



90-0536 Standard Operating Procedure - Changing the Particulate Filter in a Lonestar-ATLAS

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Notices

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The supplied system is in compliance with international regulations. If this system is used in a manner not specified by Owlstone Ltd, the protection provided by the system could be impaired

Warning Labels



This symbol is used to highlight a section explaining particularly important safety considerations



This warning label indicates danger of electrical shock hazard



This warning label indicates parts of the product that will become hot during use. Please take care.

Introduction

Document Purpose

The purpose of this document is to detail the process to successfully change the particulate filter membrane in a Lonestar ATLAS.

Related Documents

None

Nomenclature

Term or abbreviation	Meaning
SMA	Sample Module Assembly
ATLAS	The Lonestar Sampling system including the Pneumatics Control Box, Heater Control Box, Split Flow Box and Sample Module Assembly

Removing the filter

The ATLAS sampling module assembly (SMA), shown below, is usually attached to the left hand side of a Lonestar.

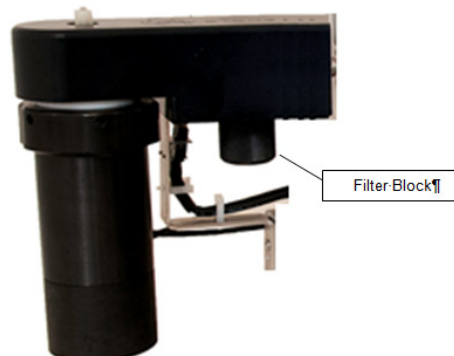


Wear clean latex gloves when handling the components. Any contamination can cause longer clean-down times and/or contaminate the measurements to be made.



Ensure that the ATLAS is depressurised, with the pressure typically below 0.1 bar before opening.

Reach in to the filter block (indicated) and unscrew this from the ATLAS-SMA.





Be careful when doing so as the filter may be hot, depending on the temperatures set.

The removed filter block looks like this.



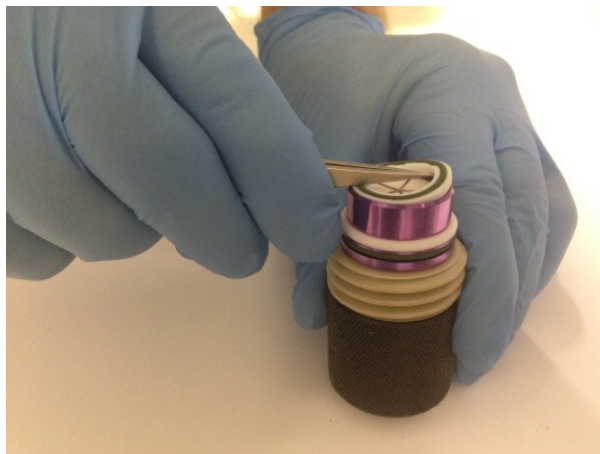
Using the flat end of some tweezers, lift the white PTFE component containing the green o-ring.

On some systems there may be a pinkish coloured metal ring with two inward facing "ears" inside the PTFE ring.

This metal part is not needed and can be discarded.

Ensure the larger PTFE ring (02-0870, PTFE Radial Ring) around the outside of the filter is in place and undamaged.

Using "strong" tweezers which come to a point, push the point into the PTFE as shown and then lever the PTFE (02-1573) and green o-ring (50-1162) out of the filter block.





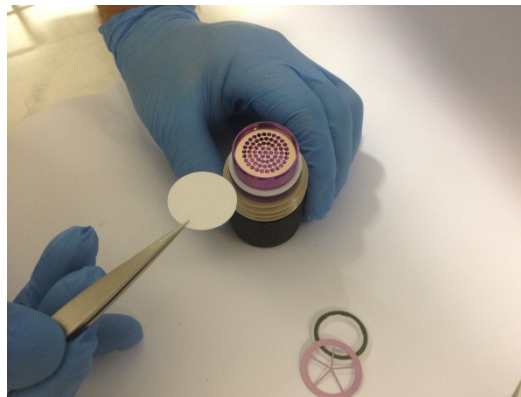
If you are careful not to damage the PTFE ring it can be re-used. If it has become distorted so that it will not seal again, use a replacement part. Two are supplied with the ATLAS when shipped.

Using clean tweezers, lift the purple metal piece (02-0779, pentacle support) holding the filter paper in place

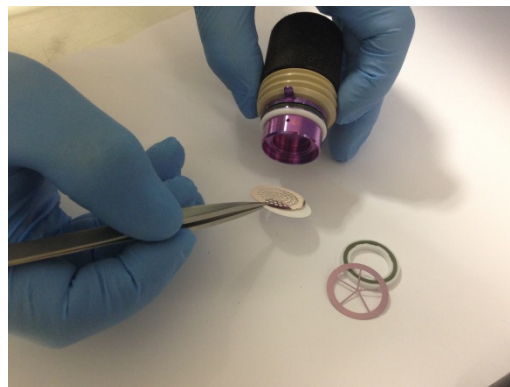
Place these onto a clean surface, such as lint free paper, or a clean latex glove.



