ENVITEC
by Honeywell

MySign O

Service Manual

This manual was created with great care - should you nevertheless find conflicting details during use of the system, we request that you inform us in a brief message so that we can correct the discrepancies as quickly as possible.

We reserve the right to make changes to the product due to advancements in optical or other technologies that are not reflected in the information and figures in these operating manual. All trademarks mentioned in the text are registered trademarks of the respective owners and are recognised as protected.

This manual is subject to revision by EnviteC-Wismar GmbH.

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(Printed in Germany)

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1 Service Strategy

Service work can be performed at different service levels depending on the qualification and equipment of the service station. Your EnviteC Service Training Certificate shows the level of your qualification.

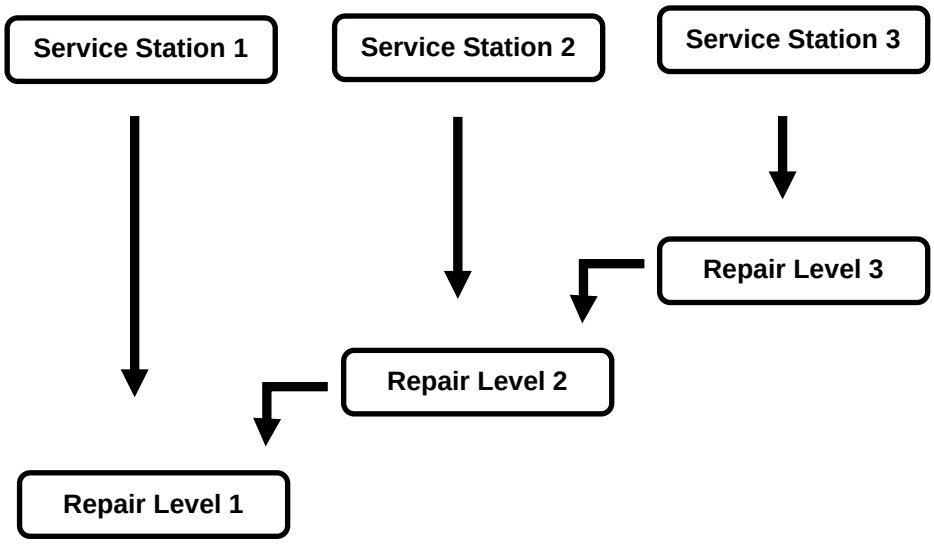


Fig. 1 Service Concept

The type and scope of the service work are divided into certain service stations. EnviteC support allows you to carry out minor service work up to and including Service Station 2.

Service Station III is done exclusively by EnviteC Customer Service – Wismar!

1.1 Definitions

Repair - Level 1

- Replacement of stand
- Replacement of the sensor
- Replacement of the coiled cord
- Replacement of the rechargeable battery
- Replacement of the battery compartment lid + fastening screw

Repair - Level 2

- Repair-Level 1
- Soldering skills necessary
  - Replacement of the top housing part + front skin
  - Replacement of the USB cover
  - Replacement of the bottom housing part
  - Replacement of the device socket
  - Replacement of the display
  - Replacement of the transducer

Repair - Level 3

- Repair Level 2
- Replacement of electronic components

1.2 Service Equipment

Service Station Level 1

- Screwdriver (PZ1)

Service Station Level 2

- Service Station Level 1 equipment
- Soldering and desoldering station
- Special socket (TBD)
- Tweezers

2 Specifications

All Specifications relate to standard conditions: Ambient pressure 1013 hPa, 25°C dry ambient air.

Measuring range:	0-100% oxygen
Display accuracy:	0,1% oxygen
Accuracy:	< 1% vol.O2, when calibrated to 100% vol.O2
Offset:	< 1% vol. O2 in 100% N2
Response time:	< 12 sec. to 90% of final value
Linearity error:	< 3% relative
Drift:	< 1% vol. O2 over 8 hours
Transverse sensitivity	Conforms to DIN EN ISO 21647
Operating humidity:	0 - 99% rel. humidity (non-condensing)
Influence of humidity:	0,03% relative per % RH
Ambient pressure:	750 to 1250 hPa
Influence of pressure:	Proportional to change in oxygen partial pressure
Impact sensitivity:	< 1% relative after fall from a height of 1m
Operating temperature:	0°C – 50°C
Temperature compensation:	Integrated NTC compensation in sensor
Storage temperature:	-20°C – 70°C (device) -20°C – 50°C (sensor)
Recommended storage temp. (Sensor):	5°C – 15°C
Sensor type:	OOM 111 (galvanic oxygen sensor)
Sensor service life:	> 1,000,000 % O2 hours
Rechargeable battery:	Li-Ion 3.6 V 2900 mAh
Operating time per charge:	> 24 hours (with standard settings)
Mains adapter:	USB, protection class II Input: AC 110V - 230V / 50 – 60 Hz / 125 mA Output : DC 5V / 1.5 A
Charging time:	Approx. 4 hours
Display:	2.8“ multicolour TFT
Dimensions (device):	160 x 72 x 39 mm (L x W x H)

