Instructions for Use

Leica ASP200 S -

Advanced Smart Processor
Vacuum
Tissue Processor

CE

Leica ASP200 S, V 1.4 RevE, English – 03/2013
Order No.: 14 0480 80101, RevE
Always keep this manual with the instrument.
Read carefully before working with the instrument.

The information, numerical data, notes and value judgments contained in this manual represent the current state of scientific knowledge and state-of-the-art technology as we understand it following thorough investigation in this field.
We are under no obligation to update the present manual periodically and on an ongoing basis according to the latest technical developments, nor to provide our customers with additional copies, updates etc. of this manual.
For erroneous statements, drawings, technical illustrations etc. contained in this manual we exclude liability as far as permissible according to the national legal system applicable in each individual case. In particular, no liability whatsoever is accepted for any financial loss or consequential damage caused by or related to compliance with statements or other information in this manual.
Statements, drawings, illustrations and other information as regards contents or technical details of the present Instructions for Use are not to be considered as warranted characteristics of our products.
These are determined only by the contract provisions agreed between ourselves and our customers.
Leica reserves the right to change technical specifications as well as manufacturing processes without prior notice. Only in this way is it possible to continuously improve the technology and manufacturing techniques used in our products.

For the instrument serial number and year of manufacture, please refer to the name plate at the back of the instrument.

Leica Biosystems Nussloch GmbH
Heidelberger Str. 17 - 19
D-69226 Nussloch
Germany
Phone: +49 6224 143-0
Fax: +49 6224 143-268
Internet: http://www.LeicaBiosystems.com

Contents

1.1 Symbols in the text and their meanings

Warnings
appear in a gray box and are marked by a warning triangle ⚠.

Notes,
i.e. important user information appear in a gray box and are marked by an – information symbol ℹ.

Inflammable solvents and reagents are marked with this symbol.

Instrument surfaces which become hot during operation are marked with this symbol.
Avoid direct contact with these surfaces - they may cause burns.

(5)

Numbers in parentheses refer to item numbers in illustrations.

ENTER

Function keys to be pressed on the instrument touchscreen are written in bold-print capital letters.

Manufacturer

IVD In vitro diagnostics (IVD) medical device

CE This product fulfills the requirements of the Council's Directive 98/79/EC concerning in vitro diagnostics (IVD) medical devices.

Environmental protection symbol of the China RoHS directive. The number in the symbol indicates the "Environment-friendly Use Period" of the product. The symbol is used if a substance restricted in China is used in excess of the maximum permitted limit.

Symbol for labeling electrical and electronic equipment in accordance with Section 7 of the German Electrical and Electronic Equipment Act (ElektroG). ElektroG is the law regarding the sale, return and environmentally sound disposal of electrical and electronic equipment.

1.1 Symbols in the text and their meanings (continued)

SN Serial number

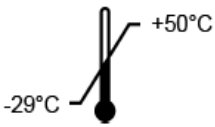
REF Order No.

Observe the Instructions for Use

The package contents are fragile and must be handled with care.

Indicates the correct upright position of the package.

The package must be kept in a dry environment.



Indicates the temperature range to which the medical device can be safely exposed.

Minimum –29 °C
Maximum +50 °C

Indicates the air humidity range to which the medical can be safely exposed.

Minimum 10 %
Maximum 85 %

Example of labeling in accordance with IPPC.

- IPPC symbol
- Country code in accordance with ISO 3166, e.g. DE for Germany
- Regional identifier, e.g. HE for Hessen
- Producer/treatment provider code, unique assigned number starting with 49
- Treatment code, e.g. HT (heat treatment), MB (methyl bromide), and possibly DB (debarked).

Tip-n-Tell indicator to monitor whether the shipment has been transported and stored in upright position according to your requirements. With a pitch of 60° or more, the blue quartz sand flows into the arrow-shaped indicator window and sticks there permanently. Improper handling of the shipment is immediately detectable and can be proven definitively.

1.2 Qualification of personnel

- The Leica ASP200 S may be operated by trained laboratory personnel only.
- All laboratory personnel designated to operate this instrument must read these Instructions for Use carefully and must be familiar with all technical features of the instrument before attempting to operate it.

1.3 Intended use of instrument

The instrument has been designed so that it is safe to use by the operator as well as for processing specimens – provided that it is operated according to the present Operating Manual. The Leica ASP200 S is a modular automated tissue processor designed for the following laboratory applications:

- Fixation
- Dehydration
- Paraffin infiltration

of histological tissue specimens.

The Leica ASP200 S must be operated exclusively with the reagents listed in Chap. 3.5 - "Compatible reagents".

Any other use of the instrument is considered improper.
Failure to adhere to these instructions may result in an accident, personal injury, damage to the instrument or accessory equipment.
Proper and intended use includes compliance with all inspection and maintenance instructions, along with the observance of all instructions in the Instructions for Use.

1.4 Instrument type

All information provided in these Instructions for Use applies only to the instrument type indicated on the cover page.

A nameplate indicating the instrument serial number is attached to the rear side of the instrument. (The serial number is also displayed above the loading door on the front side of the instrument.)

Fig. 1

Fig. 1 is provided as an example only and shows a valid nameplate for this instrument with the necessary information about instrument type and power requirement. The precise data for the various versions is specified in Chap. 3.2 "Technical data".

2.1 Safety notes

- **The safety and caution notes in this chapter must be observed at all times.**
- **Be sure to read these notes even if you are already familiar with the operation and use of other Leica products.**
- **The protective devices located on the instrument and the accessories must not be removed or modified. Only qualified service personnel authorized by Leica may repair the instrument and access its internal components.**

Residual risks

- **The instrument has been designed and constructed with the latest state-of-the-art technology and according to recognized standards and regulations with regard to safety technology. Operating or handling the instrument incorrectly can place the user or other personnel at risk of injury or can cause damage to the instrument or other property. The instrument may be used only as intended and only if all of its safety features are in proper working condition. Malfunctions which could impede safety must be remedied immediately.**
- **Only original spare parts and permitted original accessories may be used.**

These Instructions for Use includes important information related to the operating safety and maintenance of the instrument.
The Instructions for Use are an important part of the product, and must be read carefully prior to startup and use and must always be kept near the instrument.

This instrument has been built and tested in accordance with the safety requirements for electrical equipment for measurement, control, and laboratory use.
To maintain this condition and ensure safe operation, the user must observe all notes and warnings contained in these Instructions for Use.

These Instructions for Use must be appropriately supplemented as required by the existing regulations on accident prevention and environmental safety in the operator's country.

For current information about applicable standards, please refer to the CE declaration for the instrument and to our Internet site:
http://www.LeicaBiosystems.com

2.2 Warnings

The safety devices installed in this instrument by the manufacturer only constitute the basis for accident prevention. Operating the instrument safely is, above all, the responsibility of the owner, as well as the designated personnel who operate, service or repair the instrument.
To ensure trouble-free operation of the instrument, be sure to comply with the following instructions and warnings.

2.2 Warnings (continued)

Warnings – Markings on the instrument itself

Markings on the instrument showing the warning triangle indicate that the correct operating instructions (as defined in these Instructions for Use) must be followed when operating or replacing the item marked. Failure to adhere to these instructions may result in an accident, personal injury, damage to the instrument or accessory equipment.

Some instrument surfaces become hot during operation. They are marked with this warning label. Touching these surfaces may cause burns.

Transport and Installation

Once unpacked, the instrument may be transported only in an upright position.
Follow the unpacking instructions carefully to avoid damage to the instrument!
Prior to every transport in which it is possible for the instrument to be shaken, tilted, or lifted, it must be cleaned for transport – otherwise the interior of the instrument can be severely damaged.

Plug the instrument only into a grounded power socket. Do not interfere with the grounding function by using an extension cord without a ground wire.
Make sure to observe the voltage settings!
The set voltage CANNOT be changed by the user.
Severe damage may occur if the instrument is connected to a power supply voltage other than that to which it was originally set.

The installation location must be well-ventilated; there should be no ignition sources there of any kind. The chemicals to be used in the Leica ASP200 S are both flammable and noxious.

Do not operate the instrument in rooms with explosion hazard.

Extreme temperature fluctuations between storage facility and setup site as well as high humidity may cause condensation to form. If this is the case, wait at least two hours before switching on the instrument. Failure to comply with this may cause damage to the instrument.

2.2 Warnings (continued)

Warnings – Operating the instrument

The instrument may only be operated by trained laboratory personnel. It must only be operated for the purpose of its designated use and according to the instructions contained in these Instructions for Use.

In an emergency, the instrument can be switched off while working with specimens via the ON/STOP switch located on the side of the instrument.

Before opening the retort when an infiltration process is in progress, always press the PAUSE button so that the retort is ventilated or vented.

The paraffin drain hose and the hose for remote filling/draining are cleaned with compressed air after the filling or draining process.
Therefore, never remove the hoses before a filling or draining process has been completed.

After refilling/replacing reagent containers, close the container covers again tightly.
The reagent containers must be properly pushed home into the connection manifolds at the rear inner wall of the reagent module.
Failure to plug the reagent containers into the manifold correctly will interrupt the infiltration process and may also result in spilling of reagents.

Fixing solutions that contain mercury salts, acetic acid, or picric acid can cause corrosion on metal components.

After each paraffin step a retort clean cycle must be run.

Material safety data sheets can be obtained from the supplier of the chemicals.
Alternatively, they can be downloaded from the following website:
http://www.msdsonline.com

2.2 Warnings (continued)

Warnings – Handling reagents

Take care when handling solvents!
Always wear rubber gloves and safety goggles when handling the chemicals used in this instrument.
Reagents used for tissue infiltration can be both toxic and/or flammable.

To prevent damage to the instrument, use only the reagents listed in Chap. 3.5!
Do not use acetone, benzene or trichlorethane!

Use caution when handling paraffin wax or removing baskets – molten paraffin is hot and may cause burns.
Also, avoid personal contact with paraffin reservoirs and retort walls – they can be very hot as well.

When disposing of spent reagents, observe the applicable local regulations and the waste disposal regulations of the company/institution in which the instrument is being operated.

Do not clean reagent containers (bottles) in a dishwasher; the containers are NOT dishwasher-proof.

Warnings – Cleaning and maintenance

Switch off the instrument each time before servicing and pull out the power plug.

Do not clean the instrument with solvents containing acetone or xylene. No liquid may be spilled into the internal components of the instrument – neither during operation nor during cleaning.

When using cleaners, please comply with the safety instructions of the manufacturer and the laboratory safety regulations.

Check the condensate container at least once a week and, if necessary, drain it.

2.3 Safety features on the instrument

The Leica ASP200 tissue processor is equipped with numerous safety functions and with sophisticated software control mechanisms. These ensure that the specimens remain undamaged in the event of a power failure or other malfunction during the infiltration process and that the infiltration is completed successfully.

Overpressure protection

- When power is off the air pump and air valves default to a safe condition (retort vented, no pressure generation).
- If the pump is not stopped at the correct moment during the pressurization, the power supply is interrupted by a separate electronic circuit.
- In addition, there is a safety relief valve that vents all excess air pump output to atmosphere.

Overcurrent protection

- Overcurrent conditions are protected against by both the main fuse and the separate heating power fuses.

Overheating protection

An error is indicated and all heating is stopped by the microprocessor – control if the instrument detects any of the following conditions:

- Abnormally high temperature (>75 °C)
- Contradictory results of the temperature sensors
- Failure of one or more heating power control components
- If the microprocessor fails to interrupt heating power, independent temperature limiting hardware circuits limit the temperature rise to a safe level.
- If the temperature limiting circuits malfunction, an independent hardware thermal fuse circuit cuts power to the heating elements.

Over vacuum protection

- The vacuum system is not capable of generating a dangerous vacuum condition.

Overcurrent protection

- Overcurrent conditions are protected against by both the main fuse and the separate heating power fuses.

3.1 Overview – instrument components

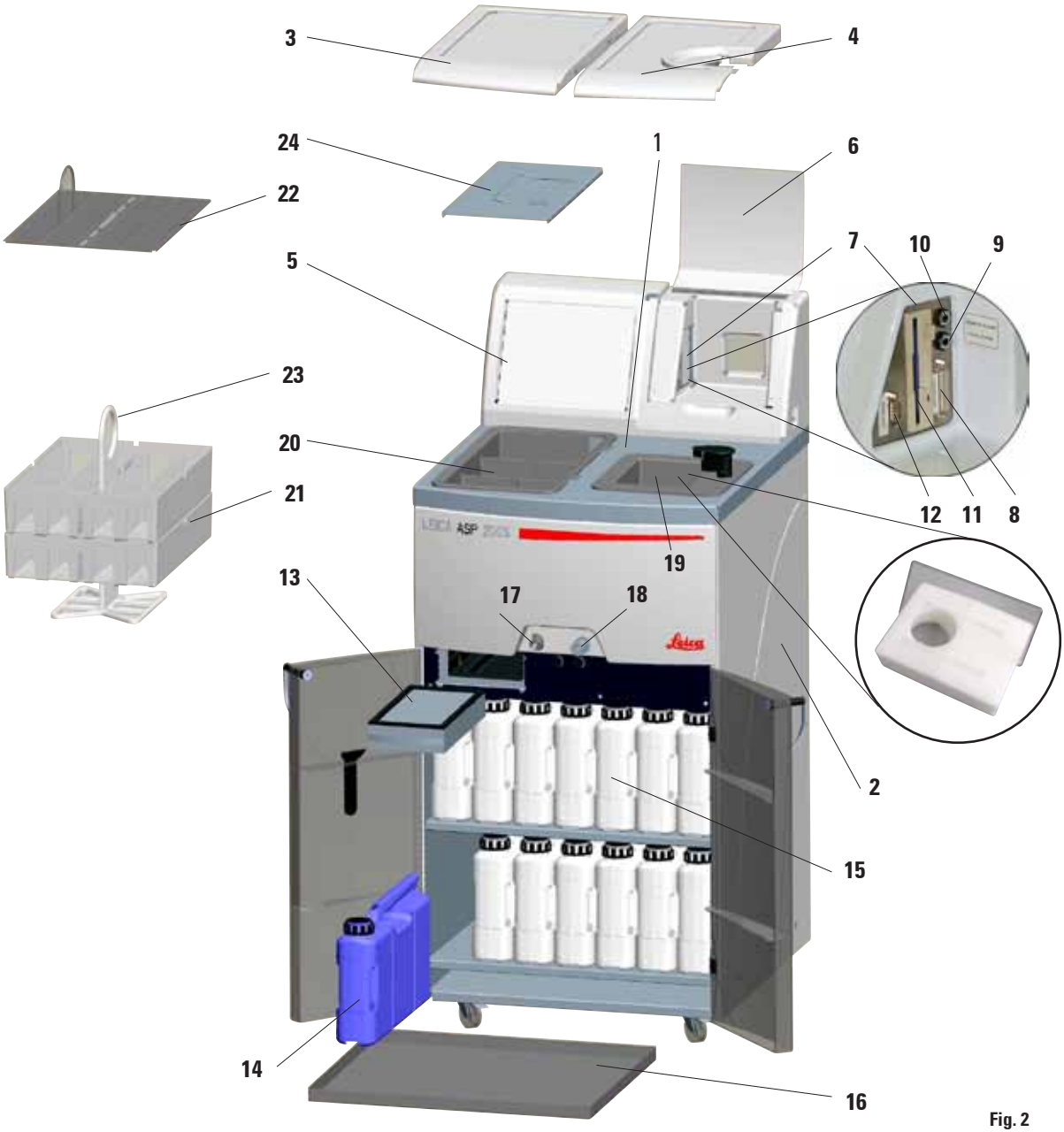


Fig. 2

Overview – instrument components

1 - Basic instrument – processor module
2 - Basic instrument – reagent module
3 - Wax bath lids
4 - Retort lid
5 - Monitor
6 - Cover flap of the instrument console
7 - Instrument console with:
8 - Printer port
9 - Local alarm connection
10 - Remote alarm connection
11 - Disk drive
12 - Serial port
13 - Active carbon filter
14 - Condensate container
15 - Reagent containers (13 units)
16 - Drip tray
17 - Paraffin drain spout
18 - Remote drain connection
19 - Retort
20 - Wax baths
21 - Cassette basket
22 - Lid for cassette basket
23 - Basket carrier
24 - Baffle plate
25 - Volume replacement body

Instrument Components and Accessories

Three wax baths and the retort comprise the infiltration module.
The touchscreen and the electronic components are there.

The cassettes are stored in two baskets (Fig. 2, **21**) each of which holds up to 84 cassettes with dividing spiral or up to 100 cassettes without dividing spiral.

The specimens are processed in the stainless steel retort at the preselected pressure, vacuum, and temperature conditions.

The reagent containers are located in the reagent cabinet.

