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# CASPER<sup>®</sup> Portable Air Supply

## User Manual



01-0931  
01-0937



CC-950006-TM-4

## Symbol Key



Manufacturer



Reference number



Serial number



Date of manufacture



Consult instructions for use



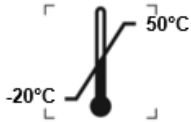
CE mark



DO NOT dispose of in household waste



Use-by date



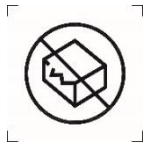
Storage Temperature Limit



Humidity Limit



Fragile, handle with care



Do not use if package is damaged

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# 1 General Information

## Introduction

It is essential that this user manual be read and understood before commencing any work with the CASPER Portable Air Supply. If the CASPER Portable Air Supply is used in a way that is not specified in this manual, the protection provided by the equipment may be impaired.

The CASPER Portable Air Supply is for professional research and development use only. The CASPER Portable Air Supply is only to be used in the presence of a trained user who is capable of removing the ReCIVA® Breath Sampler from the test subject. It is the responsibility of the user to monitor the test subject's wellbeing at all times while using the CASPER Portable Air Supply.

The CASPER Portable Air Supply is not a medical device and should not be used to deliver concentrated oxygen, or to support the breathing of individuals unable to breath independently, or for any other life supporting application.

## Safety

- Only connect to an earthed supply socket
- Use only the supplied mains cord
- If the supply cord is damaged it must be replaced by the manufacturer
- Always disconnect the equipment from the mains supply before moving
- Ensure mains cord and Air Supply Tubing does not present a trip hazard
- Do not use in a condensing environment
- Do not use near to open containers of liquids
- Do not use near to sources which can contaminate the air supply, such as solvents and biologically hazardous materials
- Ensure that the system is correctly assembled before use
- Do not place any objects directly on the CASPER Portable Air Supply
- Do not block the inlet or outlet ports of the system, nor seal any tubing during operation; If there is any doubt as to the operation of the system, such as a drop in the air flowrate, it should be powered down and disconnected
- Do not cover the CASPER Portable Air Supply while in use
- Wear clean nitrile examination gloves when assembling and handling the system
- The test subject must be monitored at all times when using the CASPER Portable Air Supply
- The CASPER Portable Air Supply should not be used to deliver concentrated oxygen

- The CASPER Portable Air Supply should not be used to provide a life sustaining air supply
- If the pump sound stops, the ReCIVA breath sampler must be immediately removed from the test subject
- It is the responsibility of the operator of the CASPER Portable Air Supply to assess the impact of air supply failure and provide adequate mitigations should this occur
- The CASPER Portable Air Supply should not be used at altitudes above 2km in subjects who have not acclimatised
- The CASPER Portable Air Supply should not be used for longer than 1 hour by a single test subject in a 24 hour period

## Warranty Statement

Owlstone Medical is proud of our quality, reliability and our after-sales service. We continuously strive to improve our service to our customers.

Warranty provisions necessarily vary to comply with differences in national and regional legislation. Specific details can be found in the delivery documentation or from your dealer or representative.

Please note that your warranty may be invalidated if:

- this instrument is modified in any way, or not used as intended by Owlstone Medical
- accessories and reagents which have not been approved by Owlstone Medical are used.
- the instrument is not operated or maintained in accordance with instructions.



## Recycling and Disposal



This Product has been designed and manufactured with high quality materials and components, which can be recycled and reused. As a responsible manufacturer Owlstone Medical Ltd has chosen to voluntarily adhere to the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2012/19/EU guidelines for this product so it should not be disposed of in normal waste.

Please consult Owlstone Medical Ltd for details of our recycling and disposal program for this product. For users outside the European Union consult local authorities for correct disposal or contact Owlstone Medical Ltd.

The Air Filter contains activated carbon and cannot be recycled as part of your recycling collection scheme nor at household waste recycling centres. Used filters can be disposed of with your normal rubbish collection or in the landfill container at household waste recycling centres. Alternatively, used filters can be returned to Owlstone for processing. Please contact Owlstone for details.

