

Directions For Use

Nitrogen Generator In-House Air Supply

NM60L - ACS - 220v 19" Rack System

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Document Change History

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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: -
 - 4.1) 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; and
 - 4.2) 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 NOTICE TO USERS

These instructions must be read thoroughly and understood before installation and operation of your Peak Nitrogen Generator.

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.

WARNING: Nitrogen is not a poisonous gas, but if the concentration in the inhaled air becomes too high there will be a risk of asphyxiation.

1 Introduction

The Peak Scientific Instruments Nitrogen Generator is designed specifically for use with Laboratory Analytical Instruments as a source of carrier gas. The generator has been designed to operate from a laboratory dry, oil-free air supply delivering high volume, high pressure, clean, dry, Nitrogen.

2 Unpacking and Installation

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

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

ANY DAMAGE SHOULD BE REPORTED IMMEDIATELY TO THE CARRIER AND PEAK SCIENTIFIC OR THE DISTRIBUTOR FROM WHERE THE UNIT WAS PURCHASED.

After unpacking and a visual inspection, the unit should be placed in a ventilated area away from direct sunlight. Care should be taken not to obstruct the ventilation holes on the sides of the unit nor the fan outlet at the rear. The generator should be placed on a steady and level base. The NM60L-ACS is a free-standing system.

Performance of the generator (like all sophisticated equipment) is affected by ambient temperatures. Continuous operation in ambient temperatures exceeding 25°C will lead to a reduction in capacity and prolonged operation in temperatures exceeding 30°C will shorten the life of the unit. Note should also be taken of the proximity of Air Conditioning outlets. These can sometimes give rise to "pockets" of air with high relative humidity. Operation of the generator within such a pocket could adversely affect its performance.

3 Air Connection

The Nitrogen Generator should be connected to a **clean, dry, OIL - FREE** source of compressed air. A minimum pressure of 120 psig is required for the NM60L-ACS. Any doubts as to the suitability of your compressed air supply should be referred to the factory for advice.

The Inlet and Nitrogen Outlet connections are at the rear of the unit on the right side of the cabinet. The Air inlet connection is the centre port. 3/8" BSPT female, Nitrogen Outlet is the right port 3/8" BSPT female. With the backup supply on the left which is also 3/8" BSPT female. The generator is supplied with a Breathing Air pre-filter and an Activated Carbon post filter, which are fitted internally. The Breathing Air filter will drain moisture and is equipped with an automatic drain. This is connected to the 1/8" BSP female port at the back of the unit, which should be led to a convenient place.

4 Principle of Operation

Peak Scientific Instruments Membrane Generators utilise Hollow Fibre Membrane Technology to efficiently separate Nitrogen from other gases present in ambient air. The membrane operates on the principle of selective permeation in that so-called “Fast” gases such as H₂O, CO₂ & Oxygen will permeate through the membrane wall whilst so-called “Slow” gases will not and continue along the membrane tube and are thus available for collection and use.

Flow Diagram



Air passes into the system via the Breathing Air Filter. This will prevent bulk moisture and harmful contaminants from reaching the Membrane. The clean air then passes into the Membranes where Oxygen, CO₂ and Moisture are removed allowing the Nitrogen to pass through. The Output Flow is regulated for pressure and then passed through an Activated Carbon Filter to ensure no carry-over of harmful contaminants.

5 Commissioning

With the Generator installed as described earlier. Disconnect the Nitrogen Outlet connection to allow the generator to vent to atmosphere until the unit is stabilized then open the air supply. The Generator has been pre-set in the factory to give the specified output flow-rate and pressure. Once the Membrane reaches the design pressure the Generator will stabilise and produce Nitrogen. Maximum purity will be achieved after around 1 hour. After this time the generator can be re-connected to the application.

The design of the generator is that it will deliver up to rated output flow of Nitrogen at 100 psig. Should the demand for Nitrogen be less than the rated output flow, or indeed should the demand stop the generator will continue to operate without any problems. The generator is protected from over-pressure.

