SOMNI 19.1

VETERINARY ANAESTHETIC VAPORISER
OPERATIONS MANUAL

SOMNI PRODUCT MANUAL

SOMNI
SCIENTIFIC

TABLE OF CONTENTS

SOMNI SCIENTIFIC

USER RESPONSIBILITY

The SOMNI 19.1 anaesthetic vaporiser is for **Veterinary Use Only**. Only fill the vaporiser with the anaesthetic agent indicated on the label; Isoflurane or Sevoflurane. Using the wrong anaesthetic may cause harm.

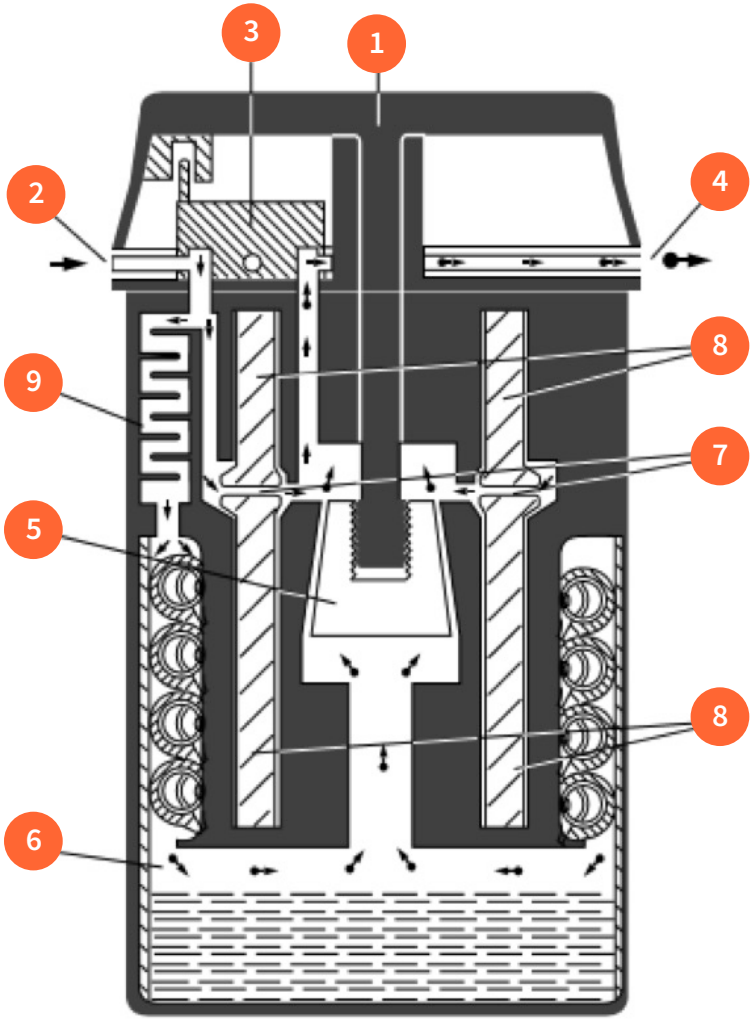
The SOMNI 19.1 is a precision vaporiser; delivering controlled anaesthetic vapour to the inhalation anaesthetic system. The vaporiser, as with any mechanical medical device, requires periodic servicing and calibration verification. It is recommended that the vaporiser calibration verification is performed annually and full service every two years. Any components, which become worn, distorted, or contaminated should be replaced by a factory authorised service center. A vaporiser that requires service should not be used until it has been accurately tested and verified by a factory-authorised service center. Field-testing of vaporiser output, using portable test equipment, is not a substitute for factory authorised preventive maintenance. The user assumes full responsibility and liability of any use of the vaporiser.

