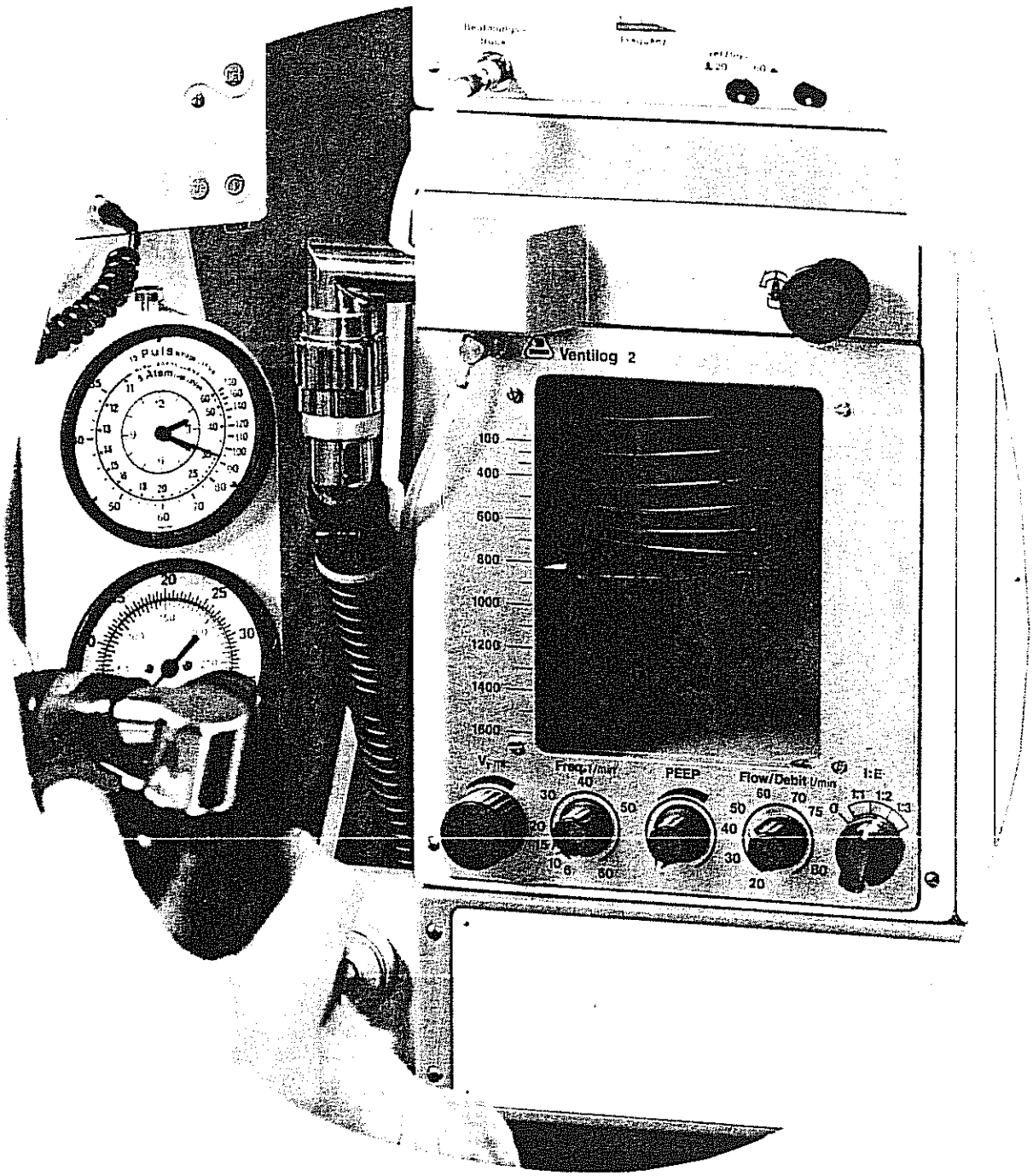
Anaesthetic Ventilators
Ventilog 2



Anaesthetic Ventilators
Ventilog 2

Technical training work sheets

Anaesthetic Ventilators
Ventilog 2

Technical Data

Operating principle	Bellows-in-bottle ventilator with primary/ secondary system
Control principle	pneumatic, time-cycled, volume constant
Ventilation frequency	Ventilog: 6 to 40/min ± 20 % Ventilog 2: 6 to 60/min ± 15 %
I:E ratio	Ventilog: 1:2 ± 20 %, permanently set Ventilog 2: 1:1, 1:2, 1:3, ± 20 % adjustable
Switch »0«/»1«	Main switch for Ventilog
Switch »0«/»I:E«	Main and selector switch for Ventilog 2
Inspiratory flow	Ventilog: 20 to 80 L/min ± 15 %, infinitely adjustable Ventilog 2: 20 to 80 L/min ± 15 % at 20 mbar counter pressure, infinitely adjustable
Tidal volume	50 to 150 mL with bellows K for children 150 to 1600 mL with bellows E for adults
Internal compliance	2.3 mL/mbar with bellows K for children, corrugated hose 1 m 3.0 mL/mbar with bellows E for adults, corrugated hose 1 m 6.4 mL/mbar with bellows E, corrugated hose 1 m, switching valve, circle system 7 a/8 ISO with 2 absorbers
Minute volume (as per ISO)	up to 25 L/min with a fresh-gas flow of 4 L/min
Working pressure	80 mbar ± 15 %, permanently set
PEEP	up to 19 mbar ± 20 %, infinitely adjustable
Compressed-gas supply	Oxygen or oil-free compressed air from a central supply system or from compressed-gas cylinders. Connecting thread M 15 x 1, male
Compressed-gas consumption	Ventilog: ⅓ of the set inspiratory flow Ventilog 2: 16 L/min (at I:E = 1:2)
Patient system	autoclavable bellows, removable after releasing slide-in unit
Anaesthetic-gas disposal	Excess exhaled gas is routed to the anaesthetic gas exhaust via an exhaust socket at the rear of the unit
Dimensions	W x H x D = 212 x 266 x 300 mm
Weight	12 kg

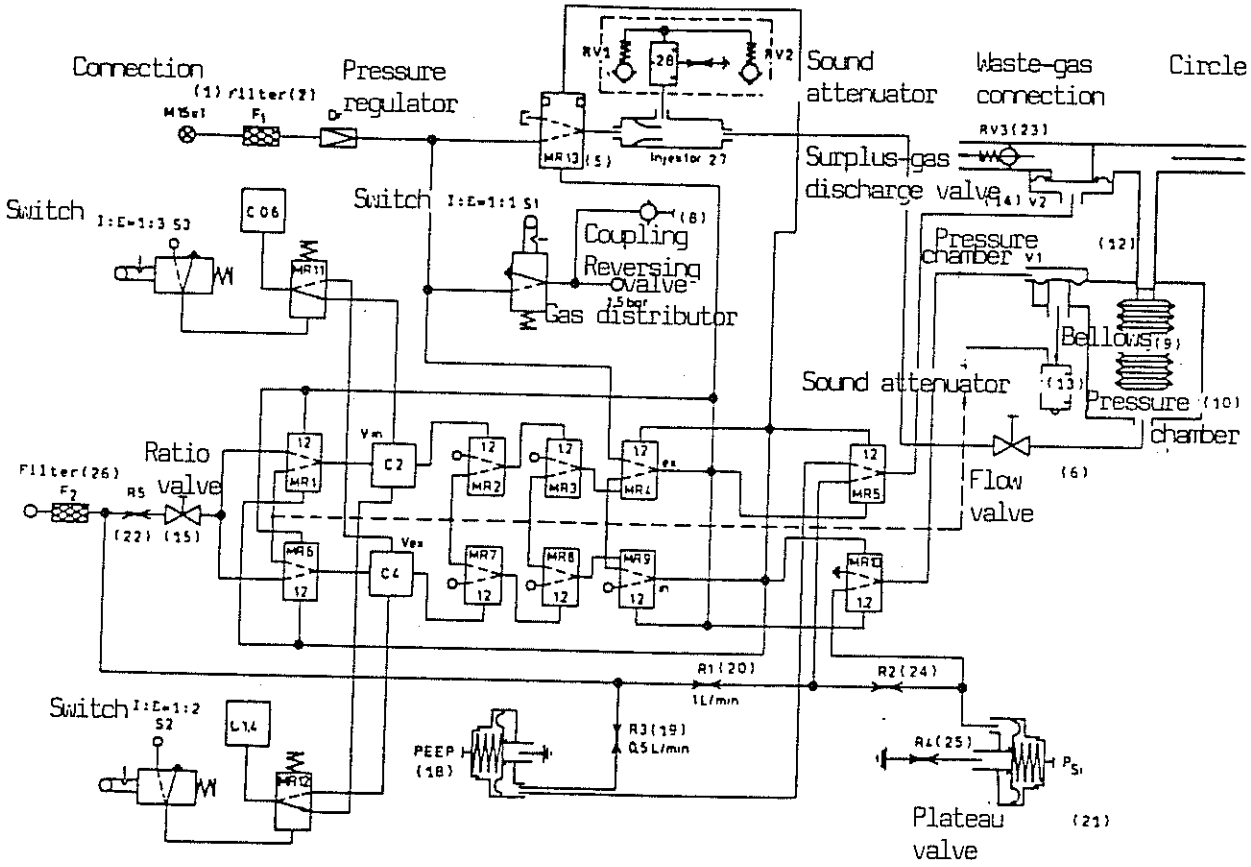
Deviations of settings and operating ranges are indicated pertinent to desired values.
The frequency/control elements are calibrated with oxygen.
If compressed air is used as drive gas, this results in an increase of frequency of approx. 10 %.

Cleaning and desinfection or steam sterilisation of Ventilog/2 and accessories

	cleaning			desinfection				sterilisation		
	running water	wiping	bath	bath	wiping	aseptor	Purfactor	gas	steam 120 °C	steam 134 °C
Ventilog - Basic unit		X			X	X				
Patient system	X					X		X	X	X
switching valve	X					X		X	X	X
Exhaust gas nozzle	X					X		X	X	X
corrugated bellows	X		X			X	X	X	X	X
Connecting tube to circuit system	X		X			X		X	X	X
Barolog		X			X	X				
Precom - pressure gauge		X			X	X		X	X	
Precom - alarm unit		X			X	X		X		

Note!
Aluminium parts such as the switching valve and patient system may not be cleaned in the Dräger Purfactor or similar machines. Mechanical cleaning of such parts with chlorinated cleansers may cause corrosion and is therefore not permissible.

Anaesthetic Ventilators
Ventilog 2



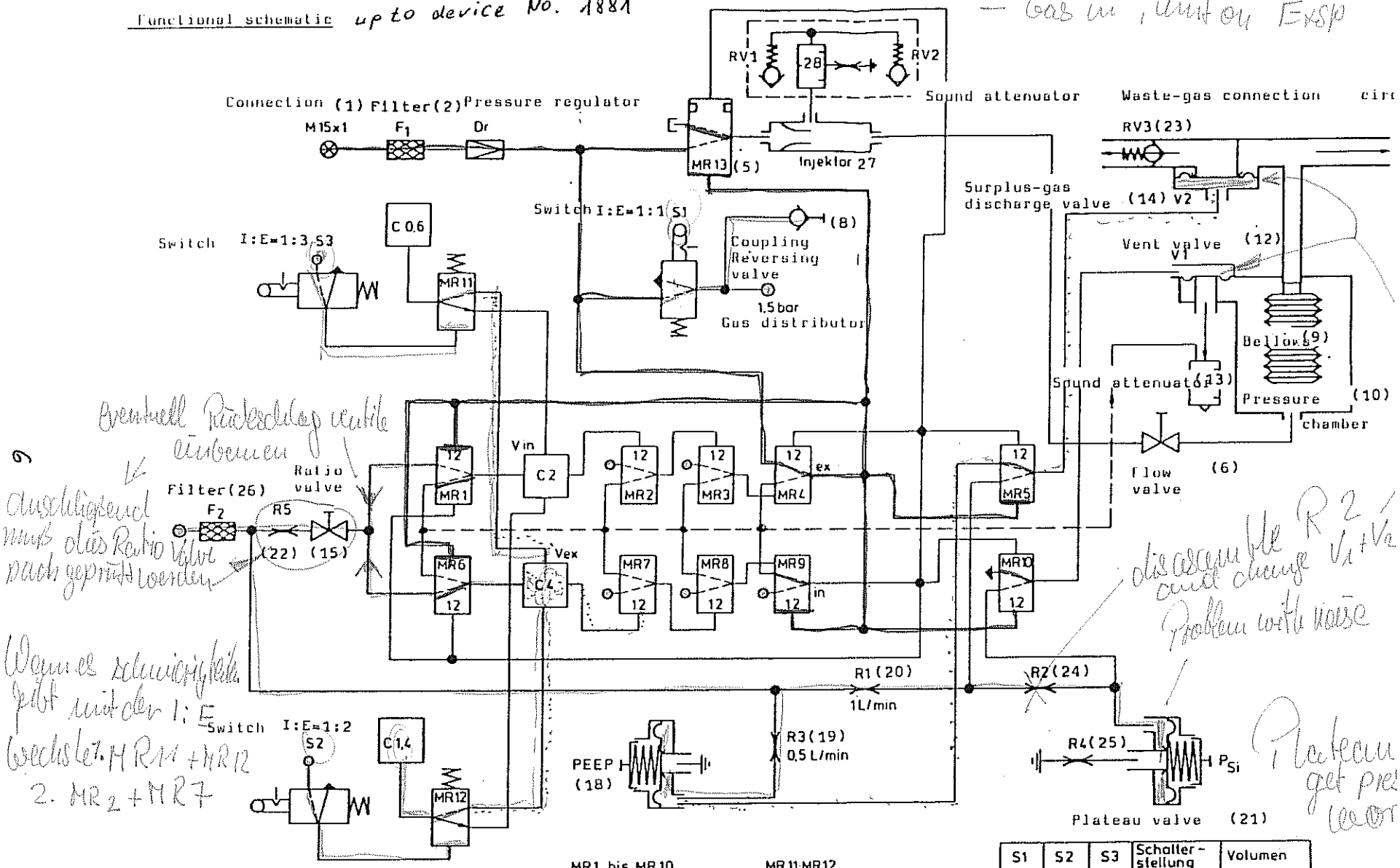
1	Connection M 15 x 2
F 1 (2)	Filter D 11521
Dr	Pressure regulator 8402745
MR 13 (5)	3/2-way directional control valve M 27618
27	Injector M 27696
RV 1	Check valve M 27711 }
RV 2	Check valve M 27711 } Sound attenuator M 27710
28	Sound attenuator }
S 1	Switch I:E = 1:1 }
S 2	Switch I:E = 1:2 } Change-over M 27620
S 3	Switch I:E = 1:3 }
6	flow control valve M 27702
8	Coupling for reversing valve 8404948
9	Bellows 2M 8138
10	Pressure chamb er
V 1 (12)	Vent valve } Vent valve M 27628
13	Sound attenuator }

Anaesthetic Ventilators
Ventilog 2

V 2 (14)	Surplus-gas discharge valve	
RV 3 (23)	Waste-gas socket (check valve)	8404690
F 2 (26)	Filter	8405241
R 5 (22)	Metering unit	M 27297
15	Ratio valve	8405975
R 1 (20)	Metering unit	8406314
R 2 (24)	Metering unit	M 27297
R 3 (19)	Metering unit	8406292
R 4 (25)	Metering unit	M 27297
18	PEEP valve	8404730
Psi (21)	Plateau valve	M 27689
C 0,6	Vessel	
V 1,4	"	
C 2	"	
C 4	"	
MR 1	Amplifier relay	M 25716
MR 2	"	M 25716
MR 3	"	M 22260
MR 4	"	M 25716
MR 5	"	M 22260
MR 6	"	M 25716
MR 7	"	M 25716
MR 8	"	M 22260
MR 9	"	M 22260
MR 10	"	M 22260
MR 11	Microswitch	8408324
MR 12	"	8407324

Functional schematic up to device No. 1881

- Gas in, unit off
- Gas in, unit on Exsp



S1	S2	S3	Schalter-stellung	Volumen
0	0	0	0	—
1	0	0	1 : 1	4 : 4
1	1	0	1 : 2	2,6 : 5,4
1	1	1	1 : 3	2 : 6