6 **Routine Maintenance**

WARNING: Servicing and/or repair of the Generator should only be undertaken by a **TECHNICALLY COMPETENT PERSON** with the Generator in a 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:

BA Inlet Filters	Every 12 - months
RAC Filter Elements	Every 12 - months

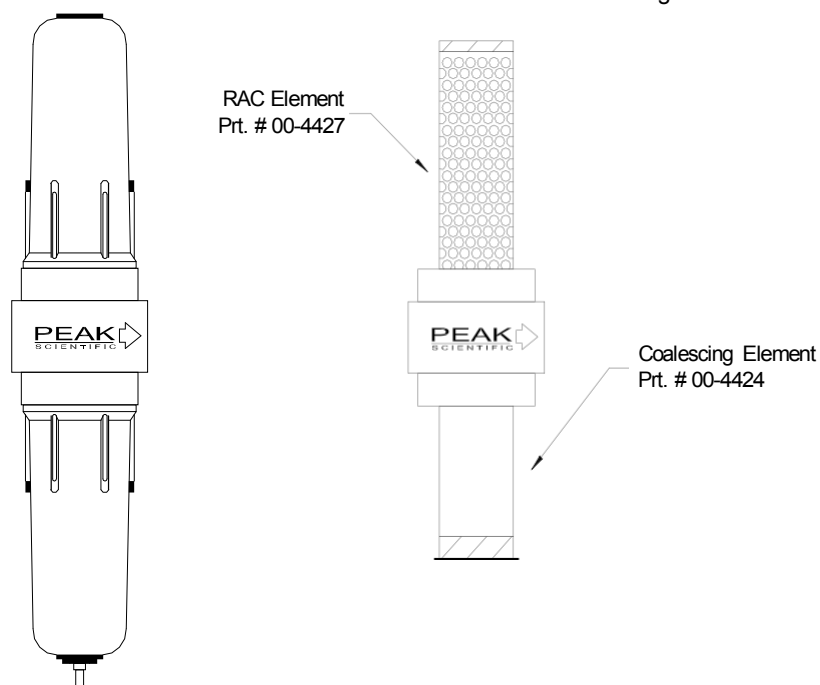
Inlet Filter / Separator Elements

These should be changed at intervals as indicated below. In addition filter bowls should be cleaned with cold tap water.

The Air supply to Generator MUST be turned OFF and the Generator MUST be depressurised prior to attempting to remove ANY filter bowl. Failure to do this may cause injury.

Inlet Breathing Air Filter / Separator Elements

The top Filter Element (00-4427) should be changed at 12-month intervals. The bottom element should be changed at 12-month intervals. The Part Numbers are as shown in the drawings below.

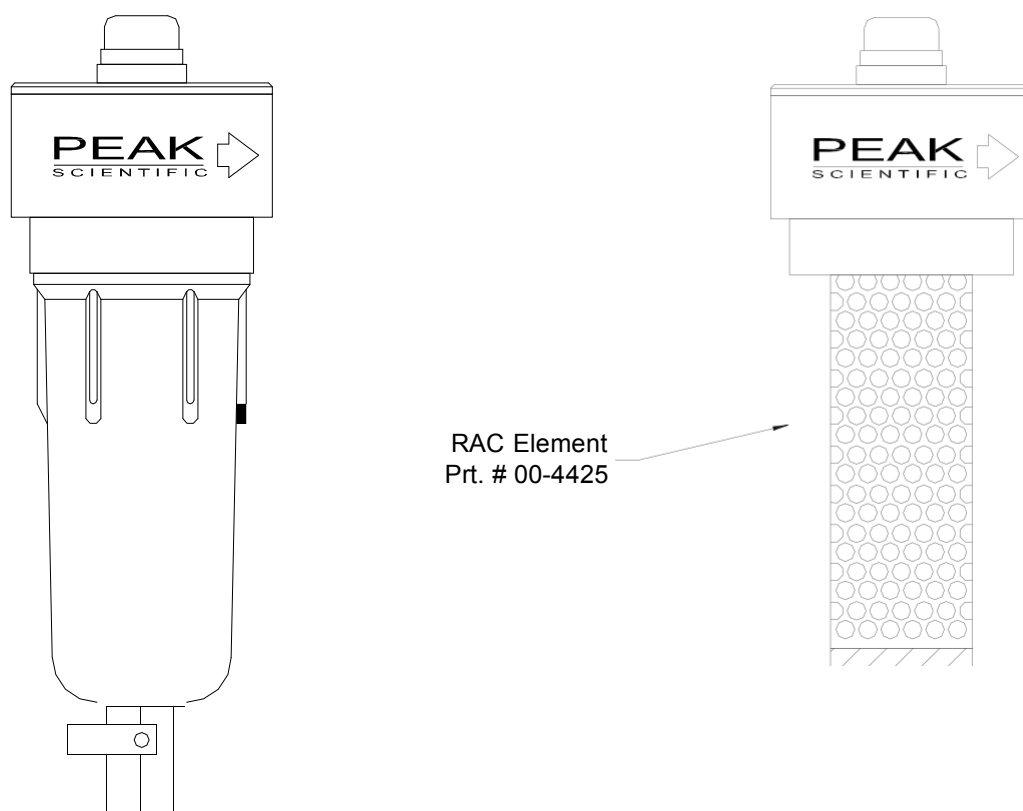


The filter housing is removed by un-screwing in a counter clockwise direction.

