THE UNIVENTOR 1200/1250 ANAESTHESIA UNIT

The Univentor 1250 Anaesthesia Unit

Univentor
HIGH PRECISION INSTRUMENTS

TABLE OF CONTENTS

EDITION 1

Section 1 - WARRANTY & SERVICE

1.1. WARRANTY

Univentor Ltd guarantees all components of the 1200 and 1250 Anaesthesia units to be free from defects of material and workmanship for a period of two years after initial purchase. Univentor will repair or replace, at its discretion, all defective components during the aforementioned warranty period.

For warranty service or repair, all Univentor's products must be returned to Univentor or to an authorised Univentor representative. The client is responsible for shipping charges to Univentor.

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance by the client, unauthorised modification or misuse, operation outside of the environmental specifications for the product, or improper site preparation or maintenance.

For any product expressly covered under this warranty, Univentor is liable only to the extent of replacement or repair of the defective items. Univentor shall not be liable for any personal injury, property damage, or consequential damages of any kind whatsoever. The foregoing warranty is in lieu of all other warranties of merchant ability and fitness for a particular purpose.

1.2. DAMAGED SHIPMENTS

Damage to any part of this instrument during shipping should be reported immediately to Univentor or an authorised representative. You must retain the original packing box and contents for inspection by the freight handler. Univentor will replace any new instrument damaged in shipping with an identical product as soon as possible after the claim filing date. Claims not filed within 30 days after the shipping date will be invalid. Do not return damaged goods to Univentor without first contacting Customer Service. All correspondence and returns must include the serial number of the instrument. Univentor refuses all unauthorised return shipments.

1.3. SERVICE

Univentor has a skilled service staff available to solve any technical problem. Following discussion of your specific difficulties, an appropriate course of action will be described and the problem resolved accordingly. Service is treated as a priority and turnaround time is kept as short as possible. All correspondence and shipments should be sent to Univentor Ltd or your Univentor representative and must include the serial number of the instrument.

For further details contact Univentor or Univentor's representative.

Section 2 - INTRODUCTION

2.1. INTRODUCTION

The Univentor 1200 and 1250 Anaesthetic instruments are specifically developed for lengthy inhalation anaesthesia for small animals weighing from 20g to 500g.

The instruments produce an anaesthetic gas by vaporizing liquid anaesthetic in air, which is delivered by an internal pump, and enables the addition of an external gas to be accurately mixed.

The 1250 has the additional benefit of an incorporated dehumidifier to reduce the relative humidity if required.

The design enables low and constant gas flows which dramatically reduce the anaesthetic consumption benefiting the user, animal and environment.

Whilst reliability and safety features have been incorporated we recommend continuous monitoring of the anaesthetised animal and we urge you to read this manual.

