

**2. EXACTA (EX)**









# NOTES

A series of horizontal dashed lines for writing notes.



## Pre-Installation Checklist—Exacta

Please complete checklist and fax back to STS Health on (08) 9244 4639 so that our Technician can customise your installation appropriately

Practice Name: \_\_\_\_\_

Contact Name for Installation: \_\_\_\_\_

**Practice Access:**

- Y / N (circle) Is there access for a wheeled trolley, ie. Ramp or flat access—no stairs? If only access is via stairs, please circle N and we will make allowances.

**Steriliser Location:**

- Bench height is suitable (between 70 and 110cm from floor)
- Bench depth is sufficient (see diagrams). If bench depth is insufficient, a bench extension board is required—order form overleaf (Note: this is permanently fixed to existing bench top)
- Sufficient space for the steriliser height and width (diagram 1) (include allowance for 2.5cm bench extension board height if required)
- Power point within 100cm of proposed steriliser location.

**Supply Water** (if using bottled water):

- Space for supply water bottle next to steriliser or in cupboard below (allow approximately 20cm width x 30cm height x 25cm depth)

**Waste Water:**

- Steriliser is located close enough to sink (maximum 150cm distance along same side of room as sink)

OR

- Space for waste water bottle next to steriliser or in cupboard below (allow approximately 20cm width x 30cm height x 25cm depth)

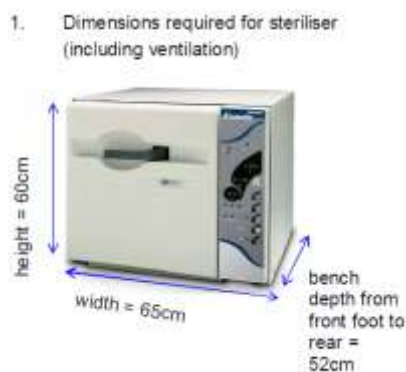
**What you need to do on the day of Installation:**

- Have your steriliser operator available for training—allow 20 minutes.

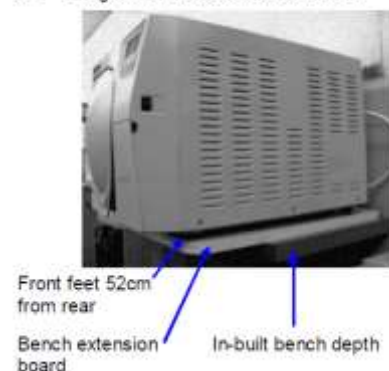
Name: \_\_\_\_\_

- If a Performance Qualification has been booked with installation, please prepare your largest, most complex sterilising load for the technician to test your steriliser

Please contact our Service Coordinator for further information if required (ph. 9244 4628 or email [service@stshealth.com.au](mailto:service@stshealth.com.au))



