41 767

OPERATING MANUAL

Bronchial Aspirators

for use with anaesthetic machines

BA 5311.0e

From Dräger: Bronchial Aspirators

for use with anaesthetic machines Anaesthesia Spiromat 656, Romulus 800, Sulla 800, Tiberius 800, Anaesthesia Ventilator AV 1

OPERATING INSTRUCTIONS

Important Notice

For corrected and effective use of the device, and to avoid hazards, we would point out the following:

1 Any use of the device requires precise knowledge and observation of these operating instructions.

2 The device is intended only for the purposes specified in the Operating Manual or for purposes confirmed in writing by Drägerwerk AG.

3 The device should be inspected by experts at regular time intervals. An official report of the inspections should be drawn up.

4 Only original Dräger spare parts should be used for maintenance and repairs. Repairs and maintenance, and the replacement of spare parts should only be carried out by experts.

5 We recommend having inspections and repair work carried out by the Technical Customer Service of your Dräger Branch or Agent.
Regular inspection is best ensured by entering into an Inspection Service Contract with the Technical Customer Service of your Dräger Branch or Agent.

6 Responsibility for the reliable function of the device passes to the owner or operator in all cases where the device has been inexpertly maintained or repaired by persons not employed by the Dräger Organization or where it has been used in a manner which does not conform to the normal conditions of use.

We would also point out that national recommendations, regulations and laws governing the use of technical equipment should be observed.

DRÄGERWERK AG LÜBECK

Contents

Intended Use

These bronchial aspirators are firmly attached to Dräger anaesthetic machines Anaesthesia Spiromat 656, Romulus 800, Sulla 800, Tiberius 800, and Anaesthesia Ventilator AV 1.

They are designed to extract secretion from the airways, particularly in the case of patients receiving artificial ventilation on intensive-care wards and in operating theatres.

The bronchial aspirator for vacuum operation is used where a central vacuum supply is available in addition to anaesthetic gases.

The bronchial aspirator for ejector operation with oxygen or compressed air is used in places where no central vacuum system is available.

What's What? (Figs. 1 to 4)