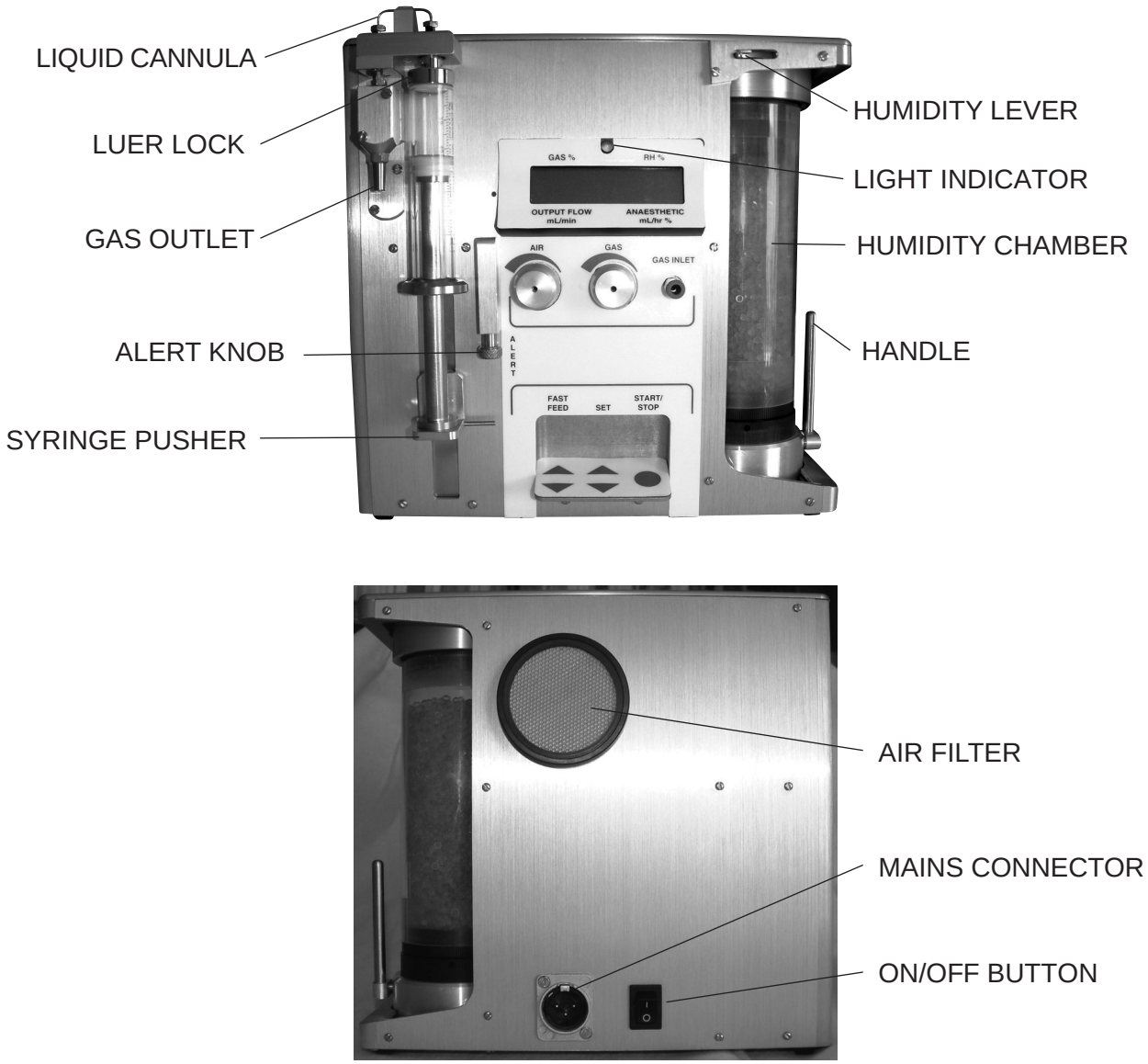

FIGURE 2.1. - The Univentor 1250 Anaesthesia Unit

Section 3 - GENERAL

3.1. UNPACKING AND INSTALLATION

Remove the instrument from the shipping packaging and inspect both the instrument and the packaging for any signs of damage. If any damage is noted, contact the freight handler and your Univentor representative immediately, see section 1.2.

Missing items?

Your 1200/1250 Anaesthesia Unit is delivered with:

1. 10 mL gas-tight syringe
2. 1 m PVC tubing
3. 1 m tubing for gas inlet
4. luer-lock with tubing to be used to fill syringe
5. container with silica gel for dehumidifier (for the 1250 only)
6. power supply
7. mains lead

3.2. POWER SUPPLY

MAINS - Use an earthed wall plug and the power supply supplied with the 1200/1250 Anaesthesia Unit. The power supply can automatically handle input voltage in the range from 100V AC to 240V AC, 50 to 60 Hz.

BATTERY – 11.85V - 13.2V. Consumption: Normal delivery - 350mA, Fast feed - 600mA.

3.3. CONTROL PANEL

FUNCTIONS

FAST FEED	▲	moves syringe pusher upward
	▼	moves syringe pusher downward
SET	▲	increases liquid flow rate
	▼	decreases liquid flow rate
START/STOP	●	starts/stops liquid delivery
AIR KNOB	↶	increases air flow
	↷	decreases air flow
GAS KNOB	↶	increases percentage of added gas
	↷	decreases percentage of added gas
GAS INLET		connects external gas
ALERT		set to warn almost empty syringe

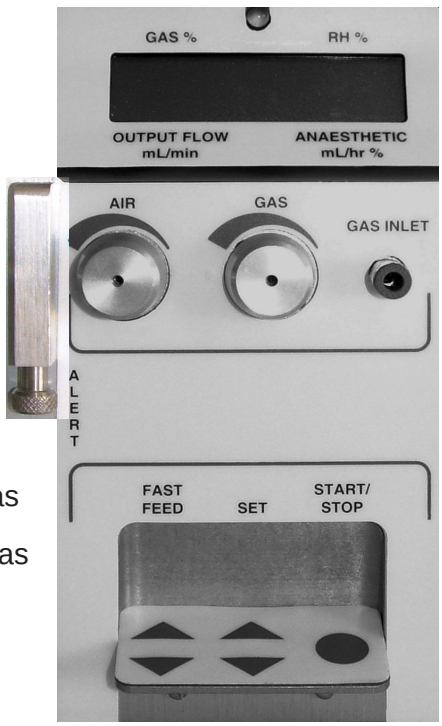

FIGURE 3.3. - The control panel
of the Univentor 1200 Anaesthesia Unit.

