps that hold the front cover to the front chassis unit by using a small flat blade screwdriver. There are 2 snaps on both sides of the module and 1 snap on the top.
2. Remove the module casing, see page 10-28.
3. Unplug the two tubes from the back of the front chassis.
4. Detach the front chassis from the metal frame by removing the two screws.
5. Detach miniCO₂ assembly from the metal frame by removing the three screws.
6. Disconnect the flex board from miniCO₂ assembly.

Reassembling the module: reverse the order of the disassembly steps.

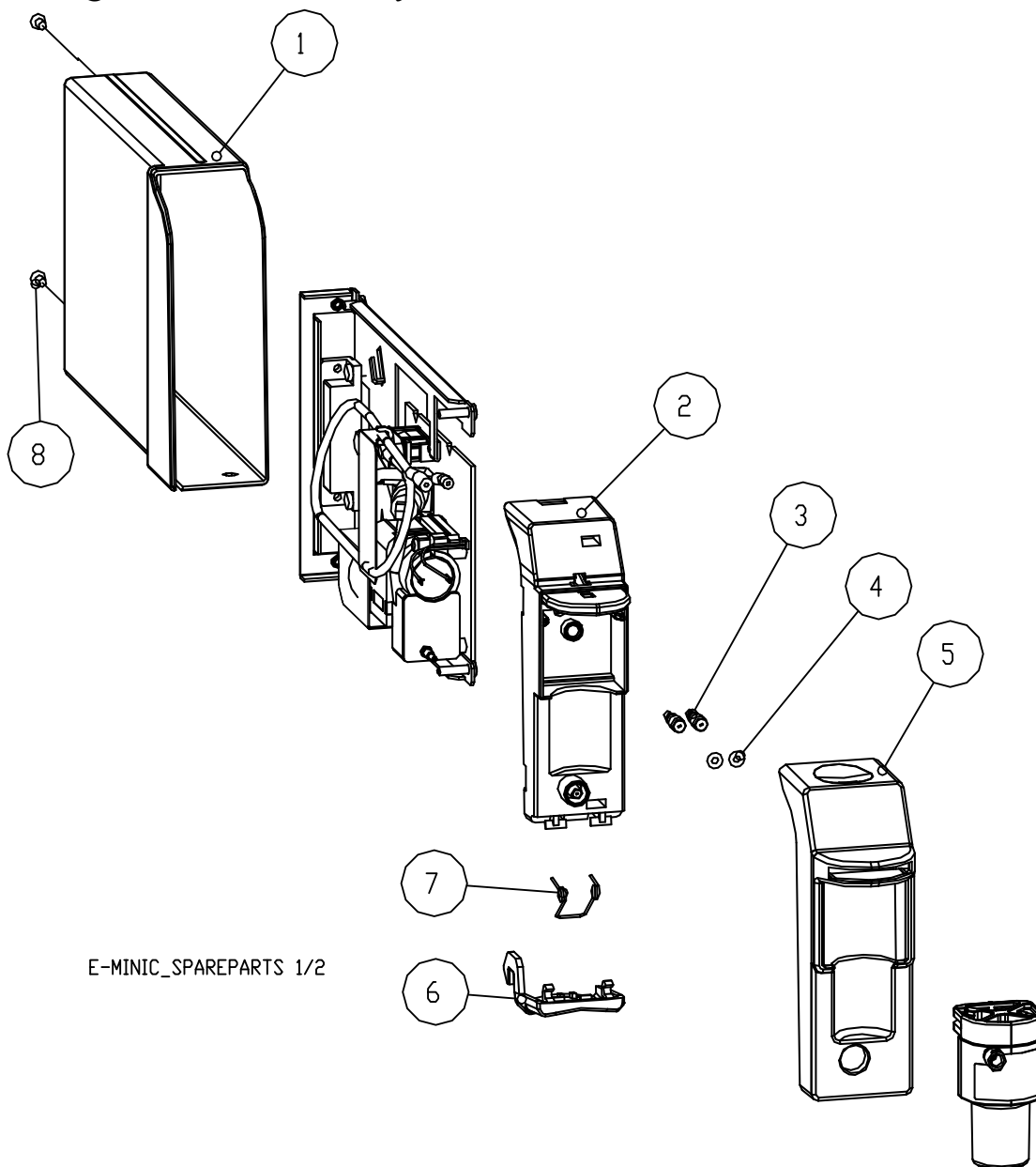
7 Service parts

7.1 Ordering parts

To order parts, contact GE Healthcare. Contact information is available at www.gehealthcare.com. Make sure you have all necessary information at hand.