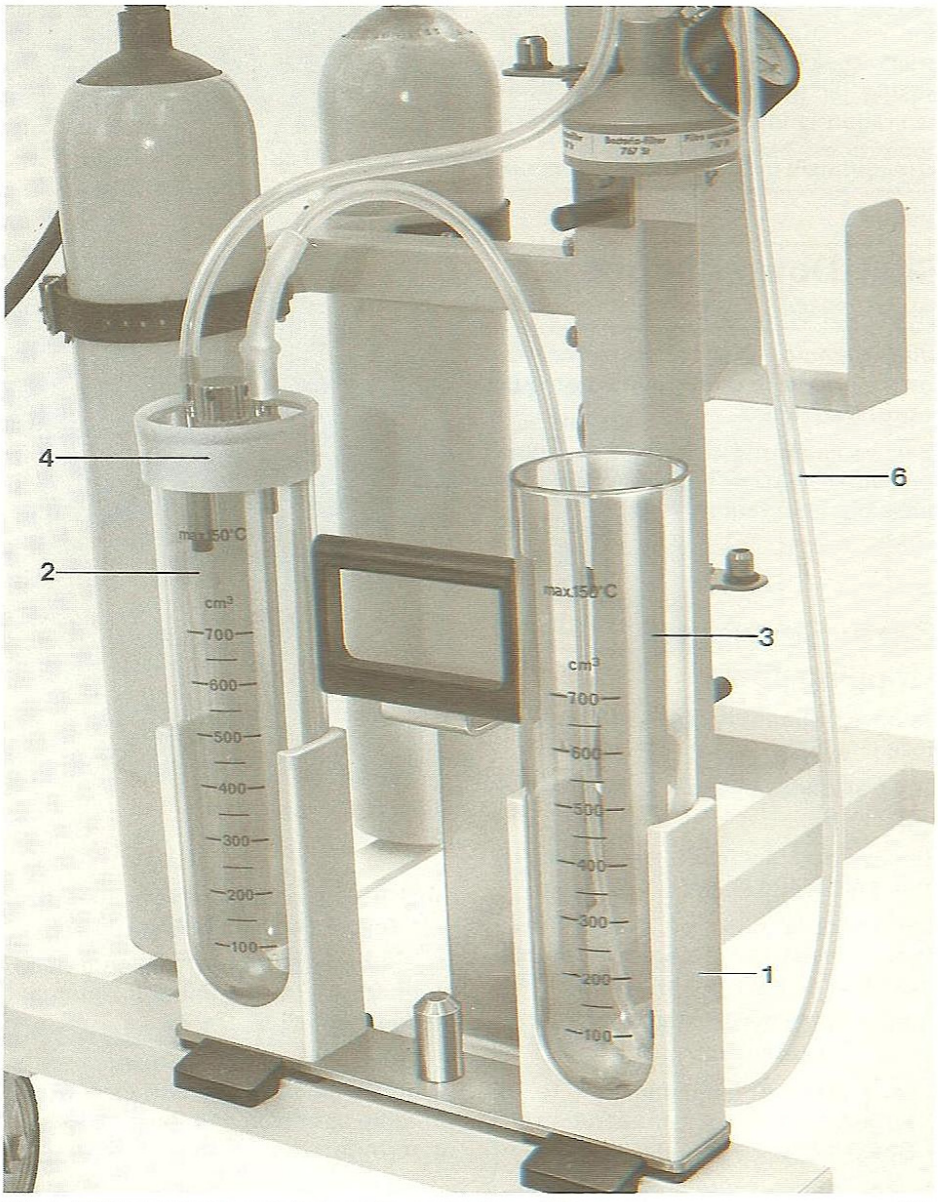

Fig. 1 Jar frame attached to trolley of anaesthetic machine 42 586

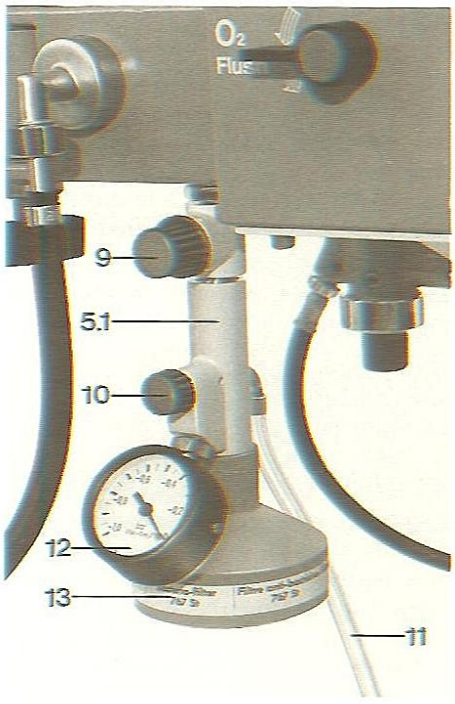

Fig. 2 Bronchial aspirator, ejector-driven 42 587

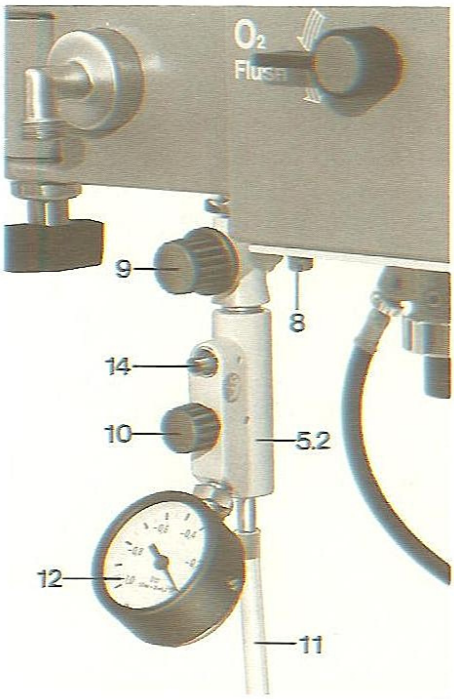

Fig. 3 Bronchial aspirator, vacuum-driven 42 588

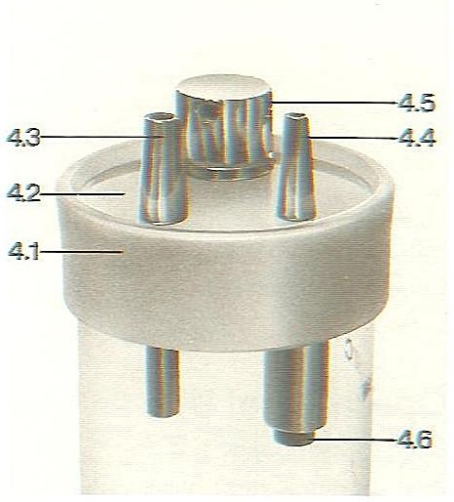

Fig. 4 Jar cap 42 589

1 Frame
2 Secretion jar
3 Rinsing jar
4 Jar cap
4.1 Silicone collar
4.2 Metal insert
4.3 Nozzle for aspiration hose
4.4 Nozzle for vacuum hose
4.5 Relief valve with mica washer and sealing ring
4.6 Float for overflow safeguard
5.1 Ejector
5.2 Vacuum drive
6 Aspiration hose
7 Secretion sight glass (not visible here, cf. Fig. 7 item 14)
8 Vacuum screw connection
9 Shut-off valve
10 Vent valve (vacuum regulating valve)
11 Vacuum hose
12 Pressure gauge
13 Bacteria filter
14 Rapid vent valve

Initial Preparation

Installation at anaesthetic machine

The bronchial aspirators may only be installed by Drägerwerk AG or by a workshop especially authorized by Drägerwerk AG (cf. »Important Notice« on page 2).

Assemble device in accordance with Figs. 1–3.

The scope of delivery includes two identical jars, one of which is used as secretion jar **2** (with cap), while the other is used as a rinsing jar **3** for the aspiration catheter or as a standby jar.

Cap **4** (Fig. 4) must be checked to ensure that the float **4.6** in the sleeve and the mica washer in relief valve **4.5** have been fitted. The float must be allowed to move freely. The metal insert **4.2** must be properly seated on the inner groove of silicone collar **4.1**.

The jar cap is fitted with a relief valve which limits any gauge pressure in the system to 0.5 bar.

Push jar cap **4** onto secretion jar **2**.

Attach vacuum hose **11** to nozzle **4.4** and connect to ejector **5.1** or vacuum drive **5.2** respectively.

Push aspiration hose **6** onto nozzle **4.3**. Attach secretion sight glass **7**.

For ejector operation attach bacteria filter **13** to ejector **5.1**.

Functional Check

Connect device to compressed-gas supply or central vacuum system respectively.