3.4. DISPLAY

Display	Mode	Units	Definition	Min	Max
GAS	-	%	% of added gas	10	99
OUTPUT FLOW	-	mL/min	combined gas flow rate	50	999
ANAESTHETIC	Standby	mL/hr	liquid flow rate	0.4	10
	Running	%	% concentration	1	5
RH	-	%	relative humidity of output flow	1	100

3.5. SAFETY FEATURES

The light indicator turns red and when in running mode an audible alarm is triggered should any of the following occur:

1. The syringe is empty
2. The output gas flow is blocked
3. The output gas flow is below 50mL/min
4. The output gas flow is above 999mL/min
5. The liquid delivery is stopped
6. The syringe has reached set alert position
7. The external gas pressure is higher than 2 bar
8. The external gas is below 10%

Unless immediately adjusted the user is directed to press any key in order to view corrective action/instructions on the display.

If in Standby mode for more than one hour the unit goes to Sleep mode, the light indicator turns orange and the air pump is switched off. Pressing any button will resume the Standby mode.

In case of mechanical failure the unit will shut down to protect itself.

Section 4 - OPERATION

HANDLING OF ISOFLURANE AND/OR ANY OTHER CHEMICAL SHOULD AT ALL TIMES BE IN COMPLIANCE WITH THE MANUFACTURER'S INSTRUCTIONS AS WELL AS REGULATIONS APPLICABLE TO YOUR COUNTRY.

USE ONLY A 10mL GAS-TIGHT SYRINGE WITH A 60mm STROKE.

MONITOR ANIMALS AT ALL TIMES.

4.1. INSTRUCTIONS

All anaesthesitising parameters are stated as a guideline only due to variations in animals and procedures.

4.1.1. SETTING UP

Connect the instrument to the power supply and earthed mains and switch on.

4.1.2. AIR FLOW

Set the air flow, minimum 50mL/min and maximum 999mL/min, by turning the AIR KNOB. Output flow is displayed in mL/min.

Mice - approximately 150-250mL/min

Rats - approximately 400-500mL/min

4.1.3. LIQUID ANAESTHETIC

Set the liquid anaesthetic concentration percentage by pressing SET ▲▼ buttons. Display will show the percentage while pressing SET buttons and the liquid flow rate when the buttons are released. Use the liquid flow rate to calculate the duration of the syringe:

$$\frac{\text{syringe content mL}}{\text{anaesthetic flow rate mL/h}} = \text{available time}$$

e.g. With 10mL liquid anaesthetic in the syringe and set flow rate 1.5mL/hour the available time will be 6.666 hours. (6 hours and 40 minutes).

Maintenance concentration - approximately 1.7-2.5%

Induction chamber concentration - approximately 4%

The concentration is calculated using the gas output flow and anaesthetic delivery.

4.1.4. SYRINGE ALERT

To ensure that a warning is sounded before the syringe is empty, determine the desired warning time in minutes and calculate the liquid volume (V) that this is equivalent to, by using the following formula:

$$V = \frac{\text{liquid flow rate (mL/h) x desired warning time (min)}}{60}$$

Turn the ALERT KNOB all the way anti-clockwise and fit empty syringe – refer to 4.1.6. FITTING SYRINGE. Use upward button until the plunger has reached the corresponding reading on the syringe.

NOTE: Should any settings be changed during the experiment the warning time will change accordingly.

Turn the ALERT KNOB clockwise until the display shows ‘Close To End’.

When the alarm is sounded it can be switched off by pressing any button. The delivery will continue until the syringe is empty at which point another alarm is triggered and the pusher automatically reverses to release the syringe.

4.1.5. FILLING SYRINGE

Follow the anaesthetic manufacturer’s handling instructions and fill the 10mL gas-tight syringe using the supplied tubing. Any air in the syringe will be eliminated when fitted.

4.1.6. FITTING SYRINGE

Fit the luer lock of the syringe with the one of the instrument. Press ▲ upward button and make sure that the plunger of the syringe is centred in the pusher when they meet. Continue to move the pusher upwards until the display reads ‘Liquid Filled’.

