

Servicing and
repair instructions

OXYMAT 3



*Oxygen Concentrator
from Appliance No. 8000*

Contents

Introduction	3	7. Repair information and repair instructions ..	28
1. Overview	4	7.1 General	28
2. Functional description	5	7.2 Replacing the castors.	28
3. Servicing	8	7.3 Opening the appliance	29
3.1 General	8	7.4 Closing the appliance	30
3.2 Implementation	8	7.5 Replacing the compressor (up to appliance no. 13350)	30
3.3 Disposal	9	7.6 Replacing the compressor (from appliance no. 13351 to 14999) ..	33
4. Hygienic Preparation	9	7.7 Replacing the compressor (from appliance no. 15000)	36
4.1 No change of patient	9	7.8 Replacing the operating hours meter. . .	39
4.2 Change of patient or reuse.	9	7.9 Replacing the circuit board	40
5. Functional check	10	7.10 Replacing the fan	42
5.1 General	10	7.11 Replace adsorption containers (Mac valves)	43
5.2 Intervals	10	7.12 Replace adsorption container (plastic magnetic valve block)	46
5.3 Implementation	10	7.13 Replace adsorption containers (aluminum magnetic valve block)	49
5.3.1 Checking the housing		7.14 Replace cover	53
5.3.2 Checking the coarse dust filter		7.15 Replacing the pressure reducer	54
5.3.3 Checking the power cord		7.16 Replacing the frame (up to appliance no. 19999)	57
5.3.4 Checking the fuse		7.17 Replacing the frame (from appliance no. 20000)	59
5.3.5 Checking the main switch and LED displays		7.18 Replacing magnetic valves with valve block (up to appliance no. 34999)	60
5.3.6 Checking the dosage monitor for leaks		7.19 Replace magnetic valve block.	66
5.3.7 Checking the flowmeter for leaks		8. Spare parts	69
5.3.8 Checking the operating hours meter		8.1 List of spare parts	69
5.3.9 Checking the O ₂ concentration		8.2 Maintenance set.	72
5.3.10 Checking the mains failure alarm		9. Tools, testing equipment, disinfectants	73
5.3.11 Checking the indirect status indi- cator (yellow LED) with appliance closed		9.1 General tools and test equipment.	73
5.3.12 Checking the indirect status indicator (yellow LED) with the appliance open		9.2 Special tools and test equipment	73
5.3.13 System pressure test		9.3 Disinfectants	74
5.3.14 Checking the O ₂ system for leaks		10. Technical Data	75
6. Troubleshooting	19	10.1 Arrangement of the PCBs	76
6.1 Visual and acoustic signals from OXYMAT 3	19	11. Technical Changes	77
6.1.1 Alarms		12. Repair and inspection log	78
6.1.2 Signal patterns		13. Test report	79
6.1.3 Deactivating the signal functions			
6.2 Remedies	22		
6.3 O ₂ concentration outside tolerance range	27		
6.4 System pressure fault	27		

© Copyright Weinmann GmbH & Co. KG.

The content and presentation are copyright protected and may only be used by authorised Weinmann Service Partners in the course of their service operations. The content must not be reproduced or passed on to third parties. The complete documents must be returned on termination of the cooperation with Weinmann.

Introduction

For decades, Weinmann has developed, manufactured and distributed equipment for oxygen therapy, inhalation therapy, sleep apnea therapy and emergency medicine.

In 1982, Weinmann introduced the first oxygen concentrator to the market.

Long-term oxygen therapy with an oxygen concentrator now has a firm place in the treatment of chronic obstructive diseases of the respiratory tracts. Many studies have proven that long-term oxygen therapy can bring about a tangible improvement in life expectancy and quality of life. The OXYMAT 3 oxygen concentrator from Weinmann is part of this therapy concept.

The aim of these service and repair instructions is to familiarise you, as a **knowledgeable expert**, with the OXYMAT 3 with regard to function, technology, servicing and repairs. In conjunction with the training you have already received from Weinmann, you are now a "trained, qualified expert" and are able to instruct your clients correctly, rectify faults yourself, and carry out the functional checks

described in the instructions, as well as conduct any repairs which may be necessary, as outlined in these service and repair instructions.

In the event of a guarantee claim, OXYMAT 3 should be returned to Weinmann.

In order to enable us to process any guarantee or goodwill claims, please return the consumer's proof of purchase (invoice) together with the appliance.

Repair and maintenance work must be carried out only by Weinmann or by knowledgeable expert staff.

You are responsible for any repairs performed by yourself and for guaranteeing them!

Only original Weinmann spare parts should be used for repair purposes.

Please remember:

Your customer trusts you and relies on your expertise, just as you rely on Weinmann.

Note:

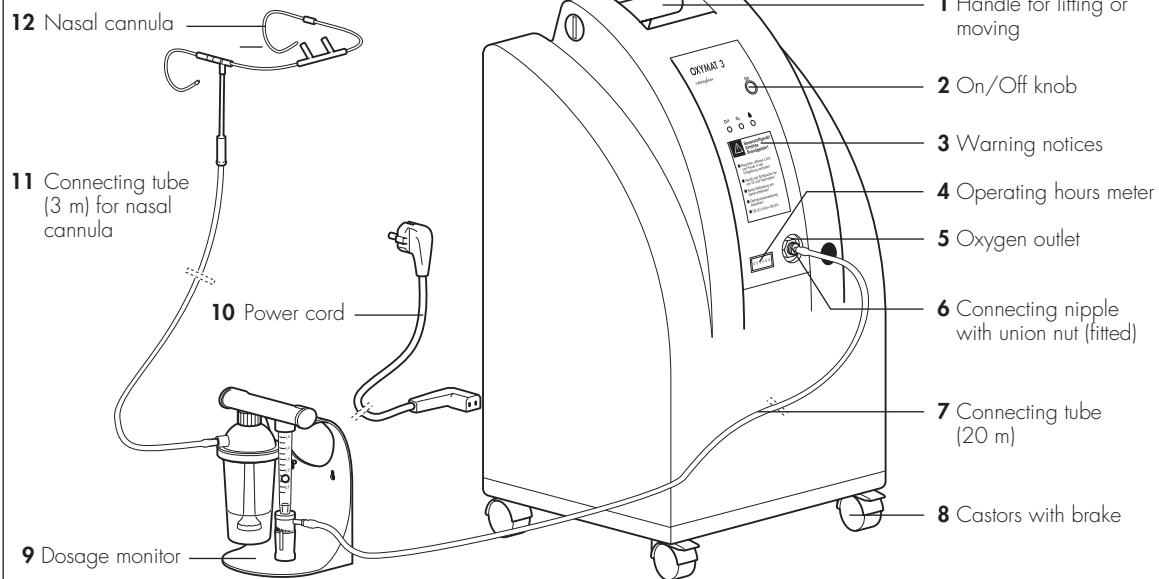
The following information can be found in the description and operating instructions for OXYMAT 3:

- Safety instructions
- Installation
- Operation
- Hygienic preparation
- Warranty

1. Overview

Front

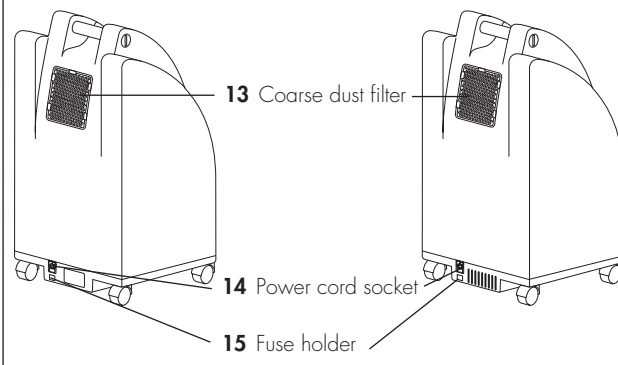
(with dosage monitor)



Back

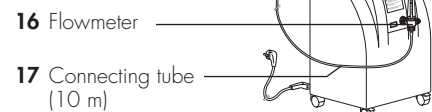
up to appliance no. 19999

from appliance no. 20000

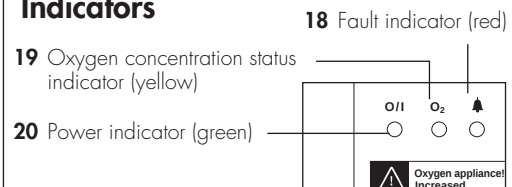


Front

(with Flowmeter)

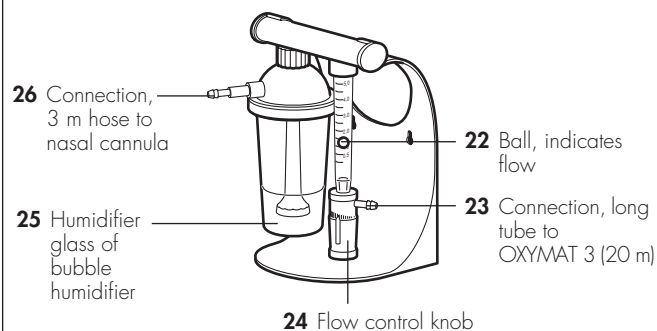


Indicators

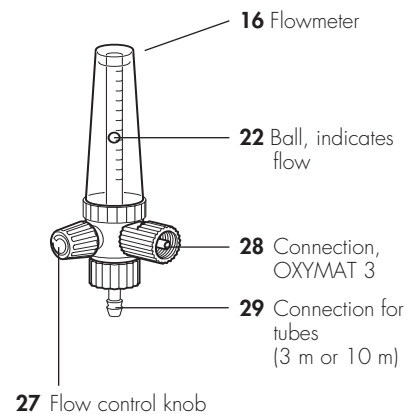


Dosage monitor

21 Dosage unit (flowmeter)



Flowmeter



2. Functional description

OXYMAT 3 is a time-controlled appliance, i.e. the changeover time remains constant; only the pressure is monitored.

Layout

The appliance essentially consists of three components:

- the compressor,
- the O₂ system,
- the electronic/pneumatic control.

During operation, the compressor draws in ambient air via a coarse dust filter and a suction filter, and passes the compressed air (approx. 1.7 bar overpressure) into containers with molecular sieves where the actual oxygen enrichment takes place.

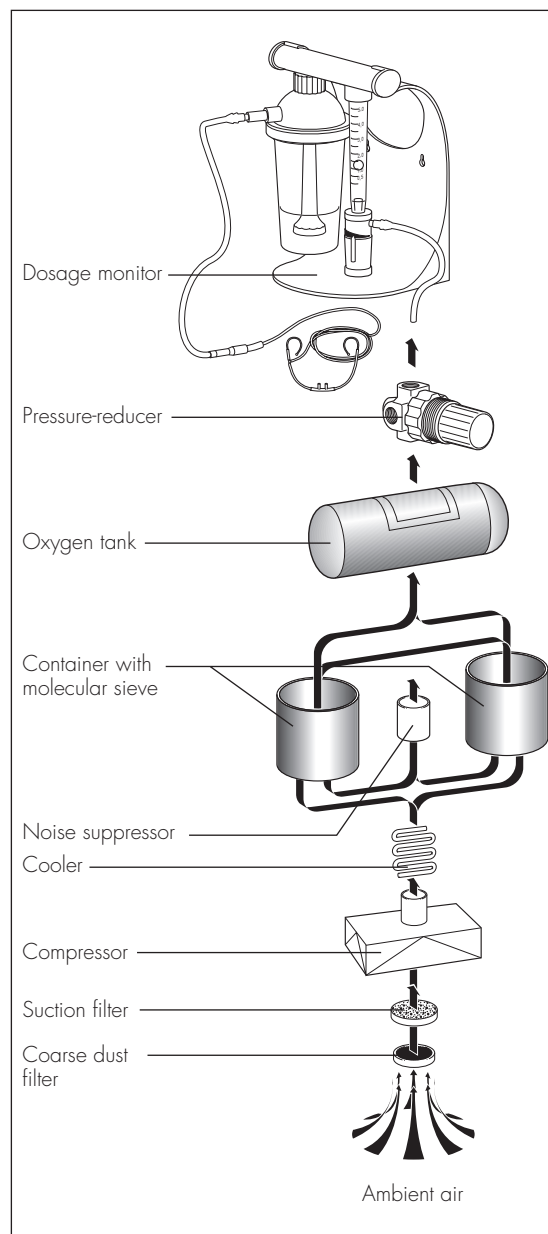
The functional principle of molecular sieves is based on their property of absorbing the nitrogen contained in the air. The oxygen contained in the air is then collected in the oxygen tank (further details can be found in the chapter "The O₂ enrichment process" on page 6).

The outlet pressure is regulated by a pressure-reducer set to 0.6 bar.

The required quantity (flow) of oxygen is set on the oxygen dosage control knob **24**. Where a flowmeter is used, the flow is controlled via the flow control knob **27**. The flow is read at the top edge of the flowmeter ball **22**.

Every time it is switched on, the appliance control system performs an internal self-test of the entire O₂ system. This test takes about a minute. If the test detects an error in the O₂ system that results in a drop in the oxygen concentration, it activates the yellow status indicator **19**.

After the self-test, OXYMAT 3 switches to normal operation. During normal operation the sequence control constantly monitors the electrical and pneumatic circuits of the oxygen system.

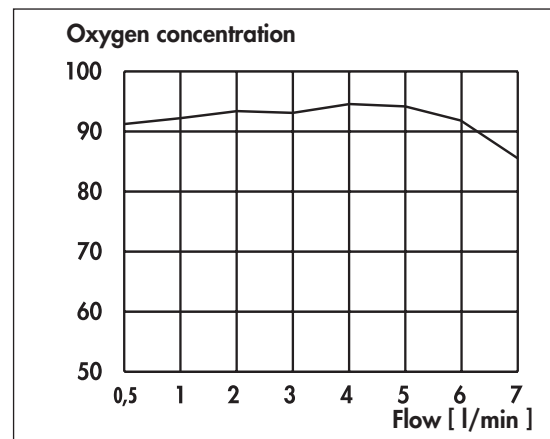


In order to allow the process to run continuously, the containers operate alternately, i.e. before one container is saturated with nitrogen, the system switches to the second container, which then continues with oxygen enrichment. During this period, the first container is regenerated by a brief reduction in pressure, and at the same time is flushed by a partial flow of enriched oxygen. This procedure is implemented cyclically at 7-second intervals, thereby ensuring continuous oxygen enrichment of the inspiratory air.

The level of oxygen concentration depends on the set flow and is available within a few minutes.

The waste air is expelled to the rear via a noise suppressor on the underside of the appliance.

The electronic control with microprocessor consists of one circuit board. It is housed separately from the oxygen system on the front panel.



The O₂ enrichment process

The compressor draws the ambient air into the housing via a coarse dust filter. Part of this air is used to cool the compressor assembly. The other part enters the compressor via the suction filter, where it is compressed. A cooler reduces the temperature of the air. The compressed and cooled air is then passed to the O₂ system to enrich the oxygen.

The adsorption containers (ADS containers) are alternately filled with compressed air in fixed cycles, then regenerated by expanding the compressed air and flushing with oxygen.

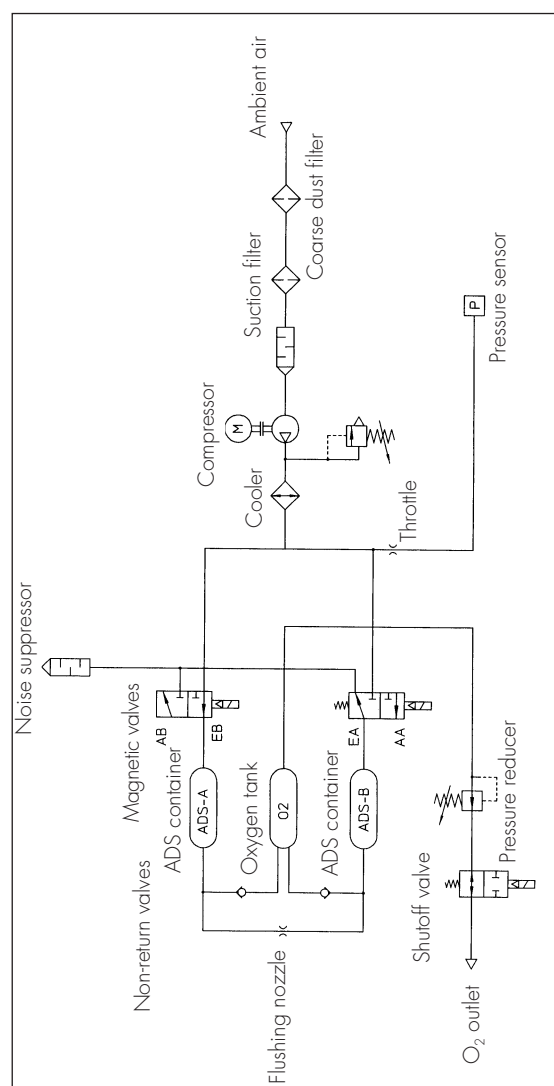
At the end of each enrichment, a pressure of around 1.7 bar will have built up in the currently active container.

After 7 seconds, the magnetic valves are alternately triggered by the electronic control and switch between the two ADS containers.

Of the valves in the two ADS containers, one is open and the other closed during operation. Once the changeover time has been reached, pressure compensation is implemented between the two ADS containers. During pressure compensation, both valves are open for approximately 1 second.

The actual process of oxygen enrichment takes place in the ADS containers. A molecular sieve adsorbs the nitrogen from the air, thereby increasing the proportion of oxygen by volume.

As soon as the pressure in the ADS container has risen sufficiently, air enriched with oxygen flows into the oxygen tank at the other end of this container via the non-return valve.



Part of the oxygen flows via the flushing nozzle into the other ADS container for flushing.

During the oxygen enrichment process, the area where adsorption of the nitrogen occurs will shift from the beginning of the ADS container towards the end. Before reaching the end of the container, the pressure between the two ADS containers is compensated via the pressure compensating valve. Parallel to this, the pressure escapes via the noise suppressor and the other ADS container is opened. The same procedure then takes place there.

Via pressure compensation, the remaining oxygen passes to the other ADS container, compression energy is saved, and blow-off noise is reduced.

The nitrogen adsorbed in the first ADS container is desorbed as a result of the pressure drop when the valve is opened and is expelled via the noise suppressor.

In order to attain adequate desorption of the molecular sieve, part of the oxygen extracted in one ADS container is continuously passed to the other ADS container via the flushing nozzle.

The oxygen stored in the oxygen tank at an overpressure of up to 1.7 bar is reduced to 0.6 bar via the pressure-reducer.

The pressure sensor monitors this system pressure. If the pressure falls below 0.5 bar or rises above 2.5 bar, the system activates visual and acoustic alerts.

At an overpressure of around 0.6 bar, the oxygen flows towards the outlet of the appliance.

The prescribed flow is set on the dosage monitor or on the flowmeter. It then flows to the patient via the nasal cannula.

Displays and alarms

- If a **leak that is likely to cause a drop in the oxygen concentration** occurs after the internal self-test, this situation is indicated immediately by a visual warning signal (**yellow** lamp).
- If the **compressor output falls off**, a visual alarm signal is displayed (**red** lamp flashes) and an acoustic warning (intermittent tone) sounds.
- The green lamp indicates that the system is operational.
- In the event of a power failure, an intermittent warning signal will sound and the red lamp will flash. The green lamp is not illuminated.

Further information on displays and alarms can be found in Chapter "6.1 Visual and acoustic signals from OXYMAT 3" on page 19".

3. Servicing

3.1 General

- **Important!**
Enter the operating hours of OXYMAT 3 and the oxygen concentration in your service record (see page 78).
- The number of operating hours can be read from the operating hours meter **4** on the front of the device.
- As a precautionary measure, we recommend that the OXYMAT 3 be serviced once a year or every 5,000 operating hours.
- After each servicing, a functional check should be carried out (see "5. Functional check" on page 10).

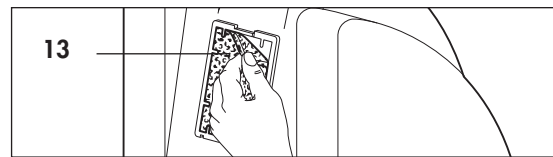
Note: Dark discoloration of the intake filter **30** does not mean that its flow characteristics are impaired, provided its operating hours do not exceed 5,000 h; an exception applies if the device is operated in a very dusty environment.

3.2 Implementation

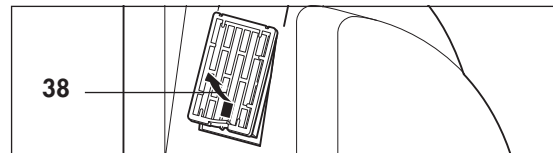
Servicing the OXYMAT 3 involves changing the coarse dust filter and the suction filter and performing a final check (see "5. Functional check" on page 10).

The filters are located on the back of the appliance.

1. Detach the coarse dust filter **13** from the service flap **38**.

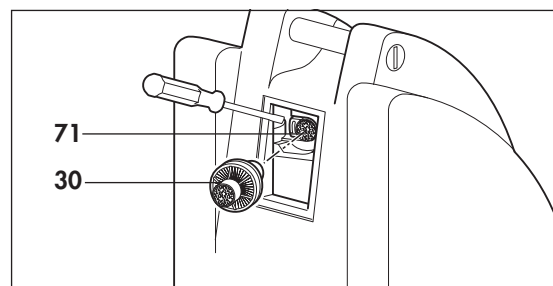


2. Release the lock on the service flap **38** and remove the latter from the appliance.



When removing the suction filter, please proceed with caution, since the connector and tube may be torn off if the suction filter is handled carelessly.

3. You will find a black clip in the recess to the left of the suction filter. Use your fingers or an object to press against this clip to prevent it from being pulled out as well.
4. Pull the suction filter **30** off the connector **71** **without twisting**. The suction filter must not be twisted, as the connector could become detached from the tube.
5. Connect the new filter **30** to the connector.
6. Clean the service flap **38** and insert it.
7. Clip a new coarse dust filter **13** into the service flap **38**.



3.3 Disposal



Do not dispose of the unit with domestic waste. For proper disposal of the device and its components, please contact a certified waste disposal site for electronic goods. Ask your Environmental Officer or local council for the address. Appliance packaging (cardboard and inserts) may be disposed of in the paper recycling bin.

4. Hygienic Preparation

4.1 No change of patient

Proceed as described in the operating instructions for the OXYMAT 3.

4.2 Change of patient or reuse

- Dispose of extension tubes and nasal cannulas, and replace with new parts.
- Dispose of coarse dust filter and suction filter, and replace with new parts.
- For the bubble humidifier, please observe the separate operating instructions.
- Wipe housing and power cord with TERRALIN disinfectant.
- Clean inside of housing with vacuum cleaner, clean any particularly dirty parts with household cleaner (to open and close the appliance, see sections 7.3 and 7.4 on page 29 and page 30).

5. Functional check

5.1 General

- Should you discover any faults or deviations from the set values during your functional check, OXYMAT 3 must not be used again until the faults have been rectified.
- The possible causes underlying the fault and how to rectify them are outlined in Chapter "6. Troubleshooting" on page 19.
- For environmental reasons a capacitor back-up unit has been installed instead of a battery to serve the power failure alarm function. As soon as OXYMAT 3 is operational, the capacitor is recharged. Charging takes approximately 5 minutes.
If the device has been out of service for some time, an alarm cannot be triggered until the device has been operational for at least 5 minutes.

Please use the following equipment to carry out the functional check:

- Oxygen measuring device,
- Filled oxygen cylinder with adjustable pressure reducer (e.g. HIT, WM 33100),
- Respiratory tubes WM 5726 and WM 5772.

5.2 Intervals

A final check must be performed on the appliance:

- after every service;
- after every repair.

5.3 Implementation

5.3.1 Checking the housing

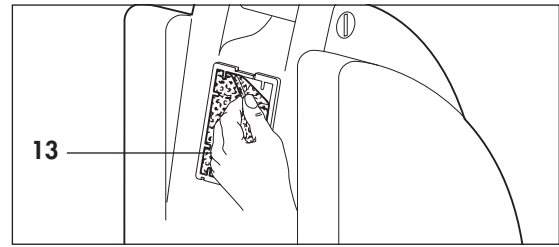
Check the housing to determine its general condition.

- Dirt can be wiped off with a damp cloth. The all-purpose cleaner WM 14937 is also very suitable.
- If you want to use a disinfectant, we recommend TERRALIN.
- If the housing is defective, replace it (see "7.3 Opening the appliance" on page 29) and „7.4 Closing the appliance“ auf Seite 30.
- If the frame is defective, please replace it (see "7.16 Replacing the frame (up to appliance no. 19999)" on page 57).

5.3.2 Checking the coarse dust filter

Check the coarse dust filter **13** to determine its general condition:

1. Unclip the coarse dust filter from the back of OXYMAT 3.
2. If the filter is dirty, clean it. As a general rule, the filter should be freed from dust once a week (either by tapping or vacuuming).
3. If the filter is defective, replace it.



5.3.3 Checking the power cord

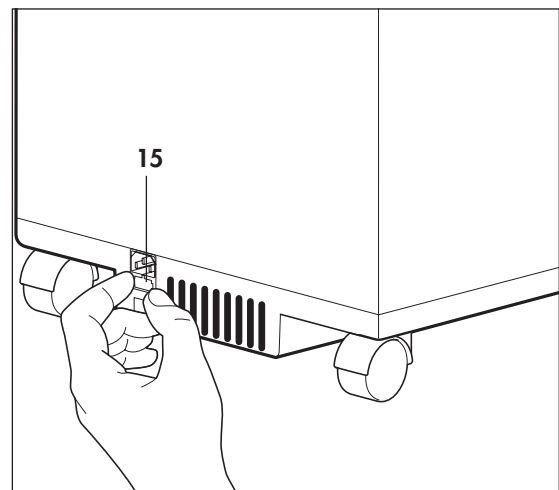
1. Check the power cord **10**.
Make sure that
 - the insulation is undamaged,
 - the cable is undamaged,
 - none of the contacts are wobbly.
2. If any of these requirements are not satisfied, replace the power cord **10**.