INTRODUCTION

WARNINGS AND CAUTIONS ⚠

- **Use only** a vaporiser that has been calibrated and certified.
- **Use only** the agent indicated on the vaporiser label. The vaporiser is designed and calibrated for use with that specific agent only. Failure to use only that agent may cause harm to the patient.
- **Do not use the vaporiser immediately after filling the first time. Allow agent to absorb into the wick for a minimum of (1) hour after initial fill.**
- **Do not** fill the vaporiser while the dial is engaged and carrier gas is flowing into the vaporiser, agent exposure will result.
- **Do not** install the vaporiser downstream of the fresh gas outlet.
- **Do not** carry vaporiser by the control dial or fill assembly.
- **Do not** modify, tamper, or disassemble the vaporiser. There is a probable danger of damaging the vaporiser and altering the calibration accuracy.
- **Do not** sterilise the vaporiser.
- **Do not** immerse vaporiser into water or any liquid.
- **Do not** drain agent into any container other than a properly marked container.
- **Do not** tilt vaporiser beyond a 45-degree angle, doing so may alter the output concentration.
- **Keep** vaporiser upright at all times.
- **Turn** vaporiser OFF-0 locked position when not in use.
- **Store** vaporiser empty if storage of longer periods is required.
- **Service** shall be performed only by a qualified service authority, contact manufacturer for service options.

PRINCIPLES OF OPERATION



1 Control Dial

2 Carrier Gas Inlet

3 ON/OFF switch connected to Control Dial

4 Anaesthetic Gas Outlet

5 Vaporising Chamber

6 Vaporising Chamber

7 Bypass

8 Temperature Compensator

9 Pressure Compensator

In the OFF-0 locked position, carrier gas enters the vaporiser inlet and flows through to the outlet of the vaporiser. The carrier gas does not enter the Vaporising chamber.

When the dial is engaged, carrier gas will enter the vaporiser inlet and flow into the vaporiser where it is split into two streams. One stream of the carrier gas will flow into the Vaporising chamber and will vaporise the liquid anaesthetic agent. The other stream of carrier gas is routed through a bypass where it will later meet and mix with the saturated stream. The anaesthetic laden carrier gas mixture will then flow to the outlet of the Vaporiser.

The desired concentration, as indicated by the dial setting is achieved by the proportioning of the two streams.

Vaporisation of liquid anaesthetic is affected by temperature. The temperature compensator expands or contracts the bypass to compensate for fluctuations in the saturation concentration of the anaesthetic agent.

Pressure compensation is also achieved through internal ducting which reduces any effects due to pressure fluctuations.

The construction of the SOMNI 19.1 ensures reliable, accurate output especially over longer periods of use.

PREPARATION FOR USE

Inspect the SOMNI 19.1 to ensure it arrived damage free. If any damage is suspected, please contact SOMNI Scientific Customer Support at 877-637-3625.

Verify the Control Dial moves freely once engaged.

Confirm the drain valve is completely closed as shown.

Remove the mounting hardware (vaporiser spacer and 2-6mm bolts) and drain tube (*not shown in image - save) from package.

1 Control Dial

2 OFF-0 locked position

3 Agent Specific Label

4 Sight Glass

5 Cagemount w/23mm tapered inlet & outlet ports

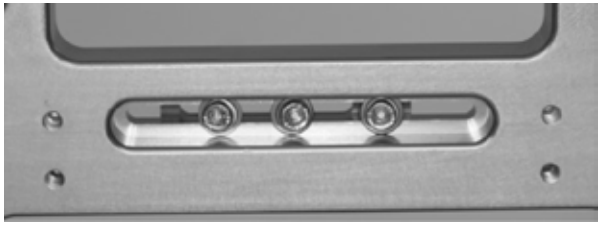
INSTALLATION

The SOMNI 19.1 is supplied with mounting hardware consisting of a spacer and 2-6mm mounting bolts. While supporting the weight of the vaporiser, install the spacer between the vaporiser and the mounting surface and secure the vaporiser using the mounting bolts provided. Ensure the bolts are tight but do not overtighten them.