Cord length:	Coiled cord 0.5 m (2.5 m max.)
Type of Protection:	IP 54
Impact resistance:	IK 05
Weight:	330g (with sensor)
Interface:	USB 2.0
Alarm functions:	Monitoring of alarm limits and device functions (visual and audible)
Alarm limits:	Settable between: Upper limit: 21% - 103% Lower limit: 18% - 97%
Data storage:	96 hours max. Measured value, date, time, alarm limits, events
Personalisation:	Device and data set (e.g. name, station, patient ID)
Protection class:	II, Type BF
Standards:	The device conforms to the requirements of MDD 93/42/EEC for Medical Devices and the harmonised standards Also conforms to: DIN EN 1789 Rescue vehicles and their equipment - Ambulances
Class:	IIa
CE mark:	CE 0123

3 Spare Parts List

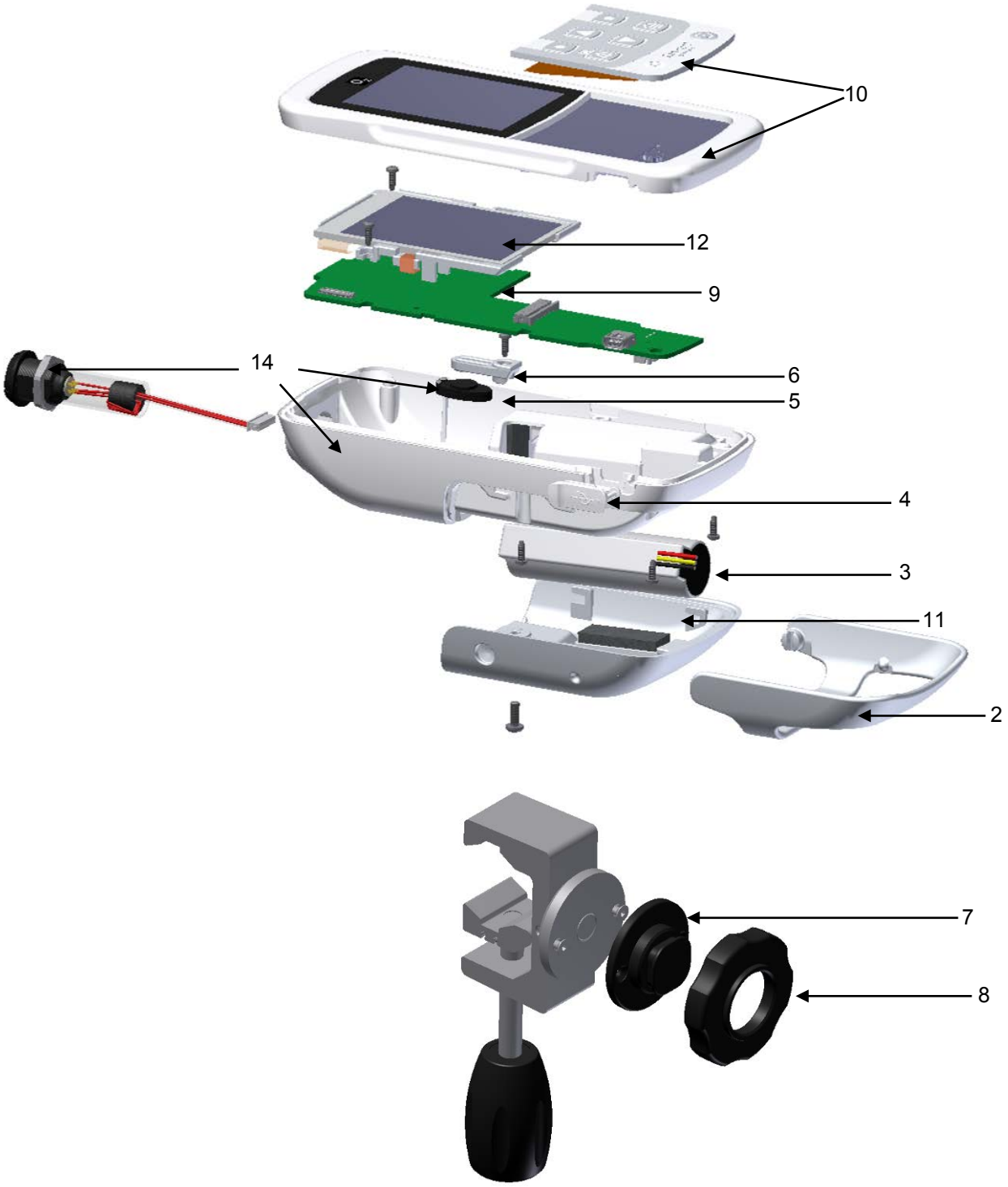


Fig. 2 Exploded View

Drawing Number	Item	Order Number
1	Coiled cord	1001778
2	Stand; MySign stand	1001764
3	Rechargeable battery; MySign	1001734
4	Cover plug; MySign USB cover	1001765
5	Transducer; MySign loudspeaker	1001774
6	Retainer; MySign loudspeaker – display retainer	1001766
7	Adapter part; MySign fastening system	1001845