2. Diagram of bench extension board





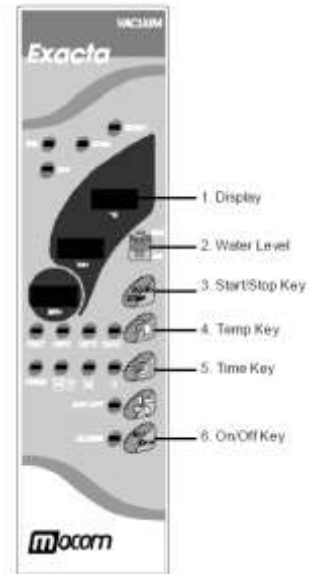


## EASY START Operators Guide EXACTA

### Installation & Machine Turn On

#### (Installation Recommended by Authorised Service Agent)

- Position unit on a level sturdy bench allowing minimum 50mm ventilation at rear.
- Connect power cord, found in the box, to socket on rear left bottom of back panel. Route the rear waste water tubing to a sink nearby or waste bottle located lower than the steriliser (must allow gravity fall).
- Connect printer via cable to sockets located at bottom of control panel and rear of printer. Ensure correct orientation of connector.
- Turn power on at wall socket.
- Power on unit using the green switch on the lower bottom side of the control panel.
- Press the On/Off (6) key once to engage display panel.
- **Warning** The chamber will immediately begin to pre-heat. Do not leave the machine unattended proceed with the following step immediately.
- The unit will now equalise internal/external pressures if necessary.
- Open door when display reads **0.00 bar** in the pressure window on display (1). Remove the tray and fill bottle kit.
- Using high quality distilled water (conductivity <15Us/cm) top up the fill bottle, connect the flexible hose/fitting to the upper inlet point and stand bottle upright atop the unit to fill the internal reservoir. Ensure lid is loose to enable water flow.
- The **FULL** alarm will sound and a green indicator (2) will be light on the control panel.
- Remove bottle from the top of unit to a height below the hose fitting. To remove hose press the top tab of inlet fitting to release hose fitting.
- Unit is ready for use.



### Start

- Place load on tray/s, close door firmly using black handle, unit will acknowledge closed door by alarm beep.
- Select cycle temperature 121 or 134 C using the Temperature (4) key.
- Select load/cycle type using the Time (5) key.
- Press Start/Stop (3) key once to start cycle.
- The unit will begin to preheat to 104 C on Temperature Display (1) then cycle will commence. Printer will begin cycle printout.

### Stop or Abort Cycle

- To stop cycle at any time press and hold for three seconds the Start/Stop (3) key on control panel. Alarm will sound several beeps, wait for **END** to be displayed (1) and several more beeps.
- Open using black handle.
- Reset Alarm F3 (Manual Stop) by pressing On/Off (6) key once.
- To repeat cycle, follow steps as highlighted.










### Machine Turn Off

- At end of use, leave door ajar, switch off using green switch.

**NB: During operation do not try and anticipate the autoclave wait for the correct prompt from the LCD display and respond with the correct key press.**



