

NM18-45L User Manual



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Change History

Rev.	Comment	Name	Date
1	Initial release	Colin Marshall	29/07/10
2	Filter information update	Liam Couttie	30/04/13
3	Added NM45L information	Liam Couttie	22/04/14
4	Technical Specification Update	Liam Couttie	26/07/16
5	Pneumatic Diagram Update	Liam Couttie	09/02/17
6	Servicing Info Update	Liam Couttie	11/12/17
7	SMG Guide Added	Cleo Denholm	24/06/24

How to use this Manual

This manual is intended for end users and has been written so that it can either be read as a step by step guide to installation and usage or as a reference document where you can skip to the relevant information.

Users of a hard copy version can refer to the contents page to find the relevant information. Users of the soft copy version can use the hyperlinks from the contents page as well as the hyperlinks between sections.

Please review each of the following sections carefully.

Thank you for selecting Peak Scientific to meet your Gas Generation needs, and should you require any further assistance or support please do not hesitate to contact Peak Scientific or Peak Partner from which you purchased your Generator.

Generator User Manual

Introduction

The Peak Scientific Nitrogen Generator is designed specifically for use with LCMSMS applications, but has also been used successfully for Turbovap or ELSD applications. The generator has been designed to produce Nitrogen from an existing source of dry, oil free, compressed air in the laboratory.




Warranties and Liabilities

1. The Company warrants that it has title to the Goods.
2. Subject to the provisions of this clause the Company warrants that the Goods shall comply in all material respects with any specification referred to in the Order Confirmation (as the same may be amended) and shall, subject thereto, be free from defects in material and workmanship for the lesser of a period of twelve months from the date of delivery or thirteen months from the date of dispatch from the factory.
3. Save as provided in this clause and except where the Goods are sold to a person dealing as a consumer (within the meaning of the Unfair Contract Terms Act 1977) all warranties, conditions or other terms implied by statute or common law are hereby expressly excluded save to the extent they may not be lawfully excluded. When the Goods are sold to a consumer within the meaning of the Unfair Contract Terms Act 1977 their statutory rights are not affected by the provisions of this clause.
4. In the event of the Customer making a claim in respect of any defect in terms of clause 2 hereof the Customer must.
 1. Reasonably satisfy the Company that the Goods have been properly installed, commissioned, stored, serviced and used and without prejudice to the generality of the foregoing that any defect is not the direct or indirect result of lack of repair and/or servicing, incorrect repair and/or servicing, use of wrong materials and/or incorrect spare parts
 2. Allow the company to inspect the Goods and/or any installation and any relevant packaging as and when reasonably required by the Company.
5. Subject to the Company being notified of any defect as is referred to in sub-clause 2 hereof within a reasonable time of it becoming apparent and subject always to the terms of sub-clause 4 hereof, the Company shall, in its option, replace or repair the defective Goods or refund a proportionate part of the Price. The Company shall have no further liability to the Customer (save as mentioned in sub-clause 6 hereof).
6. The Company shall be liable to indemnify the Customer in respect of any claim for death or personal injury to any person in so far as such is attributable to the negligence or breach of duty of the Company or any failure by the Company to comply with the provisions of sub-clause 2 hereof.
7. Save as provided in sub-clause 2 hereof the Company shall not be liable in respect of any claim by the Customer for costs, damages, loss or expenses (whether direct, indirect, consequential or otherwise) or indemnity in any respect howsoever arising including, but not by way of limitation, liability arising in negligence (other than pursuant to clause 6 above) that may be suffered by the Customer or any third party.

Safety Notices

Symbols

This manual uses the following symbols to highlight specific areas important to the safe and proper use of the Generator

	A WARNING notice denotes a hazard. It calls attention to an operating procedure, process or similar, which if not correctly performed or adhered to, could cause personal injury or in the worst case death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood or met.
	A CAUTION notice denotes a hazard. It calls attention to an operating procedure, process or similar, which if not correctly performed or adhered to, could cause damage to the Generator or the Application. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood or met.
	Caution, risk of electric shock. Ensure power to the Generator has been removed before proceeding.