3.2 Specific instrument options

- Optionally usable **R**eagent **M**anagement **S**ystem (RMS), displays service life and usage frequency of the individual reagents and enables automatic definition of the reagent sequence – there is no more need to rearrange reagent containers. If one or more reagents within a sequence are replaced, the RMS automatically uses the reagents in the correct sequence, organized in ascending order of cleanliness.
- Liquid movement ("wave motion") during the process for better and continuous mixture of the reagents.
- System for non-contact filling/draining of reagents – drains and fills the reagent container using a hose connected to the infiltration module without the operator being exposed to reagents in the process.
- Non-contact wax bath drainage.
- Optical level meter.
- Active paraffin cleaning program – removes solvent residue from the paraffin, lengthening its service life.
- Magnetic stirrer – for gentle circulation of the reagents, thus ensuring a uniform reagent temperature.
- Programmable end time for infiltration programs.
- 3-step drainage of the retort (adjustable) for reducing reagent displacement.
- Infiltration process at ambient pressure, or with pressure, vacuum or a combination of both.
- Four programmable cleaning programs. The cleaning programs automatically omit all steps that are not necessary to complete the cleaning procedure.

3.3 Standard delivery - packing list

To prevent damage to the instrument or specimens, only accessories and spare parts authorized by Leica may be used.

		Part No.
The standard equipment of the Leica ASP200 S includes the following parts:		
1	Leica ASP200 S basic instrument	
13	Reagent bottles, plastic (in the instrument)	14 0480 37121
1	Condensate container, plastic (in the instrument)	14 0480 37122
1	Collecting vessel (in the instrument)	14 0476 37350
1	3.5" diskette, empty (affixed to the rear side of the console cover)	14 0476 35915
1	Accessory kit, consisting of:	14 0480 43728
1	Basket set ASP200 S, consisting of:	14 0480 43577
1	Basket handle ASP200 S	14 0476 34713
1	Basket carrier ASP200 S	14 0480 43578
2	Plastic baskets with integrated spacers	14 0476 43569
1	Stainless steel basket cover for the top basket	14 0476 43362
1	Stirrer	14 0476 43630
1	Volume replacement body	14 0480 37127
1	Reagent bottle, plastic	14 0480 37121
2	Set of adhesive bottle labels, 24 pcs. each	14 0200 43464
1	Funnel	14 0476 43631
2	Active carbon filter assembly	14 0476 34150
1	Filling/draining hose assembly	14 0476 34716
1	Paraffin drain hose	14 0476 34721
1	Paraffin scraper, plastic	14 0476 35923
1	Lubricant for valves and O-rings (Molykote 111, 100 gr)	14 0336 35460
1	Connecting cable - power supply	14 0411 34604
1	Maintenance kit (2 spare covers, 9 O-rings)	14 0476 35921
1	Baffle plate	14 0476 34770
1	Single-head wrench, size 27	14 0330 50891
1	Allen key, size 3.0	14 0222 04138

3.3 Standard delivery – packing list (continued)

		Part No.
1	Remote alarm connection, 6.3 mm	14 6844 01005
1	Cleaning tools for prism	14 0495 47955
1	Microfiber cloth for prism	14 0495 47736
1	Power cable for Germany	14 0411 13558
1	Power cable for UK ST-BU F-5 A	14 0411 27822
1	Power cable for Brazil 10 A, straight	14 0411 47869
1	Power cable for the USA/Canada/Japan (for voltage variant 100-120 V)	14 0411 13559
1	ASP200 S German/English Instructions for Use (+ language CD)	14 0480 80001
1	Language CD, with ASP200 S demo program	14 0480 80200

Please check all delivered parts against the packing list and against your order to verify whether the delivery is complete! Should you find any discrepancies, please contact your Leica sales office without delay.

3.4 Technical Data

Nominal supply voltages:	Two factory-preset voltages (not user-adjustable): 100 to 120 V or 230 to 240 V
Nominal frequency:	50 to 60 Hz
Main fuses:	2 melting fuses, 20 x 5 mm, UL-approved • for 100 to 120 V F 10 A 250 VAC • for 230 to 240 V F 5 A 250 VAC
Nominal power:	1000 VA
Dimensions, (L x W x H), in mm:	595 x 680 x 1325
Empty weight, unpacked:	approx. 160 kg
Weight, packed:	220 kg
Operating temperature range:	15 °C to 35 °C
Relative humidity:	10 % to 80 % non-condensing
IEC 1010 classification:	Protection class 1 Pollution degree 2 Overvoltage installation category II: • 800 V impulse (120 V systems) • 1500 V impulse (240 V systems)
Altitude:	2500 m maximum
Local/remote alarm relay:	30 V DC, maximum 2 A 2 terminals: Each with isolated switching contact (operable both as normally-open and normally-closed circuit)
Paraffin reservoirs	
Number of containers:	3
Capacity:	4.3 l per container
Melting time:	approx. 10 h
Temperature:	40 to 65 °C
Temperature accuracy:	± 1 K

3.4 Technical data (continued)

Retort

Capacity:	max. 200 cassettes
Reagent volume:	3.5 l with volume replacement body
Temperature (paraffin):	40 to 65 °C
Temperature (processing reagents):	Ambient temperature or 35 to 55 °C
Temperature (cleaning reagents):	50 to 65 °C
Temperature accuracy:	± 1 K
Filling time:	approx. 90 sec
Drain time:	approx. 80, 120, 140 sec (selectable)
Impregnation vacuum:	-70 kPa (g)
Infiltration pressure:	35 kPa (g)
Filling vacuum:	-70 kPa (g)
Draining pressure:	35 kPa (g)

General

Reagent container:	10
Cleaning solution bottles:	3
Maximum bottle volume:	4.0 l
Printer:	Optional Accessories
Pretest check:	ON/OFF
Fluid level sensor:	ON/OFF
Recirculation (pump in/out):	ON/OFF
(a) Time before 1st cycle:	16 min
(b) Time between cycles:	20 min

System setup

Password status:	Supervisor/Operator
Type of password:	alphanumeric, freely selectable
Reagent management system (RMS):	ON/OFF
Software interlock:	ON/OFF

3.4 Technical data (continued)

Hardware and Software:

- Large color LCD touchscreen.
- User-friendly, intelligent software.
- 3.5" disk drive and printer port.
- Alarm system with two remote alarm sockets.
- Password-protected instrument supervisor mode.
- Built-in multiple specimen protection system.

Capacities:

- 15 programs that consist of up to 10 reagent and 3 paraffin processing steps each.
  - Time per program step: 0 to 99 h, 59 min.
  - Delay time: max. 7 days
- Up to 200 cassettes can be processed simultaneously.
- 4 programmable cleaning programs for the retort.
- 1 paraffin cleaning program
- 10 reagent containers.
- 3 paraffin reservoirs.
- 3 containers for cleaning solutions
- 1 condensate container
- Reagent temperature selectable from 35 °C to 55 °C or room temperature.
- Paraffin temperature selectable from 40 °C to 65 °C.
- Choice of three retort drain rates of 80, 120 or 140 seconds.
- Up to 100 reagent names in memory.

3.5 Compatible reagents

Use of the ASP200 S is permitted with the reagents specified in Chap. 3.5 only. These reagents must be validated before use, i.e. tissue processing with patient tissue for diagnostics, by the laboratory itself according to the local or regional accreditation requirements. Reagents other than those listed here may cause severe damage to the components of the instrument. Acetone, benzene, chloroform and trichlorethane must NOT be used!

3.5 Compatible reagents (continued)

The following reagents may be used in the Leica ASP200 S:

Fixatives		Dehydration		Clearing		Paraffinizing	
1st	Formalin (buffered or unbuffered)	**1st**	Ethanol	**1st**	Xylene	**1st**	Wax
2nd	Formalin replacement	**2nd**	Isopropanol	**2nd**	Toluene*		
		3.	Methanol	**3.**	Chloroform*		
		4.	Butyl alcohol				
		5.	Industrial methylated spirits				

* Before using these reagents, please obtain information from Leica or the supplier about required preventive measures.

Fixatives containing mercuric salts, acetic or picric acid will corrode metallic components in the instrument and shorten instrument life.
If you choose to work with such fixatives, it is essential to perform a clean cycle which contains multiple water rinses each time after use, to minimize damage.
In addition, we recommend frequent and regular preventive maintenance by the Leica Technical Service.

Reagents other than those listed here may damage some components of the instrument. Do not use acetone, benzene or trichlorethane in the instrument.

3.6 Recommended reagent handling

- The reagents used should be replaced after 600 to 1200 specimens have been processed or after 6 cycles of 100 to 200 specimens each.
- For formalin, process alcohol and process xylene reagents, ambient temperature is recommended.
- The recommended temperature for cleaning reagents in the cleaning cycle is 65 °C.
- Only zinc formalin based on zinc sulfates may be used in the ASP200 S/ASP300 S. If zinc formalin is used, the cleaning program must include an additional cleaning water step.
- The use of formalin reagents containing zinc chloride can cause corrosion in and on the instrument.

3.6.1 Cycle for changing reagents

Reagent	Week 1	Week 2	Week 3	Week 4
Formalin	At least 3 times a week	At least 3 times a week	At least 3 times a week	At least 3 times a week
Formalin	At least 3 times a week	At least 3 times a week	At least 3 times a week	At least 3 times a week
70 %	Daily	Daily	Daily	Daily
80 %	Once a week	Once a week	Once a week	Once a week
95 %	Once a week	---	Once a week	---
95 %	---	Once a week	---	Once a week
100 %	Once a week	---	Once a week	---
100 %	---	Once a week	---	Once a week
Xylene	Once a week	---	Once a week	---
Xylene	---	Once a week	---	Once a week
Paraffin 1	Run paraffin cleaning program* daily. Replace the paraffin after 6 cleaning cycles.	Run the paraffin cleaning program* once a week.	Run the paraffin cleaning program* twice a week.	Run paraffin cleaning program* daily. Replace the paraffin after 6 cleaning cycles.
Paraffin 2	Run the paraffin cleaning program* twice a week.	Run paraffin cleaning program* daily. Replace the paraffin after 6 cleaning cycles.	Run the paraffin cleaning program* once a week.	Run the paraffin cleaning program* twice a week.
Paraffin 3	Run the paraffin cleaning program* once a week.	Run the paraffin cleaning program* twice a week.	Run paraffin cleaning program* daily. Replace the paraffin after 6 cleaning cycles.	Run the paraffin cleaning program* once a week.
Cleaning xylene	Once a week	Once a week	Once a week	Once a week
Cleaning alcohol	Once a week	Once a week	Once a week	Once a week
Cleaning Water	Once a week	Once a week	Once a week	Once a week

* Paraffin cleaning program, see Chap. 7.1.2

4.1 Installation site requirements

- The instrument requires an installation area of approx. 650 x 700 mm with vibration-free floor.
- Room temperature consistently between +15 °C and +35 °C.
- Relative air humidity maximum 80 %, non-condensing.
- Avoid vibrations, direct sunlight and heavy variations in temperature.

The chemicals to be used in the Leica ASP200 S are both flammable and noxious. The installation site for the Leica ASP200 S must be well ventilated, and there must be no ignition sources of any kind in the area. Never operate the instrument in rooms with an explosion hazard.

4.1.1 Moving the instrument

After unpacking the instrument (see Unpacking instructions on the outside of the transport crate), handle it only by the handles marked with '●' to move it to its final location.

When operating the instrument, the brakes on the instrument casters (**24**) **must** be engaged.

The instrument must be set up so that the power switch on the rear side of the instrument (Fig. 4, 42) is easily accessible at any time.

4.2 Electrical connection

Notice!
Observe the following instructions carefully to prevent damage to the instrument (refer also to Chap. 2.2 "Warnings – Transport and installation").

- Check the voltage label (Fig. 3) on the rear of the instrument to ensure that the instrument delivered is set to the correct voltage range.

Severe damage may occur if the instrument is connected to a power supply voltage other than that to which it was originally set.
The power supply voltage for the instrument is factory preset and CANNOT be altered by the user.

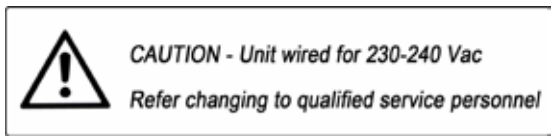


Fig. 3

4.2.1 Connecting the power supply

Once the instrument has been switched on, the main switch (ON/OFF) (5) should always remain in the ON position.

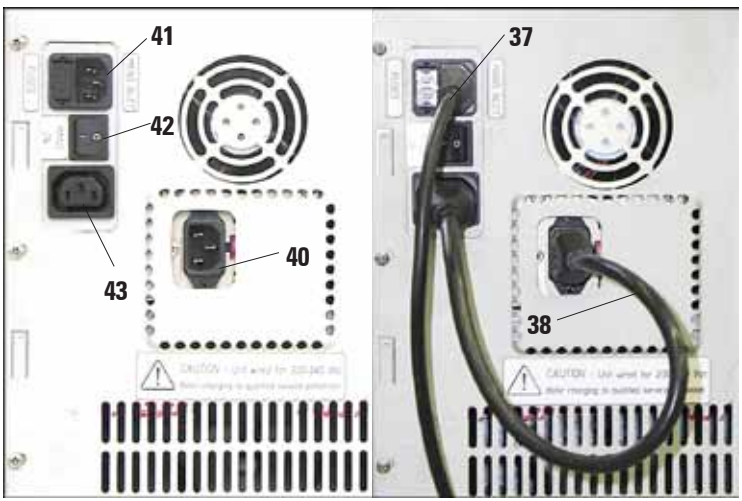


Fig. 4

Left Fig.
Electrical ports on the rear panel of the instrument.

Right Fig.
Correct connection of the cables.

- Connect the power cable (**37**) to the input socket (**41**) of the main power supply.
- The jumper cable provided (**38**) connects the output of the main power supply (**43**) to the input of the electronics module (**40**).

Important!
The specification for the connection (40) is specified as follows:
100 - 120 V or
230 - 240 V,
maximum 200 VA.

4.2.2 Connecting an uninterruptible power supply (UPS)

An uninterruptible power supply (UPS) protects machines and instruments against malfunctions in the power supply.
Leica recommends using an active tracking UPS (with an output power of 1000-1500 VA) to protect the instrument and the specimens from temporary power failure, voltage spikes, undervoltages and excess voltages.

- Connect the ASP to a grounded socket using the power cable (**37**).
- Using the jumper cable (**38**), connect the output of the main voltage supply to the UPS input.
- Using the jumper cable (**38**) connect the input of the electronics section (**40**) to one of the UPS outputs.
- Switch the instrument on at the main switch.
- Start the UPS.

Fig. 4a

Fig. 4a is provided as an example only and shows the correct connection of the ASP200 S to an uninterruptible power supply (UPS).

4.3 Installing accessories

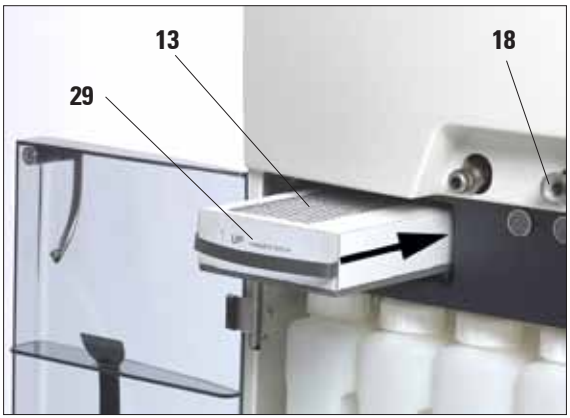


Fig. 5

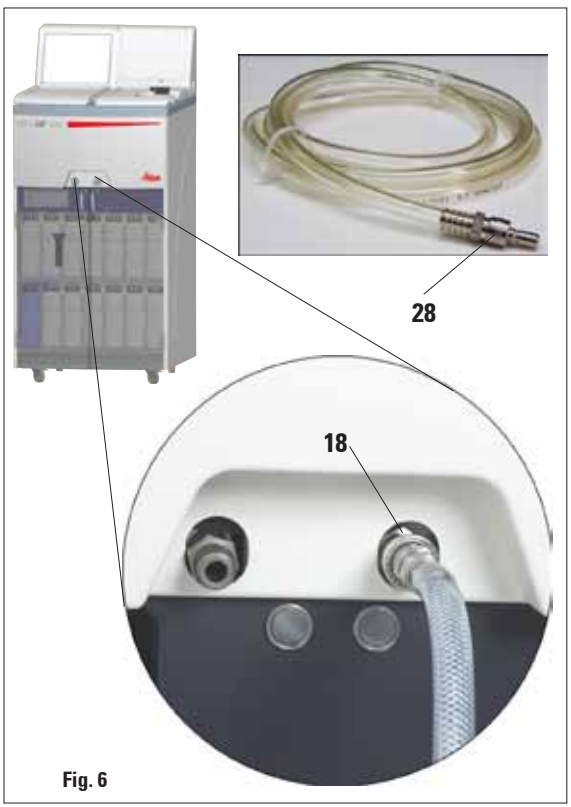


Fig. 6

- Move the instrument to its final setup location.

