SELECT NEPTUNE
Analytical
Life Science
Ultimate

USER MANUAL

Issue: B

Date: 18.02.08

INTRODUCTION

The *SELECT Neptune* Range.

The ***SELECT Neptune*** range of polishing units will provide ***"guaranteed***" 18.2 MΩ-cm ultra-pure water for ***Analytical*** and ***Life Science*** laboratory applications when fed direct from a feedwater source of < 20µs/cm.. The units have been designed to provide better than **Grade I** water quality according to **BS EN ISO 3696 "Water for Analytical Laboratory Use"**

There are 3 models in the range: -

Analytical
Life Science
Ultimate

The ***Analytical*** unit has a dispense rate of up to 2l/min (120 l/hr) and the ***Life Science*** and ***Ultimate*** have a dispense rate of up to 1.5 l/min (90 l/hr).

The use of high quality semiconductor, nuclear grade, mixed bed resins combined with an organic adsorbant form the principle water purification process incorporated within the units.

In order to achieve the critically low Total Organic Carbon (T.O.C.) levels required by today's analytical techniques the ***SELECT Neptune*** units incorporate photo-oxidation irradiation technology, in the form of short wavelength UV light, to breakdown organic molecules.

The polishing units can be fed from a Pre-purified water supply of <20µs/cm provided by anyone of the ***Purite SELECT Descale/Analyst/HP/Bio*** units, or can be fed direct from an existing ringmain system.

The units constantly monitor: -

- Water quality - MΩ-cm
- Temperature - ^{0}C
- Flowrate - L/min
- Pressure - Bar
- Total Organic Carbon - ppb as C

These parameters can be viewed via the graphic display.

In all cases where this symbol is used, documentation needs to be consulted in order to find out the nature of the potential HAZARD and any actions that have to be taken.

INTENDED USE

The units are not for use in explosive atmospheres or an environment outside the limits as specified in Section 1.7.

The units are for indoor use only and are not to be washed down.

The units are not classified as Medical Devices.

The units should only be fed only from a pre-purified supply**.** Refer to Section 1.3 for details of feedwater conditions

The units should only be powered from a single-phase electrical supply. Refer to Section 1.2.1 for details of required electrical supply.

CONTENTS

SECTION 5 – OPERATING PROCEDURES – DETAILED REFERENCE

SECTION 6 – DISINFECTION

SECTION 7 – MAINTENANCE

SECTION 8 – TROUBLE SHOOTING

SECTION 9 – CONSUMABLES/ SPARES & ACCESSORIES

DOCUMENT HISTORY

Issue	Date of Change	Description of Change
A	18.07.06	First issue
B	18.02.08	Updated Declaration of Conformity, WEEE Declaration included, Appendix, sections 1.10 and 9.3 have been updated to reflect this.

SECTION

1

SPECIFICATION

This section provides details of the ***SELECT Neptune*** electrical, mechanical and process specification as well as relevant standards complied with and general safety information. The section is divided into the following sub-sections.

SECTION CONTENTS

1.0 SPECIFICATION

STANDARD FEATURES

- Guaranteed 18.2 MΩ-cm water quality available direct from <20µs/cm pre-purified water supply.
- Flowrate, T.O.C., Temperature, Pressure and Water quality monitoring.
- Wall or bench mountable.
- System status alarms.
- Automatic cleaning/sanitisation procedure.
- Easy change disposable cartridge packs.
- Integral Total Organic Carbon Monitor.
- Multiple water take offs.
- Three dispense modes.
- Microprocessor controlled with graphical user interface.

ELECTRICAL SPECIFICATIONS / CONNECTIONS

1.2.1 Mains supply

Electrical Supply	KW Rating	Current Draw (Amps)	External Fuse Rating
Single phase 100-240v and duty 50/60 Hz	0.1	1.0	5 Amps (conforming to BS1362)

1.2.2 Fuse Rating / Type

IEC module fuse type: - (20x5mm), T5AH250V, conforming to IEC 127
Number per unit = 2

The mains supply is live & neutral fused.

1.2.3 Serial Port Connection Details (see Fig-9)

Application: Uploading of new software
Connection to external printer or PC

Connector Type: RJ45 to 9 pin D-type socket. Contact Purite for supply of Serial Port lead.

1.2.4 Alarm Port connection Details (see Fig-9)

Application: Volt free alarm output e.g. connection to BMS system
Connector type: Din 3-pin Plug (max rating 34Vdc / 24ac, 1 amp).
Max. Lead length: 10 mtrs. Contact Purite for supply of Alarm lead.

FEEDWATER SPECIFICATIONS.

1.3.1 Feedwater Flowrates

Model	Max Feed Flowrate L/hr
Analytical	120
Life Science	120
Ultimate	120

1.3.2 Feedwater Quality

Conductivity	< 20µs/cm*
Temperature	1-40^{o}C (33.8 – 103.9^{o} F)

* For optimum performance the units should be fed from a pre-purified water supply which includes the use of reverse osmosis. If the system is to be fed from a deionised water supply a 0.2µm filter should be installed as a minimum requirement in order to protect the internal filters from premature fouling. Refer to **Section 9.1 Consumables** for details.

1.3.3 Feedwater Pressures

Feedwater Pressure (Max)	(20 psi)*
Feedwater Pressure (Min)	(0.5 psi) Flooded head

- **> 20 psi fit Pressure Reducing Valve; supplied as part of the Installation kit.**

1.4 TREATED WATER SPECIFICATION

Parameter	Analytical	Life Science	Ultimate
Resistivity @ 25^0C	18.2 MΩ-cm	18.2 MΩ-cm	18.2 MΩ-cm
Output l/min	2	1.5	1.5
pH	6-8	6-8	6-8
T.O.C.	< 1ppb as C	< 5ppb as C	< 1ppb as C
Bacteria	<1 cfu/ml	<0.1 cfu/ml	<0.1 cfu/ml
Endotoxins	n/a	<0.02EU/ml	<0.02EU/ml
Particles	0.2µm	0.05µm	0.05µm
Cartridge Capacity	60,000 lts per NCP pack on 1µs/cm feedwater*		
	* No Carbon dioxide present		

1.5 WATER SERVICES CONNECTIONS

Description	**Connection**
Drain	8mm Pushfit
Purified Water In	8mm Pushfit
Pressurised Water Out	8mm Pushfit
Pressurised Water Return	8mm pushfit

1.6 WEIGHTS AND DIMENSIONS

Unit	Weight kg	Height (mm)	Width (mm)	Depth (mm)
Analytical	(Dry) 24 (Working) 26	630	440	548
Life Science/Ultimate	(Dry) 25 (Working) 27	630	440	548

1.7 ENVIRONMENTAL

Room storage and operating temperature range	5 to 40^{o}C (41-104^{o}F)
Relative Humidity	30 to 80%
Max Altitude	2000m
Transport and Storage temperature (limited by RO membranes)	-5 to 85^{o}C (with frost protection liquid – 40 to 85^{o}C)
RFI/EMI Radiation	The 'EMC' environment must be within the limits to which the unit has been tested, see section 1.8. Care must be taken not to have sources of RFI/EMI, which are liable to cause electromagnetic disturbance to the unit. If the unit is affected by such disturbances, the sources should be suppressed or relocated.

1.8 STANDARDS APPLIED

EMC	BS EN 61326:1998/IEC 61326-1 :1997;Class A Electrical equipment, for measurement, control and laboratory use EMC requirements. BSEN 61000-3-2:1995, Incorporating Amendments 1 & 2. Mains Harmonic Emissions. BS EN 61000-3-2:1995, Incorporating Amendment 1 Mains Flicker Emissions.
LVD	BS EN 61010-1:1993 , Incorporating Amendment 1 Safety requirements for electrical equipment, for measurement control and laboratory use.

1.9 CAUTION AND WARNING STATEMENTS

- These instructions provide information to ensure safe and continuing operation of the equipment and that safe working practices can be adopted as required. The manual should be read and understood before the equipment is placed into service.
- **Purite Limited** reserves the right to make engineering refinements to the equipment that may not be described herein. Any questions that cannot be answered specifically by these instructions should be addressed to **Purite** or their agents for response.

- **Purite** will not accept any responsibility for any equipment supplied or the actions of such equipment or associated system when the customer has made a modification that is considered by Purite to question the integrity of the original design philosophy.
- If the unit's performance becomes impaired and any remedial work appears to be outside the scope of this manual, then seek advice from Purite's **Service Department**, **Tel. +44 (0) 1844 211555**. Quoting the unit's serial number.
- The unit must not be dismantled unless carried out by Purite Service Department personnel or authorised trained personnel.
  On no account must the unit be connected to the electrical supply with the top control cover removed.
- Always refer to the Safety Data Sheets, in Appendix A, before handling any of the recommended cleaning disinfection adaptors or consumable cartridges.
- There is the potential for sensitive equipment/devices located in close proximity to the unit to be affected by electromagnetic or other interference generated from the unit. If affected by interference the relevant equipment/device should be relocated.
- The use of mobile phones in close proximity to the unit should be avoided where possible.
- The 'Caution' symbol is used throughout this manual to highlight where particular care must be taken to ensure the safety of the operator, and the protection provided by the equipment is, not impaired.

1.10 GENERAL SAFETY INFORMATION

- **Explanation of symbols and references**

Danger **This symbol** refers to any immediate dangers that may threaten the safety and life of persons.
Failure to observe these notices will have severe consequences on health and safety, including life-threatening injuries.

Warning **This symbol** refers to a possible danger that threatens the safety and life of persons.

Caution **This symbol** refers to a possibly hazardous situation.
Failure to observe these references may result in minor injuries and/or damage to property.

This symbol points out important information for working with the system in a proper manner.
Failure to observe these references may result in malfunctions in the system or impact on the environment.

- **Additional safety requirements**

  Country-specific requirements standards and regulations must be observed.

- **Usage in accordance with intended purpose.**

  The ***SELECT Neptune*** units are used to purify, purified water. The units must only be operated with water supplied in accordance with the quality described in **Section 1.3** and operated in accordance with the parameters specified **in Section 1.7.** The units must not be operated unless in proper working order. Any malfunctions must be rectified immediately.

- **Operating staff**

  Only persons who have read and understood these Operation Instructions should be permitted to operate the unit. When operating the units, it is particularly important to observe the safety information strictly.

- **Residual dangers**

Danger

Electrical Shock
Do not touch electrical components with wet hands.
Before performing tasks on parts of electrical system, isolate the system from the electrical power supply.
Mechanical force
Some parts of the system could be under pressure of up to 60 psi. Always release the pressure from the unit before repairs and maintenance tasks are carried out.

- **Bringing the system to a stop in the event of an emergency**

  - Turn off the electrical supply and/or remove mains plug.
  - Shut off the water supply.

After remedying the fault:

- Open the water supply.
- Turn on the electrical supply.
- Restart/operate the unit via the main front panel.

- **Safety information for maintenance tasks**

  The operator must take care to ensure that authorised and qualified professionals who have been sufficiently informed for the task at hand by thoroughly studying the Operating Instructions perform all maintenance, inspection and assembly tasks. Professionally trained staff must properly perform these tasks.

  The system must be shut down and protected from being placed in operation again unintentionally before all repair and maintenance tasks have been completed. It is essential to observe the procedure described in these Operating Instructions for shutting down the system.

  Before beginning tasks on the electrical equipment of the system, a check must confirm that power has been disconnected from the corresponding section of the system. In addition, the system must be secured to prevent it from being turned on again unintentionally.

- **Disposing of system parts and operating materials**

  When they need to be discarded, consumables must be disposed off according to local regulations. Refer to Appendix A – WEEE Declaration for disposal of electrical and electronic equipment supplied Purite.

- **Unauthorised conversion and manufacturing replacement parts**

  Conversion or modification of the system is only permitted with the approval of the manufacturer. The same applies to making changes in the programming for the control system. Original replacement parts and accessories authorised by the manufacturer enhance safety. Use of other parts will void the warranty.

- **Warranty claims and liability**

  This product corresponds to the state of the art and was designed and manufactured in accordance with applicable rules of the technology, after which it was subjected to a quality control process. If there should nevertheless be any grounds for complaint, please direct requests for replacement to the manufacturer of this product in accordance with the general terms and conditions of sale and delivery.

Manufacturers Name: Purite Limited
Bandet Way
Thame
Oxon OX9 3SJ
England

Telephone: +44 (0) 1844 217141

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SECTION

2

PROCESS DESCRIPTION

This section provides general information regarding the process of purification utilised by the ***SELECT Neptune*** range of polishers. The section is divided into the following sub-sections.

SECTION CONTENTS

SELECT NEPTUNE

Fig-1

PROCESS DESCRIPTION

OPERATIONAL OVERVIEW

SELECT Neptune Analytical

Pre-purified water enters the unit via an inlet solenoid valve. The water pressure and flowrate are boosted to their operating levels by the internal pump. A pressure sensor monitors the internal pressure in the unit and protects the system from over pressurisation.
The water then passes through the first primary deionisation (NCP) pack. The intimate mix of semiconductor grade nuclear mixed bed resin and highly activated organic adsorbent, contained in the (NCP) pack, remove virtually all traces of dissolved inorganic and organic contaminants.

To ensure that all residual traces of organics are removed the deionised water is irradiated with UV light at a wavelength of 185nm. This short wavelength light ensures that any un-dissociated organic molecules are ***cleaved*** into smaller charged species; termed ***Photo-oxidation,*** which are then be removed by the second polishing pack.

The UV lamp used in the ***SELECT Neptune Analytical & Ultimate*** emits UV light at both 185 and 254nm, therefore giving it the additional feature of also destroying any bacteria present through the disruption of the bacteria's DNA.

Following the irradiation stage the water is polished up to its theoretical maximum purity of 18.2MΩ-cm by the second (NCP) pack. Having the packs arranged in series configuration ensures that the final water quality of 18.2MΩ-cm is always guaranteed.

Finally before being dispensed, via one of the three dispense routines; the water is filtered by an internal absolute rated 0.2µm sterilising grade filter.

The unit can also be configured to feed external analytical equipment directly via an external pressurised loop.

To maintain quality the system recirculates the water at a rate of up to 2 l/min.