Open shut-off valve **9** (anti-clockwise). There should be no vacuum reading on the pressure gauge **12** if the aspiration hose **6** is not blocked.

Open vent valve **10** (approximately 5 turns). Seal secretion sight glass **7** using thumb. The vacuum reading on the pressure gauge must not exceed –0.1 bar max.

Slowly close vent valve **10**. The vacuum must increase. Depending on the position of the vent valve, more or less ambient air is sucked into the system, thus reducing the vacuum to a greater or lesser degree. Approximately –0.8 ... –0.9 bar vacuum can be attained with the vent valve closed.

Close shut-off valve **9**.

Operational Use

Open shut-off valve.

Seal secretion sight glass with thumb and set desired maximum vacuum by means of vent valve. Should the catheter become clogged (secretion) during aspiration, the vacuum limited by the pre-setting of the vent valve becomes effective.

Attach catheter to secretion sight glass and extract secretion.

The secretion extracted accumulates in the secretion jar. The secretion jar is to be emptied at the latest when it is two thirds full. The overflow safeguard closes and aspiration is interrupted when the secretion jar is fill. Contamination of the ejector or vacuum drive is thus prevented.

To remove secretion from the catheter and aspiration hose, it is advisable to briefly suck liquid disinfectant from the rinsing jar through the system, when aspiration is interrupted or the aspiration process has been completed.

Shut-Down Actions

Close shut-off valve.

With an ejector-driven bronchial aspirator, the system is vented immediately by way of the ejector.

With vacuum-driven bronchial aspirators, the system can be rapidly vented by pressing rapid vent valve **14**.

Care, Servicing

Stripping down

Remove aspiration hose and vacuum hose (Fig. 5).

Grasp silicone collar of cap and remove cap (Fig. 6).

Remove both secretion and rinsing jar from holder and empty.

The bacteria filter of ejector-driven devices must be replaced at regular intervals, but after 14 days at the latest.