5.3.4 Checking the fuse

The fuse holder **15** can be found on the rear of the appliance beneath the power socket **14**.

1. Pull the power cord **10** from the socket and from the device.
2. Press the side tabs on the fuse holder **15** together and pull out the fuse holder.
3. Check that the correct fuses are installed.
There should always be two fuses installed:
A mains fuse and a spare fuse.

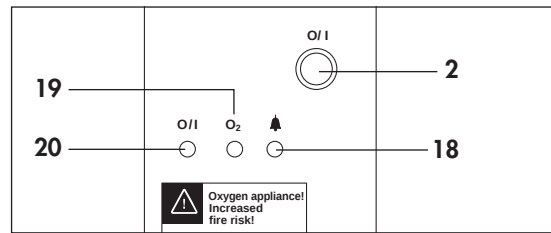
The fuses **39** should carry the following label:
DIN EN 60127-T 2.5 A H 250 V.
4. If necessary, replace the defective or missing fuses.
5. Push the fuse holder **15** into the housing until it locks home.



5.3.5 Checking the main switch and LED displays

1. Connect the power cord **10** to OXYMAT 3 and to a wall socket.
2. Connect the dosage monitor or the flowmeter to the oxygen outlet **5**.

3. Switch on the OXYMAT 3 at the On/Off knob **2**. The following LED displays will appear:
 - The power indicator (green LED) **20** lights up.
 - The fault indicator (red LED) **18** and status indicator (yellow LED) **19** light up briefly.



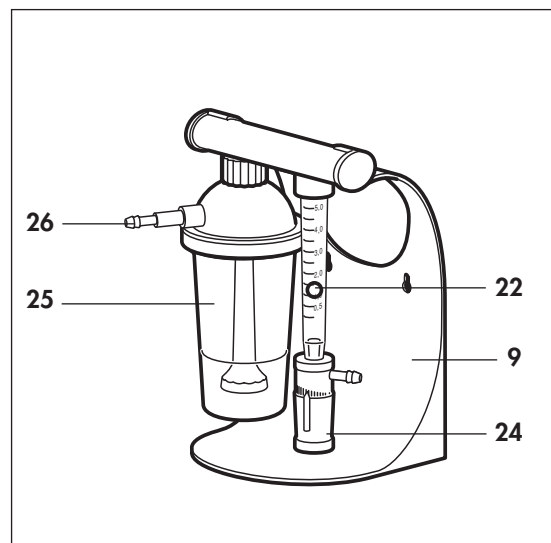
Important

The program then makes an internal check for leaks:

- Pressure is built up within 20 seconds. The green operating indicator **20** flashes light/dark.
- Then the compressor is switched off and the existing pressure is monitored for about 20 seconds. If there is a fault and the pressure drops, the yellow status indicator **19** lights up.
- Finally the system is vented so that the compressor can start up again without any back-pressure.

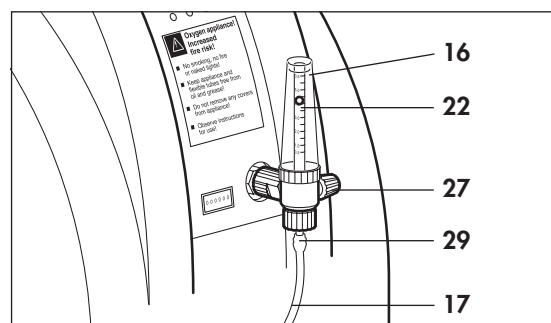
5.3.6 Checking the dosage monitor for leaks

1. Check the screw connections between the humidifier glass/cap and humidifier/dosage monitor to verify that they are firmly seated. If necessary, re-tighten the connections by hand.
2. Set a flow of 4 l/min on the flow control knob **24** for oxygen dosage.
3. To check the dosage monitor **9** for leaks,
 - bend the 3 m tube **11**
 - or pull the 3 m tube **11** from the connection of the bubble humidifier **25** and hold the connection **26** closed.
 If the ball **22** sinks all the way to the bottom, there are no leaks in the dosage monitor system.
4. In the event of leaks, change the sealing rings on the humidifier.



5.3.7 Checking the flowmeter for leaks

1. Set a flow of 4 l/min on the knob **27**.
2. To check the flowmeter **16** for leaks:
 - Bend the connection tube **17**
 - or pull the tube **17** from the connection of the flowmeter and hold the connection **29** closed.
 If the ball **22** sinks all the way to the bottom, there are no leaks in the flowmeter.
3. In the event of leaks, change the sealing rings on the flowmeter.



5.3.8 Checking the operating hours meter

Check that the red minute counter on the operating hours meter **4** is incremented every 6 minutes.

5.3.9 Checking the O₂ concentration

Leave the OXYMAT 3 to run for at least 10 minutes before starting the measurement.

Before you check the oxygen concentration on the OXYMAT 3, you must first calibrate the oxygen measuring device (e.g. OXYcontrol WM 13550).

For this purpose, you will need the respiratory tube WM 5726 and an oxygen cylinder with an adjustable pressure reducer (e.g. WM 33100).

Caution !
Please observe the instructions for handling oxygen!

Important!

Before calibrating the oxygen sensor for the first time, the sensor must be stored in ambient air for at least 15 minutes (refer to instructions for use of the sensor).

The oxygen measuring device is now calibrated and you can check the oxygen concentration on OXYMAT 3.

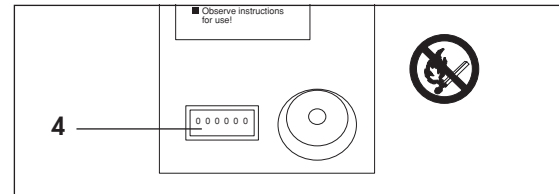
Please remember that OXYMAT 3 must have already been operational for at least 10 minutes.

When operating with a dosage monitor:

Important!

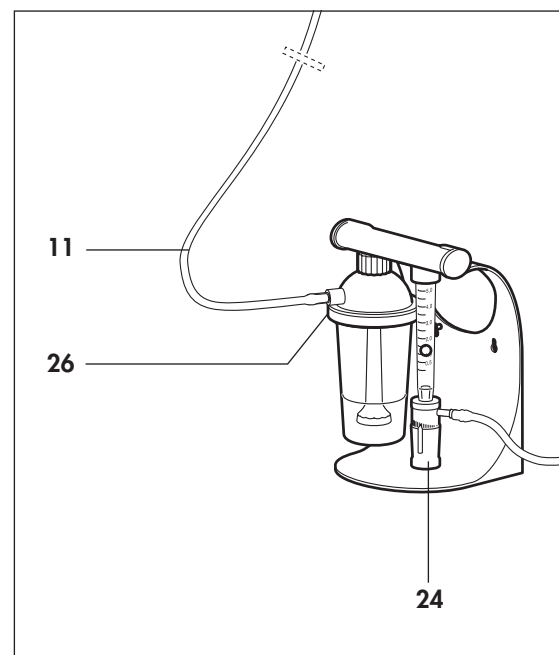
It is vital that you empty the humidifier glass 25 of the bubble humidifier; otherwise, the oxygen sensor of the oxygen measuring device will be damaged.

7. Connect the oxygen measuring device:
 - To do so, remove connecting tube **11** from connection **26** of the dosage monitor and use breathing tube WM 5772 to make a connection between connection **26** and the oxygen measuring device;
 - or
 - Unscrew the bubble humidifier (sterile water system) from the dosage monitor and attach the connecting tube to the OXYcontrol at this point with the union nut.
8. Using the flow control knob **24**, set a flow of 4 l/min.



How to calibrate the oxygen sensor:

1. Connect the oxygen measuring device to the pressure reducer of the oxygen cylinder using the respiratory tube WM 5726.
2. **Slowly** open the cylinder valve. One revolution is sufficient!
3. Set a **flow** of **4 l/min** at the pressure reducer.
4. Leave the oxygen measuring device (e.g. OXYcontrol) flowing for approximately 2 minutes, **until the displayed oxygen level remains steady.**
5. Set a value of "100" using the calibration knob.
6. Close the cylinder valve again.



9. After waiting for a short while, read the oxygen concentration from the oxygen measuring device.

It should be between 90 and 95 % by volume.

10. Re-connect the connecting tube **11**.

11. If the O₂ concentration is outside the tolerance range, proceed as described in "6.3 O₂ concentration outside tolerance range" on page 27.

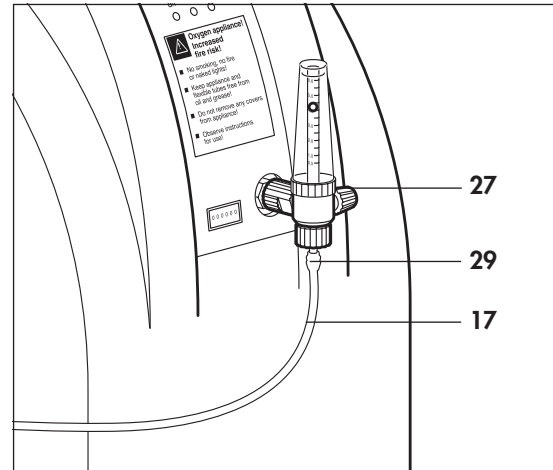
When operating with a flowmeter:

7. Connect the oxygen measuring device:
 - To do this, remove connecting tube **17** from connection **29** of the flowmeter and use breathing tube WM 5772 to make a connection between connection **29** and the oxygen measuring device;
 - or
 - Unscrew the union nut from the flowmeter and attach the connecting tube to the OXYcontrol at this point with the union nut.
8. Using the flow control knob **27** set a flow of 4 l/min.
9. After waiting for a short while, read the oxygen concentration from the oxygen measuring device.

It should be between 90 and 95 % by volume.

10. Re-connect the connecting tube **17**.

11. If the O₂ concentration is outside the tolerance range, proceed as described in "6.3 O₂ concentration outside tolerance range" on page 27.



5.3.10 Checking the mains failure alarm

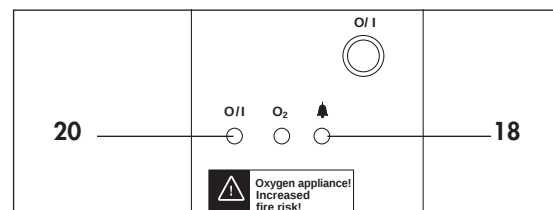
Note:

As power is supplied to the alarm function via a capacitor, the OXYMAT 3 should first be operated for 5 minutes to allow the capacitor to charge.

1. Pull the power cord from the socket or from the device.
2. Check whether the following displays and alarms occur:
 - **Acoustic:** The device emits a continuous tone.
 - **Optical:** The red fault indicator **18** lights up; the green power indicator **20** is off.
3. Re-make the connection to the mains.

Now:

- The acoustic alarm should be silenced.
- The red fault indicator **18** should go out.



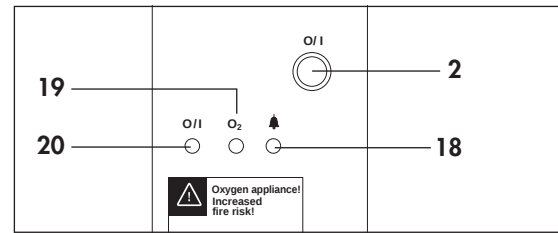
- The green power indicator **20** should be on.
- The appliance should start up.

4. Switch off the appliance at the On/Off knob **2**.

5.3.11 Checking the indirect status indicator (yellow LED) with appliance *closed*

The purpose of this check is to establish whether the status indicator that warns if a leak that is likely to cause a drop in the oxygen concentration is working properly. This is done by an internal program that creates an artificial leak which results in the alarm being triggered.

1. Switch on the OXYMAT 3 at the On/Off switch **2**.
An internal leak test will run for about 1 minute. The green operating indicator **20** flashes while this is in progress.
2. With the appliance running, set a flow of 4 l/min at the top of the ball.



To start the test program, proceed as follows:

3. Remove power cord **10** from the wall socket or the appliance.
4. Wait for the acoustic power failure alarm to sound (two groups of five tones --- --).
5. Switch off the OXYMAT 3 at the On/Off switch **2**. Do not connect the power cord again.
6. Switch OXYMAT 3 on again at On/Off switch **2**.
7. Wait for the acoustic power failure alarm to sound again (two groups of five tones --- --).
8. Switch off the OXYMAT 3 at the On/Off switch **2**.
9. Connect the power cord again.
10. Switch on the OXYMAT 3 at the On/Off switch **2**.

The following LED indicators appear:

- green operating indicator **20** lights up
- red fault indicator **18** lights up briefly
- yellow status indicator **19** lights up briefly.

The program then runs an internal leak check routine:

- pressure is built up within 20 s. The green operating indicator **20** flashes.
- the pressure is checked for about 20 s with the compressor switched off.

An artificial leak is created in the OXYMAT 3, and this results in the oxygen concentration falling below 82 %.

11. Check that the yellow status indicator **19** is on while this is happening.

If the status indicator does not light up, either:

- you have not set the flow to exactly 4 l/min or
- the status indicator is faulty.

12. Switch off the OXYMAT 3 at the On/Off switch **2**, then switch it on again.

The test program is now deactivated and the OXYMAT 3 is in normal operating mode.

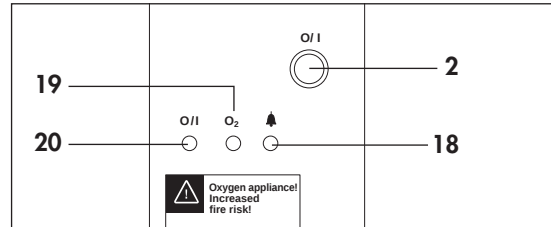
5.3.12 Checking the indirect status indicator (yellow LED) with the appliance open

Note:

Not necessary as part of a normal functional check or service.

The purpose of this check is to establish whether the status indicator that warns if a leak that is likely to cause a drop in the oxygen concentration is working properly. This is done by an internal program that creates an artificial leak which results in the alarm being triggered. If the appliance is open (e.g. for repair work) you can start this test program with switch **S5** on the printed circuit board.

1. Switch on the OXYMAT 3 at the On/Off switch **2**.
An internal leak test will run for about 1 minute.
The green operating indicator **20** flashes while this is in progress.
2. With the appliance running, set a flow of 4 l/min at the top of the ball.



To start the test program, proceed as follows:

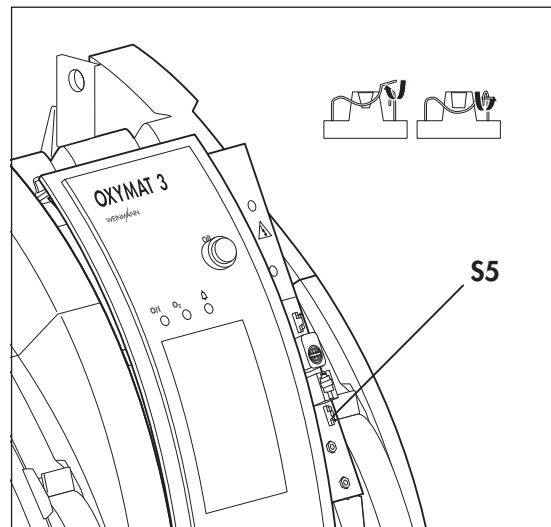
3. Switch off the OXYMAT 3 at the On/Off switch **2**.
4. Open coding switch **S5** on the printed circuit board.
5. Switch on the OXYMAT 3 at the On/Off switch **2**.

The following LED indicators appear:

- green operating indicator **20** lights up
- red fault indicator **18** lights up briefly
- yellow status indicator **19** lights up briefly.

The program then runs an internal leak check routine:

- pressure is built up within 20 s. The green operating indicator **20** flashes.
- the pressure is checked for about 20 s with the compressor switched off.



An artificial leak is created in the OXYMAT 3, and this results in the oxygen concentration falling below 82 %.

6. Check that the yellow status indicator **19** is on while this is happening.
If the status indicator does not light up, either:
 - you have not set the flow to exactly 4 l/min or
 - the status indicator is faulty.
7. Switch off the OXYMAT 3 at the On/Off switch **2**.
8. Close coding switch **S5** on the printed circuit board.

The test program is now deactivated and the OXYMAT 3 is in normal operating mode.

9. Close the appliance (see "7.4 Closing the appliance" on page 30).

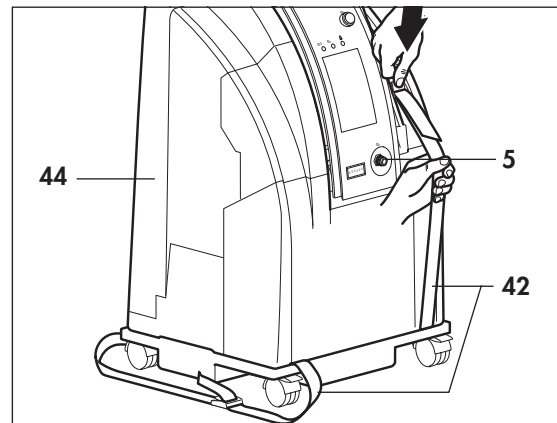
5.3.13 System pressure test

General

The system pressure should only be tested if there is a fault in the appliance.

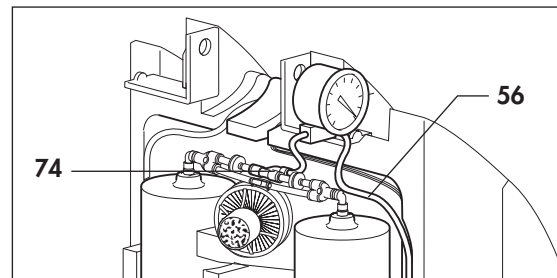
Fitting the test pressure gauge

1. Connect the test pressure gauge inlet directly to the oxygen outlet **5**.
If your pressure gauge also has an outlet, close it (e.g. with your thumb).
2. Open the appliance housing (see "7.3 Opening the appliance" on page 29).
3. Open the strap system **42** without pulling the strap out of its buckle.
4. Carefully remove foam section **44**.
5. To prevent the ADS containers from slipping out, lay the strap system **42** over the remaining foam sections and gently tighten it.



To make fitting easier, the test pressure gauge is not fitted directly to the inlet of the O₂ tank, but before the 6 mm diameter tube **56** which leads directly to the O₂ tank.

6. At the T-connector **74**, push back the sleeve of the elbow connector and remove the tube **56**.
7. Push the tube of the test pressure gauge firmly into the elbow connector.
8. Push the tube **56** into the free inlet of the test pressure gauge.



Pressure test

Oxygen outlet

1. Plug the power cord **10** into the appliance and insert the mains plug in a wall socket.
2. Switch the OXYMAT 3 on.
3. After 10 minutes, attach the pressure gauge to the oxygen outlet **5**.
4. Read off the pressure.
The reading must be in the range **0.6 bar ± 0.1 bar** (at sea level).
5. Rectify any discrepancies you find (see "6.2 Remedies" on page 22).

6. Switch the appliance off, then remove the mains plug from the wall socket and the power cord from the appliance.
7. Remove the pressure gauge.
8. Perform a functional check (see "5. Functional check" on page 10).

O₂ tank inlet

9. Attach the dosage unit **21** or the flowmeter **16**.
10. Plug the power cord **10** into the appliance and insert the mains plug in a wall socket.
11. Switch the OXYMAT 3 on.

Caution!

Risk of injury or death!

Beware of live or moving components.

12. Set the flow to 4 l/min.
13. After 10 minutes, read off the pressure on the pressure gauge.

The reading must be in the following range:

At the O₂ tank inlet:

min. 1.2 + 0.3/- 0.2 bar to

max. 1.65 bar + 0.3/- 0.2 bar

at 4 l/min (at sea level).

Rectify any discrepancies you find (siehe „6.2 Remedies“ auf Seite 22).

14. Switch the appliance off, then remove the mains plug from the wall socket and the power cord from the appliance.
15. Remove the dosage unit **21** or flowmeter **16** from the appliance.
16. Remove the pressure gauge.
17. Attach the tube **56**.
18. Slacken the strap system.
19. Carefully insert the foam section **44** and tighten the straps again.
20. Close the appliance (see "7.4 Closing the appliance" on page 30).
21. Perform a functional check (see "5. Functional check" on page 10).

5.3.14 Checking the O₂ system for leaks

General

A check for leaks should only be made if there is a problem with the appliance.

Method

Soap all connections between the compressor exit, the pressure equalization system (tubes, exit) and the shutoff valve after the pressure reducer.

6. Troubleshooting

6.1 Visual and acoustic signals from OXYMAT 3

6.1.1 Alarms

The following appliance states trigger an alarm:

1. Power failure
2. Overheating
3. Memory error
4. Under-pressure
5. Over-pressure
6. Implausible pressure measurement
7. Leak in O₂ system

1. Power failure

The energy for a power failure alarm is supplied by a capacitor back-up unit. If the capacitor back-up unit is fully discharged, the power failure alarm is not available for the first minute after switching on the OXYMAT 3 until the back-up unit has charged up again.

2. Overheating

A temperature sensor is mounted on the printed circuit board. If the temperature rises above 60 °C (± 2.5 °C), an alarm is given and at the same time the compressor is switched off. The compressor remains switched off as long as the temperature alarm is activated. The cause may for example be a malfunction of the fan.

3. Memory error

Every time the appliance is switched on, the EEPROM is first read out. Among other things, this contains the operating cycles for the valves and the calibration data for the temperature sensor. A plausibility check is performed on the data read out.

If a memory error occurs:

- default values (basic settings) are read from the program memory and used to start the control program;
- the memory error alarm is activated;
- after every alarm cycle a fresh attempt is made to read the EEPROM;
- after a successful read attempt the alarm is terminated.

4. Under-pressure

This alarm is activated if the pressure sensor at the inlet to the O₂ system measures a pressure lower than the required operating pressure.

5. Over-pressure

This alarm is activated if the pressure sensor at the inlet to the O₂ system measures a pressure higher than the required operating pressure.

6. Implausible pressure measurement

Since the OXYMAT 3 has a time control, there must be a defined pressure pattern over time. This pressure pattern is measured by the pressure sensor and analyzed by the appliance software. If necessary an alarm is activated.

7. Leak in O₂ system

Every time the appliance is switched on, the control system runs a leak test on the entire O₂ system. If a leak is found, the yellow status indicator **19** is switched on, as sooner or later this leak in the O₂ system may result in the oxygen concentration at the outlet falling below 82 %.

During the leak test the green power indicator **20** flashes. After the leak test the OXYMAT 3 switches to normal operating mode.

If the leak test is not successfully completed within one minute, the control system stops the test cycle and switches on the yellow status indicator **19** to indicate an operating fault. The cause of the leak must now be identified.

No further test for leaks is performed during normal operation.

6.1.2 Signal patterns

The alarm signal patterns are in accordance with EN 475 (see Table of Signal Patterns). To make it possible to distinguish the alarm sources, this standard assigns specific signal patterns to individual error situations (see Table of Error Situations).

Since it is possible that two or more errors may occur at the same time, the alarms are weighted by the software and the appropriate alarm pattern is output. For example: if under-pressure and overheating occur simultaneously, the alarm pattern for overheating is output (see Table of Alarm Situations).

Table of Alarm Situations:

Appliance Status	Release after x minutes	Pattern of alarm signal indicators	Weighting	Classification of signal patterns under EN 475
Power failure	1 minute after cold start	Buzzer: A Red LED: A Yellow LED: off Green LED: off	1	High priority
Overheating	Immediately after switching on	Buzzer: A Red LED: A Yellow LED: off Green LED: on	1	High priority
Implausible pressure reading	1 minute after end of leak test	Buzzer: A Red LED: C Yellow LED: off Green LED: on	2	High priority
Memory error	Immediately after switching on	Buzzer: B Red LED: B Yellow LED: off Green LED: on	3	High priority
Under-pressure	1 minute after end of leak test	Buzzer: C Red LED: C Yellow LED: off Green LED: on	4	High priority
Over-pressure	1 minute after end of leak test	Buzzer: C Red LED: D Yellow LED: off Green LED: on	5	High priority
O ₂ status	Test immediately after switching on	Buzzer: off Red LED: off Yellow LED: on Green LED: on	Is indicated independently by the yellow LED	Low priority

Note:

The green power indicator **20** is not an alarm signal indicator. Its status is only given here for completeness' sake.

The signal patterns for the buzzer consist of 2 identical pulse sequences, repeated every 10 seconds. Each pulse sequence consists of 5 individual pulses (see Table of Signal Patterns).

Table of Signal Patterns:

Buzzer pattern for one pulse sequence	Pulse duration / ms (= buzzer on)	Pulse interval/ ms (= buzzer off)	Pulse interval between 3rd and 4th pulse / ms	Graphic representation
A	150	100	500	— — — — —
B	150	10	320	— — — — —
C	150	0	300	—— —

Flashing pattern for red LED	Flashing frequency / Hz	On time / ms	Off time / ms	Graphic representation
A	1.43	200	500	— —
B	1.43	400	300	—— —
C	2.5	80	320	- -
D	2.5	240	160	— —

6.1.3 Deactivating the signal functions

The signal functions can be deactivated by means of the switches **S2**, **S3**, **S4** and **S5** on the printed circuit board. To see where the switches are located on the PCB, consult the illustrations in Section “10.1 Arrangement of the PCBs” on page 76.