8	Nut; MySign clamping ring	1001846
9	Printed Circuit Board; MySign O programmed (Serial number required when ordering)	1002068
10	Module; MySign top housing part	1001917
11	Module; MySign battery compartment lid	1001918
12	Module; MySign display	1001919
13	Screw; MySign screw set	1001921
14	Module; MySign bottom housing part – complete (Serial number required when ordering)	1002067

4 Service Accessories

Service accessories are not planned.

5 Maintenance

Regular maintenance is not required. A visual check of the following housing parts must be performed in order to exclude any mechanical damage to the device:

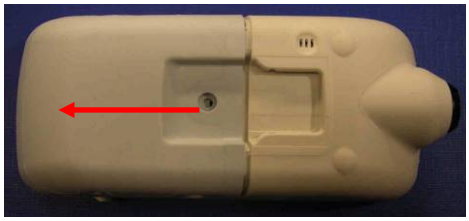
- Device top and bottom housing parts, battery compartment lid, USB cover
- Front skin (keys and LED`s)
- Socket

Parts with significant damage (cracks, broken-off pieces, etc.) must be replaced.

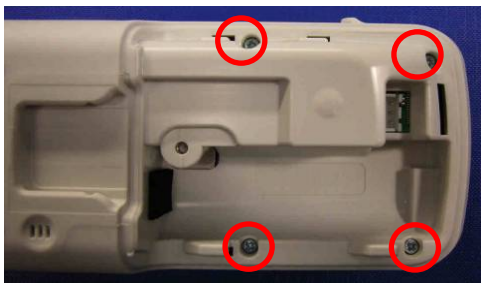
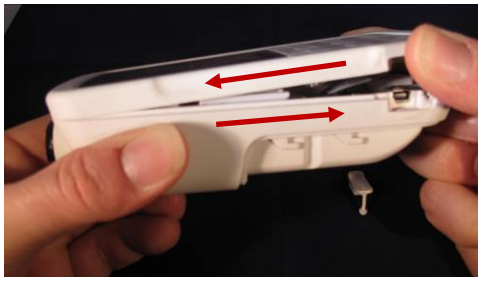
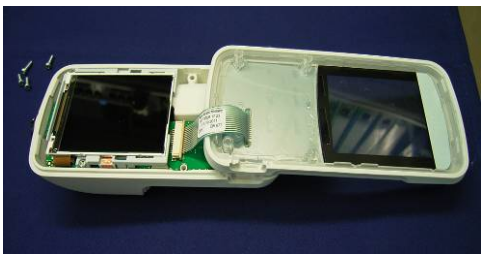
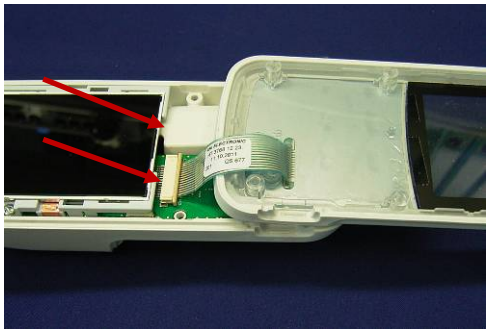
6 Repair/Replacement

External: Determination of the Repair Level necessary!