These are the symptoms which call for an early replacement:

- Suspicion of contamination (e. g. large amount of foam in secretion jar)
- Soaked filter

Subsequent cleaning and disinfection/ sterilization of the bronchial aspirator are geared to the usage conditions and materials.

Cleaning

Clean secretion jar, rinsing jar and cap in warm water (containing standard detergent).

Slip silicone collar of cap off metal insert and remove float by pulling it downwards. Unscrew relief valve and remove mica washer.

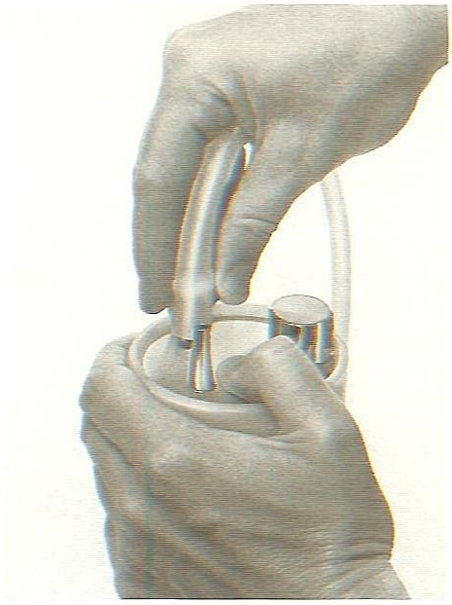

Fig. 5 Removing aspiration hose 42 590

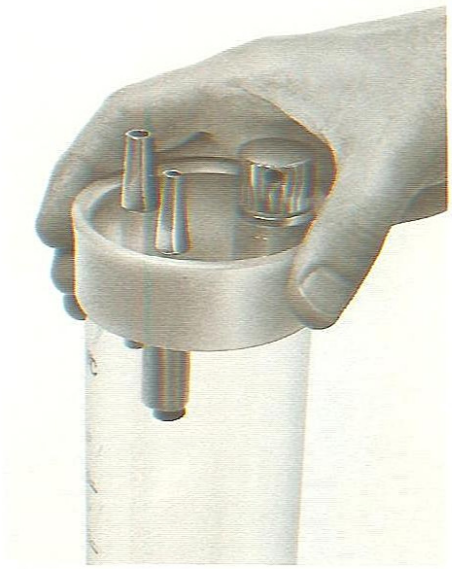

Fig. 6 Removing jar cap 42 591

Flush aspiration and vacuum hose (e. g. with Dräger cleaning gun 2M 15 138).

Remove dirt on frame **1** using a damp cloth soaked in standard detergent (wetting agent).

The parts cleaned in this manner are to be dried since damp surfaces would promote corrosion and the propagation of bacteria.

Disinfection

Disinfection in the Dräger Aseptor

The frame, secretion jar and jar cap can be disinfected in the Aseptor. They must be positioned so that they are exposed to the full effect of the formaldehyde vapour.

Wiping or spraying with liquid disinfectants

Wiping or spraying should only be employed if there is no possibility of carry-

ing out disinfection in the Dräger Aseptor. These methods only serve to reduce the number of germs on the surface of the device and can thus not be unreservedly recommended. Spraying can also lead to gumming up of the controls (rotary knobs etc.). The concentration of the disinfectant and the period of reaction is assessed in accordance with List 6 of the German Association for Hygiene and Microbiology (6. Liste der Deutschen Gesellschaft für Hygiene und Mikrobiologie (DGHM)).

Bath disinfection

If it is not possible to clean and disinfect the secretion jar, jar cap and aspiration hoses automatically, disinfection can be effected by placing these parts in liquid disinfectant following manual cleaning. The concentration of the disinfectant and the period of reaction is assessed in accordance with List 6 of the German Association for Hygiene and Microbiology.

Disinfection in Purfactor

The secretion jar, jar cap, aspiration hoses etc. are placed on the Purfactor washing frame and are cleaned, disinfected and dried using program I. Aldehyde and glutaraldehyde compounds are most compatible with rubber and plastic products. Substances containing phenol, phenyl or peroxides must be avoided.

Following disinfection, the parts must be washed (using fully demineralized, sterile water) to remove disinfectant residues, and then dried.

Sterilization

The secretion jar cap, aspiration hoses and secretion sight glass can be sterilized at 134°C. The sealing ring in the relief valve must be fitted!