The ▲ upward button can no longer be used to ensure that the system is not flooded.

4.1.7. EXTERNAL GAS

Prior to connecting make sure that the supplied gas is delivered pulse free and at a pressure of 0.5 - 1 bar.

Connect the tubing to the GAS INLET and set desired percentage by turning the GAS KNOB. The added gas is displayed as a percentage of the total output gas which must not exceed 999mL/min.

When adding gas the output flow is increased but the anaesthetic concentration is adjusted accordingly to remain constant as per original setting.

4.1.8. CONNECTING

Connect one end of the supplied PVC tubing to the GAS OUTLET and the other to the anaesthetised box, mask or ventilator. Keep tubing as short as possible.

4.1.9. HUMIDITY CONTROL - 1250 ONLY

Release the chamber by pulling the handle towards you. Remove, open and fill with the supplied gel. Refit and secure by lifting the handle.

The Relative Humidity is displayed and can be reduced by moving the humidity lever to the right.

NOTE: Using the instrument in an environment of more than 80% RH may cause damage.

The life span of the silica gel varies according to the environment and use and will turn from orange to green when no longer effective. The gel may be regenerated by heating at 100-120°C until it returns to its original colour. Regeneration may be carried out repeatedly, although eventually the crystals will lose their colour.

4.1.10. START DELIVERY

Adjust the position of the display by tilting it to ensure constant visual contact and press START/STOP to start delivery.

The anaesthetic % concentration set when starting the delivery will be the default start up setting the next time the instrument is used.

NOTE: Delivery can be instantly terminated by pressing START/STOP to stop the instrument. However, in case of emergency remove the mask, due to gas in the outlet tubing.

DO NOT STORE ANAESTHETIC IN SYRINGE WHEN NOT IN USE

Section 5 - ROUTINE MAINTENANCE

5.1. CLEANING THE INSTRUMENT

1. After every use stop the liquid delivery and allow the air flow to continue for a period of 15 minutes to dry any remaining liquids
2. Keep your Anaesthesia Unit clean
3. DO NOT STORE ANAESTHETIC IN SYRINGE WHEN NOT IN USE

5.2. REPLACING PARTS

We recommend that the following parts are changed at least yearly or as necessary according to use:

Outlet Filter 2423017

Air Filter 2436132

5.3. STORAGE

If the Univentor 1200/1250 Anaesthesia Unit is not to be used for a significant length of time, it is recommended to clean the instrument, fit protective covers on inlet and outlet and store it safely in the shipping box.

5.4. TROUBLE SHOOTING

1. Display shows ‘Slip Error’

Occurs when force exceeds 100N due to:

a) Jammed pusher – make sure clear

b) Blocked syringe and/or tubing – check and replace as necessary

c) Blocked liquid cannula – change part number 2436032, or contact Univentor or your Univentor representative

d) Mechanical malfunction – contact Univentor or your Univentor representative

Section 6 - SPECIFICATIONS

Power	Power supply: 100-240V AC 50-60 Hz
	Battery: 11.85V - 13.2V. Consumption: Normal delivery - 350mA, Fast feed - 600mA
Dimensions 1200	172.5mm (l) x 112mm (b) x 220mm (h)
Dimensions 1250	223.5mm (l) x 112mm (b) x 220mm (h)
Weight 1200	2.2kg
Weight 1250	3.0kg
Shipping weight 1200	5.0kg
Shipping weight 1250	6.0kg

Drive motor	Pulse free DC motor with variable speed setting
Fast feed	Pusher movement of 45mm/min
Syringe	Glass gas-tight 10mL syringe with 60mm stroke
Min. liquid flow rate	0.4mL/hr
Max. liquid flow rate	10mL/hr
Min. air flow rate	50mL/min
Max. air flow rate	999mL/min
Min. added gas pressure	0.5 bar
Max. added gas pressure	1.0 bar
Max. pusher force	100N
Pusher movement tolerance	+/-0.01mm or +/- 1% of total distance
Display	2x16 characters
Safety features	Audible alarm and red light indicator

Section 7
ACCESSORIES & REPLACEMENT PARTS

ORDERING INFORMATION

CAT. No.	DESCRIPTION
8336000	Univentor 1200 Anaesthesia Unit
8336050	Univentor 1250 Anaesthesia Unit
2423017	Gas outlet filter
2436032	Liquid cannula

INDEX

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