IMPORTANT!!! Ensure that the system is NOT under pressure before attempting to remove the bowl and that the air supply is shut-off.

Outlet Active Carbon Filter

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



The filter housing is removed by un-screwing in a counter clockwise direction.

IMPORTANT!!! Ensure that the system is **NOT** under pressure before attempting to remove the bowl and that the air supply is shut-off.

7 Technical Specifications

General Details

Minimum Operating Ambient Temperature	5 °C (41 °F)
Maximum Operating Ambient Temperature	30 °C (86 °F)
Inlet Air Requirements	
Minimum Air Pressure	120 psig (8.16 barg)
Maximum Air Pressure	145 psig (9.96 barg)
Outlet Conditions	
Nominal Outlet Pressure	100 psig (6.80 barg)

Physical Details

Model	NM60L-ACS
Max Output (Ltr/min)	60
Dims (W x D x H) cm	60 x 67 x 138
ins	24 x 27 x 55
Shipping Weight Kg	166
lbs.	365
Shipping Weight Dims	78x80x160
	31x32x63

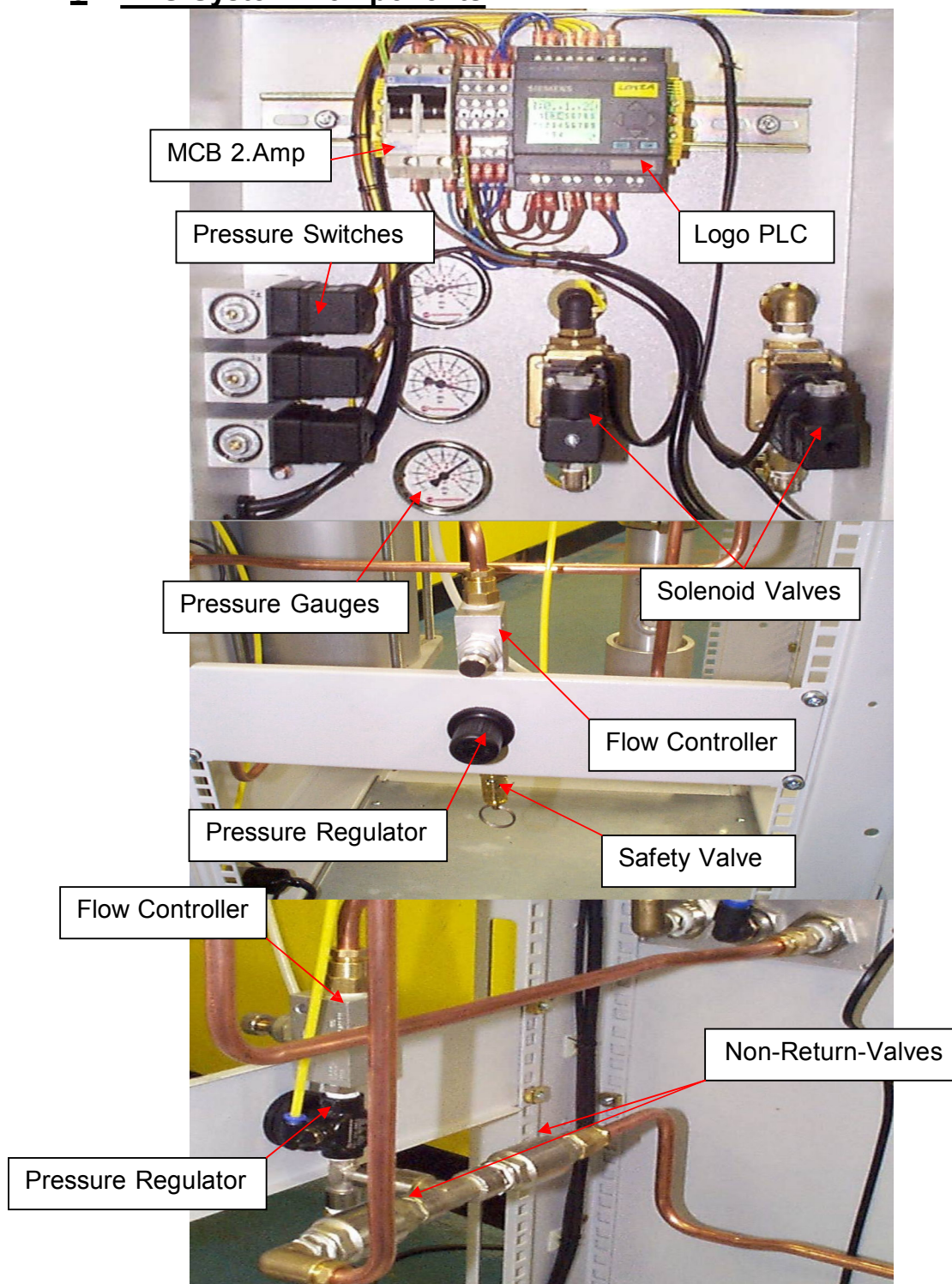
Serviceable Parts list

Model	NM60L-ACS
Breathing Air Filter Elements	00-4424 00-4427
Outlet Filter Element	00-4425