Safety Notice to Users



These instructions must be read thoroughly and understood before installation and operation of your Peak MS Table Generator. Use of the Generator in a manner not specified by Peak Scientific MAY impair the SAFETY provided by the equipment.



When handling, operating or carrying out any maintenance, personnel must employ safe engineering practices and observe all relevant local health and safety requirements and regulations. The attention of UK users is drawn to the Health and Safety at Work Act 1974, and the Institute of Electrical Engineers regulations.

Generator User Manual

Environmental Declaration

We Peak Scientific Instruments Ltd.
of Fountain Crescent, Inchinnan. Renfrewshire PA4 9RE
declare that:

Equipment Nitrogen Gas Generator
Model NM18-45L

Is fully compliant with the following Directives:

2002/96/EC WEEE (Waste of Electrical and Electronic Equipment)

2002/95/EC RoHS (Restriction of Hazardous Substances)

Peak Scientific Instruments Ltd fully complies with its obligations towards the European WEEE (Waste of Electrical and Electronic Equipment) Directive 2002/96/EC. These obligations are being met within the B2B compliance group.

Peak Scientific Instruments Ltd has developed all reasonable 'due diligence' controls to ensure that our products comply with the principles and requirements of the European RoHS (Restriction of Hazardous Substances) Directive 2002/95/EC. Similar directives in the United States and China, for example, have also been captured within this program.

Where a specific certificate of compliance is required, this can be requested, on a product serial number basis, directly from Peak Scientific Instruments Ltd, by contacting us through our website on www.peakscientific.com

Signed By:



Name: Ken Brown

Position: Quality Assurance Manager

Done at: Peak Scientific Instruments Ltd, Inchinnan, Scotland.

Date: 1st of November 2009



Generator User Manual

Technical Specification

Environment

	NM18L	NM32L	NM45L
Min. Operating Ambient Temperature	5°C / 41°F		
Max. Operating Ambient Temperature	30°C / 86°F		
Maximum Relative Humidity	70%		

Generator Outlets

Max. Flow Rate	18 l/min	32 l/min	45 l/min
Max. Inlet Pressure	8.3-10 bar / 120-145 psi		
Max. Outlet Pressure	100 psi		
Min. Inlet Air Requirement	50 l/min	90 l/min	135 l/min
Max. Pressure Drop	8 psi		
Pressure Dew Point	-40°C / -40°F		
Particles	<0.01µm		
Gas Outlets	1		
Pressure Gauges	1		

General

Generator Dimensions cm	47 x 16 x 76 / 19" x 7" x 30"		
Shipping Weight	18kg / 39 lbs	18 kg / 39 lbs	20 kg / 44 lbs

Unpacking

Although Peak Scientific takes every precaution with safe transit and packaging, it is advisable to fully inspect the unit for any sign of transit damage.

Check 'SHOCKWATCH' label for signs of rough handling prior to un-packing –



Any damage should be reported immediately to the carrier and Peak Scientific or the Peak Partner from where the unit was purchased.

Follow the unpacking instructions posted on the side of the crate. It will require two people to remove the unit from the shipping crate and to manoeuvre the Generator onto the floor.

Please save the product packaging for storage or future shipment of the Generator.

Note: Included with the Generator is a “Fittings Kit” containing mains power leads for UK, EU and US also all the required fittings. Be careful not to discard these with the packaging.

General Dimensions

In addition to being floor or bench free standing, the generator may be fixed to a wall in the upright position shown below.

The diagram shows the clearance and mounting hole centres required.

NM18L & NM32L



NM45L



Air Connection

The Nitrogen generator should be connected to a clean, dry, oil-free source of compressed air. A minimum pressure of 120 psi (8.3 bar) for the NM18L, NM32L and NM45L is required. Any doubts as to the suitability of your compressed air supply should be referred to Peak Scientific or any of their authorised partners.