Active carbon filter

- Unpack the active carbon filter (**13**) and insert it (see Fig. 5).
  When doing so, make sure that the filter is inserted with the correct side up.Note the direction of the label (**29**) on the front of the filter - the arrow must be pointing upwards.

Remote fill / drain hose

- Connect the supplied remote fill/drain hose to the remote drain connection on the front of the instrument (refer Fig. 6).

- Important!
  When inserting the hose into the drain opening (Fig. 5/6, **18**), the connecting device (**28**) of the hose must engage with a clearly audible click.

If it is possible to set up the bulk container for filling and draining in the immediate vicinity of the instrument, the hose can be shortened so that it is easier to handle.
When shortening the hose, you can cut a V-shaped notch into the hose end to attain better flow.

4.3 Installing accessories (continued)

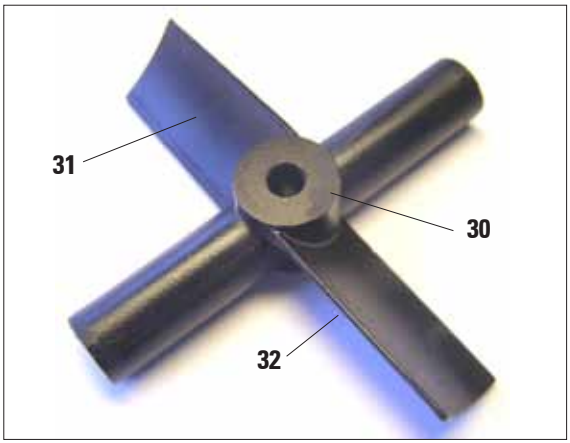


Fig. 7

Magnetic stirrer

- Unpack the magnetic stirrer (Fig. 7, **30**) and insert it into the retort.
- **Important!**
  The magnetic stirrer must be inserted such that the outer curvature (**32**) of the two stirrer blades (**31**) faces downwards!
  (Fig. 7)
  Do not insert them the other way around, as then there will be no effective stirring.

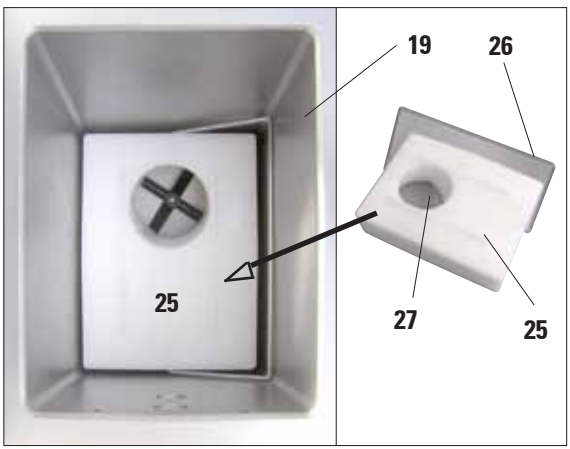


Fig. 8

Inserting the volume replacement body

Important!
The instrument must be operated only when the volume replacement body is in the retort (even during cleaning programs).
Otherwise, malfunctions may cause damage to the instrument.

- Take the volume replacement body (Fig. 8, **25**) at the metal clip (**26**) and insert it into the retort (**19**) such that the bore (**27**) is above the position of the magnetic stirrer.

4.4 Making the data connections

Printer (optional)

- Swing the door of the instrument console (**6**) upwards.
- Connect the printer to the printer port (**8**) using a Centronics standard cable. (Fig. 9)
- Your Leica dealer can recommend a suitable printer.
- If compliance with the electromagnetic interference standards is of fundamental importance, a specially shielded printer cable must be used.

Other terminals

- For data transfer and storage, the instrument console has a regular 1.44 MB floppy drive (**11**) for 3.5" diskettes and a serial (RS 232) interface (**12**).

Fig. 9

4.5 Anti-reflection clip – Function

The anti-reflection clip (Order no. **14 0476 44135**) prevents any reflections that might otherwise be emitted from the specimen basket (**3,** order no. **14 0476 34193**) and that could affect the level sensor in the retort, thus causing malfunctions.

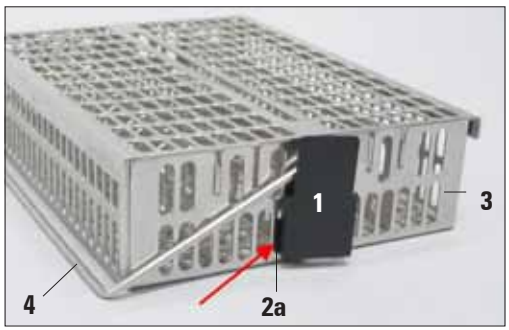


Fig. 10

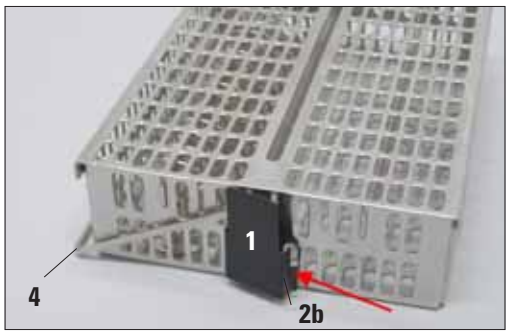


Fig. 11

Fig. 12

Installing the clip

The anti-reflection clips are intended for installation on the specimen basket to prevent reflections of the level sensor.

- Insert the left lug (**2a**) of the anti-reflection clip (**1**) into the seventh hole (from the left) of the lower oval openings (Fig. 10).
- Snap the right lug (Fig. 11, **2b**) into the seventh hole (from the right) with gentle pressure.

When inserting or removing the metal baskets into/from the retort, always do so carefully so that they do not touch or become caught on the retort wall.

Changing the clip

- Once the clip is installed, the handle (**4**) of the specimen basket cannot be removed, as otherwise the clip will be bent.
- To remove or replace a clip, all parts that are inside the basket (e.g. spiral insert and separating walls) must be removed from the basket.
- Suitable tool (screwdriver **5**, Fig. 12).

Once bent, clips may no longer be used and must be disposed of. In this case, install a new clip from the standard scope of delivery.

4.6 Alarm functions

The Leica ASP200 S is equipped with 3 different alarm functions:

Instrument alarm

This instrument alarm is generated from within the instrument itself for all alarm messages.

Local alarm

This alarm is external to the Leica ASP200 S, e.g. in the office of the instrument operator.
The local alarm is used when the instrument cannot continue with the current program or operation because of a problem.

Connect the alarm system (optional)

If required, connect the local or remote alarm system to the appropriate sockets (**34**) (Ø 6.3 mm) to the jacks provided for this purpose (Fig. 9, **9 + 10**).

Local alarm: socket (**9**)
Remote alarm: socket (**10**)

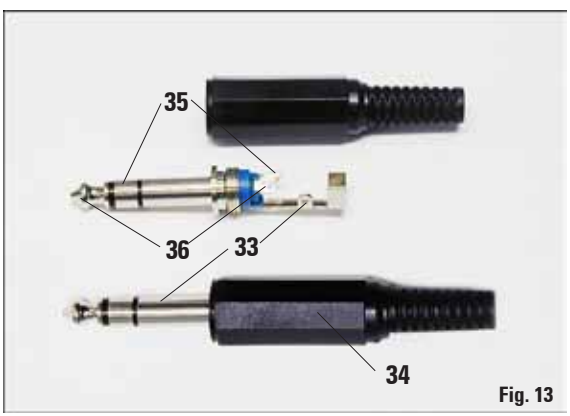


Fig. 13

Remote alarm

This alarm is also external to the Leica ASP200 S. If installed, it might typically be connected to a remote dialer that sends an automated phone message to the person responsible for after-hours problems.
The remote alarm is only generated when the instrument cannot continue with an infiltration program.

Note that if installed, the remote alarm will still operate even if the local alarm is not installed.

Both, local and remote alarm options, are relays that are voltage-isolated from the rest of the instrument. When an error condition occurs, the relevant alarm circuit closes.
The remote alarm device connected to the instrument must be rated at less than 2 amp.
A maximum voltage of 30 V DC may be present.

Each alarm is connected to the plug (**34**) as follows (see Fig. 13):

Shared terminal: Tip (**36**)
connection inside

Normally open connection:
First neck (**35**)
connection outside

Normally Closed Contact:
Connection: Second neck (**33**)
Threaded connection

4.7 Switching the instrument on

The instrument MUST be connected to a grounded power socket.
For additional electrical fuse protection, we recommend connecting the Leica ASP200 S to a socket with a residual current circuit breaker.

- Connect the power cable to the power socket. If applicable, switch on the switch for the power socket.
- To switch on the instrument, press in the ON/OFF switch on the rear panel of the instrument (Fig. 4, **42**) (**ON**).
- Switch on the ON/STOP switch on the right of the instrument (**ON**).

The ON/OFF switch and the side ON/STOP switch should remain switched on at all times to keep the heater running for the wax baths.
The ON/STOP switch can be used in emergencies to stop the instrument during while a procedure is in progress.

Fig. 14

Fig. 15

- After being switched on, the instrument will take a few minutes to initialize. See opposite for corresponding touchscreen display (Fig. 14).
- If the retort is not locked, a signal tone sounds for approx. 10 sec. during initialization of the instrument. It is not possible to lock the retort during this time.
- If the retort is locked, no signal tone sounds. A signal tone sounds for approx. 10 seconds (waiting time) when attempting to open the retort. The retort cannot be opened during this time.
- After that, the **FAVORITES** screen will be displayed (Fig. 15).

Screen saver

- A screen saver will turn off the screen display if no key has been pressed for a (user-programmable) time. Press any part of the touchscreen to restore the screen.
  After having been restored, the on-screen functions will be nonoperational for a few seconds to avoid accidental activation of any keys.

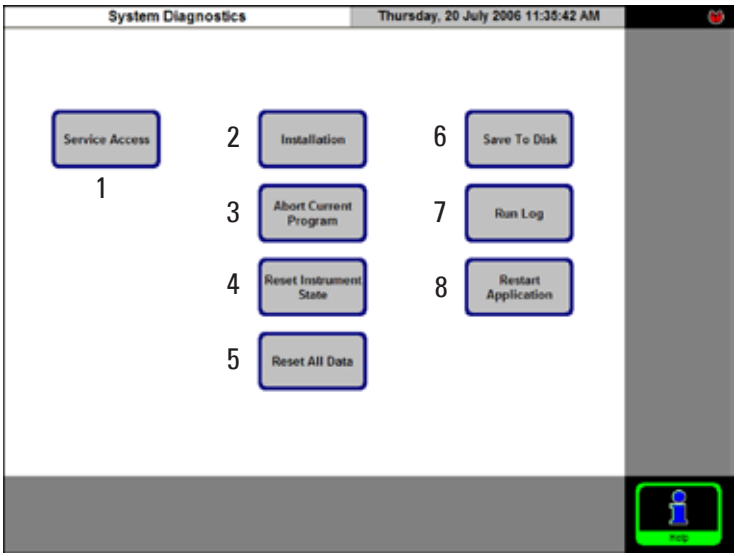


Fig. 16

SYSTEM DIAGNOSTICS menu

If **TOUCH HERE ...** is touched during initialization (Fig. 14) and the password for supervisor mode is entered, the **SYSTEM DIAGNOSTICS** menu (Fig. 16) opens. This menu provides access to basic instrument settings.

Notice!

Only experienced operators may adjust the settings, since incorrect use of the functions can result in serious malfunctions.

The following functions can be selected:

1 - Access for service technicians only.

2 - Displays the **INSTALLATION** menu.

3 - Aborts the current program.

4 - Aborts the current program and deletes the current allocation of reagents to bottles and retort.

5 - Deletes all reagents and resets programs and instrument status (all lists will be empty).

6 - Saves the current instrument status.

7 - Displays the results log.

8 - Restarts the instrument.

Fig. 17

To exit this menu, the device must be restarted. press **RESTART APPLICATION**.

To reinitialize the instrument, press **YES** to confirm the query "ARE YOU SURE YOU WANT TO ..." (**Fig. 17**).

Queries such as this are always made before important steps that are irreversible.
This allows the operator to undo changes caused by accidental key strokes.

- The initialization process starts again with the screen shown in Fig. 14.

4.8 Touchscreen functions

Fig. 18

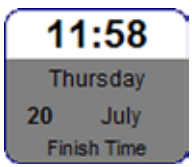
The Leica ASP200 S is programmed and operated via a color LCD touchscreen.

The instrument's control software contains an online help feature including detailed information about all screen functions and error messages. The software functions are also explained here in detail.

Help can be accessed from any screen by pressing the **HELP** button.

Button symbols

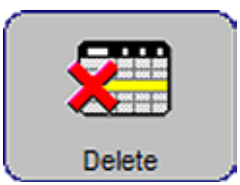
Press the button to activate the corresponding function on the Leica ASP200 S touchscreen. All buttons have a uniform design for easy identification.
The buttons may contain text labels or graphical icons.



Enabled

The buttons change their appearance depending on whether they are enabled or disabled.
A button is disabled if the function that it performs is not applicable at the moment.

Disabled



Disabled icons have a thinner border than active ones as shown here.
If a disabled button is pressed, a help text will be displayed, explaining why this particular button is disabled.

4.9 Checklist for initial operation

When the instrument is prepared to the point where it can be switched on, the menus listed below have to be opened and the corresponding parameters configured.
For detailed instructions about the individual parameters, refer to the online help.

Screen display → Press button	Parameter selection
Menu → Mehr → System Monitor	Set warning values for the age of the carbon filter and the operating hours of the pressure air pump.
Menu → More → Installation	Enter the instrument name and select the language. Optionally, set up the printer.
Menu → More → System Setup	Here, configure all the parameters as required, particularly the wax bath temperature. Check that the date and time are correct.
Menu → More → Reagents → Insert	Enter the desired reagents and the threshold values for the **CHANGE REAGENT** warning.
Menu → Stations → Reagent Name	Assign a reagent to each station (bottle).
Menu → Smart Screen or Reagent Status	Fill the reagent containers. Remote filling (**SMART SCREENS**) Manual filling (**REAGENT STATUS**)
Menu → Programs → Copy → Program Name	Create the required programs. Both infiltration and cleaning programs can be copied and modified.
Menu → Favorite Programs → Program Name	Assign your favorite programs to the Favorites menu and, if desired, assign the end time and a symbol for these programs.

Fig. 19

4.10 Switching off the instrument

If the instrument must be completely switched off or disconnected from the power supply, please proceed as follows:

- Press **MENU** to switch to the **MENU FUNCTIONS** window.

- Press the **EXIT APPLICATION** button there.

A message appears stating that all data has been stored and the system is being shut down.

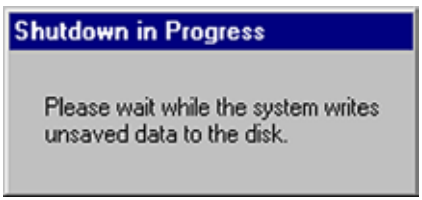


Fig. 20

Once all data has been stored, the following message appears:

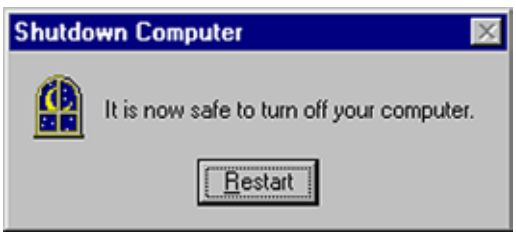


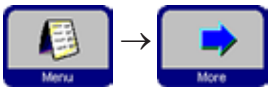
Fig. 21

You can now switch off the instrument with the **ON/STOP** switch on the right of the instrument and with the **ON/OFF** switch on the rear panel of the instrument (Fig. 4, **42**).

Pressing the **RESTART** key restarts the instrument.

Notice!
The instrument is allowed to be switched off completely in this way only. Otherwise, severe damage to the instrument's hardware and loss of data can occur.

5.1 Setting up the instrument parameters



From the start screen, press **MENU** to switch to the **MENU FUNCTIONS** window, and press the **MORE** button there.