The microprocessor based control system constantly monitors the system performance parameters, such as,

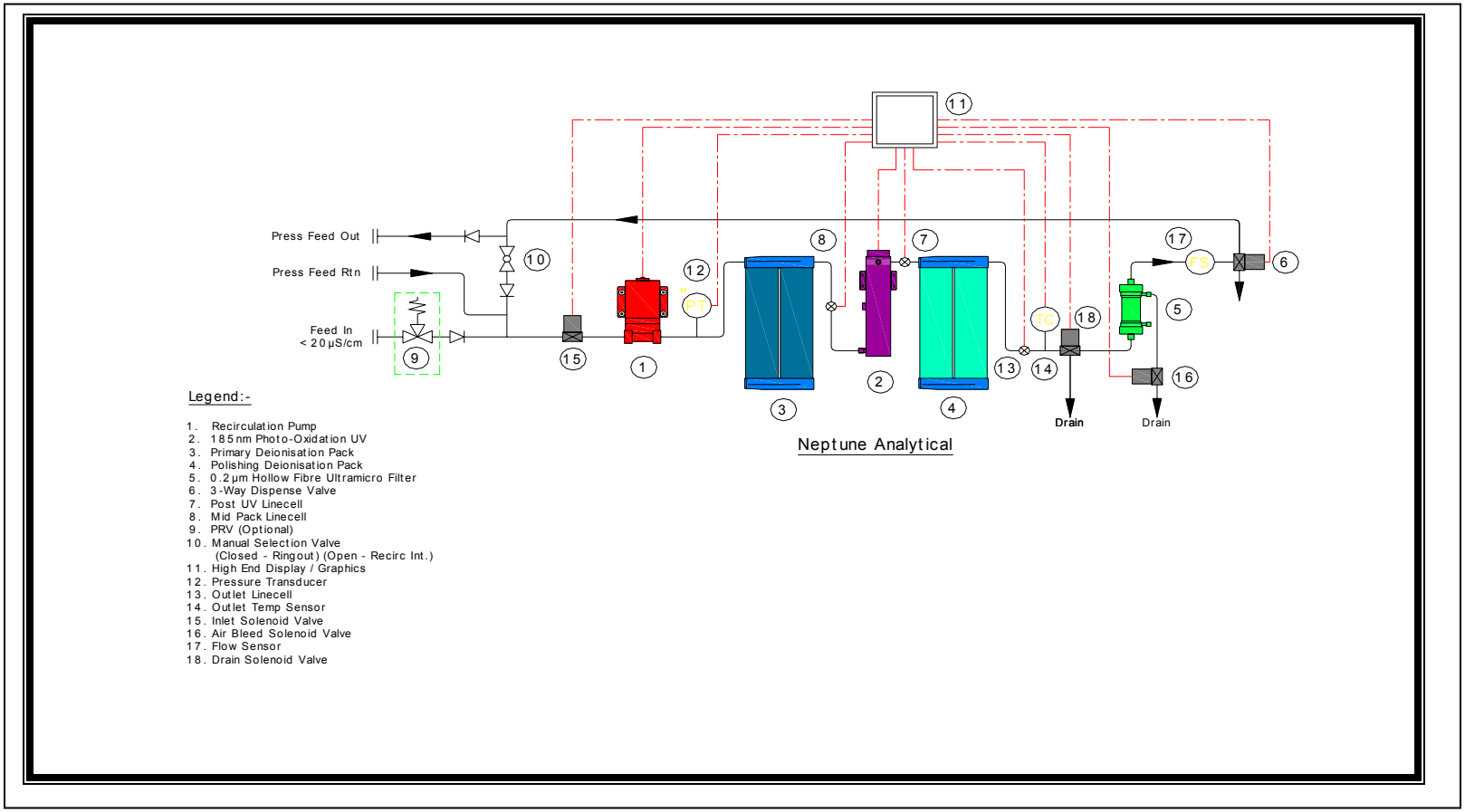
- Water Quality MΩ-cm
- Flowrate l/min
- Pressure Bar
- Temperature ^{0}C
- T.O.C. ppb as C

and if at any time the preset parameters are exceeded the system will respond with an appropriate alarm message prompting the user to take some remedial action. Under certain serious alarm conditions the unit will automatically shutdown to prevent injury and to protect the unit from damage. Refer to **Section 5.7 and 5.8** for details of all operating alarm conditions and safety features.

The unit is equipped with several unique user functions such as:-

- Data Logging
- Automatic filter air bleed
- Intelligent monitoring System
- Consumable replacement alarms

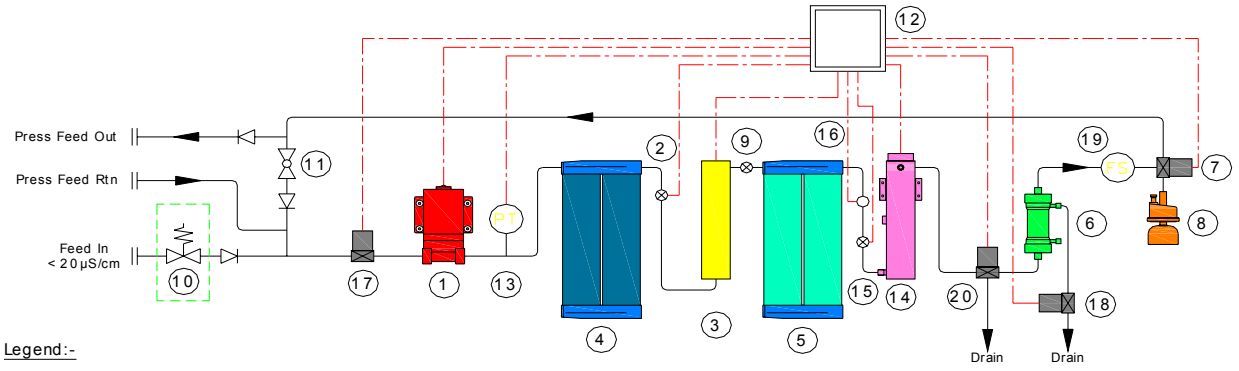
Details of which can be found in **Section 5.**



SELECT Neptune Analytical Process Flow Schematic

SELECT Neptune Life Science:

The process of purification used by the ***SELECT Neptune Life Science*** is similar to that of the ***SELECT Neptune Analytical*** except that to provide a higher specification of bacteria and Endotoxin removal the Life Science polisher incorporates a dedicated 254nm UV lamp and an internal 0.05µm Ultramicrofilter as part of its purification process.



Legend:-

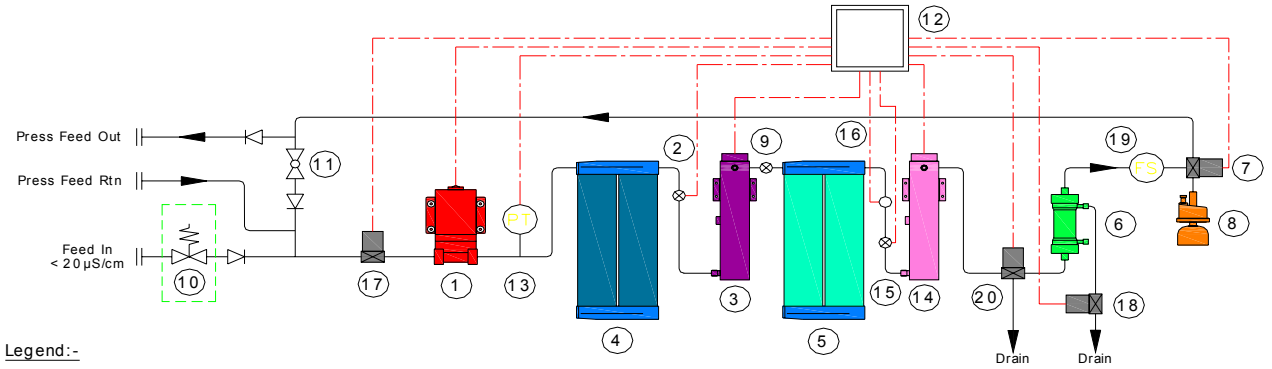
1. Recirculation Pump
2. Mid Pack Linecell
3. TOC Monitoring Cell
4. Primary Deionisation Pack
5. Polishing Deionisation Pack
6. 0.05µm Hollow Fibre Ultramicro Filter
7. 3-Way Dispense Valve
8. 0.2µm Point of Use Filter
9. Post TOC Linecell
10. PRV (Optional)
11. Manual Selection Valve
    (Closed - Ringout) (Open - Recirc Int.)
12. High End Display / Graphics
13. Pressure Transducer
14. 254nm UV Lamp
15. Outlet Linecell
16. Outlet Temp Sensor
17. Inlet Solenoid Valve
18. Air Bleed Solenoid Valve
19. Flow Sensor
20. Drain Solenoid Valve

Neptune Life Science

SELECT Neptune Life Science Process Flow Schematic

SELECT Neptune Ultimate

The ***SELECT Neptune Ultimate*** polisher provides the highest purity water out of all of the three polishing units. This is achieved by amalgamating the purification stages of the ***SELECT Neptune Analytical*** and ***Neptune Life Science*** in one unit.



Legend:-

1. Recirculation Pump
2. Mid Pack Linecell
3. 185nm Photo-Oxidation UV
4. Primary Deionisation Pack
5. Polishing Deionisation Pack
6. 0.05µm Hollow Fibre Ultramicro Filter
7. 3-Way Dispense Valve
8. 0.2µm Point of Use Filter
9. Post UV Linecell
10. PRV (Optional)
11. Manual Selection Valve
    (Closed - Ringout) (Open - Recirc Int.)
12. High End Display / Graphics
13. Pressure Transducer
14. 254nm UV Lamp
15. Outlet Linecell
16. Outlet Temp Sensor
17. Inlet Solenoid Valve
18. Air Bleed Solenoid Valve
19. Flow Sensor
20. Drain Solenoid Valve

SELECT Neptune Ultimate Process Flow Schematic

DISINFECTION

Regular disinfection of the polishers is recommended to maximise the life of the internal bacteria and Endotoxin removal filters and ensure constant performance. If the unit is regularly used, disinfection would be recommended every 6 months.

The process of disinfection is semi-automatic and requires only the substitution of the media packs with a cleaning adaptor cartridge, which contains the required amount of disinfecting agent.

The graphical display will guide you through every stage of the disinfection process.

Refer to **Section 6.0** for details on how to carry out disinfection of your ***SELECT Neptune*** Unit.

SECTION

3

INSTALLATION

This section provides the recommended method of installation for your ***SELECT Neptune.*** It is divided into the following sub-sections.

SECTION CONTENTS

3.0 INSTALLATION

3.1 ENVIRONMENT

The unit should be installed inside in a clean and dry environment as specified in **Section 1.7**. The unit can either be wall or bench mounted. Refer to **Section 3.4** for details on how to install using the wall mounting kit.

3.2 UNPACKING

Remove all packaging materials and ensure the following items have been provided.

- ***SELECT Neptune*** Unit
- Installation kit c/w pressure regulator valve assembly
- ***SELECT Wall mount*** kit (Optional)
- Purified water pre-filter housing and wall mount bracket, c/w filter element. (Optional)
- 2 x NCP media packs
- User Manual
- 0.2 um point of use filter (***Life Science/Ultimate*** units only)

3.3 INSTALLATION KIT

The standard installation kit to install the ***SELECT Neptune*** to an existing pre-purified supply or ***SELECT Descale/Analyst*** unit comprises of the following items:-

- 4 off 8mm stem elbows.
- 4 off equal elbows.
- 4 off 8mm flowbends.
- 1 off black shut off valve.
- Purewater Pressure regulator (For pressurised feedwater supply)
- 1 off 8mm x ¼ straight adaptor
- 8 mtrs 8mm natural, tubing.
- 1 roll of PTFE sealing tape.

3.4 WALL MOUNTING INSTRUCTIONS (OPTIONAL)

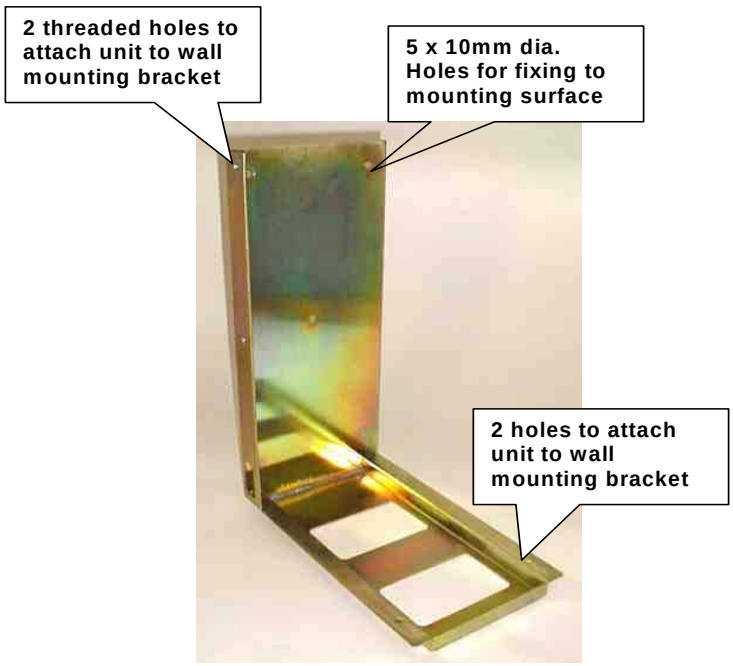
Check **Section 1.6** for working weights of the ***SELECT Neptune*** units before attempting to wall mount. It is vital that the supporting wall is sound and is of load bearing, brick or concrete construction and of adequate thickness to secure to and carry weights of potentially up to, **27Kgs.**

Wall fixings must be of good quality and of the largest size to match the 10mm diameter holes provided in the wall mount brackets and of adequate length to ensure a strong retention. All fixing points must be used and be sound and tightened before attaching the unit. If unsure contact **Purite Customer Service Department** for advice.

Fitting

A ***SELECT Neptune*** unit can be heavy and difficult to handle at installation; therefore, it is advisable to have assistance and/or suitable equipment to help with the installation of this unit.

FIG-2 WALL MOUNT BRACKET



Installation

3.4.1 Fix the wall-mounting bracket to a suitable wall with reference to the Safety First section; ensuring the bracket is upright and square. (Tip: Make the central fixing first then when square and level, mark through the other holes using bracket as a template.).

3.4.2 Remove plastic cover on left hand side of unit by loosening screws at front edge, ease away and remove backwards to disengage from supporting lugs at rear.