## 2 Introduction to the CASPER Portable Air Supply

### Intended Use

The intended use of the CASPER Portable Air Supply is to provide a supply of filtered, ambient air in which environmental Volatile Organic Compounds (VOCs) have been reduced to low levels. It is only for use with the ReCIVA Breath Sampler in order to collect samples of breath for subsequent laboratory analysis. It is supplied only on a professional business-to-business basis for the purpose of research and development.

### Technical Specifications

Operating Condition	Description
Input Voltage	230V AC, 50Hz ( <i>standard</i> ) 115V AC, 60Hz ( <i>US variant</i> )
Equipment Rating	350W 230V 1.5A ( <i>standard</i> ) 350W 115V 3A ( <i>US variant</i> )
Storage Temperature range	-20°C – +50°C (unit off)
Operating Temperature range	10°C – 30°C
Operating Humidity range	10% – 90%RH
Noise Level	<60dBA typical at 1m
Weight of CASPER Portable Air Supply	13.4 kg
Weight of Air Filter	2 kg
Size of CASPER Portable Air Supply	L = 415 mm W = 383 mm H = 230 mm
Size of Air Filter	L = 272 mm W = 85 mm H = 114 mm

*Note: The performance of the air filter will be reduced at temperatures above the recommended operating temperature range*

## **Identification of Parts**

The CASPER Portable Air Supply is supplied with the following parts:

01-0931	CASPER Unit ( <i>230V Variant</i> )
01-0937	CASPER Unit ( <i>115V variant</i> )
01-0862	Air Filter
01-0924	Air Supply Tubing
50-1869	Mains Power Cord, UK
50-1870	Mains Power Cord, EU
50-1871	Mains Power Cord, US

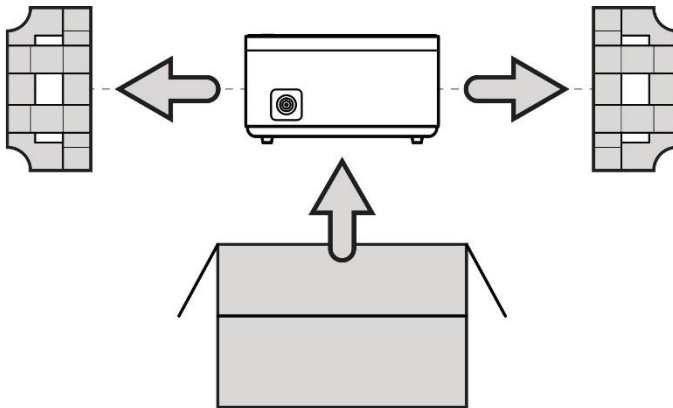
### 3 Setup of the CASPER Portable Air Supply



Wear clean nitrile examination gloves when setting up the CASPER Portable Air Supply in order to keep parts as clean as possible.

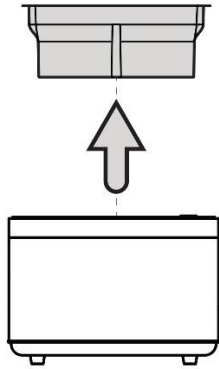
1. Remove CASPER from box and foam packaging and place on a clean, dry surface away from open solvent sources.

*Note: Please retain all packaging during the warranty period.*



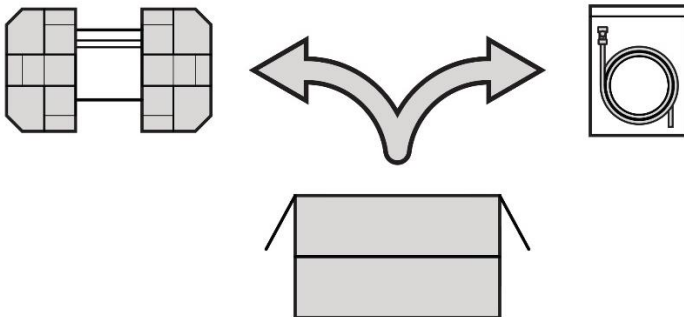
The CASPER Portable Air Supply should not be used if it is visibly damaged.

2. Remove the plastic cover from inside the unit.



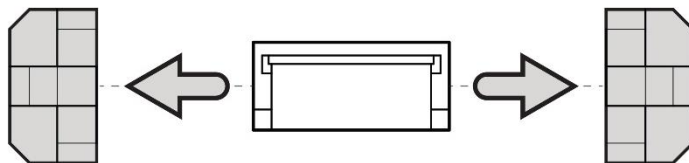
3. Remove the Air Supply Tubing and the Air Filter from the box.