The generator has a Breathing Air Filter with ¼" BSPT connection to the left side of the unit. The compressed air supply should be connected here. This filter will drain moisture and is equipped with an automatic drain. The drain should be led to a convenient place. Nitrogen outlet is via an Activated Carbon reverse-acting filter mounted on the right side, again with a ¼" BSPT connection for outlet.

Commisioning

With the generator installed as previously described, open the air supply to the unit. The generator has been pre-set in the factory to give the specified output flow-rate and pressure. On reaching operational pressure the generator will produce Nitrogen.

The design of the generator is such that it will deliver up to the rated output flow of Nitrogen at 100 psi (6.8 bar) flow at any time is determined by demand of the consuming equipment. In circumstances of no demand, the generator remains operational and will provide nitrogen immediately as demand resumes.

Generator	Output Flow / Pressure
NM18L	18 l/min – 100 psi
NM32L	32 l/min – 100 psi
NM45L	45 l/min – 100 psi

The above settings should allow the generator to be operated with al standard configurations of instruments. Should the above settings not provide sufficient flow or pressure for your application please contact Peak Scientific for assistance.

Maintenance Schedule



Servicing and / or repair of the generator should only be undertaken by **TECHNICALLY COMPETENT PERSON** with the generator in safely isolated condition.

Due to the simplicity of the design and the small number of moving parts the NM series Nitrogen Generator will have a long and trouble-free life. However as with all scientific and technical equipment it should be regularly inspected and serviced as below.

Service Schedule

Service Interval	Component	Part No.	Qty.
12 months	BA Inlet Filter Top Element	00-4427	1
	BA Inlet Filter Bottom Element	00-4424	1
	RAC Filter Element	00-4425	1

As an alternative to purchasing the 12 month service items individually an Annual Service Kit is available as one part number. This contains all the filters required for this generator.

Purchase Interval	Component	Visit
12 months	Annual Service Kit	www.peakscientific.com/ordering

BA Inlet Filters Elements

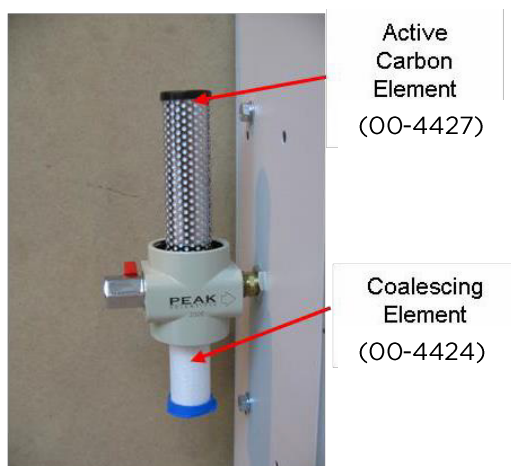
These should be changed at 12 month intervals. In addition, filter bowls should be cleaned and, the operation of the auto-drains should be checked.



Failure to follow the prescribed maintenance plan will invalidate the product warranty.