3.4.3 With the cover removed, place the unit onto the bracket and align the holes on the rear left hand side chassis panel with the threaded holes located on the bracket as indicated in **(Fig- 2). (*Tip: connect up all water service lines before fixing the unit to the bracket).***

3.4.4 Use two M8x20 Hex Set Screws with washers supplied to retain the unit. Tighten only to finger tight at this stage **(Figs 3 & 4).**

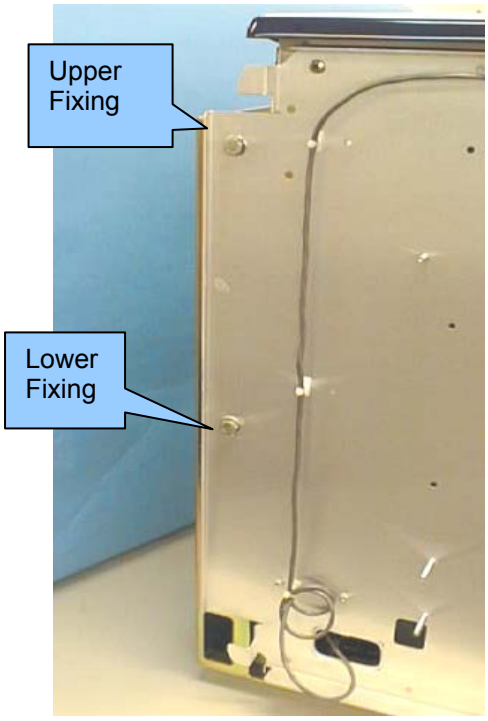


Fig-3 Rear Fixings

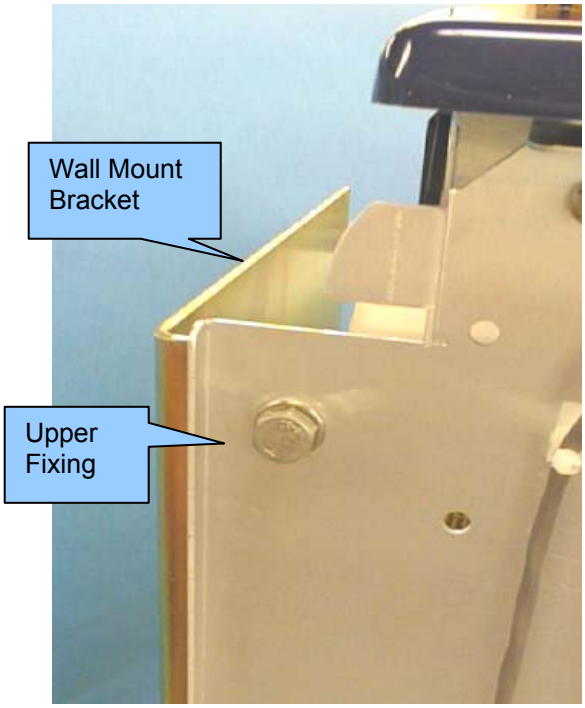
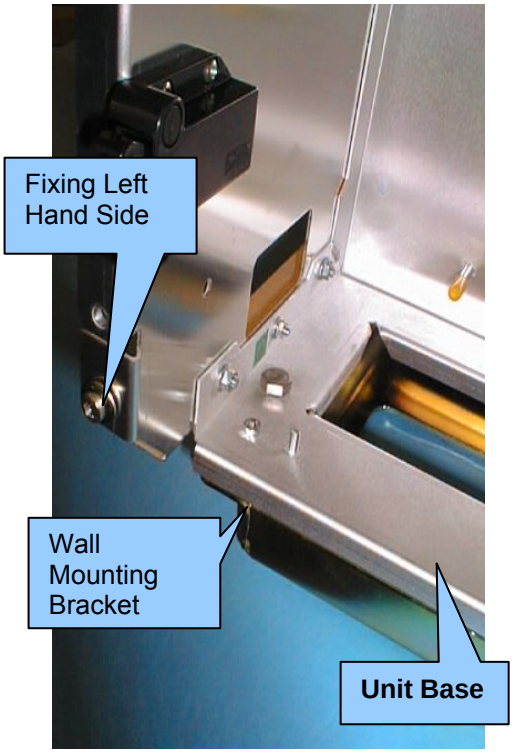


Fig-4 Top Fixing

3.4.5 Now open the front door of the unit to locate the two fixing holes (one each side), which align with holes in wall mounting bracket in base of unit.

3.4.6 Bolt through both with two M8x50 Hex Set Screws, washers and nuts supplied (**Figs 5 & 6** for closer detail of fixing points).



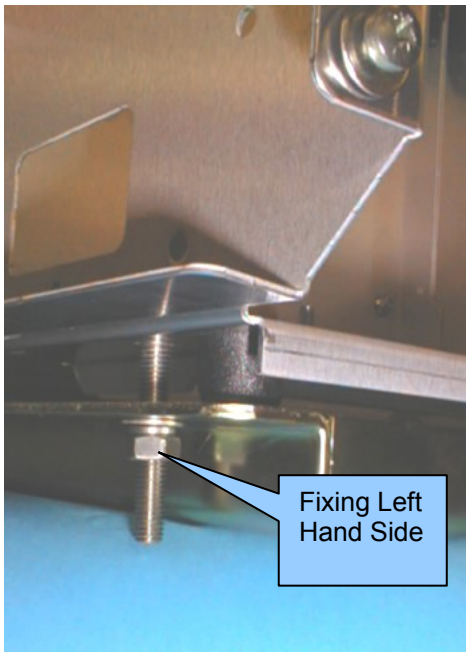


Fig-5 ***Lower mounting holes***

Fig-6 ***LHS lower mounting point***

3.4.7 Finally tighten all securing fasteners and refit side cover.

3.5 PURIFIED WATER PRE-FILTER ASSEMBLY (OPTIONAL)

If the ***SELECT Neptune*** is to be supplied from a purified water source that does not include Reverse Osmosis as part of its treatment the water will have to be filtered via a 0.2 micron filter. Details of the filter and its housing can be found in **Section 9.7**.
The filter is designed to remove bacteria, particulates and colloidal impurities from the incoming supply, which if left untreated, could reduce the operating life of the unit's internal filters. **The filter should under normal running conditions be replaced every 6 months.** (Refer to **Section 7.9 "Preventative Maintenance Plan"** for details)

The assembly comes complete with filter housing and one filter element. The housing can be wall mounted by using the "L" shaped bracket.

To fit the filter, simply unscrew the bowl in a clockwise direction. Place the filter into the bowl ensuring that it locates over the spigot at the bottom.

When refitting the make sure the black O-ring seal is present on the top of the bowl. Screw the bowl in an anticlockwise direction until hand tight. If the filter leaks check that the O-ring has not moved out of position.

Fig-7 Pure water filter Assembly

Filter housing, complete with inlet/outlet pressure gauges, filter element, wall mount bracket and fixing screws.

3.6 NCP CARTRIDGE PACKS

The ***SELECT Neptune*** is supplied with two (NCP) cartridge packs.

Fig-8 Rear view of Cartridge

When fitting cartridge always ensure the two black plugs are removed.

3.7 PRELIMINARY CHECKS

There are three main items to check before installing the unit**:**

- The electrical supply
- The Purified feedwater supply
- Drainage

3.7.1 Electrical Supply

A 100-240V, 50/60 Hz, Single Phase, earthed, supply is required and should be provided via a 3-pin socket or a switched fused spur fitted with a 5-amp fuse. The socket or switched spur must be easily accessible, to provide a suitable means of electrical isolation.

Connection Detail

1. Mains Inlet socket
2. External Level control
3. Serial Port
4. Alarm Output
5. Fuse holder

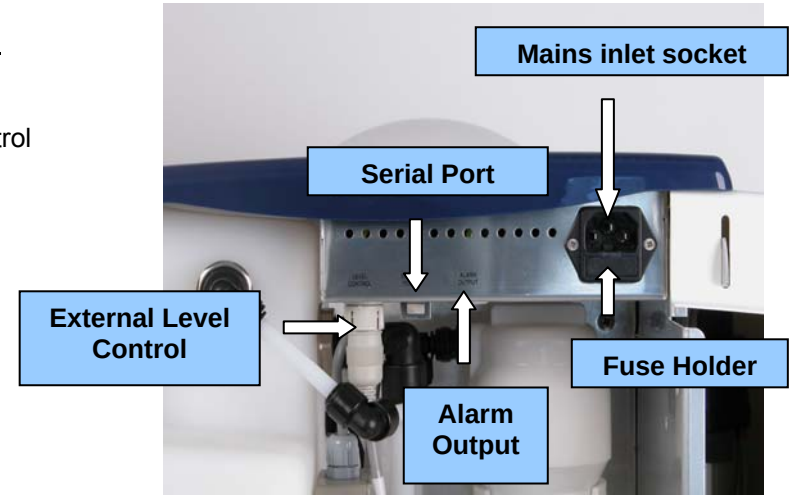


Fig-9 Electrical connections

3.7.2 External Level Control.

This connection can be used to link to an external level control switch. This will provide protection from running a ***SELECT Neptune*** dry if fed directly from a break tank. Details of the level control switch assembly can be found in **Section 9.5**

3.7.3 Serial Port.

The Serial Port connection can be used to link directly to a PC or Laptop or Neptune Data logger device for the downloading of operational data or for uploading of new software code.
The uploading of new software must only be carried out by Purite Engineers or Purite Approved Personnel.
Refer to **Section 5.9** for details of and operation of the Data logging device.

3.7.4 Alarm Output

This volt free output can be used to connect to a Building Management System (BMS) to provide a remote common alarm warning. Refer to **Section 1.2.4** for details of connector type. An Alarm lead can be supplied, contact Purite Service Dept. for details.

3.7.5 Purified Feedwater Supply

A pre-purified feed water supply should be provided, terminated with a suitable isolation valve. A pressure exceeding 20psi should be reduced, using the pressure regulator valve supplied as part of the installation kit, to 10 psi. The minimum pressure the unit will operate on is, 0.5 psi. (Flooded Head) Refer to **Section 1.3.2** for details of feedwater quality requirements.

3.7.6 Drainage

A suitable, unrestricted, drain is required, capable of handling up to 120 l/hr. Refer to **Section 1.3.1 Feedwater Flowrates**, for Drain flows.

3.8 INSTALLATION.

Services connection panel details

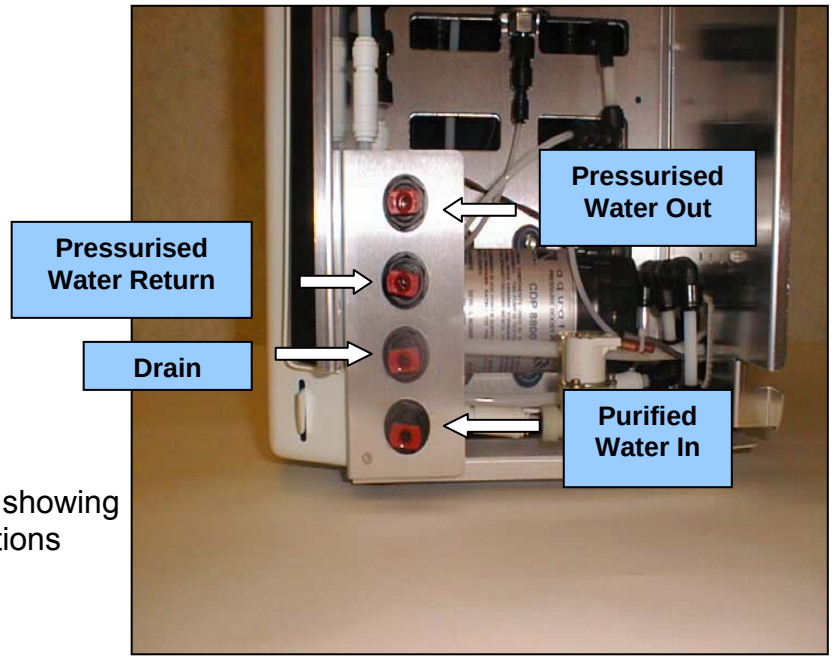


Fig-10 Rear view of unit showing all services connections

3.8.1 Connection Details

The ***SELECT Neptune*** units are fitted with 8mm push fit connections on the rear of the unit for the "**Purified Water In",** "**Drain**", "**Pressurised Water Out**" and **"Pressurised Water Return**".

Remove the red transit plugs from the, "**Purified Water in**" and "**Drain**" ports. To remove transit plug push in black collet and withdraw red transit plug (see appendix-A)

Using the 8mm tubing supplied, push one end into an 8mm stem elbow and push the stem end into the "**Purified Water In** "connection on the rear of the unit. Cut the tubing to length and connect up to purified water take off, ideally via an isolating valve to make any future maintenance easier.

3.8.2 Drain

Using an 8mm stem elbow push the plain stem part into the "**Drain**" port. Then into the elbow, push in one end of a length of 8mm tubing. Run the tubing to a suitable drain, within 2 metres of the unit ensuring the tubing is unrestricted and does run more than 1 metre above the unit

3.8.3 Pressurised Outlet/Return

If the unit is to be configured to feed external equipment via the Pressurised outlets, located at the rear of the unit, follow the instructions below.
Using 2 of the 8mm stem elbows push the plain stem ends into the "**Pressurised Water Out**" and **Pressurise Water Return** " ports. " Cut the 8mm tubing supplied to the required length for the external equipment.
Then locate the small black valve near the connections and turn so the lever is at 90 Degrees to the body (Closed)
This will direct the water out and around the external loop.

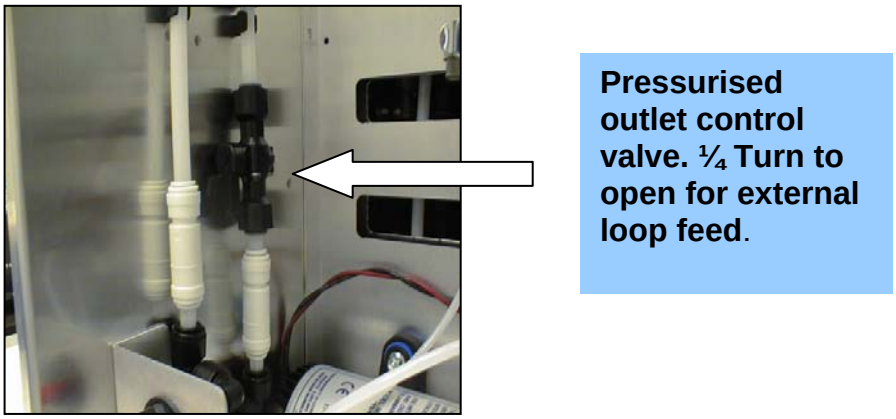


Fig – 11 Pressurised Outlet Diverter Valve

3.9 CARTRIDGE PACKS LOCATION

Fig-12 Cartridge Pack positions

The ***SELECT Neptune*** units are supplied with two SELECT NCP cartridge packs fitted.

NB: Always check that you have removed the two black sealing plugs from the two top ports before fitting a new cartridge. **See Fig 8**.

For details of how to fit new replacement cartridge packs Refer to, **Section 7.1.** For re-ordering details refer to **Section 9.1 Consumables and Spares**

3.10 0.2UM POINT OF USE FILTER (*LIFE SCIENCE/ULTIMATE* ONLY)

Fig-13 Point of use Filter

Before starting the unit ensure that the Point of use filter has been fitted to the dispense point
For details on how to install the filter refer to **Section 7.4** in the Maintenance section of this manual.
For re-ordering details refer to **Section 9.1,** in the Consumables and Spares Section.

3.11 HANDLING THE UNIT

The following points should be considered when handling the unit:

- The dry weight of the unit can be as much as 27kgs. If the unit is to be moved over short distances, two people should be employed.
- If the unit is to be transported over some distance by foot then a trolley or other suitable device should be used.
- Never pick the unit up by the side covers; they are not designed to be load bearing. Always support the weight of the unit by holding it by its base.
- Always ensure that two cartridge media packs have been removed before transporting.

SECTION

4

OPERATING PROCEDURES
QUICK REFERENCE

This section provides a quick and easy reference for operating your ***SELECT Neptune***. For more detailed instructions and full procedures refer to Section-5. This section is divided into the following sub-sections.