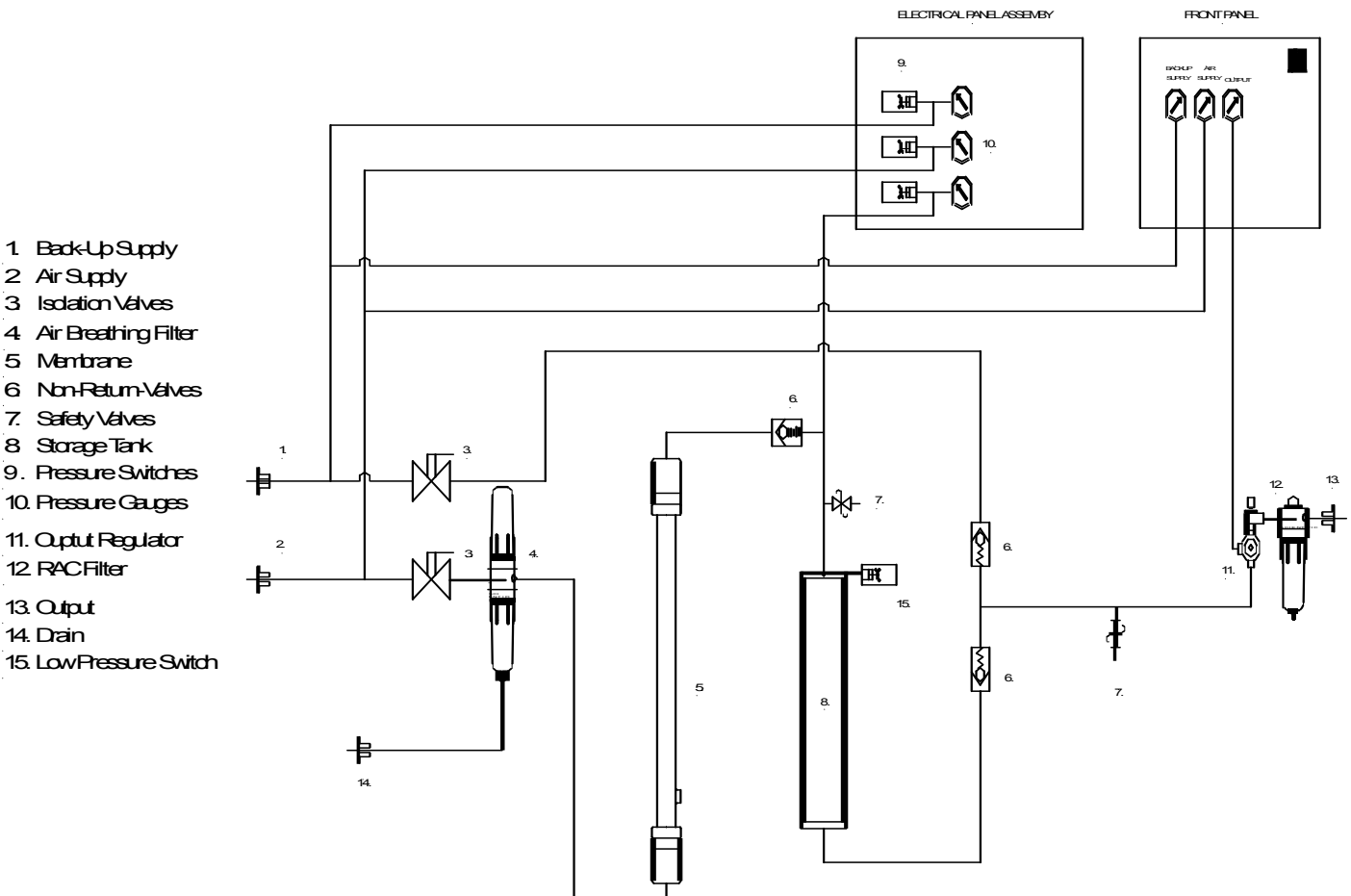
Service Schedule

Interval	Action
6 Months	Clean filter bowls
12 Months	Replace Breathing Air Elements Replace Outlet Filter Element