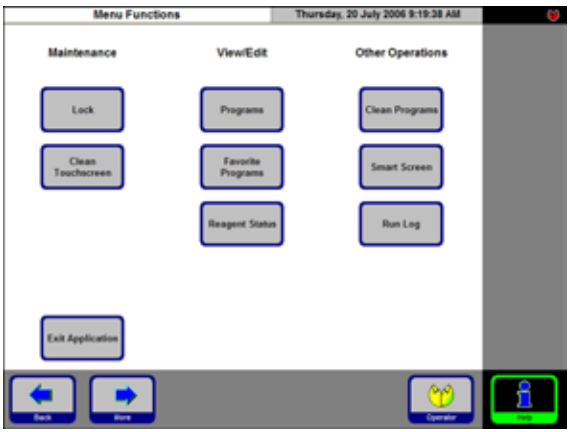


Fig. 22

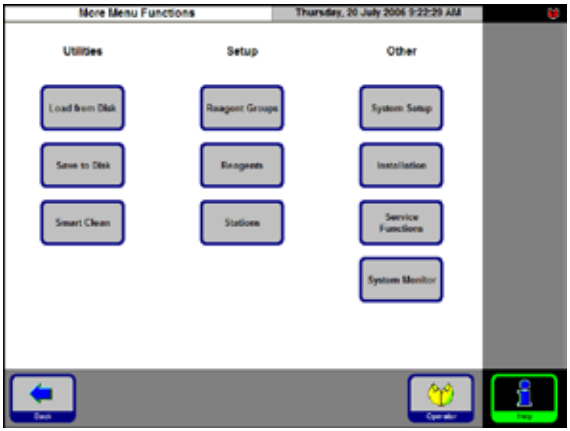


Fig. 23

5.1.1 System setup

In the
MORE MENU FUNCTIONS
press
SYSTEM SETUP

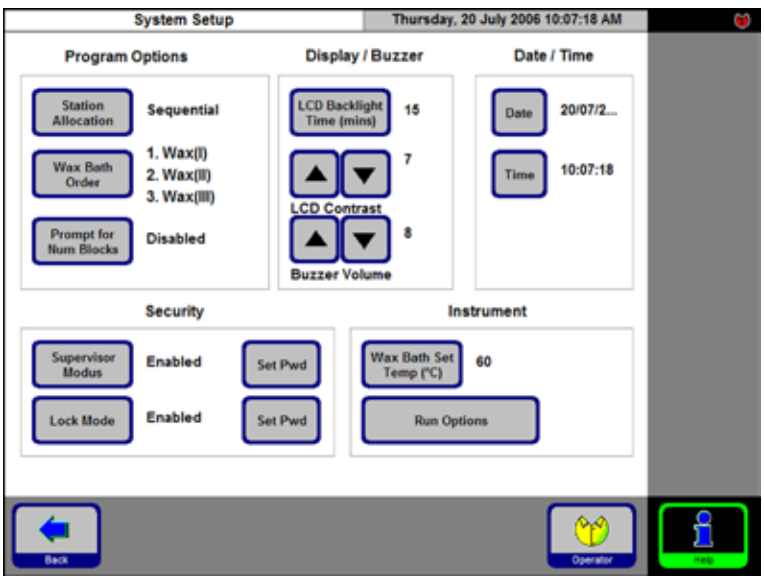


Fig. 24

The
SYSTEM SETUP
screen is divided up into five selection fields:

- Program options
- Display/Buzzer
- Date/time
- Security
- Instrument

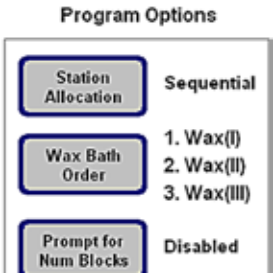


Fig. 25

PROGRAM OPTIONS

Select the options with which programs are executed here. Press a button to change the associated value.

- **STATION SEQUENCE**: **By Age** or **Sequential**

  By Age - **RMS** is activated, reagents will automatically be used in order of increasing cleanliness.

  Sequential - reagents will be used in sequential order of stations.

- **WAX BATH ORDER**: **Auto** or **1.** ; **2.** ; **3.**

  Can only be activated if **STATION SEQUENCE** is set to **"Sequential**" - otherwise the order of baths will be managed by the **RMS**.

- **PROMPT FOR NUM BLOCKS**: **Enabled** or **Disabled**

  Enabled- When starting a program, the actual number of blocks must be entered. This is recommended with the RMS being enabled.

  Disabled - Number can be entered, but does not have to be.

DATE / TIME

Be sure to verify that the date and time entered do actually correspond to the local time/date, as this will ensure that all programs are carried out correctly.

Press the buttons to access the entry windows where settings or corrections can be made, if necessary.

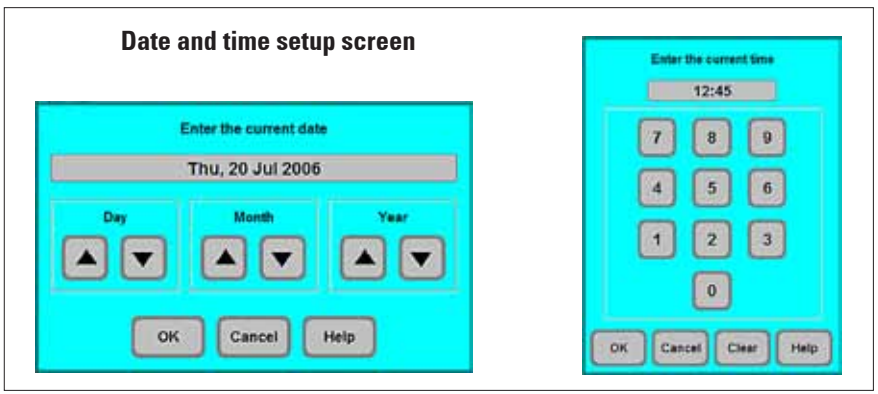


Fig. 26

Fig. 27

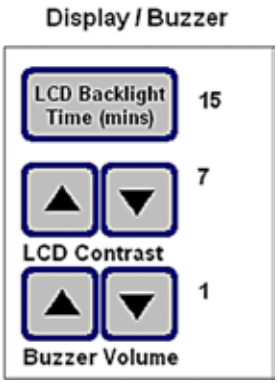


Fig. 28

DISPLAY/BUZZER:

- The number next to **DISPLAY OFF** indicates the remaining time (in min) until the screen saver (after the last user action) is activated.
- The **BUZZER VOLUME** can be set between 1 and 10.

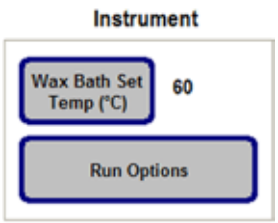


Fig. 29

INSTRUMENT

Press **PARAFFIN BATH SET TEMP.** to open the input screen (Fig. 30) for the wax bath temperature.
Set the temperature according to the value required by the paraffin used.
Select the highest permissible temperature for the paraffin to ensure that a minimum loss of temperature occurs when filling the retort.

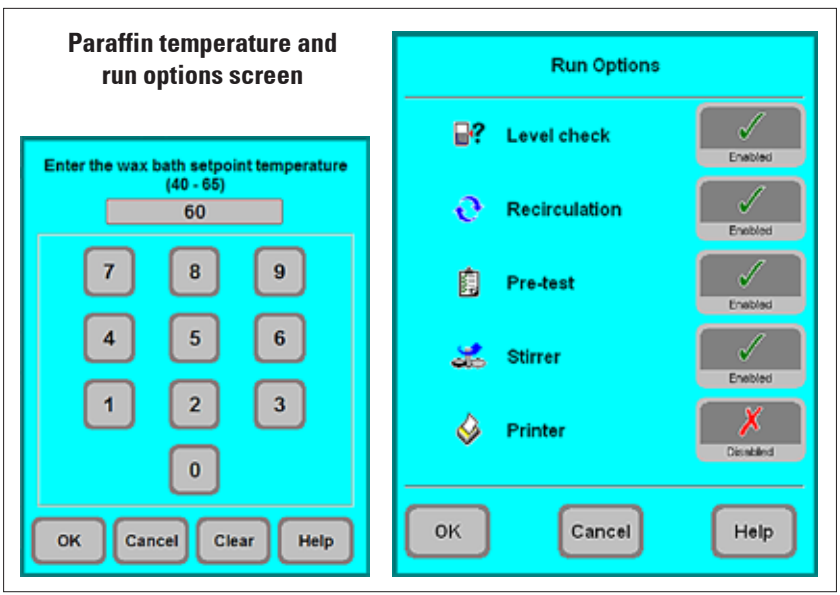


Fig. 30

The **RUN OPTIONS** displays the options with which a program starts.
The options set apply for ALL programs!
A printer option will be displayed only if a printer has been configured for the instrument.
The individual options are described in Chap. 5.3.1.

Fig. 31

SECURITY
Access rights to the instrument are managed here as **user profiles**.

Supervisor mode is disabled in factory condition.

SUPERVISOR MODE: **Enabled** or **Disabled**

Enabled- There are two different user profiles.
A password is required for supervisor level access to the in- strument. Enabling **SUPERVISOR MODE** already requires entering the password.

5.1.2 Access levels

The Leica ASP200 S may be configured to allow two levels of user access.

"Operator" symbol

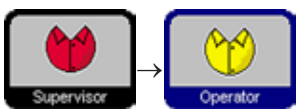
Operator access level:

- Operators may run programs and view results. On this level, the **OPERATOR** symbol is displayed in the upper right corner of the touchscreen; all enabled buttons are surrounded by a black border.

"Supervisor" symbol

Supervisor access level:

- Supervisors may perform all Operator functions, and additionally create programs and perform the instrument setup functions.
  In supervisor mode, the **SMART SCREEN** menu displays a status bar with information about the retort and the wax baths (see Fig. 55)
- To access Supervisor level, press **SUPERVISOR**, enter the required password and confirm. After you enter the password, the **SUPERVISOR** symbol appears in place of **OPERATOR**, the outlining of all active buttons changes from black to blue, the **SUPERVISOR** button is replaced by the **OPERATOR** button.



Disabled - Default state of the instrument. All instrument and software functions of the ASP200 S are fully accessible to all staff.

LOCK MODE: **Enabled** or **Disabled**

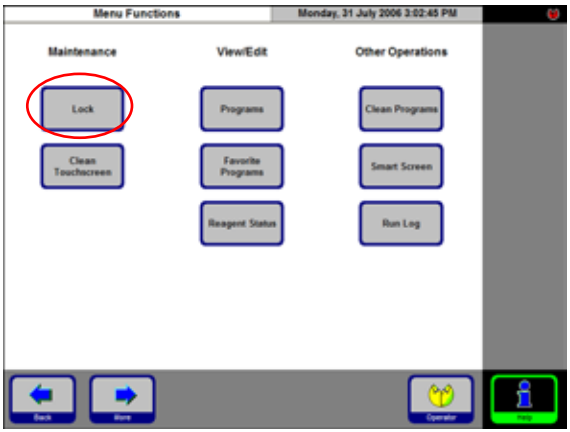


Fig. 32

In the Leica ASP200 S, there is a lock mode to protect against operation by unauthorized persons.

Enabled:

The **LOCK** key is active in the menu functions. A password is required for activation. If **LOCK** is pressed, no keys can be enabled until the agreed password is entered.

Disabled:

All functions are accessible as long as the screen saver is active.

Entry keyboard

The keyboard is displayed any time text needs to be entered.

- The keyboard headline (**1**) tells you what kind of text to enter.
- 30 characters can be entered into each entry field, though sometimes not all characters entered can be displayed.

Fig. 33

Important keys

Shift:

To shift to upper case symbols.

AltGr:

Permits the entry of special characters.

<-- :

Deletes the previous character.

Delete:

Deletes the entire line.

5.1.3 INSTALLATION menu

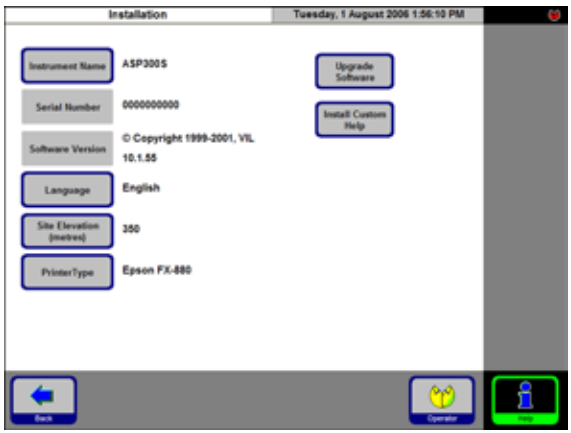


Fig. 34

Assigning an instrument name

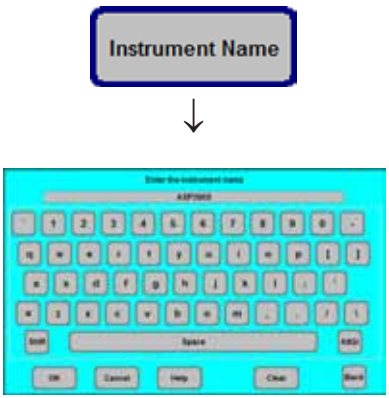


Fig. 35

Press **INSTRUMENT NAME:** to display the keyboard.

Enter a name (20 characters maximum) for the instrument.

The instrument name is also displayed on the **FAVORITES** screen.

Use this menu to set the name of the instrument, the language of the user interface and configure a connected printer.

The serial number of the instrument and the current software version are entered at the factory and cannot be edited.

Select a language

Press the **LANGUAGE** key, the **SELECT THE LANGUAGE** selection menu appears.
Select the desired language there and press **OK**.

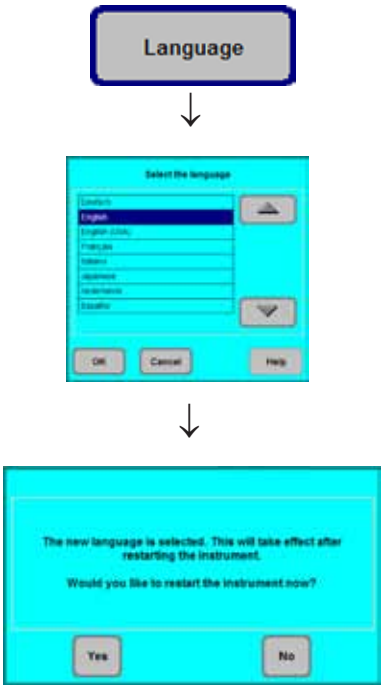


Fig. 36

A message box will prompt you to restart the instrument in order to display the user interface in the selected language. Press **YES** to restart the instrument and display the user interface in the newly selected language.

Setting the altitude of the installation location (in meters above sea level)

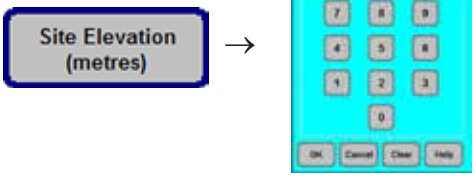


Fig. 37

This is important as it affects the actual pressure in the retort.
Press **SITE ELEVATION (meters)**, enter the value in the number field and press **OK**.
This parameter (in meters) must be entered to ensure that the ASP200 S makes the appropriate corrections when calculating the proper pressure or vacuum.

Upgrading software

New versions of the ASP200 S operating software are distributed on diskettes. These upgrade packages normally include 2 to 3 diskettes.

Do not attempt a software upgrade if you do not have all diskettes of a package available.
Read the documentation in the upgrade package to find out how to carry out the upgrade, as the included documentation may still contain version-specific additional information, and to find out if new/modified procedures, parameters or data are present that have to be loaded or modified for the new software version to run.

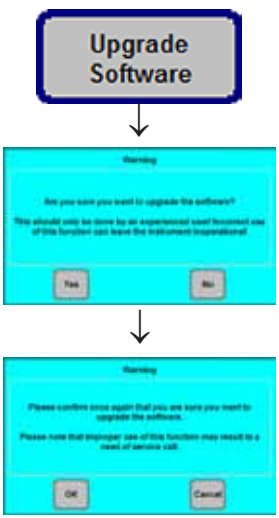


Fig. 38

1. First make a backup copy of the instrument's current data. To do so, you need an empty, formatted diskette.
2. Insert the disk marked "**Disk 1**" (or similar) of the software upgrade into the disk drive.
3. Press the **UPGRADE SOFTWARE** button. This is followed by two security prompts that must both be answered with **YES** / **OK**. Afterwards, follow the instructions on the screen.
   When prompted, insert the disk labeled "**Disk 2**" into the disk drive. Follow the same procedure for the other disks (if present).
4. After the update process is complete, the instrument software carries out a restart – the screen shuts off and then restarts as if the instrument had been switched off and switched on again.

Configuring a printer

On the **INSTALLATION** screen press **PRINTER TYPE** to display the list of the printers that can be connected.

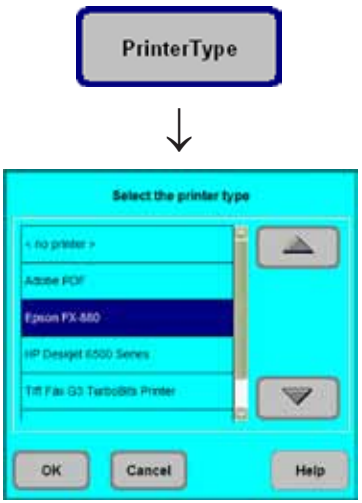


Fig. 39

- The Leica ASP200 S works with any printers that are compatible with commercial PCs.
- Connect the printer provided to the printer port using a Centronics standard cable.
  (For additional information, refer to Chap. 4.4, Fig. 9)
- In the **SELECT THE PRINTER TYPE** window, highlight the printer that is connected to the instrument and press **OK**.