SECTION CONTENTS

4.1 OPERATOR INTERFACE

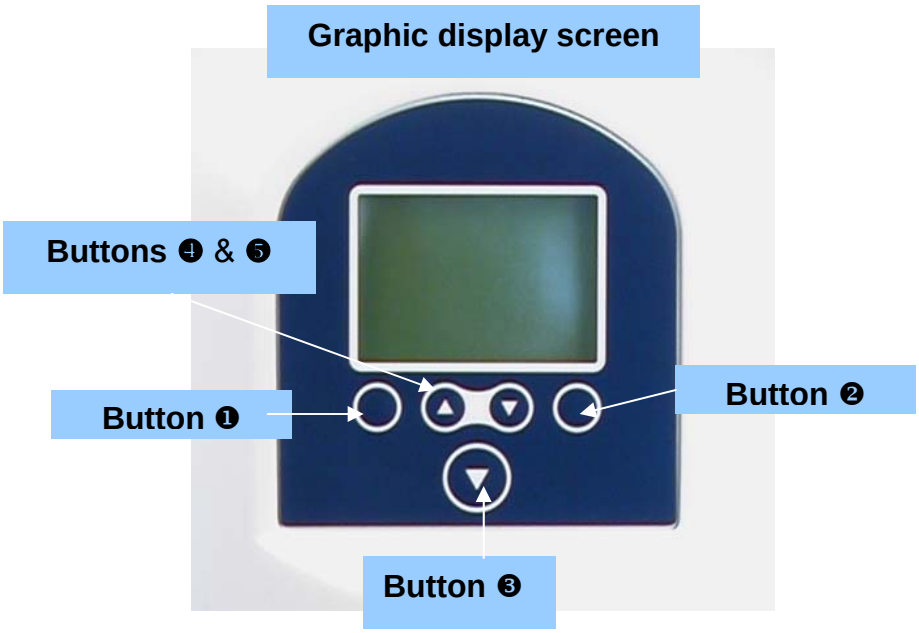
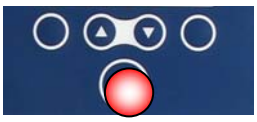
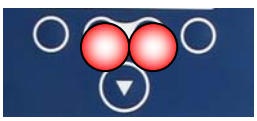


Fig-14 Keypad display

4.1.1 Keypad

Press Keypad Button	Function	Button No.
	- Main **Stop/Start** button. - General Function button	❶
	- **Menu** select Button - General Function button	❷
	- Point of use dispense button	❸
	- **Up / Down** buttons, moves cursor to allow selection of different parameters and to increase/decrease values, within a menu screen. - Pressing the two buttons together operates the automatic air bleed on the internal filter.	❹ & ❺

4.2 STARTING THE UNIT FOR THE FIRST TIME

Before starting please ensure that the unit has been installed and set up as detailed in Section 3.0. Failing to set the unit up in the correctly may cause irreversible damage.

- Ensure you have completed the following installation checks.
- Purified Water In, Drain and external connections are correct as detailed in Section 3.8.
- Power supply is connected as per Section 3.7.1 but **Switched Off.**
- (Optional), 10", 0.2 micron, Pre-filter is fitted in the external filter housing, as per section 3.5
- Both (NCP) Packs are fitted, as per Section 3.9
- 0.2 um Point of use Filter is fitted, as per 3.10 (Life Science/Ultimate)
- Unit is securely mounted.
- Feedwater quality is < 20µs/cm and < 20 p.s.i.
- Operator's manual has been read and understood.

4.2.1 Follow the steps in the table below:

Display	Actions	Comments	Step
SELECT Neptune Version ?.? Transit mode	• Switch power on to Unit. • Turn on water supply. • Check for leaks.	When power is first switched on to the unit, ***SELECT Neptune*** screen displayed for a few seconds, displaying software version and unit type.	**1**
Use arrow keys to Set time: 00:00:00 **EXIT** **NEXT**	• Press buttons ❹ & ❺ to set values. • Press button ❷ to change from hours to mins. • Once set select **EXIT** by pressing button ❶	Follow on screen prompts to set time.	**2**
Use arrow keys to Set Date: 00/00/00 **EXIT** **NEXT**	• Press buttons ❹ & ❺ to set values. • Press button ❷ to change from days to mths to yr. • Once set select **EXIT** by pressing button ❶	Follow on screen prompts to set date.	**3**

NCP Pac (Right) replacement due: 00/00/00 **EXIT** **RESET**	• Press button ❷ to RESET, NCP pac replacement date 6 mths in future. • Then select **YES** to confirm.	Follow on screen prompts to set future NCP pac replacement date.	**4**
Internal Filter replacement due: 00/00/00 **EXIT** **RESET**	• Press button ❷ to RESET, Filter replacement date 12 mths in the future. • Then select **YES** to confirm.	• Follow on screen prompts to set future Filter replacement date. • On selecting **RESET** display reverts to "**POWER ON** screen.	**5**
POWER ON 14:25:12 02/03/05 **START** **MENU**	• To start the unit select **START.** • For details of menu functions refer to section 5 of this manual.	• On selecting **START** screen will change to **PROCESSING** screen. After a few seconds the screen will display the process mimic. • The internal recirc. pump will start after a few secs. • Ignore all alarms at this stage.	**6**
Out Qual 11 MΩ **PROCESS MIMIC**	• Pressing buttons ❹ & ❺ will display:- • Out Qual • Mid Qual • Temp • Flowrate • TOC • Pressure	• By pressing buttons ❶ or ❷ will return the display to the **PROCESSING** screen. • Refer to section 5 for details of displayed parameters.	**7**
PROCESSING Out Qual 11 MΩ **STOP** **MENU**	Press button ❷ to select **MENU** features or press button ❶ to **STOP** the unit.	See section 5 for details of menu features.	**8**

4.3 STARTING THE UNIT DURING NORMAL OPERATION.

- Setting of the time and date is only required when the unit is first started from new.
- To start the unit once commissioned follow instructions from step 6 above.

4.4 STOPPING THE UNIT DURING NORMAL OPERATION

- To stop the unit during normal operation simply press button, ❶ twice.

4.5 STOPPING THE UNIT IN AN EMERGENCY.

- If you need to stop the unit in an emergency eg: as a result of a severe leak then switch off or disconnect from the mains electrical supply and turn off the water supply.

4.6 DISPENSING WATER FROM THE UNIT

- To dispense water simply press button ❺ on the keypad. **See Fig-14.**
- This dispense point has three modes of operation, **Manual Latched, Manual Hold** and **Volume**.
- Refer to **Section 5.4** for details on all three dispensing modes and how to set them up.

4.7 USING THE AUTOMATIC FILTER AIR-BLEED FEATURE

- During normal operation the filter air bleed feature will operate automatically every hour.
- When starting up for the first time or after installing a new filter it is recommended that the air bleed is manually operated.
- To operate the air bleed manually simply press both buttons ❹ & ❺ together momentarily**.**
- The valve will open for 5 secs then close. You can repeat this as many times as required to bleed the air from the filter.

SECTION

5

OPERATING PROCEDURES - DETAILED REFERENCE

This section describes the full procedures for all aspects of the ***SELECT Neptune***. It provides more details to that contained in the Quick Reference Section. This Section is divided into the following subsections:

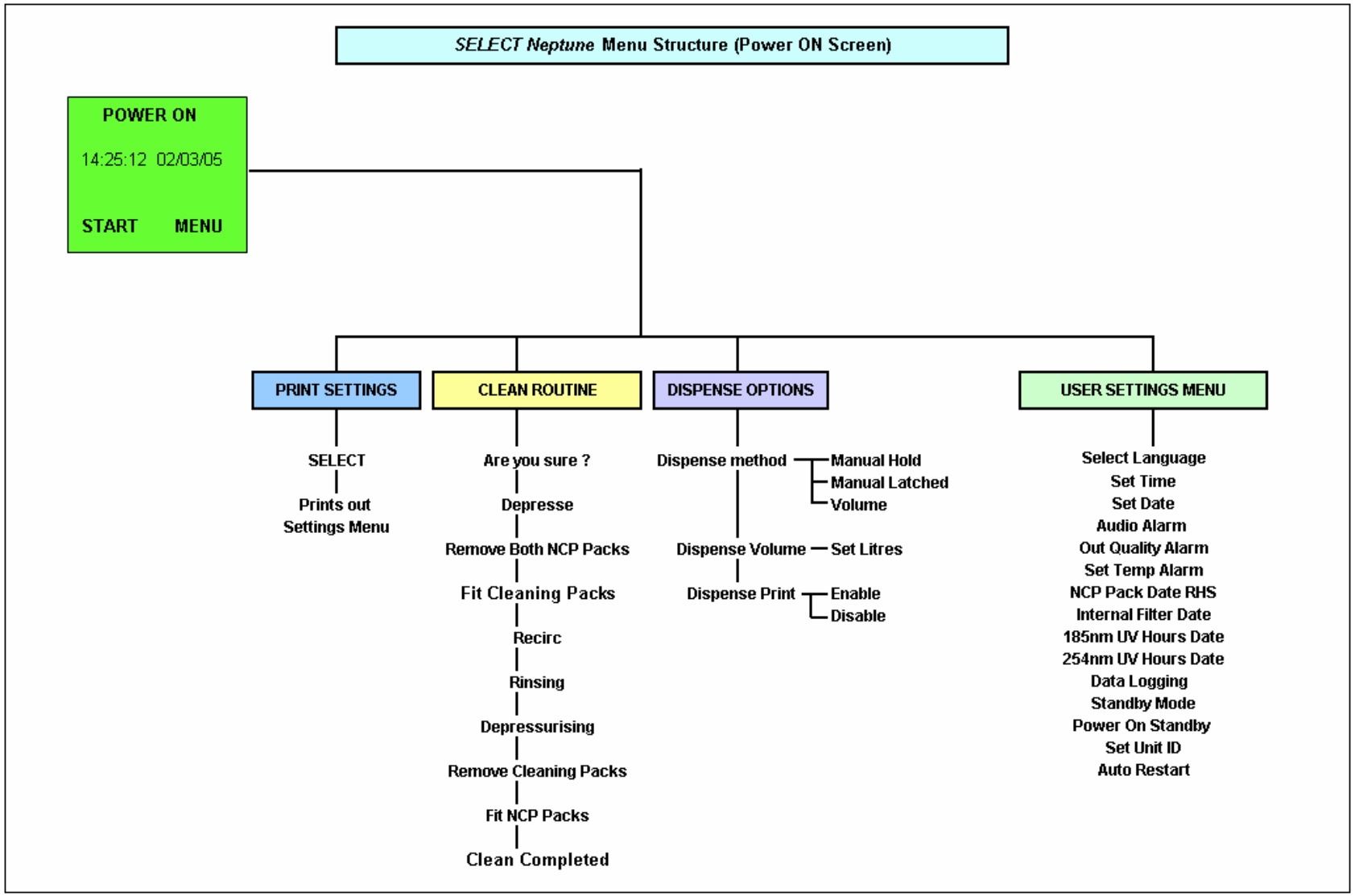
SECTION CONTENTS

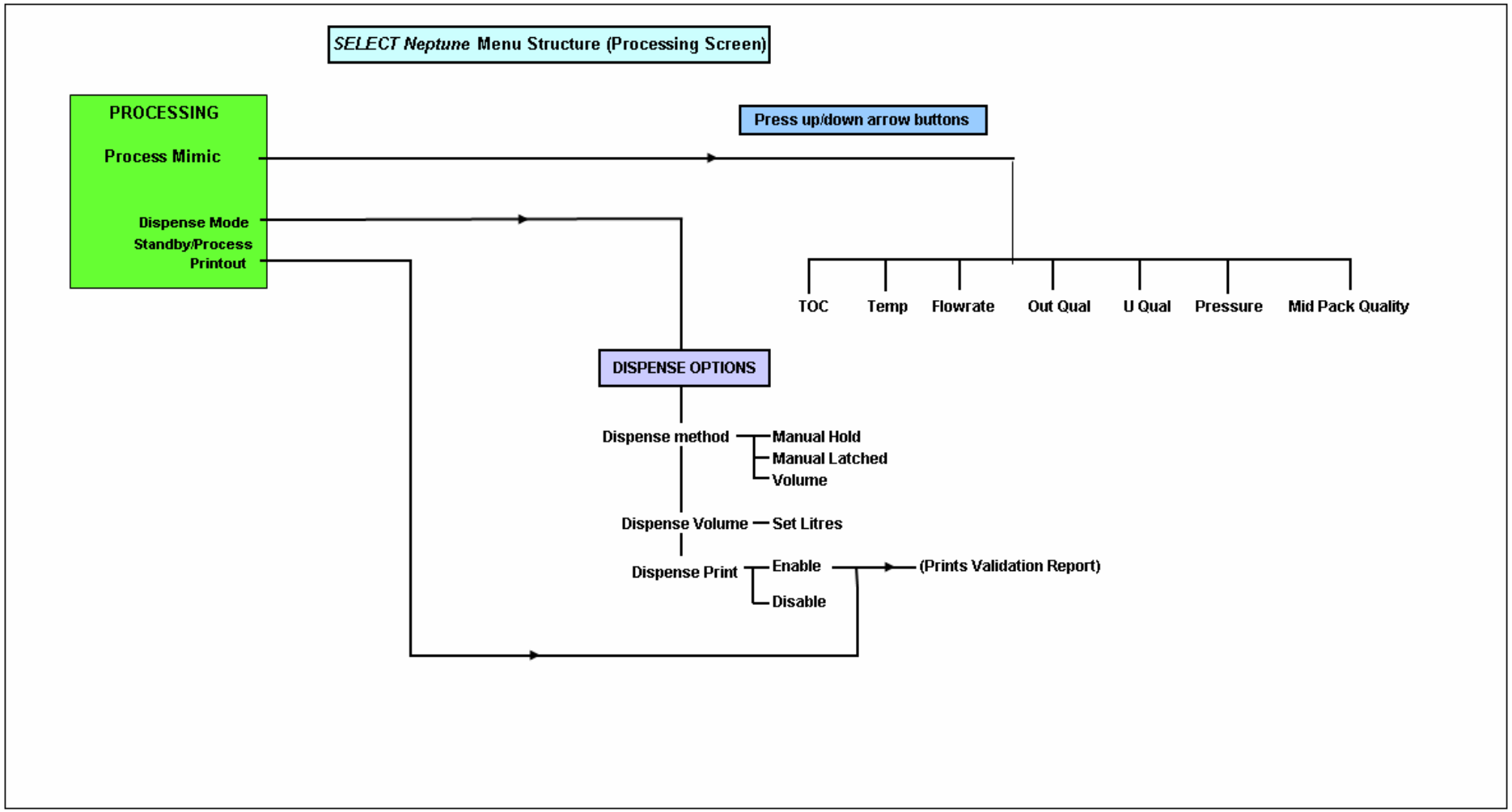
5.1 CONTROL PHILOSOPHY

The general operation of the ***SELECT Neptune*** *range of polishers* is described as follows*.*

1. Pre-purified feedwater enters the unit via an inlet solenoid valve.
2. An internal recirculation pump boosts the flowrate up to 1.5 - 2 l/min.
3. If the ***SELECT Neptune*** if fed from a tank, as an option, it can be protected from running dry by a low level sensor located in the supply tank.
4. To protect the unit from over pressure the system incorporates a high pressure switch set at 4 bar.
5. The first stage of purification involves passing water through the Primary NCP media pack, which contains high quality mixed bed ion-exchange resin and organic adsorbent media. The quality of water after this stage should be > 15 MΩ-cm, and displayed as **"Mid Qual".**
6. The polished water is then subjected to irradiation by UV light at a wavelength of 185nm. Photo-oxidation of dissolved organic compounds occurs during this stage of the process. The TOC (Total Organic Carbon) level is also monitored at this stage and displayed in bands of >1ppb, <5 ppb and <10 ppb.
7. Following the photo-oxidation stage the water is then passed through a second NCP media pack to remove any residual dissolved organic or inorganic contaminants.
8. After the final polishing the water is then filtered. On the Analytical unit the water is filtered down to 0.2 micron, on the Ultimate and Life Science unit the water is filtered to 0.05 micron.
9. As the bacterial specification on the (Ult/LFSC) units is greater than the Analytical these two units include a final stage of UV irradiation at 254 nm. (Bactericidal wavelength)
10. Water can be dispensed from the unit via, 3 options of dispense are available, Hold, Latched and Volume.
11. To provide sterile water at point of use the valve is fitted with a 0.2-micron absolute rated capsule filter with protective filling bell.(Ult/LFSC only)
12. To maintain quality the water is continuously recirculated.
13. The Graphical screen displays all alarms, quality, and status readings along with a mimic of the process.
14. The unit can also be configured to feed external equipment such as auto-analysers. This is achieved by the connection of an external distribution loop at the rear of the unit.