Coding switch	Open	Closed
S2	Power supply for power failure alarm deactivated.	Power supply for power failure alarm activated.
S3	Buzzer deactivated.	Buzzer activated.
S4	Alarm suppression during warming-up phase deactivated (i.e. alarm function activated).	Alarm suppression during warming-up phase activated (i.e. alarm function deactivated).
S5	Activates program for checking status indicator	Normal operation

Tip:

For fault-finding purposes it can be useful to open coding switch **S4**. This enables the alarms immediately on completion of the leak test.

6.2 Remedies

Fault	Cause	Localisation	Remedy
No motor noises, power indicator does not light up, mains failure alarm sounds.	No power.		Check mains lead for secure connection. If applicable, check whether power is available at the mains (e.g. with a lamp).
	Faulty fuse.		Replace fuse 39 (see "5.3.4 Checking the fuse" on page 11). A spare fuse can be found in the fuse box.
Power indicator fails to illuminate, no acoustic alarm.	Capacitor for mains failure alarm is completely discharged.		Leave the appliance to run for 5 minutes.
No flow at nasal cannula, although there is flow at the appliance outlet. In such cases, the appliance does not emit an alarm.	Tube connections interrupted.	Disconnect tube from inlet of dosage monitor; check whether flow is escaping from the tube.	Seal all connection and sealing points from the appliance outlet to the inlet of the dosage monitor.
	Oxygen distributor in bubble humidifier blocked.	Loosen union nut of bubble humidifier; the ball should then rise.	Clean or replace the oxygen distributor.
After running for a long period, appliance emits intermittent acoustic warnings and red fault indicator flashes; no flow.	Motor compressor not rotating.		Capacitor incorrectly connected or not connected at all. Connect the capacitor correctly (7.5, page 30).
			Check the voltage supply at the motor. Motor defective: Replace the compressor (7.5, page 30).
	Crank mechanism stiff, motor circuit-breaker of compressor is activated.		Compressor defective: Replace compressor (7.5, page 30).
After running for a long period, appliance emits intermittent acoustic warnings and red fault indicator flashes.	Appliance too hot, coarse dust filter blocked.		Clean or replace coarse dust filter. (3.2, page 8).
	Leak at compressor outlet port elbow connector		Replace parts (7.5, page 30)
	Suction filter blocked.		Replace suction filter. (3.2, page 8).
	Overtemperature of $60\text{ °C} \pm 2.5\text{ °C}$.		Check fan (7.10, page 42).
Power cord damaged.			Replace power cord.

The following faults are based on a defective circuit. They occur with the compressor and fan running.

Caution !

Always pull out the mains plug before working on electrical components.

Remember that all coding switches on the circuit board **must** be **closed** during normal operation.

Fault	Cause	Localisation	Remedy
After running for a long period, appliance emits intermittent acoustic warnings and red fault indicator flashes.	Memory failure.		After switching on, first of all the EEPROM is read. In the event of a memory failure, an alarm is issued and it is then re-read. If this readout attempt is successful, the fault will be cleared. If not, the circuit board should be replaced. (7.9, page 40).
Blow-off noises on compressor (overpressure valve activated).	Connectors X10 and/or X11 have worked loose.	Green LED is illuminated and an acoustic pressure alarm sounds.	Re-make the connection (7.9, page 40).
	Inadequate voltage supply to magnetic valves.	See above.	Ensure that the mains voltage is at least 207 V.
	No voltage supply to magnetic valves.	See above.	Replace fuse F2 (7.9, page 40).
	Fuse F1 tripped.	Green LED not illuminated, mains failure alarm.	Replace fuse F1 (7.9, page 40).
	Thermal release in transformer tripped.	Green LED not illuminated, mains failure alarm.	Replace the circuit board (7.9, page 40).
Overpressure alarm (acoustic alarm, red LED 18 flashing 2.5 times per second).	Overpressure exists.	Check pneumatic system for blockages.	Rectify blockage (7.9, page 40).
	Valves of O ₂ system jamming		(see " Blow-off noises on compressor (overpressure valve activated)." on page 23)
	Circuit board defective.	Perform a system pressure test (5.3.13, page 17)	Replace the circuit board (7.9, page 40).
No overpressure alarm, even though overpressure exists.	Warm-up phase not yet complete.	Each time the device is switched on, the overpressure alarm is blocked for one minute.	Wait for one minute.
	Pressure measurement tube faulty.	Visual check on tube for: properly seated connection; not blocked.	Replace pressure measurement tube if necessary.
	Circuit board defective.		Replace the circuit board (7.9, page 40).
Underpressure alarm (acoustic alarm, red LED 18 flashes briefly 2.5 times per second).	Underpressure exists.	Check pneumatic system for leaks.	Remedy the leak.
	Circuit board defective.	Perform a system pressure test (5.3.13, page 17)	Replace circuit board
	Pressure measurement tube has come loose.	Visual check for proper seating of pressure measurement tube.	Establish trouble-free pneumatic connection.

Fault	Cause	Localisation	Remedy
No underpressure alarm.	Warm-up phase not yet complete.	Each time the appliance is switched on, the overpressure alarm is blocked for one minute.	Wait for one minute.
	Circuit board defective.		Replace the circuit board (7.9, page 40).
Mains failure alarm	Miniature fuse in non-heating appliance connector has tripped.	Compressor and fan not running and green LED is extinguished.	Check fuse 39 and replace if necessary (5.3.4, page 11).
	Internal connection has worked loose at non-heating appliance connector.	See above.	Check connection and re-make if necessary.
	Connector X1 has worked loose.	See above.	Check connection and re-make if necessary.
	Cable harness defective.	See above.	Replace the cable harness (item no. 86 in the spare parts list).
	Fuse F1 has tripped.	Compressor and fan not running and green LED is extinguished.	Check fuse F1 and replace if necessary (7.9, page 40) (10.1, page 76).
	Thermal release in transformer has tripped.	See above.	Replace the circuit board (7.9, page 40).
	Circuit board defective.	Green LED illuminated, compressor and fan running. Valves are switching.	Replace the circuit board (7.9, page 40).
Device fails to emit correct mains failure alarm.	Coding switch S3 is open.	Green LED is extinguished. Buzzer off. Red LED is flashing.	Close coding switch S3 (7.9, page 40).
	Coding switch S2 is open.	Green LED is extinguished. Buzzer off. Red LED is extinguished.	Close coding switch S2 (7.9, page 40).
	Voltage supply for mains failure alarm discharged.	See above.	Operate the device for one minute to recharge the voltage supply.
	Mains failure alarm is shorter than 1 minute.	Operate the appliance for 30 minutes. If the alarm duration is then shorter than 1 minute, the circuit board is defective.	Replace the circuit board (7.9, page 40).

Fault	Cause	Localisation	Remedy
O ₂ alarm	Leak in O ₂ system	Examine pneumatic system for leaks.	Eliminate leaks.
	Switch S5 for checking status indicator was not closed again (5.3.12, page 16)	Switch off OXYMAT 3. Close switch S5 . Switch on OXYMAT 3.	Close switch S5 .
	During a power failure alarm the OXYMAT 3 was switched off and on twice, thereby starting a status indicator check (5.3.11, page 15)		Connect OXYMAT 3 to mains. Then switch OXYMAT 3 off and on again.
	No voltage at shutoff valve.	Check plug-in connection X13 .	Ensure trouble-free plug-in connection.
		Check fuse F3 .	Change fuse F3 (7.9, page 40), (10.1, page 76).
	Shutoff valve 83 faulty.	Flow starts immediately after switching on.	Change shutoff valve 83 .
	Pressure measurement tube 63 blocked.	Self-test is stopped after 60 s without stopping compressor.	Re-route tube 63 , replace if necessary.
No O ₂ alarm, even though concentration is < 82 % by volume.	Pressure sensor B1 faulty.	Compressor overpressure valves activate after 30 s.	Change board (7.9, page 40).
	Leak occurred since last switching on.	Switch OXYMAT 3 off then on again to initiate self-test.	Eliminate leak.
	Pressure sensor faulty.	Check indirect status indicator (5.3.11, page 15) (5.3.12, page 16).	If yellow LED does not light up, change board (7.9, page 40).
	OXYMAT 3 was operated for long time at relative humidity in excess of 75 %.	Weigh ADS container (7.11, 7.12 and 7.13).	Change ADS container (7.11, 7.12 and 7.13).
	Fuse F3 defective.	Green LED is on.	Replace fuse F3 .
Compressor not running	Suction filter blocked.		Clean or replace suction filter (3.2, page 8).
	Plug-in connection X2 faulty.	Check plug-in connection	Replace wiring harness if necessary.
	Overheating alarm.	Appliance control system switches off compressor if overheating alarm given.	Allow OXYMAT 3 to cool down. After the end of the overheating alarm the control system switches the OXYMAT 3 on again.
Temperature alarm, fan not running.	Fan failure.		Change board (7.9, page 40).
		No draught can be felt at the coarse dust filter, compressor is running.	Check connection at fan. If necessary, replace cable harness (item no. 86 in spare parts list) or fan (7.10, page 42).

Fault	Cause	Localisation	Remedy
Temperature alarm although fan is running.	Appliance was operated at an ambient temperature of > 41 °C, or was switched off briefly and back on.	Accumulated heat warmed the temperature sensor after switching off.	Comply with maximum ambient temperature of 40 °C. After operating for a short time, the accumulated heat is eliminated by the fan and the temperature alarm must stop.
	Circuit board defective.	Ambient temperature is < 40 °C, fan and compressor working correctly.	Replace the circuit board (7.9, page 40).
Operating hours meter no longer counting.	Connector at X9 has worked loose.	Visual inspection to verify correct seating of the connector.	Re-make the connection (7.9, page 40).
	Meter is defective.	Install a replacement meter as a test. If it moves forward by 00000.1 after 6 minutes, the old meter was defective.	Replace the operating hours meter (7.8, page 39).
	Circuit board defective.	If the above measures have failed to solve the problem.	Replace the circuit board (7.9, page 40).

6.3 O₂ concentration outside tolerance range

If the check described in "5.3.9 Checking the O₂ concentration" on page 13 indicates an oxygen concentration of less than 91% at a flow of 4 l/min after 15 minutes operating time, proceed as follows:

1. Check the system pressures as described in "5.3.13 System pressure test" on page 17.
2. If the test described in "5.3.13 System pressure test" reveals that the pressures are outside the tolerance range, proceed as described in "6.4 System pressure fault".

If the system pressures are within the tolerance range, continue with test step "5.3.14 Checking the O₂ system for leaks". If this check reveals leaks or faulty valves, repair them.

- Then check the O₂ concentration again as described in "5.3.9 Checking the O₂ concentration".
 - If the new check on O₂ concentration still results in unsatisfactory values, perform another system pressure test as described in 5.3.13. Then change the adsorption containers as described in section 7.11.
3. If the check on the oxygen system in accordance with 5.3.14 reveals that there are no leaks or faulty valves, continue as described in "7.11 Replace adsorption containers (Mac valves)".
 4. Perform a functional check (see "5. Functional check" on page 10).

6.4 System pressure fault

Note:

The pressure values listed below refer to sea level. If the measurements are conducted at different altitudes, corresponding correction factors must be taken into account.

Pressure measurement	Setpoint	Fault	Cause/remedy
Pressure measurement at oxygen outlet 5	Pressure 0.6 bar ± 0.1 bar	Pressure too high	Pressure-reducer defective, replace (7.15, page 54)
		Pressure too low	Leak at the connection points between the pressure-reducer and the oxygen outlet 5 . Repair leak.
			Pressure-reducer defective, replace (7.15, page 54)
Pressure measurement at O ₂ tank (or at outlet of O ₂ system)	Measurement at 4 l/min Pressure range: – Min. 1.2 bar + 0.3 /– 0.2 bar – Max. 1.65 bar + 0.3 /– 0.2 bar	Pressure too high	ADS container has absorbed water. * Replace the ADS container (7.11, 7.12 and 7.13)
		Pressure too low	Leak at the connection points between the suction filter and the O ₂ tank. Remedy the leak.

* Water uptake by the ADS container increases the flow resistance of the molecular sieve. As a result, pressure equalization during the flushing phase is disturbed and the pressure increases.

7. Repair information and repair instructions

7.1 General

Repairs to OXYMAT 3 must always be carried out at an ESD workplace!

- Please follow the safety instructions on page 4 of the operating instructions for OXYMAT 3.
- **Caution!**
Do not use liquids or foaming agents to check for leaks in the region of the solenoid valve 54, as moisture could penetrate into the solenoid valve, thereby causing corrosion which could prevent it functioning properly.
- Any handling of the appliance requires a precise knowledge of and compliance with the operating instructions and the service and repair instructions.
- Please carry out only the repairs described in these service and repair instructions. This is the only way to guarantee perfect functioning of OXYMAT 3.
- Please ensure that your hands and workplace are clean when carrying out repairs.
- Conduct a functional check after **every** repair job (see "5. Functional check" on page 10).
- When you replace components or individual parts, please use only genuine Weinmann parts.
- **When ordering a frame 57 or 58 , please also quote the model, year of construction and appliance number.**
- Many parts have to be screwed in using a torque wrench. To ensure that the quoted torque is maintained, **check regularly that your torque wrench adheres to the torque (monitor testing equipment).**
- **Note:**
The item numbers quoted in the following text match the item numbers in the parts list on page 69 and the overview on page 4.

7.2 Replacing the castors

1. Position the appliance with the housing lying on its back.
2. Pull off the defective castors and replace them with new ones.

7.3 Opening the appliance

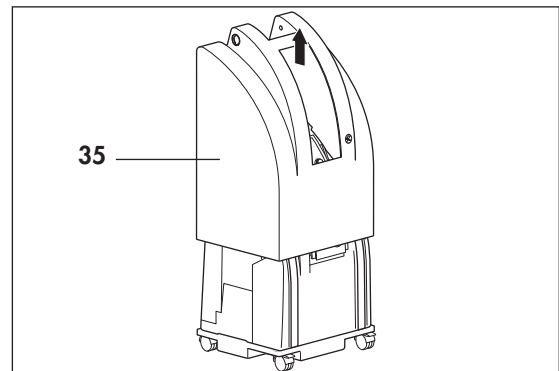
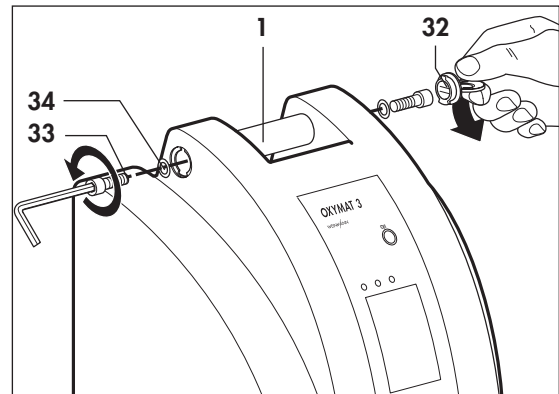
Tools required:

- Spanner set WM 14249,
- Allen key 6 mm.

Caution !

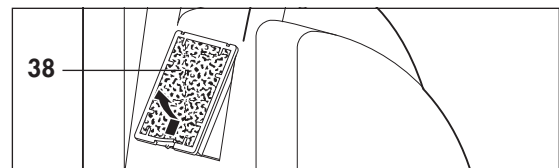
If the appliance is standing on a table, lock the castors.

1. Disconnect the plug from the socket and pull the power cord **10** from the appliance.
2. Remove the connecting nipple with union nut **6** or the flowmeter **16** from the oxygen outlet **5**.
3. Remove the stoppers **32**:
 - Using the disk on the spanner set, rotate the stopper **32** through 90° to the left.
 - Lever it out **downwards** .
4. Unscrew the two screws **33** and remove them together with the spring washer **34** .
To make it easier to remove the screws, set the spanner in the hexagon and pull out the screw.
5. Remove the handle **1** upwards, or leave it lying in the appliance.
6. Pull off the housing **35** upwards.



Note:

If the housing cannot be pulled off, it may be caught on the service flap. In such cases, release the lock at the service flap 38, and remove the flap from the appliance.



7.4 Closing the appliance

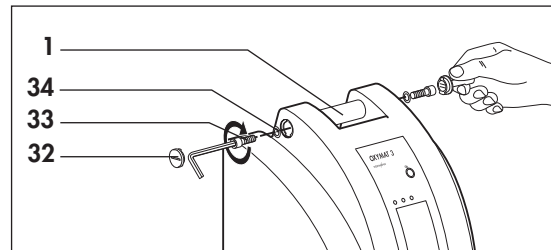
Tools required:

- Spanner set WM 14249,
- Allen key 6 mm.

Caution !

If the appliance is standing on a table, please lock the castors.

1. Carefully slide the housing **35** over the foam sections.
2. Position the housing **35** on the frame in such a way that the enclosure wall engages with the groove all the way round.
3. Insert the handle **1** and secure it with the screws **33** (not forgetting the spring washers **34**).
4. Insert the two stoppers **32**.
5. Using the disk on the spanner set, rotate the stoppers **32** through 90° to the right.
6. Secure the connecting nipple **6** or the flowmeter **16** at the oxygen outlet **5**.

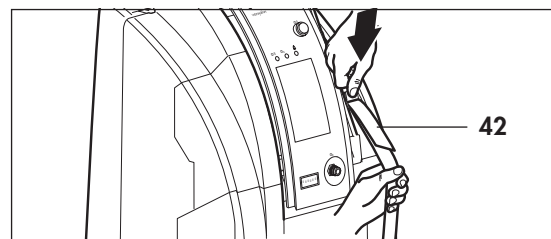


7.5 Replacing the compressor (up to appliance no. 13350)

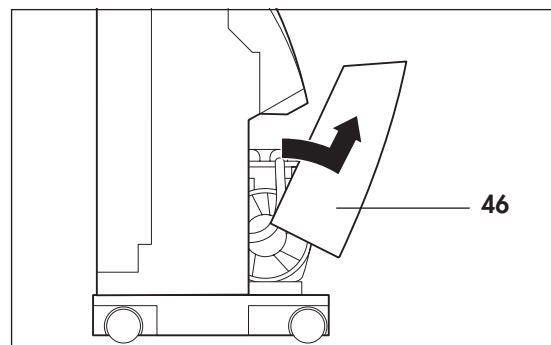
Tools required:

- Spanner set WM 14249,
- Allen key 6 mm.

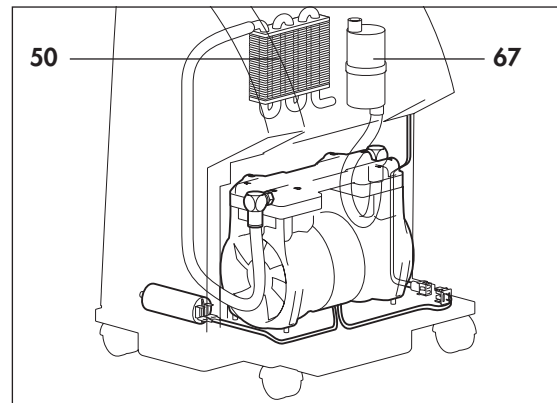
1. Open the housing (see "7.3 Opening the appliance" on page 29).
2. Loosen the straps **42**, without pulling the strap out of the fastener, and place them next to the appliance.



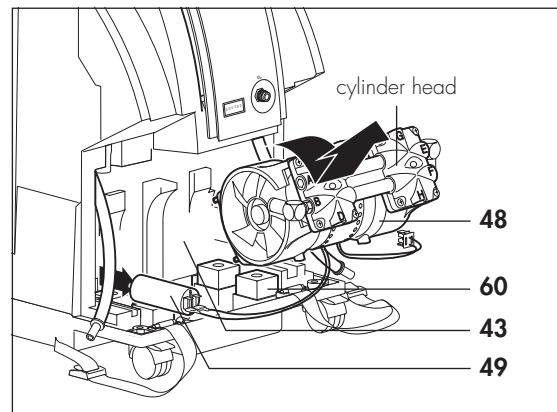
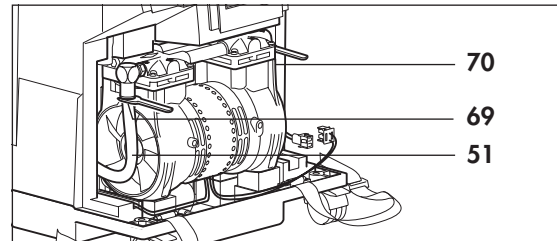
3. Remove the front plate **46**:
 - Tilt the front plate forwards and
 - pull it out upwards.



The illustration opposite shows the installation position of the compressor with its electrical and pneumatic connections.



4. Disconnect the electrical connection.
 5. Pull off the tubes **51** and **70** :
 - Take the appropriate spanner from the spanner set and position it between the coupling **69** and the inlet/outlet of the compressor.
 - Now pull off the tube.
 6. To remove the defective compressor, always take hold of it at the cylinder head.
- Caution !**
The cylinder head may still be hot!
- Tilt the defective compressor **48** forwards and lift it out.
7. Pull the capacitor **49** out of the foam section **43**.



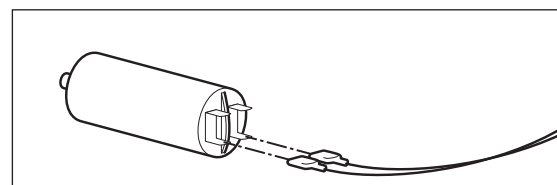
Before fitting the new compressor, check the condition of the vibration dampers **60**.

They must be soft, elastic and must not be deformed. If the vibration dampers are hard and inelastic, they must be changed.

Then install the new compressor **48**:

8. If the capacitor is faulty, disconnect both spade connectors from the capacitor **49**.
9. Connect the spade connectors of the compressor to the capacitor.

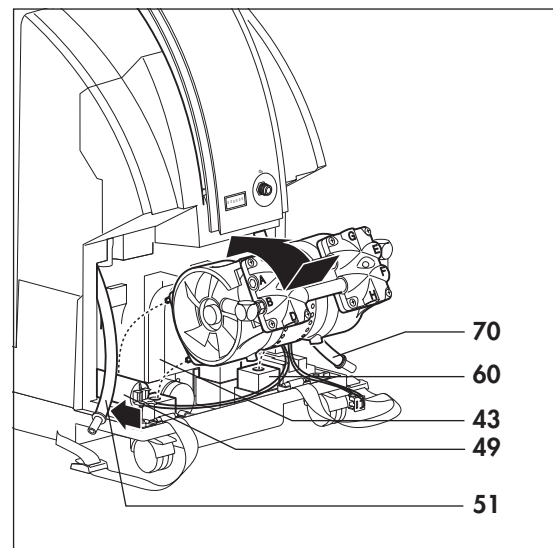
Caution !
Do not short-circuit the capacitor!
The connectors must be on the left and right of the central bar (see illustration).



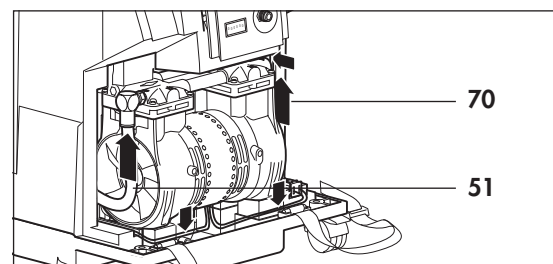
10. Place the two tubes **51** and **70** sideways across the frame.
11. Then insert the compressor:
 - Grasp the compressor in such a way that you are able to read the letters on the cylinder head the right way round.
 - Insert the front screws of the compressor into the vibration damper **60**.
 - Tilt the compressor into the appliance.

Make sure that the compressor is securely and safely positioned.

12. Slide the capacitor **49** into the opening of the foam section **43** and lay the cables neatly into the groove.



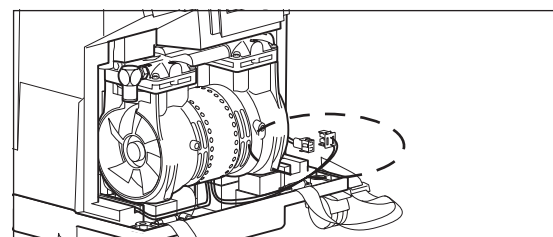
13. Connect tube **70** to the inlet and tube **51** to the outlet of the compressor.



14. Attach the connector of the compressor to the power supply socket and lay the cables neatly into the groove.

15. Check that the compressor is positioned in the appliance the right way round, i.e. with the inlet pointing to the right:

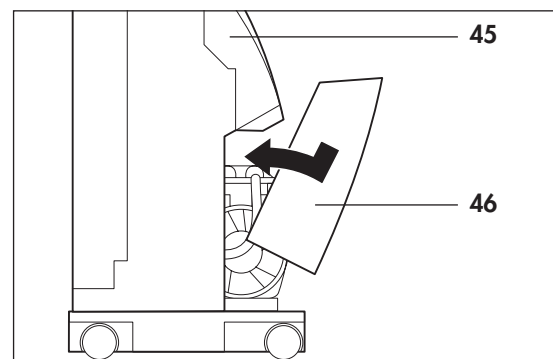
- Connect the power cord **10** to the appliance and to a socket.
- Switch on the appliance.
- Feel from which side of the compressor air is being drawn in. This side is the inlet. It must be on the right.



- Switch off the appliance and pull the power cord **10** from the socket and from the appliance.
- If the inlet of the compressor is on the left-hand side, re-install the compressor.

16. Check that all cables are laid correctly in the groove.

17. Place the lower edge of the front plate **46** into the frame and tilt it against the foam section **45**.



18. Place the straps **42** over the foam sections and tighten them.

19. Before assembling the housing, subject the compressor to a test run:

- Connect the power cord **10** to the appliance and to a socket.
- Switch on the appliance.
If no rattling or slipping is audible, the compressor is correctly installed.
- Switch off the appliance and pull the power cord **10** from the socket and from the appliance.