The permissible sterilization temperature is marked on the secretion jars.

Assembly

The parts disassembled are assembled again in accordance with the Section headed »Initial Preparation«.

Operational readiness is then to be checked in accordance with the Section headed »Functional Check«.

The hospital personnel are not required to perform any servicing above and beyond device upkeep.

Notes on servicing

To ensure that the bronchial aspirator is always ready for use and fully functional, we recommend concluding a servicing agreement with the Technical Customer Service of Drägerwerk AG. This guarantees regular and thorough checking together with any adjustments and necessary spare part replacement. Reference is made in this connection to the Section headed »Important Notice« on page 2.

Summary of permissible disinfection and sterilization methods

Part	Disinfection					Sterilization	
	in solution	in Aseptor	in Purfactor	Wipe	Spray	Steam 134°C	Steam 120°C
Frame		X		X	X		
Secretion jar, rinsing jar	X	X	X	X	X	X	X
Jar cap	X	X	X			X	X
Aspiration hoses	X		X			X	X
Secretion sight glass	X		X			X	X

Technical Data

Drive:	Vacuum operation: Central vacuum supply, screw connection ISO 228 G 1/4 Ejector operation: O_2 or compressed air pressure range 3 ... 5.5 bar compressed-gas consumption max. 29 L/min
Vacuum adjustment:	Vent valve
Vacuum adjustment range:	0 to max. –0.9 bar (with ejector operation relative to a supply pressure of 5 bar)
Vacuum measurement:	Pressure gauge 0 to –1 bar
Safety features:	Overflow safeguard, relief valve 0.5 mbar, bacteria filter (for ejector drive only) rapid vent valve (for vacuum drive only)
Secretion jar:	700 cm^3 useful capacity

Trouble Shooting

Fault	Cause	Remedy
No vacuum	Shut-off valve closed	Open shut-off valve
Ejector or vacuum drive running, no or scarcely any vacuum when secretion sight glass sealed with thumb	Hose connections loose	Check connections
	Jar cap loose	Press on jar cap
	Metal insert of jar cap not seated in inner groove of silicone collar	Press metal insert into inner groove
	Vent valve fully open	Close vent valve
	Overflow safeguard clogged or sticking	Clean overflow safeguard
	Float of overflow safeguard sucked in	Briefly close shut-off valve for at least 3s (actuate rapid vent valve 14 additionally for vacuum operation): float returns to initial position
	Mica washer of relief valve damaged	Replace mica washer
Relief valve blows off (with ejector operation only)	Ejector clogged	Have cleaned by Technical Customer Service

Order List

Name and description	Order No.
Bronchial aspirator, ejector type Portable secretion jar set with separate ejector for attachment to anaesthetic machine Scope of delivery comprises: Ejector, secretion jar and rinsing jar, jar cap with overflow safeguard and relief valve, aspiration hose, secretion sight glass, 1 bacteria filter	M 27 271
Bronchial aspirator, vacuum type Portable secretion jar set with separate vacuum regulating valve for attachment to anaesthetic machine Scope of delivery comprises: Vacuum regulating valve (driven from central supply system), secretion jar and rinsing jar, jar cap with overflow safeguard and relief valve, aspiration hose, secretion sight glass	M 26 137
Accessories required for operation optional:	
Vacuum connecting hose, 3 m (angled plug connector)	M 22 356
or	
Vacuum connecting hose, 5 m (angled plug connector)	M 22 357
Secretion jar set for replacement during sterilization Scope of delivery comprises: Carrying frame with secretion jar and rinsing jar, jar cap with overflow safeguard and relief valve, aspiration hose, secretion sight glass	M 26 355