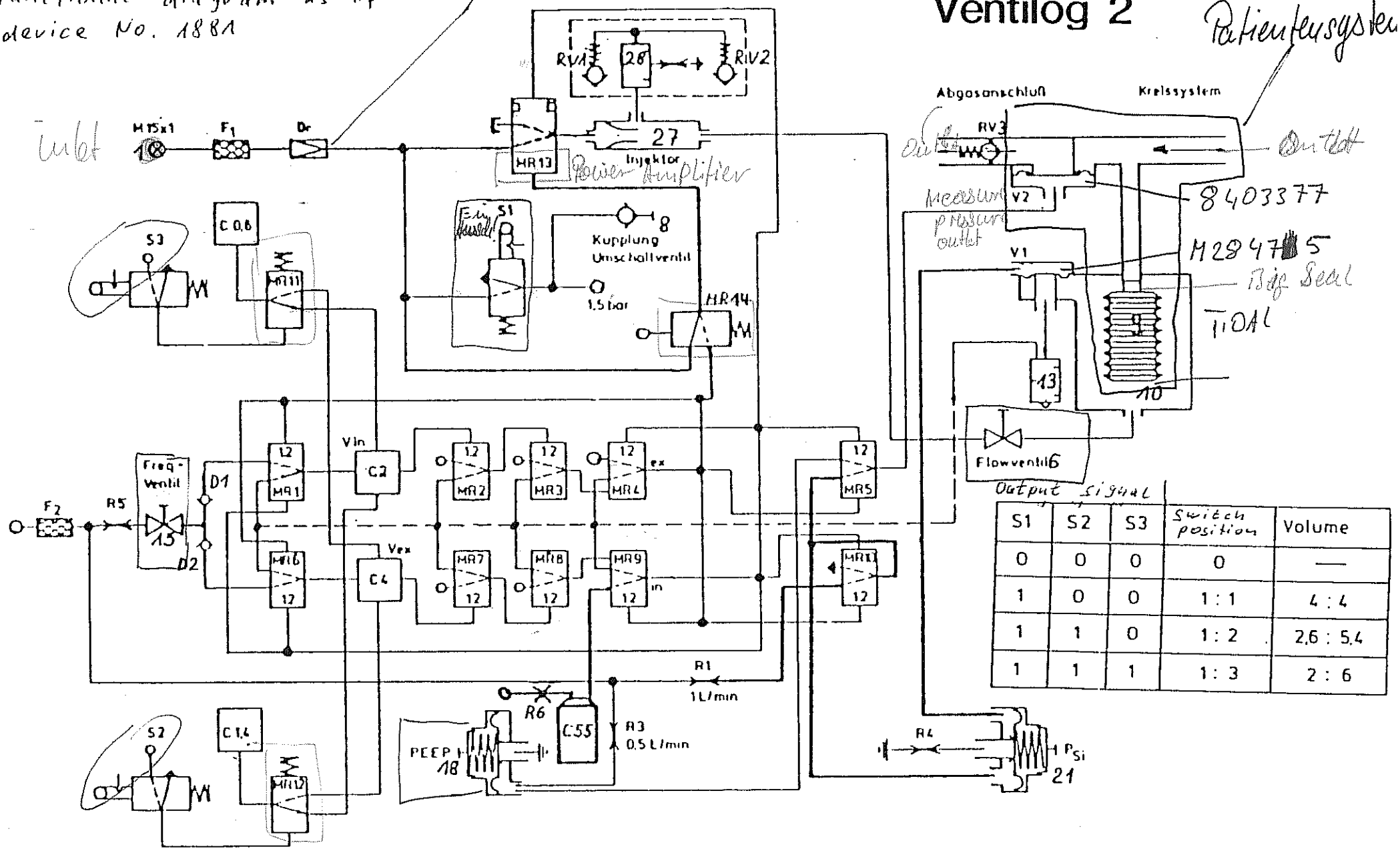
Anaesthetic Ventilator
Ventilog 2

Im gesamten System ab hier 1,5 bar

Functional diagram as of device No. 1881

Ventilog 2

Patientensystem



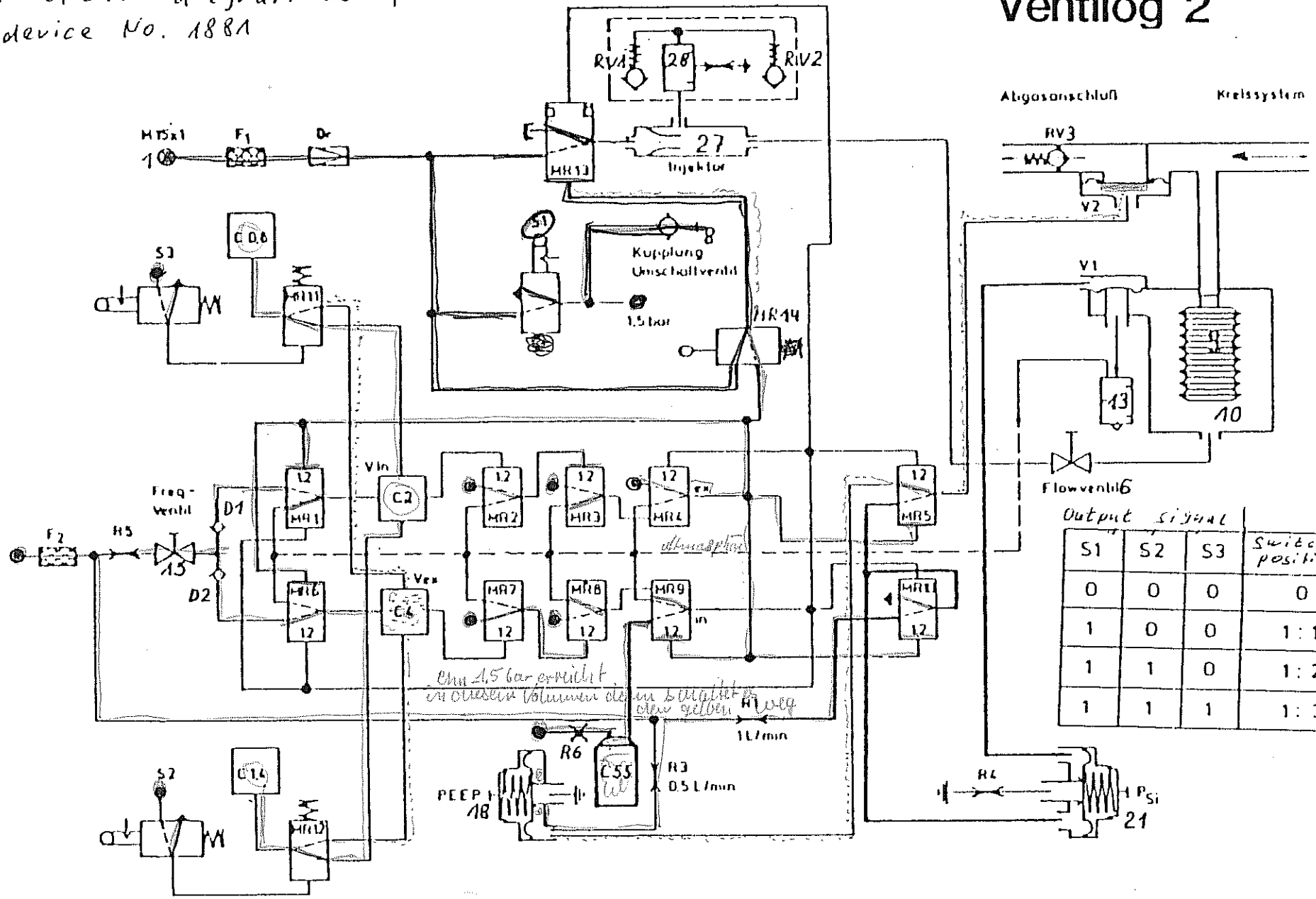
Output signal

S1	S2	S3	Switch position	Volume
0	0	0	0	—
1	0	0	1 : 1	4 : 4
1	1	0	1 : 2	2,6 : 5,4
1	1	1	1 : 3	2 : 6

- Gas on , unit out
- Gas on , unit on Exsp.

Functional diagram as of device No. 1881

Ventilog 2



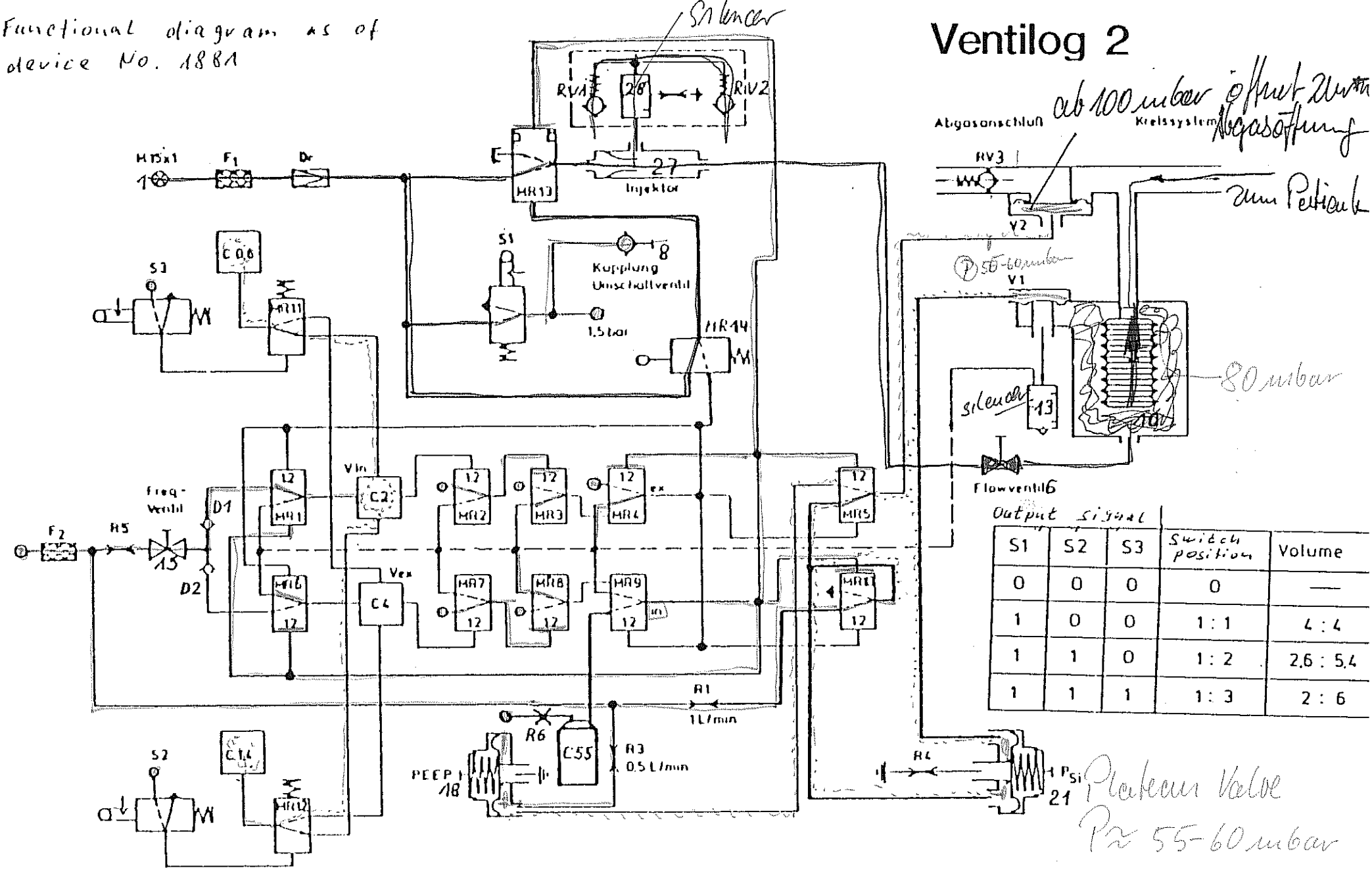
Output signal

S1	S2	S3	Switch position	Volume
0	0	0	0	—
1	0	0	1 : 1	4 : 4
1	1	0	1 : 2	2,6 : 5,4
1	1	1	1 : 3	2 : 6

Bason, Minton Inspiration

Functional diagram as of device No. 1881

Ventilog 2



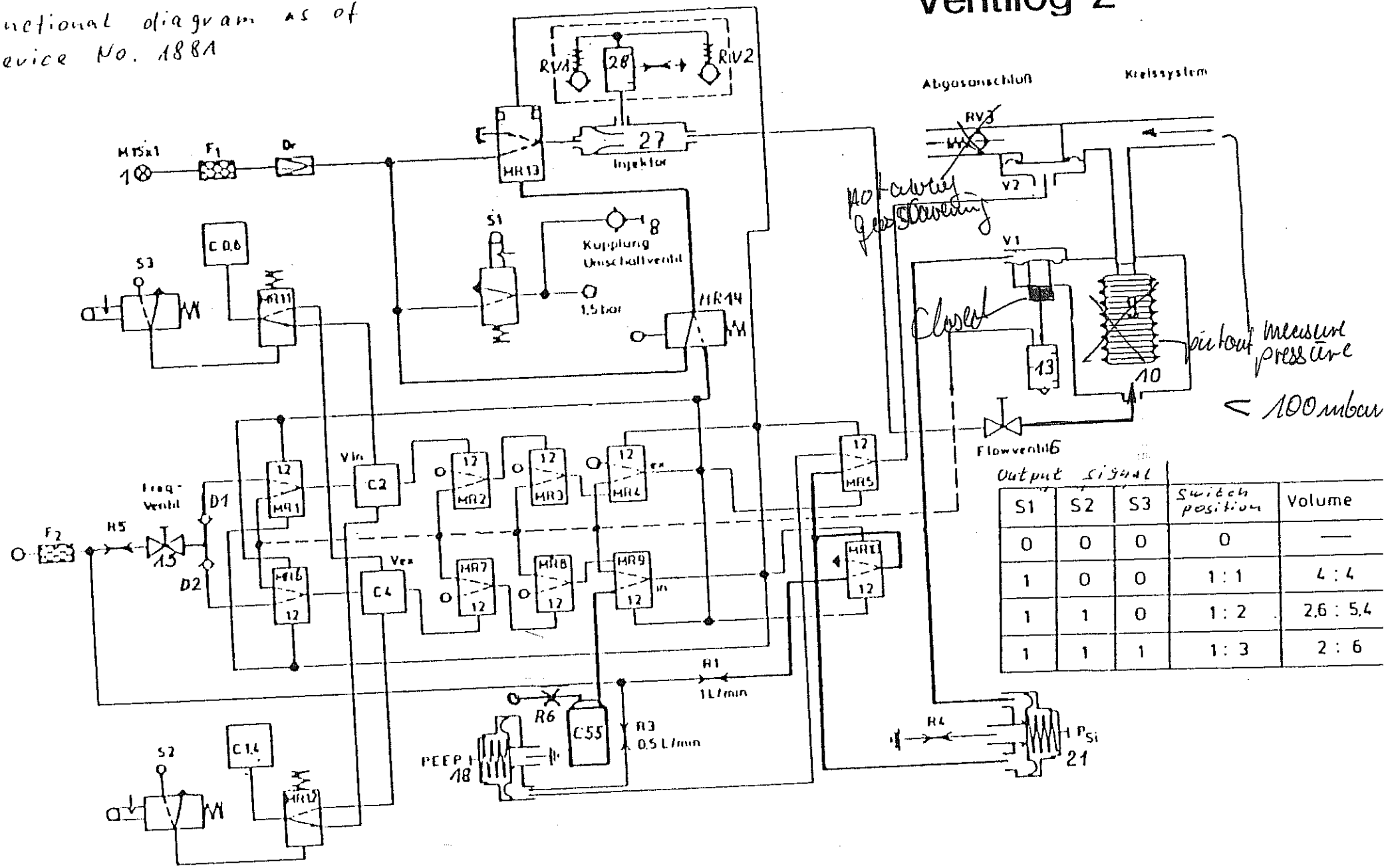
Output signal

S1	S2	S3	Switch position	Volume
0	0	0	0	—
1	0	0	1 : 1	4 : 4
1	1	0	1 : 2	2,6 : 5,4
1	1	1	1 : 3	2 : 6