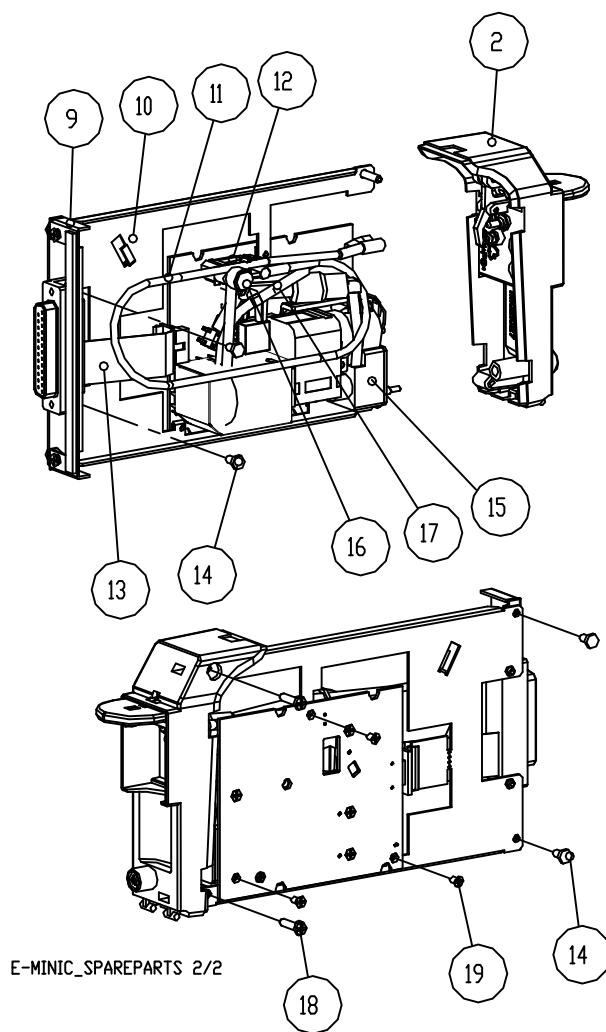
NOTE: Perform the checkout procedure described in chapter 3. [Maintenance and checkout](#) after you have replaced any of the service parts listed below.

7.2 Single-width Airway Module, E-miniC



Item	Description	Order No.
	Mini D-fend, pkg of 10 pcs	8002174
-	MiniCO2 assembly, including the following components (CPU board, mini CO2 sensor, pump unit, tubing unit and zero valve and pressure transducers)	M1013204
1	Module Casing, Single	M1021035
2	Front Chassis Unit, E-miniC	M1027134
3	M-miniCO2, CONNECTOR FOR D-FEND, MINI CO2	8002173
4	O-RING, O-RING, 2.5x1.6, VITON, SHORE70, BLACK	656565
5	Front Cover, USA, E-miniC	M1026941
5	Front Cover, E-miniC	M1026943
6	Latch	M1021039
7	Torsion Spring	M1020935
8	Screw-cross rec. c/s h, stzn, m3x6	*

* Part is not available from GE. Source locally.



Item	Description	Order No.
9	Metal frame	879184
10	Frame, E-miniC	M1024360
11	Nafion tubing 300mm	733382-HEL
12	MAGN-VALVE, N.O. valve, 3/2, 5VDC, 0.55W, includes seal	585714
13	Module Connection Flex, E-miniC	M1027744
14	Cross cylinder head screw M3x6	*
15	Pump Unit for miniC	M1013716
16	Air filter, M-MiniC	M1011471
17	Tubing Unit for miniC	M1013717
18	Cross cylinder head screw M3x10	*
19	Screw-cross rec.c/s h,m3x8,acidproof	*

* Part is not available from GE. Source locally.

Maintenance check form

Single-width Airway Module, E-miniC

Customer	Monitor	S/N
Service		S/N
Service engineer	Software	
Planned maintenance <input type="checkbox"/> Corrective maintenance <input type="checkbox"/>	Module type	S/N

Prior to testing verify all equipment is calibrated via "Cal" labeling and record Cal Due Dates

Measuring equipment / test gases used:				
Equipment / tool / gas:	Manufacturer:	Model/Type/Part No:	Serial Number/ID:	Cal Due Date:

PASS = Test passed **N.A. = Test not applicable** **FAIL = Test failed**

	PASS	N.A.	FAIL		PASS	N.A.	FAIL
3.2. Visual inspections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3. Functional checkout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3.2. Procedure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Gas sampling system leak test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Sample flow check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Zero valve operation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Gas calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Ambient pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Occlusion detection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Air leak detection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Airway gases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Apnea detection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
3.3.3. Test completion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Notes

Used service parts			

Signature	Date
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