If the printer driver you connected is not listed, try a similar printer of the same manufacturer.
If this approach does not work, call Leica Technical Service to have the required printer driver installed.

Printing run logs

Printing is possible when the **PRINT** symbol is displayed.

The printer icon is displayed only after a printer has been configured for the instrument.

The following lists and protocols can be printed:

- Reagent list
- Stations list
- Reagent status list
- All programs
- Run log
- Error log

Installing the laboratory help

For additional information, refer to Chap. 5.6 "The online help"

5.1.4 Editing the reagent list

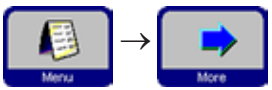
Adding new reagents

1. Enter the reagent name and allocate the new reagent to the reagent group it belongs to.
2. Determine how many stations (bottles) work with the new reagent.
3. Fill the stations (bottles) according to the reagent list.

Entering reagent names

Takes place via the **REAGENTS** menu option.

You must be logged on at supervisor access level to proceed.



- From the start screen, press **MENU** in the **MENU FUNCTIONS** window; there, press the **MORE** button.
- The **MORE MENU FUNCTIONS** window appears. There, press the **REAGENTS** button.
- The **SET UP REAGENTS AND WARNING THRESHOLDS** window opens.
- To add a reagent:
  - Press **INSERT** to display the keyboard.
  - Enter the new reagent name.
  - Press **OK** to confirm.
  - You will then automatically be prompted to select the reagent group:

Fig. 40

Select the reagent group

Fig. 41

Allocate the new reagent to the desired group and press **OK** to confirm.

Allocation of reagents to the correct reagent group is the basis for compatibility monitoring. Allocation to the wrong reagent group can lead to reagent cross contamination.

Changeable parameters

Fig. 42

Entering / modifying reagent thresholds

If warning thresholds are required for a certain reagent, enter them as follows:

- Highlight the reagent to be modified, either by pressing the reagent name or using the **UP/DOWN** buttons.
- Press the header of the parameter to be changed; the corresponding entry screen appears.
- Enter a new threshold value or - if no warning is desired - press **CLEAR** to remove the threshold altogether.
- Press **OK** to confirm.

The respective threshold value applies for all reagent stations containing the same reagent.

Changing reagent names or reagent groups

If a reagent is already used in a program, it can neither be renamed nor can it be allocated to another reagent group!
The corresponding symbols will be disabled (i.e. they will not be surrounded by a blue border).
If a reagent is renamed, all stations and programs linked to that reagent need to be reedited as well!

Fig. 43

- Highlight the reagent the name or group of which you wish to change.
- Press the corresponding button symbol in the headline.
- In the entry window (or via the keyboard), enter the new reagent group allocation / the new reagent name.
- Press **OK** to save the new reagent group / reagent name.

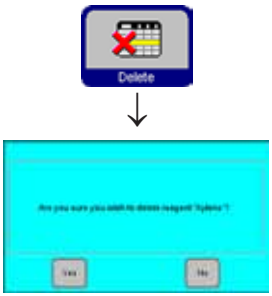


Fig. 44

Deleting reagents

- Highlight the reagent to be deleted in the **SET UP REAGENTS AND WARNING THRESHOLDS** screen.
- Press **CLEAR**.
- Press **YES** in the screen to confirm the reagent is deleted.

Please remember that a reagent which is already used in a program cannot be deleted.

Adding new reagents to stations

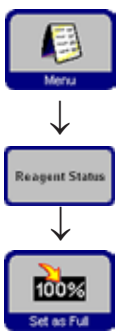
Go to **SMART SCREEN** to remote-fill the reagent container from an external bulk container

or

fill the reagent container manually.

After filling a bottle manually the bottle must be defined as full.

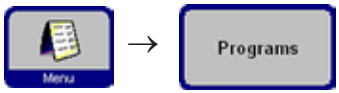
To do so, follow these steps:



- Press the **MENU** icon to call up the **MENU FUNCTIONS** window.
- Press the **REAGENT STATUS** button.
- In the table, highlight the reagent that has been manually filled.
- Press the **SET AS FULL** button symbol to set the status of the station to "full".

Upon activation of the RMS, all warning thresholds for the selected reagent are automatically reset to "0".

5.1.5 Viewing the program list



This list (Fig. 45) shows all programs defined in the ASP200 S.

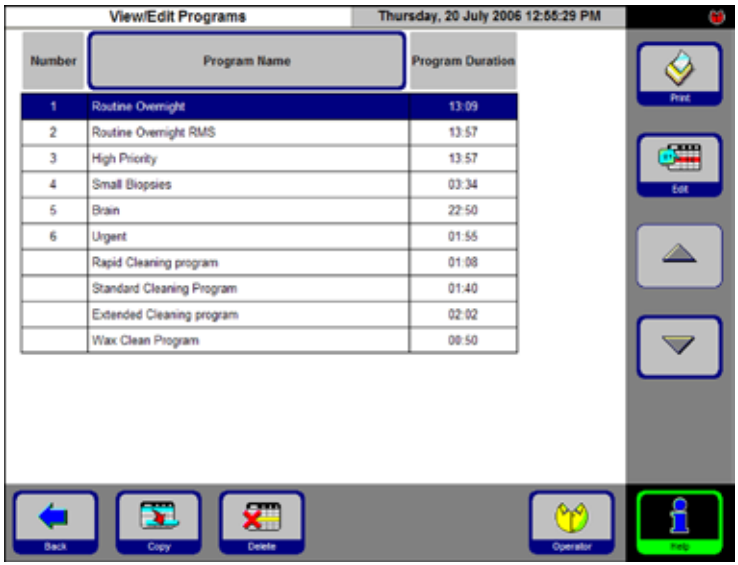


Fig. 45

You can create:

- Up to 15 infiltration programs
- 3 retort cleaning programs
- 1 paraffin cleaning program

At supervisor access level:

- The program names for the infiltration programs can be edited.
- New infiltration programs can be added and existing ones can be deleted.

Important!
New infiltration programs are created by copying an existing program. Therefore, the list must contain at least one program at all times.

Program duration cannot be specified. It is determined by the total duration of all program steps, plus the estimated fill and drain times. To alter the duration of a program, the duration of one or more individual program steps has to be modified.

Retort or paraffin cleaning programs are preset. They cannot be renamed, added or deleted.

5.1.6 Adding and/or modifying programs

Fig. 46

Creating a new program

- Make sure you are logged on at supervisor level.
- In the **VIEW/EDIT PROGRAMS** screen (Fig. 45) highlight a program as similar as possible to the program you wish to create. (This minimizes the number of operating steps).
- Press **COPY** to copy the selected program. The new program will have the same name as the program copied, however, the figure "**(2)**" will be added to indicate the change.
- Highlight the line containing the new program.
- Press **PROGRAM NAME** at the top of the table to display the keyboard.
- Enter the new program name.

Editing program steps

- Pressing **EDIT** (in Fig. 45) calls up the **PROGRAM STEPS** screen.
- In the headline you will find the **PROGRAM NAME**.
- The colors on the left border of the table indicate the reagent groups to which the reagents belong.
- The program steps are displayed in the order in which they are carried out. For each program, up to 13 steps can be defined.

The following characteristics of each program step can be edited:

- Reagent name.
- Duration of step
  (with the exception of fill and drain steps).
- Retort temperature
  (if "**Ambient**" is selected, the display for the retort temperature remains empty).
- Type of pressure and/or vacuum cycle
- Retort drain time.
- Delay step.

Editing program steps

- To edit a step, highlight the corresponding line and press the respective headline.
- In the entry windows that pop up, enter / select the program step settings.

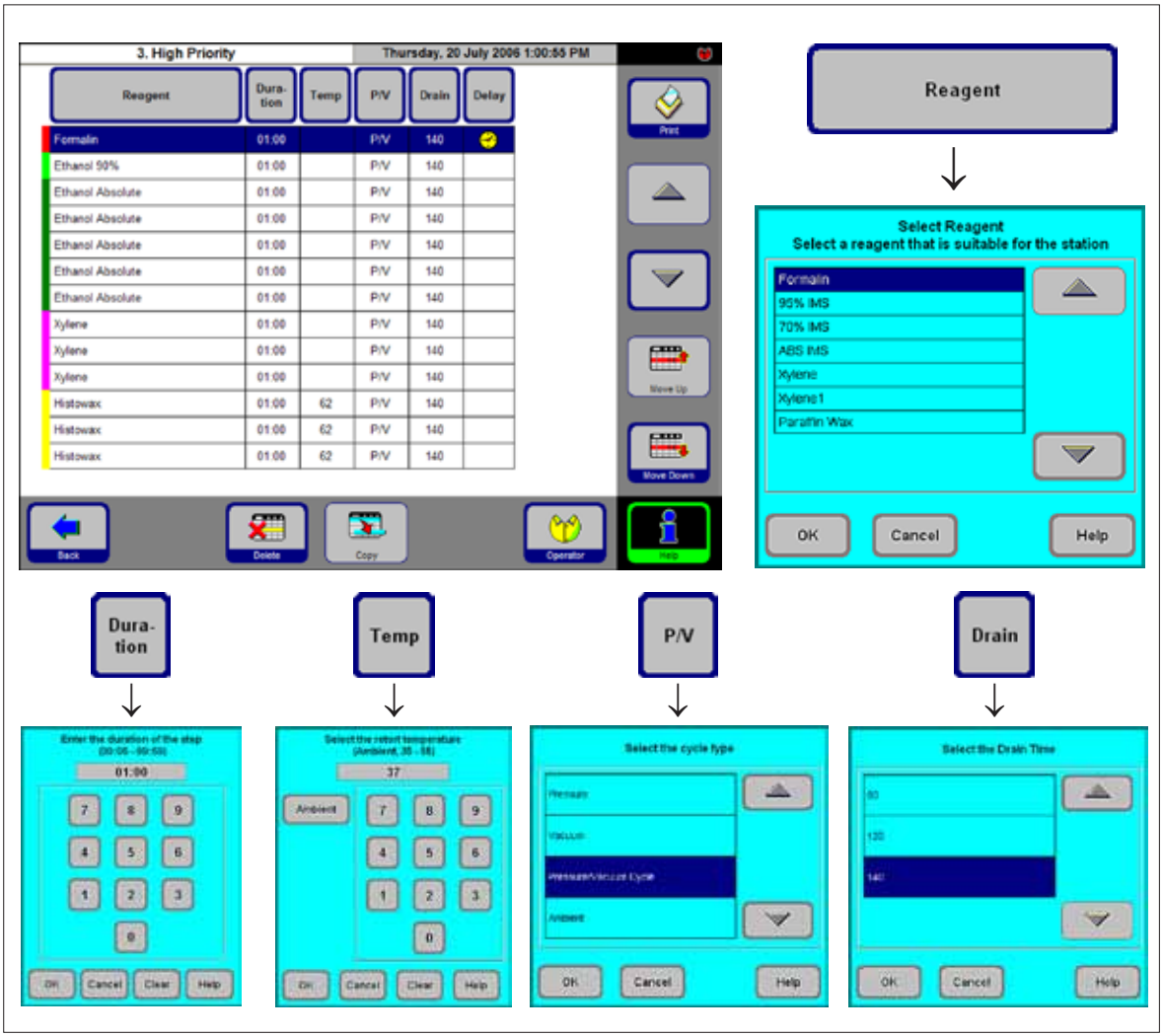


Fig. 47

Editing program steps (continued)

Setting a delay step

A delay step is a step that is extended to ensure that a program will finish at a specified time.

- Highlight the program step you wish to define as delay step.
- Touch the **DELAY** button.
  The delay symbol is moved to the selected step, thus defining the step as delay step.

Copying program steps

- Highlight the step you wish to copy.
- Touch the **COPY** button.
- If required, modify properties of the step.

Remember that a program step cannot be copied if the program already contains the maximum number of 13 steps.

- Use the **MOVE UP** / **MOVE DOWN** buttons to move program steps up or down within an existing program without having to recreate those steps.

Deleting program steps

To delete a step from a program:

- Highlight the step you wish to delete.
- Press **CLEAR**.

Remember that it is not possible to delete a step from a program containing only one single step.
Programs must consist of at least one step.

5.1.7 Favorites

Up to five favorites can be configured in the ASP200 S.
Favorites can be programmed so that they:

- end "as soon as possible" (**ASAP**) or
- end at a predefined time.

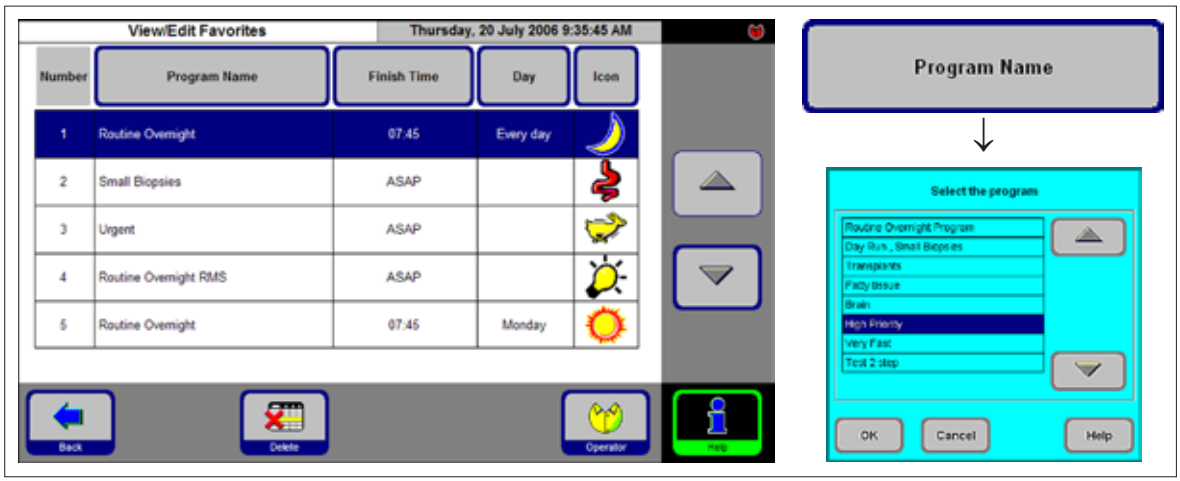


Fig. 48

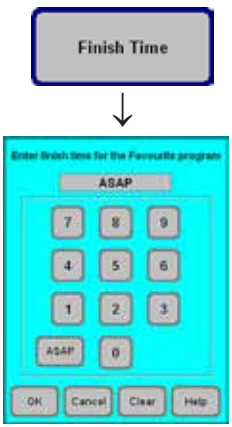


Fig. 49

Adding/modifying a Favorite

- Select the program line to be modified.
- Touch the **PROGRAMS** button.
- Select the program you want and press **OK** to confirm.

Setting the end time

- Press the **END TIME** button.
- In the input window, specify the end time using 24-hour notation. Select **ASAP** if the program is to be terminated without a waiting time.
- Confirm the end time with **OK**.

If an end time is assigned to a Favorite, the delay step is prolonged by the program so that the program is terminated at exactly the preselected time.

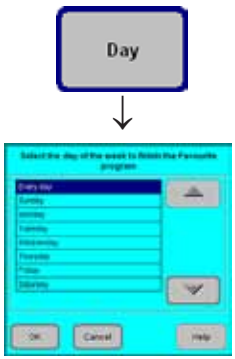


Fig. 50

Assigning a day for the end time

If an end time has been assigned to a Favorite program, a specific weekday can also be set on which the program is to end.

- Press the **DAY** button.
- Select the desired day from the list and confirm with **OK**.

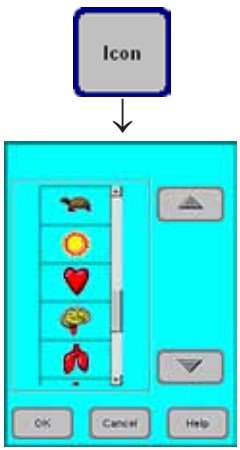


Fig. 51

Assigning a symbol to a "Favorite"

A corresponding symbol is displayed, which helps the operator recognize a certain program.

- Press the **ICON** key in the table header.
- Select the symbol you want and press **OK** to confirm.

The first symbol in the list is empty – you can select this option if you do not want any symbol.

Deleting a Favorite

- Highlight a program to be deleted.
- Touch the **CLEAR** button symbol. The highlighted program will be deleted without a security prompt.

The "Favorite" will only be removed from the FAVORITES list, the program itself will not be deleted.

5.1.8 Configuring the stations

This window (Fig. 52) shows a list of all stations with the allocated reagents defined in the instrument.