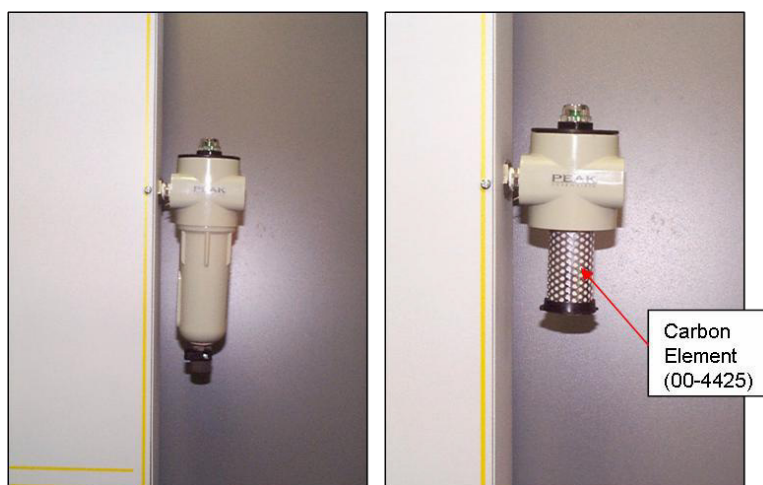


The air supply to the generator **MUST** be turned OFF and the generator **MUST** be de-pressurised prior to attempting to remove ANY filter bowl. Failure to do this may cause injury.



RAC Filter

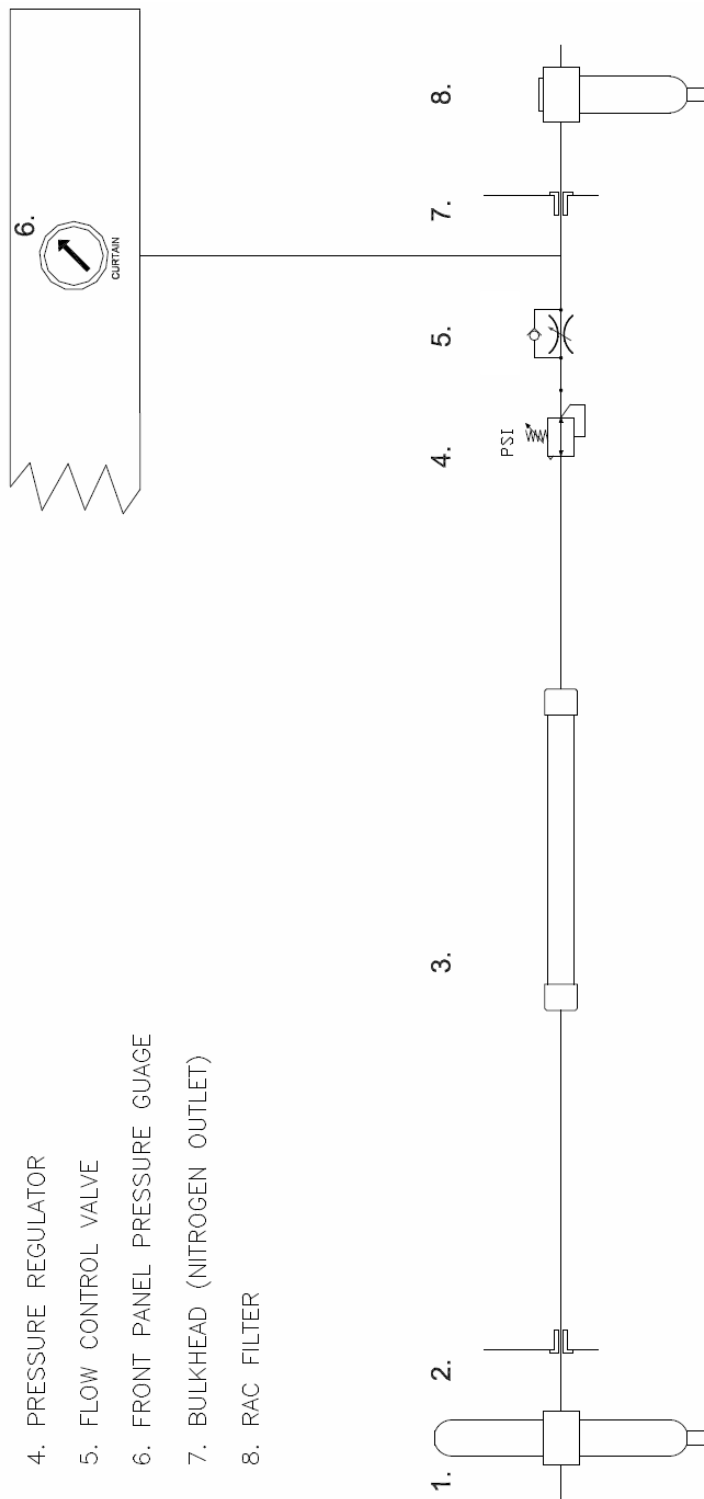
The element is as shown, and should be changed at 12 month intervals.