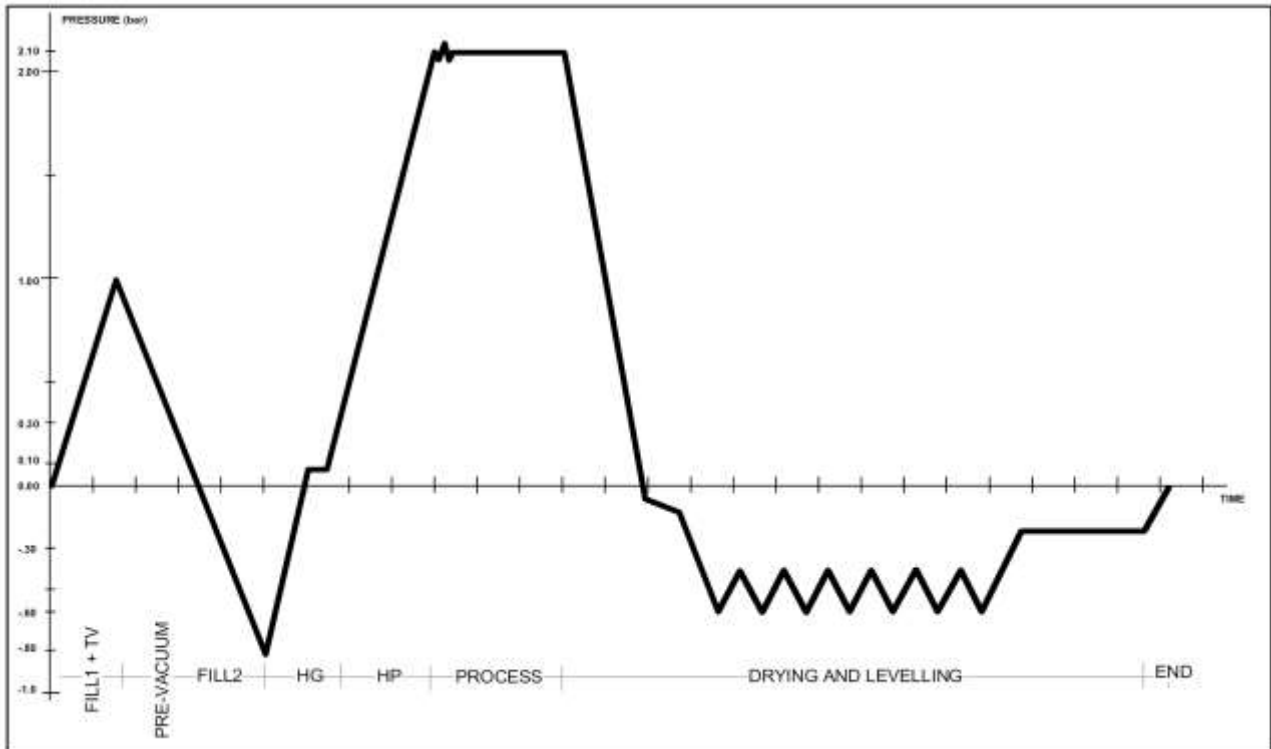
## OVERVIEW OF THE AVAILABLE PROGRAMMES

TYPE	NOMINAL VALUES			ADDITIONAL DATA		AUTOCLAVABLE MATERIAL	
	Temperature (°C)	Pressure (bar)	Process time (min)	Total cycle time (load 1/2 ÷ max)	H2O consumption (l / cycle)		
<b>STERILIZATION CYCLES</b>	134°C 	134	2,10	4	35' ÷ 37'	0,25	Metallic Instruments Glass articles
	134°C 	134	2,10	12	45' ÷ 47'	0,25	Wrapped instruments Textile Gauzes, tampons
	134°C 	134	2,10	12	55' ÷ 57'	0,25	Liquids
	121°C 	121	1,08	20	49' ÷ 51'	0,25	Dynamic instruments Heat-proof rubber or plastic articles
	121°C 	121	1,08	30	59' ÷ 61'	0,25	Wrapped dynamic instruments Wrapped rubber or plastic articles
	121°C 	121	1,08	30	69' ÷ 71'	0,25	Liquids (boiling-point next to 100°C)
	FAST	134	2,10	4	20' ÷ 22'	0,25	Metallic Instruments Glass articles
<b>DISINFECTING CYCLES</b>	105°C 	105	0,2	20	50'	0,25	Optical fiber dynamic instruments Terminals of polymerizing lamps
	105°C 	105	0,2	30	60'	0,25	Wrapped optical fiber dynamic instruments Wrapped terminals of polymerizing lamps
	105°C 	105	0,2	30	65'	0,25	Liquids
<b>CUSTOM CYCLE</b>	PROG.	134 ÷ 105	2,10 ÷ 0,2	Max 99'	-	-	Depending on the parameters set
<b>VACUUM TEST</b>	-	-0,7	Var.	10'	n.a.		