– neuer Schrift 2. Messung ⇒ V2

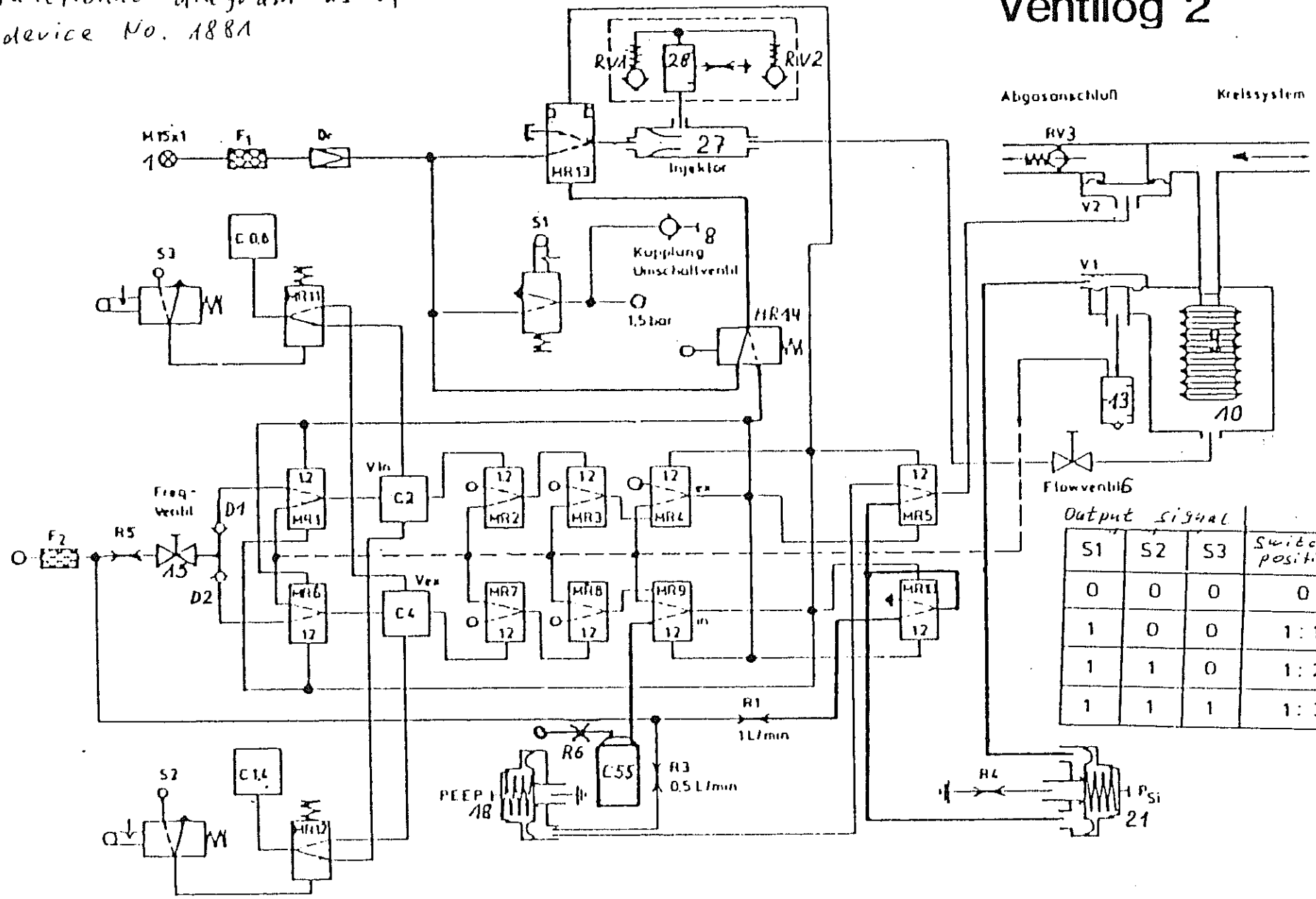
Ventilog 2

Functional diagram as of device No. 1881



Functional diagram as of device No. 1881

Ventilog 2



Output signal

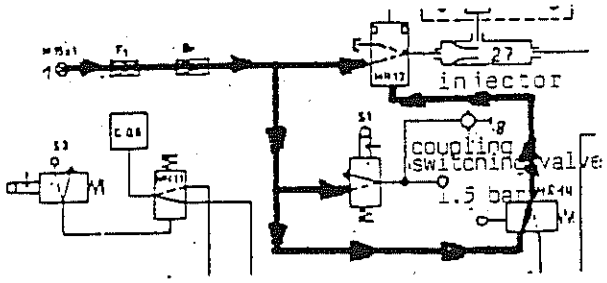
S1	S2	S3	Switch position	Volume
0	0	0	0	—
1	0	0	1 : 1	4 : 4
1	1	0	1 : 2	2,6 : 5,4
1	1	1	1 : 3	2 : 6

Anaesthetic Ventilators
Ventilog 2

Functional changes as of unit no. 1881

Drive gas

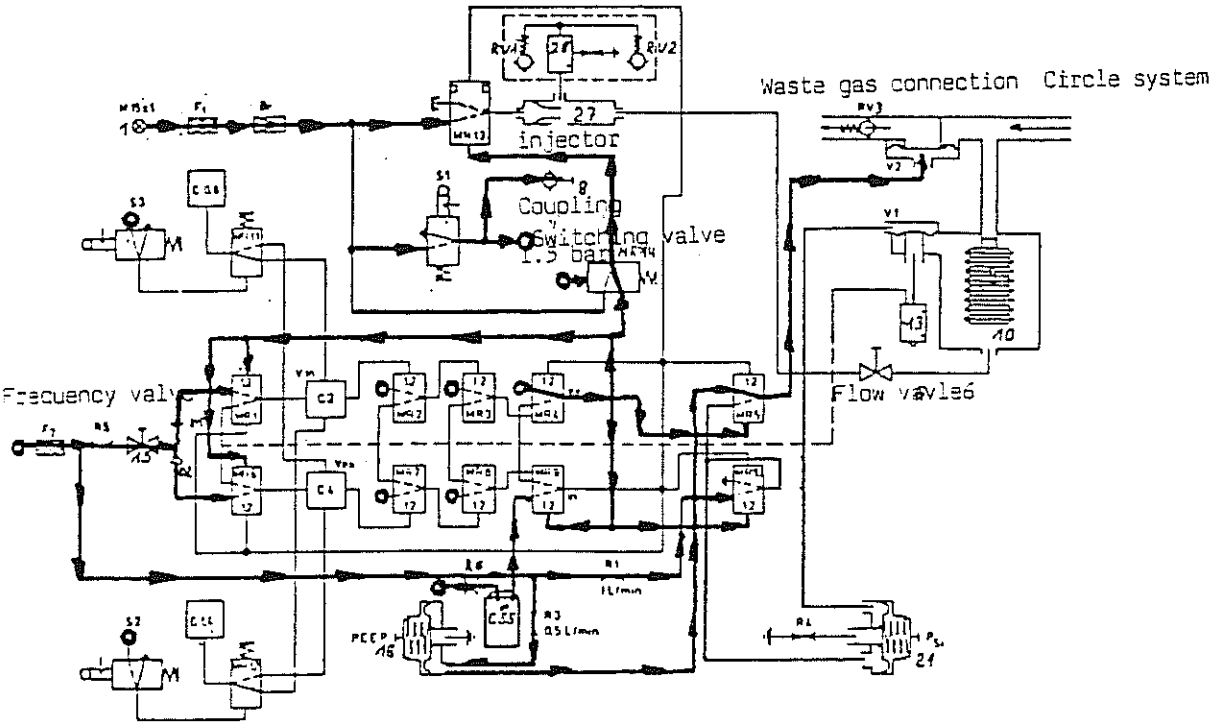
Oxygen or compressed air is passed via the connection M 15 x 1 (1) through a filter F1 (2) to the pressure reducer Dr (3) which constantly reduces the pressure of the gas to 1.5 bar. From there, the gas is passed on to the 3/2-way valve MR 13 (5), to the selector switch I:E (S 1) and, via the microswitch (MR 14), to the 3/2-way valve (MR 13).
The 3/2-way valve is closed.



Unit switched on
"Automatic"
Expiration

After switching on the switch (S 1), all "O" points are supplied with gas via a distributor.
As this unit is designed to commence with expiration, gas is applied to the inspiration chain following a time lag. The double diaphragm relay (MR 9) is thus supplied via the metering unit (R 6) and the vessel (C 55) "R-C element". By way of the double diaphragm relay (MR 4) the expiration pulse is passed via the microswitch (MR 14) to the 3/2-way valve (MR 13). The valve (MR 13) remains closed. At the same time the double diaphragm relays (MR 1, MR 6, MR 9, MR 5 and MR 10) are actuated.

The "inspiration - expiration" switching sequence is the same as for unit nos. ∠ .
An overflow of gas during switching of the time chains is prevented by the metering units (D 1 and D 2).

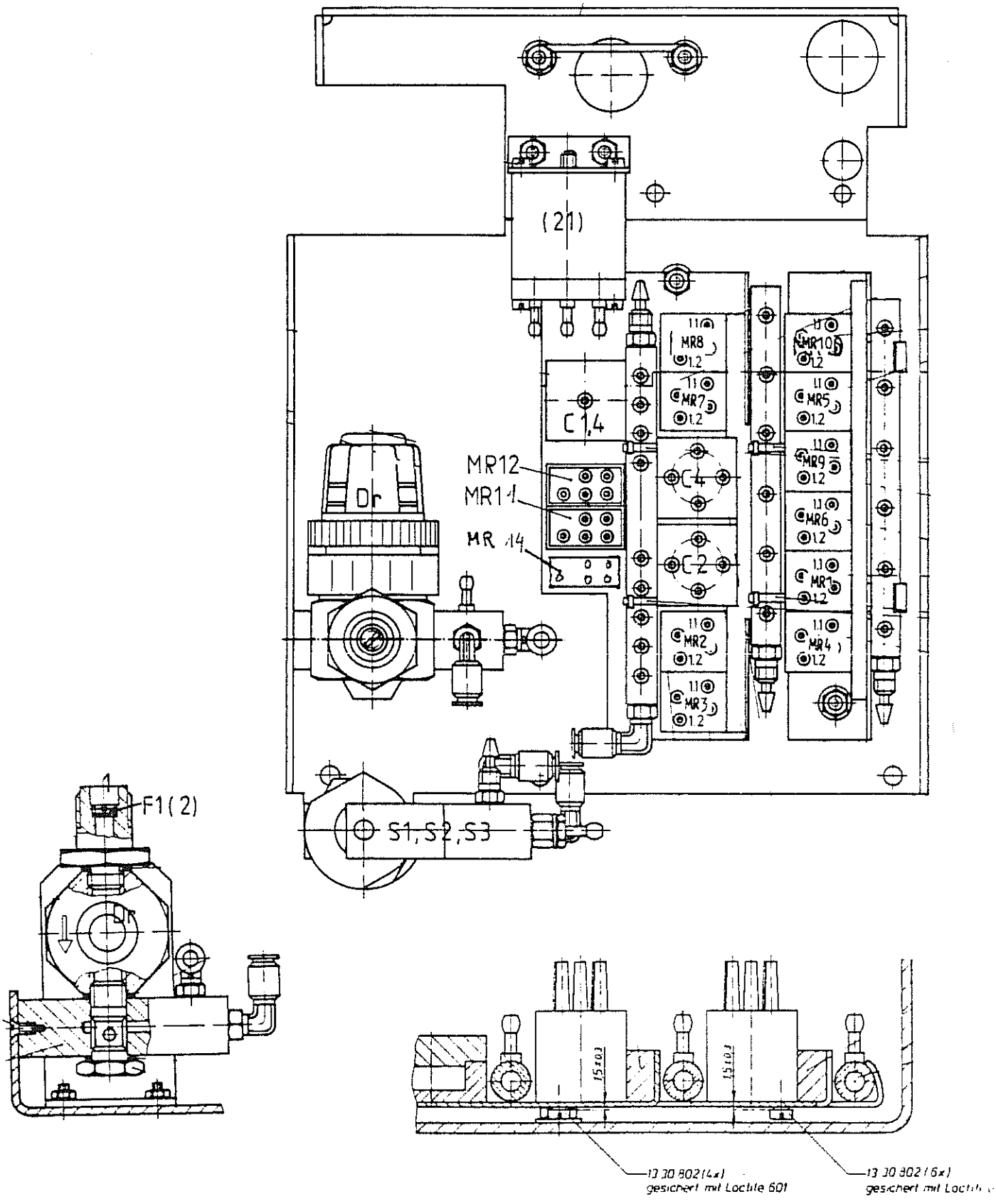


The double diaphragm relays (MR 5 and MR 10) are connected such that the respective PEEP pressure is passed to the valve (V 2). The gas coming from the plateau valve (P_{Si}) is vented to the atmosphere (via MR 10).

Inspiration

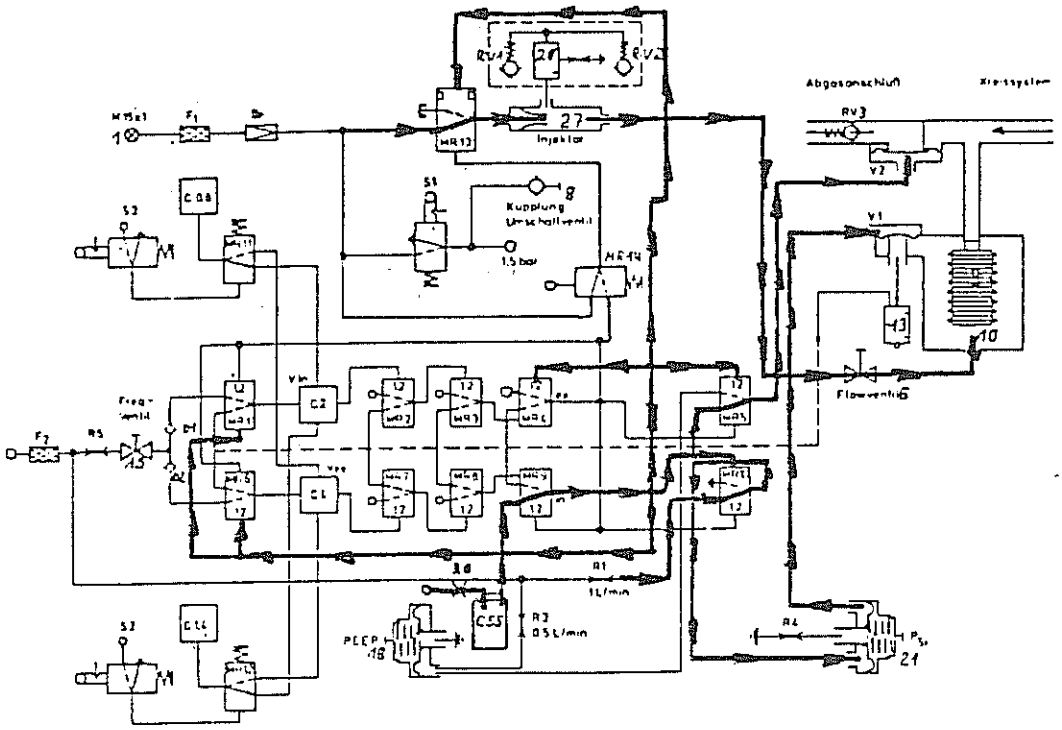
After switching the time chain to inspiration, the 3/2-way valve (MR 13) is opened. Gas passes into the pressure chamber. The double diaphragm relays (MR 5 and MR 10) are likewise switched. As a result the gas from the plateau valve (P_{Si} 21) is applied to the valves (V 1 and V 2).

Anaesthetic Ventilators
Ventilog 2



proofed with loctite 601

Anaesthetic Ventilators
Ventilog 2

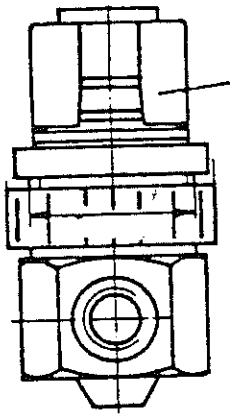


Anaesthetic Ventilators
Ventilog 2

Sub-assemblies and description of components

Pressure regulator 8402745 DL

The pressure regulator maintains the downstream pressure at a constant 1.5 bar at a supply pressure of 2-6 bar.



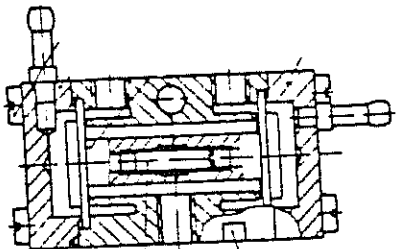
Locking element

Max. inlet pressure 10 bar

Following loosening of the locking element, the downstream pressure (P_H) can be altered with the cap. Then secure cap again with element.

3/2-way directional control valve MR 13 M 27618

The 3/2-way directional control valve functions in the same manner as the amplifier relays, however with a greater throughput capacity.

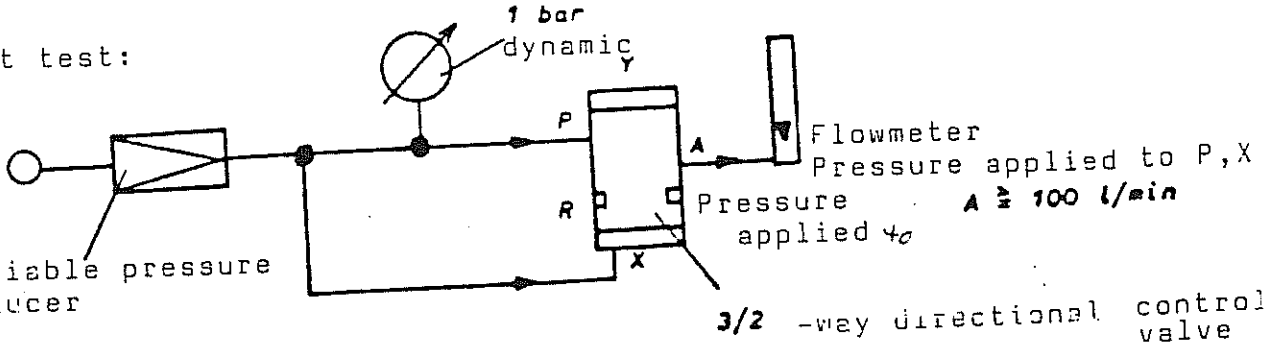


* mounted as per drawing

13 34 239 Bonded on one side with epoxy resin adhesive

Sealed with silicone rubber, Elastosil E 41, Wacker Co.