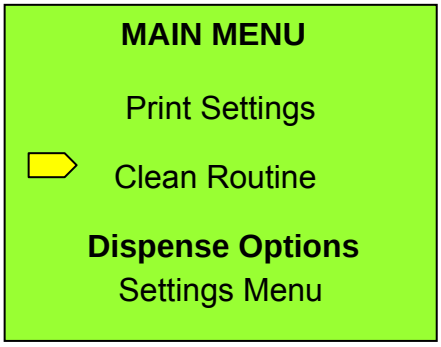
Refer to the process flow schematics in Section 2.1.


SELECT Neptune Menu Structure (Power ON Screen)
POWER ON
14:25:12 02/03/05
START MENU
PRINT SETTINGS
CLEAN ROUTINE
DISPENSE OPTIONS
USER SETTINGS MENU
SELECT
Prints out Settings Menu
Are you sure ?
Depresse
Remove Both NCP Packs
Fit Cleaning Packs
Recirc
Rinsing
Depressurising
Remove Cleaning Packs
Fit NCP Packs
Clean Completed
Dispense method
Manual Hold
Manual Latched
Volume
Dispense Volume
Set Litres
Dispense Print
Enable
Disable
Select Language
Set Time
Set Date
Audio Alarm
Out Quality Alarm
Set Temp Alarm
NCP Pack Date RHS
Internal Filter Date
185nm UV Hours Date
254nm UV Hours Date
Data Logging
Standby Mode
Power On Standby
Set Unit ID
Auto Restart


SELECT Neptune Menu Structure (Processing Screen)
PROCESSING
Process Mimic
Dispense Mode
Standby/Process
Printout
Press up/down arrow buttons
TOC
Temp
Flowrate
Out Qual
U Qual
Pressure
Mid Pack Quality
DISPENSE OPTIONS
Dispense method
Manual Hold
Manual Latched
Volume
Dispense Volume
Set Litres
Dispense Print
Enable
(Prints Validation Report)
Disable

5.3 CLEAN ROUTINE

- To access the "**Clean Routine**". From the "Power On" screen, select "**Menu**", to display the screen below. Then step down and select "**Clean Routine**".



- On entering the Clean routine you are asked to confirm, **"Are you Sure",** as once you have selected "**Yes**" the unit will be locked in to the clean cycle for approx 40 minutes.
- On selecting **"Yes"** the unit will depressurise to allow fitment of the cleaning adaptors.
- After fitting the cleaning adaptors and by following the on-screen prompts the unit will automatically proceed through the cleaning cycle.
- A "**Time Remaining**" counter will indicate time remaining before the clean cycle finishes.
- For full instructions on how to carryout the disinfection cycle please refer to **Section 6 Cleaning and Disinfection**.

5.4 DISPENSE OPTIONS.

5.4.1 On selecting "**Dispense Options**" you will be presented with the following choices: -

- Dispense Method
- Dispense Volume
- Dispense Print

- On selecting "**Dispense method"** you will be presented with 3 choices of dispense: -

  - Manual Hold
  - Manual Latched
  - Volume

- If "**Manual Hold**" is selected on pressing the Dispense button water will be dispensed, on releasing the dispense button water flow will stop.
- If "**Manual Latched**" is selected on pressing the dispense button water will be dispensed, on releasing the button water will continue to flow. To stop dispense the button has to be pressed for a second time.
- If "**Volume**" is selected you will then need to set the volume to be dispensed, detailed as follows:-

NB From 0 – 1.00 litres the volume increases by 10mls.
From 1.1 litres to 10.00 litres the volume increases by 100 mls.
From 10.1 litres the volume increase by 1.0 litres up to a maximum dispense volume of 20 litres.

Selection of Volume dispense and setting of dispense volume

• Scroll down to Dispense options and press **"SELECT"**	**MAIN MENU** Print Settings Clean Routine **Dispense Options** Settings Menu **EXIT** **SELECT**	• Use ▽△ arrow keys to scroll down menu list.
• **"SELECT" Dispense Method**	**Dispense Method** **Dispense Method** Dispense Volume Dispense Print **EXIT** **SELECT**	
• **Toggle using** ▽△ arrow keys to display "Volume" • **Select "EXIT"** to return to return to Dispense Method Screen	**Dispense Method** **Volume** **EXIT**	• Use ▽△ arrow keys to toggle between, "Manual Hold", "Manual Latched" and "Volume"
• Type in desired volume to be dispensed using ▽△ arrow keys • Press Exit to return to Main Menu	**Use arrow keys to set Dispense volume** **0.50 litres** **EXIT**	

5.4.2 On selecting **"Dispense Print**" you can select this function to be enabled or Disabled. If Enabled and connected to a printer, a "**Validation report**" will be printed out at the end of any dispense.

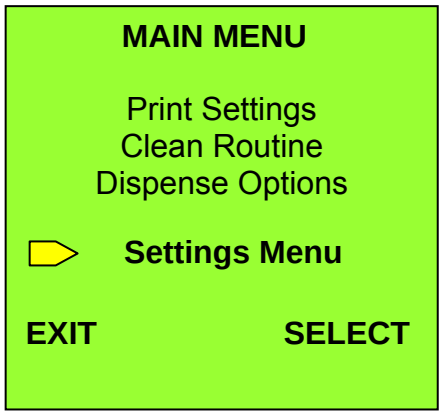
(Example of a typical Validation Report print out):

VALIDATION REPORT

Time	**: 11:42:30**
Date	**: 21/01/05**
Unit ID Number	**: 1**
Unit Serial Number	**: 26745**
Outlet Quality	**: 18.2M**
Uncompensated Quality	**: 29.8M**
TOC	**: 5 ppb**
Temperature	**: 21.0 degC**
Flowrate	**: 1.5 lm**
Pressure	**: 2.4 bar**

5.5 USER SETTINGS MENU

- To select the User settings menu press, **"MENU**" from the "Power On" screen to display the screen below. Then step down and select "**Settings Menu**".



- The table below shows all parameters within the User Settings Menu, which can be accessed via the "Power On" screen. To change any of the settings or values follow the on screen prompts in conjunction with the △ ▽ buttons on the keypad.

Parameter	Range/Options	Factory Default Value
Select Language	English	English
Set Time	24 hr clock	Current Date
Set Date	DD/MM/YY	Current GMT
Audio Alarm Enable	Enable/Disable	Enabled
Out Quality Alarm	1.0MΩ – 18.2 MΩ	10.0MΩ
Temp Alarm	35 ^{0}C - 20 ^{0}C	35 ^{0}C
NCP Pack Date	6 mths Range	00/00/00
Internal Filter Date	6 mths Range	00/00/00
Data Logging	Enable/Disable	Disable
Standby mode	Enable/Disable	Enabled
Power On Standby	Enable/Disable	Disabled
Set Unit ID	01-99	01
Auto Restart	Enable / Disable	Disabled
185nm UV Hours Date	6000 hrs	0 hrs
***254nm UV Hours Date**	6000 hrs	0 hrs

* For ***SELECT Neptune Analytical*** this parameter will not be displayed.

5.5.1 *SELECT* Language

The ***SELECT Neptune*** currently only has English language available.

5.5.2 Set Time

The unit incorporates a real time, 24 hr clock. The clock will have to be adjusted for BST. The clock will be factory pre set to the correct GMT. For overseas users of the equipment the time settings may have to be altered as necessary to match individual time zones.

5.5.3 Set Date

The correct date will be pre-set into the unit, check before use and adjust if necessary. Leap year calendar changes will have to be adjusted for.

5.5.4 Audio Alarm Enable

The Unit incorporates a buzzer alarm, which will sound should any of the alarms be activated, see **Section 5.7** for list of alarms. The alarm can be permanently disabled or can be muted each time by pressing button ❷ and selecting "**Mute Alarm**" from the menu list.

5.5.5 Out Quality Alarm

This alarm refers to the quality at which the Right hand NCP media pac's can be pre-set to indicate replacement. The set point is factory pre set to alarm at 10MΩ-cm.
NB: The capacity quoted for the NCP is to 1MΩ. If the set point is raised then there will be a reduction in cartridge capacity.

5.5.6 Mid Qual Alarm

This alarm refers to the quality at which the Left hand NCP media pac can be pre-set to indicate replacement. The set point is factory pre set to alarm at 1MΩ-cm.

5.5.7 Temp Alarm

If the treated water temperature exceeds the pre-set temperature valve, a **"Temperature High"** alarm message will be displayed. The default temperature setting for the unit is set at 35^{o}C and can be accessed via the **"User Settings"** menu **Section 5.5**.

5.5.8 NCP (Right) Pack Date

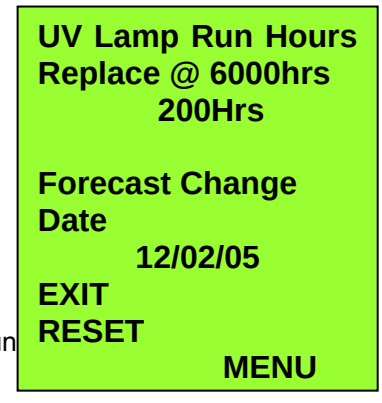
Following installation of a new right hand side NCP Pack the date of replacement must be reset. A date of 6 months hence is set on pressing the **RESET** button.

5.5.9 Internal Filter Date

Following installation of a new internal 0.2 or 0.05 micron filter the date of replacement must be reset. A date of 12 months in the future is set on pressing the **RESET** button.

5.5.10 185nm UV Hours Date

Following replacement of a new 185nm photo-oxidation UV lamp the future date of the replacement lamp must be reset. On entering this screen (see below) and pressing "**RESET**" the totalled hours run will reset to "0" hrs and the date will change to 12 mths in the future. The Hours run figure will rise according to actual hours run and number of lamp on/offs. This also applies to the forecasted date.



Select Neptun

5.5.11 254nm UV Hours Date

Following replacement of a new 254nm UV lamp the future date of the replacement lamp must be reset. On entering this screen (see below) on pressing "**RESET**" the totalled hours run will reset to "0" hrs and the date will change to 12 mths in the future. The Hours run figure will rise according to actual hours run and number of lamp on/offs. This also applies to the forecasted date.

5.5.12 Data Logging

If enabled Validation data will be collated after any dispense or change in unit status. A data logging module and connection lead will be required for data logging, refer to **Section 9 Consumables & Spares** for ordering details.

To enable the Data Logging device enter the "**Settings Menu**", scroll down the list and select Data Logging, then select "**Enable**". Press Exit to return to main Menu

5.5.13 Power On - Standby Mode

If selected from the User Menu in the "Power ON" mode and enabled, the unit will always run for 10 minutes every 50 minutes. If the "Start" button is depressed the unit will revert to continuous operation.

5.5.14 Set Unit ID

If there is more than one unit on site it may be useful to give them all different I.D. numbers. This feature allows you to identify up to 99 units.

5.5.15 Auto Restart

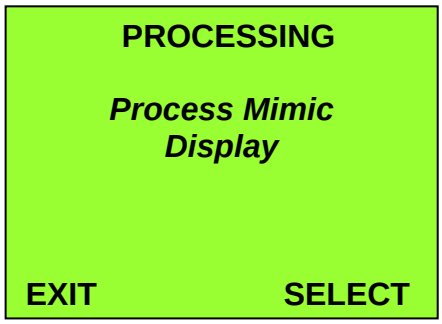
Can be set to "**Enabled**" or "**Disabled**". If **Enabled** is selected the unit will automatically restart following an interruption in the power supply and return to the start of **Processing**, **Process Standby** or **Power On** (depending on what mode the unit was in prior to the loss of power).

5.5.16 Intelligent Monitoring System

The unit also has an "**Intelligent Monitoring System**" built in which will automatically switch the unit to intermittent mode if no water has been dispensed for 2 hours. In Intermittent mode the unit will run for 10 minutes every 50 minutes, until, the Dispense button is pressed and the unit will revert to continuous mode.

This feature can be "**Disabled/Enabled"** by entering the **"Settings Menu"** scrolling down the list and selecting **Standby Mode**, then entering either **"Enabled"** or **"Disabled"**.

5.6 "PROCESSING" SCREEN INFORMATION



By using the ▲▼arrow buttons you can select any of the ***SELECT Neptune's***, 6 performance indicators. These will be displayed at the top of the screen. The indicators available are: -

Indicators	Units	
"Flowrate"	L/min	Display of recirculation/dispense flowrate.
"Pressure"	Bar	Internal recirculation pressure
"Out Qual"	MΩ	Quality available at point of dispense
"Mid Qual"	MΩ	Quality after first NCP pack.
"Temp"	^{0}C	Dispense water temperature
"**TOC"***	ppb	Total Organic Carbon indicator for dispense water. Range: >1ppb <5 ppb <10 ppb

***** The message **"TOC Wait"** will be displayed if "TOC" is selected within 2 minutes of starting the unit. This is to allow the TOC monitor to complete its start up routine.

5.7 SAFETY FEATURES

The ***SELECT Neptune*** has a number of safety features pre programmed into its microprocessor control system designed as self protection should a fault occur. The alarms can be split into Fatal alarms, these alarms will shut the unit down. If the condition persists refer to Section 8 Troubleshooting for assistance.