*Note: The 'use by' date on the Air Filter is the date by which the Air Filter should have started to be used.*



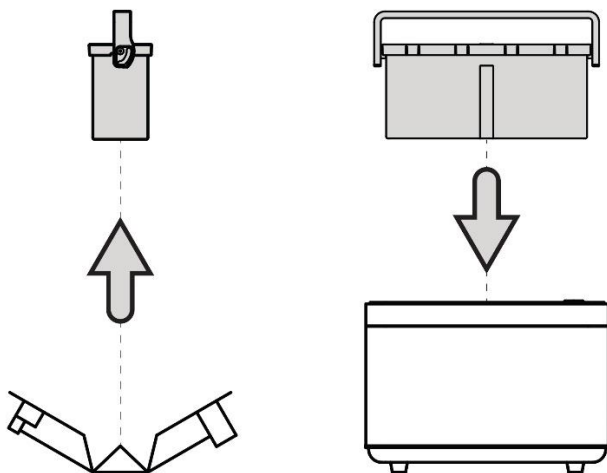
The Air Filter and Tubing should not be used if packaging is damaged.

4. Remove the Air Filter from the foam packaging.

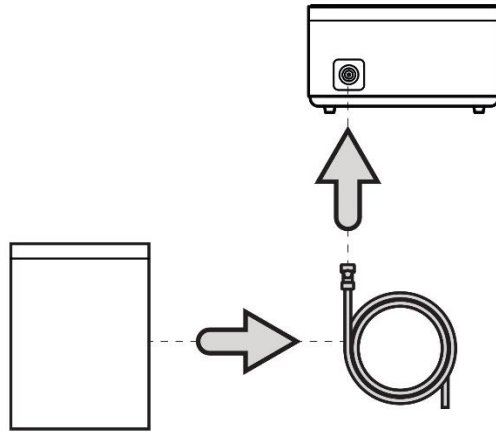


5. Remove the Air Filter from the plastic case and place in the CASPER unit.

*Note: The Air Filter should be stored in the CASPER unit until end of life.*

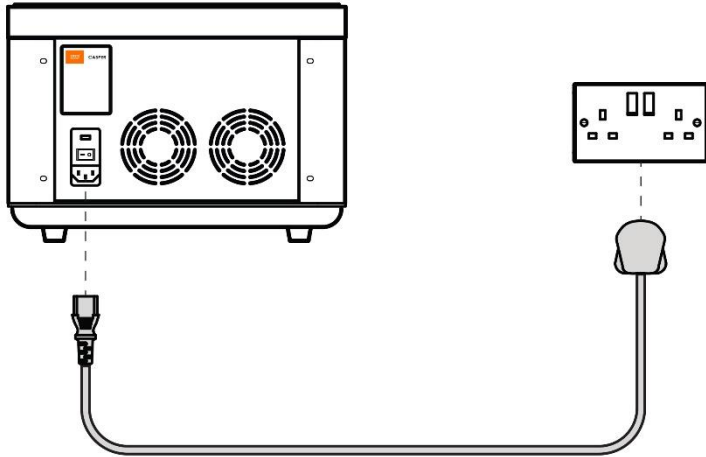


6. Remove the Air Supply Tubing from the sealed plastic bag and attach to the valve connector of the CASPER unit.



7. Connect the Mains Power Cord to the IEC connector on the back of the CASPER unit and plug in to mains power.

*Note: Avoid positioning the system in a corner or close to walls which may restrict airflow away from the back of the system.*

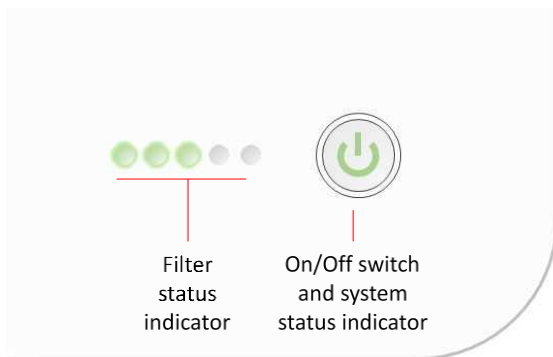


The CASPER Portable Air Supply should not be used near to sources which can contaminate the air supply, such as solvents and biologically hazardous materials.