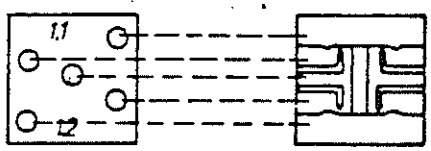
Output test:



Anaesthetic Ventilators
Ventilog 2

Amplifier relays M 22260 MR3, MR5, MR8, MR9, MR10

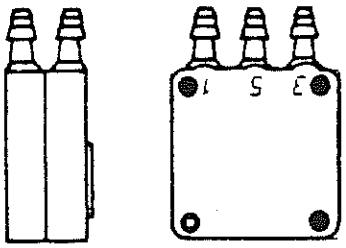
The identification code for M 22260 is UO B. The double diaphragm relays are subjected to a functional check (dynamic intake) and a leakage test.

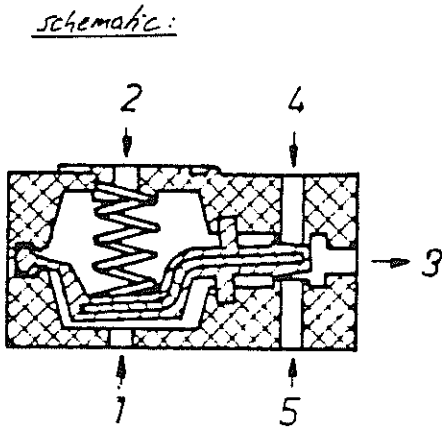


Amplifier relays M 25716 MR1, MR2, MR4, MR6, MR7

The identification code for M 25716 is UO BS. These double diaphragm relays are additionally subjected to checking of the switching characteristic.

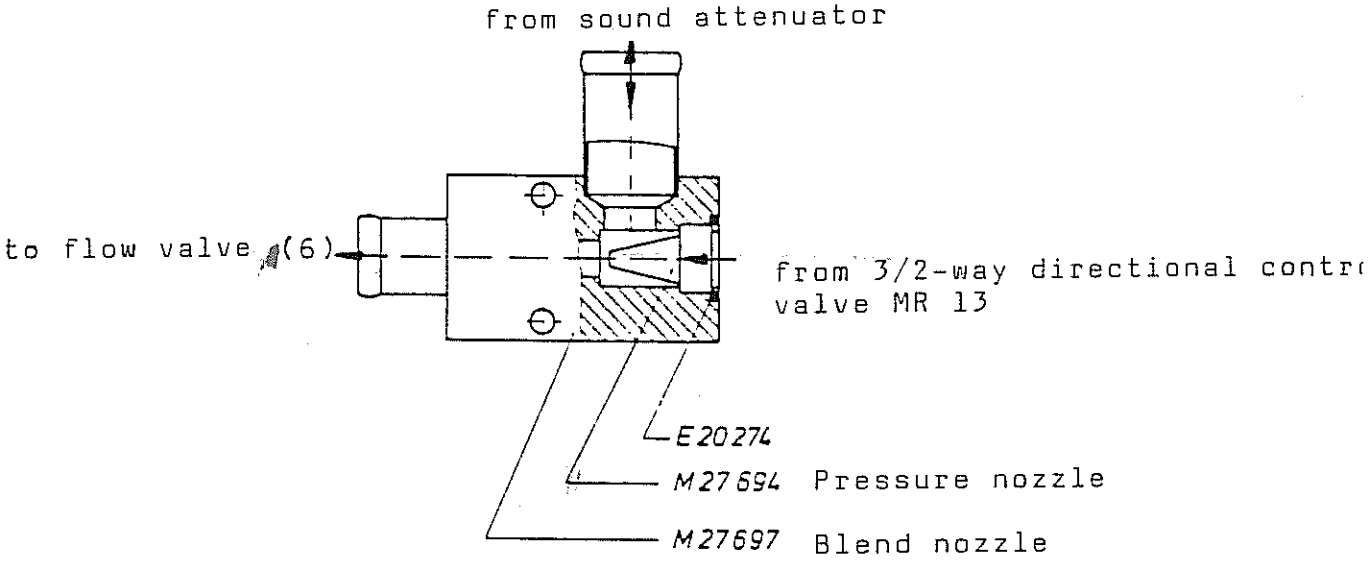
Microswitches 8407324 MR 11, MR 12





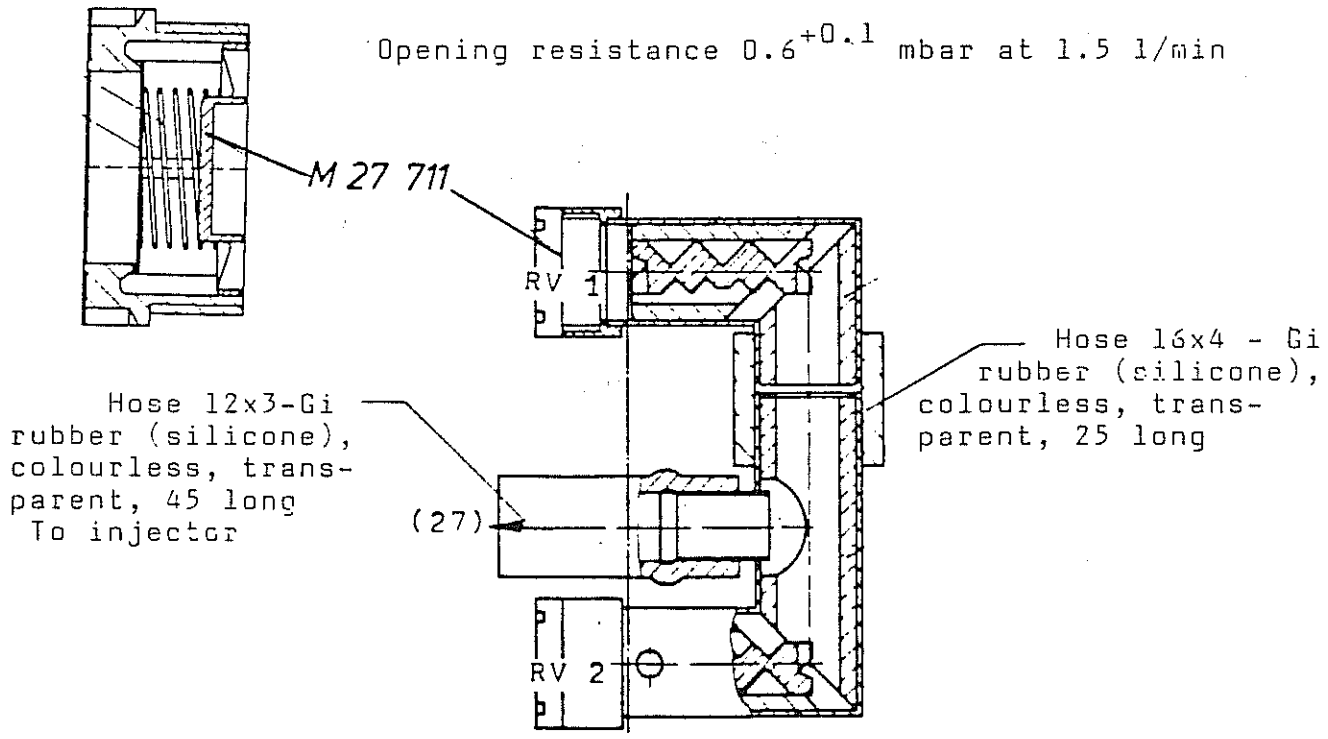
Injector 27 M 27 696

The pressure nozzle of the injector is metered to 39+1 L/min at supply pressure of 1.1 bar.



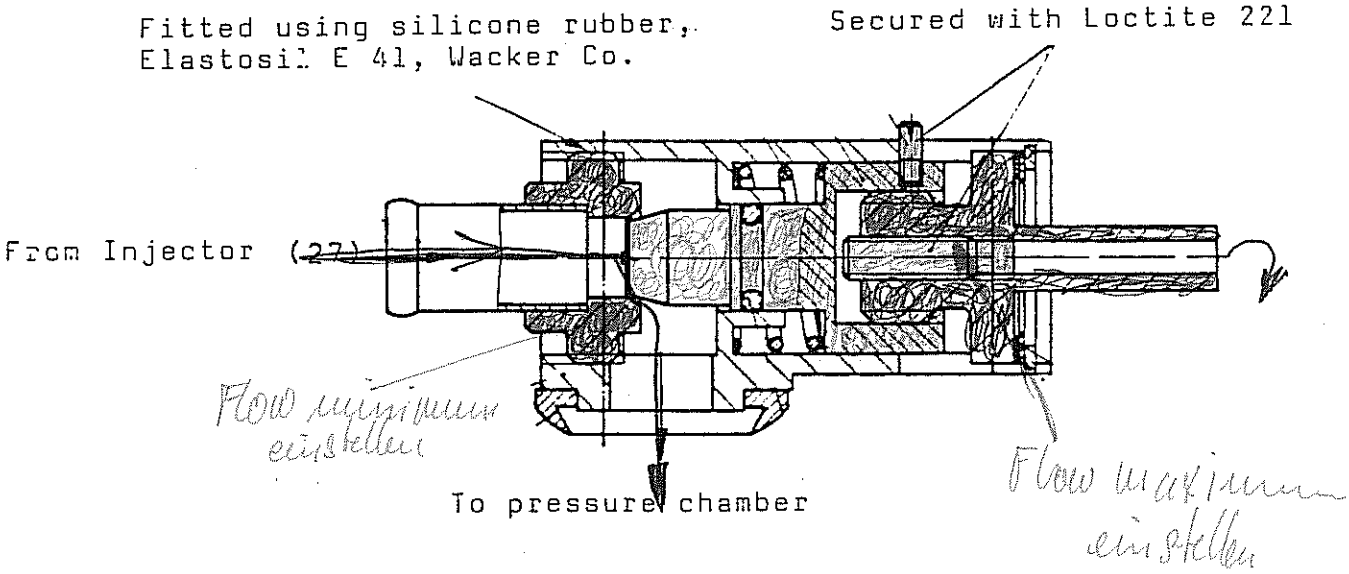
Sound attenuator 28, RV 1, RV 2, M 27710

The surplus gas is blown off via the sound attenuator up to a setting of 40 l/min. As of 40 l/min, the intake of outside air is effected via the check valves RV 1 and RV 2.



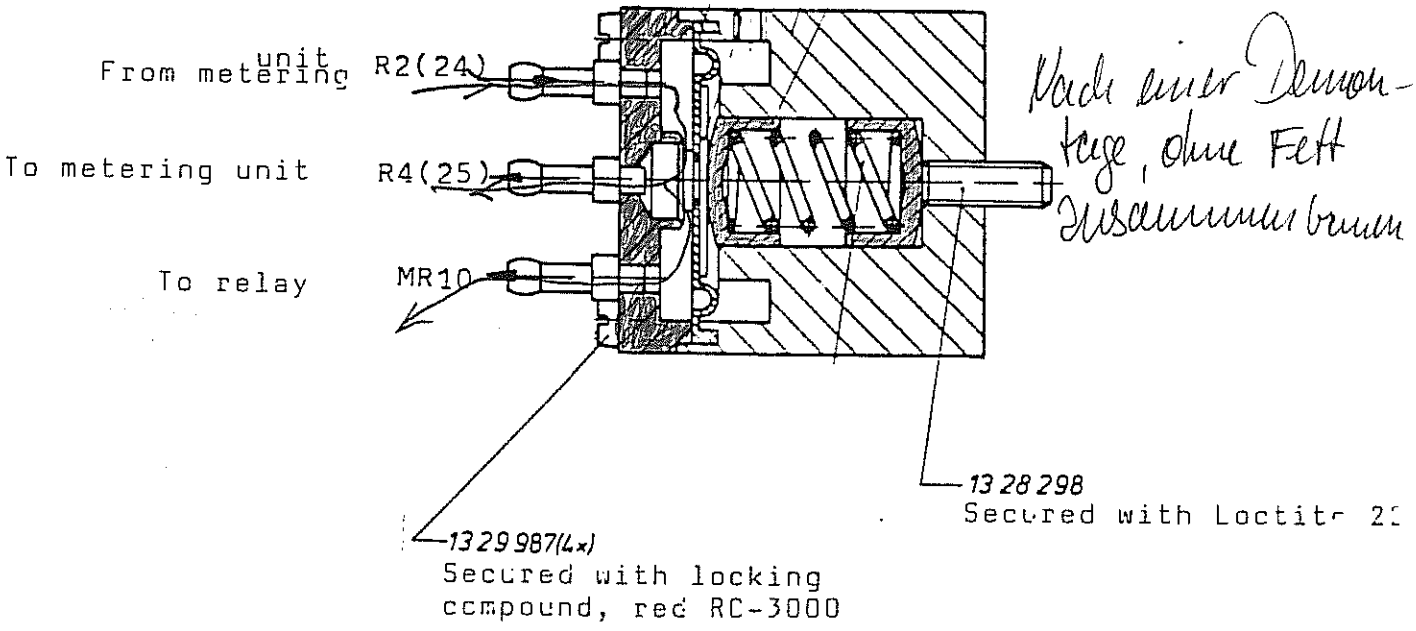
Flow valve (6) M 27702

The working flow in the pressure chamber (10) is altered by way of the flow valve. The lower setting 20±2 l/min is varied via the metering piece M 27703.



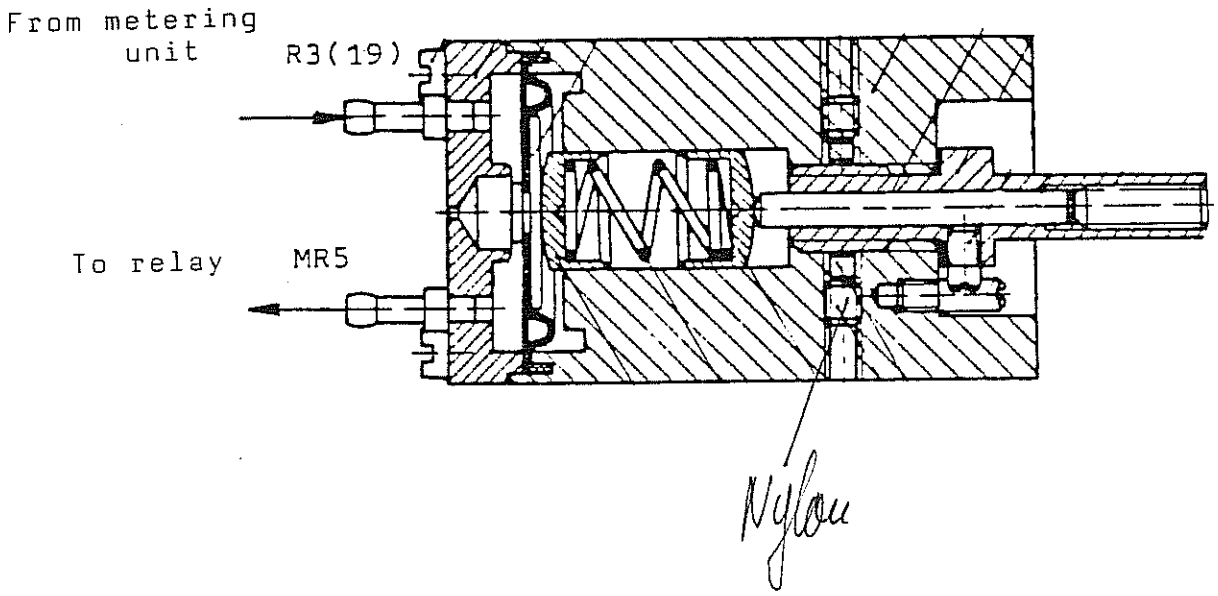
Plateau valve Psi (21) M 27689

The plateau valve is used to limit the working pressure. This pressure is set in the range between approximately 80 and 90 mbar.



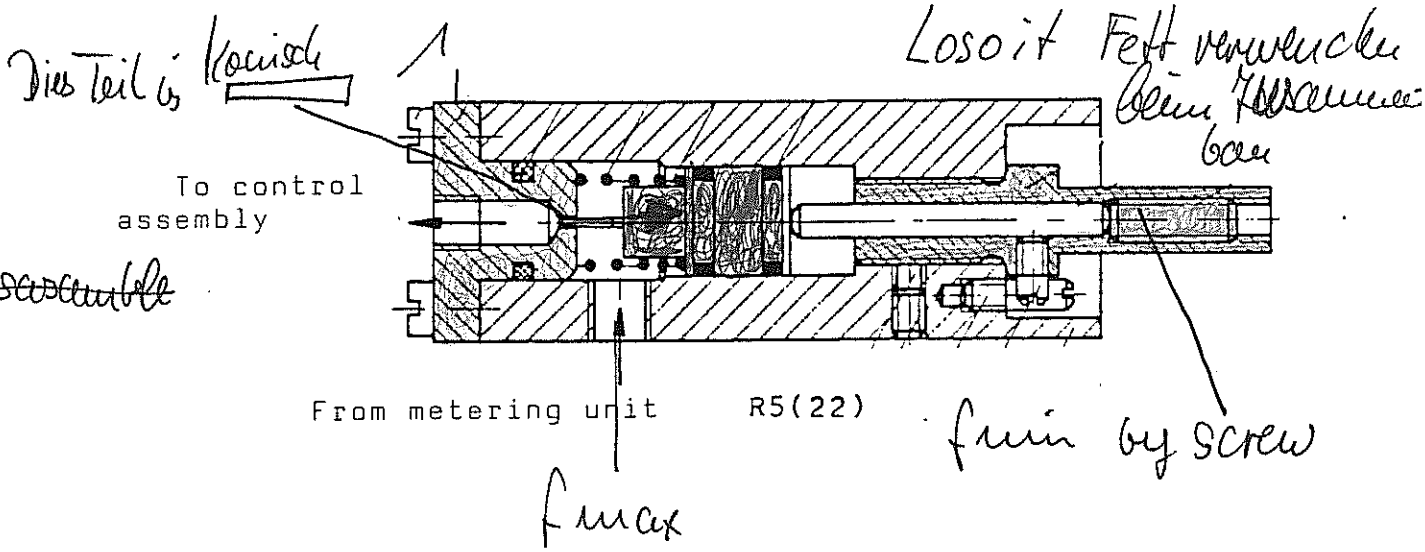
PEEP valve (18) 8404730

The PEEP valve limits the airway pressure (0-20 mbar) during expiration.