6.1 Replacement of the Rechargeable Battery

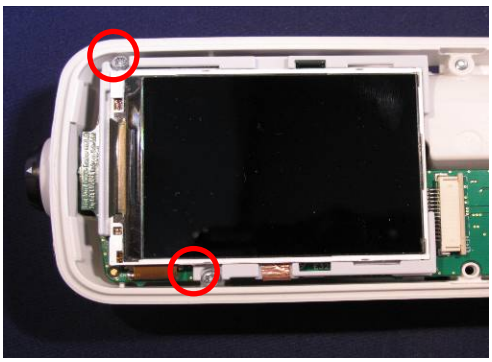
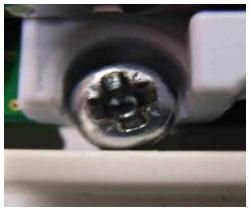
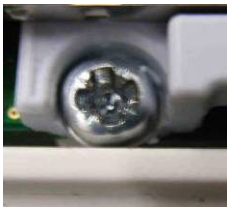
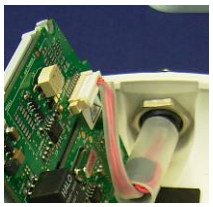
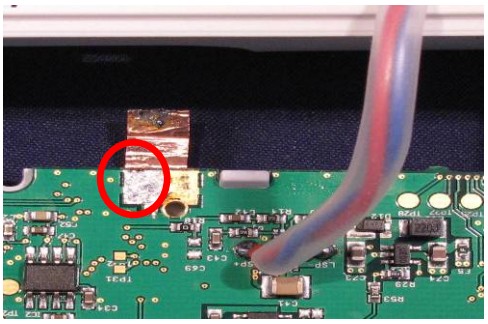
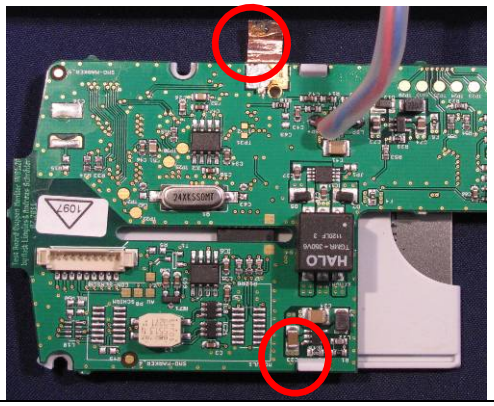
Step	Action	Comment/Picture
6.1.1	Remove the stand.	
6.1.2	Undo and completely remove the M3x6 screw. Assembly (use an electric screwdriver with a torque of 0.7 Nm.).	
6.1.3	Slide the battery compartment lid to the rear and remove it.	
6.1.4	Inserted rechargeable battery.	
6.1.5	Remove the rechargeable battery and separate it from the device by carefully pulling out the plug. The date and time must be set again after replacement of the rechargeable battery. Assemble as described in reverse order.	

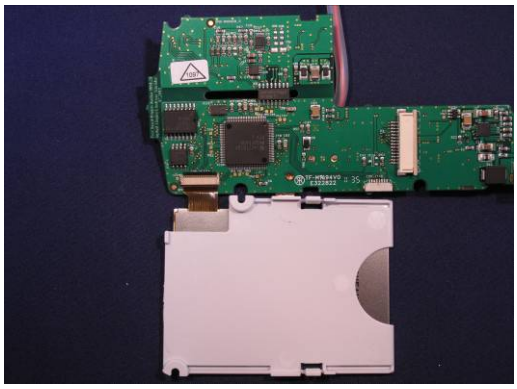
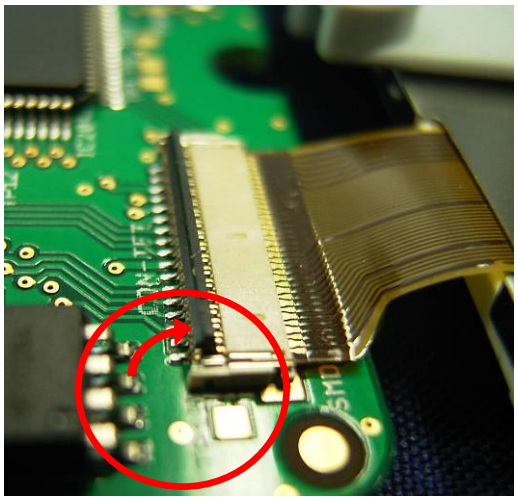
6.2 Opening the Device + Replacement of the Top Housing Part

