

# Instructions for use

## ***Read these Instructions before use***

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**Keep these 'Instructions for use' in a safe convenient place for future reference.**

## ***Eschmann After Sales Service Department***

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The Eschmann After Sales Service Department is staffed and equipped to provide advice and assistance during normal office hours. To avoid delays when making enquires, please quote the Model and Serial Number of your Autoclave (NOTE: For location of the Serial Number Plate see Fig.1. Item 19).

For Customers on the Mainland of England, Scotland and Wales, or on the Isle of Wight :-  
When you receive your Little Sister 3 Autoclave ensure that you complete your Service Guarantee and Registration Card, and then FREEPOST it to Eschmann Equipment. Failure to return this card means you will not benefit from our FREE installation service, which will ensure your Autoclave is correctly installed, plus two FREE service visits during the following 12 months.

**For further information visit [www.eschmann.co.uk](http://www.eschmann.co.uk)**

All correspondence relating to the after sales service of Eschmann Equipment to be addressed to :

### ***UK Customers***

**Eschmann Equipment, Peter Road, Lancing, West Sussex BN15 8TJ, England.**

**Tel: +44 (0) 1903 765040. Fax: +44 (0) 1903 762006.**

### ***Overseas Customers***

**Contact your local distributor. In case of doubt contact Eschmann Equipment.**

## ***Patents and Trade marks***

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"Eschmann Equipment" is a trading name of Eschmann Holdings Limited.

"Little Sister", "SES", and "LS3" are trade marks of Eschmann Holdings Limited.

Patents : Patents Pending plus - Pat. US5090033 and Pat. GB2238407

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The information in this publication was correct at the time of going to print. The Company, however, reserves the right to modify or improve the equipment referred to.

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**CE** If the CE mark is affixed to the product, it indicates compliance with Council Directive 93/42/EEC of 14 June 1993 concerning medical devices.

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### INTRODUCTION

There are four versions of the Little Sister 3 Autoclave, Short and Long chamber both with and without printer. For instructions on how to use the printer (if fitted) see the special section towards the end of this booklet.

**These instructions apply to the following Autoclaves:-**

#### SES LITTLE SISTER 3 STANDARD

(from Serial Number LCB8B0000, or LSK8B0000 for non-CE).

|                   |           |           |
|-------------------|-----------|-----------|
| without printer : | 87-020-05 | 87-022-01 |
|                   | 87-022-17 |           |
| with printer :    | 87-020-13 | 87-022-09 |
|                   | 87-022-25 |           |

#### SES LITTLE SISTER 3 LONG

(from Serial Number LLCB8B0000, or LLSB8B0000 for non-CE).

|                   |           |           |
|-------------------|-----------|-----------|
| without printer : | 87-020-21 | 87-022-49 |
|                   | 87-022-66 |           |
| with printer :    | 87-020-29 | 87-022-58 |
|                   | 87-022-74 |           |

**The Accessories listed below are available:-**

|                                    |               |
|------------------------------------|---------------|
| Tray . . . . .                     | REF 87-040-07 |
| Tray lifter . . . . .              | REF 87-040-90 |
| Chiropody tray . . . . .           | REF 87-041-12 |
| Tray - Long . . . . .              | REF 87-040-19 |
| Cassette (tray with lid) . . . . . | REF 87-040-87 |
| Printer spares pack . . . . .      | REF 87-034-05 |

#### Service Manual

A Service Manual containing technical description, complete maintenance procedures and an illustrated list of spare parts is available on request from the Eschmann After Sales Service Department.

#### Reservoir Water Quality Caution

- Eschmann recommend filling the reservoir with 'Sterile Water for Irrigation'. This is low in dissolved solids and has a low microbial count. In the U.K. the Department of Health recommend that 'Sterile Water for Irrigation' is used in bench-top Autoclaves (NHS Estates document HTM2031).
- If 'Sterile Water for Irrigation' is not being used then Eschmann strongly recommend the use of either distilled water, deionized water, purified water or water treated by the reverse osmosis process. These types of water are low in dissolved solids and can help reduce the effects of tap water detailed below.
- DO NOT USE TAP WATER, this is high in dissolved solids and can deposit lime scale, block filters and cause damage to the pressure vessel.
- Eschmann also recommend changing the water in the reservoir on a weekly basis, with the type of water detailed in 'a' (or 'b') above. This will reduce the build-up of contaminants in the water that may cause blocked filters and/or damage to the pressure vessel. Your local Health Authority may suggest that you change the reservoir water more frequently. Eschmann advise you to follow your local Health Authority's recommendations.

### WARNING

#### READ NOTES (1-5) BEFORE USE

The use of this autoclave should be under the control of a responsible Person with sterilization training. The user remains responsible for ensuring that the load is suitable for the process adopted.

#### Note 1.

THE USER SHOULD BE AWARE OF THE FOLLOWING POSSIBLE HAZARDS

- a. Burns to the user caused by hot accessible surfaces of the load, burns to the user caused by high temperature internal surfaces of the chamber, scalds to the user caused by hot water and/or steam from the reservoir, scalds to the user caused by hot water from the chamber on opening the door, scalds to the user caused by hot water and/or steam from overfilling the reservoir.
- b. The hazard of scalds and burns from contact with hot surfaces are greater during validation with the cover removed which also exposes the risk of electric shock. Validation should therefore only be carried out by a qualified engineer.
- c. Infection, caused by contact with water in the reservoir if the reservoir is not drained, left to dry and recharged at regular intervals as described in these instructions for use (see paragraph 22) to prevent possible contamination.
- d. The autoclave indicates a successful cycle, but the load remains non-sterile because the load is not suitable for the steam sterilization cycle. All loads and loading conditions must be validated. It is recommended that the user consults the instructions for use of the items to be autoclaved and if in doubt consult a qualified microbiologist or Authorized Person.