Ratio valve (15) 8405975

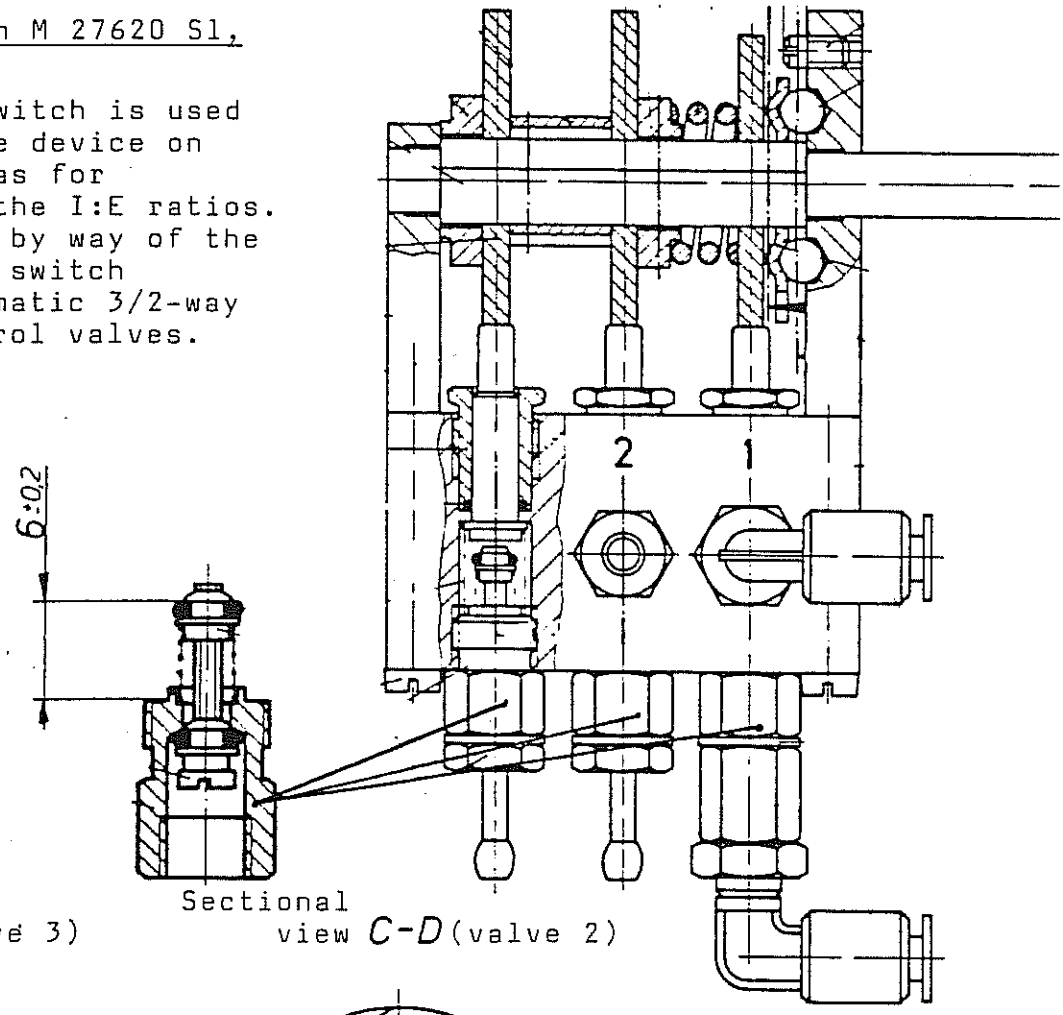
The flow control valve 8405975 is used for ratio adjustment. The adjustment is effected by altering the annular gap.



Anaesthetic Ventilators
Ventilog 2

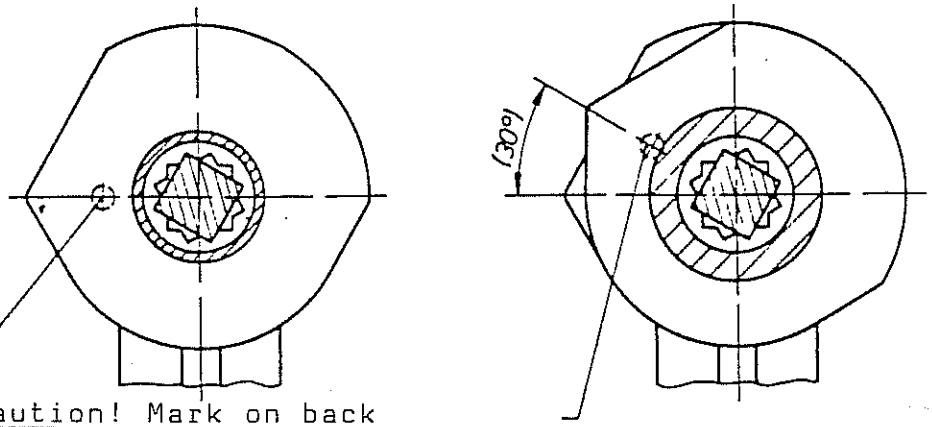
Changeover switch M 27620 S1, S2, S3

The changeover switch is used for switching the device on and off as well as for preselection of the I:E ratios. This is effected by way of the cam discx, which switch appropriate pneumatic 3/2-way directional control valves.



Sectional view A-B (valve 3)

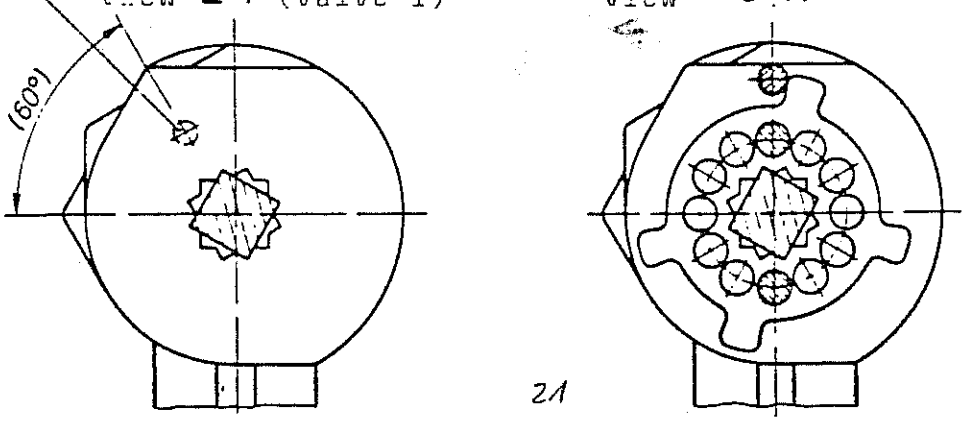
Sectional view C-D (valve 2)



Caution! Mark on back
Observe preferred orientation

Sectional view E-F (valve 1)

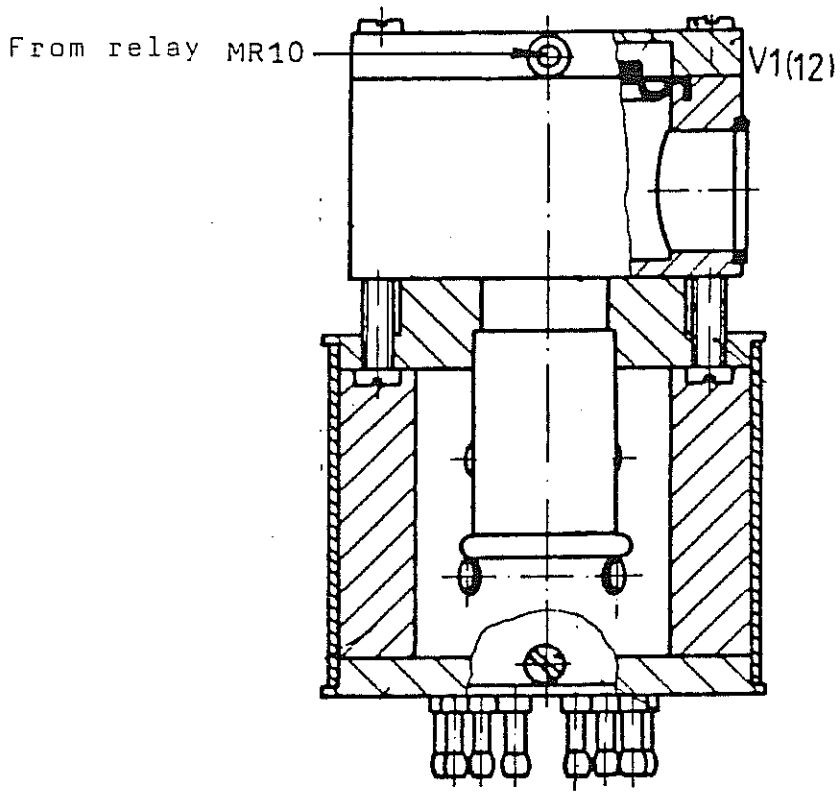
Selection view G-H



Switch setting indicated "0".

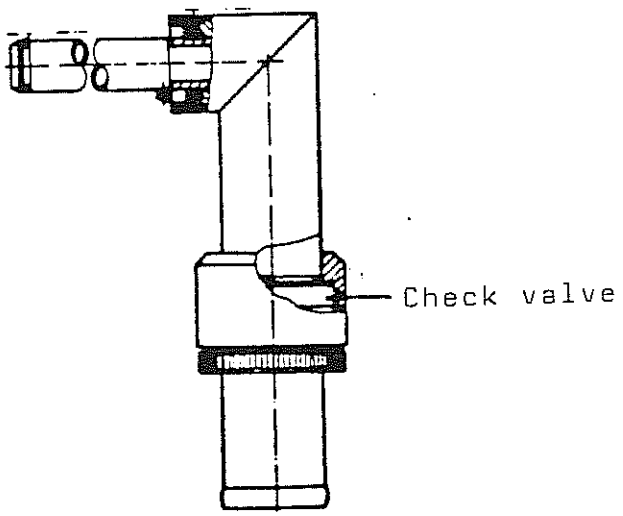
Vent valve M 27628 V1 (12), 13

The expiration outlet (chamber) is sealed in the vent valve V 1 during inspiration. The expiration valve also serves as sound attenuator (13).



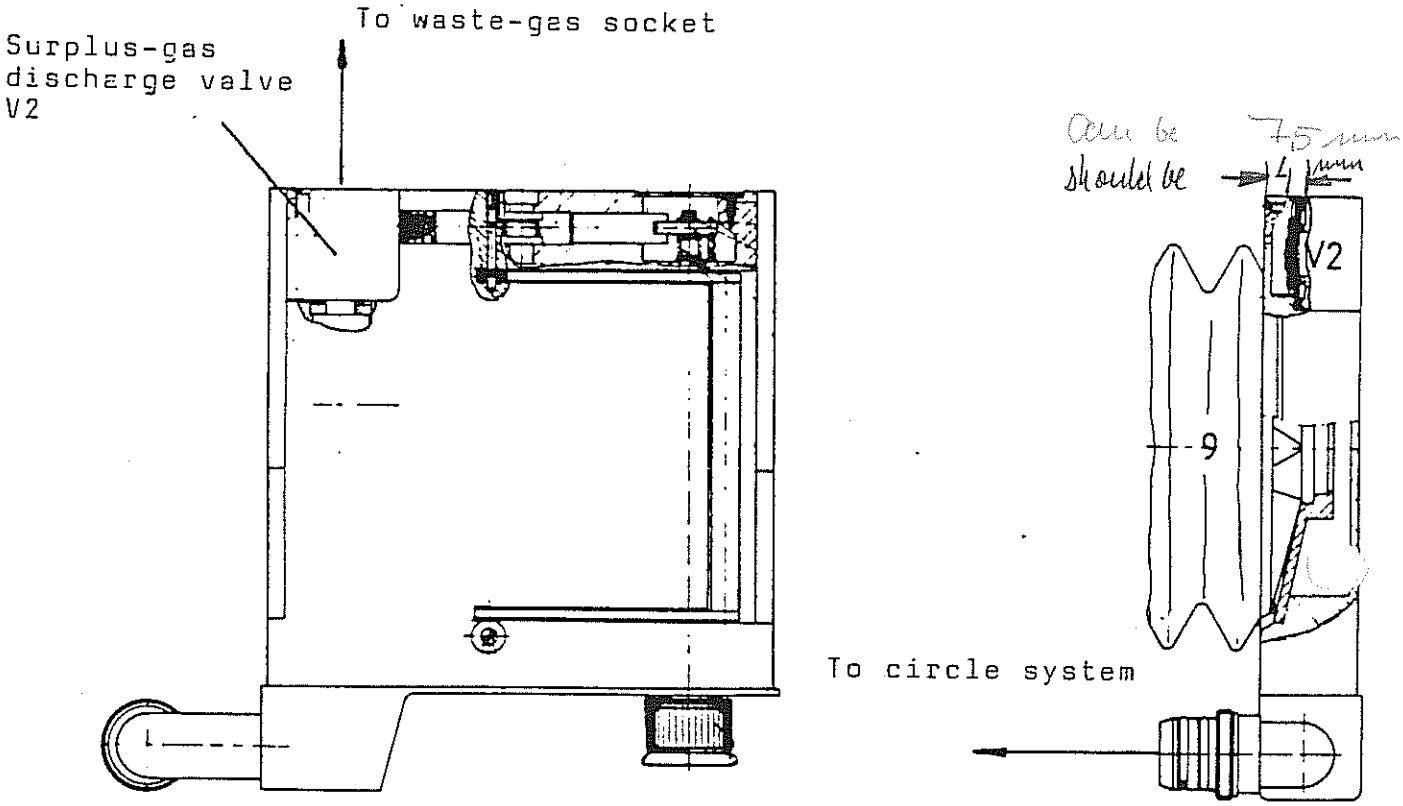
Waste-gas socket 8404690 V3 (23)

The waste-gas socket is used to discharge the surplus fresh gas.
The buildt-in check valve prevents the extraction of "external air".



Patient system 8404700 V2 (14), (9)

The patient system is used to separate the patient's air from the drive air of the device. The valve V 2 blocks off the path to the waste-gas socket during inspiration and limits the pressure to 80-95 mbar on account of the plateau valve (21). During expiration the PEEP pressure is controlled via the valve V2.



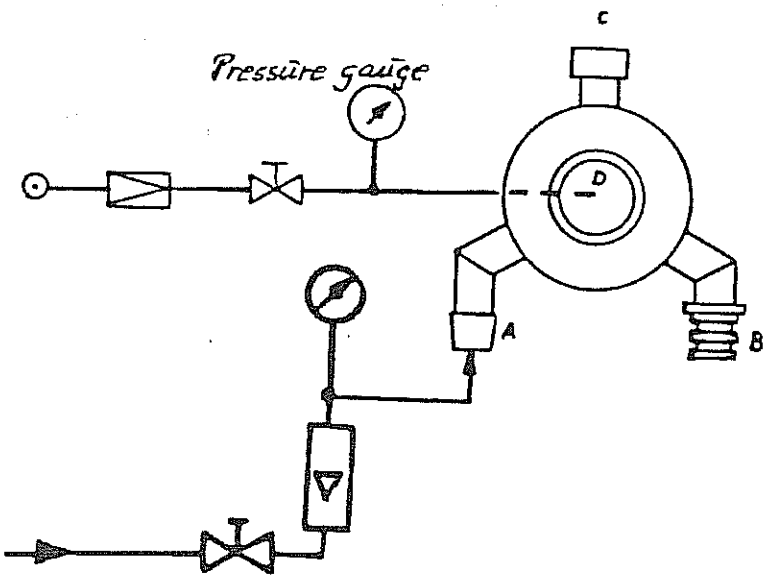
Anaesthetic Ventilators
Ventilog 2

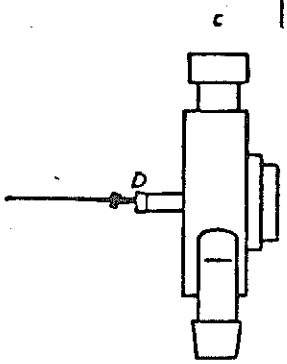
Measuring tules

Test pressure reducer	D 12195
Training Thorax	M 13400
Mano-Vacuummeter	72 42023
Pressure gauge	72 33081
Flowmeter tube 0-1.5 l/min	79 00226
Flowmeter tube 10-100 l/min	79 00228
Flowmeter tube block	79 00262
Stop-watch	E 8267
Div. Vaions tubes, Y-piece, Corks, Connecting sleeve	

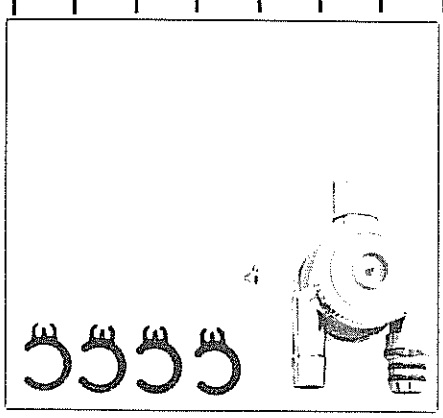
Before checking the Ventilog, the anaesthetic apparatus and circle system are to be checked in accordance with the respective test card.