20. Close the appliance (see "7.4 Closing the appliance" on page 30).

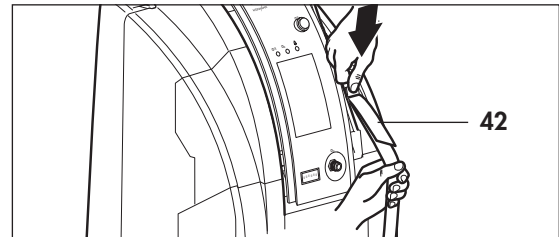
21. Perform a functional check (see "5. Functional check" on page 10).

7.6 Replacing the compressor (from appliance no. 13351 to 14999)

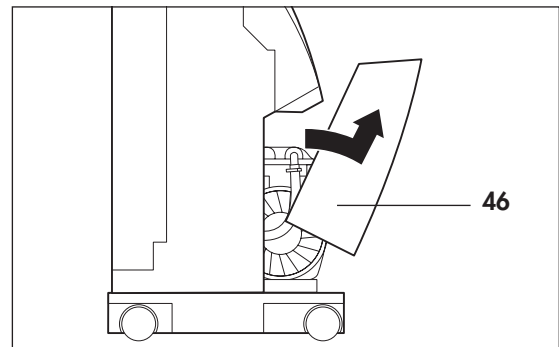
Tools required:

- Spanner set WM 14249,
- Allen key 6 mm,
- Water-pump pliers.

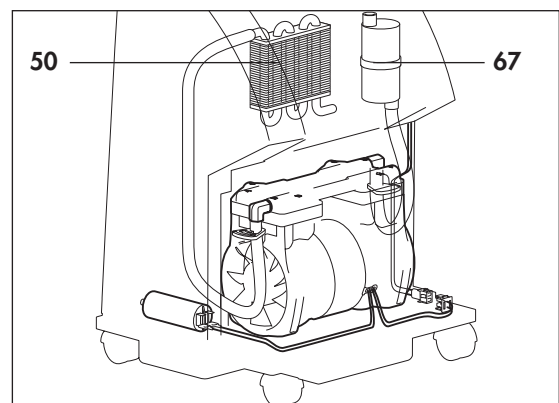
1. Open the housing (see "7.3 Opening the appliance" on page 29).
2. Loosen the straps **42**, without pulling the strap out of the fastener, and place them next to the appliance.



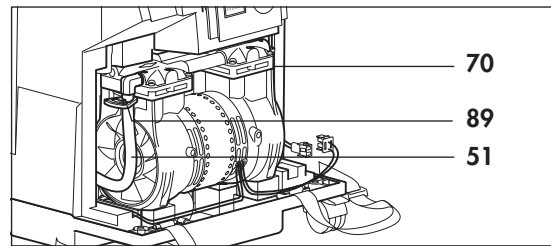
3. Remove the front plate **46**:
 - Tilt the front plate forwards and
 - pull it out upwards.



The illustration opposite shows the installation position of the compressor with its electrical and pneumatic connections.



4. Disconnect the electrical connection.
5. Pull off the tubes **51** and **70** :
 - Loosen clip **89** on tube **51** with the water-pump pliers.
 - Now pull off the tube.



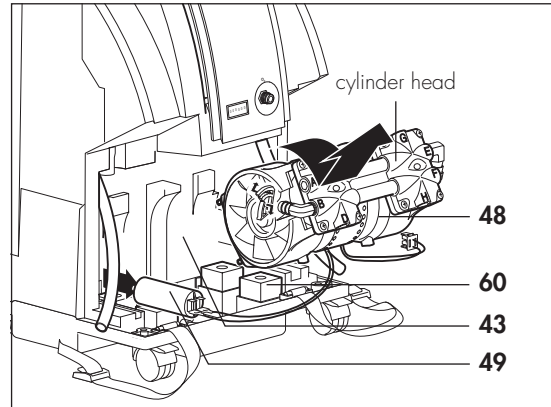
6. To remove the defective compressor, always take hold of it at the cylinder head.

Caution !

The cylinder head may still be hot!

Tilt the defective compressor **48** forwards and lift it out.

7. Pull the capacitor **49** out of the foam section **43**.



Before fitting the new compressor, check the condition of the vibration dampers **60**.

They must be soft, elastic and must not be deformed. If the vibration dampers are hard and inelastic, they must be changed.

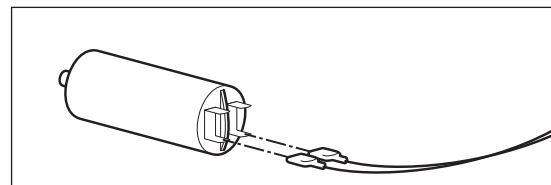
Then install the new compressor **48**:

8. If the capacitor is faulty, disconnect both spade connectors from the capacitor **49**.
9. Connect the spade connectors of the compressor to the capacitor.

Caution !

Do not short-circuit the capacitor!

The connectors must be on the left and right of the central bar (see illustration).



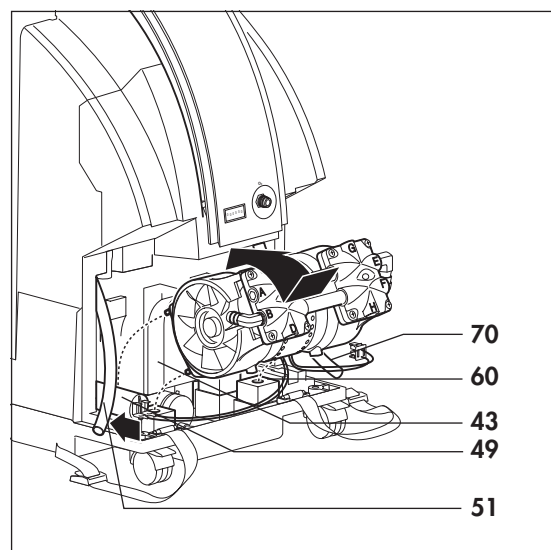
10. Place the two tubes **51** and **70** sideways across the frame.

11. Then insert the compressor:

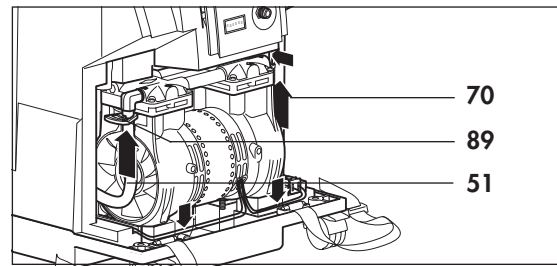
- Grasp the compressor in such a way that you are able to read the letters on the cylinder head the right way round.
- Insert the front screws of the compressor into the vibration damper **60**.
- Tilt the compressor into the appliance.

Make sure that the compressor is securely and safely positioned.

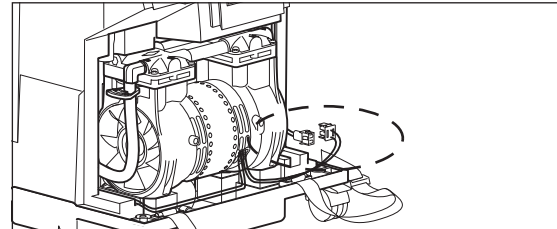
12. Slide the capacitor **49** into the opening of the foam section **43** and lay the cables neatly into the groove.



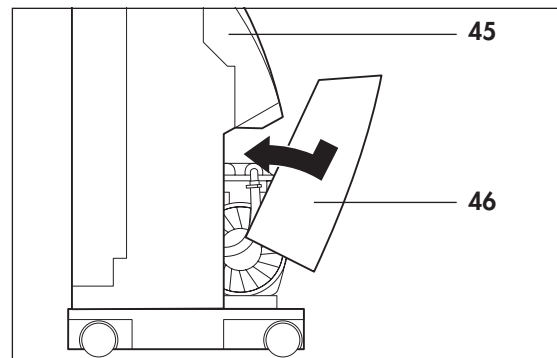
13. Push clip **89** onto tube **51**. Then connect tube **70** to the compressor inlet and tube **51** to the compressor outlet. Now attach tube **51** to the compressor outlet with the aid of clip **89** and the water-pump pliers.



14. Attach the connector of the compressor to the power supply socket and lay the cables neatly into the groove.
15. Check that the compressor is positioned in the appliance the right way round, i.e. with the inlet pointing to the right:
- Connect the power cord **10** to the appliance and to a socket.
 - Switch on the appliance.
 - Feel from which side of the compressor air is being drawn in. This side is the inlet. It must be on the right.
 - Switch off the appliance and pull the power cord **10** from the socket and from the appliance.
 - If the inlet of the compressor is on the left-hand side, re-install the compressor.
16. Check that all cables are laid correctly in the groove.
17. Place the lower edge of the front plate **46** into the frame and tilt it against the foam section **45**.



18. Place the straps **42** over the foam sections and tighten them.
19. Before assembling the housing, subject the compressor to a test run:
- Connect the power cord **10** to the appliance and to a socket.
 - Switch on the appliance.
If no rattling or slipping is audible, the compressor is correctly installed.
 - Switch off the appliance and pull the power cord **10** from the socket and from the appliance.
20. Close the appliance (see "7.4 Closing the appliance" on page 30).
21. Perform a functional check (see "5. Functional check" on page 10).

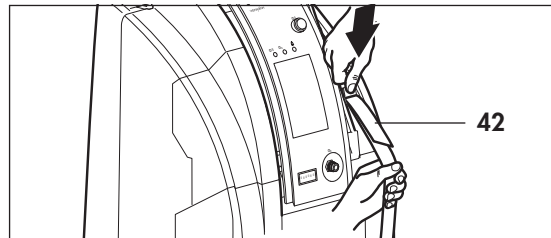
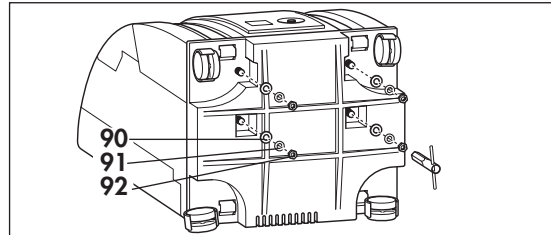


7.7 Replacing the compressor (from appliance no. 15000)

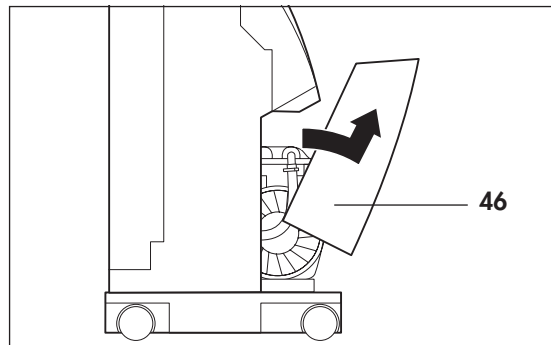
Tools required:

- Spanner set WM 14249,
- Allen key 6 mm.
- Hexagon socket wrench 8 mm,
- Water-pump pliers.

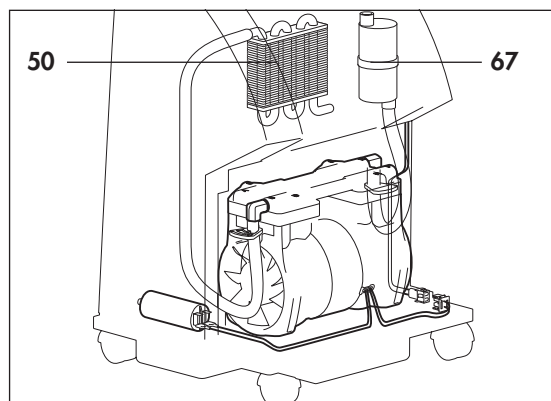
1. Open the housing (see "7.3 Opening the appliance" on page 29).
2. Detach the compressor:
 - Place the appliance on its back;
 - Detach the compressor by using the socket wrench to remove the 4 hexagonal nuts **92** with washer **90** and spring washer **91** from the underside of the chassis.
 - Then stand the appliance upright again.
3. Loosen the straps **42**, without pulling the strap out of the fastener, and place them next to the appliance.



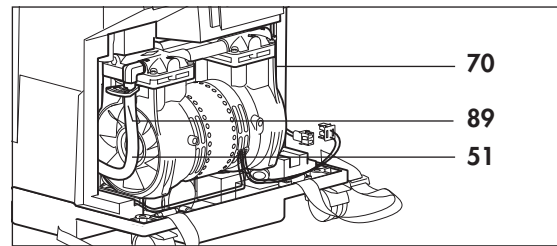
4. Remove the front plate **46**:
 - Tilt the front plate forwards and
 - pull it out upwards.



The illustration opposite shows the installation position of the compressor with its electrical and pneumatic connections.



5. Disconnect the electrical connection.
6. Pull off the tubes **51** and **70** :
 - Loosen clip **89** on tube **51** with the water-pump pliers.
 - Now pull off the tube.



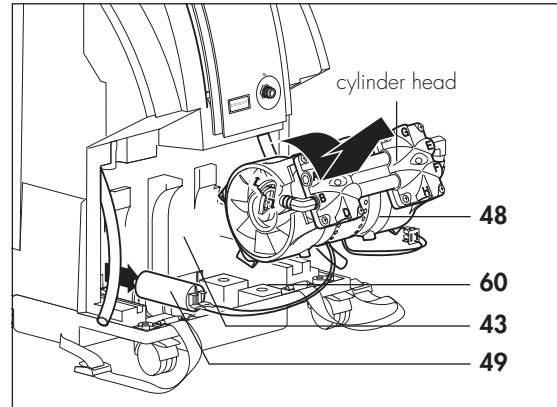
7. To remove the defective compressor, always take hold of it at the cylinder head.

Caution !

The cylinder head may still be hot!

Tilt the defective compressor **48** forwards and lift it out.

8. Pull the capacitor **49** out of the foam section **43**.



Before fitting the new compressor, check the condition of the vibration dampers **60**.

They must be soft, elastic and must not be deformed. If the vibration dampers are hard and inelastic, they must be changed.

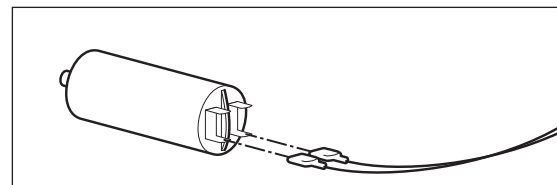
Then install the new compressor **48**:

9. If the capacitor is faulty, disconnect both spade connectors from the capacitor **49**.
10. Connect the spade connectors of the compressor to the capacitor.

Caution !

Do not short-circuit the capacitor!

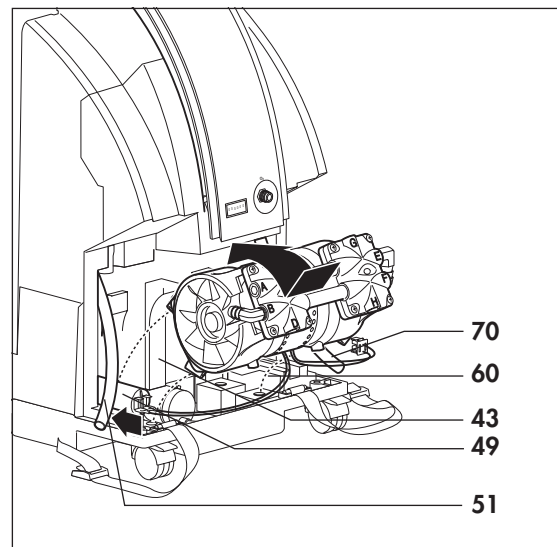
The connectors must be on the left and right of the central bar (see illustration).



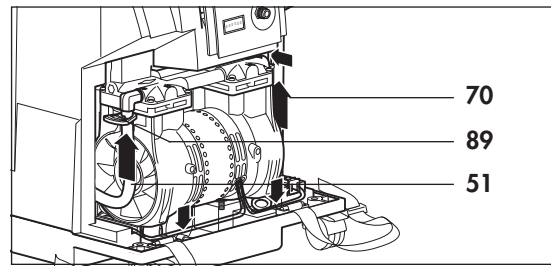
11. Place the two tubes **51** and **70** sideways across the frame.
12. Then insert the compressor:
 - Grasp the compressor in such a way that you are able to read the letters on the cylinder head the right way round.
 - Insert the bolts of the vibration dampers **60** in the holes provided in the chassis.
 - Tilt the compressor into the appliance, making sure that the bolts of the rear vibration dampers are also inserted in the holes.

Make sure that the compressor is securely and safely positioned.

13. Slide the capacitor **49** into the opening of the foam section **43** and lay the cables neatly into the groove.



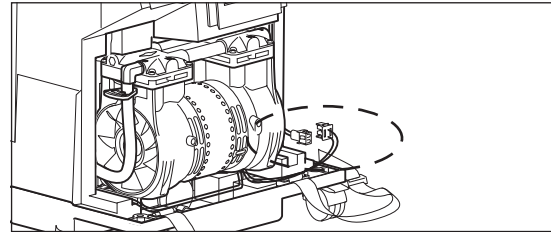
14. Push clip **89** onto tube **51**. Then connect tube **70** to the compressor inlet and tube **51** to the compressor outlet. Now attach tube **51** to the compressor outlet with the aid of clip **89** and the water-pump pliers.



15. Attach the connector of the compressor to the power supply socket and lay the cables neatly into the groove.

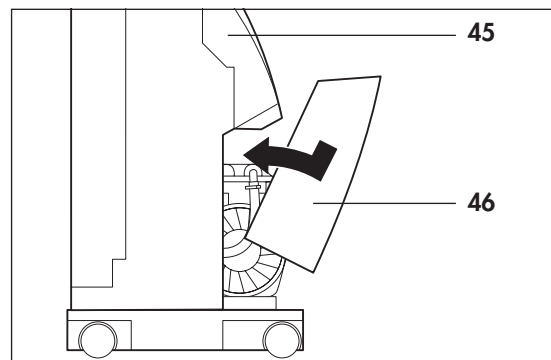
16. Check that the compressor is positioned in the appliance the right way round, i.e. with the inlet pointing to the right:

- Connect the power cord **10** to the appliance and to a socket.
- Switch on the appliance.
- Feel from which side of the compressor air is being drawn in. This side is the inlet. It must be on the right.
- Switch off the appliance and pull the power cord **10** from the socket and from the appliance.
- If the inlet of the compressor is on the left-hand side, re-install the compressor.



17. Check that all cables are laid correctly in the groove.

18. Place the lower edge of the front plate **46** into the frame and tilt it against the foam section **45**.



19. Place the straps **42** over the foam sections and tighten them.

20. Attach the compressor to the chassis:

- Place the appliance on its back.
- Place a washer **90** and then a spring washer **91** on the threaded bolt.
- Now use the socket wrench to tighten the hexagonal nuts **92** hand tight.

21. Before assembling the housing, subject the compressor to a test run:

- Connect the power cord **10** to the appliance and to a socket.
- Switch on the appliance.
If no rattling or slipping is audible, the compressor is correctly installed.
- Switch off the appliance and pull the power cord **10** from the socket and from the appliance.

22. Close the appliance (see "7.4 Closing the appliance" on page 30).

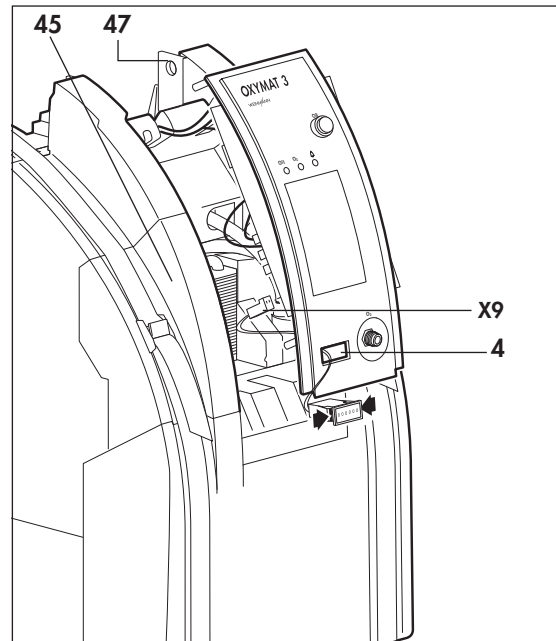
23. Perform a functional check (see "5. Functional check" on page 10).

7.8 Replacing the operating hours meter

Tools required:

- Spanner set WM 14249,
- Allen key 6 mm.

1. Open the appliance (see "7.3 Opening the appliance" on page 29).
2. Carefully lift the operating panel out of the foam section.
3. Pull the connector **X9** of the operating hours meter **4** from the circuit board.
4. Press the lock of the operating hours meter **4** together and pull the meter through the operating panel.
5. Make a note of the meter reading in the service log on page 78. This will enable you to calculate the actual operating hours when a new meter is installed.
6. Guide the connector and cable of the new operating hours meter **4** through the opening in the operating panel.
7. Push the operating hours meter into the opening **the right way round** until it locks home.
8. Attach the connector **X9** to the contacts on the circuit board. The precise location on the circuit board can be found in Chapter "10.1 Arrangement of the PCBs" on page 76.
9. Carefully re-insert the operating panel, inserting the pins on the operating panel into the holes in the foam section **45**.
10. Close the appliance (see "7.4 Closing the appliance" on page 30).
11. Perform a functional check (see "5. Functional check" on page 10).



7.9 Replacing the circuit board

This repair must always be carried out at an ESD workplace.

Tools required:

- Spanner set WM 14249,
- Allen key 6 mm,
- Cross-head screwdriver size 1,
- Flat nose pliers.

1. Open the appliance (see "7.3 Opening the appliance" on page 29).
2. Carefully lift the operating panel out of the foam section.
3. Detach the connectors **X1** and **X2** from the circuit board by pressing the lock together and pulling off the connector.
4. Detach tube **63** from pressure sensor **B1**.

Caution!

Do not damage pressure sensor when detaching the tube .

5. The operating panel can now be folded away upwards.
6. Next, pull connectors **X13**, **X11** and **X10** from the circuit board.
7. Release the tube **84**:
 - Press the lock back using an appropriate spanner from the set.
 - Pull out the tube.
8. Using flat nose pliers, **carefully** pull off the On/Off knob **2**.

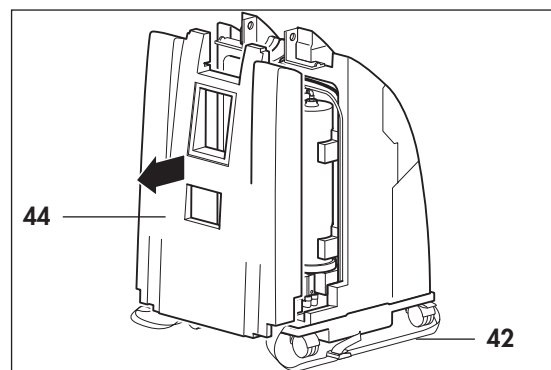
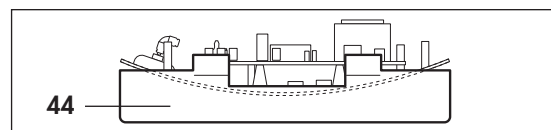
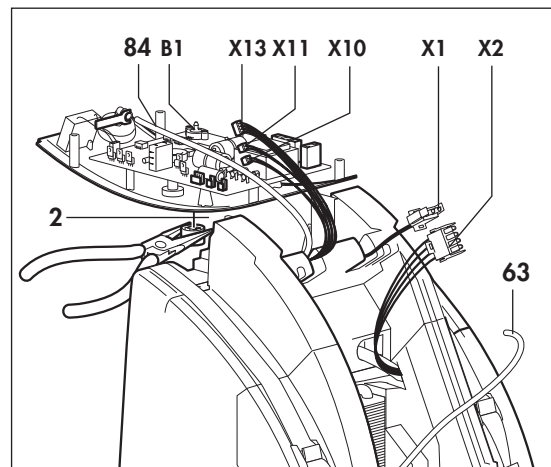
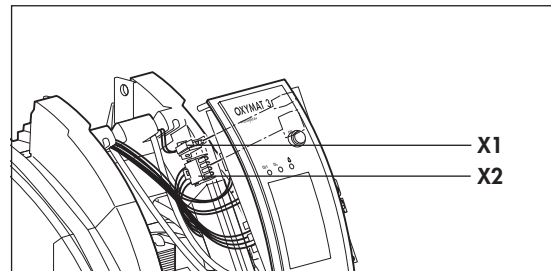
Caution !

Do not let the pliers slip!

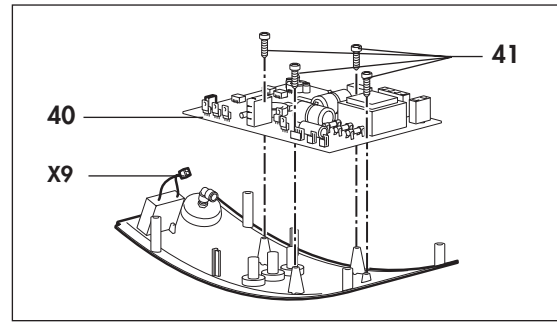
9. To allow you to work more easily, place the operating panel into the foam section **44**.

How to remove the foam section **44**:

- Loosen the straps **42**, without pulling the strap out of the fastener, and place them next to the appliance.
- Remove the foam section **44**.