#### Note 2.

THE USER SHOULD BE AWARE OF THE FOLLOWING LIMITATIONS DURING USE

- a. Never use trays or cassettes without perforations as this will result in a non-sterile load.
- b. Do not process wrapped, sealed or porous goods or fluids in this autoclave.
- c. Not to be used in zones of risk associated with flammable anaesthetics.
- d. The Little Sister 3 is designed to sterilize instruments, NOT TO WASH THEM. If instruments are not cleaned this may compromise the efficiency of the sterilization process.
- e. These Autoclaves are not suitable for instruments or items with narrow lumens.
- f. When sterilising instruments not of solid metal construction, the manufacturer of the instrument must be consulted about its suitability for autoclaving,

regarding the maximum temperature the instrument can withstand. This is necessary as the sterilizing temperature for 121°C cycles may be exceeded (typically to peaks of 130°C) during the drying phase under certain conditions such as small loads.

- g. The Autoclave will discharge steam during and at the end of some cycles. Ensure the autoclave is not positioned close to heat or smoke detectors as these may be activated by the release of steam.

#### Note 3.

THE USER SHOULD FOLLOW THESE ELECTRICAL SAFETY MEASURES

- a. This equipment must be earthed.
- b. Switch 'off' unit and disconnect from mains power supply before renewing fuses.
- c. Switch 'off' unit and disconnect from mains power supply before checking and cleaning the autoclave.
- d. Do not attempt to service this equipment internally.

#### Note 4.

THE USER SHOULD FOLLOW THESE GENERAL SAFETY MEASURES

- a. Do not fill the reservoir during a sterilizing cycle.
- b. Do not cover the ventilation louvres.
- c. Do not use abrasive powders, chemicals, or solutions containing chlorine to clean the autoclave.
- d. Always allow unit to cool before attempting to open the chamber door.
- e. If an error display appears during a cycle, do not switch-off power until discharge of hot water or steam into the reservoir has stopped. Do not attempt to open chamber door until unit has cooled and internal pressure has fallen sufficiently to release pressure safety bolt. Also see 'Safety Checks' page 7.

#### Note 5.

GENERAL POINTS TO REMEMBER DURING USE

- a. Close the chamber door properly before selecting the required programme.
- b. Always leave the chamber door slightly open after use.
- c. Never use tap water see section 6 and '**Reservoir Water Quality Caution**' on page 3.
- d. Ensure instruments are free from debris before placing them in sterilizer chamber.
- e. Use the 'tray lifter' to remove the sterilized load.
- f. Keep chamber trays and chamber face clean.
- g. Clean door seal and chamber face with a lint-free cloth at weekly intervals.
- h. Regular maintenance (every three months is recommended) is required to ensure continued safety and reliability

## GENERAL INFORMATION NOTES

### IMPORTANT

The design of the autoclave pressure vessel is approved by a third party to PD5500 Cat.3. The pressure vessel is constructed and tested to BS3970 Parts 1 and 4. In order to ensure safety and to comply with UK regulations, the vessel and fittings should be inspected by a 'competent person' at intervals of no more than 14 months. This can be carried out by an Eschmann trained engineer.

The Little Sister 3 Autoclave (Standard and Long) is designed for the sterilization of unwrapped instruments, utensils and other items. It operates automatically at the touch of a single programme selector touch button, and has four programmes 134°C and 121°C, both with and without drying (see Important Note below right). The Autoclave is capable of 4 cycles per hour when the '134°C Without drying' programme is selected. For sterilization cycle times, refer to the 'TECHNICAL DATA' section on page 12.

### Little Sister 3 Autoclave, safety features:-

- Pressure Door Lock. The door is mechanically locked at pressures above 0.14 bar.
- Door Interlock Switch. This prevents programme starting if door is not properly closed.
- Electrical Door Lock. This prevents the door being opened inadvertently by the operator once the cycle has started and holds the door closed until the end of the cycle. It will also keep the door closed under all fault conditions.
- Pressure Relief Valve (safety valve). This valve safely releases excess pressure (i.e. above 2.6 bar).
- Microcomputer. The microcomputer constantly monitors all key functions. If an error arises, it immediately stops the cycle, discharges pressure, and causes the appropriate message to be displayed (See Error Correction para. 27).
- Overheat Control. The microcomputer operates in conjunction with an independent manual reset thermostat to protect the heating element from overheating. The autoclave is also fitted with a fusible link which, should overheating occur, will cut all power to the heating element and microcomputer and operate the manual reset thermostat, leaving only the red overheat warning lamp illuminated on the front panel.

### Declaration

The design of the autoclave pressure vessel is approved by a third party to PD5500 Cat.3. The pressure vessel is constructed and tested to BS3970 Parts 1 and 4.

Note: This equipment is defined as:

- Installation Category 2 (Overvoltage Category 2)
- Pollution Degree 2 (in accordance with IEC664).

### Conditions of Safe Use:-

- Indoor Use.
- Altitude up to 2000 metres.
- Temperature 5°C to 40°C.
- Maximum relative humidity 80% for temperatures up to 31°C, decreasing linearly to 50% relative humidity at 40°C.
- Mains supply voltage fluctuations not to exceed  $\pm 10\%$  of the normal voltage.
- No other voltage fluctuations specified by the manufacturer.

Note: If it is required to operate this Autoclave outside of these conditions, contact Eschmann Equipment at the address given in these instructions.

### IMPORTANT NOTE:

**UK Customers should arrange for this equipment to be installed by an Eschmann Trained Engineer before use. (For free installation and service details see page 2). Also see 'Safety Checks' page 7.**

The preset sterilizing temperature for your Little Sister 3 Autoclave is displayed on a temporary label affixed to the front of the unit. All programmes can be deactivated or reactivated by an Eschmann Trained Engineer, on request.

### WARNING MARKINGS

The warning markings on this equipment have the following meanings



Caution; refer to accompanying documents (i.e. these Instructions for Use).

This symbol, adjacent to the door knob, warns the user of the possible escape of steam and hot water when the door is opened.



Caution; refer to accompanying documents (i.e. these Instructions for Use).

This symbol, adjacent to the overheat light at the bottom of the control panel, warns the user of overheating of the sterilizing chamber.



Caution; hot surface.

This symbol warns the user of high surface temperatures on the outside of the equipment.



Caution; refer to accompanying documents (i.e. these Instructions for Use).