1.	Pneumatic switching valve 8404950 Pneumatic switching valve ISO 8405276	C
1.1.	Open valve	
1.1.1.	* Diaphragm 8401650 2x Replace every 2 years	C
1.1.2.	Pressure piece 8404945	C
1.1.3.	O-ring 8402234	C
1.1.4.	O-ring 2M 8777 2x	C
1.2.	Mount valve Leak test	

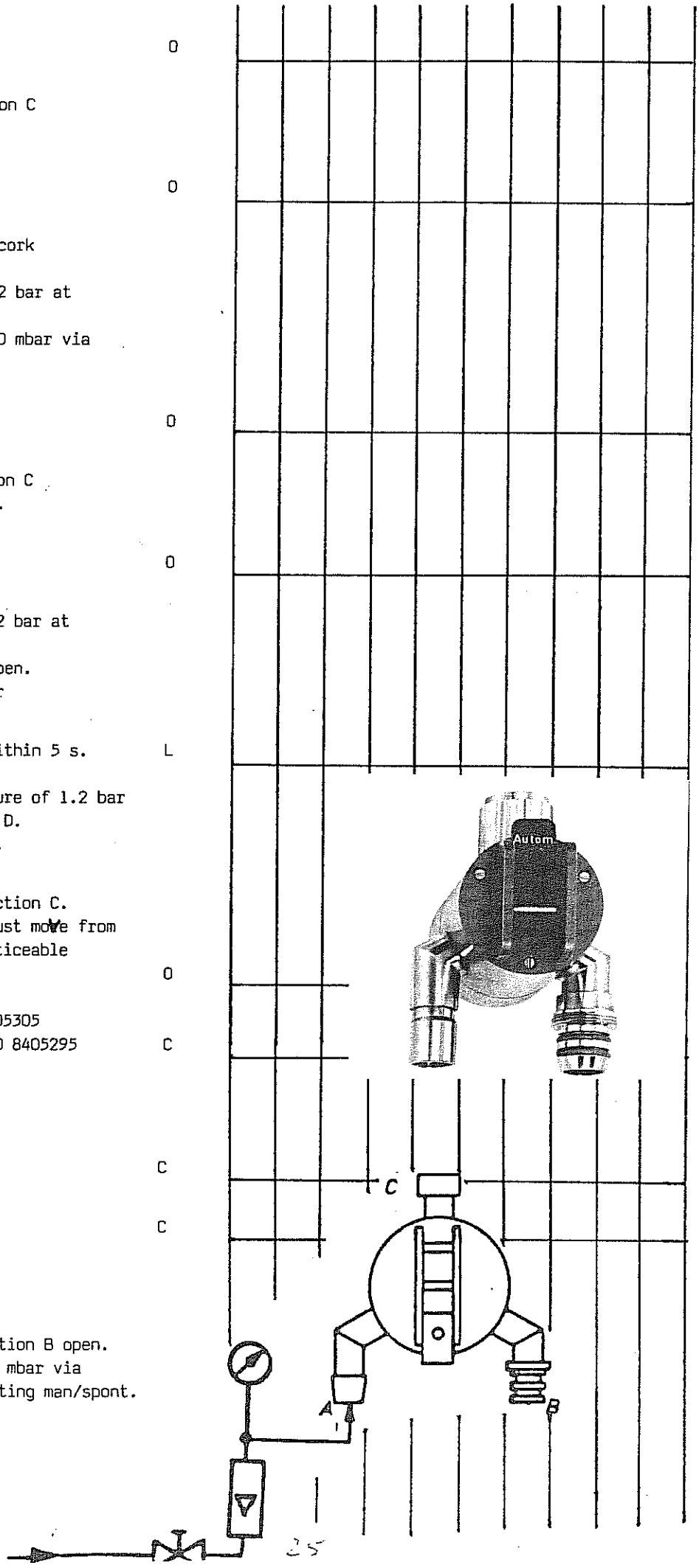




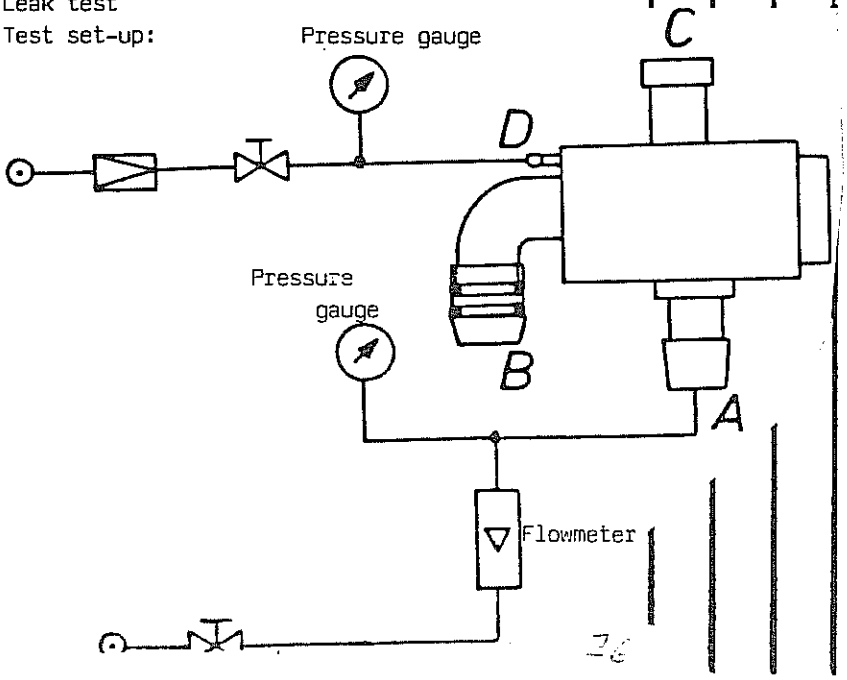
Test set-up:
Seal connection C with cork
Connection B + D open.
Build up pressure of 100 mbar via connection A.



1.2.1.	Test value: Gas flow < 0.2 l/min	O
1.2.' 1.	Test set-up: Remove cork of connection C otherwise as item 1.2.	
1.2.1.1.1.	Test value: Pressure drops to 0 bar	O
1.2.2.	Test set-up: Seal connection C with cork Connection A open Build up pressure of 1.2 bar at connection D. Build up pressure of 100 mbar via connection B.	
1.2.2.1.	Test value Gas flow < 0.2 l/min	O
1.2.2.2.	Test set-up: Remove cork of connection C otherwise as item 1.2.2.	
1.2. .1.	Test value: Pressure drops to 0 bar	O
1.2.3.	Test set-up: Build up pressure of 1.2 bar at connection D. All other connections open. Seal controlling 1.2 bar	
1.2.3.1.	Test value Pressure may not drop within 5 s.	L
1.2.4.	Build up changing pressure of 1.2 bar and 0 bar at connection D. Otherwise at item 1.2.3.	
1.2.4.1.	Test value: Visual testing by connection C. When switching tappet must move from stop to stop without noticeable delay	O
..3.	Man. switching valve 8405305 Man. switching valve ISO 8405295	C
.3.1.	Open valve	
.3.1.1.	Tappet and spring	C
.3.1.2.	O-rings 8405281 Replace every 2 years	C
.4.	Mount valve Leak test Test set-up: Seal C with cork, connection B open. Build up pressure of 100 mbar via connection A. Switch setting man/spont.	



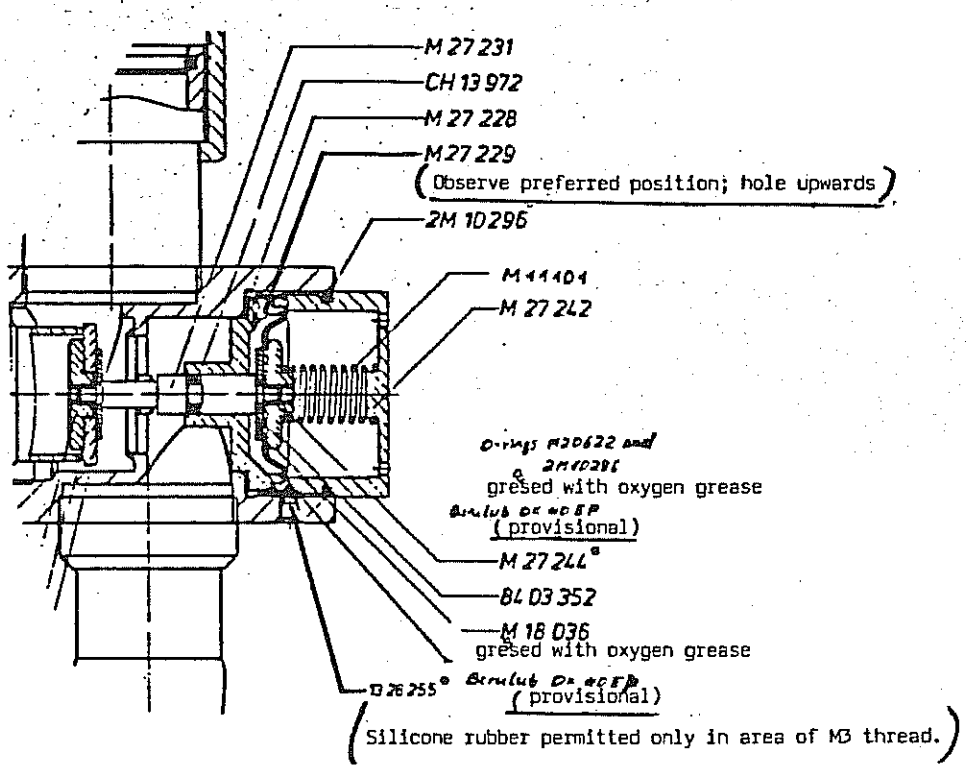
1.4.1	Test value: Gas flow $\leq$ 0.2 l/min	O
1.4.1.1.	Test set-up Remove cork of connection C otherwise as item 1.4.	
1.4.1.1.1.	Test value: Pressure drops to 0 bar	O
1.4.2.	Test set-up: Seal connection C with cork Connection A open Build up pressure of 100 mbar Via connection B. Switch setting autom.	
1.4.2.1.	Test value: Gas flow $\leq$ 0.2 l/min	O
1.4.2.1.1.	Test set-up: Remove cork of connection C, otherwise as item 1.4.2.	
1.4.2.1.1.1.	Test value: Pressure drops to 0 mbar	O
1.4.3.	Switch level alternating	
1.4.3.1.	Test value: Visual testing by connection C. Tappet must switch over. During each setting of the tappet. A tappet pressure must be noticable.	O
1.5.	Pneumatic switching valve M 27235 Pneumatic switching valve ISO M 27240	C
1.5.1.	Open valve * Diaphragm 8403352 * O-ring CH 13972 (replace every year)	
1.5.2.	O-ring 8402234	C
1.5.3.	O-ring 2M 8777 2x	C
1.6.	mount valve-to do so see IDM No. 11, File 5324-	
	Leak test Test set-up:	



Pneumatic switching valve M 27235
Pneumatic switching valve ISO M 27240

Replacement of diaphragm 8403352 and O-ring CH 13972 (required once a year in accordance with Test card). The following procedure is to be adopted when replacing the diaphragm:

- Loosen screw 1328255
- Unscrew cover M 27242
- Loosen clamping piece M 27244 (fitted with silicone rubber Elastosil E 41)
- Remove insert M 27229
- Replace O-ring CH 13972
- Thoroughly grease tappet and O-ring
- Fit insert M 27229. Observe preferred position!
- Replace diaphragm 8403352
- Re-insstall clamping piece M 27244 using silicone rubber Elastosil E 41
- Grease O-ring 2M 10296 and cover M 27242
- Screw in cover such that O-ring projects halfway into valve housing.



- Seal connection C, apply a flow of 0.5 L/min. to connection A
  Run a hose 2 x 1 into a water bath from connection D.
- Now screw in cover until air bubbles no longer emerge from the hose (float of flowmeter goes to "0").
- Decure cover with screw (fitted with silicone rubber Elastosil E 41).

Technical Customer Service

B. Weigel

Seal connection C with cork
Connection B + D open.
Build up pressure of 100 mbar
via connection A.

1.6.1. Test value:
Gas flow $\leq$ 0.2 l/min O

1.6.1.1. Test set-up:
Remove cork of connection C,
otherwise as item 1.6.

1.6.1.1.1. Test value:
Pressure drops to 0 bar O

1.6.2. Test set-up:
Seal connection C with cork.
Connection A open.
Build up pressure of 1.2 bar at
connection D.
Build up pressure of 100 mbar via
connection B.

1.6 1. Test value:
Gas flow $\leq$ 0.2 l/min. O

1.6.2.2. Test set-up:
Remove cork of connection C
otherwise as item 1.6.2.

1.6.2.2.1. Test value:
Pressure drops to 0 bar O

1.6.3. Test set-up:
Build up pressure of 1.2 bar at
connection D.
All other connections open
Seal controlling 1.2 bar.

1.6.3.1. Test value:
Pressure may not drop within 5 s. L

1.6.4. Build up changing pressure of 1.2 bar
and 0 bar at connection D.
Otherwise as item 1.6.3.

1.6.4.1. Test value:
Visual testing by connection C.
When switching tappet must move from
stop to stop without noticeable delay. O