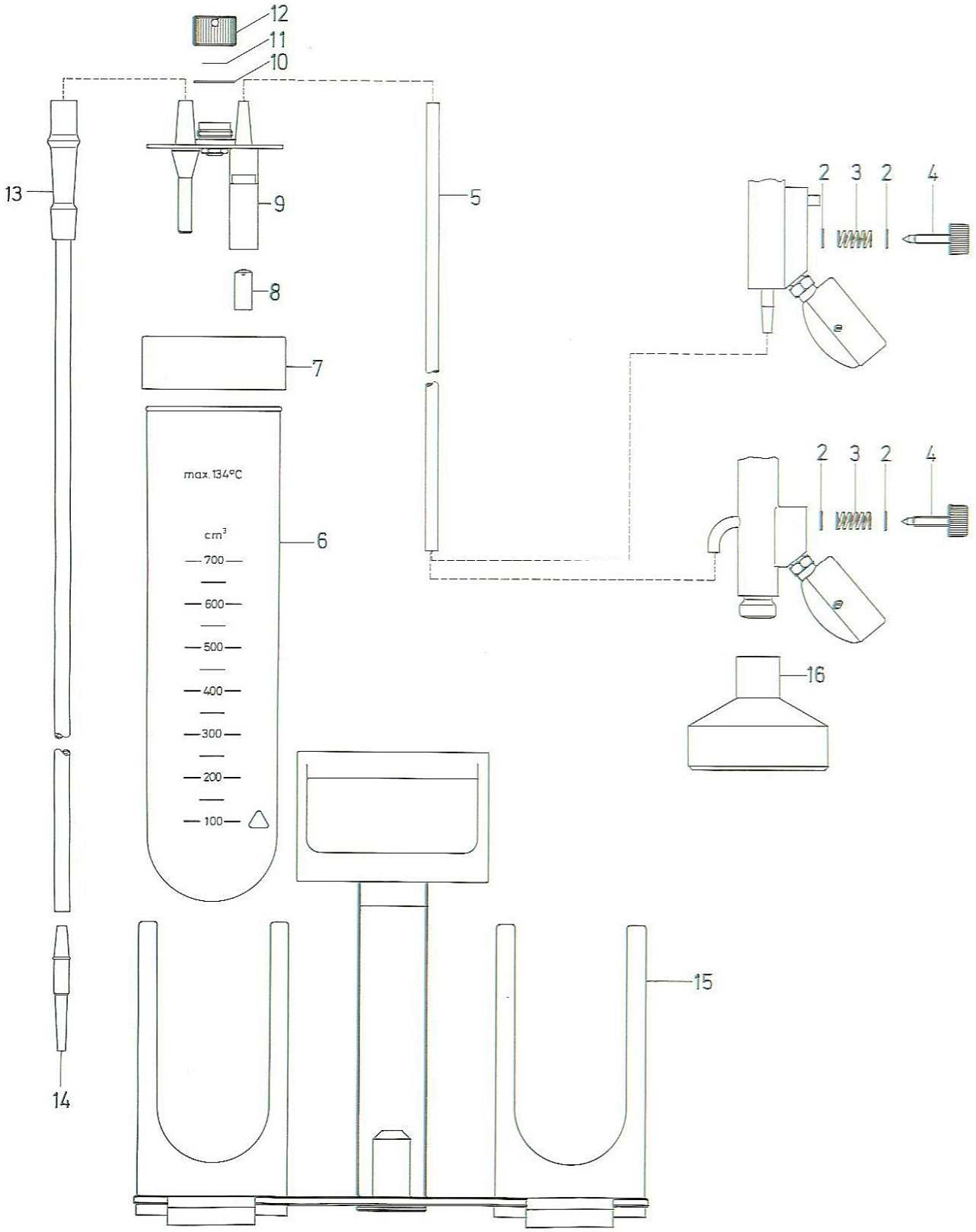

Fig. 7 Spare and wearing parts (cf. Parts List on page 8)
The item nos. given here are not identical with item nos. in Figs. 1–4

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Parts List

No in Fig. 7	**Name** and description	Order No.
2–4	**Regulator** comprising	M 22 145
2	Packing disc (2 ea)	
3	Spring	
4	Valve screw	
5	**Hose 5 x 2 Sl 60 Sh A** supplied by the metre required length: 0.4 m	12 03 606
6	**Jar**	M 20 091
7–12	**Jar cap**	M 26 010
7	**Collar**	M 26 008
8	**Set of floats** (5 ea)	M 24 733
10	**Set of sealing rings** (10 ea)	D 20 267
11	**Set of mica discs** (10 ea)	R 23 192
13	**Aspiration hose**	M 25 780
14	**Set of secretion sight glasses** (5 ea)	M 22 150
15	**Frame**	M 25 858
16	**Bacteria filter 767 St** (Pack of 5)	67 23 976

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