Step	Action	Comment/Picture
6.2.1	First, remove the battery compartment lid and the rechargeable battery as described in section 6.1. Remove the four (2.5x8) screws to remove the bottom housing part.	
6.2.2	Lightly press apart the MySign top housing part (1001917) and the MySign bottom housing part (1001920) and then remove the USB cover (1001765).	
6.2.3	Carefully move the top housing part in the direction shown by the arrow.	
6.2.4	Carefully fold over the top housing part.	
6.2.5	Open the flat ribbon cable connector at the marked points (slide open) and then remove the top housing part. Assemble as described in reverse order.	

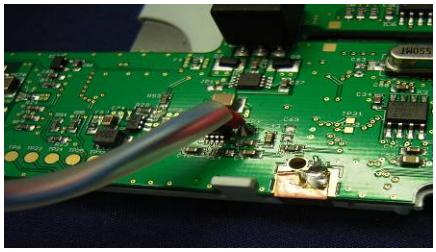
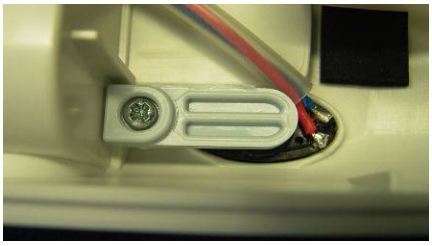
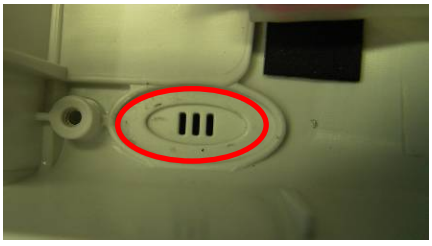
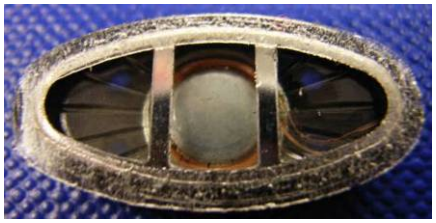
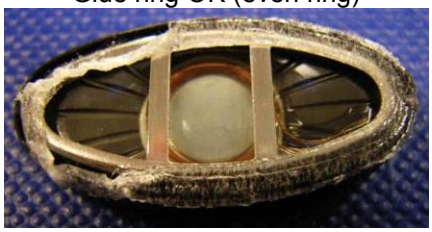
6.3 Replacement of the Display

The display must be replaced if it has visible mechanical damage, the display backlight is defective or some display pixels are defective.

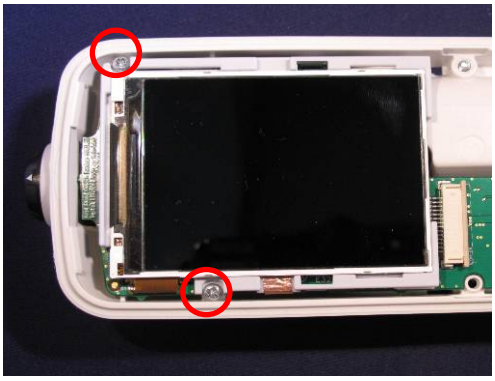
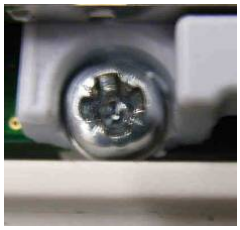
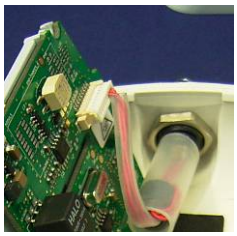
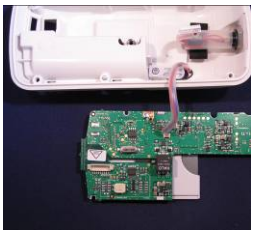
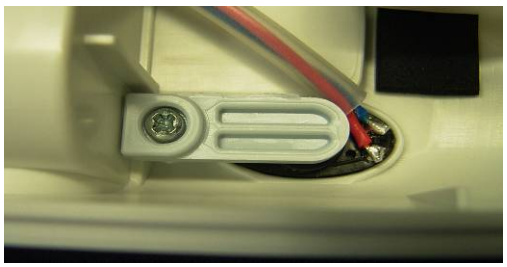
Step	Action	Comment/Picture
6.3.1	First, remove the battery compartment lid and the rechargeable battery as described in section 6.1 and then open the device as described in section 6.2. Remove the two (2.5x8) screws and the 2.2 DIN 433 A2 washers in order to remove the display. A torque of 0.7 Nm must be used for the assembly. It must be ensured that the screws sit centrally in the retainer.	  
6.3.2	Pull off the plug and lay the printed circuit board next to the bottom housing part as shown in the second photo.	 
6.3.3	Desolder the copper strip from the printed circuit board.	
6.3.4	Lightly press the display retainers outwards to release the display.	