1.7. Gas supply "pneumatic switching valve"

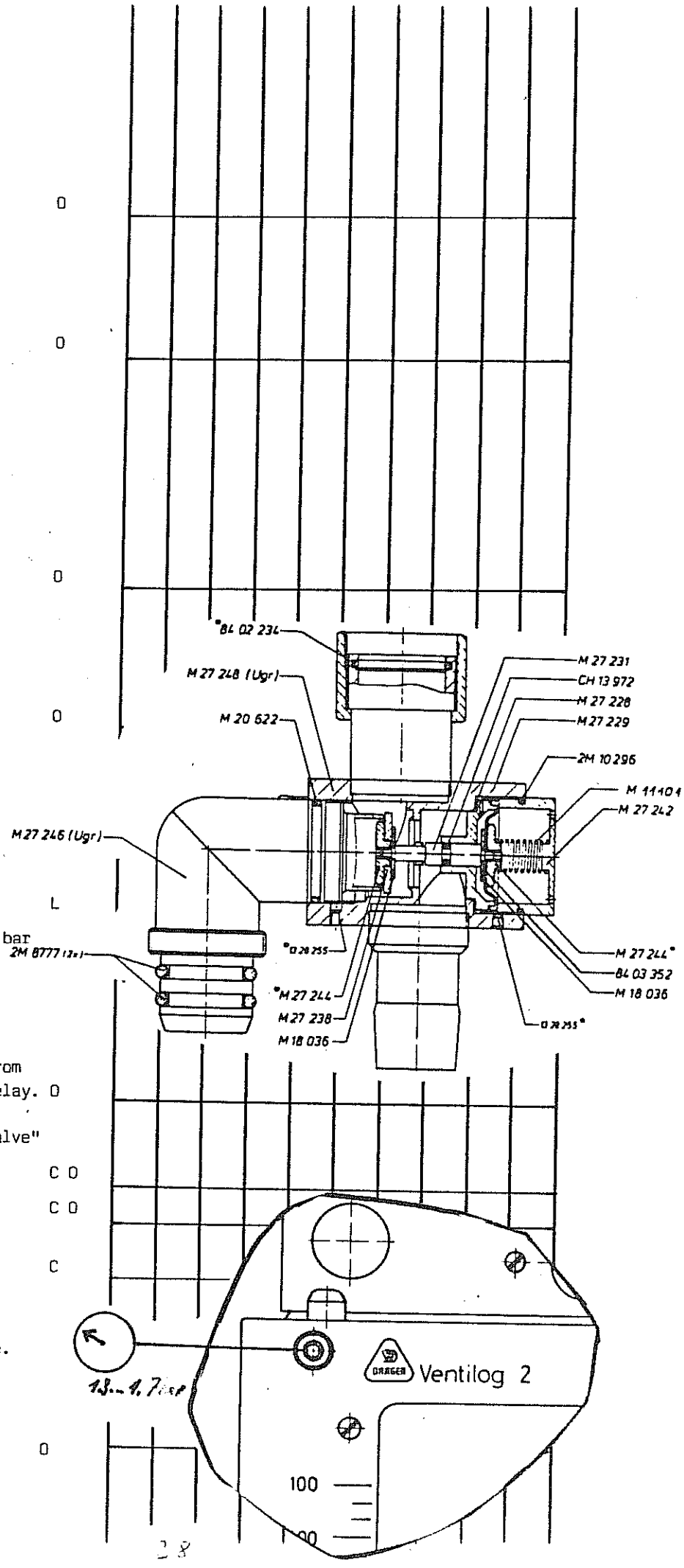
1.7.1. Coupling 8404948 C O

1.7.2. Nipple 8404951 C O

1.7.3. Hose 2 m, Silicone hose
2 x 1,5 1190520 C

1.7.4. Gas supply
Test set-up:
Connect nipple with pressure gauge.
Switch setting "autom." res. "I"

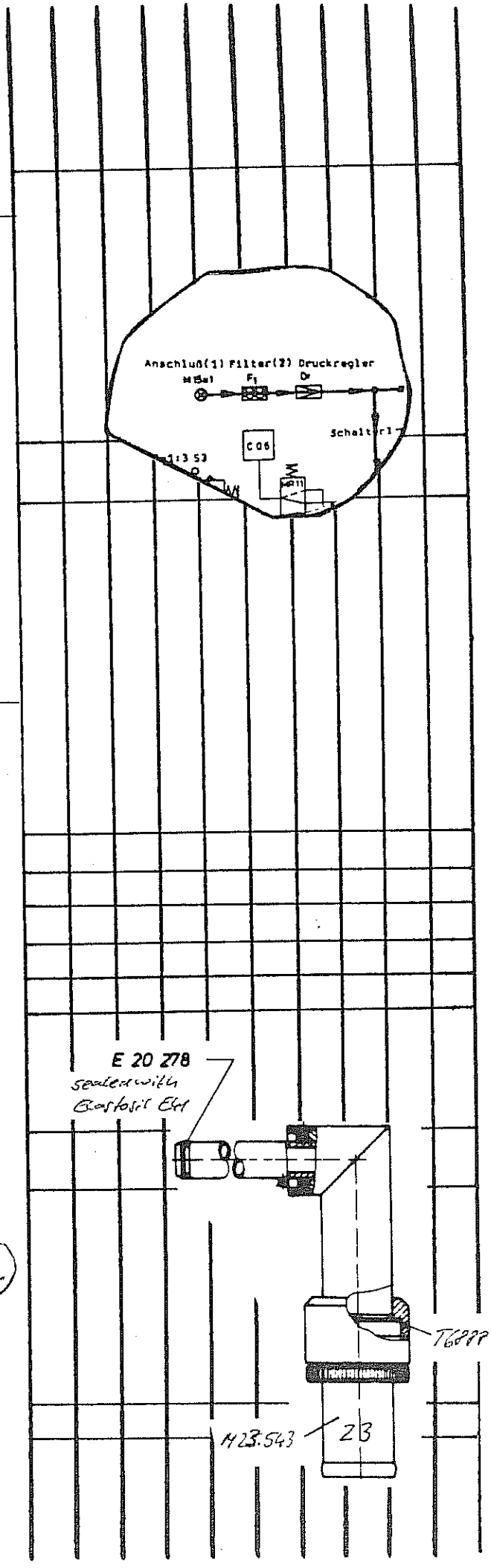
1.7.4.1. Test value:
Inspiration $\geq$ 1.3 bar
Expiration $\leq$ 1.7 bar O



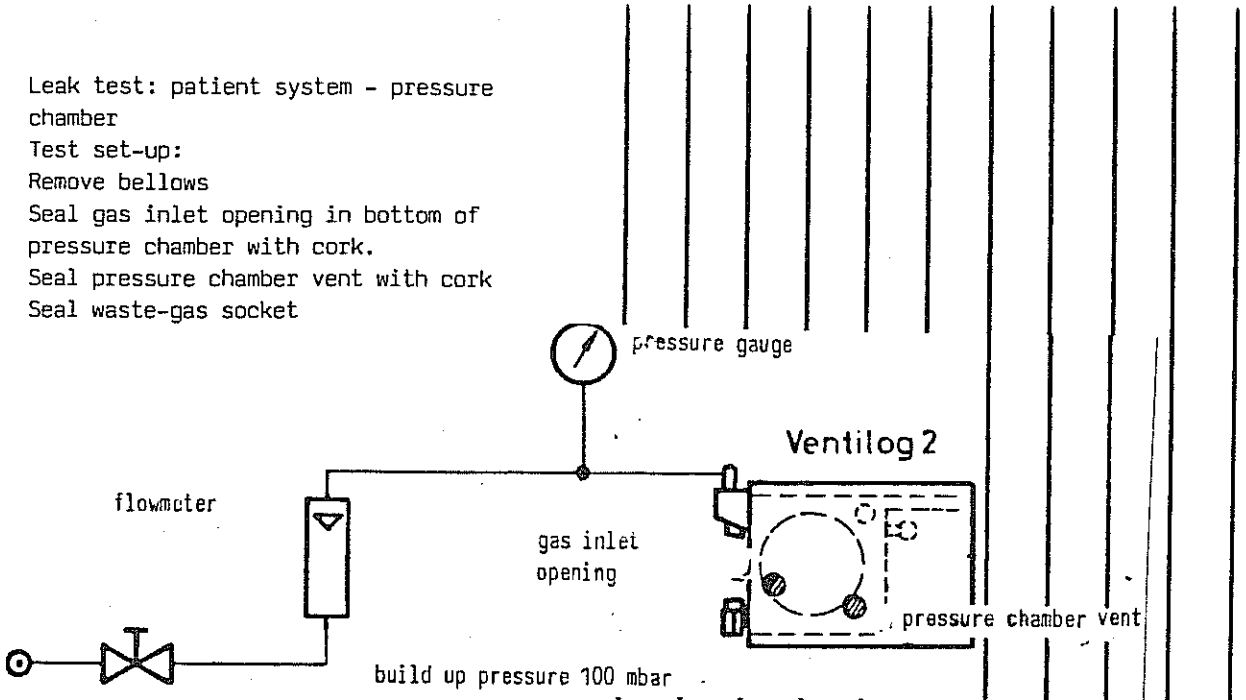
1.7.4.2.	Test set-up: Switch setting "0" Otherwise as item 1.3.4.	
1.7.4.2.1.	Test value: P 0 bar	O

2.	Detach Ventilog from anaesthetic apparatus. Swivel waste gas socket 8404690 through 45° and remove. Loosen locking screws of slide-in unit, remove slide-in unit.	
2.1.	Gas supply	
2.1.1.	Connection M 15 x 1	C
2.1.1.1.	* Filter element D 11521 Replace every 2 years	C
2.1.2.	Pressure regulator * Diaphragm 8404049 (replace every 6 years) * Inlet valve 8404048 (replace every 6 years) Setting value 1.5 ± 0.1 bar	

3.	Waste-gas socket and patient system Fit slide-in unit and secure screws. Remove cover plate.	
3.1.	Waste-gas socket 8404690	C
3.1.1.	O-ring E 20278	C
3.1.2.	Relief valve M 23543	C
3.2.	Patient system 8404700	C
3.2.1.	Connection socket	C
3.2.1.1.	O-ring 2M 8777	C
3.2.2.	Rotary-knob lock Pull out rotary knob and turn in an anticlockwise direction	
3.2.2.1.	Lock released, remove patient system	O
3.2.3.	Insert slide-in unit without patient system; locking effected	O
3.2.4.	Open fresh-gas discharge valve once a year. *Replace diaphragm 8403377 and O-ring M 19241. Caution! Ensure that diaphragm is properly seated when assembling.	
3.2.5.	Seal (pressure chamber) * Lip seal 8404064 * Seal 8404065 Replace every 2 years (fit with silicone adhesive)	C C

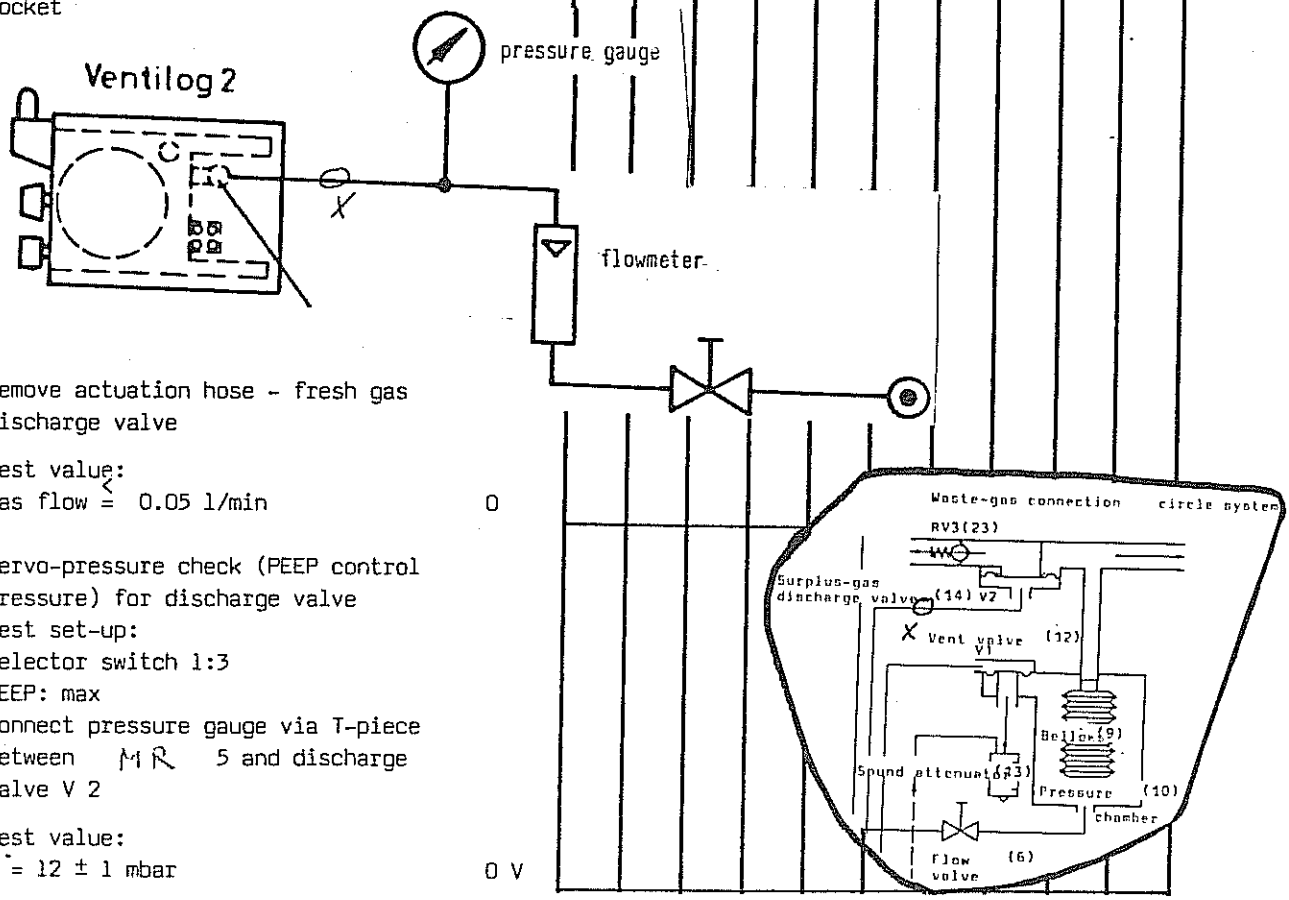


3.2.6. Leak test: patient system - pressure chamber
Test set-up:
Remove bellows
Seal gas inlet opening in bottom of pressure chamber with cork.
Seal pressure chamber vent with cork
Seal waste-gas socket



3.2.6.1. Test value:
Locking - patient system O
Gas flow ≤ 1 l/min L

3.3. Leak test, fresh gas discharge valve actuation (V2)
Test set-up:
Build up pressure of 100 mbar via socket



Remove actuation hose - fresh gas discharge valve

3.3.1. Test value:
Gas flow ≤ 0.05 l/min O

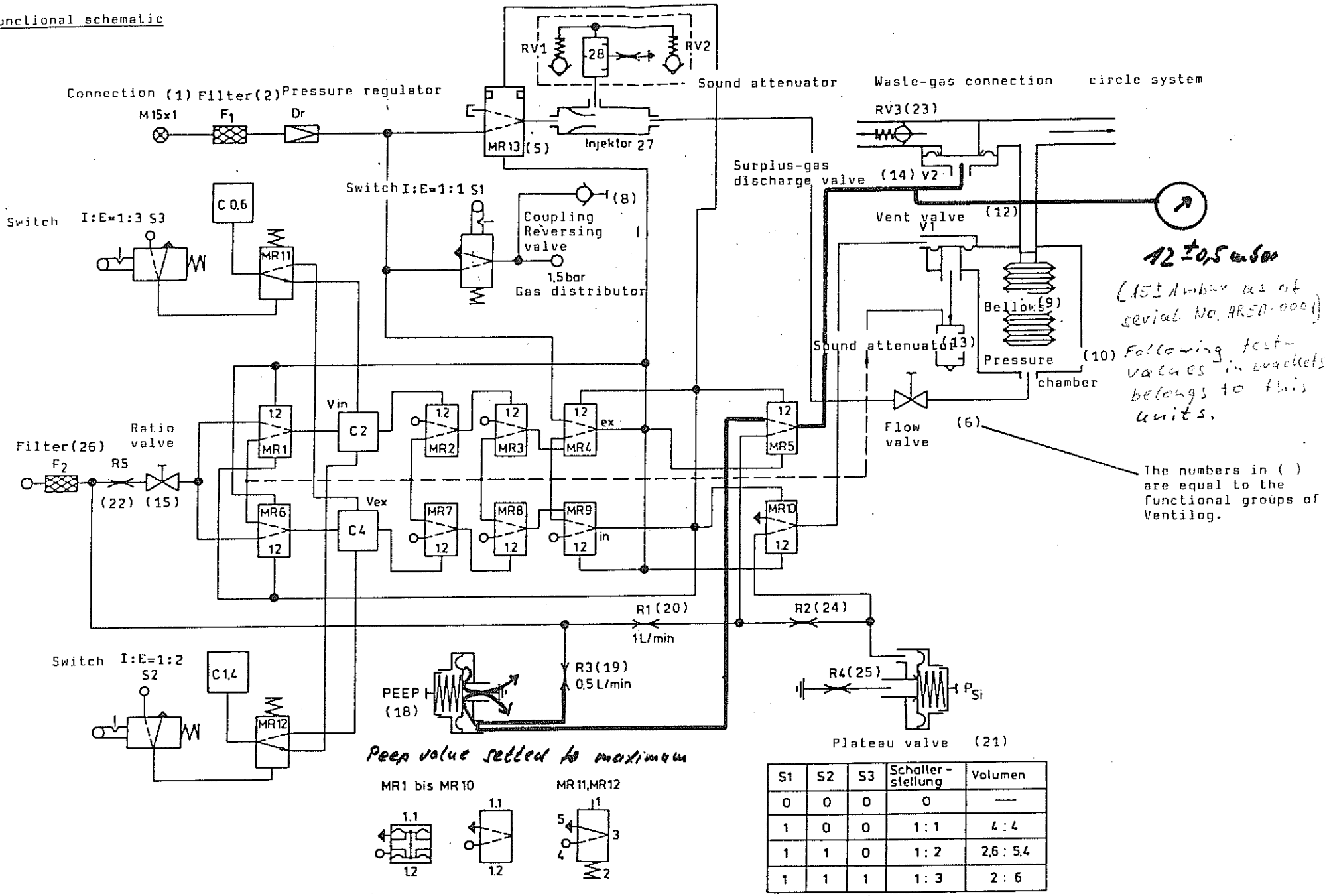
3.4. Servo-pressure check (PEEP control pressure) for discharge valve
Test set-up:
Selector switch 1:3
PEEP: max
Connect pressure gauge via T-piece between MR 5 and discharge valve V 2

3.4.1. Test value:
P = 12 ± 1 mbar 0 V

! caution: see remarks on the next page for devices as of serial No ARED-0004 !

p. 3.4

Functional schematic



S1	S2	S3	Schalter-stellung	Volumen
0	0	0	0	—
1	0	0	1 : 1	4 : 4
1	1	0	1 : 2	2,6 : 5,4
1	1	1	1 : 3	2 : 6

4.	Mount device (without bellows) and assemble ready for operation.	
4.1.	O_2/compressed air connecting hose 1 m M 17670	C L
4.2.	connecting hose M 25050	C L
4.3.	Hose 1/0.7 m 8404733	C L
4.4.	Hose 1/1 m 8404731	C L
4.5.	Hose 2/1 m 8404758	C L
4.6.	Hose 2/1.5 m 8404732	C L
4.7.	Ventilog/anaesthetic apparatus mount	C O
4.8.	Base plate, latching of Ventilog	C O