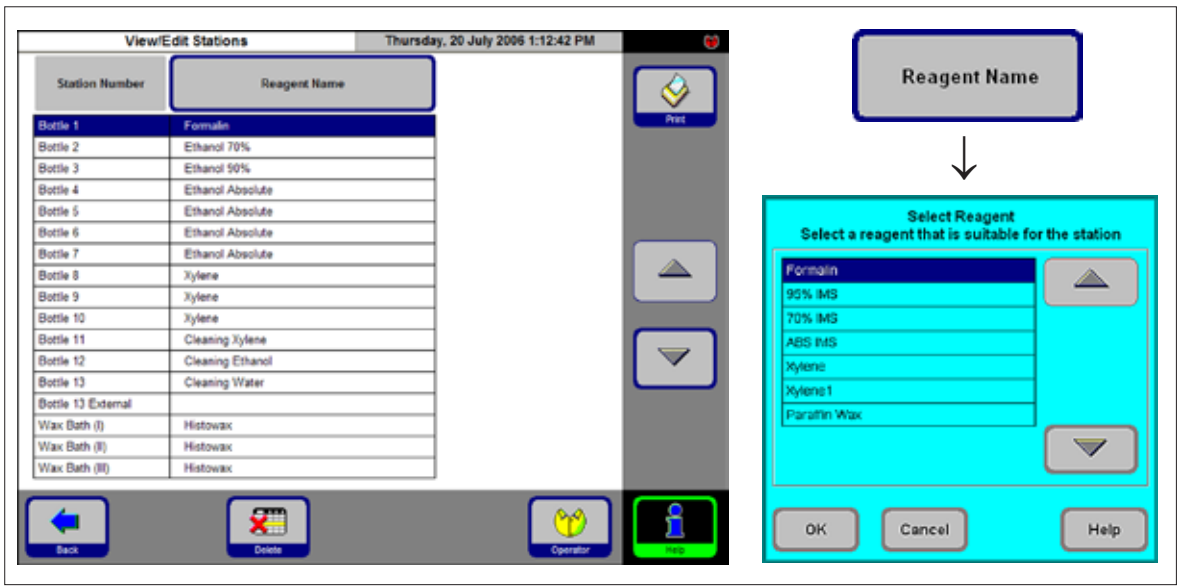


Fig. 52

Adding/changing a reagent

Select the desired station.

Either by pressing the reagent name or using the UP/DOWN buttons.

- Touch the **REAGENT NAME** button.
- The **SELECT REAGENT** field appears.

Only those reagents that are compatible with the selected station will be offered for selection.

- Highlight the reagent you want and confirm your selection with **OK**.

Allocation of the reagents

- Stations 1 – 10 can only be assigned specimen processing reagents (other than paraffin).
- Station 11 can only be assigned a cleaning solvent.
- Station 12 can only be assigned a cleaning alcohol.
- Stations 13 and 13-ext. can only be assigned cleaning water/detergents.
- Wax baths may only be used for paraffin.

5.1.9 Reagent groups

In this window (Fig. 53), the colors used in the graphical program display for each reagent group are displayed.

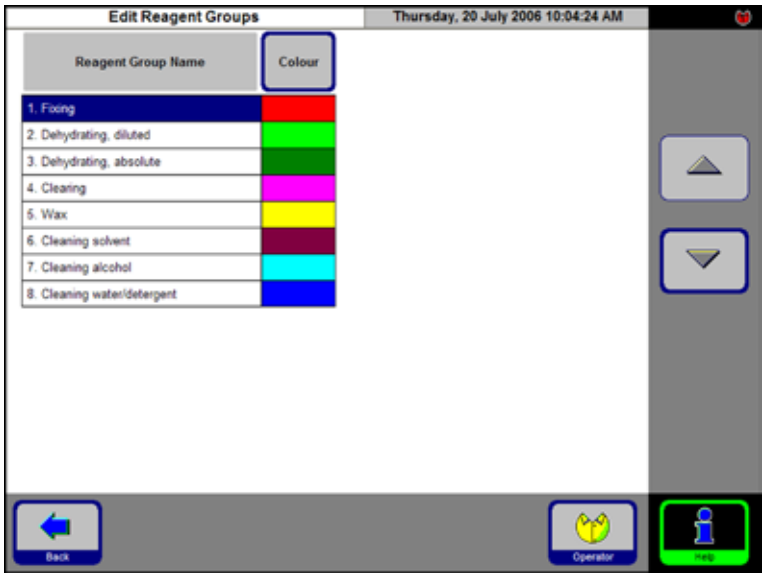


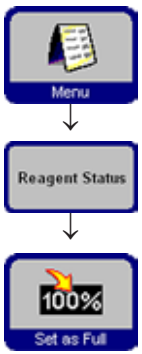
Fig. 53

Changing the color of a reagent group

- Highlight the line containing the reagent to be modified.
- Press the **COLOR** button in the table header; the **SELECT COLOR** window appears.
- Select the color you want and confirm with **OK**.
- To exit the display without changing any colors, select **CANCEL**.
- The newly configured color will now be used on all stations to represent the reagent.

5.2 Reagent handling

5.2.1 Draining/filling reagents (other than paraffin)



1. **Manually changing the reagents**

- Remove the appropriate reagent container from the reagent cabinet, remove the bottle screw cap.
- Drain/refill the reagent by pouring to/from a bulk container. Use the included funnel for clean filling.
- On the **REAGENT STATUS** screen, verify correct allocation and set the reagent container as full.

2. **Use the "Remote Fill / Drain" features**

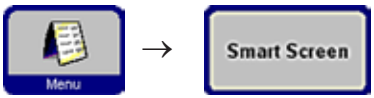
Fig. 54

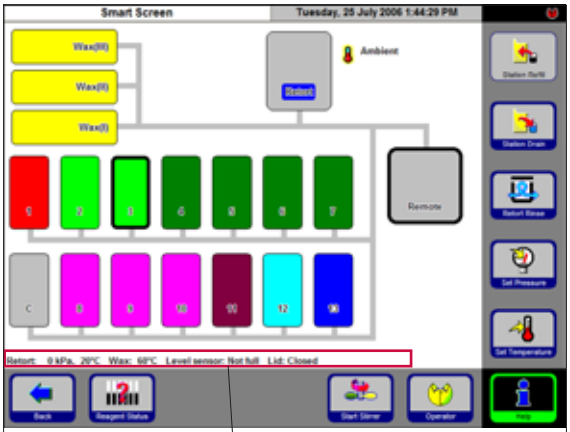
- Connect the hose for remote filling/draining as shown in Fig. 6 to the connection (**7**).

Important!
Press the connection of the hose firmly into the holder until you can clearly hear it click.

- Hook the other end of the hose into the bulk container that you are emptying or filling.

While performing a reagent fill/drain, ensure that the remote fill/drain hose is securely placed in the remote container and is not removed from the container until the operation is fully completed
Finally, pressurized air is used to clear the hose after each fill / drain so that no dirt remains.
The hose should therefore not be removed from the bulk container until this cleaning step is complete.





Status bar,
displayed in supervisor mode.

Fig. 55

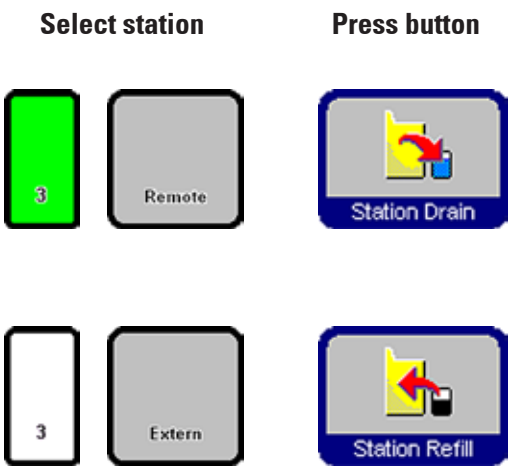


Fig. 56

Filling/draining reagents

From the **FAVORITES** screen, press **MENU**. In the **MENU FUNCTIONS** window, tap the **SMART SCREEN** button.

The **SMART SCREEN** (Fig. 55) pops up. The smart screen is the initial screen for manual operation of the instrument.

The following steps should only be carried out by trained laboratory personnel, experienced in handling reagents.

Status bar

The following values are displayed.

- Pressure and temperature of the retort
- Wax bath temperature
- Value of the level sensor of the retort
- Retort lid - closed or open

Remote draining

- On the screen, select the reagent container (No. **3**) and the receptacle (**External**). Then press **STATION DRAIN**.
- Check that no reagent has leaked.

Remote filling

- On the screen, select an empty reagent container (No. **3**) and the external receptacle (**External**).

  Then press the **STATION REFILL** button.
- The remote filling should be completed in less than 170 seconds.
- Check that no reagent has leaked.

5.2.2 Replacing the paraffin

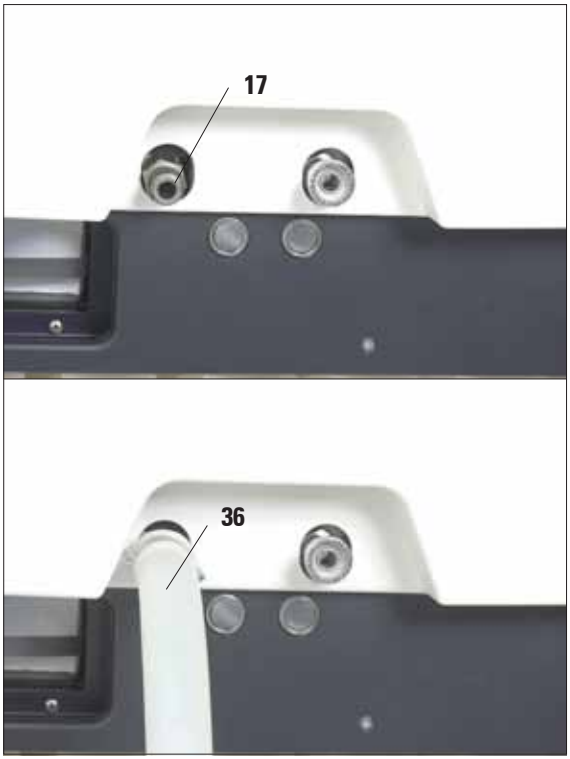


Fig. 57

Draining the paraffin

- Connect the paraffin drain hose (**36**) to the spout (**17**) of the paraffin drain at the front of the instrument (Fig. 57) and into a catch tank.

When connecting the hose, be sure to press it onto the O-rings of the drain opening as far as it will go.
The paraffin drain hose must be securely hooked into the external receptacle and remain there through the entire drainage process.
When drainage is finished, the hose is cleaned automatically using air.
Do not remove the hose from the external receptacle until this cleaning step is complete.

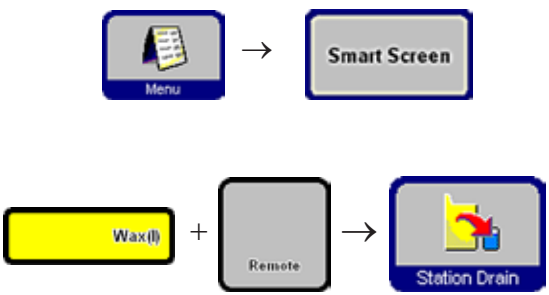


Fig. 58

From **FAVORITES**, call up the **SMART SCREEN** screen. (see previous chapter)

- Select the paraffin reservoir to be emptied and the receptacle (External, Fig. 58).
  Then, press **STATION DRAIN**....
- This is followed by multiple security prompts that you have to confirm individually in order to continue.

Filling with paraffin pellets

Fig. 59

Fig. 60

- Fill the paraffin reservoir to the brim (Fig. 60, **1**) with paraffin pellets. This corresponds to approx. 3.5 kg/bath (Leica Histowax pellets).
- Press **BACK** and **REAGENT STATUS** to switch to the status table (Fig. 59). Select the filled wax bath and press the **SET AS FULL** button.
- After approx. 90 min, add another 0.5 kg of paraffin pellets.
- Do not insert the baffle plate during the heating phase.
- The pellets need a total melting time of approx. 10 hours.

Important!
The level in a wax bath must NEVER fall below the mark for minimum level (Fig. 60, 2).

- Replace the baffle plate when the paraffin is melted.

Software control

- After refilling with paraffin pellets, the ASP200 S does not allow you to run any programs until the paraffin is completely melted.

  The software calculates the amount of time required for melting the paraffin and does not start a program until it is sure that the paraffin will have melted at the time of the first paraffin cut.

Filling with liquid paraffin

The temperature of filled liquid paraffin must not be greater than 70 °C to prevent damage to the thermal fuse.

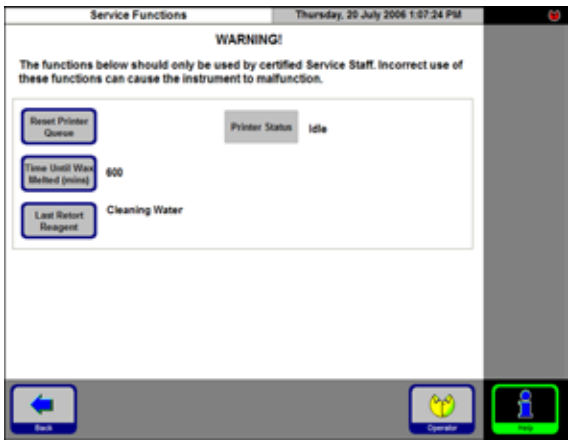


Fig. 61

- If filling with already melted paraffin, the liquid level must not exceed the **MAX** level mark (see Fig. 60, **1**) in the paraffin reservoir.
- After a paraffin reservoir is filled with paraffin, it must be marked as full in the **REAGENT STATUS** table.

Software control

If the instrument has been filled with liquid paraffin, the instrument's internal calculation of the melting time can be disabled.

To do so, in supervisor mode, open the **SERVICE FUNCTIONS** (Fig. 61) window.
Press **PARAFFIN MELTING**.

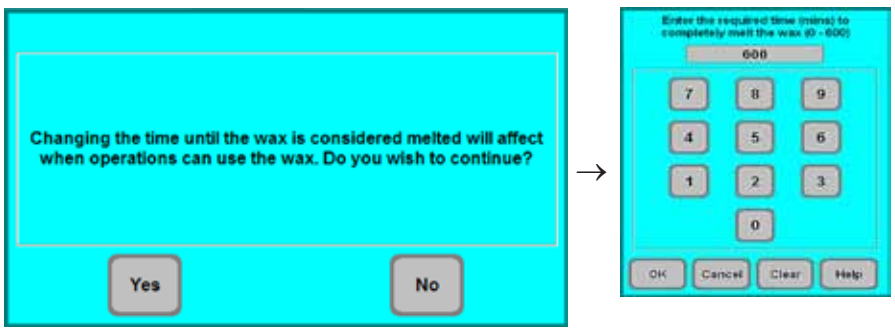


Fig. 62

A safety prompt appears that you have to confirm with **YES**.
In the time window, enter the desired delay time and confirm with **OK**.

Change the delay time only if you are absolutely sure that the entered time is correct.
If the instrument attempts to run a paraffin step with paraffin that is not completely melted, substantial faults and malfunctions may result.

5.3 Running programs

There are two different windows from which a program can be started:

FAVORITES

Fig. 63

ALL PROGRAMS

Fig. 64

Up to five favorites can be configured in the ASP200 S.

A "FAVORITE" is an infiltration program that is used frequently and thus has been assigned to the **FAVORITES** list.

All settings have already been programmed and only the number of blocks needs to be entered (if this function has been activated).

Starting a "Favorite"

To begin working with a Favorite, press the corresponding symbol on the start screen. The program is started immediately.

After starting, the end time or other program options can be changed in exactly the same way as for any other running program.

In the Start screen, press the **ALL PROGRAMS** button.

This window displays all of the infiltration programs defined in the instrument.

- To call up a program, touch the button that is labeled with the program name.
- A screen with the graphic representation of the program appears; in it, all of the stations necessary for this program are color coded according to reagent group (Fig. 65).
- Unlike a Favorite, here you have the ability to modify a program before it is started. However, all modified processing steps apply only for the program that is currently called up.

5.3.1 Editing a program that has been called up.

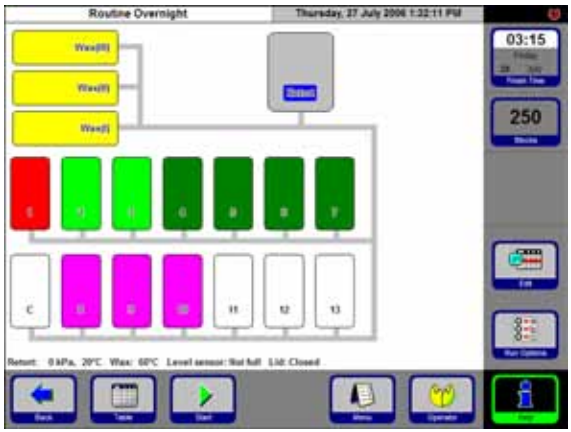


Fig. 65

To modify a program before the start, press the **EDIT** button. A message appears that the changes will affect running programs only. After confirming with **YES**, the program edit window appears (Fig. 66).

Fig. 66

Resetting the end time:

- Touch the **FINISH TIME** button and reset the end time in the input window.