This symbol on the serial number label (rating plate), and on the lid of the unit, warns the user that it is necessary to read the Instructions for Use before using the equipment.

## INITIAL PREPARATION FOR USE

- When lifting or moving the Little Sister 3 Autoclave (preferably with two people), place the hands under the base at each side of the unit. Place the autoclave on a flat, level surface and ensure there is a working clearance of 150 mm all round for adequate ventilation. Do not cover the ventilation louvres. Also see Note 2 part 'g' on page 4.
- Check that the plug fuse is appropriate for the voltage of the equipment (see rating plate on back of cabinet).
- Connect unit to mains power supply (**Warning this equipment must be earthed**) and switch on by selecting unit power switch '0-I' to 'I' (Fig. 1). Display will go to 'LS3' followed by cycle count then door/test.  
**Note:** If the door knob is turned to the fully closed position the chamber door cannot be opened until power is switched on.
- Open chamber door (Fig. 2). Remove tissue paper from the door; autoclaving trays, tray lifter; reservoir lid, drip tray and feet adjustment pack. Discard all packing pieces.
- Fit reservoir cover and place plastic drip tray at front of unit, below door. Fit feet adjustment pack components as follows:
  - Plastic cups to protect work surface from rubber feet marks.
  - If work surface is not level, place spacers, as required, inside cup(s).
- Remove reservoir lid (Fig. 1) and fill reservoir up to 'MAX' mark (Fig. 3) with 'Sterile Water for Irrigation'. **DO NOT USE TAP WATER**, see 'Reservoir Water Quality Caution' on page 3. Refit the reservoir lid.

## LOADING THE AUTOCLAVE

- Check you have read the limitations on use page 4 and technical Specification page 12.
- Check that water level in reservoir is between 'MAX' and 'MIN' marks (Fig. 3). **DO NOT FILL DURING CYCLE.**
- With chamber door open (para. 3, Note), select mains 'on/off' switch to 'I' (on) (Fig. 1). This will initiate a single audible signal followed by the display 'LS3', then the number of cycles, the time of day (see note below) and the flashing green indicators for the preset cycles.  
**Note:** For units without a printer 'rEAdy' is displayed not the time of day.
- Before loading instruments into trays or cassettes they should be pre-washed, preferably in an ultrasonic cleaner to remove amalgam, debris, etc., then rinsed to remove all traces of proprietary cleaners, chemicals or disinfectants, before being placed in the sterilizer chamber. Residue from these products could result in a blockage of the water recycling system.

- Do not overload trays, and avoid 'bunching' items together.
- Do not use trays or cassettes without holes and ensure that the load does not block the holes in the perforated trays and cassettes.
- Load trays and place them in the sterilizing chamber (Fig. 4 and 4a). All items must be positioned so that they drain freely and do not trap rising air bubbles.
- Close the chamber door by first ensuring the door handle is turned fully open (counter-clockwise) before shutting the door and locking by turning the handle 180° clockwise (Fig. 2).

## STERILIZING & DRYING THE LOAD

- Select required programme by pressing the appropriate button on control panel (Fig. 5). The indicator lamp for the selected programme remains illuminated. The sterilizing cycle will now proceed automatically and the printer (if fitted) will commence printing. As the cycle progresses various displays will appear in the display window (Fig. 1 item 3) to indicate programme status.  
**Note:** Select only from the programmes at the preset sterilizing temperature (see Important Note, page 5).
- The display sequence during the sterilizing cycle is:

| Display                             | Interpretation  |
|-------------------------------------|---|
| door/tEst<br>(Flashing alternately) | Test door interlock switch (para. 14)   |
| door                                | Sterilizing chamber door open   |
| time of day<br>(e.g. 11-45)         | Programme can now be selected<br>Note: for units without a printer 'rEAdy' is displayed.                          |
| FiLL                                | Chamber being filled  |
| HEAt                                | Heater temperature below 92°C   |
| 92 to 136                           | Heating to sterilizing stage  |
| S135.5                              | 'S' flashing, indicates sterilizing begun and timing started  |
| cond                                | Steam being discharged and condensed  |
| dry                                 | Load being dried  |
| End                                 | Cycle complete  |
| Ser                                 | Service set to display at 1500 cycles. This will not inhibit the use of the autoclave, but, do arrange a service. |

17. If a cycle "With Drying" is selected then commencement of the drying phase is indicated by the display 'dry' accompanied by a rapid intermittent audible signal. When this signal is heard, maximum drying will be achieved if the chamber door is opened halfway and then closed until it touches the metal catch on the front fascia panel, leaving a small gap (approx. 1cm) for ventilation. Instruments can be taken out any time during the drying phase, but best results will be achieved by waiting until the automatic cycle is complete.
18. On completion of a sterilizing cycle 'without drying', the display 'End' will appear, accompanied by a brief audible signal. When the door is opened to remove load the display will change to 'door'.
19. On completion of a sterilizing cycle 'with drying' (where chamber door is opened slightly during the drying phase), the display 'End' will appear briefly accompanied by an audible signal and followed, after a few seconds by 'door'.
20. Open door fully and remove load USING THE TRAY LIFTER and leave the door open slightly when not in use.

## AUTOCLAVE CLEANING & CARE

### WARNING

**Chlorine, even in the concentrations found in tap water, can cause stainless steel to crack and could damage the chamber. Disconnect from the mains electrical supply before cleaning the Autoclave.**

21. Keep chamber trays, door seal and chamber face clean. These should only be cleaned with a lint-free cloth. Clean the outside of the autoclave by wiping down with a cloth dampened with a 70% solution of industrial methylated spirit (IMS) and water. Allow to dry by evaporation.  
**Note:** Do not use abrasive powders, chemicals, or solutions containing chlorine to clean the autoclave.
22. The reservoir must be drained weekly and be allowed to dry (Fig. 6). When refilling see section 6 and '**Reservoir Water Quality Caution**' on page 3, DO NOT USE TAP WATER. Regular cleaning of the reservoir will reduce the effects of excessive handpiece lubricant which could be detrimental to the function of the autoclave.
23. Attention to the following will increase the life of the your Little Sister 3 Autoclave:
  - a. After use leave chamber door slightly open.
  - b. At weekly intervals, lightly clean door seal and chamber face with a lint-free cloth.