Table of Fatal Alarm messages:

Displayed Alarm Message	Safety feature
“High Pressure”	The unit is fitted with a recirculation pump and should the pressure in the unit exceed 4 bar for 3 secs the unit will shut down. If the “Audio Alarm” has been enabled in “User Settings” it will also sound.
“No RHS Pack”	If the right hand side NCP pack has not been fully engaged or works loose during normal operation the unit will shut down, switching off the feedwater supply, so preventing flooding. If the “Audio Alarm” has been enabled in “User Settings” it will also sound.
“No LHS Pack”	If the left hand side NCP media pack has not been fully engaged or works loose during normal operation the unit will shut down, switching off the feedwater supply, so preventing flooding. If the “Audio Alarm” has been enabled in “User Settings” it will also sound.
“No Packs”	If both pack have not been fully engaged or work loose during normal operation the unit will shut down, switching off the feedwater supply, so preventing flooding. If the “Audio Alarm” has been enabled in “User Settings” it will also sound
“**Low Flow”**	If the internal recirculation flowrate falls below 0.5 l/m for a period of 15 secs. the unit will shut down and display corresponding Low Flow message. If the “Audio Alarm” has been enabled in “User Settings” it will also sound.

For details of how to resolve and clear the above, refer to **Section 8 Trouble shooting for assistance.**

5.8 ERROR MESSAGES AND ADVISORY ALARMS

In conjunction with the safety features the unit will also display many "Error messages and Advisory Alarms", giving warnings of failed sensors, prompts for changing consumable items and indication that the water quality is outside desired limits. Details of these can be found in the table below.

Displayed Alarm/Error Message	Secondary Message	Reason for Alarm
"Temp Sensor Error"	Value Displayed **"==.="**	Temp Sensor lead being disconnected or faulty or water temp is <1 or >100 Deg C
"Out Qual Line Cell Error"	Value Displayed **"==.="**	Outlet line cell sensor lead disconnected or faulty or final water quality > 60 MΩ
"Mid Qual Line Cell Error"	Value Displayed **"==.="**	Mid line cell sensor lead disconnected or faulty or final water quality > 60 MΩ
"Post UV Qual Line Cell Error"	Value Displayed **"==.="**	Mid line cell sensor lead disconnected or faulty or final water quality > 60 MΩ
"185 UV lamp failure"	UV mimic will flash	uv lamp failed to strike, uv sensor fault.
"254 UV lamp failure"	UV mimic will flash	uv lamp failed to strike, uv sensor fault.
"Replace 254 UV Lamp"	UV mimic will flash	Forecasted date of replacement for uv lamp has been exceeded.
"Replace 185 UV Lamp"	UV mimic will flash	Forecasted date of replacement for uv lamp has been exceeded.
"High Water Temp"	-	Recirculated water temperature has exceeded pre set value.
"Poor Outlet Quality"	-	Outlet Quality has exceeded pre set quality limits.
"Replace Packs"		Forecasted 6 mths pack life has been exceeded

For further details of how to diagnose and clear alarms refer to, **Section 5 User Settings, Section 8 Troubleshooting and Section 7 Maintenance.**

5.9 USING THE DATA LOGGER

5.9.1 Connecting the Antilog Data Logger Device and Recording Data

1. Connect the RJ45 to D-Type serial lead between the serial comms. port on the Neptune unit and the AntiLog device.
2. Connect the Power Pack to a suitable 13 Amp socket and the AntiLog's Jack socket.
3. Ensure that the data logging option within the Neptune unit's 'Main Menu' is 'Enabled. Also within the 'Dispense Options', 'Enable' the, 'Dispense Print' option.

4. With the Antilog powered the LED will be flashing red (recording mode).

5.9.2 Playing back data to a remote PC

1. Configure a terminal program (such as Hyperterminal) on a remote PC to 115200 baud rate, 8 bits, no parity, handshaking none.
2. Connect the serial NULL modem cable between the AntiLog and the serial port on a remote PC.
3. Turn the device off by holding the 'Off' button down for a couple of seconds.
4. Hold down the 'On' button until the LED goes green, then release.
5. With the AntiLog device now in playback mode (green LED flashing), press the 'On' button to dump the stored data to the remote PC. The same data will be re-sent each time the 'On' button is pressed.

5.9.3 Erasing all stored data

1. First turn the AntiLog device off by holding the 'Off' button down for a couple of seconds, then release.
2. Hold down the 'Off' button and then press the 'On' button when the LED goes green.
3. Now release the 'On' button, then the 'Off' button. A message [Media Erased] will appear on the PC terminal if the erase has been successful.

SECTION

6

DISINFECTION

This section provides details on how to carry out a disinfection on the ***SELECT Neptune***. The section is divided into the following sub-sections.

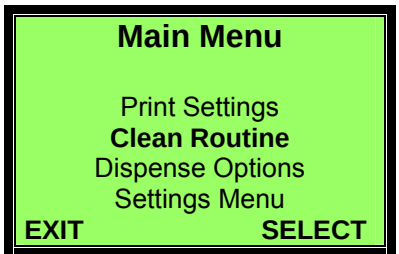
SECTION CONTENTS

6.0 DISINFECTION

- It is recommended that your ***SELECT Neptune*** unit is disinfected typically twice per year to ensure it maintains consistent performance.
- To perform a disinfection refer to **Section 6.1.**
- The clean cycle generally last for about 35 minutes.
- Please read the material safety data sheet, which can be found in the Appendix, for the Disinfection Pac Adaptor before handling and when disposing of the used Adaptor/s.
- If any alarm messages are displayed during the clean then refer to **Sections 5.7 & 5.8** for details, or **Section 8** for corrective actions.
- Ensure that if fed direct from a tank that it contains more than 15 litres of water as the Disinfection cycle requires approx 10 -12 litres of water.

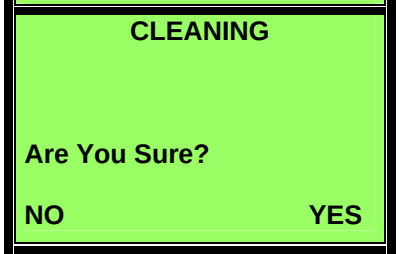
6.1 PROCEDURE

Step 1: Select "**Clean Routine**" From Menu listing.

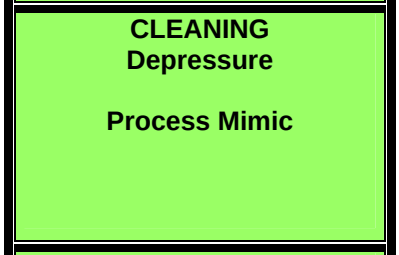


Accessed via "**POWER ON"** menu.
Use ▽ △ to scroll and select **"Clean Routine"**

Step 2: Select "**Yes**" to proceed with Clean Routine or Select "**No**" to exit.

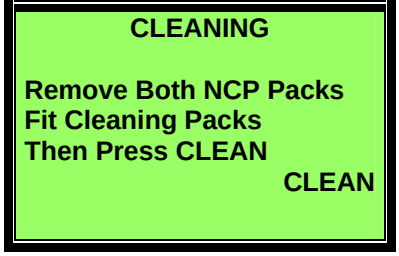


Step 3: Unit depressurises to allow safe removal of packs



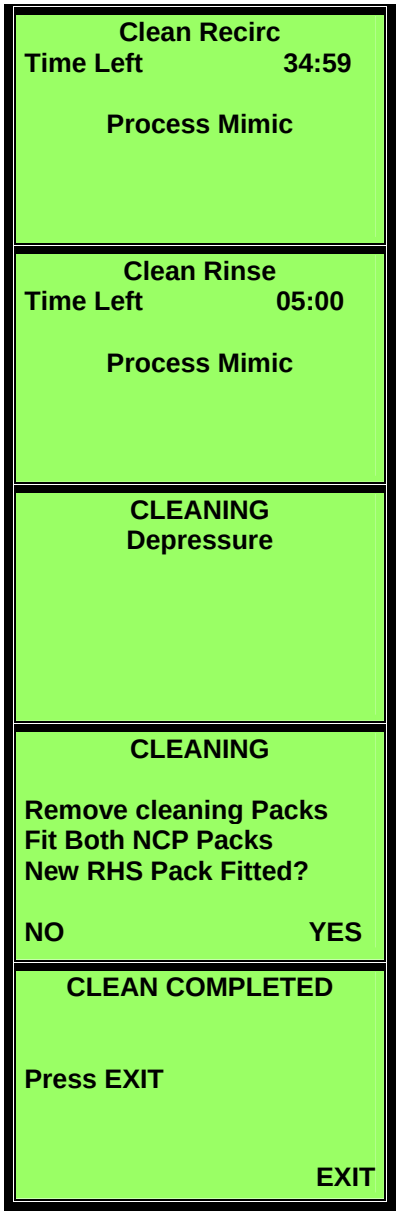
Approx 30 seconds

Step 4: Remove NCP packs and fit Cleaning packs. Select **CLEAN** to start routine



Note: If NCP packs are within date they can be reused following Cleaning

Step 5: First stage of clean: Recirculation of cleaning chemicals for 30 minutes.



Note: mimic changes to indicate presence of "**CP"** packs in place of NCP packs.
Use ▽ △ to bleed filter.

Step 6: After 30 minutes of recirculation the unit starts to rinse for 5 minutes.

Note: Ensure if fed from storage tank that there is approx 15 litres of water present to rinse the unit.

Step 7: After 5 minutes of rinsing the unit depressurises to allow safe removal of the cleaning packs.

Step 8: Remove and discard used cleaning packs and refit either the original NCP packs or fit new ones.

If "**YES**" you will be instructed to reset the pack expiry date. See Section 7.1

Step 9: Once all the consumables have been fitted press Exit to return to Processing mode.

Notes:

If a new 0.2um Point of Use filter is to be fitted, then follow the instructions detailed in Section 7.4.

If a new internal 0.05 or 0.2 ultramicrofilter are to be fitted, then follow the instructions in Sections 7.2 & 7.3

For guidance of when to disinfect the unit and replacement of all consumables, refer to the **Preventative Maintenance Guide** in **Section 7.9.**

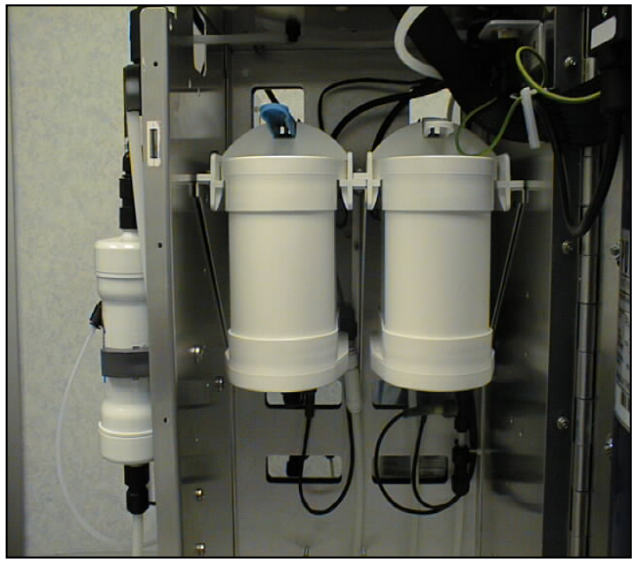


Fig – 15 Cleaning Pack Adaptors

7

MAINTENANCE

This section describes the recommended procedures for replacing consumables on the ***SELECT Neptune*** unit. This section is divided into the following sub-sections.

SECTION CONTENTS

7.0 MAINTENANCE

This section provides details of how to carry out routine maintenance tasks on your ***SELECT Neptune*** unit. The tasks only relate to those involving the changing of consumable items.

For tasks that fall outside the changing of consumables, always refer to the supplier of the equipment for advice and help.

Section 11 "Contacting Us", provides contact details should you need to contact Purite Limited.

Safety Information For Maintenance Task

The operator must take care to ensure that only authorised personnel, who have been sufficiently informed for the task in hand, by thoroughly studying the Operating Instructions, perform all maintenance tasks.

The unit must be shut down and protected from being placed in operation again unintentionally before any maintenance tasks have been completed. It is essential to observe the procedure described in these Operating Instructions for shutting the unit down.

Before beginning any task on the electrical equipment in the unit, a check must confirm that the power has been disconnected and isolated from the unit. In addition, the unit must be secured to prevent it from being turned on again unintentionally.

If at anytime you are unsure please contact Purite or your supplier to seek assistance using the contact details in Section 11.

7.1 REPLACING A NCP MEDIA CARTRIDGE

Fig-16 **Fig-17**

NB Under normal operating conditions the pack in the left hand positionwill always exhaust first. The “Mid Qual” alarm message will indicate when the pack is exhausted and requires replacement.

When replacing the left hand side pack to maintain optimum purity remove the exhausted left hand side pack, discard it, then remove the right-hand side pack and place it in the left hand side position. The new pack SHOULD then be fitted to the right hand side position.

You will then be asked to confirm if a new “RHS Pack Has Been Fitted”, select “Yes”

You will then be asked to reset the replacement date of this pack, selecting “Yes” will then reset the replacement date for 6 months time.

If the alarm message “Poor Outlet Quality” is ever displayed then new packs SHOULD be fitted to both positions.

To remove a pack follow the procedures below.

- Ensure unit is in the **“Power On”** condition and isolate the mains water supply.
- Open the front door cover to reveal both of the NCP media cartridges.
- To remove a cartridge press down on the lever on top of the holder and gently pull away the exhausted cartridge. **(See Fig-16)**. There may be some drops of water lost from the cartridge.

- The cartridge can now be disposed of, refer to **Section 9.4** for advice on disposal.
- To refit a new cartridge simply remove it from its packaging. **Be sure to remove the two black plugs used to seal the two ports**, **(see Fig-8).**
- Then slide the pack back into the holder. The locking lever will "Click" indicating the pack is secure.
- If a new RHS pack has been replaced the unit should ask you to confirm that a new pack has been fitted followed by a request to reset the next exchange date, just follow the simple on screen commands.
- **NB** If a new pack has not located correctly, the sensors located in the pack holder will set off an alarm and raise a corresponding alarm message on the screen, eg., **"No LHS Pack"**. Refer to **Section 8 Troubleshooting** should this occur.
- Turn on the water supply.

7.2 REPLACING THE INTERNAL 0.2µm FILTER *(Analytical)*

- Firstly if the unit is still in "**Processing**" mode, select **STOP**, to place the unit into Power On mode.
- Allow the unit to depressurise for approximately 30 seconds.
- Switch off the unit and isolate the mains water supply.
- To gain access to the filter the right hand side cover will need to be removed.
- To remove the cover, unscrew the two retaining screws located at the top and bottom front edge of the side cover.
- Once released the cover can be pulled away from the unit.
- The filter is located at the front and has water connections top and bottom and one connection on the side. This is the automatic air bleed connection.
- Gently unscrew, anti-clockwise, the air bleed connection; holding the clear fitting only.
- With the air bleed connector detached unscrew both of the water connections.
- With all of the connectors detached pull the filter from its retaining clip and discard.
- Un-pack the new filter and reconnect the air bleed line and water lines.
- DO NOT over tighten the water connections as this may damage the fittings.
- NB: Check that the filter has been refitted with the arrow on the side of the filter pointing upwards.
- Switch on the electrical supply and turn on the water.
- You will now need to reset the filter expiry date , to do this follow on screen prompts which will guide you through the process.