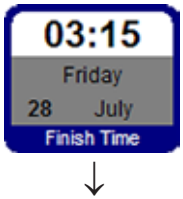


Fig. 67

- Enter the day on which you want the program to end.
- Enter the time (in 24-hour format) at which you want the program to end.
- Press **OK** to confirm.

Programs can be started up to 6 days in advance. So that the program is ended at the defined date/time, the delay step is lengthened accordingly.

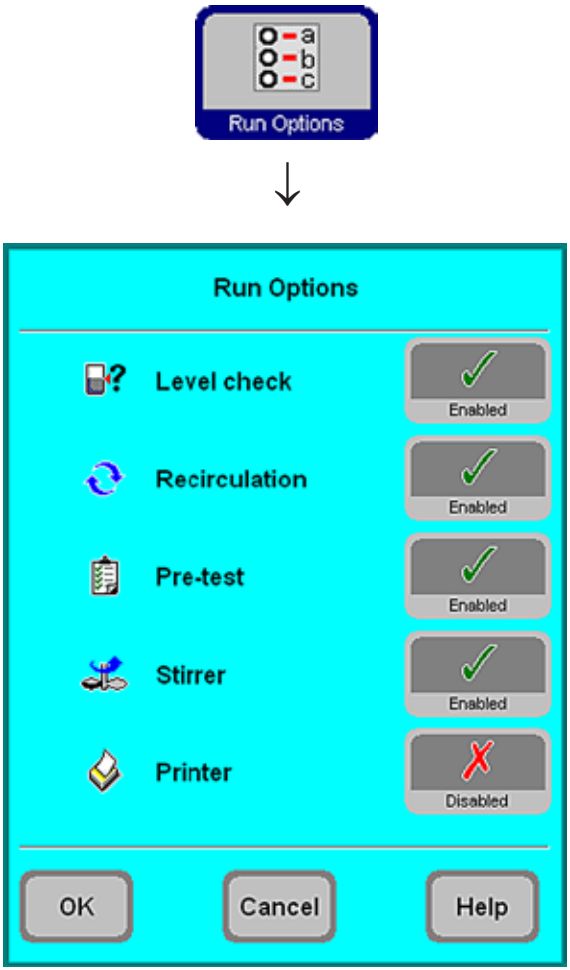


Fig. 68

The **RUN OPTIONS** function displays the options with which the current program is started.

- **LEVEL TEST** enabled:
  The lower level sensor in the retort is activated. The program is stopped with an error message if the level is not reached.
- **WAVE MOTION** activated:
  During each infiltration step, the reagent is periodically pumped from the bottle to the retort and back to achieve a more evenly mixed blend. The first pump step begins after 16 min, afterwards regularly after 12 min.
- **PRE-TEST** activated:
  After the program is started, the retort is filled and drained with the first reagent in the infiltration program (to test whether all lines and valves are unobstructed).
- **STIRRER** activated:
  The magnetic stirrer is on.
- **PRINTER,** if activated:
  At the end of the program, a complete run log covering the entire program execution is output at the printer.

Important!
The options set apply for ALL programs!
All run options can be deactivated or activated according to requirements while the program is running.

The printer option will be displayed only if a printer has been configured for the instrument.

5.3.2 Starting a program

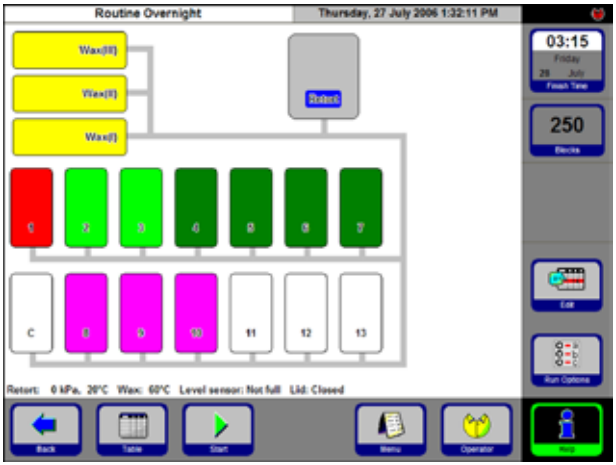


Fig. 69

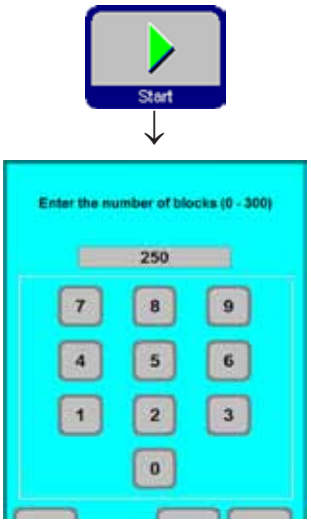
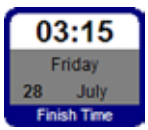
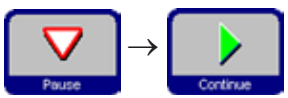
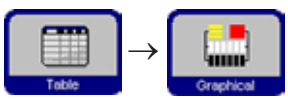


Fig. 70







- Pressing **START** starts the program. Confirm the prompt that follows with **OK**. The number of blocks to be edited (**NUMBER OF BLOCKS**) must be entered if the RMS has been enabled.
- The **FINISH TIME** button displays the time when the currently running program will end. If events occur that cause the end time to be delayed, the end time display here will be updated accordingly.
- To modify a running program or open the retort to reload specimens (see Chap. 5.3.3 "Opening the retort"), the program has to be stopped - press the **PAUSE** button. All buttons that have changeable functions are activated and can be edited.
  To change or delete program steps, press **EDIT** and make the changes in the input window. **CONTINUE** restarts the program.

The end time of a running program can be changed only if the delay step has not yet been completed.

- You can switch from the graphical to the table display by touching the **TABLE**, and back again with **GRAPHICAL**.

5.3.3 Opening the retort during a program interruption

The signal tone and the 10-second waiting time occur each time the retort is unlocked! For this reason, we recommend only locking the retort before starting a program or before cleaning in order to prevent unnecessary waiting times.

- To unlock the retort, turn the lever for locking/unlocking (Fig. 71) approximately 45° clockwise (Fig. 72) and release the lever.

A signal tone sounds for about 10 seconds. The reagent level in the retort drops by about 10 mm during this time.
This prevents the reagents from spilling out of the retort when it is opened.

- After the signal tone stops, turn the lever all the way to the right (Fig. 73) and open the retort lid.

Fig. 71

Fig. 72

Fig. 73

5.3.4 Retort emergency release

The retort lock is equipped with a safety system for unlocking the retort.

Electronic emergency unlock

- If the retort cannot be opened after 10 seconds, press the "**EXIT APPLICATION**" button and follow the instructions in Chap. 4.10.
- After shutting down (see Chap. 4.10, Fig. 20 and 21) switch off the instrument's power switch (Fig. 4, **42**). The retort can then be opened and the samples can be removed.

5.3.4 Retort emergency release (continued)

Aside from this, the system is also equipped with a mechanical emergency unlock (a predetermined breaking point in the retort lock).

Mechanical emergency unlock

If the retort cannot be opened while in a powered-down state, the stop can be overcome and the retort can be unlocked using the single-head wrench (14 0330 50891) included in the delivery package. Keep the single-head wrench near the instrument!

Fig. 74

- Turn the retort lock clockwise to the stop at approximately 45° (Fig. 74, **1**) and release.
- Put the single-head wrench in place below the retort lock (Fig. 75, **2**).

Ensure that the single-head wrench is seated securely on the retort lock.

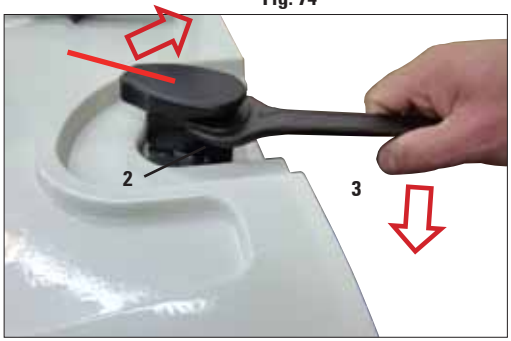


Fig. 75

- Turn the retort lock further clockwise using the single-head wrench (Fig. 75, **3**) and overcome the stop (breaking the retaining pin at the predetermined breaking point).

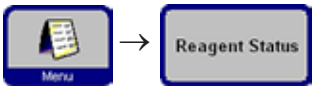
Notice! A large amount of force is needed to do this. Caution! Risk of injury.

- Once the stop has been overcome, the retort can be opened (Fig. 76, **4**) and the samples can be removed and secured.

The instrument can no longer be operated after the retort has been unlocked using the mechanical emergency unlock. Notify a responsible Leica service technician!

Fig. 76

5.4 Reagent status



This window (Fig. 77) is used to display and update the current reagent status of the stations. In addition, reagent stations can be marked as full or empty here.

Fig. 77

The following is displayed:

- The current age of each reagent
- The current status of each station
- Criteria that trigger warning messages
  (fields highlighted in red)

To change the status of a reagent, highlight the corresponding row and press the button symbol for the respective action.

In addition, you can switch directly to the **REAGENTS** and **STATIONS** windows to make current changes.

Reagent warning messages

If the RMS is active, warning messages are output if reagents are used for too long.

The output of the warning messages can take place after up to 3 criteria for normal reagents and after up to 6 criteria for paraffins.

Warning messages are displayed at the end of a cleaning program. Then, you can switch directly to the **REAGENT STATUS** display.

Warning messages also appear (with a yellow background) in the windows in which programs are started.

The criteria for warning messages

For normal reagents, it is the number of the following since the last reagent change:

- Edited blocks
- Run programs
- Days passed

For paraffins, warning messages can also be output according to the number of the following since the last paraffin cleaning:

- Edited blocks
- Run programs
- Days passed

5.5 System monitor

The **SYSTEM MONITOR** function provides important information about the status of the Leica ASP200 S.

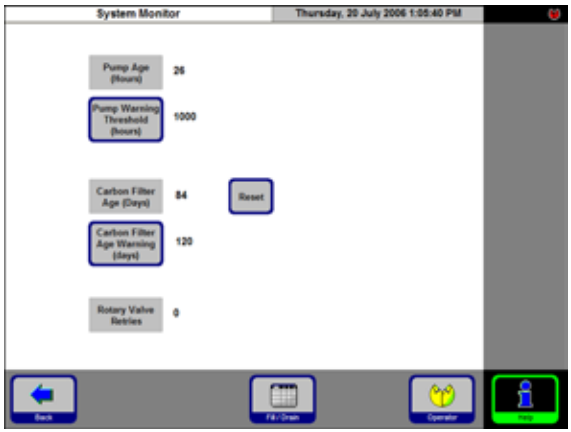


Fig. 78

PUMP AGE:

Indication of the operating hours of the pressure/vacuum pump. The configured warning value determines the triggering of a warning message. The pump must be maintained by Leica Service after approx. 1000 operating hours.

AGE OF THE CARBON FILTER:

Displays the operating hours of the active carbon filter. The configured warning value determines the triggering of a warning message. The carbon filter must be replaced after approx. 3 months.

After replacing the filter, press the **CLEAR** button to set the age to "**0**".

ROTARY VALVE RETRIES:

Provides information about the status of the rotary valve. If the number specified there exceeds 50, maintenance is recommended.

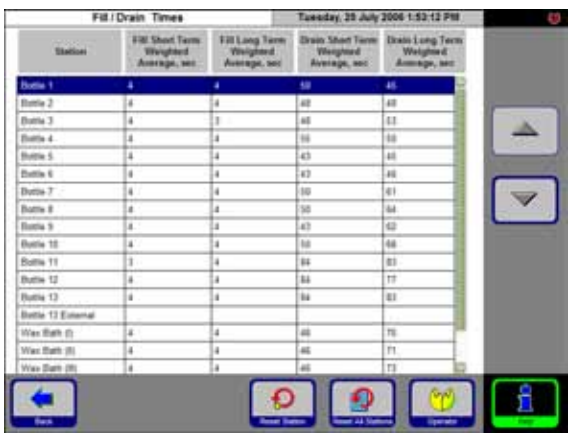


Fig. 79

FILL / DRAIN:

The table shows the measured filling and drain times of all stations (in seconds) as average values.

Short-term = the last 5 operations

Long-term = the last 20 operations

The values are usually different, but should not have any extremes. If one of the values is significantly above 250, contact Leica Service.
There could be a blockage, which in a worst-case scenario could cause the instrument to malfunction.

5.6 The online help

The Leica ASP200 S has an extensive help system that can be started from every main window.

To obtain information about basic problems, you can use the Help index, which is called up in the Help window using the **INDEX** key.

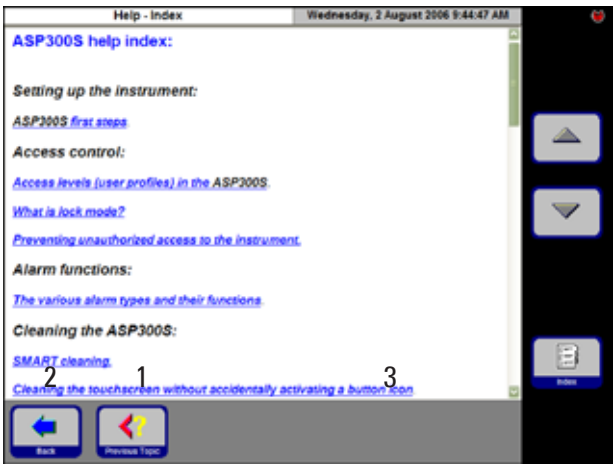


Fig. 80

The help topics are called up in the index according to the hyperlink principle.

To scroll in the help window, use the **MOVE UP**/ **MOVE DOWN** buttons.

The **PREVIOUS TOPIC** (**1**) button takes you from a detail back to the index.

BACK (**2**) displays the most recently active working window.

The **CUSTOM HELP** button (**3**) is displayed only if a custom laboratory help has been installed.

For detailed information on how to create and install a custom help file, refer to the help index under the "What is Custom Help?" header.

In addition to the help index, there are other help options which are always provided in context. These are displayed only when help is accessed within the window in which the problem occurs.

Help in the case of an error message

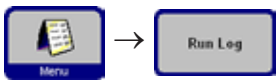
To call up help in the case of an error message:

- Press the button symbol **DETAILS**, or
- Press the **HELP** button integrated in the message to receive information about the source of error.

6.1 General

The Leica ASP200 S is equipped with a cutting-edge fault detection and troubleshooting system.
When detecting a malfunction, the instrument provides the operator with detailed error messages and corresponding steps to take via the screen.

For all error states, the instrument takes corrective measures to protect the specimens, except in such cases where continued functioning of the instrument would be possible only under hazardous operating conditions.



- All processes are recorded in detail in the "Run Log."
  To inspect the processes, the Run Log file can be opened by pressing the **MENU** and **RUN LOG** symbols.

6.2 Power failure

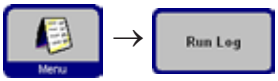
Power failure during an infiltration program

- If a power failure occurs during an ongoing infiltration program, the Leica ASP200 S calculates the power failure duration into the total duration of the step taking place; in other words, the respective step is not lengthened due to the power failure.
- If the power failure continues for longer than the remaining duration of the step during which it occurred, the Leica ASP200 S does not shorten the following steps.
- If, on account of a power failure, the paraffin temperature is reduced to the point that the paraffin is no longer suitable for continuing the ongoing program, the Leica ASP200 S builds in a delay time sufficient to bring the paraffin back to a suitable operating temperature before the paraffin step.

Power failure during a retort or paraffin cleaning program

- If a retort or paraffin cleaning program is running during a power failure, the total program duration is lengthened by the duration of the power failure. This is to make sure that the cleaning results are not impaired.

6.3 Troubleshooting



If a problem occurs in the Leica ASP200 S, take the following steps to diagnose the problem:

- Check for error messages indicating the nature of the problem.
- If an error message is displayed, press the Help button on the message for any information relating to the cause.
- Check the Run Log for any messages that indicate the nature of the failure. If the failure occurred during a program run, check the Run Log for an indication of whether the failure occurred during the fill, processing or drain cycles, and the reagent container in use at the time.

Use the SMART SCREEN functions to individually test operations such as fill, drain, pressurizing and evacuation operations.

Power failures

If there is evidence of power to the instrument:

- Verify that the power plug is plugged into the socket and that the socket is switched ON.
- Check whether the bridge cable is plugged in properly.
- Verify that the power switches on the rear of the instrument (adjacent to the power lead) and on the side of the instrument are both switched ON.
- Messages indicating that there has been a partial power failure indicate that power has been lost to the heaters, but not to the main control electronics. Carry out the above steps to identify the nature of the problem.

If you cannot identify the problem by carrying out the above listed steps, call Leica Technical Service.

6.4 Typical fill or drain problems

Fill and drain problems may be due to several causes:

1. **There is insufficient reagent**
   - Verify that the fill level of the reagent containers and the paraffin reservoirs is sufficient.