## SAFETY CHECKS

24. Users should ensure that the following periodic safety checks are carried out at the stated intervals:-

### Weekly

- ★ Check that the door opens and closes easily
- ★ Check the door seal for any signs of damage
- ★ Check that the secondary door catch latches effectively
- ★ Check for any obvious escape of steam or water during a cycle (i.e. other than is normal from the top of the reservoir)

### CAUTION

**Annual inspections should only be undertaken by a Competent Person.**

### Annually

- ★ Check the pressure relief valve operates freely and at the set pressure
- ★ Inspect the Pressure System for integrity
- ★ Check Door micro-switches and interlocks
- ★ Check Door locking mechanism for integrity
- ★ Check Pressure indicators for correct operation
- ★ Check overheat devices for function

### UK Guidance

Inspections can be arranged by contacting the Eschmann After Sales Service Department, see inside cover for contact details. Eschmann can also provide comprehensive service contracts, which cover preventive maintenance to ensure trouble free operation of your autoclave as well as an annual inspection of the pressure system to satisfy the requirements of the Pressure Systems Safety Regulations 2000.

## MAINTENANCE

**(Ensure you have read pages 3-5)**

### Fuse Renewal

25. Fuses are fitted at the back of the autoclave (Fig. 1, detail). For fuse ratings refer to 'TECHNICAL DATA'. To extract a fuse switch 'off' the unit and disconnect from the mains power supply, insert a screwdriver or small coin in the slot of the fuse holder and twist it counter-clockwise. After inspecting or renewing a fuse, reverse the above procedure to re-secure fuse holder.

### Preventive Maintenance Agreement

26. We would strongly recommend that a 'P.M.A.' is taken out on your Little Sister 3 Autoclave. Although the autoclave requires minimal maintenance, it is important to have the autoclave checked and calibrated at regular intervals. This ensures that the exacting conditions necessary for sterilization are maintained throughout the unit's working life.

### ***Error Correction***

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27. If, after switching 'on' power there is no visual display, or audible tone, first check power supply connections. Also check all 3 fuses at rear of unit (see Fuse Renewal). If any error occurs during a cycle (i.e. any time after selecting a programme), the cycle will abort and provided power supply to the unit is maintained, the error will be indicated by one of the visual displays shown in Table 1. If power fails during a cycle, check supply conditions, fuses, and connections as indicated in this paragraph.

### ***Overheating***

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28. In the unlikely event of overheating, the red overheat warning lamp (Fig. 1) will illuminate. If this happens, first allow approximately 10 to 15 minutes for the autoclave to cool, then check the water level in reservoir. When the water level is correct, press the button marked 'PRESS TO RESET' at the rear of the cabinet (Fig.1, detail) and re-start the cycle in the normal way. If the fault persists, switch off the unit and call an Eschmann trained engineer.

**Note:** Should the 'press to reset' thermostat operate in a nil water condition, the chamber temperature is below 138°C. The maximum chamber temperature on overheat, to melt the thermal fuse is 250°C.

### ***Cleaning the Filter***

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29. The Little Sister 3 Autoclave is fitted with a filter which will require cleaning by a qualified service engineer. This should be carried out at least annually.



**Table 1 Fault Finding**

**WARNING**

If an error display appears during a cycle, do not switch-off power until discharge of hot water or steam into reservoir has stopped. Do not attempt to open the chamber door until the unit has cooled and internal pressure has fallen sufficiently to release the pressure safety bolt. Loads whose cycles are aborted by one of these error displays should be treated as non-sterile.

| DISPLAY   | CAUSE  | REMEDY   |
|---|--|--|
| <b>ELECT</b><br>(+ audible signal)                                    | Temporary failure in the mains supply to unit.               | <p>a. Check local supply conditions<br/>                     b. Check supply plug wiring and power cable for possible breaks.<br/>                     c. Because there can be no guarantee that the load has been sterilised, 'ELECT' will continue to be displayed after power has been restored.</p> <p><b>To re-start cycle:</b></p> <p>i. Wait until discharge of water or steam into reservoir has stopped.<br/>                     ii. Switch 'off' power and wait approximately 10 seconds.<br/>                     iii. Push and hold-in any one of the four programme selection buttons and, at the same time, switch 'on' power.<br/>                     iv. Release programme selection button as soon as 'LS3' appears.<br/>                     v. Select required programme to re-start cycle.</p> |
| <b>ERR2</b><br>(+ audible signal)                                     | Door switch faulty or maladjusted.                           | <p>a. <b>To re-start cycle</b> see remedy for <b>ELECT</b>.<br/>                     b. If 'ERR2' persists call an Eschmann trained engineer.</p>  |
| <b>LoH2O</b><br>(+ audible signal)                                    | Insufficient water in reservoir                              | <p><b>WARNING: Do Not Open Door</b></p> <p>a. For safety reasons, switch 'off' power.<br/>                     b. Check water level in reservoir is above 'MIN' mark.<br/> <b>If water is above the 'MIN' mark, do not fill to 'MAX' mark during a cycle.</b><br/>                     c. <b>To re-start cycle</b> see remedy for <b>ELECT</b>.<br/>                     d. If 'LoH2O' persists call an Eschmann trained engineer.</p>   |
| <b>ERR3</b>   | Water failed to enter chamber from reservoir                 | <p><b>WARNING: Do Not Open Door</b></p> <p>a. Allow unit to cool, there may be hot water in the chamber.<br/> <b>To re-start cycle</b> see remedy for <b>ELECT</b>.<br/>                     b. If these errors persist call an Eschmann trained engineer.</p>   |
| <b>ERR4</b><br>(+ audible signal)                                     | Water level in chamber has dropped slightly.                 | <p>a. Wait for any discharge of water or steam into reservoir to cease.<br/>                     b. Switch 'off' power and carry out water level check, as for 'LoH2O'.<br/>                     c. <b>To re-start cycle</b> see remedy for <b>ELECT</b>.<br/>                     d. If 'H2O' persists call an Eschmann trained engineer.</p>   |
| <b>ERR5</b><br>(+ audible signal)                                     | Heater not working   | <p>a. Check RESET button (see para 28).<br/>                     b. If 'ERR5' persists call an Eschmann trained engineer.</p>  |
| <b>ERR6,7,8,9</b><br><b>ERR8</b><br><b>ERR9</b><br>(+ audible signal) | Temperatures outside pre-programmed limits for sterilization | <p>a. Allow unit to cool. <b>To re-start cycle</b> see remedy for <b>ELECT</b>.<br/>                     b. If these errors persist call an Eschmann trained engineer.</p>   |
| <b>door/tEst</b><br>Flashing alternately                              | Door closed with power on.                                   | <p>a. Leave door open slightly when not in use before removing power.</p>  |