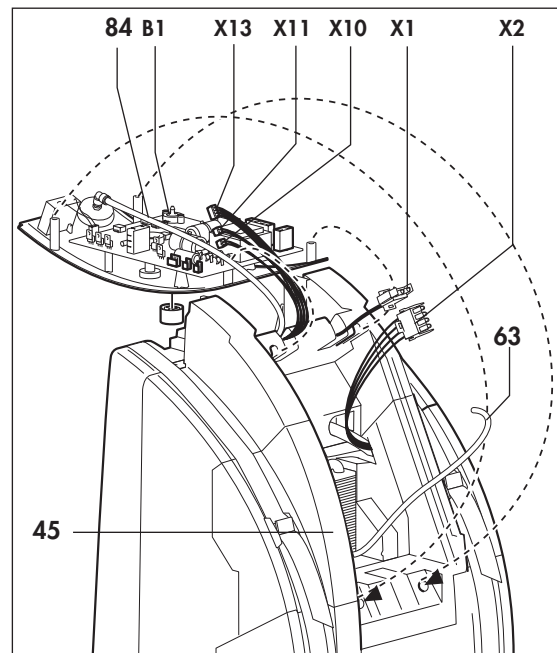
10. Disconnect the connector **X9** for the meter from the printed circuit board.
11. Unscrew the four screws **41**.
12. Place the circuit board on your ESD workplace.



13. Carefully place the new circuit board **40** on the operating panel and secure with the four screws **41**.
14. Attach the connector **X9** to the contacts of the circuit board. The precise location on the circuit board can be found in Chapter "10.1 Arrangement of the PCBs" on page 76.
15. Next, push the long tube **84** (from the pressure reducer) into the Y-connector.
16. Securely attach the connectors **X1**, **X13**, **X10** and **X11** to the circuit board. The location of the corresponding contacts on the circuit board can be found in Chapter "10.1 Arrangement of the PCBs" on page 76.

Connectors **X10** and **X11** may be swapped without causing any problems.

17. Tilt the operating panel forwards and secure the connector **X2** on the circuit board.
18. Push tube **63** onto the pressure sensor **B1**.
19. Carefully re-insert the operating panel, inserting the pins on the operating panel into the holes in the foam section **45**.
20. Insert the foam section **45**.



21. Place the straps **42** over the foam sections and tighten them.
22. Press the On/Off knob **2** onto its switching axis.

After installing, actuate the switch several times to ensure it is not jammed.

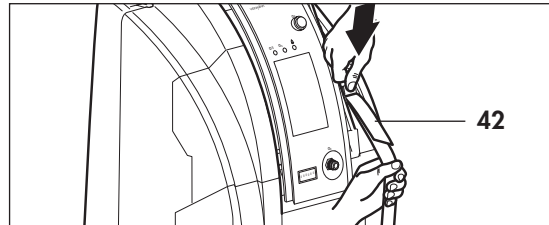
23. Close the appliance (see "7.4 Closing the appliance" on page 30).
24. Perform a functional check (see "5. Functional check" on page 10).

7.10 Replacing the fan

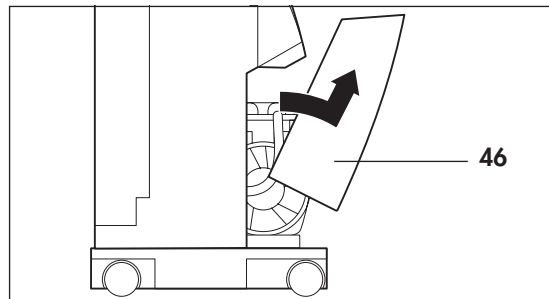
Tools required:

- Spanner set WM 14249,
- Allen key 6 mm.

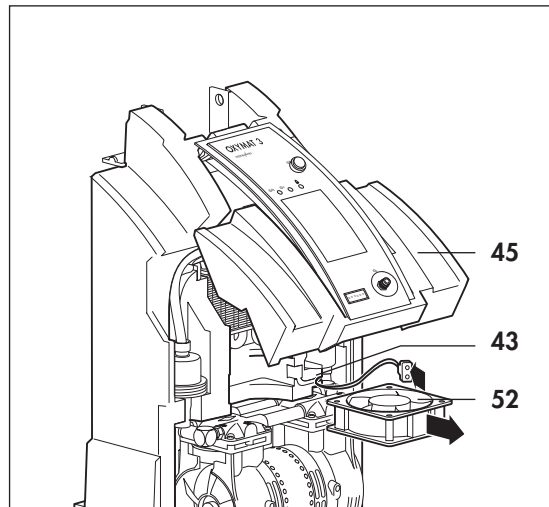
1. Open the appliance (see "7.3 Opening the appliance" on page 29).
2. Loosen the straps **42**, without pulling the strap out of the fastener, and place them next to the appliance.



3. Remove the front plate **46**:
 - Tilt the front plate forwards and
 - pull it out upwards.



4. Lift up the foam section **45** together with the operating panel and pull out the defective fan **52**.
5. Pull the connector off the fan.
6. Take a new fan **52** and push the connector onto the contacts.
7. There are two arrows on the edge of the fan showing the direction of air flow. As you want the air to be drawn in and expelled to the compressor, it is important to hold the fan so that the **arrow is pointing downwards**.
8. Lift up the foam section **45** together with the operating panel and insert the fan (**with the arrow pointing downwards**).
9. Place the cable into the groove in the foam section **43**.
10. Before assembling the appliance, please subject the fan to a test run:
 - Connect the power cord **10** to the appliance and to a socket.
 - Switch on the appliance.
 - Check the function of the fan:



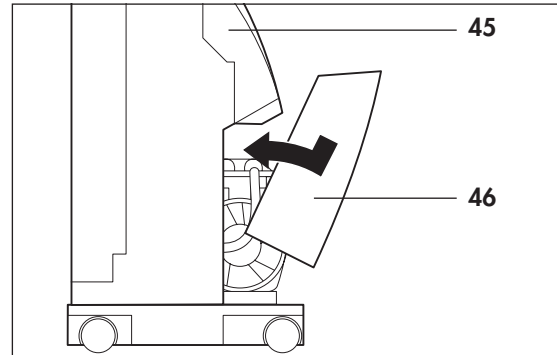
Never reach into the fan!

With your hand held flat, place it between the fan and the compressor and feel the air flow.

Caution !

If you do not feel any air flow, remember to disconnect the appliance from the power before taking any further action!

11. Switch off the appliance and pull the power cord **10** from the socket and from the appliance.
12. Place the lower edge of the front plate **46** into the frame and tilt it against the foam section **45**.



13. Place the straps **42** over the foam sections and tighten them.
14. Align the operating panel.
15. Close the appliance (see "7.4 Closing the appliance" on page 30).
16. Perform a functional check (see "5. Functional check" on page 10).

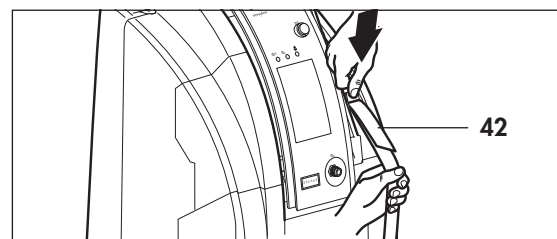
7.11 Replace adsorption containers (Mac valves)

Tools required:

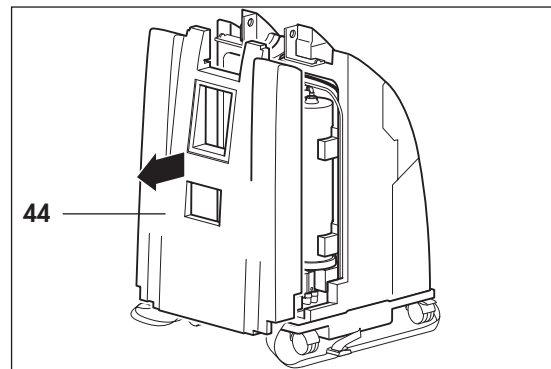
- Spanner set WM 14249,
- Allen key 6 mm,
- Open-ended spanner SW 17.

Dismantle

1. Open the appliance (see "7.3 Opening the appliance" on page 29).
2. Loosen the straps **42**, without pulling the strap out of the fastener, and place them next to the appliance.

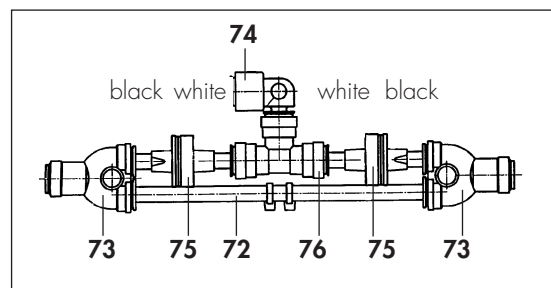
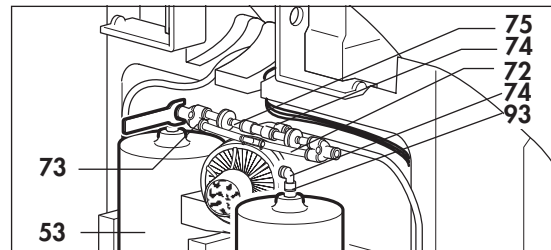


3. Remove the foam section **44**.



Replace both ADS containers **53** as follows:

4. Loosen the Y-connector **73** by pushing back the sleeve (e.g. using a spanner from the set) and pull out the angular bush.
5. Pull the ADS container **53** out of the foam section.
6. The ADS container **53** and magnetic valve **54** are connected by a double nipple. Use an open-ended spanner to hold the double nipple firm on the ADS container **53** and unscrew the magnetic valve **54** from the double nipple by hand.
7. Lay the open-ended spanner aside and hold the magnetic valve firmly with your hand.
8. Next, unscrew the ADS container by hand, including the double nipple.



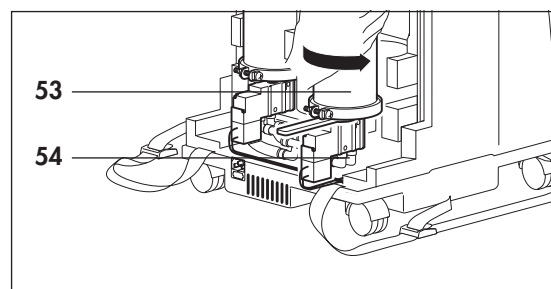
Test

1. In order to ascertain whether the ADS container really needs changing, you should weigh it.

The container needs changing when it has absorbed approximately 50 g of moisture, i.e. when it is approximately 50 g heavier.

Expiry weight = Original weight + 50 g.

The two containers should always be changed at the same time.



Fit

1. Take a new ADS container **53** and ensure that there is a pressure seal **55** on the thread of the double nipple.

Caution !

The pressure seal has a profile on one side, known as the sealing lip. This sealing lip must be pointing towards the magnetic valve !

2. Screw the double nipple into the magnetic valve.

Note:

Make sure that the cables on the magnetic valve are not twisted.

3. Secure the double nipple onto the magnetic valve using the open-ended spanner.

Caution !

Once the pressure seal between the double nipple and the magnetic valve is squashed, never turn the magnetic valve back; otherwise, the pressure seal will no longer seal effectively and a new seal will be required.

4. Check that the screw of the clip on the ADS container and the narrow side of the magnetic valve are flush.

If this is not the case, loosen the screw of the clip slightly, align the clip and re-tighten it.

5. Connect the Y-connector **73** to the upper angular bush on the ADS container.
6. Place the ADS container into the foam section.

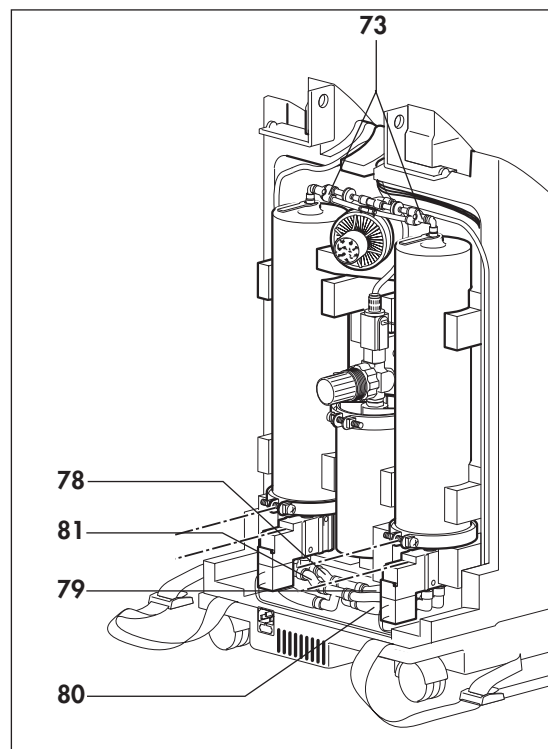
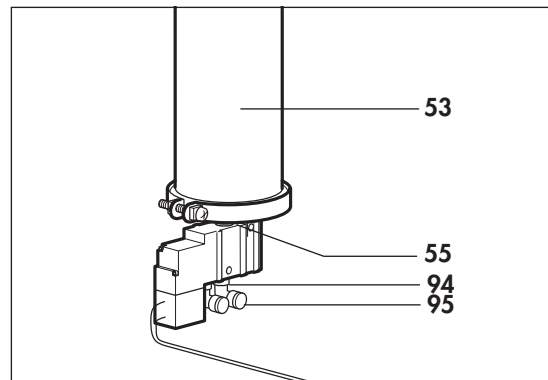
Note:

Take care to ensure that there are no cables or tubes between the ADS container and the foam section.

7. Loose cables and/or tubes should be laid in the side groove of the foam section.
8. Replace the second ADS container in the same way.
9. Then check whether the cables and tubes are correctly laid in the groove on the foam section.

Important!

The cable for the 230 V voltage supply must be routed in the left-hand side of the foam section.

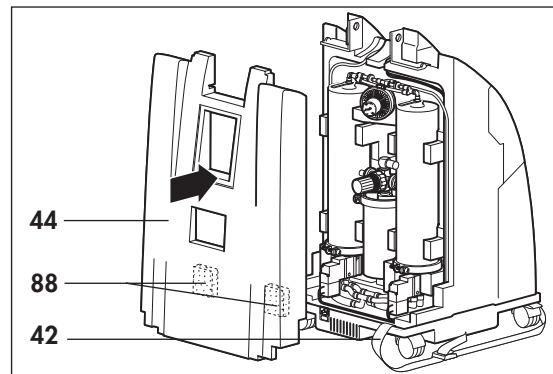
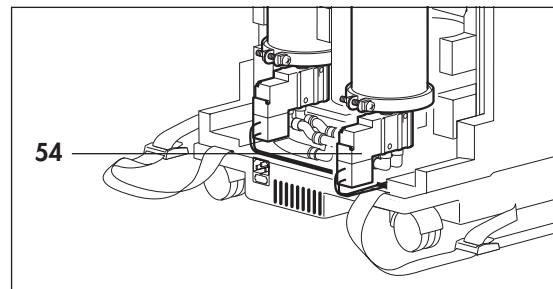


10. Before assembling the OXYMAT 3, check it for leaks:
- Connect the dosage unit **21** or flowmeter **16** to the oxygen outlet **5**.
 - Connect the power cord **10** to the appliance and to a socket.
 - Switch on the appliance.
 - Set a flow of 4 l/min.
 - Check for leaks by soaping all connection points to the ADS containers with a foaming agent (e.g. Snoop).

Caution!

Do not use liquids or foaming agents to check for leaks in the region of the solenoid valve **54, as moisture could penetrate into the solenoid valve, thereby causing corrosion which could prevent it functioning properly.**

11. If you discover a leak, rectify it.
12. Switch off the appliance and pull the power cord **10** from the socket and from the appliance.
13. Remove the dosage unit **21** or the flowmeter **16**.
14. Place the foam section **44** in position.
- Note:**
Check that both foam pads **88 are in place.**
15. Place the straps **42** over the foam sections and tighten them.
16. Close the appliance (see "7.4 Closing the appliance" on page 30).
17. Perform a functional check (see "5. Functional check" on page 10).



7.12 Replace adsorption container (plastic magnetic valve block)

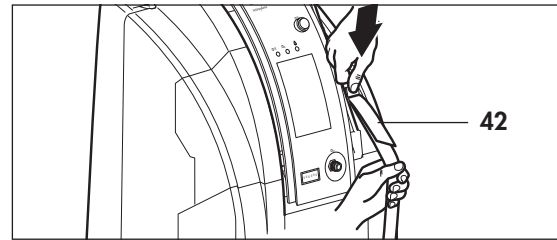
Tools required

- Spanner set WM 14249
- Allen key 6 mm
- Open-ended spanner SW 17
- Open-ended spanner SW 19

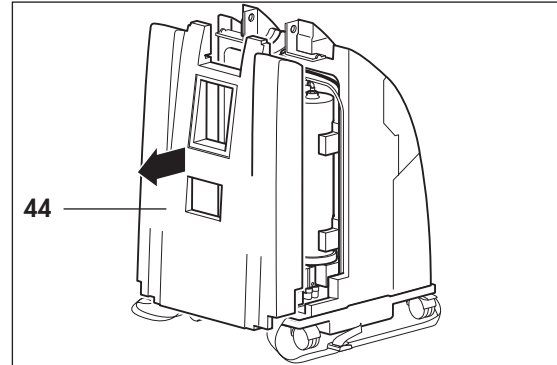
Dismantle

1. Open the appliance (see "7.3 Opening the appliance" on page 29).

2. Loosen the straps **42** without pulling the strap out of the fastener and place them next to the appliance.

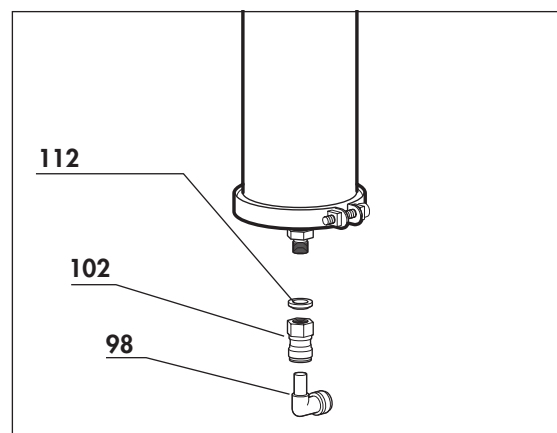
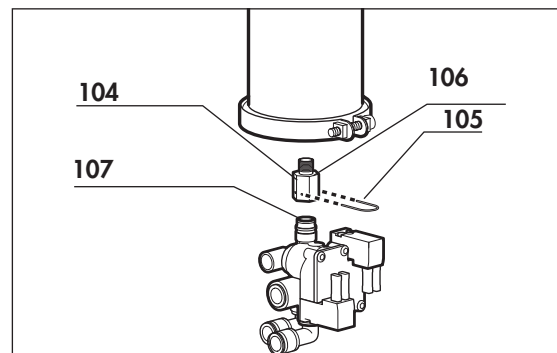
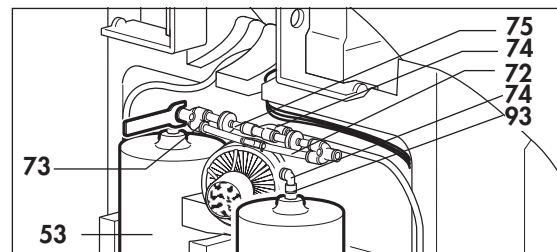


3. Take off the foam section **44**.



Replace both ADS containers **53** as follows:

4. Undo the Y-connector **73** by pushing back the sleeve (e.g. using a spanner from the set) and pull out the angular bush.
5. Tilt the right-hand ADS container **53** out of the foam section.
6. The ADS container and the magnetic valve block are connected to one another via an adapter **104**. Hold the adapter steady with an open-ended spanner SW19 and unscrew the ADS container by hand.
7. Now pull the left-hand ADS container out of the foam section.
8. Release the screwed connection **102** incl. the angle connector **98** from the double nipple.



Test

1. In order to ascertain whether the ADS containers really need changing, you should weigh them.
A container needs changing when it has absorbed approximately 50 g of moisture, i.e. when it is 50 g heavier.
Expiry weight = original weight + 50 g.
Please always replace both containers at the same time.

Fit

1. Take up a new ADS container and ensure that there is a pressure seal **55** on the thread of the double nipple.
2. Screw the screwed connector onto the double nipple.
3. Take up the second ADS container and unscrew the double nipple using the open-ended spanner SW17.
4. Screw the ADS container onto the adapter of the magnetic valve block. Hold the adapter steady with an open-ended spanner SW19 to do so.
5. Check that the side with the magnetic valve block coils and the screws for the clip are flush. If this is not the case, align the ADS container accordingly, the adapter has a rotating bearing.
6. Push the Y-connector **73** into the top angular bush on the ADS container.
7. Insert the ADS container in the foam section.

Note

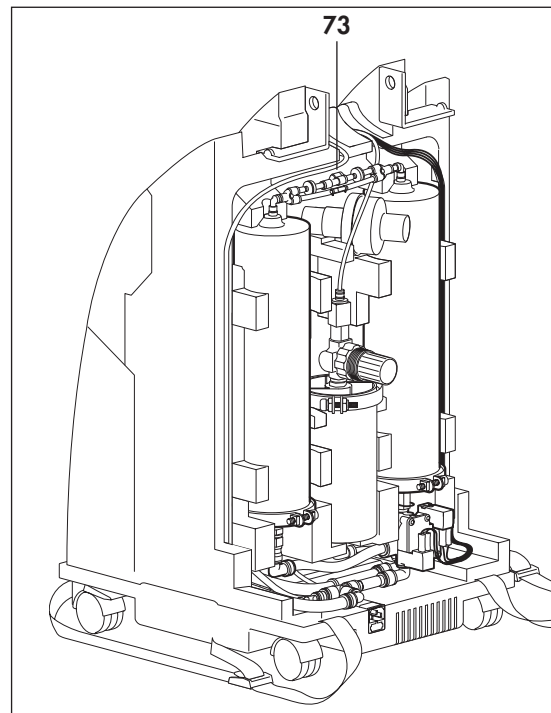
Please ensure that there are no cables or tubes between the ADS container and the foam section.

8. Route cables and/or the tube in the lateral groove in the foam section.
9. Insert the second ADS container in the foam section and restore the tube connections.
10. Finally, please check whether the cables and tubes are correctly routed in the groove in the foam section.

Important!

The cable for the 230 V voltage supply must be routed in the left-hand side of the foam section.

11. Before you assemble the OXYMAT 3, check it for leaks:
 - Connect the dosage unit **21** or the flowmeter **16** to the oxygen outlet **5**.
 - Connect the power cord **10** to the appliance and to a power socket.
 - Switch on the appliance.
 - Set a flow of 4 l/min.
 - Check for leaks by soaping all connection points to the ADS containers with a foaming agent (e.g. Gaspruf).



Warning!

Do not use liquids or foaming agents to check for leaks in the region of the solenoid valve, as moisture could penetrate into the solenoid valve, thereby causing corrosion which could prevent it functioning properly.

12. If you discover a leak, rectify it.
13. Switch off the appliance and pull the power cord **10** from the socket and from the appliance.
14. Remove the dosage unit **21** or the flowmeter **16**.
15. Put the foam section **44** in position.
16. Place the straps **42** over the foam sections and tighten them.
17. Close the appliance (see "7.4 Closing the appliance" on page 30).
18. Perform a final check (see "5. Functional check" on page 10).

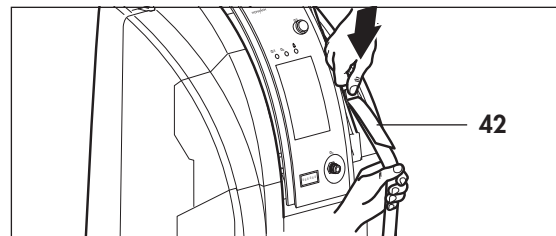
7.13 Replace adsorption containers (aluminum magnetic valve block)

Tools required:

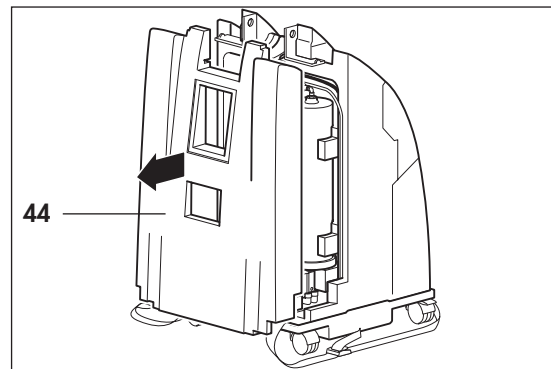
- Spanner set WM 14249
- Allen key 6 mm
- Open-ended spanner SW17
- Water pump pliers

Dismantle

1. Open the appliance (see "7.3 Opening the appliance" on page 29).
2. Loosen the straps **42** without pulling the strap out of the fastener and place next to the appliance.

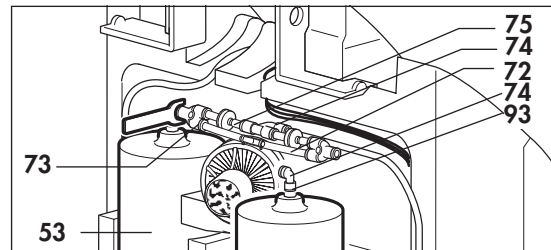


3. Take off the foam section **44** .

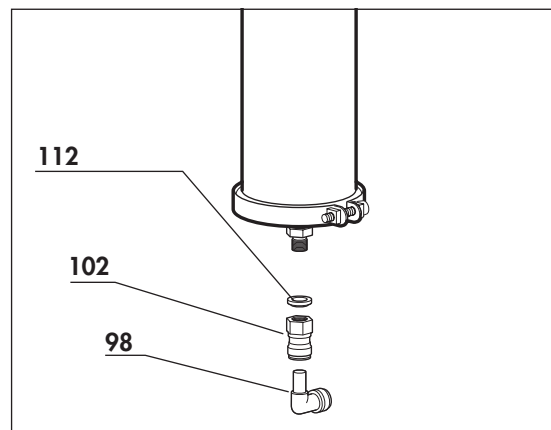
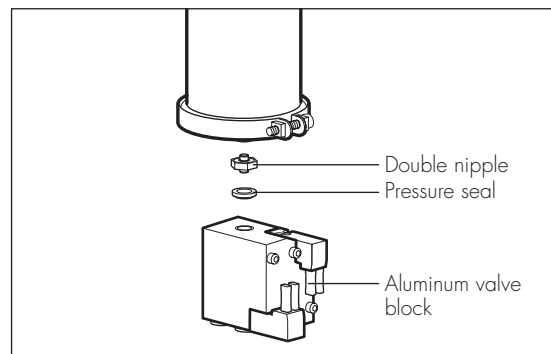


Replace both ADS containers **53** as follows:

4. Undo the Y-connector **73** by pushing back the sleeve (e.g. using a spanner from the set) and pull out the angular bush.
5. Take the right-hand ADS container **53** out of the foam section.