8. Following assembly, the complete system must be run continuously for 1 hour to allow it to settle and for the air quality to stabilise.

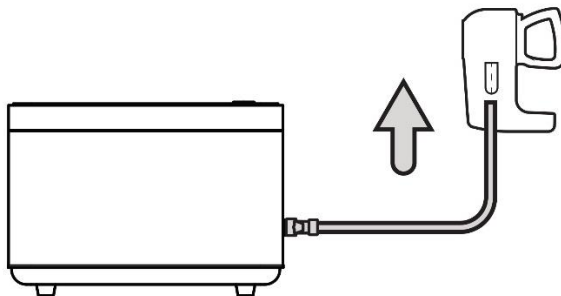


## 4 Operating Instructions

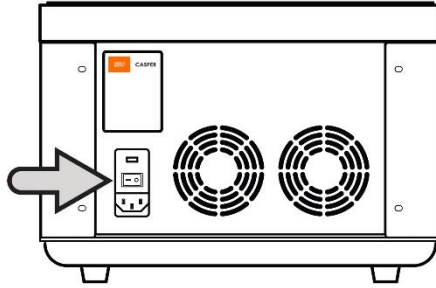


*Figure 1: CASPER User Interface*

1. Attach the Air Supply Tubing to the ReCIVA Breath Sampler



2. Power on the system using the rocker switch on the back of the system. On start-up, the system status indicator will flash red, a buzzer will briefly sound, and the fans will pulse.

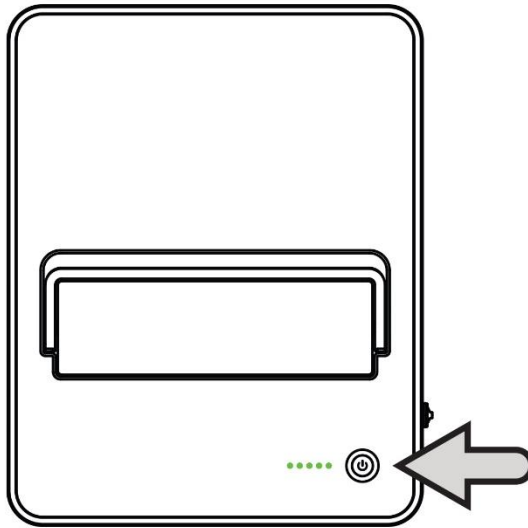


The CASPER Portable Air Supply should not be used if either the buzzer does not sound, or the red warning LED does not illuminate.

The remaining lifetime of the scrubber will be shown by the filter status indicators. On first use of the scrubber, five green LEDs should be visible.

3. To provide flow, press the on/off switch. The system status indicator will flash green for ten seconds then stay solid green, indicating the system is delivering the required flow and is ready to use.





*Note: When the CASPER Portable Air Supply is not in use, seal the air supply pipe using the attached bung.*











The CASPER Portable Air Supply should not be used if the LEDs turn off during operation

# 5 Indications

## System status indicator



 <p>Flashing green</p>	<p>System starting up.</p>
 <p>Solid green</p>	<p>System operating within specified limits for air flow and air temperature.</p>
 <p>Solid amber</p>	<p>WARNING. System unavailable for use.</p>
 <p>Flashing red</p>	<p>ALARM. Remove air supply from test subject, an audible alarm will be present. Once the air supply has been removed from the test subject, press the on/off switch to turn off the audible alarm.</p>


## Filter status indicator


	Air filter life remaining > 80%
	Air filter life remaining > 60%
	Air filter life remaining > 40%
	Air filter life remaining > 20%
	Air filter life remaining $\leq$ 20% <i>Order replacement Air Filter</i>
	Air filter life remaining $\leq$ 2 hours
	Air filter expired
	Air filter not fitted

*Note: At the end of life, remove the Air Filter from the system and replace with a new Air Filter. Wear clean nitrile gloves when changing the Air Filter. The Air Supply Tubing should also be replaced at the end of filter life.*