Remove the filter paper (50-0622) and discard this as appropriate for the chemicals which have been tested in the system.



There will be a final purple metal piece (02-0807, filter support) remaining.



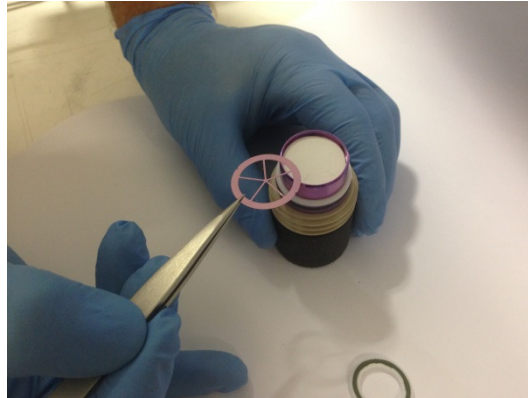
Place the new filter paper on top of this.

Spare filters (50-0622) are supplied with the system when shipped.

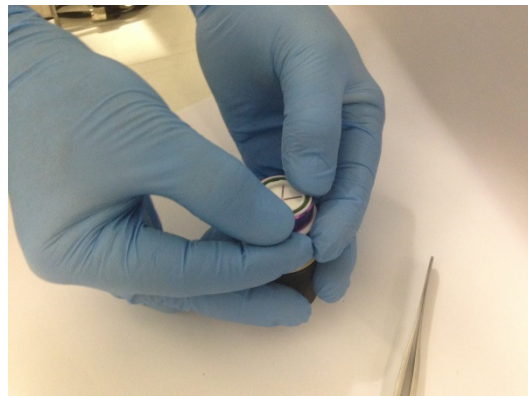


Handle the filter paper with clean tweezers only.

Re-assemble the filter parts as shown, first replacing the (5 star) metal holder

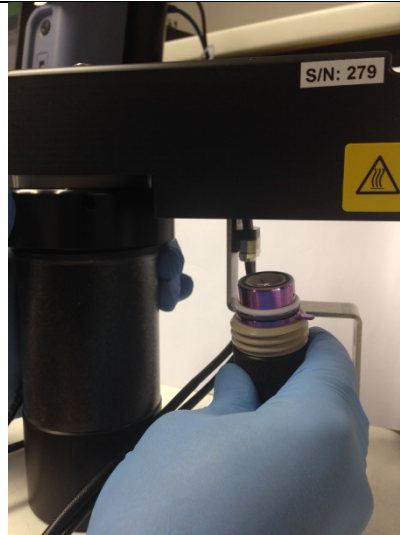


Then press the PTFE part assembled with o-ring firmly back in place



Finally, screw the filter block back into the ATLAS-SMA.

The coarse thread may mean you have to turn it quite a way to get it to engage.



Cleaning the new filter

Even if you have installed a new filter and handled it carefully, it still contains contamination that the Lonestar can detect.

To remove this contamination as quickly as possible, you should

1. have clean, dry air flowing at around 1.5- 2lpm, and
2. set the configuration

Default-80V-25MHz-Toff25pc-Rad-slow-DRY SMA bake

Or on earlier systems (only the name has changed)

Default-80V-25MHz-Toff25pc-Rad-slow-bake

This configuration will usually be in the subfolder "Service Configurations". Contact Owlstone Support if this is not installed on your Lonestar.

<https://support.owlstonenotech.com>



Ensure you do not have any (liquid) sample in the ATLAS-SMA when you set the bake conditions or this may boil off and condense inside the Lonestar, which may then require servicing to repair.

The filter region should heat up to around 140C and if the clean, dry air is flowing, the filter should clean down over about 2 days.

The cleanliness can be determined by examining a positive mode scan and measuring the size of the right hand peak at 55DF (and CV about 0).

If this is < 0.2 (better still, 0.1) then the system should be clean enough to use.

Filter Spare Parts

Owlstone P/N	Name
02-0779	Pentacle Filter Support
02-0807	Filter Support
02-0870	GBH PTFE Radial Ring
02-1573	SMA PTFE Filter Ring- 1.78 o-ring
50-0622	Membrane Filter, 1micron, Unlaminated, PTFE, 25mm dia, box 50pc
50-1162	O-ring 20.35 x 1.78, (BS019), Viton 51414 compound (FPM), 75shore, Green

About Owlstone

Owlstone develops and commercializes innovative new technologies to address the critical need for compact, dependable and cost-effective chemical and biological detection solutions for a wide range of markets.

Owlstone was formed through the recognition of the opportunities created by the application of micro- and nano- technology to develop improved sensing solutions.

Owlstone is focused on the innovation of detection technologies to address unmet needs, developing solutions that are flexible enough to target a range of markets with the potential for growth by enabling new application opportunities.

From homeland security to home safety, Owlstone is working with leading manufacturers and integrators across a range of markets to develop products incorporating our microchip chemical sensing solution.

Owlstone is headquartered in the United States and has laboratory facilities in the United Kingdom. Owlstone Ltd was founded in 2003 with a seed investment of two million dollars from Advance Nanotech, Inc., a New York based company specializing in the investment in and commercialization of nanotechnologies.