6. The ADS container and the magnetic valve block are connected to one another via a double nipple. Release the double nipple from the magnetic valve block using an open-ended spanner SW17. Hold the magnetic valve block steady with water pump pliers as you do so.
7. Put down the open-ended spanner and the water pump pliers and hold the magnetic valve block steady with your hand.
8. Use the other hand to unscrew the ADS container and the double nipple from the magnetic valve block.
9. Now take the left-hand ADS container out of the foam section.
10. Undo the screwed connection incl. angle connector from the double nipple.



Test

1. In order to ascertain whether the ADS container really needs changing, you should weigh it.

A container needs changing when it has absorbed approximately 50 g of moisture, i.e. when it is approximately 50 g heavier.

Expiry weight = original weight + 50 g.

The two containers should always be changed at the same time.

Fitting

1. Take a new ADS container and ensure that there is a pressure seal **55** on the thread of the double nipple.
2. Screw the screwed connector onto the double nipple.
3. Take the second ADS container and ensure that there is a pressure seal **55** on the thread of the double nipple.
4. Screw the double nipple into the magnetic valve block.
5. Tighten up the double nipple on the magnetic valve block with the open-ended spanner.

Warning!

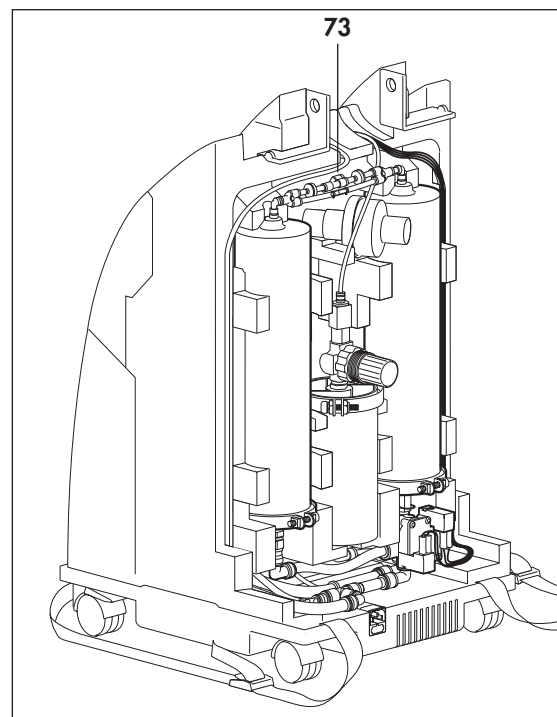
Once the pressure seal between the double nipple and the magnetic valve is squashed, never screw the magnetic valve back, otherwise the pressure seal will no longer seal effectively and a new seal will be required.

6. Check whether the side with the magnetic valve block coils and the screws for the clip are flush. If this is not the case, undo the screw for the clip a little, align the clip and screw up tightly.
7. Push the Y-connector **73** into the upper angular bush on the ADS container.
8. Insert the ADS container in the foam section.

Note

Please ensure that there are no cables or tubes between the ADS container and the foam section.

9. Route cables and/or the tube in the lateral groove in the foam section.
10. Restore the tube connections.
11. Insert the second ADS container in the foam section and restore the tube connections.



12. Finally, please check whether the cables and tubes are correctly routed in the groove in the foam section.

Important!

The cable for the 230 V voltage supply must be routed in the left-hand side of the foam section.

13. Before you assemble the OXYMAT 3, please check for leaks:

- connect the dosage unit **21** or the flowmeter **16** to the oxygen outlet **5**.
- Connect the power cord **10** to the appliance and to a power socket.
- Switch on the appliance.
- Set a flow of 4 l/min.
- Check for leaks by soaping all connection points to the ADS containers with a foaming agent (e.g. Gaspruf).

Caution!

Do not use liquids or foaming agents to check for leaks in the region of the solenoid valve, as moisture could penetrate into the solenoid valve, thereby causing corrosion which could prevent it functioning properly.

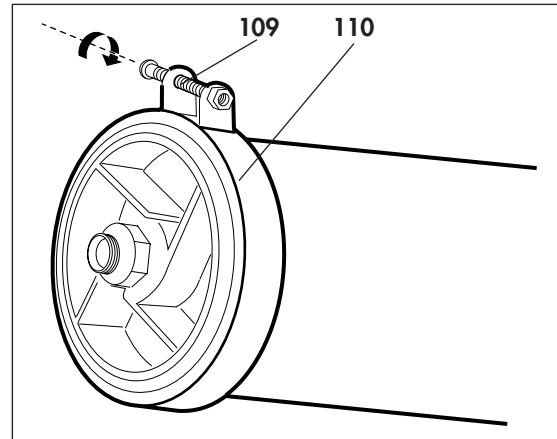
14. If you discover a leak, rectify it.
15. Switch off the appliance and pull the power cord **10** from the socket and from the appliance.
16. Remove the dosage unit **21** or the flowmeter **16**.
17. Place the foam section **44** in position.
18. Place the straps **42** over the foam sections and tighten them.
19. Close the appliance (see "7.4 Closing the appliance" on page 30).
20. Perform a final check (see "5. Functional check" on page 10).

7.14 Replace cover

Tools required:

- Spanner set WM 14249,
- Allen key 6 mm,
- Open-ended spanner SW 17.

1. Open the appliance (see "7.3 Opening the appliance" on page 29).
2. Remove the adsorption container (see Section 7.11, 7.12 or 7.13 depending on model).
3. Unscrew the screw **109** and remove the clip **110**.
4. Take the cover off the adsorption container.

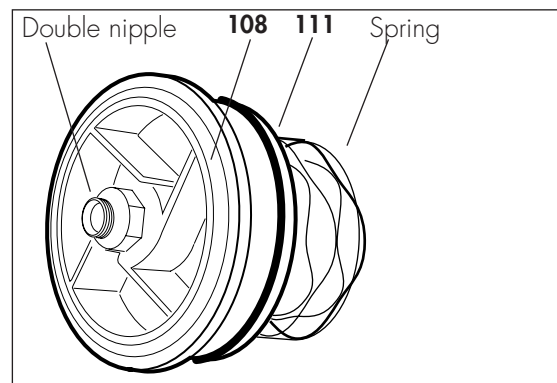


5. Take the spring off the cover.
6. Take a new cover **108** and attach the spring.

Note

If the plastic valve block is used, replace the double nipple from the new cover with the adapter 104 from the old cover.

7. Moisten the O-ring **111** slightly, e.g. with "Snoop" leak detector.
8. Insert the cover in the adsorption container.
9. Put on the clip so that the screw is at the nameplate. This allows the nameplate to be read easily when fitted.
10. Apply some thread locker (e.g. Loctite 245, WM 14920) to the thread of the screw.
11. Tighten the screw, max. torque $1.2 \text{ Nm} \pm 0.1 \text{ Nm}$.
12. Fit the adsorption container (see Section 7.11, 7.12 or 7.13 depending on model).
13. Close the appliance (see "7.4 Closing the appliance" on page 30).
14. Perform a final check (see "5. Functional check" on page 10).

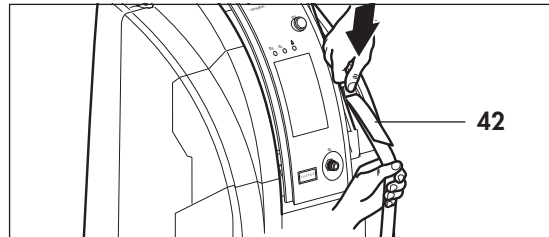


7.15 Replacing the pressure reducer

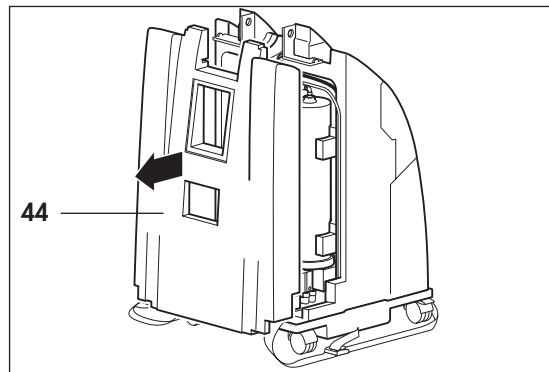
Tools required:

- Spanner set WM 14249,
- Allen key 6 mm,
- Open-ended spanner SW 17.

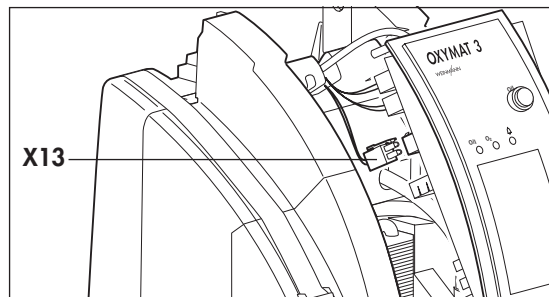
1. Open the appliance (see "7.3 Opening the appliance" on page 29).
2. Loosen the straps **42**, without pulling the strap out of the fastener, and place them next to the appliance.



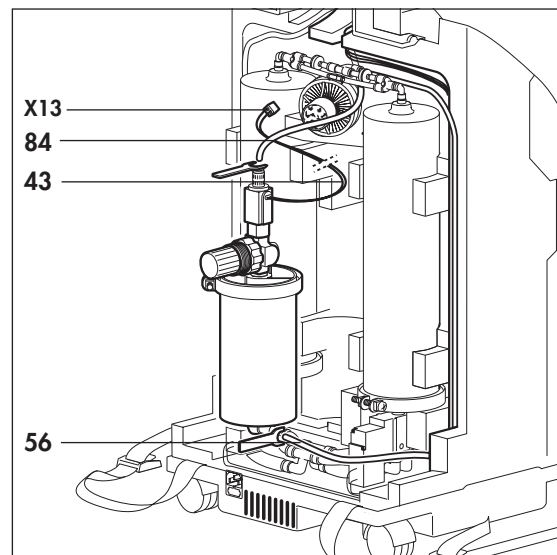
3. Remove the foam section **44**.



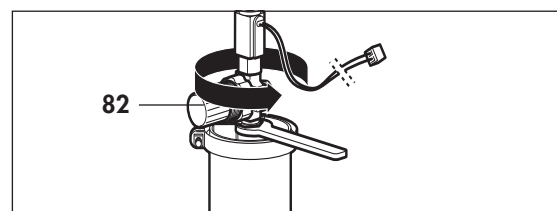
4. Carefully raise the operating panel and detach the connector **X13** for the shutoff valve.
5. Carefully pull out the right-hand ADS container.
6. Pull out the wiring harness for the shutoff valve.
7. Press the ADS container back into the foam section.



8. Carefully pull the oxygen tank out of the foam section **43**.
9. Remove the tube **56** from the inlet to the oxygen tank by pushing back the sleeve of the angular bush (e.g. using a spanner from the set) and pulling out the tube.
10. Detach tube **84** from the shutoff valve in the same way.



11. Using an open-ended spanner, take hold of the double nipple between the oxygen tank and the pressure reducer **82** and unscrew the pressure reducer.



12. Place a new pressure seal **55** onto the double nipple.

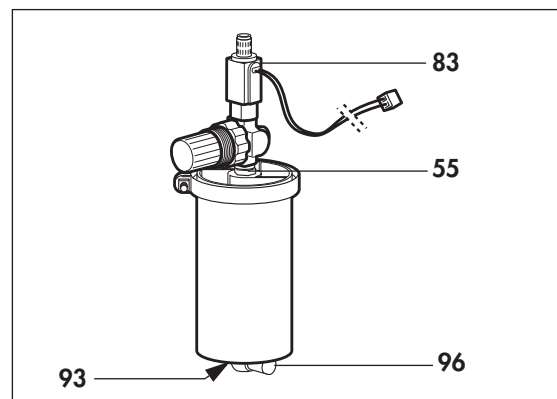
Caution !

The pressure seal has a profile on one side, known as the sealing lip. This sealing lip must be pointing towards the pressure reducer !

13. Screw the new pressure reducer **82** into place.

Caution !

Once the pressure seal between the double nipple and the pressure reducer is squashed, under no circumstances should you turn the pressure reducer back; otherwise, the pressure seal will no longer seal effectively.



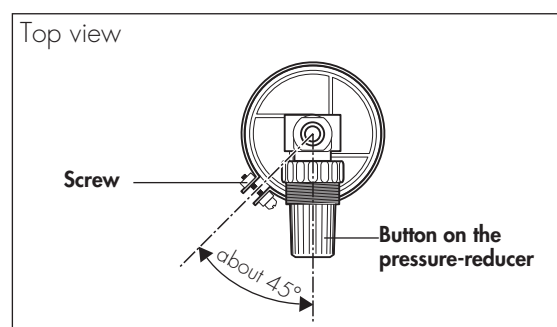
14. Should screwed connector **93** or angle connector **96** be broken, please replace them.

15. Check that the screw of the clip on the oxygen tank and the button on the pressure reducer form an angle of approximately 45°.

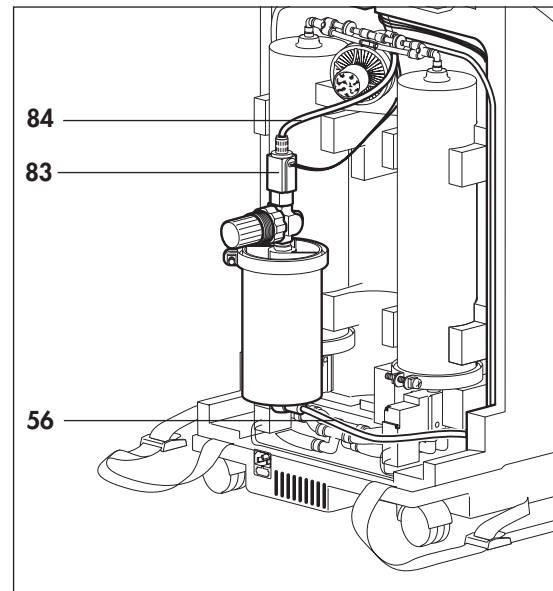
If this is not the case, loosen the screw of the clip slightly, align the clip and re-tighten it.

Note:

If the tightening screw to the pressure reducer is not in the correct position, you will be unable to place the foam sections on top of one another properly later.



16. Connect the wiring harness of the shutoff valve **83** on **X13** of the printed circuit board. To do so:
 - pull out the righthand ADS container,
 - lay the wiring harness behind the ADS container. The spiral insulating tube must be gripped in the upper groove of the foam section **43**.
 - push the ADS container back into the foam section.
17. Slide the tube **56** into the inlet of the oxygen tank as far as it will go.
18. Slide the tube **84** into the shutoff valve **83** as far as it will go.

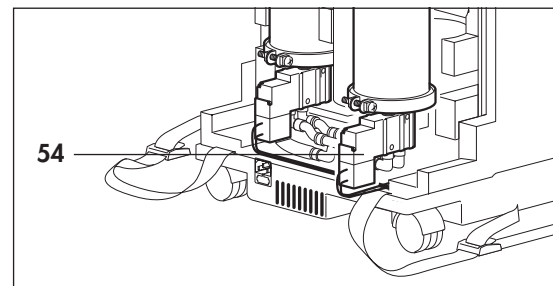


19. Before assembling the OXYMAT 3, check all connection points for leaks:
 - Connect the dosage unit **21** or flowmeter **16** to the oxygen outlet **5**.
 - Connect the power cord **10** to the appliance and to a socket.
 - Switch the appliance on. This starts the internal leak test.
 - Set a flow of 4/min.
 - Check for leaks by soaping the connection points to the ADS containers with a foaming agent (e.g. Snoop).
 - If you discover a leak, rectify it.

Caution!

Do not use liquids or foaming agents to check for leaks in the region of the solenoid valve 54, as moisture could penetrate into the solenoid valve, thereby causing corrosion which could prevent it functioning properly.

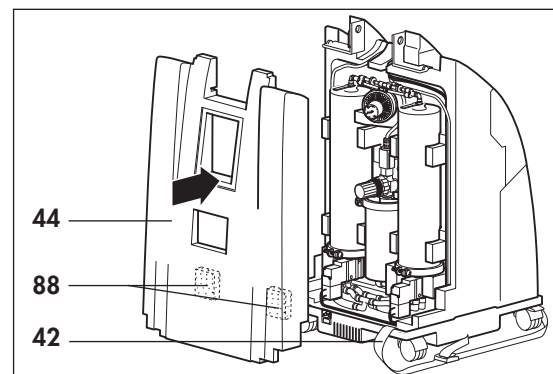
20. Switch off the appliance and pull the power cord **10** from the socket and from the appliance.
21. Remove the dosage unit **21** or the flowmeter **16**.
22. Place the foam section **44** in position.



Note:

Check that both foam pads 88 are in place.

23. Place the straps **42** over the foam sections and tighten them.
24. Close the appliance (see "7.4 Closing the appliance" on page 30).
25. Perform a functional check (see "5. Functional check" on page 10).



7.16 Replacing the frame (up to appliance no. 19999)

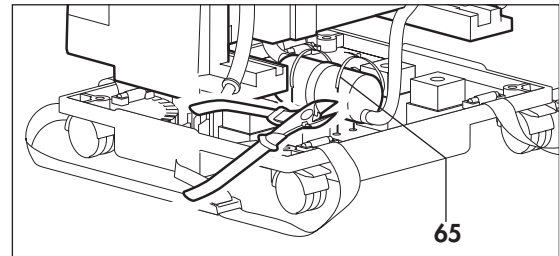
Tools required:

- Spanner set WM 14249,
- Allen key 6 mm,
- Side nippers.

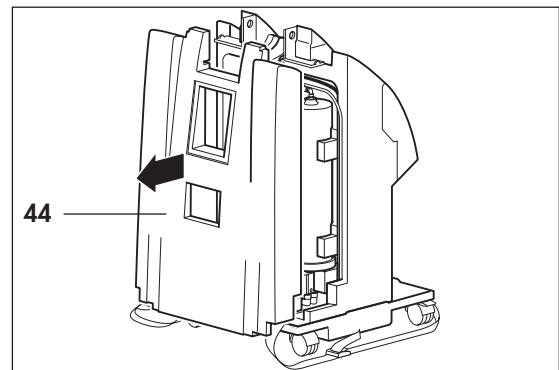
Note:

It is easier to change the frame if you have another person to help you.

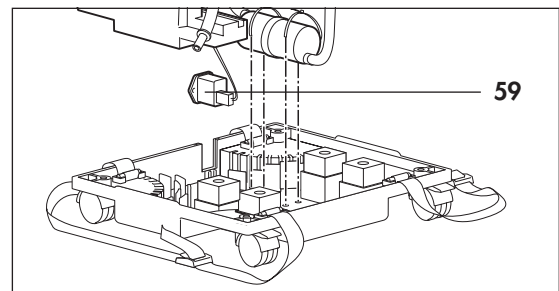
1. Open the appliance (see "7.3 Opening the appliance" on page 29).
2. Remove the compressor (see "7.5 Replacing the compressor (up to appliance no. 13350)" on page 30, steps **3.** to **7.**).
3. Separate the two cable ties **65**, which fix the exhaust damper in position.



4. Remove the foam section **44**.



5. Pull the two appliance connectors **59** upwards out of the frame.



6. Place one arm around the entire foam sections.
7. With the other arm, support yourself against the frame and lift up the foam sections (including ADS containers, oxygen tank, cooler, fan and operating panel).

Note:

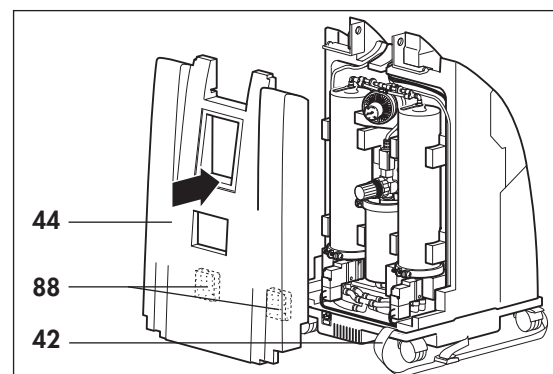
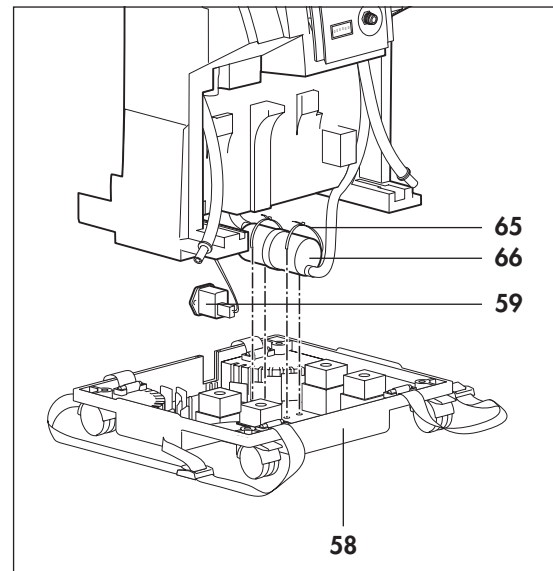
If two people are working together, one of you can lift up the foam sections with both arms whilst the other holds the frame steady.

8. Position the new frame **58** (with appliance label) on the castors.
9. Insert the foam sections into the frame.
10. Place the appliance connector **59** into the groove of the frame.
11. Push the exhaust damper **66** backwards as far as possible and secure it to the frame with two cable ties **65**.
12. Align all parts, such as ADS containers and oxygen tank.
13. Check that the cables and tubes are laid in the groove on the foam section. If necessary, press them in.
14. Place the foam section **44** in position.

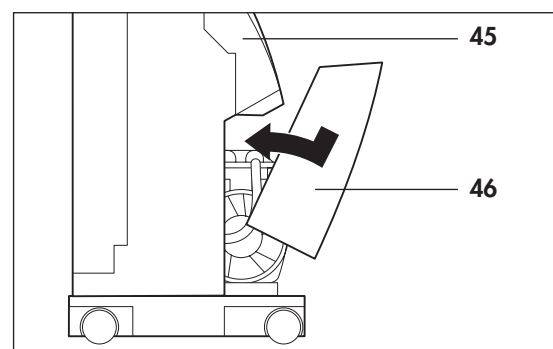
Note:

Check that both foam pads **88 are in place.**

15. Install the compressor (see "7.5 Replacing the compressor (up to appliance no. 13350)" on page 30, steps **10.** to **16.**).



16. Place the lower edge of the front plates **46** into the frame and tilt it against the foam section **45**.
17. Place the straps **42** over the foam sections and tighten them.
18. Before assembling the housing, subject the appliance to a test run:
 - Connect the power cord **10** to the appliance and to a socket.
 - Switch on the appliance.
You should not hear any unusual noises, such as rattling and slipping.
 - Switch off the appliance and pull the power cord **10** from the socket and from the appliance.
19. Close the appliance (see "7.4 Closing the appliance" on page 30).
20. Perform a functional check (see "5. Functional check" on page 10).



7.17 Replacing the frame (from appliance no. 20000)

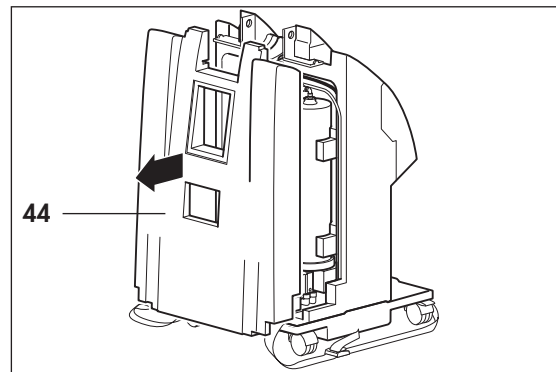
Tools required:

- Spanner set WM 14249,
- Allen key 6 mm,
- Hexagon socket wrench 8 mm,
- Water-pump pliers.

Note:

It is easier to change the frame if you have another person to help you.

1. Open the appliance (see "7.3 Opening the appliance" on page 29).
2. Remove the compressor (see "7.7 Replacing the compressor (from appliance no. 15000)" on page 36, steps **4.** to **8.**).
3. Remove the foam section **44**.

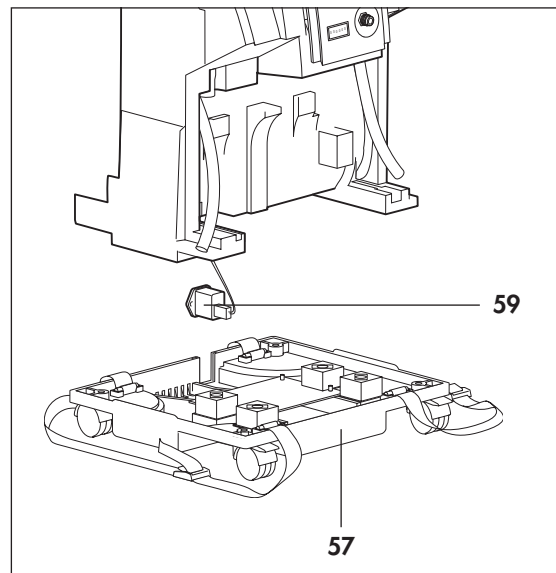


4. Pull the two appliance connectors **59** upwards out of the frame.
5. Place one arm around the entire foam sections.
6. With the other arm, support yourself against the frame and lift up the foam sections (including ADS containers, oxygen tank, cooler, fan and operating panel).