- To ensure that there are no leaks, select Start and allow the unit to recirculate. The ▶ symbol on the recirculation pump graphic will flash indicating that water is recirculating.
- In order to bleed air from the new filter press the, △ ▽, up / down buttons on the front Keypad together. Repeat this after 10 seconds.
- With the unit running for a couple of minutes check for signs of any water leaks around all of the filter connections.
- If there are no leaks then simply replace the side cover.

Fig-18 Location of Internal (0.2/0.05um) Filter

7.3 REPLACING THE 0.05 µm ULTRAMICROFILTER

- Firstly if the unit is still in “Processing” mode, select STOP, to place in Power On mode.
- Allow the unit to depressurise for approximately 30 seconds.
- To gain access to the filter, the right hand side cover will need to be removed.
- To remove the cover, unscrew the two retaining screws located at the top and bottom front edge of the side cover.
- Once released the cover can be pulled away from the unit.
- The filter is located at the front and has water connections top and bottom and one connection on the side. This is the automatic air bleed connection.
- Gently unscrew, anti-clockwise, the air bleed connection, holding the clear fitting only.

- With the air bleed connector detached unscrew both of the water connections.
- With all of the connectors detached pull the filter from its retaining clip and discard.
- Un-pack the new filter and reconnect the air bleed line and water lines.
- DO NOT over tighten the water connections as this may damage the fittings.
- NB: Check that the filter has been refitted with the arrow on the side of the filter pointing upwards.
- To ensure there are no leaks, select Start and allow the unit to recirculate. The ▶ symbol on the recirculation pump graphic will flash indicating that water is recirculating.
- In order to bleed air from the new filter press the △ ▽ up / down buttons on the front Keypad together. Repeat this after 10 seconds.
- With the unit running for a couple of minutes check for signs of any water leaks around all of the filter connections.
- If there are no leaks then simply replace the side cover.
- You will now need to set the filter expiry date. To do this follow the on screen prompts.

7.4 REPLACING 0.2 µm POINT OF USE FILTER. (*Life Science/Ultimate* only)

Fig-19 Location of Point of Use Filter

- Fitting of a new filter can be carried out without turning the unit off.
- Simply hold the body of the capsule and un-screw clockwise.
- Once unscrewed dispose of the filter and remove the new one from its packaging. Refer to Section 9.3 for advice on disposal.
- Wind about 4 turns of PTFE tape around the thread on the filter.

Screw the new filter anti-clockwise back into the dispense valve. (NB: Be careful not to cross thread the filter)

- The bleed nozzle should point out to the right hand side of the unit.
- To bleed the filter of air, open the bleed screw a few turns, remove the lower bell-housing cap and dispense approx 500 mls of water, tapping the filter gently.
- When all of the air has been purged close the bleed screw.

7.5 REPLACING THE (185/254 nm) ULTRA VIOLET LAMP/S

NB: The replacing of an Ultra violet (UV) lamp should only be carried out by trained personnel. Please ensure the instructions have been read and fully understood before attempting to replace the lamp. The lamp should only require replacing once per year. The unit will alarm, automatically, warning that the lamp should be replaced when either the forecasted replacement date has been reached or if the lamp has failed.

Fig-20

- Isolate the unit from the electrical supply.
- With the side cover removed the UV assembly chamber can be accessed**.** **(See Fig-20)**
- The ***Analytica***l unit is only fitted with one 185nm UV lamp.
- The ***Life Science and Ultimate*** units have both a 185nm and 254nm lamp.
- The UV assemblies are individually labelled with the lamp wavelengths.

Fig-21

- Twist to unlock the black bayonet cap on top of the UV chamber**.**
- Gently pull out the lamp about 2”, using the lead. **(See Fig-21)**
- By holding both the lamp and its lead disconnect them.
- Now fully withdraw the lamp.
- (NB: as the lamp contains Mercury (Hg) it should be considered a hazardous waste and disposed of accordingly).

- Remove the new lamp from its packaging**. (DO NOT HOLD THE LAMP BY THE GLASS TUBE, IF YOU ACCIDENTALLY TOUCH THE GLASS WIPE OFF ANY MARKS WITH ALCOHOL, ISO-PROPYL ALCOHOL OR METHYLATED SPIRITS)**
- **Check the markings on the white end cap of the lamp. A letter "A" indicates it is a 185nm lamp. The letters "LS" indicate it is a 254nm lamp.**
- Once checked gently lower the lamp back into the chamber, reconnecting the lead and then refit the bayonet cap.
- Replace the side cover and switch the power back onto the unit.
- To reset the UV lamp/s future replacement date, refer to **Section 5.5.10 "185nm UV Hours Date" Or "254nm Hours Date".**

7.6 REPLACING FUSE/S

- Isolate the unit from the electrical supply and unplug the mains lead from the rear of the unit.
- With the aid of a small flat bladed screwdriver pries out the fuse carrier from the IEC module. The two fuses will now be visible. **(See Fig-22)**
- Remove the fuse/s and insert replacement fuse/s of the correct rating. Refer to **Section 9.2,** into carrier and push back into IEC module.
- Plug the mains lead back into the unit, switch the power back on and restart the unit.
- If the fuse/s fail again, then contact Purite or your supplier. Refer to; **Section 11 Contacting Us,** for details.

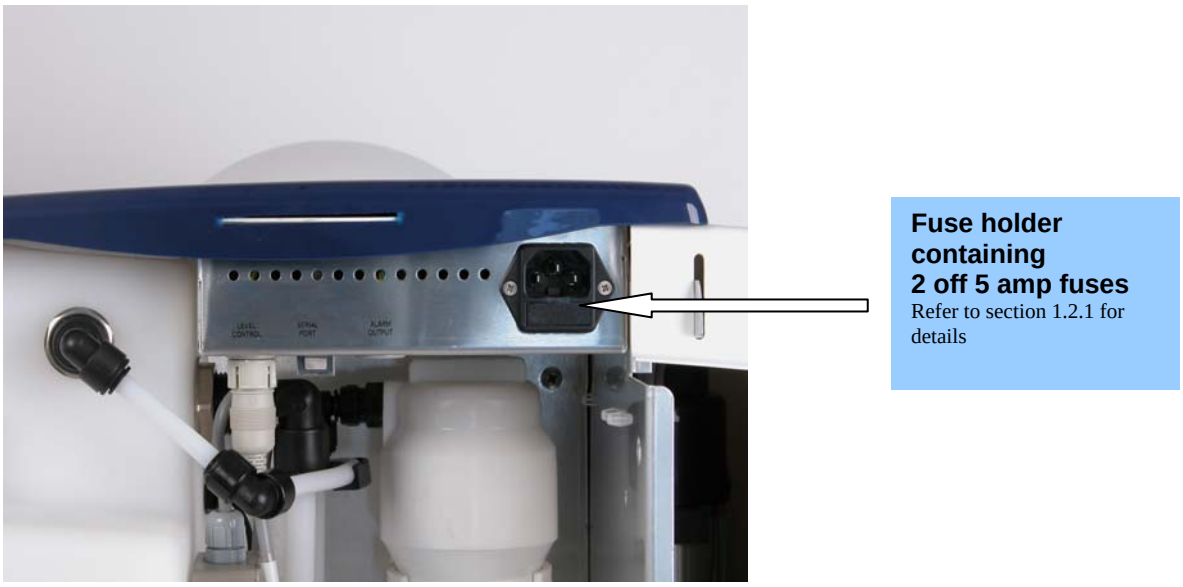


Fig-22 Fuse holder

7.7 REPLACING PCB LITHIUM BATTERY

It is recommended that the replacement of the battery is only carried by Purite approved Engineers or by Purite personnel. The Battery has a 5-year life, but it is recommended that it should be changed every 3 years.

- Turn off the water supply, isolate from the electrical supply and unplug the mains lead from the rear of the unit.
- Open the front door to gain access to the two Top cover retaining button head socket screws.
- Unscrew using a 3mmAF Allen key.
- Lift off the lid.
- The Lithium battery is located at the top right hand edge of the main circuit board. **See Fig-23**.
- To remove the battery gently pries up the spring retainer and slide out he battery. **See Fig-24**. Dispose of the battery according to local regulations.
- Refit the new battery ensuring the +ve side is facing upwards

Incorrect fitting of the battery could cause irreversible damage to the main PCB. Ensure +ve side of battery is facing upwards. Always use recommended battery Part No. R083085.

- Replace top cover, switch the electrical power back on and turn on the water supply.

Fig-23

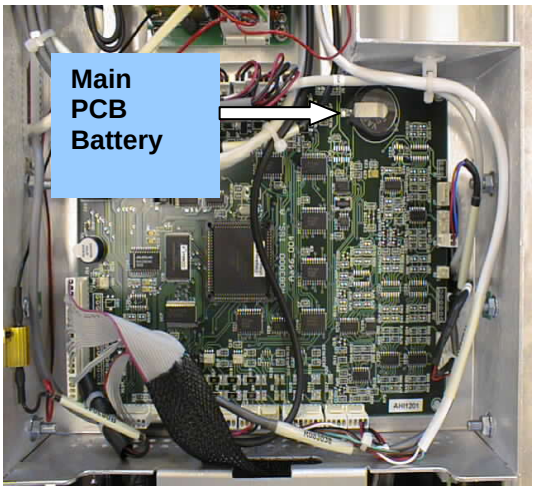
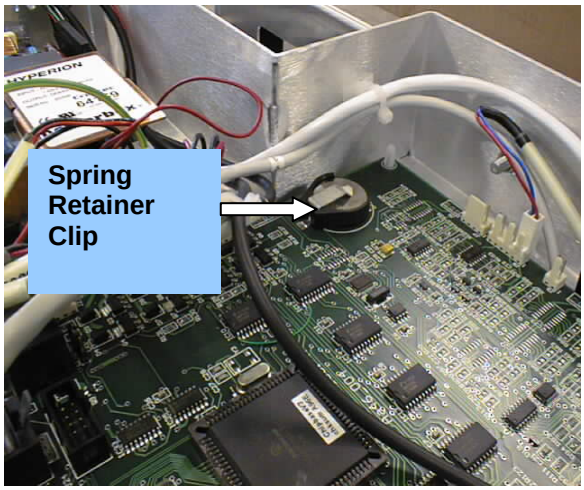


Fig-24



7.8 CLEANING OF EXTERNAL SURFACES

- Use a clean damp cloth to wipe the exterior surface of the unit.
- DO NOT allow excessive liquid on to the key pad.
- Do not use any Ketone-based solvents on the covers or front display.
- Industrial methylated spirits or iso-propyl alcohol/water based cleaners/surface disinfectants can be used to remove more persistent marks/stains and to disinfect.

7.9 PREVENTATIVE MAINTENANCE AND CONSUMABLE REPLACEMENT GUIDE

SELECT Analytical

			18 Month Cycle													
Notes	**Item**	**Part No.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**		**36**
*1	NCP Media Pack	L991540						■						■		
	0.2um Filter	R090059						■						■		
	185 nm UV Lamp	R081634												■		
*3	Disinfection	N/A						■						■		
*2	Full Service	N/A												■		
	Lithium PCB Battery	R083085														■

SELECT Life Science

			12 Month Cycle													
Notes	**Item**	**Part No.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**		**36**
*1	NCP Media Pack	L991540						■						■		
	0.2um Point of Use Filter	R090015						■						■		
	185 nm UV Lamp	R081634												■		
	254 nm UV Lamp	R081643												■		
	0.05um Ultramicrofilter	R018085												■		■
*3	Disinfection	N/A						■						■		
*2	Full Service	N/A												■		
	Lithium PCB Battery	R083085														■

SELECT Ultimate

			18 Month Cycle													
Notes	**Item**	**Part No.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**		**36**
*1	NCP Media Pack	L991540						■						■		
	0.2um Point of Use Filter	R090015						■						■		
	185 nm UV Lamp	R081634												■		
	254 nm UV Lamp	R081643												■		
	0.05um Ultramicrofilter	R018085												■		■
*3	Disinfection	N/A						■						■		
*2	Full Service	N/A												■		
	Lithium PCB Battery	R083085														■

Notes

***1** Cartridge replacement intervals may vary depending on water usage, feedwater conductivity and CO2 levels.
***2** Service carried out by Purite Limited . Contact Service Department for details of Service packages available.
***3** Minimum recomended interval between disinfections.

The above plan has been based on a typical usage of 20 to 30 litres per day.
with the unit running for 5 days per week 8 hrs on a feedwater conductivity of 1 us/cm.

SECTION

8

TROUBLESHOOTING

This section provides a guide to first line checks that can be undertaken should you encounter a problem with your ***SELECT Neptune.*** It is divided into the following sub-sections:

SECTION CONTENTS

8.0 TROUBLESHOOTING

8.1 GENERAL FAULT CONDITIONS

Symptom/s	Possible causes	Actions
Unit does not power up	1.Fuse blown in mains lead 2.Fuse blown in IEC module 3.Electrical fault in main PCB	1.Check 5 amp fuse in lead 2.Check fuses in IEC module (refer to Sec. 7.6) 3. Contact supplier

8.2 FATAL ALARM MESSAGES

CAUSE	DISPLAY	ACTION
1. Right hand side NCP pack not fully engaged into retainer.	**"No RHS Pack"**	1. Remove pack and refit ensuring retainer pin "clicks" into place.
1. Left hand side NCP pack not fully engaged into retainer.	**"No LHS Pack"**	1. Remove pack and refit ensuring retainer pin "clicks" into place.
1. Both NCP packs not fully engaged into respective retainers	**"No Packs"**	1. Remove both packs and refit ensuring retainer pins "click" into position.
1. Blocked or fouled internal filter. 2. One or both NCP packs exhausted. 3. High feed pressure.	**"High Pressure"**	1. Manually air bleed filter, replace if necessary. 2.Replace NCP pack/s 3. Check feed pressure <20 psi
1. Recirculation pump faulty. 2. Blocked or fouled NCP packs or internal filter. 3. Lack of feedwater supply	**"Low Flow"**	1. Check operation of pump. 2. Replace Packs and air bleed filter. 3. Check feedwater supply.

NB: If a fatal alarm occurs, as indicated in the table on the previous page, to clear the alarm firstly identify the cause and rectified if possible.