## OPERATING INSTRUCTIONS FOR PRINTER

### Printer Output

The printer output gives the following information:

|                         |   |
|-------------------------|---|
| ★ Manufacturer's name   | Eschmann Equipment  |
| ★ Machine type          | SES Little Sister 3   |
| ★ Serial number         | Alpha numeric code  |
| ★ Cycle type            | e.g. 134°C no drying  |
| ★ Time and date started | hh:mm:ss on dd:mm:yy  |
| ★ Counter reading       | Five digits with leading zeros  |
| ★ Time/temp information | Time every 22 secs<br>(approx.) + temp. + graph<br>of temperature.    |
| ★ Cycle ended message   | The 'cycle end' is defined<br>as the end of the<br>sterilizing phase. |
| ★ Time and date ended   | hh:mm:ss on dd:mm:yy  |

If an error occurs during the cycle, it is recorded with date and time on the printout and the message 'CYCLE FAILED'. Errors are designated by error codes as follows:

- ERR1 - Faulty temperature sensor/channel detected ('ELECT' on display)
- ERR2 - Door open during cycle
- ERR3 - Chamber did not fill with water
- ERR4 - Water loss early in cycle
- ERR5 - No heat
- ERR6 - Control temperature low
- ERR7 - Control temperature high
- ERR8 - Monitor temperature low
- ERR9 - Monitor temperature high

These error codes will generally require investigation by an Eschmann trained engineer.

### Front Panel Controls

All controls for the printer are on the front of the panel.

- a. Door Latch Button - To open door (Fig. 7,1) push the door latch (Fig. 7, 2) sideways, in the direction of arrow, and pull the door open to expose paper roll (Fig. 7,4).
- b. Paper Feed Button - Ensure the sterilizer mains 'on/off' switch is in the 'I' (on) position. Press lower part of paper feed button (Fig. 7,3) to activate paper feed, which will continue for as long as the button is depressed.

### Paper Roll Renewal

**CAUTION:**  
**DO NOT USE ALTERNATIVE PAPER ROLLS**  
The quality and size of paper rolls used in the printer, can only be supplied by Eschmann Equipment.

Renew paper roll as follows:

- a. Open autoclave chamber door to provide more access.
- b. Push door latch button (Fig. 7,2) sideways, in direction of arrow and pull door open to expose paper roll (Fig. 7,4).
- c. If any paper remains in the printer, tear end off against paper tear bar (Fig. 7,8) and carefully withdraw the remaining paper backwards from the rear of printer mechanism (Fig. 7,5).
- d. Compress paper roll spring-loaded retainer button (Fig. 7,6) and withdraw empty paper spool from spindle.
- e. Take new roll of paper, separate paper end from the roll. Remove any damaged or gummed part of the paper.
- f. Compress paper roll spring-loaded retainer button (Fig. 7,6) and locate new paper roll on spindle with paper unrolling counter-clockwise as seen from open end of spindle (Fig 7).
- g. Using scissors, trim end of paper roll at an angle of approximately 30° (Fig. 8) and insert this end of the paper into the paper insert slot (Fig. 8, 1). Press paper feed actuator arm (Fig. 7,7) until mechanism grips paper and pulls it through to front of printer door.
- h. Turn paper roll by hand to take up any slack paper
- i. Close the printer door. Check paper feed by pressing paper feed button (Fig. 7,3) until the end of the trimmed paper is clear of the tear bar. Ensure that the paper feeds freely from the printer.

### Ribbon Cartridge Renewal

Renew ribbon cartridge as follows:

- a. Remove paper roll.
- b. Support door with left hand and press upwards with right hand on bottom of printer mechanism chassis (Fig. 9) and separate chassis from door.

**CAUTION:**  
**Do not pull printer mechanism chassis from door until catch has been released.**

- c. Leaving printer door fully open, expose printer mechanism and ribbon cartridge (Fig. 10,1).
- d. Pinch the end of ribbon cartridge marked 'PUSH' (Fig. 10,1) and remove cartridge.
- e. Install new cartridge, checking that left hand side of cartridge is correctly located on drive shaft, and CAREFULLY press cartridge into place.
- f. Ensure ribbon is taut. If necessary tighten ribbon by turning faceted disc (Fig. 10,2) on cartridge, clockwise, using finger or fingernail.
- g. Fit paper roll as described above.