Note:

If two people are working together, one of you can lift up the foam sections with both arms whilst the other holds the frame steady.

7. Position the new frame **57** (with appliance label) on the castors.
8. Insert the foam sections into the frame.
9. Place the appliance connector **59** into the groove of the frame.
10. Align all parts, such as ADS containers and oxygen tank.
11. Check that the cables and tubes are laid in the groove on the foam section. If necessary, press them in.



12. Place the foam section **44** in position.

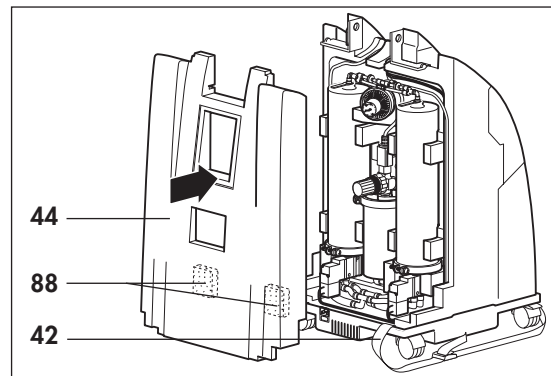
Note:

Check that both foam pads 88 are in place.

13. Install the compressor (see "7.7 Replacing the compressor (from appliance no. 15000)" on page 36, steps **11.** to **17.**).

14. Close the appliance (see "7.4 Closing the appliance" on page 30).

15. Perform a functional check (see "5. Functional check" on page 10).



7.18 Replacing magnetic valves with valve block (up to appliance no. 34999)

This section describes conversion of the appliances from two separate magnetic valves WM 13151 to valve block WM 13179 (conversion set WM 15461).

Valve block WM 13179 is fitted as standard on OXYMAT 3 oxygen concentrators from appliance number 40000. Old appliances can be converted in accordance with this section if the

magnetic valves are damaged and need to be replaced.

Note

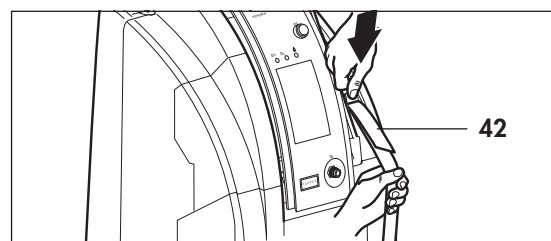
The valve block was fitted in a variant with aluminum housing (WM 13177) in concentrators with appliance numbers from 35000 to 39999. This variant is no longer available. The

Tools required:

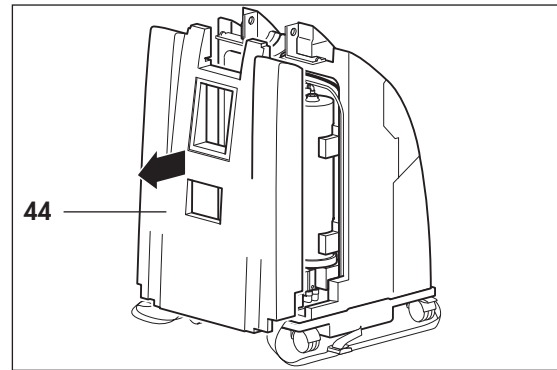
- Spanner set WM 14249,
- Allen key 6 mm,
- Hexagon socket wrench 17 mm,
- Hexagon socket wrench 19 mm,
- Hexagon socket wrench 20 mm,
- Side nippers,
- Conversion set WM 15461.

Removing magnetic valves

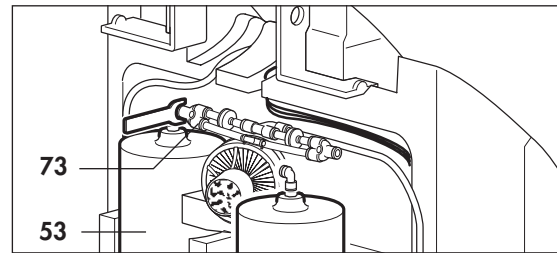
1. Open the appliance (see "7.3 Opening the appliance" on page 29).
2. Loosen the straps **42**, without pulling the strap out of the fastener, and place them next to the appliance.



3. Remove the foam section **44**.



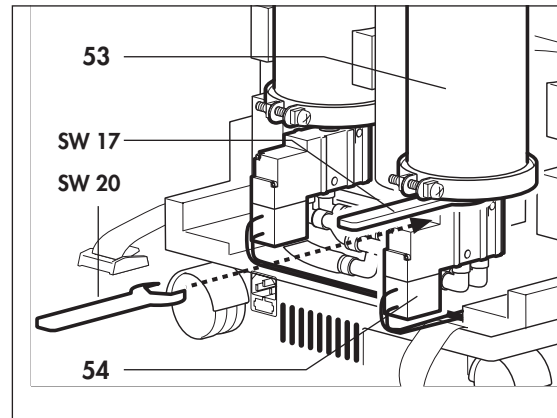
4. Loosen the Y-connector **73** by pushing back the sleeve (e.g. using a spanner from the set) and pull out the angular bush. Remove the outlet piping system WM 13265 from the appliance.



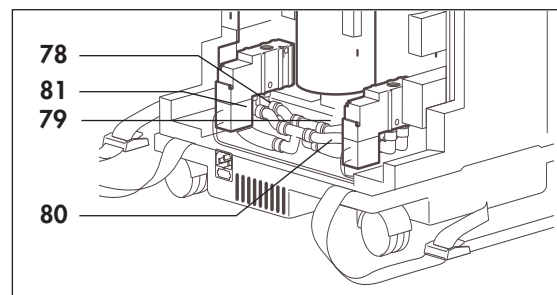
5. Disconnect plugs **X10** and **X11** from the board.
6. Pull the right ADS container **53** out of the foam section.
7. The ADS container **53** and magnetic valve **54** are connected by a double nipple. Use a 17-mm open-ended spanner to hold the double nipple firm on the ADS container **53**, and use a second open-ended spanner (20 mm) to unscrew the magnetic valve **54** from the double nipple.

Caution!

Be sure to use the 20-mm open-ended spanner only in the position shown. Otherwise parts of the magnetic valve could break off.

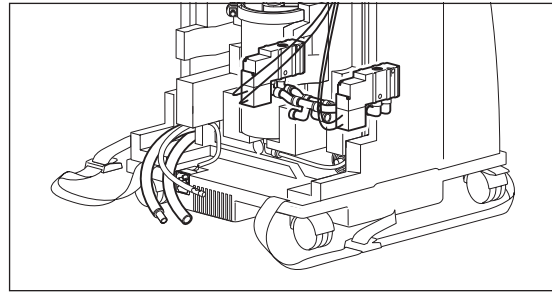


8. Next, unscrew the ADS container by hand, including the double nipple.
9. Repeat points **6.** to **8.** for the left ADS container.
10. Use spanner set WM 14249 to detach the connecting tube, short **80** and hose, PA, 8 x 1, 115 long **79** of the inlet piping system, then remove the right magnetic valve.
11. Use spanner set WM 14249 to detach the connecting tube, long **81** and hose, PA, 8 x 1.65 long **78** and the T and push-in connectors of the inlet piping system. Remove the left magnetic valve.



Unscrew the piping systems

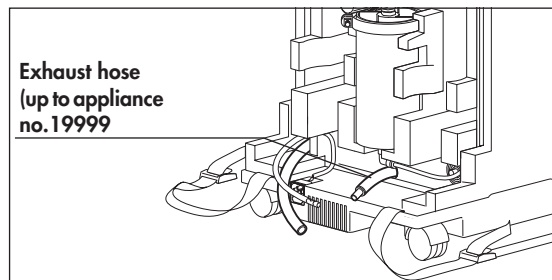
1. Unscrew the connections to the air inlet and exhaust hoses and remove the parts. These are:
 - Connecting tube, long **81** WM 13277
 - Connecting tube, short **80** WM 13276
 - Push-in connector WM 13146
 - Piping system, inlet WM 13270



For concentrators up to appliance no. 19999:

Also remove the exhaust hose and place it ready for refitting (see point **5.** onwards on page 64).

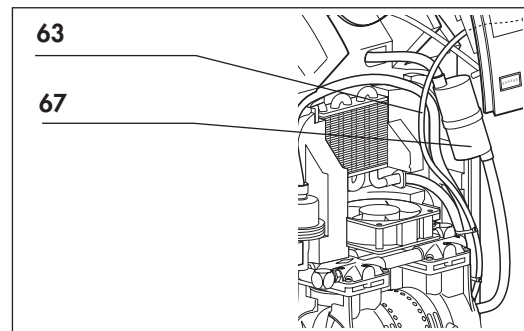
2. **For concentrators from appliance No. 8000 onwards:**
To remove the pressure measurement tube, first turn the appliance so that the compressor is facing you, then pull container **67** out of the foam section.



To ensure safe refitting, note the route followed by pressure measurement tube **63**.

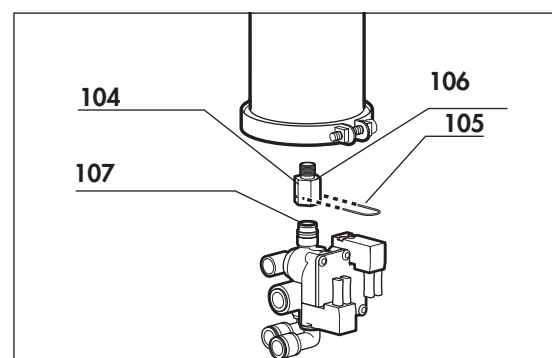
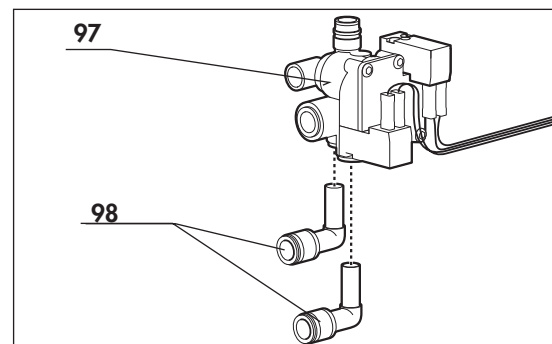
Carefully remove the pressure measurement tube from the pressure sensor on the board.

Use a diagonal cutter to cut through the cable binders, then remove the pressure measurement tube from the appliance.



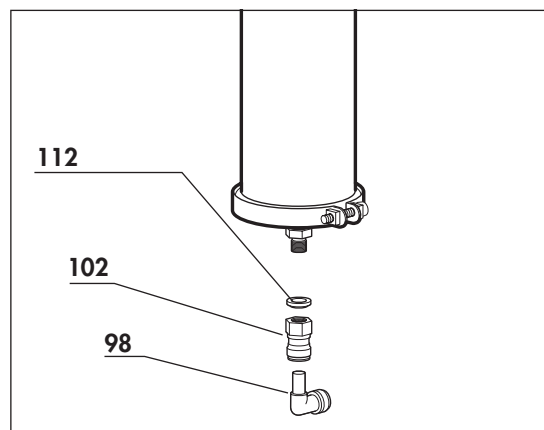
Fit valve block to ADS container

1. Place one angle connector **98** in each of the openings on the underside of the valve block **97**.
2. On one of the ADS containers, replace the double nipple with the adapter for valve block **104**.
3. Moisten the O-ring **107** with oxygen lubricant WM 14902.
4. Put the ADS container on the valve block and secure the connection with the spring clip **105**.



Prepare second ADS container

1. Replace the pressure seal of the double nipple with the sealing ring **112** and place the sealing ring in the screwed connector **102**.
2. Screw screwed connector **102** onto the double nipple of the ADS container using a torque wrench SW 17. Tighten up the screwed connector **102**, torque 2.5 Nm. **Ensure that it is not damaged in the process.**
3. Put an angle connector **98** in the screwed connector.



Refitting

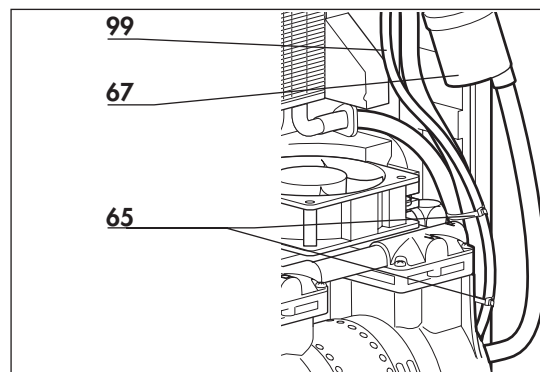
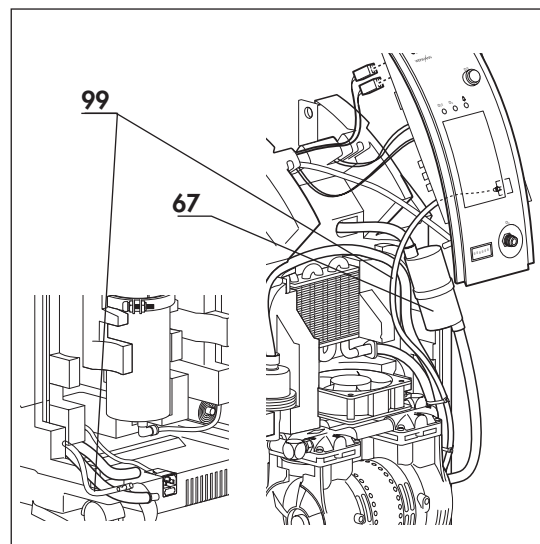
Note:

Steps 1. to 3. are not necessary for concentrators up to appliance no. 7999. For these appliances, start with step 4..

1. **Carefully** push the new pressure measurement tube **99** (WM 13268, pressure sensor piping system) from the back of the appliance (ADS container) through the central foam section to the front of the appliance (compressor).

Take care that the pressure measurement tube is the right way round. After installation in the appliance, the end with the T connector and push-in connector must be at the back of the appliance.

2. At the front of the appliance, lead the pressure measurement tube **99** along behind container **67** and **carefully** fit the end of the pressure measurement tube onto the pressure sensor on the board.
3. Place two new cable binders **65** around the new pressure measurement tube **99**, and around the exhaust and inlet hoses. Pull the cable binders tight. Push container **67** back into the corresponding recess in the central foam section.
4. Place the ADS container with valve block in the right-hand recess in the central foam section.



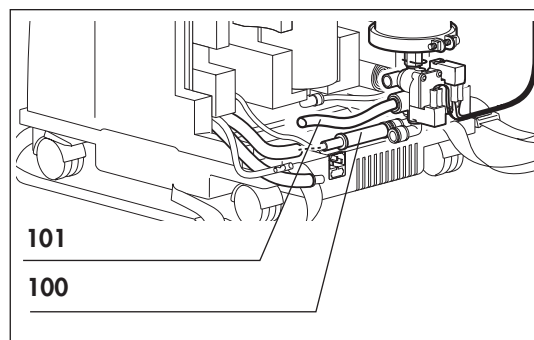
5. Connect up the piping system. To do so, proceed as follows:

- **For all concentrators:**

Push the piping system **101** (ADS container) firmly into the connection on the side of the valve block.

- **For concentrators from appliance No. 20000 onwards:**

Connect the exhaust hose to the rear angle connector of the valve block. For this purpose use exhaust piping system **100**.

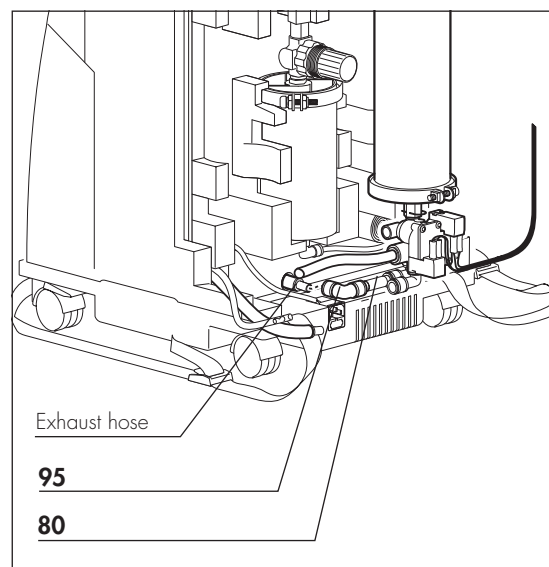


- **For concentrators up to appliance no. 19999:**

Fit an angle connector **95** and a connecting tube, short **80** onto the push-in connector of the exhaust hose.

- Wet the rear end of the exhaust hose with Gaspruf. Push the exhaust hose through the central foam section onto the exhaust damper. Make sure that the exhaust hose is pushed onto the damper as far as it will go. While doing so, hold the exhaust damper in position from the front of the appliance.

- Push the connecting tube, short **105** of the exhaust hose into the rear angle connector of the valve block.

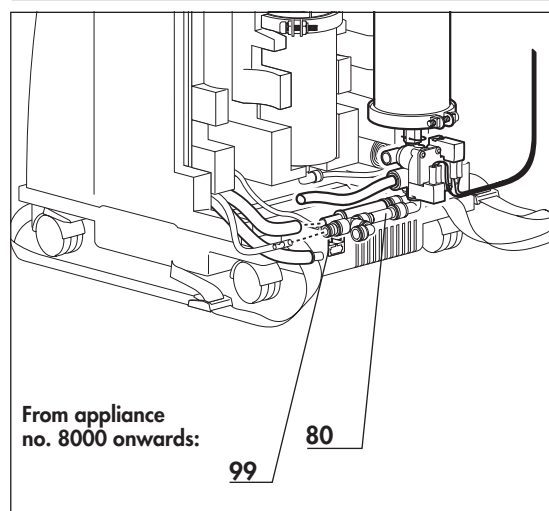


- **For all concentrators:**

Push the connecting tube **105** of the pressure sensor piping system **99** firmly into the front angle connector of the valve block.

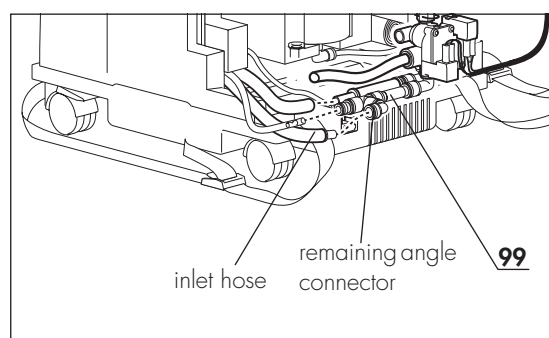
- **For concentrators up to appliance no. 7999:**

Replace the pressure measurement tube of the pressure sensor piping system **99** with the blanking plug **106**.

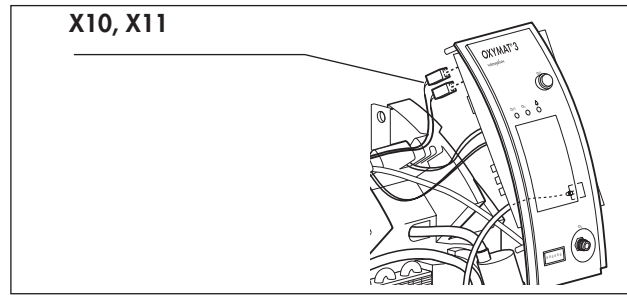


- **For all concentrators:**

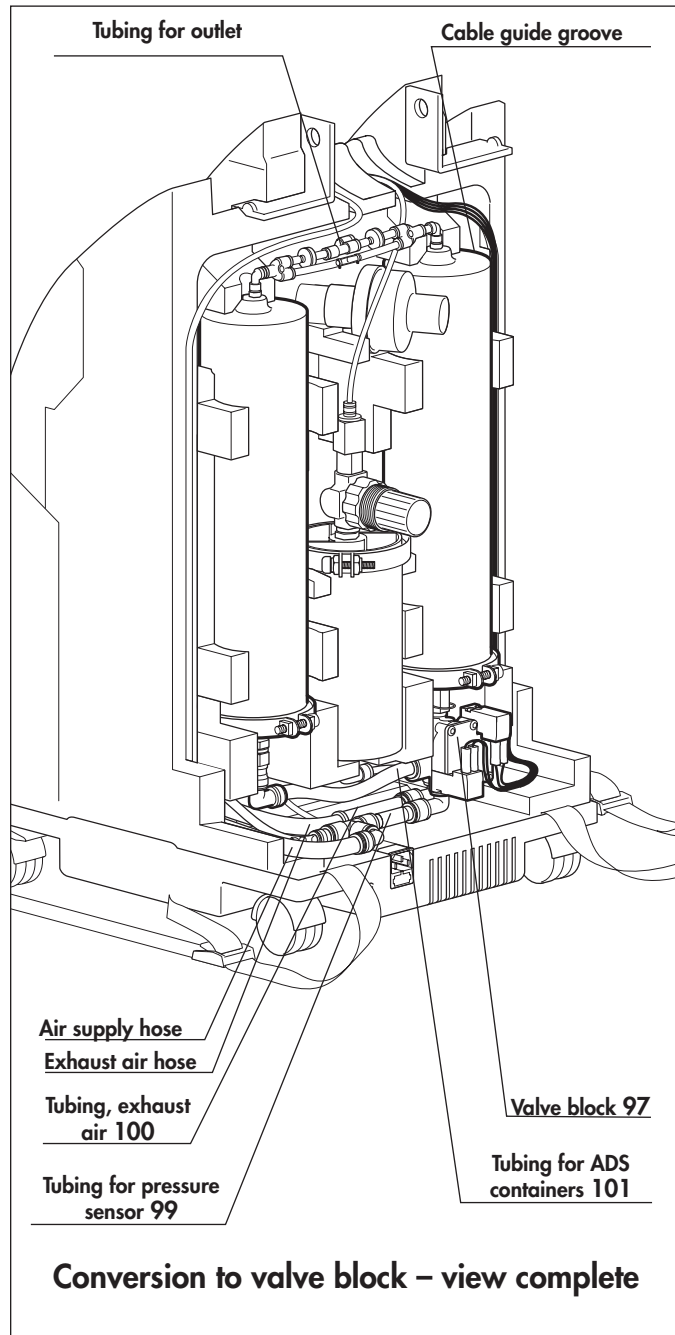
Connect the inlet hose to the remaining angle connector of the pressure sensor piping system **99**.



6. Push plugs **X10** and **X11** (cables for valve block) onto the appropriate connection points on the board. Carefully locate the cable in the groove to the side of the right ADS container.



7. Fit the outlet piping system WM 13265 (non-return valves) to both ADS containers.
8. Now place the ADS container with angle connector in the left recess of the central foam section and push the free end of the ADS container piping system **101** onto the angle connector of the left ADS container.
9. Before assembling the OXYMAT 3, check it for leaks:
 - Connect the dosage unit **21** or flowmeter **16** to the oxygen outlet **5**.
 - Connect the power cord **10** to the appliance and to a socket.
 - Switch on the appliance.
 - Set a flow of 4/min.
 - Check for leaks by soaping all connection points to the ADS containers with a foaming agent (e.g. Snoop).



Caution!

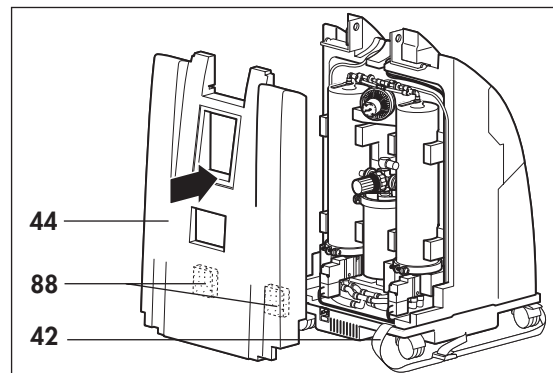
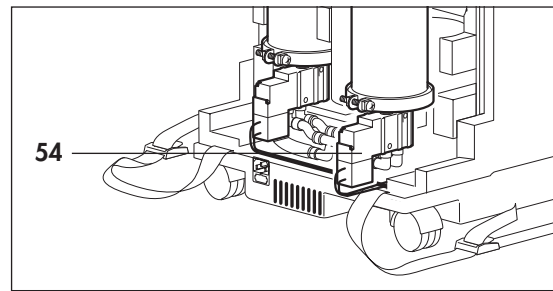
Do not use liquids or foaming agents to check for leaks in the region of the solenoid valve 54, as moisture could penetrate into the solenoid valve, thereby causing corrosion which could prevent it functioning properly.

10. If you discover a leak, rectify it.
11. Switch off the appliance and pull the power cord **10** from the socket and from the appliance.
12. Remove the dosage unit **21** or the flowmeter **16**.
13. Place the foam section **44** in position.

Note

Check whether the two foam pads **are present** in the rear part of the EPP foam.

14. Place the straps **42** over the foam sections and tighten them.
15. Close the appliance (see "7.4 Closing the appliance" on page 30).
16. Perform a functional check (see "5. Functional check" on page 10).