8.3 ADVISORY ALARM MESSAGES

1. Temperature probe lead disconnected or faulty.	**"Temp.Sensor Error"**	1. Check lead and replace if error persists. Contact Purite Service Dept.
1. Line cell lead disconnected or faulty	**"Out Qual Linecell Error"**	1. Check linecell connections and replace if error persists. 2. Contact Purite Service Dept for advice.
1. Line cell lead disconnected or faulty	**"Mid Qual Linecell Error"**	1. Check linecell connections and replace if error persists. 2. Contact Purite Service Dept for advice.
1. Line cell lead disconnected or faulty	**"Post UV Qual Linecell error"**	1. Check linecell connections and replace if error persists. 2. Contact Purite Service Dept for advice
1. Link between Keypad and Main PCB Faulty	**"Keypad Error"**	1. Contact Purite Service Dept for advice.
1. Internal water temperature exceeded temperature set point of 35 Deg C	**"High Water Temp"**	1. Check temperature of incoming feedwater. 2. Reduce feedwater temperature. 3. Ensure standby mode is enabled.
1.On Start Up time and date may not be set. 2. Main PCB battery needs replacing.	**"Time Date Not Set"**	1. Select, Set Time and Set Date function from settings menu and reset. 2. Replace Lithium PCB battering (Ref to Sec. 7.7)
1.Pre set lamp life expired	**"Replace 185 UV"**	1. Replace UV lamp (refer to Sec. 7.5)

1. Pre set lamp life expired	**“Replace 254 UV”**	1. Replace UV lamp (refer to Sec. 7.5)
1. 185 UV lamp failed 2. UV sensor faulty.	**“185 UV Lamp Failure”**	1. Check if lamp is alight, replace if not glowing. 2. If alarm does not clear , UV sensor may be faulty or ballast failed, Contact Purite Service Dept.
1. 254 UV lamp failed 2. UV sensor faulty.	**“254 UV Lamp Failure”**	1. Check if lamp is alight, replace if not glowing. 2. If alarm does not clear , UV sensor may be faulty or ballast failed, Contact Purite Service Dept.
1. Low water level in feed tank 2. Usage exceeding make up rate to feed tank.	**“Feed Tank Low”**	1. Allow feed tank to fill. 2. Check supply to make up unit. 3. Restrict usage to match make up rate.
1. Pre set right hand pack life expired.	**“Replace Packs”**	
Outlet quality above set limit.	**“Low Outlet Quality”**	– Check quality setting in setting menu. (Refer to Sec. 5) – Change NCP cartridge.
Mid pack quality above set limit.	**“Low Mid Quality”**	

NOTE: If remedial actions do not resolve the problem, turn off the water supply, isolate the unit from the electrical supply and contact either your authorised supplier or call Purite Service Department on 01844 211555. DO NOT ATTEMPT ANY REPAIRS WITHOUT FIRST CONTACTING PURITE LIMITED OR AUTHORISED SUPPLIER.

SECTION

9

CONSUMABLES & SPARES

This section contains details of all recommended spare parts and consumables used on the ***SELECT Neptune*** units. It is divided into the following sub-sections:

SECTION CONTENTS

9.0 CONSUMABLES AND SPARES

9.1 CONSUMMABLES

Analytical

Equipment Description	Order Code
NCP Cartridge Pack	L991540
Internal 0.2 micron Filter	R090059
185/254nm UV lamp	R081634
(**12 month consumable pack**)	M996020
Containing: - 2 off L991540	
1 off R081634	
1 off R090059	

Life Science

NCP Cartridge Pack	L991540
254nm UV lamp	R081643
185/254nm UV Lamp	R081634
0.05 micron Ultramicrofilter	R018085
0.2 micron Dispense Filter	R090015
(**12 month consumable pack**)	M996019
Containing: - 2 off L991540	
1 off R081634	
2 off R090015	
1 off R081643	
1 off R018085	

Ultimate

NCP Cartridge Pack	L991540
254nm UV lamp	R081643
185/254nm UV Lamp	R081634
0.05 micron Ultramicrofilter	R018085
0.2 micron Dispense Filter	R090015
(**12 month consumable pack**)	M996019
Containing: - 2 off L991540	
1 off R081634	
2 off R090015	
1 off R081643	
1 off R018085	

9.2 CONSUMABLE REPLACEMENT GUIDE

Refer to guide in Section 7.9

Note: The performance of the unit and the overall water quality could be seriously impaired if consumables are not replaced in accordance with Purite's recommendations.

9.3 DISPOSAL OF CONSUMABLES

All consumables should be disposed of according to local/national regulations. Refer to Appendix A – WEEE Declaration for disposal of electrical and electronic equipment supplied by Purite.
Refer to Material Safety Data Sheets for further details.
NB: The 185/254nm UV lamps contain small amounts of Mercury and therefore should be considered a hazardous waste and disposed off accordingly by an Approved waste Disposal Contractor.

9.4 CONSUMABLE SHELF LIFE*

NCP media pack	24 months
0.2µm POU Filter	up to 30 months
0.2um Ultramicrofilter	36 months
0.05um Ultramicrofilter	36 months
185/254 nm UV lamps	Indefinite

***Shelf life is only guaranteed if consumables are not removed from their packaging and are stored in a clean, dry environment, at room temperature (5 – 40 ^{o}C) and away from sources of heat or direct sunlight.**

9.5 RECOMMENDED SPARES

5 amp Fuses	R081414
Disinfection pack adaptor	L998549
Lithium PCB Battery	R083085

9.6 SERVICEABLE SPARES

The items listed below **MUST** only be fitted by trained personnel. Contact Purite Service Department for advice.

Spares Description	Re-Order Part No.
Inlet Solenoid Valve	R090001
Pressure Transducer	R083088
Recirculation Pump	R081635
Control PCB	R083115
UV Ballast	R081700
3-Way Drain Solenoid Valve	R081616
Keypad	R083005
8mm Non return Valve	R090004
100 Watt Switch Mode Power Supply	R083039

9.7 ACCESSORIES

Item Description	Part No.	Notes
Thermal Printer	**R083114**	Supplied c/w power pack, UK mains lead and 1 roll of paper.
Paper Roll	**R083113**	
Printer Mains Lead (Euro)	**R083112**	European mains lead for printer
Printer Connection Lead	**R083110**	Required to connect Printer to Neptune unit.
External Alarm Lead	**R083111**	Required for connection of Neptune unit to remote BMS system – std length 10 mtrs
External Level Lead Assembly	**P022006**	To provide low level protection when fed from external tank supply. Contact Service Dept for installation details.
Data Logger Module	**R083108**	Data capture device c/w 9-9 way serial connection lead.
Data Logger connection Lead	**R093109**	Required to connect Data Logger to Neptune
Select Wall Mount Bracket	**L998400**	Required for wall mounting of unit
10” Purewater filter Housing	**L991278**	Recommended for feedwater with no RO pretreatment
10”, 0.2um Filter	**R011478**	Absolute rated bacterial filter
Filter Spanner	**R011455**	

Contact Purite Customer Services Department for current prices and availability of all accessories.

SECTION

10

CE DECLARATION

This section contains a copy of the CE Declaration Certificate for the ***SELECT Neptune Analytical / Life Science / Ultimate***.

SECTION CONTENTS

PURITE
FIRST FOR PURE WATER

Purite Limited,
Bandet Way, Thame
Oxon, OX9 3SJ, UK.
Tel: +44 (0)1844 217141
Fax: +44 (0)1844 218098
Web site: www.purite.com
Email: mail@purite.com
Company Registration
No. 1464412

CE DECLARATION OF CONFORMITY

We, the Manufacturer:
Purite Limited, Bandet Way, Thame, Oxon, OX9 3SJ. United Kingdom
Declare under sole responsibility that the SELECT/PRESTIGE product range covered by this declaration, conforms with the essential protection requirements of the following Directives:

Applied Council Directives:

2004/108/EC - Electromagnetic Compatibility Directive (EMC).
2006/95/EC - Low Voltage Directive (LVD).
(Standard Applied: EN 61010-1:2001-02, Safety requirements for electrical equipment for measurement, control and laboratory use Part 1: General requirements).

The **SELECT/PRESTIGE** range covered by this declaration is as follows:

HP 40, 80, 160, 320, 640 with and without BOOST PUMP
BIO 40, 80, 160, 320, 640 with and without BOOST PUMP
PRESTIGE DESCALE PD50/50H/100/100H/150/250
FUSION 40,80,160 with and without BOOST PUMP
BECKMAN HP320
NEPTUNE ANALYTICAL, LIFE SCIENCE, ULTIMATE

Purite Limited's liability under this declaration is limited to that set forth in the current Purite Limited Terms and Conditions of Sale.

Signature:

Full Name: R S Keep
Position: Director
Date of issue: 05.08.07

Appendix F

ISO 9001:2000 Registered
INVESTOR IN PEOPLE
Ondeo Industrial Solutions
SUEZ

SECTION

11

CONTACTING US

This section contains details of customer contact points at **Purite Limited**.

SECTION CONTENTS

11.1 CONTACT DETAILS

We trust the unit meets all your expectations but in the event of any problems please do not hesitate to contact us as follows:-

For all spares and consumables enquiries contact:

Customer Services Dept: **Tel No. +44 (0) 1844 217141**

For all service enquiries contact:

Service Dept: **Tel No. +44 (0) 1844 211555**

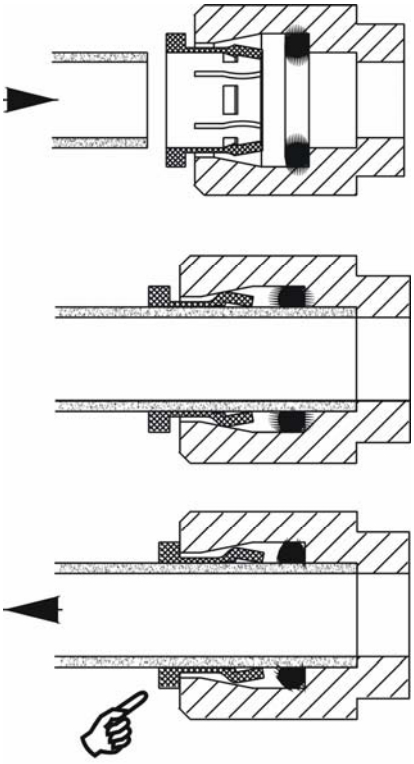
APPENDIX

APPENDIX A

(i) Pushfit Water Connectors
(ii) Material Safety Data Sheet
(iii) WEEE Declaration

How to make a connection

To make a connection, the tube is simply pushed in by hand; the unique patented John Guest collet locking system then holds the tube firmly in place without deforming it or restricting flow.

Cut the tube square and push in until the tube stops. Fitting grips before it seals. Ensure tube is pushed into tube stop, securing tube in position. To remove tubing push collet against body and slide tube out of fitting.	

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF SUBSTANCE / PREPARATION AND COMPANY

Product Name	**SELECT NCP MEDIA PACK**
Synonym (s)	
Company Identification	**PURITE LIMITED** **BANDET WAY** **THAME** **OXON OX9 3SJ** **Telephone: 01844 217141**

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Characterisation	**(Hazard classification based on data for mixture)**
Synonym(s)	**Sulfonated copolymer and styrene and divinylbenzene in the hydrogen form (CAS# 069011-20-7).** **Trimethylamine functionalised copolymer of styrene and divinylbenzene in hydroxide form (CAS# 069011-18-3).** **Steam Activated Carbon – Chemical Formula C – CAS No 7440-44-0 (or 64365-11-3).** **UN Number 1362 – EINECS Number 231-153-3 (or 264-846-4).**

3. HAZARDS/RISKS IDENTIFICATION

Hazard Description	Irritating to eyes.

4. FIRST AID MEASURES

General information	Never give fluids or induce vomiting if patient is unconscious or is having convulsions.
Skin contact	Wash off in flowing water or shower.
Eye contact	Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.
Ingestion	No adverse effects anticipated by this route of exposure incidental to proper industrial handling.
Inhalation	No adverse effects anticipated by this route of exposure.

5. FIRE FIGHTING MEASURES

Suitable extinguishing agents	Carbon dioxide. Dry chemical. Foam.
Hazardous Combustion Products	Nitrogen, sulphur and carbon oxidation products.
Protection of Fire-fighters	Wear positive-pressure self-contained breathing apparatus and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots and gloves).
Specific Fire or Explosive Hazards	Product is not combustible until moisture is removed and then resin starts to burn in flame at 230 deg. C.

6. ACCIDENTAL RELEASE MEASURES

Clean up procedure	Contain and sweep up the material. Collect in suitable and properly labelled containers. Recover if possible, or dispose of according to applicable regulations, see Section 13, Disposal Considerations.
Environmental	Prevent contamination of surface and ground water.
Personal Precautions	Spills may cause very slippery surfaces. Wear adequate personal protective equipment, see section 8. Exposure controls/Personal Protection.

7. HANDLING & STORAGE

Advice on safe handling	Static electricity can accumulate on dry beads. May cause very slippery surfaces if split.
Storage	Avoid dehydration. Store between 1 and 50 deg. C.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Eye protection	Use chemical goggle.
Protective Clothing	Use gloves, impervious to this material, when prolonged or frequently repeated contact could occur. For brief contact, no precautions other than clean body-covering clothing should be needed.
Respiratory Protection	No respiratory protection should be needed.
Hygiene Measures	Always wash thoroughly after handling chemicals.

9. PHYSICAL & CHEMICAL PROPERTIES

Physical state	Solid beads.
Colour	White to dark amber
Boiling/Freezing point range	N/A
Water Solubility	N/A
Vapour Pressure	N/A
Specific Gravity	1.04 – 1.4
Flash Point	N/A
Flammability	N/A
Auto-ignition temp.	>500 deg. C
Flammability-LFL/UFL	N/A

10. STABILITY & REACTIVITY

Checmial Stability	Stable under normal handling and storage conditions, see Section 7. Handling and Storage.
Conditions to avoid	The severity of the reaction with oxidising materials can vary from slight degradation to an explosive reaction. Oxidising agents such as nitric acid, attack organic ion exchange resins under certain conditions. Before using strong oxidising agents, consult sources knowledgeable in handling such materials.
Materials to avoid	Strong oxidising agents.

11. TOXICOLOGICAL INFORMATION

Effects	Single dose oral toxicity is believed to be low. No hazards anticipated from swallowing small mounts incidental to normal handling operations. Skin absorption is unlikely due to physical properties. Vapours are unlikely due to physical properties.
Skin	Prolonged exposure may cause skin irritation. May cause more severe response if skin is abraded (scratched or cut).
Eyes	May cause severe eye irritation. May cause moderate corneal injury. Effects are likely to heal.
Other information	No specific data available, however, repeated exposures are not anticipated to cause significant adverse effects.

12. ECOLOGICAL INFORMATION

Environmental Effects	Material is expected to degrade only slowly in the environment. May change pH of waters. Possible adverse effects on aquatic organisms are expected to result primarily from physical/mechanical effects rather than toxicity.

13. DISPOSAL CONSIDERATIONS

Substance Any disposal practice must be in compliance with all local and national laws and regulations. Consider contaminants when disposing of used resins.

14. TRANSPORT INFORMATION

Product is not classified for any mode of transportation.

15. REGULATORY INFORMATION

Hazard Symbol Xi - Irritant

Risk phrases Irritating to eyes (R36)

Safety phrases In case of contact with eyes, rinse immediately with plenty of water and seek medical advice (S26). Wear eye/face protection (S39).

Chemical Name Not required.

E.E.C. Classification and user label information

Classification according to UK chemicals (Hazard information and Packaging) regulations 1994 or CHIP.

16. OTHER INFORMATION

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. No toxicity data are available on this specific formulation; this health hazard assessment is based on information that is available for its components. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.

Signed: M. R. Bosley

Date: 20.07.06

Users in the United Kingdom who wish to discard electrical and electronic equipment that was supplied by Purite should contact B2B Compliance on 01691 676 124.

Users in other European Union countries should contact their Producer, who will be the organisation in their country that supplied the product.

Information on disposal in other countries outside the EU

This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.