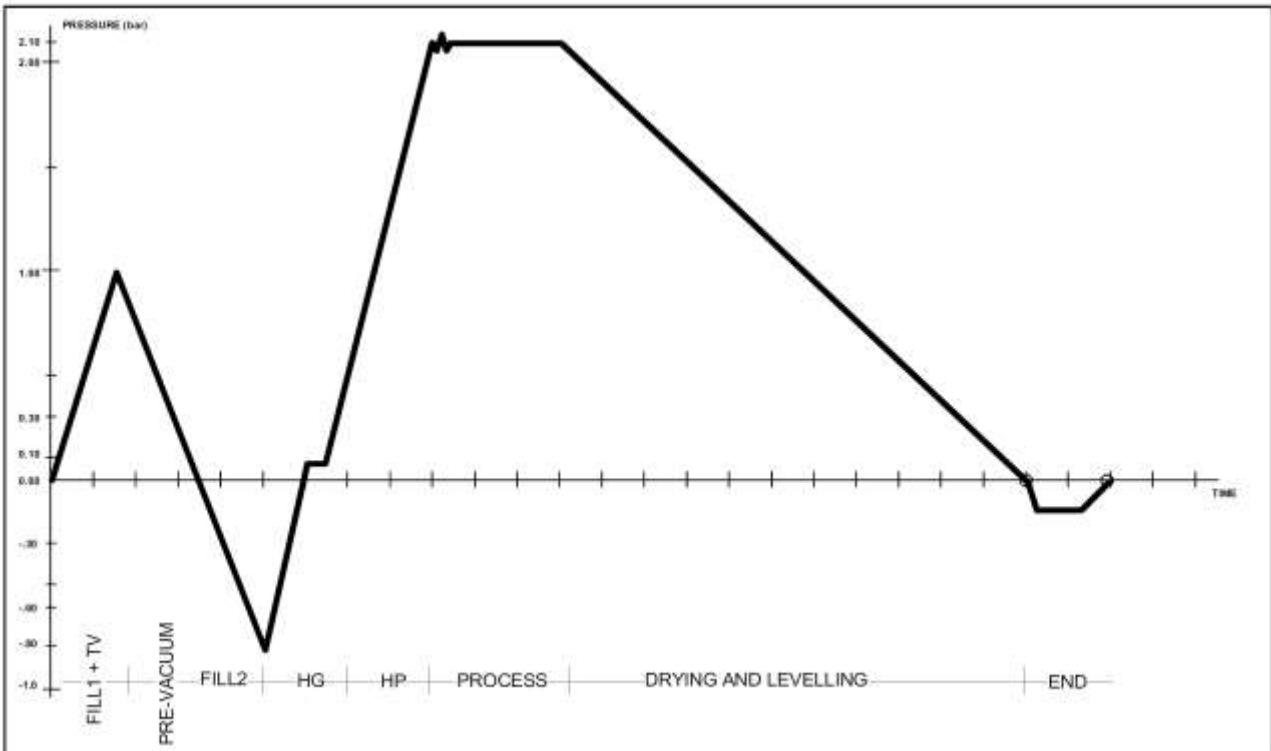


## DIAGRAMS OF THE STERILIZATION PROGRAMS

### Cycles for wrapped and unwrapped material



### Cycle for liquids



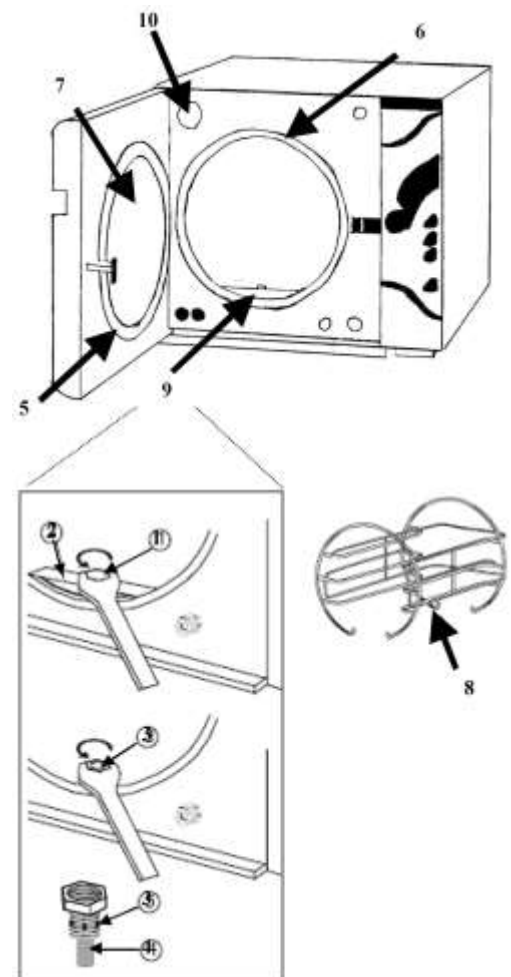
## EASY MAINTENANCE Operator Guide

### PRIMA / EXACTA / EXTREMA PLUS

<b>Daily</b>	<p><b>Clean the ‘rubber’ chamber seal (6) and perimeter of door plate (5) against which the rubber seal sits.</b> Use a clean soft lint free cloth (not paper) with mild detergent and warm water. Clean any debris and rinse well to remove any detergent residue. Dry the surfaces.</p> <p>Only if stubborn build-up is present on perimeter of door plate, use a nylon scourer (eg. green Scotchbrite pad). Rinse well to remove any residue. Dry the surfaces.</p>
<b>Weekly</b>	<p><b>Clean the chamber rack (8), inner chamber, door plate (7), and trays.</b> Remove the trays and chamber rack from the chamber. Clean as above, rinse to remove any residue and dry all surfaces.</p> <p><b>Clean the outer surfaces.</b> Clean, rinse, removing any residue and dry.</p>
<b>Monthly</b>	<p><b>Clean the mesh filter or replace if necessary.</b> Open the door of the steriliser and locate the chamber filter (9). Using a 14mm spanner (tool available; see parts below), remove the filter nut (1) and dam plate (2). Using the spanner, carefully unscrew the filter holder (3) and take the mesh filter (4) out of the holder (this is a tight fit).</p> <p>Clean the mesh filter under running water. If necessary use a pointed tool to remove fluff and lint from inside. If necessary use a wire brush to remove build-up on the outside.</p> <p>If the mesh filter cannot be cleaned acceptably, replace with a new one (2MOC-0042).</p> <p>Replace the mesh filter in the filter holder and screw tightly back into position. Replace dam plate and nut.</p>