7.19 Replace magnetic valve block

This section describes the following processes:

- **for concentrators with appliance numbers from 35000 to 39999:** converting the valve block with aluminum housing (WM 13177) to valve block with plastic housing (WM 13179)
- **for concentrators with appliance numbers from 40000:** replacing the valve block with plastic housing (WM 13179)

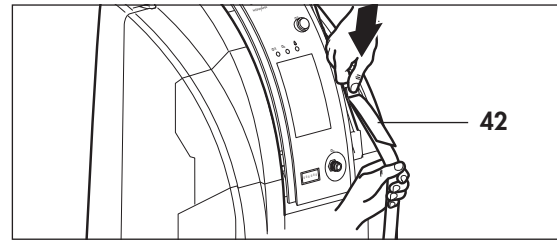
Tools required

- Spanner set WM 14249
- Allen key 6 mm
- Open-ended spanner SW 17
- Open-ended spanner SW 19
- Open-ended spanner SW 20
- Side nippers
- Conversion set WM 15461

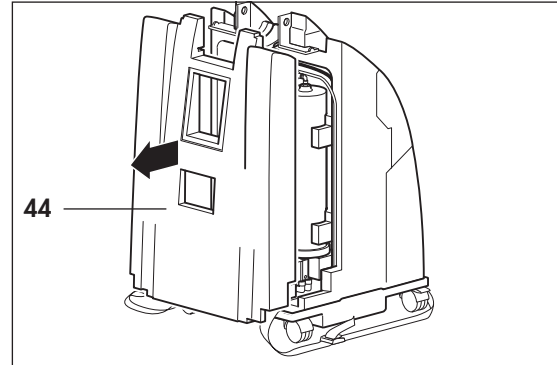
Dismantle magnetic valve block

1. Open the appliance (see "7.3 Opening the appliance" on page 29).

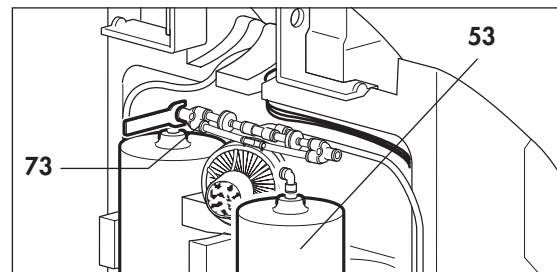
2. Loosen the straps **42** without pulling the strap out of the fastener and put next to the appliance.



3. Take off the foam section **44**.



4. Undo the Y-connector **73** by pushing back the sleeve (e.g. using a spanner from the set) and pull out the angular bush. Tilt one container slightly out of the foam section to do so. Remove the outlet piping system WM 13265 from the appliance.
5. Pull connectors **X10** and **X11** off the circuit board.
6. Pull the right-hand ADS container **53** out of the foam section.



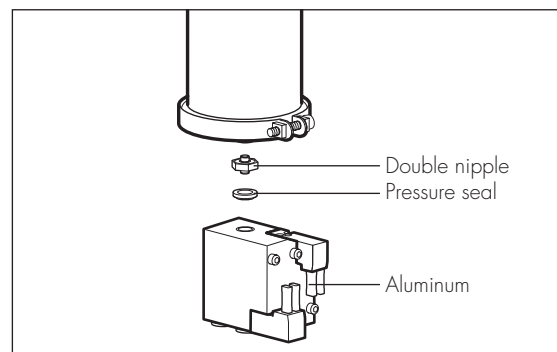
Note

Steps 7. to 9. do not apply to concentrators which already have a plastic valve block.

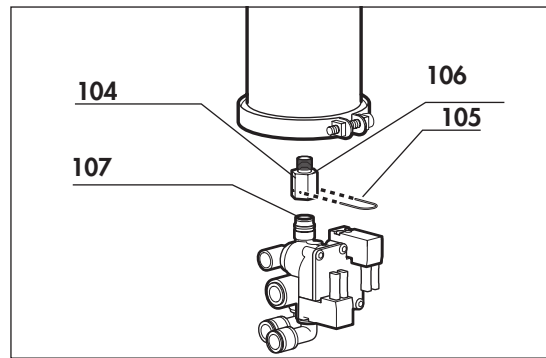
7. The ADS container **53** and the magnetic valve block are connected to one another by a double nipple. Use an open-ended spanner SW17 to hold the double nipple steady at the ADS container. Hold the magnetic valve block steady with water pump pliers and remove the ADS container from the magnetic valve block.
8. Now unscrew the ADS container incl. double nipple by hand.
9. Replace the double nipple of the ADS container with the connecting adapter **104**.
10. Remove the tubing from the valve block (see "Unscrew the piping systems" on page 62).
11. Remove the two push-fit angle connectors from the magnetic valve block and plug them into the same connectors of the new magnetic valve block.

Note

Steps 12. to 13. do not apply to concentrators with an aluminum magnetic valve block.



12. Release the connection between the ADS container and the magnetic valve by taking the spring clip **105** out of the adapter for the valve block.
13. Take the ADS container off the magnetic valve.
14. Moisten the O-ring **107** with oxygen lubricant WM 14902
15. Put the ADS container on the new valve block and secure the connection with the spring clip **105**.



Fit magnetic valve block

1. Put the ADS container and valve block into the righthand location in the central foam.
2. Prepare the tubing. Proceed as follows to do so.
 - Push the tubing **101** (ADS container) firmly in the side connection on the magnetic valve block.
 - Connect the exhaust air hose or on appliances up to appliance no. 19.999 the connecting pipe for the exhaust air hose, to the rear angle connector of the valve block.
 - Push the connecting pipe firmly into the front angle connector of the valve block.
3. Push connectors **X10** and **X11** (cabling for valve block) onto the relevant connections of the circuit board. Guide the cables carefully into the groove to the side of the righthand ADS container.
4. Fit the outlet piping system WM 13265 (non-return valves) to both ADS containers.
5. Put foam section **44** in position.
6. Close the appliance (see "7.4 Closing the appliance" on page 30).
7. Perform a final check (see "5. Functional check" on page 10).

8. Spare parts

8.1 List of spare parts

Note:

The item numbers in the following table match the numbers in the text of these service and repair instructions.

Item no.	Description	Order No.
1	Handle for lifting or moving	WM 13610
2	Push-button for On/Off knob	WM 13515
4	Operating hours meter	WM 13517
8	Twin castor with brake	WM 1733
10	Power cord	WM 13421
13	Set of coarse dust filters	WM 15360
30	Suction filter	WM 13190
31	Twin castor	WM 1732
32	Stopper	WM 13613
33	Cheese head screw M8 x 40	WM 50604
34	Spring washer	WM 50395
35	Housing with label	WM 13605
36	Plastic board	WM 13521
37	Warning notice	WM 13520
38	Service flap	WM 13630
39	Fuse insert, DIN EN 660127-2 T, 2.5 H 250V	WM 13422
40	Circuit board, replacement Circuit board, new	WM 13442 WM 13460
41	Fillister-head screw KB 30 x 10	WM 13518
42	Strap system	WM 13115
43	EPP foam section 1, centre section (up to appliance no. 19999) EPP foam section 1, centre section (from appliance no. 20000)	WM 13116 WM 13157
44	EPP foam section 2, rear section	WM 13117
45	EPP foam section 3, top front section	WM 13118
46	Front plate, assembled	WM 13625
47	Retaining bracket	WM 13111
48	Compressor, repair set	WM 13365
49	Capacitor	WM 13356
50	Cooler, fitted, consisting of:	WM 13310
	– Finned cooler	WM 13312
	– Stopper	WM 12537
51	– Tube, silicone, woven, 8 x 3.5, 530 long	WM 13321
	– Clip	WM 13314
	– Coupling.	WM 13122

Item no.	Description	Order No.
52	Fan	WM 13185
53	Adsorption container, packs of 2	WM 13225
54	Magnetic valve, repair set Magnetic valve, replacement, repair set	WM 13152 WM 13159
55	Pressure seal	WM 13244
56	Tube, PU 4 x 1, 740 long	WM 13108
57	Frame, fitted* (up to appliance no. 19999) Frame, fitted* (from appliance no. 20000)	WM 13171 WM 13197
58	Frame, with notices* (up to appliance no. 19999) Frame, with notices* (from appliance no. 20000)	WM 13170 WM 13196
59	Appliance connector	WM 13420
60	Vibration damper (up to appliance no. 14999) "O-form" vibration damper (from appliance no. 15000)	WM 13125 WM 13104
61	Tube set for pressure sensor comprising:	
62	– nozzle,	WM 13206
63	– tube, PU 4 x 1, 580 long,	WM 13209
64	Tube, silicone, 8 x 3.5, 1160 long (up to appliance no. 19999) Exhaust hose (from appliance no. 20000) comprising: – Tube, silicone, 8 x 3,0, 900 long – Coupling – Connector	WM 13132 WM 13175 WM 13176 WM 13122 WM 13167
65	Cable tie	WM 13148
66	Exhaust damper, complete, consisting of: – Exhaust filter housing, complete – Foam cartridge – Noise suppressor	WM 13129
67	Piping, vacuum, consisting of:	WM 13145
68	– Container	WM 13140
69	– Tube, silicone, 8 x 3.5, 400 long	WM 13137
70	– Coupling	WM 13122
71	– Tube, silicone, 8 x 3.5, 239 long	WM 13136
	– Connector with foam cartridge	WM 13133
	– Clip	
	– Foam sheet	
72	Piping, outlet, consisting of:	WM 13265
73	– Nozzle tube, fitted	WM 13290
74	– Y-connector	WM 13283
75	– Elbow connector	WM 13282
76	– Non-return valve, fitted	WM 13294
	– T-joint	WM 13284

Item no.	Description	Order No.
77	Piping, inlet, consisting of:	WM 13270
78	– T-joint	WM 13274
79	– Hose, PA, 8 x 1. 65 long	WM 13271
	– Hose, PA, 8 x 1. 115 long	WM 13272
	– Elbow connector.	WM 13273
80	Tube set, inlet, pressure sensor comprising:	WM 13255
	– T-connector,	WM 13274
	– Connecting pipe, short,	WM 13276
81	– Elbow connector,	WM 13273
	– Connecting pipe, long,	WM 13277
	– Plug-in connector.	WM 13204
82	Pressure reducer, complete	WM 13188
83	Shutoff valve	WM 13184
84	Tube, PU, 4 x 1, 480 long	WM 13107
85	Plug-in connector	WM 13204
86	Cable harness, non-heating appliance circuit board	WM 13431
87	Cable harness, circuit board – compr. + fan	WM 13432
88	Foam plate	WM 13106
89	Clip	WM 13314
90	Washer	WM 53536
91	Spring washer	WM 50370
92	Hexagonal nut	WM 50924
93	Screwed socket G1/8	WM 13281
94	Screwed socket G1/4	WM 13153
95	Elbow connector G1/4	WM 13273
96	Elbow connector G1/8	WM 13527
97	Magnetic valve block, plastic	WM 13179
98	Push-fit angle connector	WM 13146
99	Tubing for pressure sensor, conversion set	WM 13268
100	Tubing for exhaust air, conversion set	WM 13267
101	Tubing, ADS container	WM 13212
102	Screw-in connector	WM 13218
103	Blind plug for tubing, pressure sensor WM 13268	WM 13202
104	Adapter for valve block	WM 13248
105	Spring clip	WM 28052
106	O-ring; 10.5 – 2	WM1145/147
107	O-ring; 12 – 1	WM1145/56
108	Cover, preassembled	WM 13240
109	Tapered flange clip D95	WM 13252
110	Cap screw M6x30 EN ISO 7045	WM 53115
111	O-ring; 73-3	WM1145/60

Item no.	Description	Order No.
112	Sealing ring 8-11-1.5	WM 13233
F1	Fuse insert IEC 127-2-TL 400 mA	WM 13426
F2	Fuse insert IEC 127-2-TL 400 mA	WM 13426
F3	Fuse insert IEC 127-2-TL 1.25 A	WM 13427
	Control panel, printed	WM 13510
	for dosage monitor: measuring tube, compl., 5 l measuring tube, compl., 3 l O-ring 10-1, 3	WM 13725 WM 13726 WM 1145/47
	for flow meter: measuring tube, compl., 5 l measuring tube, compl., 3 l flow meter sleeve O-ring 7-1, 5 O-ring 22-1, 5	WM 13660 WM 13662 WM 1284 WM 1145/40 WM 1145/69
	Service bag	WM 13632
	Service card	WM 16196
	Pin, chrome-plated	WM 13615
	Split rivet	WM 13617
	Label, fire	WM 0957
	Instructions for use	WM 16641
	Packaging, complete	WM 14570

* When ordering, please specify the model, appliance number and year of construction

8.2 Maintenance set

Maintenance set, 5,000 operating hours

Set WM 15299

consisting of:

- 1 coarse dust filter WM 13631,
- 1 suction filter WM 13190,
- 1 sealing ring for connecting nipple WM 1145/31,
- 1 set of spare parts (for humidifier) WM 15038.

9. Tools, testing equipment, disinfectants

Below is a list of all tools and test equipment used in these service and repair instructions. The particular tools and test equipment required are explained in the relevant chapters. Special tools can be purchased from the manufacturer Weinmann.

9.1 General tools and test equipment

- Cross-head screwdriver, size 1;
- Cross-head screwdriver, size 2;
- Open-ended spanner SW 17;
- Open-ended spanner SW 19;
- Open-ended spanner SW 20;
- Allen key with tee-handle SW 6, 150 mm long (WM 14250);
- Side nippers;
- Flat nose pliers;
- Hexagon socket wrench 8 mm;
- Spanner set WM 14249;
- Conversion set WM 15461;
- Balance, tolerance 1 g;
- Multimeter for testing voltage, current and resistance;
- Leak detection agent "Snoop", available in various sizes:
2 oz = 60 ml, 8 oz = 235 ml,
1 gal = 3,8 l,
from:
Germany
B.E.S.T. Ventil + Fitting GmbH Frankfurt
Robert-Bosch-Straße 20
63477 Maintal
Tel.: +49 6181 4332-0
Fax: +49 6181 4332-39
Internet: www.swagelok.com.
- Universal cleaning agent WM 14937
- Loctite 245 WM 14920

9.2 Special tools and test equipment

- Oxygen measuring device,
e. g. OXYcontrol ; WM 13550
- Respiratory tube,
4 x 7 mm, 2 m long,
for connecting the oxygen measuring device
to the pressure reducer of the oxygen cylinder; WM 5726
- Respiratory tube,
4 x 7 mm, 1.5 m long,
for connecting the oxygen measuring device
to the bubble humidifier; WM 5772
- Tightening and loosening aids for metric
connectors. WM 14249
- Test pressure gauge
0 - 2.5 bar, Class 1,6,
for appliance outlet pressure;
for O₂ tank inlet WM 13098
- T-connector,
for fitting test pressure gauge 4/1 WM 13284

- Oxygen cylinder with adjustable pressure reducer HIT, WM 33100
- STURTEVANT RICHMONT Torque indicator spanner
measuring range: 1.2 to 6 Nm
permanently set to: 2.5 ± 0.1 Nm
Hahn + Kolb order no.: 52249-200
- STURTEVANT RICHMONT Tool with T-handle
open-ended spanner SW17
Hahn + Kolb order no.: 52250-200

Order from:
Hahn + Kolb Werkzeuge GmbH
Borsigstr. 50
D – 70469 Stuttgart
Tel.: +49/711/9813 - 0
Fax: +49/711/9813 - 354
e-mail: infohahn-kolb.de
Internet: www.hahn-kolb.de

9.3 Disinfectants

- TERRALIN
- MIKROZID LIQUID

Order from:
Schülke & Mayr GmbH
Robert-Koch-Str. 2
D-22851 Norderstedt
Tel.: +49/40/52 100 - 0
Fax: +49/40/52 100 - 318
Internet: www.schuelkemayr.de

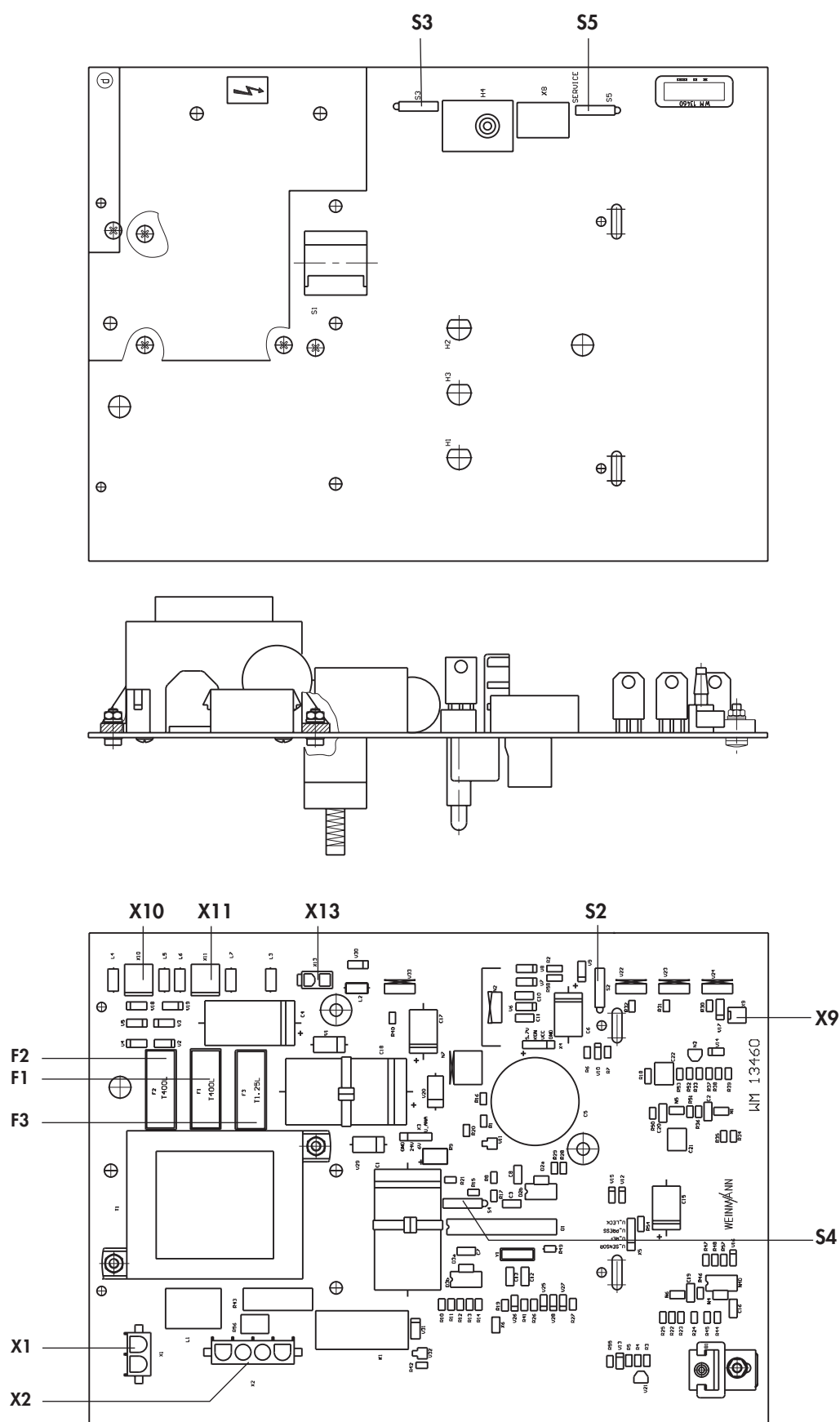
10. Technical Data

	OXYMAT 3
Product category according to 93/42/EEC	IIa
Dimensions W x H x D in mm	400 x 700 x 350
Weight	approx. 20 kg
Temperature range: – Operation – Storage	+ 10 to + 40 °C – 20 to + 70 °C
Power supply	230 V, 50 Hz
Power output / current consumption	360 W / 1.6 A
Mains fuse DIN EN 60127-2	T 2.5 A H 250V
Classification acc. to EN 60601-1: – Protection against electric shock – Degree of protection against electric shock	Class 2 Type B
Electromagnetic compatibility: – Radio interference suppression – Radio interference resistance	EN 55011 (VDE 0875 T.11) IEC 1000-4 Parts 2-6 and 11
Sound pressure level	approx. 40 dB(A) (from appliance no. 20000)
O ₂ output (values after 10 min. operation at + 20 °C, 50 % relative humidity and 1013 mbar)	95 (+1/–3) Vol % O ₂ 1 to 4 l/min 90 (± 3) Vol % O ₂ 4 to 5 l/min
O ₂ output at 2000 m above msl	90 ± 3 Vol % O ₂ at 5 l/min
Oxygen outlet pressure	0.6 bar = 60 kPa
Flow rate (read at top of ball)	0.5 to 5.5 l/min 0.2 to 3.0 l/min
O ₂ status indicator OSCI according to DIN EN ISO 8359.51.9 Warning at < 82 VOL % O ₂	Installed
Fault warning	Visual and acoustic
Actuating pressure of pressure relief mechanism	3 bar = 300 kPa
Servicing	After 1 year / every 5000 operating hours
Materials: – Case – Foam sections	PP PP

Subject to technical change without notice.



10.1 Arrangement of the PCBs



11. Technical Changes

Technical change	from Device No.	Date
EPP foam section 4, bottom front, Item 47 WM 13119 replaced by front plate, assembled WM 13625.	13.000	13.11.00
Vibration damper Item 60 WM 13125 replaced by "Vibration damper, complete", WM 13143.	13.000	13.11.00
Item 48 compressor type 2650 WM 13355 is replaced by compressor type 2660. For replacement purposes only "Compressor, repair set WM 13365" is available.	13.350	30.11.00
Length of Item 51 tube, silicone, woven, 8x3.5 (WM 13321) altered from 530 mm to 610 mm.		
Item 50 cooler, assembled, no longer includes the coupling WM 13122.		
Length of Item 68 tube, silicone, woven, 8x3.5 (WM 13137) altered from 400 mm to 450 mm.		
Item 69 coupling WM 13122 no longer present.	15.000	03.04.01
Vibration damper, complete, Item 60 WM 13143, is replaced by "O-form" vibration damper, WM 13104.		
Chassis WM 13110 replaced by Chassis WM 13156	20.000	05.11.01
EPP foam section 1, centre section, Item 43 WM 13116, replaced by EPP foam section 1, centre section WM 13157	20.000	05.11.01
Mac magnetic valves WM 13151 replaced by valve block 13177	35.000	10.05.04
Material of cover WM 13241 changed.	38.770	01.06.2005

12. Repair and inspection log

Device master data	Maintenance and repair work carried out in accordance with service documents			
	Operating hours	O ₂ concentration (%) at 4 l/min	Measures / comments	Service performed in accordance with OXYMAT 3 service instructions
Manufacturer: Weinmann GmbH + Co. 22525 Hamburg Device model: OXYMAT 3 Device no.: _____ Date commissioned: _____ Operator : _____ _____ _____ _____ _____				Company _____ Date _____ Signature _____
				Company _____ Date _____ Signature _____
				Company _____ Date _____ Signature _____
				Company _____ Date _____ Signature _____
				Company _____ Date _____ Signature _____
				Company _____ Date _____ Signature _____
				Company _____ Date _____ Signature _____
				Company _____ Date _____ Signature _____
				Company _____ Date _____ Signature _____
				Company _____ Date _____ Signature _____
				Company _____ Date _____ Signature _____
				Company _____ Date _____ Signature _____

13. Test report

Test report in accordance with service and repair instructions for OXYMAT 3

Medical retailer: _____ IK-No.: _____

• Patient

Name: _____ First name: _____ Health insurance No.: _____

Address: _____

• Appliance

Appliance: **Oxygen concentrator Oxymat 3** Manufacturer: **Weinmann**

Device No.: _____ Year of construction: _____ Operating hours: _____

• Findings

OK

not
OK

Visual inspection/mechanical inspection according to service instructions

Accessories included:	☐ Power cord	☐	☐
	☐ Dosage monitor	☐	☐
	☐ Humidifier	☐	☐
	☐ 20 m Tube	☐	☐
	☐ 10 m Tube	☐	☐
	☐ 3 m Tube	☐	☐
	☐ Nose piece	☐	☐
	☐ Flow meter	☐	☐
General condition of housing checked		☐	☐
Coarse dust filter checked for dirt		☐	☐
Power cord checked for damage		☐	☐
Fuse set checked regarding correct or missing fuses		☐	☐

Functional check in accordance with service instructions

Main switch/LED displays checked	☐	☐
Dosage monitor checked for leaks	☐	☐
Flow meter checked for leaks	☐	☐
Operating hours counter checked	☐	☐
O ₂ concentration checked (95 + 1/-3 vol.% at 4 l/min) Measured value: _____ vol.%	☐	☐
Warning for power failure checked	☐	☐
Status indicator (up to appliance No. 8000) and negative pressure alarm checked	☐	☐
Self-test (from appliance No. 8000) checked	☐	☐

• *Maintenance*

OK

not
OK

Maintenance carried out after 5,000/10,000 etc. operating hours or once every year in accordance with service instructions

Replacement of suction filter	WM 13190	☐	☐
Replacement of coarse dust filter	WM 13631	☐	☐
Maintenance report completed		☐	☐

Faults and possible causes

Repair necessary:

☐ yes

☐ no

• *Final check*

OK

not
OK

Visual inspection (housing and power cord intact, coarse dust filter fitted properly)	☐	☐
Functional test of the control and operating elements	☐	☐
Test of the alarms	☐	☐
O ₂ concentration at 4 l/min: 95 + 1/-3 vol.% Measured value: _____ vol.%	☐	☐
If repaired: all functions of the repaired parts tested	☐	☐

• *Comments*

Findings / maintenance / repair / final repair carried out

Date: _____ Name: _____ Company: _____

WM-No. 13004

WEINMANN

For decades Weinmann has been
developing, producing and marketing
medical devices for markets around
the world. In cooperation with our
partners we design economic health
systems for diagnosis and therapy in
Sleep Medicine, Home Mechanical
Ventilation, Oxygen Medicine
and Emergency Medicine.



Weinmann
Geräte für Medizin GmbH + Co. KG
P.O. Box 540268 · D-22502 Hamburg
Phone +49/40/5 47 02-0
Fax +49/40/5 47 02-461
E-Mail int.sales@weinmann.de
Internet www.weinmann.de