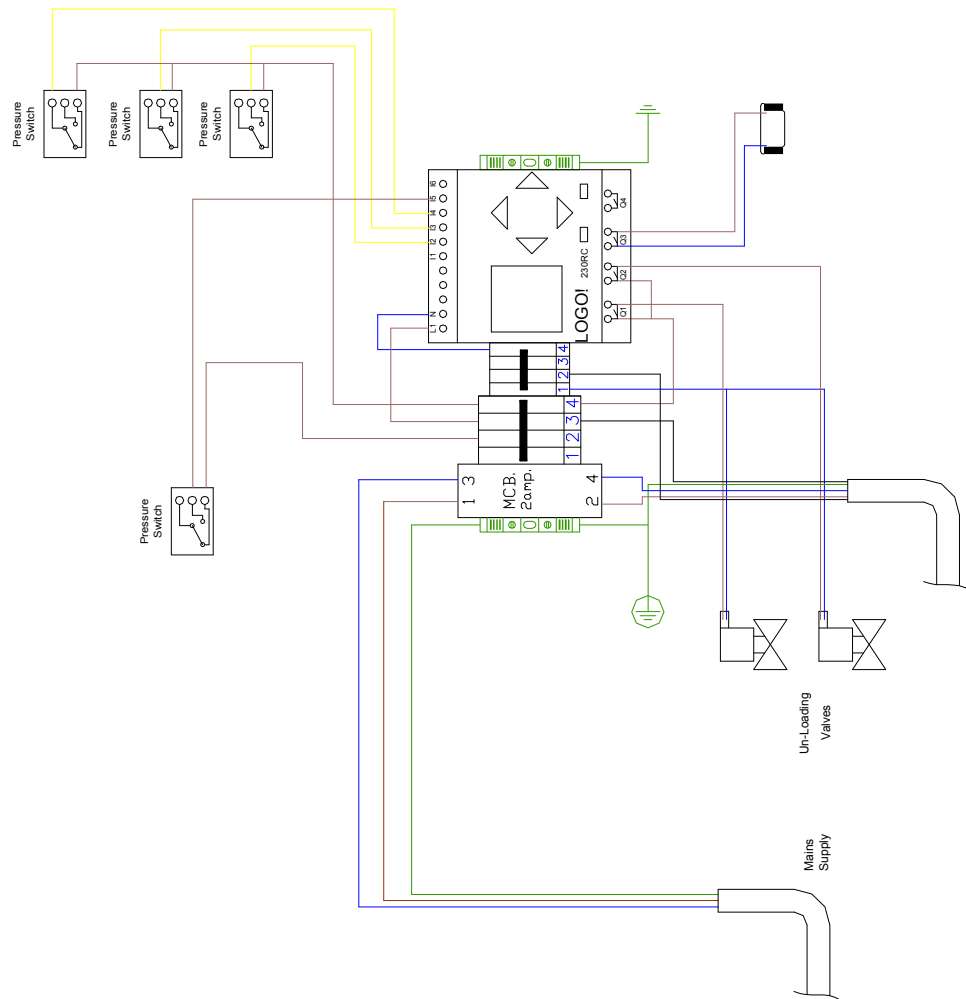
9 ACS-System Components



10 System Diagram



11 Electrical Diagram



Maintenance Record Log

Model- NM60L-ACS.

Serial number _____

Work done	Remarks	Date	Name

Notes