### Spares Pack

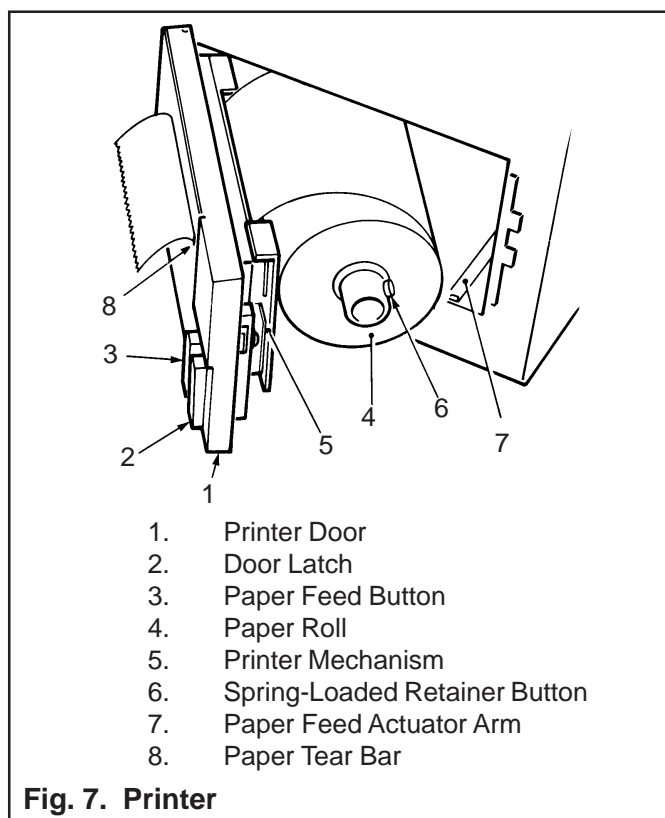
A spares pack is available comprising:

- ★ Five paper rolls
- ★ Two ribbon cartridges

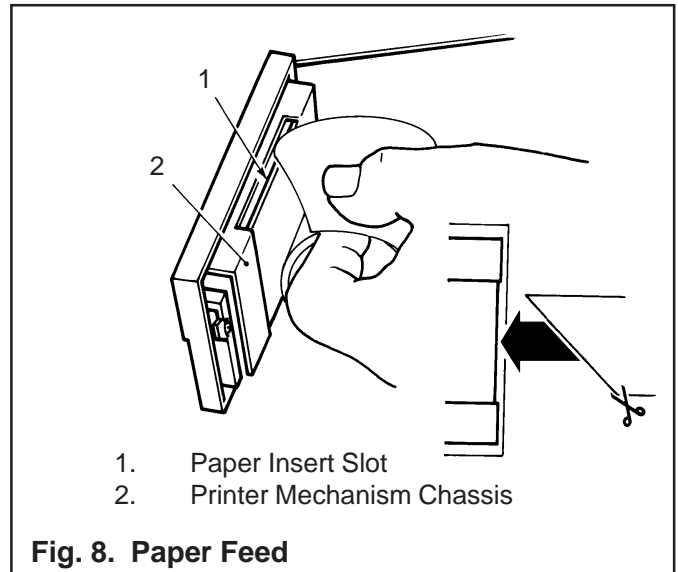
The spares pack is available from Eschmann Equipment under catalogue number 87-034-05.

### Setting Date and Time

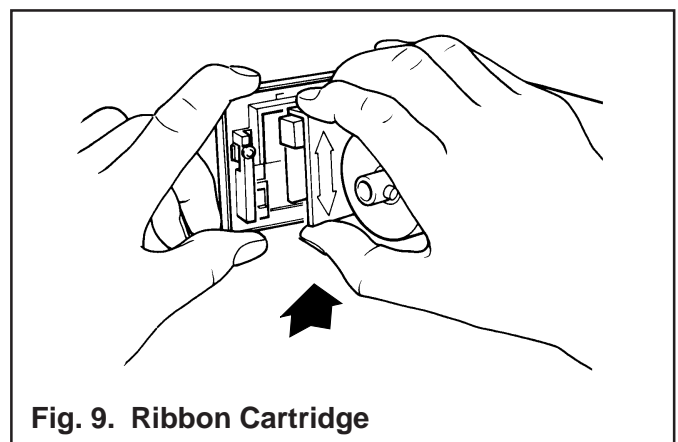
1. To change the clock setting (e.g. from GMT to BST or the reverse) proceed as follows:
  - a. Select mains 'on/off switch to '0' (off).
  - b. Refer to Fig. 11, push and hold down buttons SW1 and SW4 simultaneously then select 'on/off' switch to '1' (on).
  - c. The display will read '01'.
  - d. Then proceed as described in paragraph 2 (a) to (g).
2. To set the date and time proceed as
  - a. If closed, open chamber door.
  - b. Display reads '01'. Push and hold down button SW1 (Fig.11). Observe that number changes to 02,03 etc. through to 12. Also note that pushing and holding SW2 makes the number decrease. Use SW1 and SW2 to set the number corresponding to the month (01=January etc.). Push SW3 to retain selection.
  - c. Display reads 'dy01'. Again use SW1 and/or SW2 to display the day of the month (push SW3 to retain the day).  
Note: The computer will prevent entry of dates such as 31st November.
  - d. Display reads 'yr00'. Use SW1/SW2 to set any year from 00 to 99 e.g. 97. Then push SW3 to retain it.
  - e. Display reads 'hr00'. Use SW1/SW2 to set the hour - the system utilises a 24 hour clock. Push SW3 to retain.
  - f. Display reads 'in00' (minutes). Use SW1/SW2 to show current minutes and push SW3 to retain it.
  - g. The clock is now set.