Pneumatic Diagrams

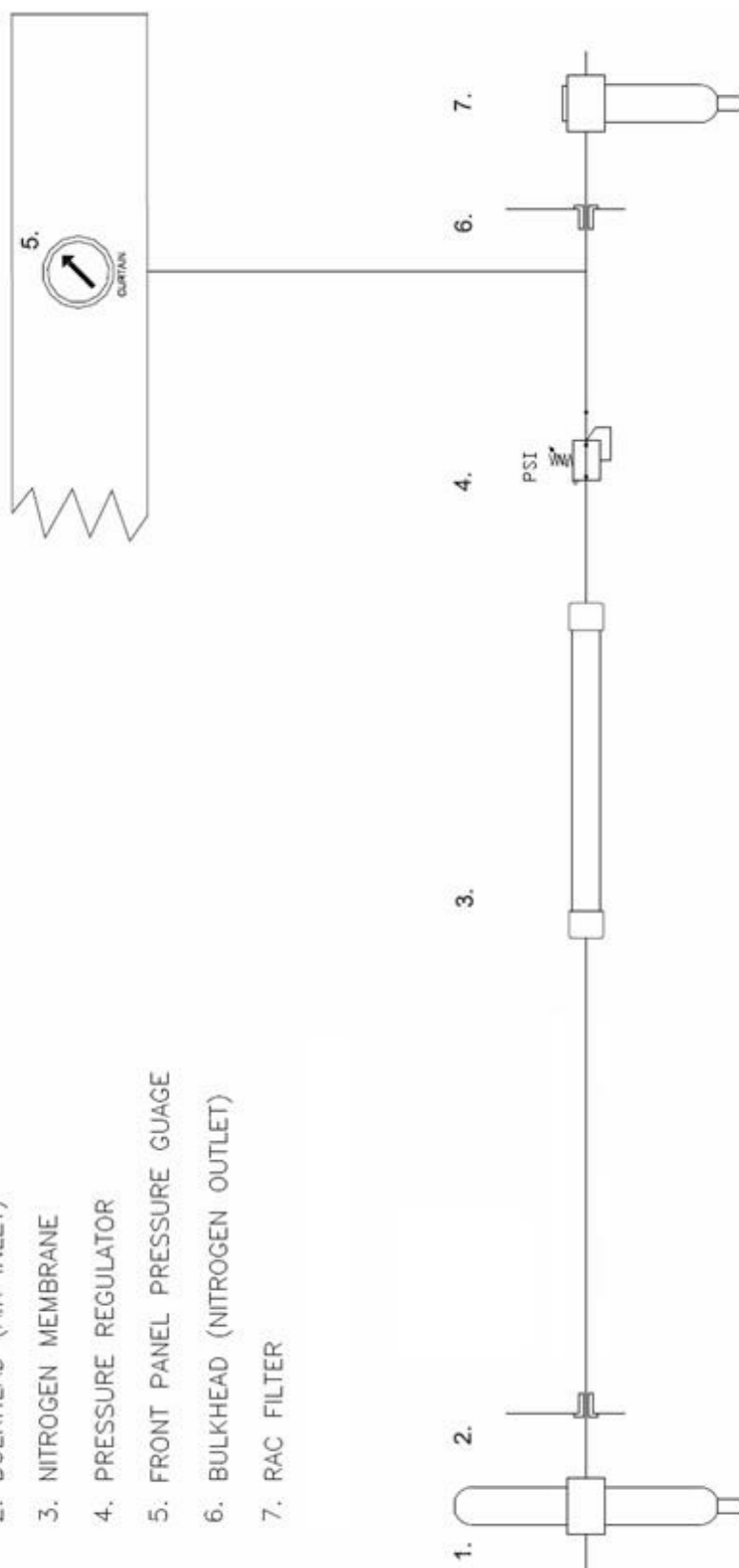
NM18L

1. INLET BREATHING AIR FILTER
2. BULKHEAD (AIR INLET)
3. NITROGEN MEMBRANE
4. PRESSURE REGULATOR
5. FLOW CONTROL VALVE
6. FRONT PANEL PRESSURE GAUGE
7. BULKHEAD (NITROGEN OUTLET)
8. RAC FILTER