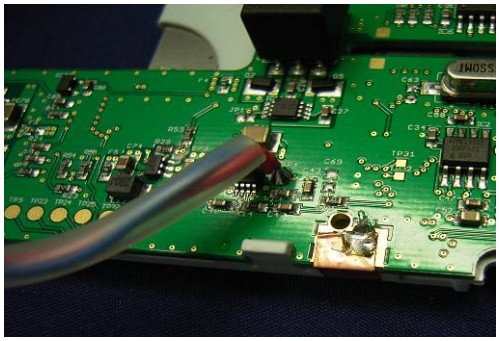
Step	Action	Comment/Picture
6.3.5	Lay the display next to the printed circuit board. Fold up the black locking device (released). Assemble as described in reverse order.	 

6.4 Replacement of the Loudspeaker

Step	Action	Comment/Picture
6.4.1	First, remove the battery compartment lid and the rechargeable battery as described in section 6.1, then open the device as described in section 6.2 and lay the printed circuit board next to the device as described in section 6.3.2. Desolder the loudspeaker cable from the printed circuit board.	
6.4.2	Remove the (2.5x8) screw and then the loudspeaker retainer.	
6.4.3	Remove the loudspeaker with a screwdriver.	
6.4.4	Remove any glue ring residues.	
6.4.5	Installation of the loudspeaker: Remove the protective film from the transducer. **Note:** Ensure a correct seating of the glue ring! Assemble as described in reverse order.	 Glue ring OK (even ring)  Glue ring not OK

6.5 Replacement of the Bottom Housing Part

Step	Action	Comment/Picture
6.5.1	First, remove the battery compartment lid and the rechargeable battery as described in section 6.1 and open the device as described in section 6.2. Remove the two (2.5x8) screws and 2.2 DIN 433 A2 washer in order to remove the printed circuit board. A torque of 0.7 Nm must be used for the assembly. It must be ensured that the screws sit centrally in the retainer.	   Not OK OK
6.5.2	Pull off the plug and lay the printed circuit board next to the bottom housing part as shown in the second photo.	 
6.5.3	Remove the (2.5x8) screw and then the loud-speaker retainer.	

6.5.4	Desolder the loudspeaker cable from the printed circuit board. Red wire on the right (in the direction of the copper strip of the display), blue wire on the left. Replace the bottom housing part. Assemble as described in reverse order.	

7 Fault Description/Remedy

Excerpt from the Instruction for Use

Fault Indication	Possible Cause	Remedy
User Fault		
Sensor	No connection to the oxygen sensor.	Check the connection to the oxygen sensor and replace if necessary.
Calibration	Calibration faulty.	Repeat the calibration. See also the 'Calibration' section.
Self-test (critical)		
Hardware	Internal hardware fault.	Switch the device off and then on again. Please contact the service centre if the fault persists.
Sensor	Signal processing fault → no or incorrect measured values.	The device will only function with the original sensor OOM111. Check the sensor and coiled cord for proper connection or contact the service centre.
Battery	Charge level too low, no rechargeable battery connected or rechargeable battery defective.	Check/charge the rechargeable battery and replace it if necessary.
Self-test (non-critical)		
Time	Internal clock (RTC) defective.	Switch the device off and then on again. Please contact the service centre if the fault persists.
Memory	Internal memory fault.	Switch the device off and then on again. Please contact the service centre if the fault persists.

The correct functioning of the device is not ensured in the case of a critical fault and the device will switch itself off.
A further use with limitations is possible in other cases.

Note

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