2. **Insufficient pressure or vacuum**

   The instrument is unable to create sufficient vacuum (for a fill) or pressure (for a drain) in the retort.
   - Verify that the reagent container in question is correctly inserted in the reagent cabinet.
   - Verify that all reagent containers are fully pushed home into their sockets.
   - Check whether there is some debris under the retort lid seal causing a leak.

3. **There is a blockage in the air or reagent lines**

   Blockages in the reagent lines are typically caused by paraffin or tissue debris. If there is reagent in the retort that cannot be drained, try to remove the blockage as follows:
   - Heat the retort to the maximum possible temperature (consistent with the reagent currently in the retort, if any). Leave the retort at this temperature for at least 15 minutes.
   - While the retort is at maximum temperature, attempt to fill or drain.
   - If there is no reagent in the retort:
     Run the extended retort cleaning program. Use the maximum settings for number of clean cycles and temperature (consistent with the type of reagents/solvents used in the clean program).

If you cannot eliminate the problem by carrying out the above listed steps, call Leica Technical Service before attempting to run any further programs.

7.1 Clean programs

The cleaning programs are at the end of the list of all programs (Fig. 45). To display a clean program, highlight the respective line and press **EDIT**.

Three retort cleaning programs and a paraffin cleaning program are defined in the ASP200 S. Clean programs cannot be copied or deleted.

Replacement schedule for cleaning reagents:
The cleaning reagents (cleaning xylene and cleaning alcohol) must be replaced weekly (refer to Chapter 3.6.1).
If fatty tissue, bloody tissue, biopsy sponges or the like are processed, both the reagents and the cleaning reagents must be replaced more frequently.

7.1.1 Retort cleaning programs

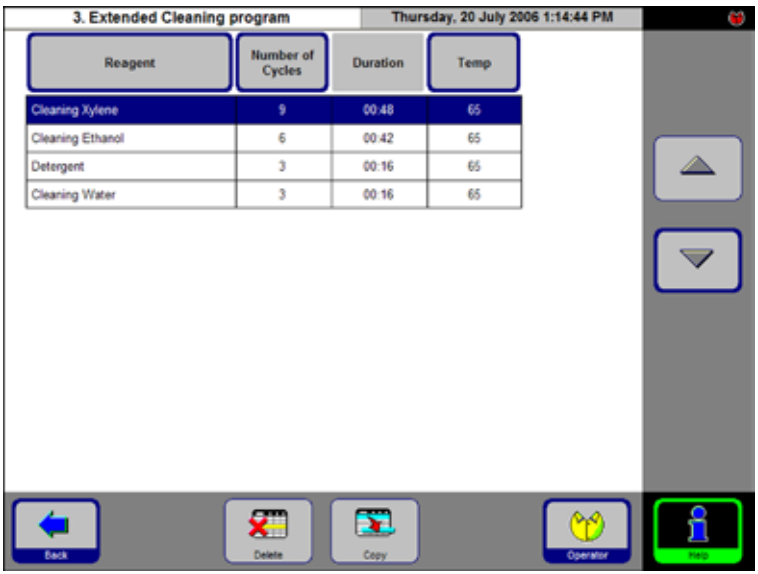


Fig. 81

A cleaning program comprises a minimum of three and a maximum of four steps:

1. Solvent
   1 step from station 11
2. Cleaning alcohol
   1 step from station 12
3. Cleaning water
   1 step from station 13

Optional between steps 2 and 3:
Cleaning water/detergent
1 step from station 13-ext.

7.1.1 Retort cleaning programs (continued)

- The steps of retort cleaning programs are listed in the order in which they are carried out (Fig. 81).
- The cleaning program skips any steps not required to complete the cleaning. If, e.g. an infiltration program has been aborted during the alcohol step, the subsequent clean program will skip the cleaning solvent step and will start with the cleaning alcohol step.

Editing steps

- To edit a program step, highlight the corresponding line and press the respective table header.
- To disable a step, set the number of cycles to "**0**". Only cleaning water steps can be disabled.

The following characteristics of each step can be edited:

- **Reagent name** - only those reagents that are compatible with the reagent station being edited will be displayed.
- **Number of cycles** - the duration displayed is calculated based on the number of cycles.
- **Retort temperature** - temperatures from 50 to 65 °C can be set.

The finish times of clean programs cannot be edited. Program duration is calculated automatically based on the number of cycles set.

Station 13-ext

- The designation "13-ext" is used for an additional station that can be used in place of the standard station 13.
- Station no. 13 always contains cleaning water. For some applications it is desirable to use a cleaning water/agent mixture between the cleaning alcohol and the cleaning water.
- If a program contains the step "Station 13-ext", the operator is prompted to insert the reagent container "13-ext" at the required point in time during the cleaning program, then to remove it once it is no longer used.

The station 13-ext can be assigned exclusively to reagents from the cleaning water group. It may only be used for cleaning programs.

7.1.2 Paraffin cleaning

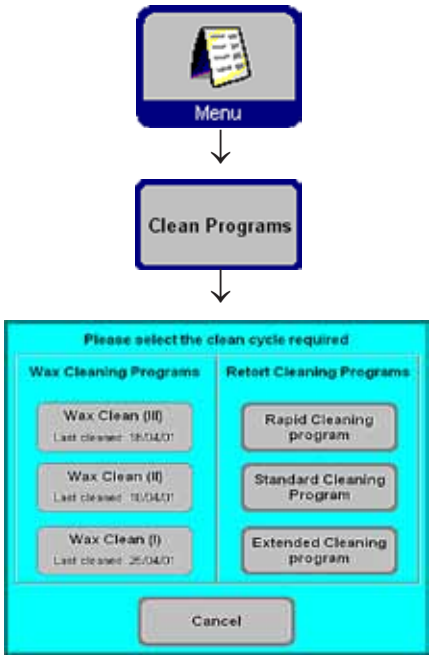


Fig. 82

It is possible to clean used paraffin of solvent residues (xylene) in the Leica ASP200 S.

To do so, select the paraffin bath for which the paraffin should be cleaned in the **CLEANING PROGRAMS** menu.

If the last reagent in the retort is not compatible with paraffin, carry out a retort cleaning first.

The following steps are taken during the paraffin cleaning:

- The paraffin is pumped into the retort.
- There it is heated to the highest possible temperature.
- The retort is put under vacuum, causing the solvent vapors to be drawn out of the paraffin.

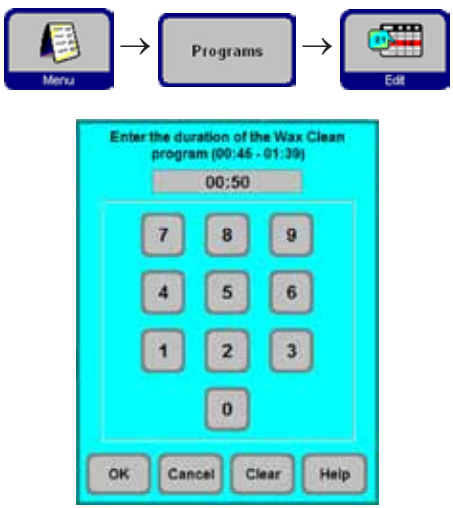


Fig. 83

The duration of the paraffin cleaning process is programmable.

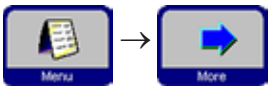
To do so, follow these steps:

- In the **PROGRAMS** menu, select the **PARAFFIN CLEANING** line and press the **EDIT** button.
- In the entry window, specify the duration for the cleaning program.
  The recommended time frame is one hour.
- Confirm the time specification with **OK**.

7.1.3 Smart clean

The smart cleaning prepares the ASP200 S for transport. During a smart clean, a series of air cleaning steps will be applied which will remove any excess liquid (condensate) from all internal tubing.

Before starting a smart cleaning, a complete retort cleaning program must be carried out in the ASP200 S.



To start a smart clean, press the **SMART CLEAN** button on the **MORE MENU FUNCTIONS** screen and press **OK** to confirm.

The smart clean itself takes approx. 15 minutes and consists of 3 phases:

Phase 1:

Prior to starting the smart clean make sure all reagent containers are correctly inserted and connected.
All internal tubing is cleaned with compressed air to force any remaining reagents back into the reagent containers.

Phase 2:

Before phase 2 starts, the operator is prompted to remove all reagent containers from the instrument.
All internal tubing is again cleaned with compressed air.

Phase 3:

When phase 3 starts, the operator is prompted to place an empty container in station 11.
The tubing is once again cleaned with pressurized air; any remaining reagent residues are forced back into station 11.

Empty and clean all reagent containers thoroughly before reinserting them into the instrument to make sure there will be no reagent spills from the bottles that could cause damage during transport.

7.2 General cleaning steps

Paraffin reservoirs

Work carefully! Be careful as the walls of the paraffin reservoirs are very hot and may cause burns!

- Wipe the paraffin reservoirs and lids clean.
  The lid can be removed for cleaning purposes.
- If they are dirty, remove the wax strainers from the paraffin reservoirs. Clean, dry, and reinsert them.
- Ensure that the air vent hole at the top rear right hand corner is unobstructed.

Instrument exterior

Clean the instrument exterior as necessary. Wipe with a damp cloth moistened with mild detergent and dry.

Do not use solvents on painted surfaces and/or the touchscreen!

Checking the drip tray

Fig. 84

Regularly inspect the collecting tray (**16**) for signs of leaking chemicals (Fig. 84).

Draining the condensate container

Fig. 85

- Remove, empty, and reinsert the blue condensate container (Fig. 85).

Dispose of waste solvents with care according to local regulations and the waste management policy of the company or institution.

Replacing the active carbon filter

Fig. 86

- The life of the active carbon filter will depend on the reagent types used and the frequency of vacuum cycles.
- The filter (**13**) should be replaced at least every 3 months. (Fig. 86)
  After replacing the filter, open the **SMART MONITOR** menu to reset the filter age to "0".
  For additional information, refer to Chap. 5.5
- We recommend a smart clean prior to changing the filter.

Filter label

When inserting the new filter, make sure that it is inserted with the correct side up, as specified on the label on the front side of the filter.The arrow must point upwards.

7.2.1 Daily cleaning and maintenance

Cleaning the retort lid

- Remove wax from the inside of the retort lid with the plastic scraper provided. Thoroughly remove all wax deposits from around the lid seal.
- For convenience, the lid may be removed during cleaning. Lift the lid to a vertical position, release the hinge lock and pull the lid toward you.

Only use the plastic scraper provided when cleaning the retort lid and seal to avoid damage to the retort lid seal and to the PTFE coating on the retort lid. Do not damage the edges of the seal with the scraper.

Cleaning the retort

- The retort may be wiped clean using a cloth moistened with solvent (xylene or alcohol) or mild detergent. In particular, make sure that the air vent holes at the top front of the retort are not dirty.

Cleaning the retort sieve

- Use alcohol or xylene to clean the strainer located at the bottom of the retort. For convenience, the sieve may be taken out to remove all solid dirt.

Cleaning the touchscreen

- On the **MENU FUNCTIONS** screen press **CLEAN TOUCHSCREEN**.
- Clean the touchscreen.
- Press **ENABLE EXIT** to enable the **BACK** button. Press BACK to return to MENU FUNCTIONS.

Cleaning the surface of the infiltration module

Important in order to ensure that the seals always seal properly.

- Remove both covers for cleaning.
- First, clean the stainless steel surface using the plastic spatulas, then wipe to remove all dirt particles around the retort and the paraffin reservoirs.

Reagent and condensate bottle seal lubrication

- To ensure easy removal of the reagent and condensate bottles, lubricate the O-ring seals on the plug-in nozzles with the O-ring lubricant supplied.

This procedure is particularly important with bottles containing chloroform. O-rings that have not been lubricated swell when exposed to chloroform. The reagent containers can then become very difficult to remove.

Checking the retort lid seal

- Regularly check the retort lid seal for damage. If the seal is damaged, it must replaced without delay.

7.2.2 Periodic cleaning and maintenance

Cleaning the reagent containers

- Empty and clean the reagent containers.

  Using a bottle brush and a laboratory detergent in warm water.

Never clean reagent containers in an automatic dishwasher. The reagent containers are NOT dishwasher-proof!

- Refill and reconnect the bottles once cleaned.

  Make sure the bottle lids are tight and the bottles are properly seated in their home position at the rear of the reagent module.

The reagent containers must be properly engaged in the home position in the connection manifolds at the rear inner wall of the reagent module. Failure to correctly plug reagent containers into the manifold will cause an interruption to the processing run and may result in spilling of reagents.

While the reagent containers are outside of the reagent module, wipe the stainless steel inner walls of the reagent module with a damp cloth moistened with a mild detergent.

Additional cleaning and maintenance tasks to be carried out periodically are listed in the table on the following pages.

7.2.2 Periodic cleaning and maintenance (continued)

Cleaning the level sensors

The level sensors must be cleaned of all residues (reagents and paraffin) after every cleaning program!

You will be prompted to clean the sensors by the instrument software at the end of each cleaning program (Fig. 88, **44**).

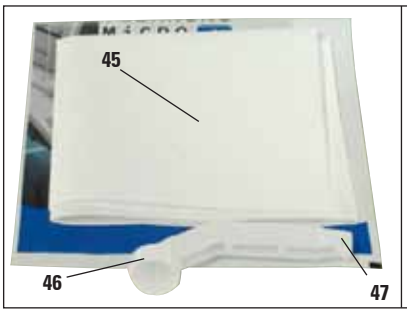


Fig. 87

Fig. 88

Fig. 89

Use the cleaning tool together with the microfiber cloth (Fig. 87) as shown in Fig. 89.

NEVER use the cleaning tool WITHOUT the accompanying microfiber cloth, as otherwise the sensors will be scratched!

The cleaning tool has two different spoons. The larger spoon (Fig. 87, 46) is for use with the ASP6025, the smaller (Fig. 87, 47) is for use with the ASP200 S / ASP300 S.

To prevent damage to the sensors, NEVER use the larger spoon for cleaning the sensors in the ASP200 S / ASP300 S.

7.3 Checklist for preventive maintenance

Step	Daily	Weekly	Monthly	every 3 months
Lubricate the O-rings of the reagent container and check them for damage.		✓		✓ * * During remote filling and draining
After exiting the retort cleaning program, wipe the retort and cover dry.	✓			
Clean the outer surfaces of the instrument with a soft cloth and a very small amount of xylene.	✓			
Check the retort filter screen for tissue or paraffin residue.	✓			
Remove paraffin residue from the interior surface of the paraffin reservoir cover	✓			
Check the retort lid seal and clean it if necessary.	✓			
Check the paraffin reservoir lid seal and clean it if necessary.		✓		
Check the paraffin level and refill if necessary.	✓			
Check the fill levels of the reagent containers.	✓			

Step	Daily	Weekly	Monthly	All 3 months
Check the filter screens of the paraffin reservoirs and clean if necessary.		✓		
Check the air circulation opening of the paraffin reservoirs and clean if necessary.		✓		
Check and empty the condensate container. Clean the inlet openings.		✓		
Check the status of the active carbon filter.			✓	
Replace the active carbon filter.				✓
Check the level sensors and clean if necessary.	✓			
Check the electrical ports on the rear side of the instrument.			✓	
Clean the reagent containers from the inside if necessary.			✓	
Make sure that the shutter caps of the reagent containers and the O-rings fit correctly and are tight.			✓	
Check that the reagent containers are fitted securely in the ports.	✓			

Warranty

Leica Biosystems Nussloch GmbH guarantees that the contractual product delivered has been subjected to a comprehensive quality control procedure based on the Leica in-house testing standards, and that the product is faultless and complies with all technical specifications and/or agreed characteristics warranted.

The scope of the warranty is based on the content of the concluded agreement. The warranty terms of your Leica sales organization or the organization from which you have purchased the contractual product shall apply exclusively.

Service information

If you are in need of technical customer support or spare parts, please contact your Leica representative or the Leica dealer where you purchased the instrument.

Please provide the following information:

- Model name and serial number of the instrument.
- Location of the instrument and name of a contact person.
- Reason for the service call.
- The date of delivery.

Decommissioning and disposal

The instrument or parts of the instrument must be disposed of according to existing applicable, local regulations.

Notes on Specimen Preparation

- Cut the tissue samples that are to be embedded to a size that fits the type of tissue and embedding cassette being used.
- Use a sharp and clean knife in order to prevent the transmission of contaminants and to avoid damaging the tissue samples.

Leica recommends:
- **Using sponges to affix small tissue samples for processing or packing them in filter paper.**
- **Packing small biopsies into Leica CellSafe biopsy capsules, biopsy sponges or biopsy bags.**

Insufficiently prepared specimens can lead to the intrusion of artifacts into important instrument components and thus cause damage.

www.LeicaBiosystems.com

Leica Biosystems Nussloch GmbH
Heidelberger Straße 17-19
D- 69226 Nussloch
Phone: +49 6224 - 143 0
Fax: +49 6224 - 143 268
Web: www.LeicaBiosystems.com