## 6 Troubleshooting

Problem Indication	Possible Cause	Action
<p>System Indicator:</p>  <p>Solid amber</p>	<p>Air Filter is exhausted / not present / not detected</p>	<p>Check Air Filter Lifetime LEDs. Replace Air Filter if current Air Filter is exhausted / not present / not detected.</p>
	<p>The system has detected an internal error when flow is off or within the first ten seconds of starting</p>	<p>Reset system by hard power off and on using IEC power inlet rocker switch and try to start pump again. If this does not clear the error, request service.</p>
<p>System Indicator:</p>  <p>Flashing red &amp; Audible Alarm</p>	<p>Blockage of the Air Supply Tubing while the system is providing air</p>	<p>Remove air supply from test subject if present. Turn off flow using on/off switch. If possible, remove blockage and reset system by hard power off and on using IEC power inlet rocker switch. If not, replace Air Supply Tubing.</p>
	<p>Removal of the Air Filter from the unit while the system is providing air</p>	<p>Remove air supply from test subject if present. Turn off flow using on/off switch. Return the air filter to the unit and reset system by hard power off and on using IEC power inlet rocker switch.</p>

<b>Problem Indication</b>	<b>Possible Cause</b>	<b>Action</b>
<p data-bbox="154 651 264 703">System Indicator:</p>  <p data-bbox="135 850 283 879">Flashing red</p> <p data-bbox="199 903 217 927">&amp;</p> <p data-bbox="163 951 253 1007">Audible Alarm</p>	<p data-bbox="316 240 591 371">Inadequate cooling air supply through the unit while the system is providing air</p>	<p data-bbox="669 240 994 619">Remove air supply from test subject if present. Turn off flow using on/off switch. Ensure unit is not covered and vents under system are not blocked. Move system away from enclosed space. Reset system by hard power off and on using IEC power inlet rocker switch.</p>
	<p data-bbox="316 671 620 767">The system has been run for more than 24 hours continuously</p>	<p data-bbox="669 671 994 874">Remove air supply from test subject if present. Turn off flow using on/off switch. Reset system by hard power off and on using IEC power inlet rocker switch.</p>
	<p data-bbox="316 925 637 1056">The Air Supply Tubing has been disconnected from the unit while the system is providing air</p>	<p data-bbox="669 925 994 1193">Remove air supply from test subject if present. Turn off flow using on/off switch. Re-connect Air Supply Tubing and reset system by hard power off and on using IEC power inlet rocker switch.</p>
	<p data-bbox="316 1249 631 1345">The thermal cut-out on the pump has been activated. Pump will have stopped</p>	<p data-bbox="669 1249 994 1417">Remove air supply from test subject if present. Turn off flow using on/off switch. Turn off power to system. Request service.</p>

<b>Problem Indication</b>	<b>Possible Cause</b>	<b>Action</b>
<p data-bbox="154 236 266 295">System Indicator:</p>  <p data-bbox="135 438 283 598">Flashing red &amp; Audible Alarm</p>	<p data-bbox="316 236 620 336">The system has detected an internal error while the system is providing air</p>	<p data-bbox="669 236 994 408">Remove air supply from test subject if present. Turn off flow using on/off switch. Turn off power to system. Request service.</p>



## 7 Servicing

The Air Filter has a lifespan of 250 hours. Please contact Owlstone Medical Ltd to arrange service and support.

The CASPER Portable Air Supply does not contain any user serviceable parts. All servicing must be carried out by Owlstone Medical Ltd. Do not disassemble any of the individual system components. If you encounter any problems with the equipment or this procedure, please contact Owlstone Medical Ltd immediately using the contact details below.

Support forum: <https://support.owlstonenanotech.com/>

Email: [support@owlstone.com](mailto:support@owlstone.com)

Address: Owlstone Medical Ltd  
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Cambridge Science Park  
Milton Road  
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United Kingdom

Telephone: +44 (0) 1223 428200

## 8 Cleaning

Unplug the system prior to cleaning the device. The system should only be cleaned using the cleaning wipes supplied by Owlstone Medical Ltd. Clean the exterior surfaces of the system with the Air Filter inserted. After cleaning, the CASPER Portable Air Supply should be left for a minimum of two hours before use.