Connect the 23mm inlet adapter to the inlet of the cagemount and 23mm outlet adapter connect to the corresponding outlet of the cagemount. Twist and firmly push on for a secure, leak free connection. It may be necessary to connect the 23mm adapters prior to mounting the vaporiser.

Complete a 10 second pressure test to confirm a leak free installation. See next page

Vaporiser Spacer placement



INSTALLATION CONT.

10 Second Pressure Test

Before each use, “leak check” the anesthesia system and ensure the waste gases have a patent way through the evacuation system.

1. With the Vaporiser set at “0”, close the pop-off valve and create a tight seal of the breathing circuit with your hand.

2. Push the oxygen flush button or turn the oxygen flowmeter on until the breathing bag is fully distended and/or the pressure manometer reads 30-40 cm of H20 pressure.

3. Release the oxygen flush button and/or ensure the oxygen flowmeter is off; float is at the bottom of the tube. Observe the manometer (or bag if your system does not have a manometer). The manometer needle should remain steady. If the manometer needle drops, the bag deflates, or if you hear a hissing sound, you have a leak.

4. Check hoses, bag, vaporiser inlet and outlet, any fittings or seals at the top and/or bottom of your CO2 absorber container for leaks (a soapy water solution can be used for leak test). When the pressure remains constant, with the oxygen turned off, your system can be considered leak-free on the low pressure side.

5. Repeat procedure with the vaporiser in the ON-engaged dial position to ensure vaporiser does not leak. Prior to re-opening the pop-off valve ensure the scavenging system is turned on and/or connected.

6. Re-open the pop-off valve to your standard setting.

7. Squeeze the bag (with your hand still over the breathing circuit) to ensure the gases have a clear way out through the scavenging system.

OPERATING INSTRUCTIONS

Filling the SOMNI 19.1

Keep the vaporiser in an upright, vertical position. Confirm the Dial is in the OFF – 0 locked position. Verify the drain valve is completely closed. Remove the filler cap by turning it counter-clockwise. Use a bottle adapter on the agent bottle to reduce spillage and operator exposure. Fill the vaporiser with only the agent it is labelled for; Isoflurane or Sevoflurane. Pour agent slowly into opening and observe level in sight glass. Fill until level reaches the Full line only. Do not overfill. The SOMNI 19.1 arrives empty and dry therefore the level visible in the sight glass will be reduced as the agent is absorbed into the wick inside the vaporiser.

The SOMNI 19.1 must be left upright, vertical and out of operation for a minimum of (1) hour after initial filling to allow for proper wicking of the agent. Failure to allow wicking time may result with inaccurate output.

Do not refill the vaporiser while the dial is engaged and the carrier gas is flowing into the vaporiser. This will result in agent bubbling out of the fill assembly. Turn the dial to the OFF-0 locked position, wait 5 seconds for pressure inside the vaporiser to normalise and then slowly turn the fill cap counter-clockwise and remove it. It is not necessary to turn the carrier gas flow off during this time. Fill the vaporiser, replace the filler cap and hand tighten. Do not overtighten as that may cause damage to the threads. The vaporiser may now be turned to the desired dial setting.

OPERATING INSTRUCTIONS CONT.

Draining the Somni 19.1

Keep the vaporiser in an upright, vertical position. Confirm the Dial is in the OFF – 0 locked position.

Attach the drain tube to the drain outlet port on the front of the fill assembly. Drain the agent into a properly marked container.

Hold container under the drain tube and slowly open the drain valve on the fill assembly. Close the drain valve when no more anaesthetic agent drips from the drain port and dispose of the agent according to protocol.

When storing the vaporiser for periods of time greater than 6 months, drain the agent and then dry the internal components and wick. To dry, confirm scavenger system is patent then turn the carrier gas on to 4 LPM, turn the control dial to 4% for approximately 4 hours.