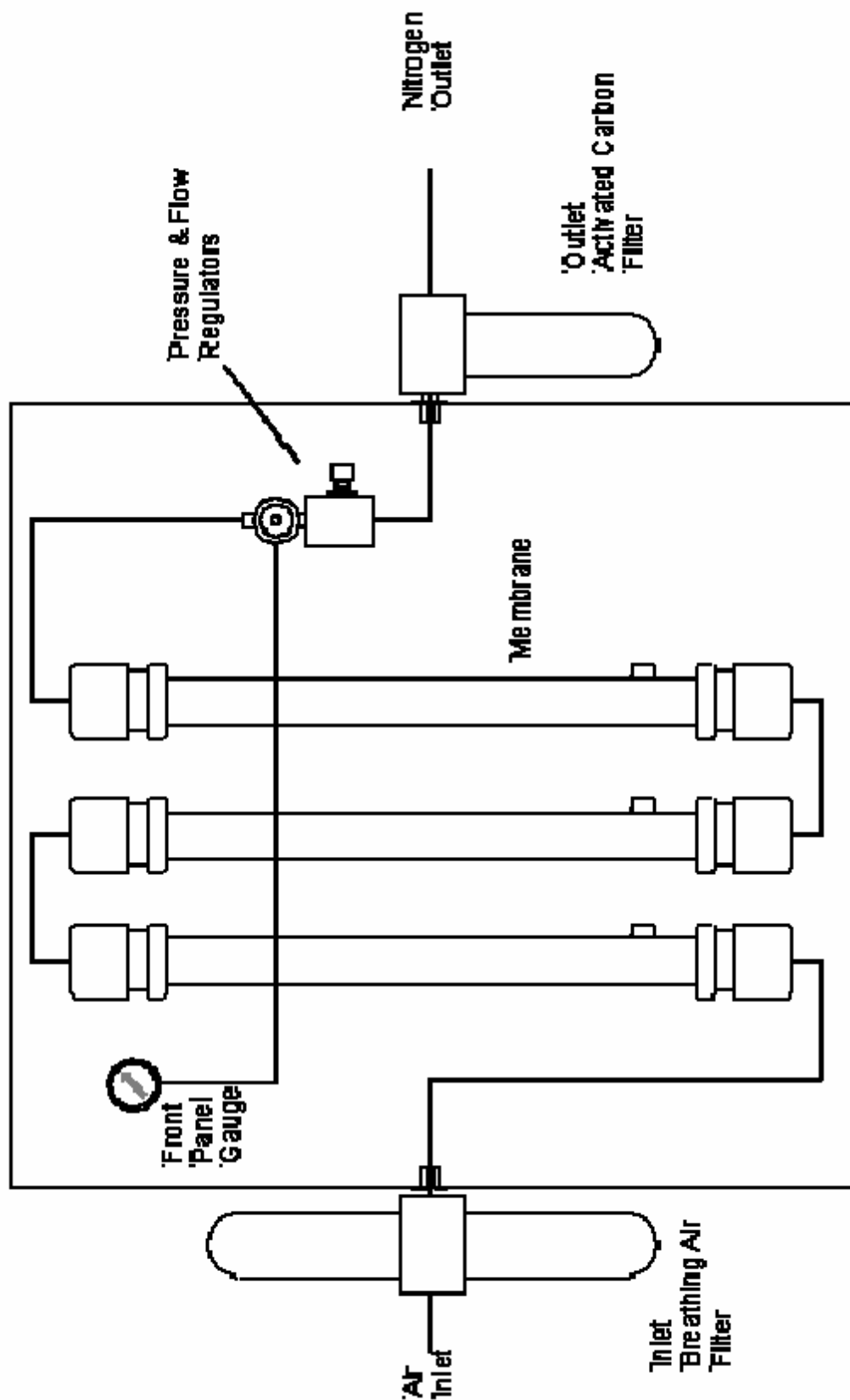
NM32L

1. INLET BREATHING AIR FILTER
2. BULKHEAD (AIR INLET)
3. NITROGEN MEMBRANE
4. PRESSURE REGULATOR
5. FRONT PANEL PRESSURE GAUGE
6. BULKHEAD (NITROGEN OUTLET)
7. RAC FILTER



Generator User Manual

NM45L



IMPORTANT DOCUMENTS



Warranty Entitlement

To register your generator for your warranty entitlement, send the completed form to Peak Scientific by:

- Email warranty@peakscientific.com
- Online http://www.peakscientific.com/service-and-support/warranty_registration
- Phone +44 (0)141 530 4185
- Fax +44 (0)141 812 8200

PRODUCT WARRANTY REGISTRATION	
COMPANY:	CONTACT NAME:
ADDRESS:	
	EMAIL ADDRESS:
CITY/TOWN:	GENERATOR SERIAL NUMBER:
POSTCODE:	
COUNTRY:	MODEL TYPE:
TELEPHONE:	INSTALLATION DATE (DD/MM/YYYY):

Important Please Note:

You have 1 month to register your Peak Scientific product from the date of shipment.

If you wish to defer installation of your generator you must notify Peak Scientific within 1 month of the shipment date. This can be done by emailing warranty@peakscientific.com Once registered the warranty will be honoured for a period of 12 months after the installation date.

For any generators that remain unregistered the warranty will begin from date of shipment.

Thank you on behalf of Peak Scientific.

Cleaning

Clean the outside of the Generator only using warm soapy water and a clean damp cloth. Ensure the cloth is thoroughly rung out to remove excess fluid prior to use.