<b>As Needed</b>	<p>The chamber seal, bacterial filter and external printer paper and ribbon need to be replaced periodically. The frequency depends on usage. These items can be ordered from your local Mocom service company (check our website for your local agent at <a href="http://www.stshealth.com.au">www.stshealth.com.au</a>).</p>

**Key:**

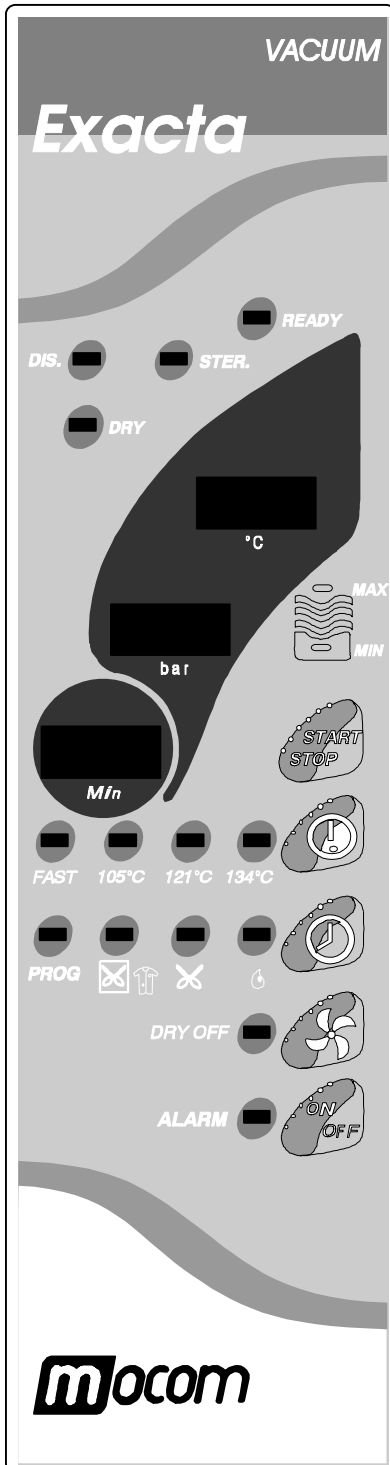
1. Filter nut
2. Dam plate
3. Filter holder
4. Mesh filter
5. Perimeter of door plate
6. ‘Rubber’ chamber seal
7. Door plate
8. Chamber rack
9. Chamber filter
10. Bacterial filter (not on Prima)



#### Useful Part Numbers

2MOC-0010	Grey Rubber Door Seal (PR/EX/XP)
2MOC-0020	White Bacterial Disk Filter (all Mocom models)
2MOC-0042	Chamber Mesh Filter

## MOCOM EXACTA PROCEDURE TO RESET DATE AND TIME



This is a 24-hour clock format.

Unit must be on, use side main switch.

Display must be on, use on/off key.

Press both at once, the following keys to access date/time mode.

“Dry off” and “stop/start” keys.

View the minute window, the second’s count will now be shown, if not repeat the process.

The fields are listed as follows;

Seconds

Minutes

Hours

Day

Month

Year

Then returns to seconds again.

If you get lost, use stop/start key to return to seconds.

To change to the next field press stop/start once.

To adjust the values up or down use either of the two keys below stop/start keys.

When complete press the on/off key once.