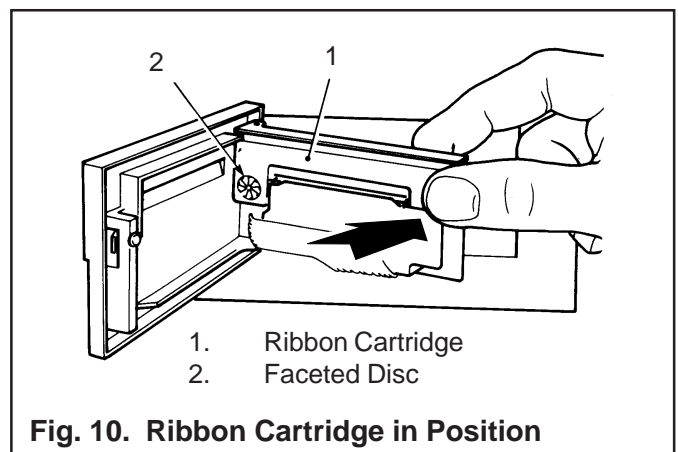
**Fig. 7. Printer**



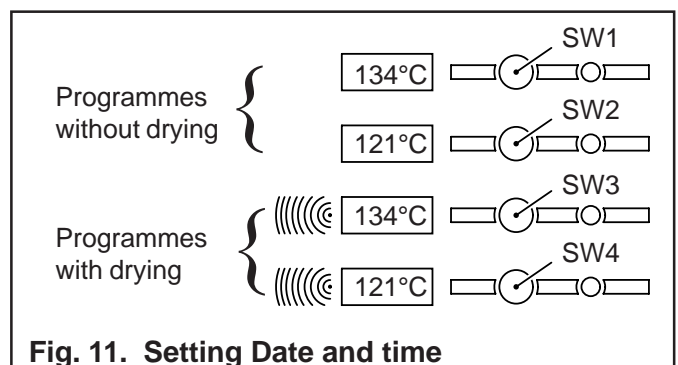
**Fig. 8. Paper Feed**



**Fig. 9. Ribbon Cartridge**



**Fig. 10. Ribbon Cartridge in Position**



**Fig. 11. Setting Date and time**

## **TECHNICAL DATA**

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### ***ELECTRICAL***

---

#### *Supply*

---

220V/230V,  
50/60 Hz a.c.

~ For use with alternating current

#### *Loading*

---

| <b>Volts</b> | <b>Standard</b> | <b>Long</b> |
|--------------|-----------------|-------------|
| 220V         | 1.9kW           | 2.4kW       |
| 230V         | 2.0kW           | 2.6kW       |

#### *Fuses*

---

**Standard** 220V - 13A (Pt.No.380002) (x2)  
230V - 10A (Pt.No.380003) (x2)

**Long** 230V - 15A (Pt.No.301871) (x2)  
220V - 15A (Pt.No.301871) (x2)

**All versions** F400mA (Pt.No.696181) (x1)

### **SAFETY STANDARDS**

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IEC 1010-1 (1990) - Standard version only  
IEC 601-1 (1977) BS5724:Part 1 (1979)  
ESCHLE (Second Edition 1986)  
EN 61010-1 (1993) inc. Amendment 2 (1995)  
EN 61010-2-041 (1996)

### **STERILIZING**

---

#### *Time*

---

At 134/137°C - 3min 20sec  
At 121/124°C - 15min

#### *Typical overall cycle times without drying at 2kW*

---

134°C - 13min  
121°C - 24min

#### *Drying time when selected*

---

up to 17 minutes after sterilizing cycle

#### *Operating pressure*

---

137°C - 2.32 bar  
134°C - 2.03 bar  
124°C - 1.25 bar  
121°C - 1.03 bar

#### *Maximum Load per Tray*

---

1.5kg Standard      3.5kg Long

### **WATER RESERVOIR**

---

Capacity 2.0 litre

### **WEIGHT (approx.)**

---

|                 |                 |             |
|-----------------|-----------------|-------------|
| <b>Net</b>      | 27.5kg Standard | 35.5kg Long |
| <b>Shipping</b> | 32.0kg Standard | 40.0kg Long |

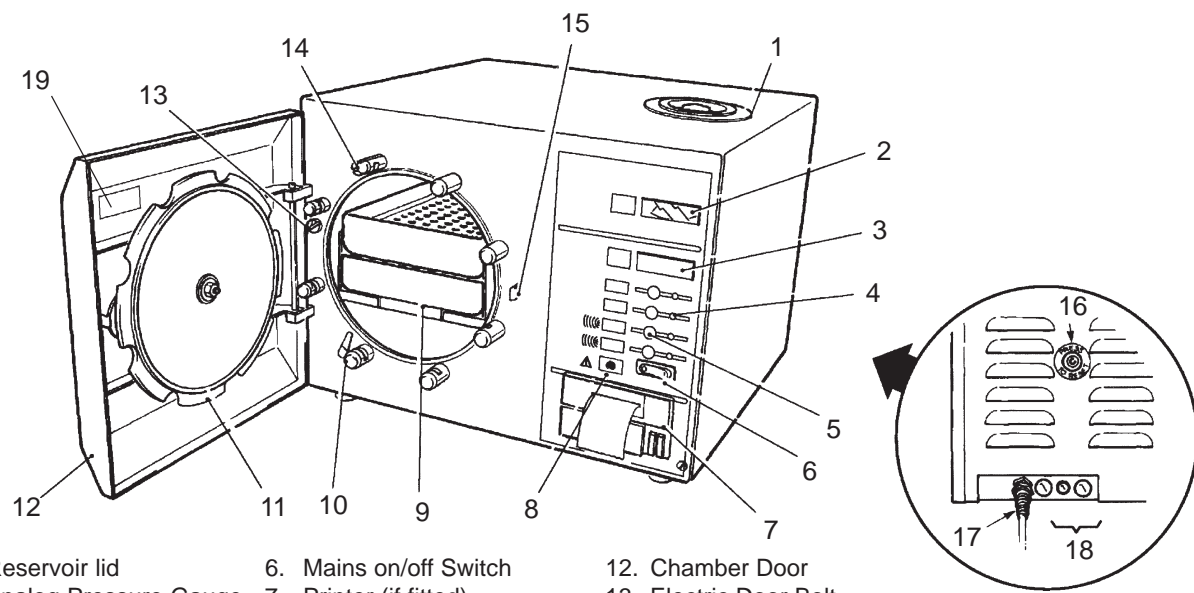


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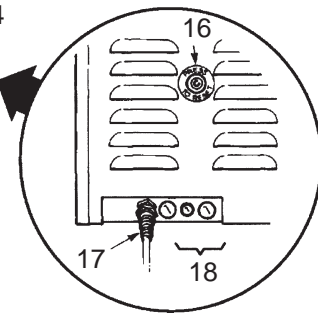
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READING THE TEXT.**

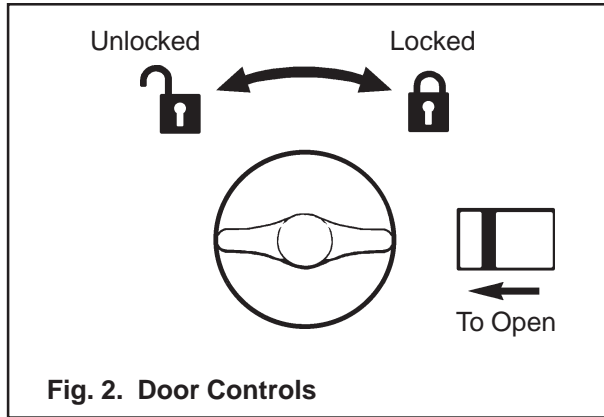
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ILLUSTRATIONS**