5.	Functional check Drive pressure 2 - 5 bar O_2	
5.1.	Working flow Test set-up: Selector switch 1:1 Ratio: min PEEP: 0 Remove bellows Seal waste gas socket Connect patient system outlet of Ventilog to flowmeter 10 - 100 l/min.	
5.1.1.	Test value: Flow min = ~~20 ± 2~~ l/min 20 ± 2.5 L/min	O
	Flow 80 = ~~80 ± 8~~ l/min 100 ± 10 L/min A S. IDM No. 7	O
5.2.	Working pressure Test set-up: As item 5.1. However, connect patient system outlet of Ventilog to pressure gauge	
5.2.1.	Test value: Flow min. = 86 ± 9 mbar (76 ± 8 mbar)	O
	Flow max. = 86 ± 9 mbar (76 ± 8 mbar)	O
5.2.2.	Safety pressure Test set-up: As item 5.2. However, seal pressure vent of pressure chamber with cork Remove waste-gas socket	

.2.2.1. Test values:
Flow min. = 5 mbar in excess of values in each case 0

Flow max. = from item 5.2.1. ≤ however = 100 mbar (≤ 83 + 12 mbar) 0

.2.3. Test set-up:
As item 5.2.
However fit bellows
Caution:Remove cork!
Volume 500 ml, waste-gas socket open

.2.3.1. Test value:
Flow min: = 80 ± 9 mbar (70 ± 8 mbar) 0

Flow max. = 80 ± 9 mbar (70 ± 8 mbar) 0

.3. Ratio setting
Test set-up:
Selector switch 1:2
Flow max.
PEEP: 0
Volume 500 ml
Patient system outlet of Ventilog open

.3.1. Test value:
6 = 6 ± 1,5 min^{-1} 0 V

15 = 15 ± 1.8 min^{-1} 0 V

30 = 30 ± 3.6 min^{-1} 0 V

60 = 60 ± 7.2 min^{-1} 0 V

.4. I : E ratio
Test set-up:
As item 5.3.
Ratio min

S1	S2	S3	Schalter-stellung	Volumen
0	0	0	0	—
1	0	0	1:1	4:4
1	1	0	1:2	2.6 : 5.4
1	1	1	1:3	2 : 6

4.1. Test value:
Reference value = $\frac{\text{Inspiration time}}{\text{Expiration time}}$

Reference values: 1:1 = 0.85 - 1.15 0

1:2 = 0.43 - 0.58 0

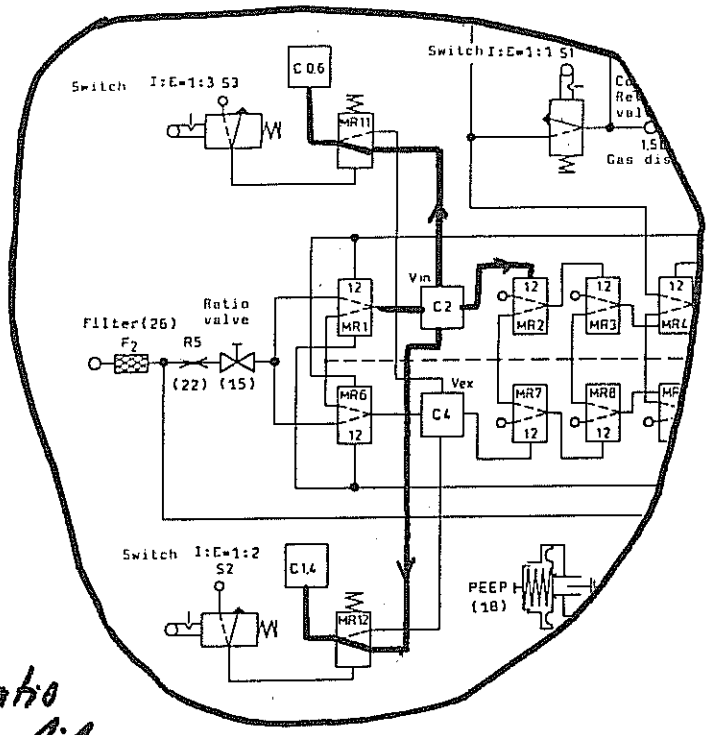
1:3 = 0.28 - 0.38 0

5. Check valve function- waste-gas socket
Test set-up:
Selector switch 1:1
Flow max.
Ratio min.
Volume 500 ml

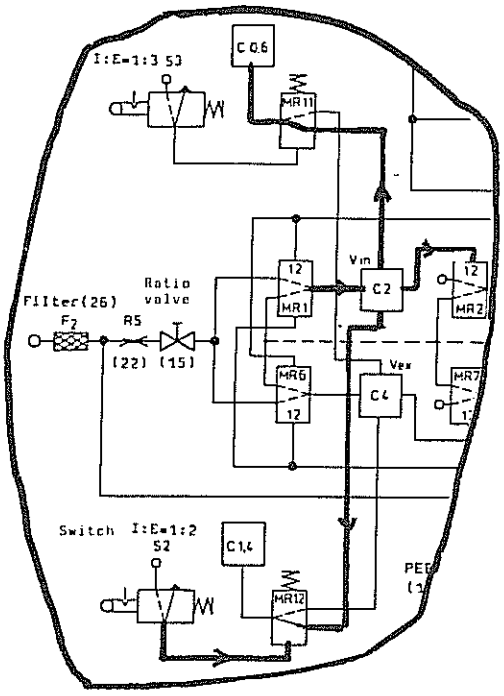
Seal patient system outlet and set selector switch to "0" during inspiration in plateau phase.

5.1. Test value:
Bellows must not move downwards 0

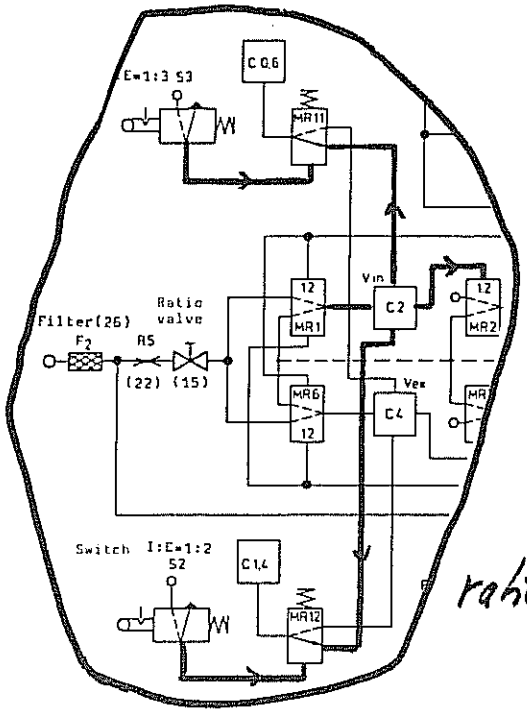
Anaesthetic Ventilators
Ventilog 2



ratio 1:1

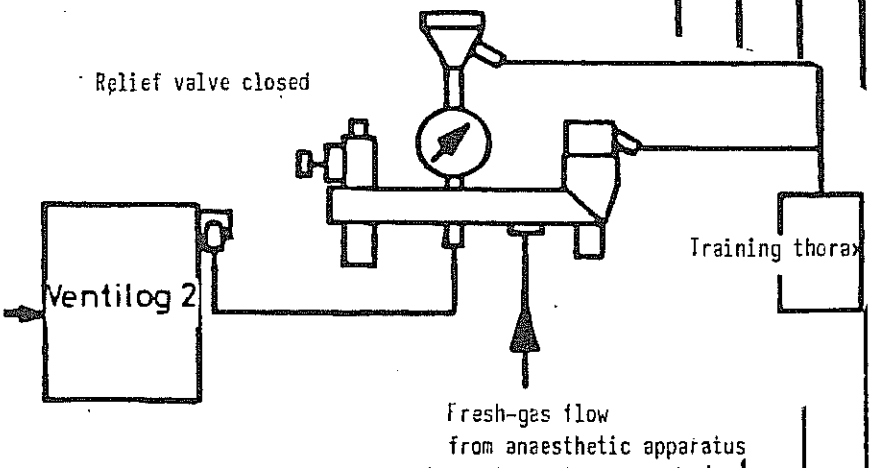


ratio 1:2



ratio 1:3

5.6. PEEP function
Test set-up:



Slip Anaesthetic gas filter with tubing onto waste-gas socket

Selector switch 1:3
Flow max. max.
Ratio min. min.
Volume 500 ml

5.6.1. Test value:

PEEP setting against right stop Fresh-gas flow 2 l/min PEEP ≥ 15 mbar (≥ 16 mbar)	0 V
~~Fresh-gas flow 4 l/min~~ ~~PEEP = 19 - 3.5 mbar~~	0 V
Fresh-gas flow 8 l/min PEEP ≤ 23 mbar (≤ 24 mbar)	0 V
PEEP setting against left stop Fresh-gas flow 8 l/min PEEP ≤ 2 mbar	0 V
Device must not hum or whistle in any setting	0

Attention!
Control pressure 12± 1 mbar. (pt. 34)
If peep is not working with the correct control pressure change diaphragma in in valve (14)-V2

6. * Make device available to the user in a ready to operate condition.

* Expenditure on such work is classed as repair services and is not included in the Inspection Service price.

7. Confirmation of test

name

date

Anaesthetic Ventilators
Ventilog 2

Modification of Ventilog2

1. see page Ventilog

The same procedure with additional parts for the 3 different ratios.

a. V2 changed to C 1,4 (replace the old volume)

b. fix the non return valves

c. fix 300 mm hoses (2x1) to C 1,4 and C 0,6 and close this hoses at the end.

d. adjust the ratio with the added list

If we use the non return valves, the frequency will get lower, so we change C2 (smaller).

to point d.

help to adjust the ratio – follow this procedure step by step.

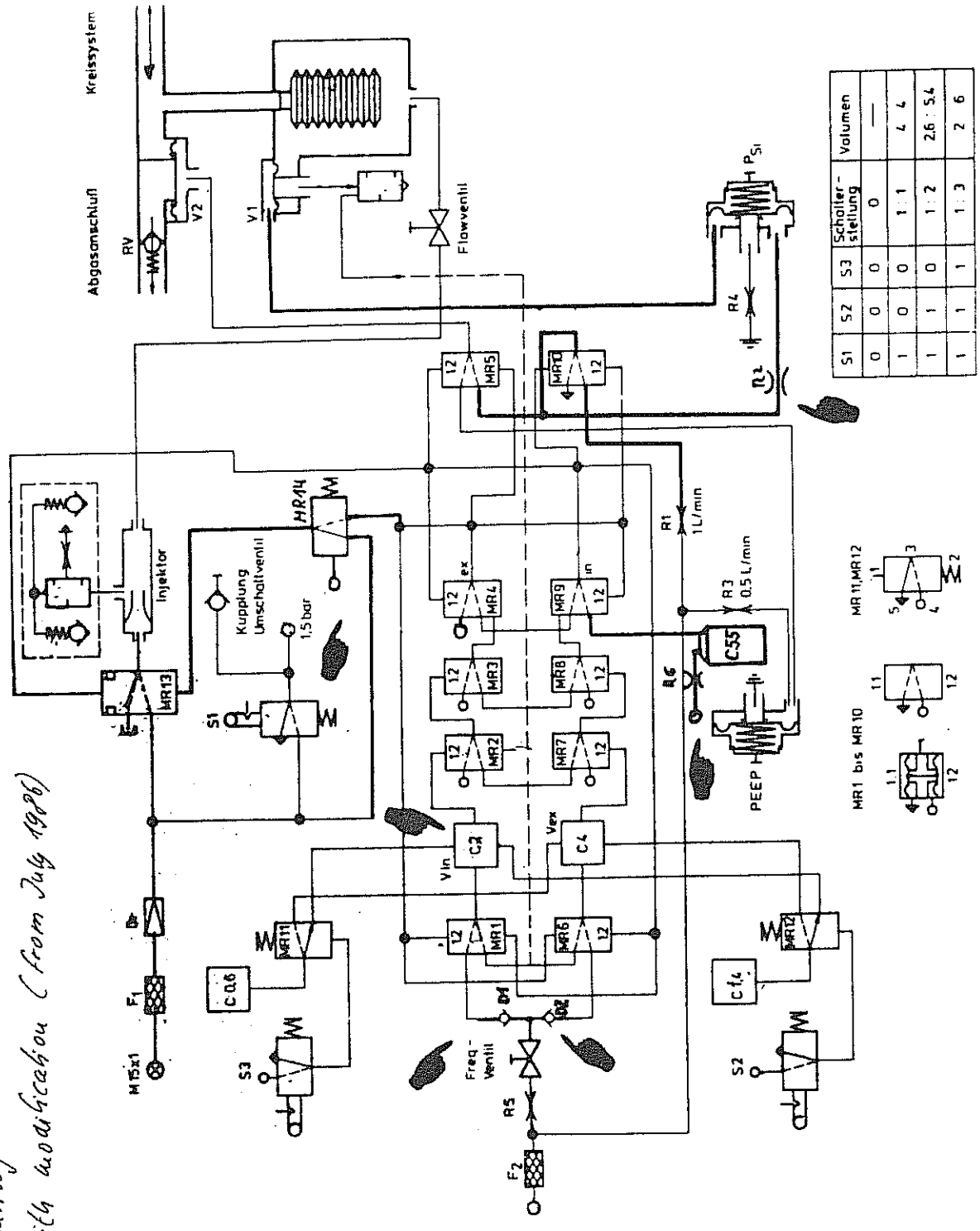
I:E setting	actual measured	reason C inspiration	C expiration	procedure
1. step		C2	: C4+C1,4+C0,6	
	1:3,2	to small	to great	C2 greater or C1,4/C0,6 smaller
1:3	1:2,8	to great	to small	C4 greater or C1,4/0,6 greater
2. step		C2+C0,6+C1,4	C4	
	1:1,2	to small	to great	C2 and C0,6+C1,4 greater (equal)
1:1	1:0,8	to great	to small	1. C2 about ½ of a volume, C4 ½ of a volume greater. 2. check again step 1 3. C2 and C0,6/1,4 smaller in equal parts
3. step				
1:1	1:1			If not in the tolerance start again with step 1 and 2
	1:3			
4. step		C2+C0,6	C4+C1,4	
1:2	1:2,2	to small	to great	1. C0,6 greater 2. C1,4 the same volume smaller
	1:1,8	to great	to small	1. C0,6 smaller 2. C1,4 the same volume greater
5. step				

Anaesthetic Ventilators
Ventilog 2

2.13 see page Ventilog

we do it in the same way than in Ventilog.

Anaesthetic Ventilators
Ventilog 2



S1	S2	S3	Schalter-stellung	Volumen
0	0	0	0	—
1	0	0	1 : 1	4 4
1	1	0	1 : 2	2,6 : 5,4
1	1	1	1 : 3	2 6

Vanilog 2
with modification (from July 1986)

1. Allgemeines

1.1. Pneumatische logische Elemente System Dreloba

Amplifier

Technische Daten

Betriebsluftdruck: P_H 1,4 kp/cm² ± 10 %

Überdrucksicherheit: bis 2,5 kp/cm²

Signalpegel: 0 - Signal 0 ... 0,2 · P_H
L - Signal 0,6 · P_H

Zulässige Umgebungstemperatur:

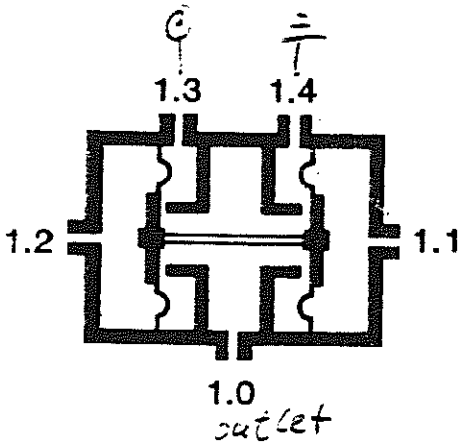
Bei Minustemperatur ist durch Lufttrocknung der Taupunkt der Arbeitsluft um 10 °C niedriger zu halten als die tiefste am Gerät mögliche Temperatur

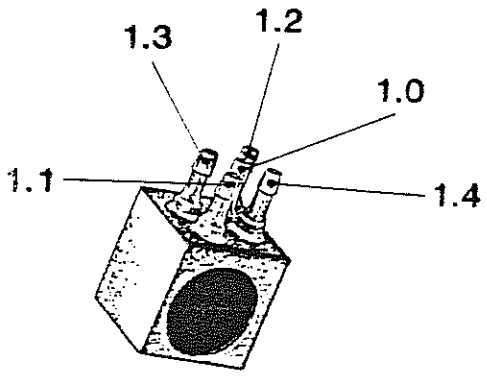
Anforderung an die Reinheit der Speiseluft:
Der verwendete Filter muß Verunreinigungen ≥ 40 um abscheiden

Lebensdauer: ~ 10^3 Schaltspiele

Gewicht: 15 p

1.2. Symbolische Darstellung und Tüllenbelegung





1.3. Wahrheitstabelle

1.2	1.1	1.0
0	0	1
0	1	1
1	1	1
1	0	0

Bei der Betrachtung der Wahrheitstabelle wird davon ausgegangen, daß an 1.3 Betriebsdruck mit 1,5 bar zur Verfügung steht. 1.4 ist die Entlüftung für 1.0

Wenn diese Elemente kontrolliert sind
dann haben sie folgende Best.Nr. M25716 „UOBS"
unkontrollierte M22260