Setting the Control Dial Concentration

Ensure the carrier gas flow is set on the anesthesia system. Push the OFF-0 locking button to engage the Control Dial. Turn the dial counter-clockwise to the desired % concentration. Turn the Control Dial to OFF-0 locking position when no longer in use. Allow remaining anaesthetic agent to clear from the system prior to turning off the carrier gas flow. Check the agent level in the sight glass periodically to ensure there is enough agent in the vaporiser.

SPECIFICATIONS

Calibration

Vaporisers are calibrated at 21° C. The variation in output with temperature, flow rate and duration of use is small, and the variation in output when used with Intermittent Positive Pressure Respiration is negligible.

Dimensions and Weight

Weight	18.0lb / 8.2kg
Dimensions	4.3 in W x 6 in. D x 7.65 in. H (109 cm W x 152 cm D x 194 cm H)
Liquid Capacity	Approximately 250ml Approximately 60ml retained in wick

Resistance to Gas Flow

Control Dial setting at OFF-0 locked	<12 mmHg at 10 L/min Air, 15 to 35 °C
Control Dial setting On	<45 mmHg at 10 L/min Air, 22 °C <83 mmHg at 10 L/min Air or O2,15 to 35°C

SPECIFICATIONS CONT.

Duration of Use

The rate of consumption of anaesthetic agent depends primarily on flow rate and output concentration. The approximate hourly consumption of anaesthetic agents can be expressed as follows:

3 x % x F

Where % represents the control dial setting of the vaporiser, F represents the carrier gas input flow rate in liter/min.

Example: If a vaporiser is set to deliver 2% at 3 liter /min the approximate rate of agent consumption = 3 x 2 x 3 = 18 ml/hour.

Temperature compensation allows for consistency of anaesthetic output concentration over a period of time. This consistency ensures the output delivery remains without fluctuations during short or longer procedures.

Back Pressure

The vapour in the Vaporising chamber is compressed when pressure rises and it expands when pressure falls. When this effect is strong enough it will pump small quantities of saturated vapour backwards through the inlet of the Vaporising chamber in the fresh gas. Their effect becomes greater: the higher the vent pressure and frequency, the more rapid the fall in pressure during expiration, the lower the carrier gas flow, the lower the concentration set, the smaller the amount of agent in the vaporiser. The vaporiser's ability to compensate for these effects will reduce them in practice.

Carrier Gas Composition

The output concentration of the anaesthetic agent is dependent upon the composition of the carrier gas used in the anesthesia system. The output may vary with different carrier gases used, however the variation never falls outside the original calibration specification of +/- 15% of the Control Dial setting.

WARRANTY AND SERVICE INFORMATION

Limited Warranty

SOMNI Scientific (SOMNI) warrants to the original purchaser that the products, not including accessories, shall be free from defects in materials and workmanship under normal use, if maintained in accordance with SOMNI's guidelines and used according to its labeling, for the period specified in the manual.

Warranty period is 5 years, contingent upon a 2 year service cycle from the invoiced date of purchase.

THIS LIMITED WARRANTY, IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This warranty is void if the product has been altered, misused, damaged by neglect or accident, tampered with, not properly maintained, not installed in strict compliance with applicable codes and ordinances, or repaired by persons not authorised by SOMNI. This warranty does not cover normal wear and tear and maintenance items and specifically excludes accessory items and any other equipment used with the product.

Limitation of Remedies

SOMNI Scientific's only obligation under this limited warranty is the repair or replacement of the product. THIS IS THE EXCLUSIVE REMEDY. SOMNI shall not be liable for and hereby disclaims any direct, incidental, consequential or special damages or delays, including but not limited to loss of use, downtime, lost business, revenues and profits.

Warranty Procedure

To obtain warranty service, contact SOMNI Scientific **877-637-3625** or **info@somniscientific.com**.

SOMNI Scientific
1900 Sleepy Hollow Road,
South Park, PA 15129