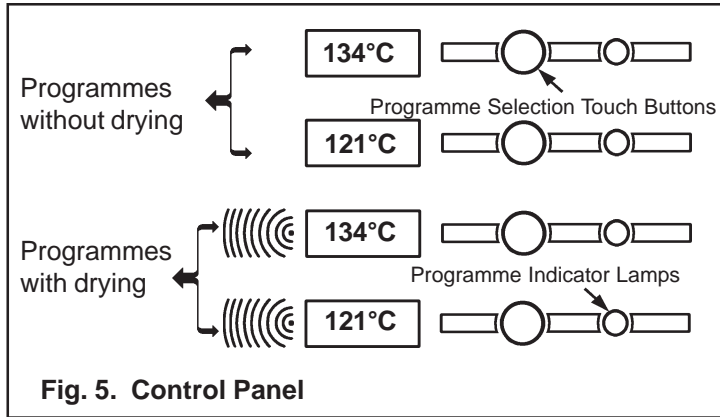
- |                                      |   |                           |
|--------------------------------------|---|---------------------------|
| 1. Reservoir lid                     | 6. Mains on/off Switch                          | 12. Chamber Door          |
| 2. Analog Pressure Gauge             | 7. Printer (if fitted)                          | 13. Electric Door Bolt    |
| 3. Display Window                    | 8. Overheat Warning Lamp                        | 14. Pressure Door Bolt    |
| 4. Programme Indicator Lamps         | 9. Sterilising Trays (4 on Standard, 2 on Long) | 15. Door Safety Catch     |
| 5. Programme Selection Touch Buttons | 10. Door Interlock Switch                       | 16. Overheat Reset Button |
|                                      | 11. Door Seal                                   | 17. Power Supply Cable    |
|                                      |   | 18. Fuses                 |
|                                      |   | 19. Serial Number Plate   |



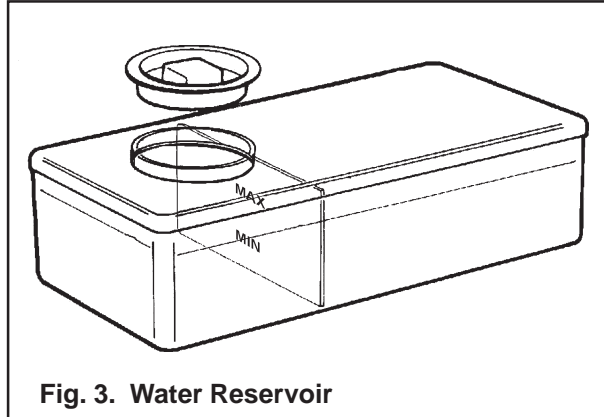
**Fig. 1. Little Sister 3 Autoclave (Long Version + Printer)**



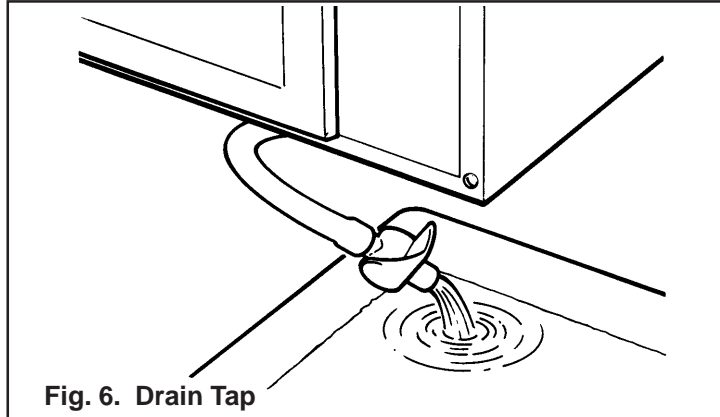
**Fig. 2. Door Controls**



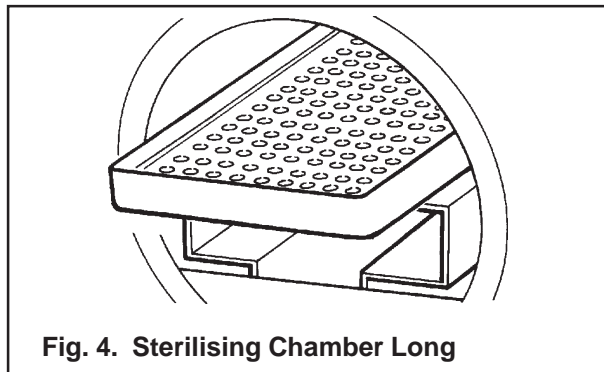
**Fig. 5. Control Panel**



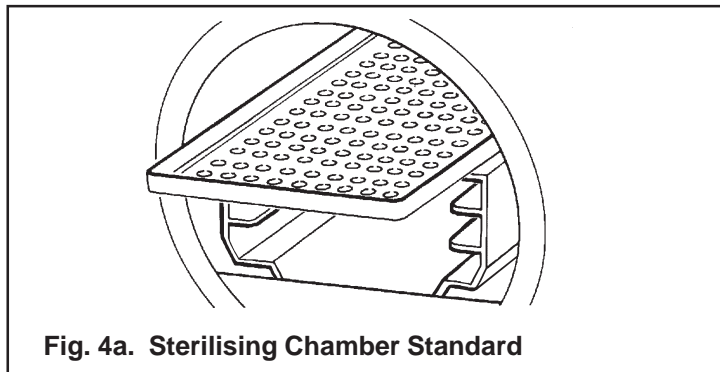
**Fig. 3. Water Reservoir**



**Fig. 6. Drain Tap**



**Fig. 4. Sterilising Chamber Long**



**Fig. 4a. Sterilising Chamber Standard**