Cleaning should only be undertaken with the power switched off and the power cord removed from the rear of the Generator.



Under no circumstances should any solvents or abrasive cleaning solutions be used as these can contain fumes that could be harmful to the Generator.

Introduction

The following is a guide for maintenance of the NM18L-NM240L Nitrogen Generator as provided for by the Peak Service Plan.

This procedure is to be performed on an annual basis.

1. Check that the LC/MS is not in use and that it is OK to disconnect the Gas Supply. Check that the Gas Demand is turned OFF.
2. Shut the Air Supply Valve.



3. Remove the Front Access Panel.
4. Carefully slacken the Gas Outlet Lines from the right side of the unit and allow it to depressurize. Confirm that the gauges return to Zero. **Any pressure gauge that does not return to zero may be damaged and must be replaced.**
5. Replace the RAC Filter Element 3307175 (00-4425)*



6. Replace the Breathing Air Filter Elements 3301716 & 3302276 (00-4424 & 00-4427)



7. Re-assemble the breathing air filter.
8. Carefully open the Air Supply Valve.
9. Re-tighten the Nitrogen Outlet Lines and re-fit the Front Panel.
10. Switch the LC/MS gas demand ON.

Service Parts List

Part Number	Description	Quantity
3301715 (00-4425*)	RAC Filter Element	1
3301716 (00-4424*)	Coalescing Element for BA Filter	1
3302276 (00-4427*)	Active Carbon Element for BA Filter	1

Element part numbers with (*) are obsolete, the 330XXXX part number should be ordered.

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