## EXACTA (EX) SERVICE SCHEDULE

1.  **Electrical safety check, cord check, then \*DISCONNECT POWER CORD\***

### 2. FRONT

- Remove Check/clean/replace door seal – clean Door seal groove**
- Remove / check / replace clean chamber filter, holder and dam seal**
- Clean chamber and PT1 if necessary, Remove Debris – Discuss
- Bact filter – Check / Replace**
- Portlight – Clean, Check for free swivel**
- Lubricate door lock mech**
- Check closing tension (via feel)**
- Check Door spring tension (via feel) Replace if necessary. Check door handle security. Check “door closed” switch operation.**
- Inspect Bulkhead fittings, Lubricate manual fill nozzle o-ring and insert.

### 3. RHS

- Check both reservoirs open / Inspect and Clean / Flush.**
- Check for Splits, Cracks and Hose condition. Check inline filter condition.**
- Remove, Check and Clean EV1 and EVP1
- Visual check Vac Pump and Condensor for signs of leaks**
- Inspect Main switch for smooth operation and signs of stress**
- Check bottom Phoenix Power connector CN6 for heat stress, add conductive paste if necessary**
- Check / Replace element fuse holder (look for charring) F3**
- Check / Replace Control fuse F2 Upgrade to 2A**
- Remove CN4 Phoenix connector, add Conductive paste to top 3 probe pins**
- Add 1M Ohm resistor between “C” and “MI” Terminals if there is a history of fill level indication problems. ( Low and High indication at same time )
- Check that the software is 1.31 or higher (Software is chargeable)
- Check / Clean MPX board connections
- General check of command panel / membrane, check for evidence water corrosion

### 4. REAR

- Check / Clean condensor and fan unit
- Check inlet socket condition and IEC plug for condition**
- Check / Replace incoming fuses / Holders and wiring**

### 5. LHS

- General check wiring and element connector**
- Check Coil of EV3 for Heat stress,**
- Check inline air filter for signs of moisture or heat if so Check / Replace check valve.
- EV2 Remove / Check / Clean.**
- Check base of unit for evidence of Y fitting leaks and PT1 fitting. Remake fittings, remove old evidence for rechecking next time.**
- Check PT2 is secure with Thermal paste and covered with insulation**
- Check Thermal insulation condition, Repair with tape and / or FNI for replacement.
- General Check for hose / clamp / fitting security and condition, check for evidence of leaks / splits**

### 6. FUNCTION TEST

- Check printer ribbon paper and operation, check data cable and connections – fit temporary printer if necessary**
- Turn unit on & set time and date – corrupt time and date indicates faulty clock battery.**
- Check Zero bar value ( 0.00 or -0.01 )**
- Conduct a Vac Test – retain printout**
- Conduct OQ test. Check PRV operation – retain printout**

### 7. FINAL

- Refit covers; reposition unit correctly on bench**
- Check drain hose is free draining**
- Check appropriate cycle is selected - leave the unit ready for use in standby**
- Apply service label; complete Service Report & file original in Steriliser Log Book**
- Discuss report with staff / PM as applicable**



## EXACTA (EX) FAULT CODES

CODE	DISPLAY / PRINTER	TECHNICAL DESCRIPTOR	USER ACTION
A2	HYDR. PROB	Cycle time exceeds 70 mins or unit achieved greater than 4oC above set point during sterilisation	check and clean chamber filter and door seal, check and reset o.t. cut out on rear of unit, rerun
A3	PTC OPEN	Temp probe 1 failure	check and clean chamber filter and door seal, check and reset o.t. cut out on rear of unit, rerun
A4	HEAT. ALARM	In HP Pressure was 0.2 bar outside set point range or during dry 10oC hotter than set point	check and clean chamber filter and door seal, rerun
A5	HYDR. PROB.	HG phase takes longer than 11 minutes	check and clean chamber filter and door seal, check and reset o.t. cut out on rear of unit, rerun
A7	VAC. ALARM	Vacuum alarm. Does not reach -.66 within 8 mins or reaches 149oC during vac stage	check and clean chamber filter and door seal, check and reset o.t. cut out on rear of unit, rerun
F1	DOOR OPEN	Door open alarm	check door is closed properly, ensure handle is pushed back into its closed position
F2	INSUFF. H2O	Insufficient H2O or probe	check water level - refill and retry
F3	MAN STOP	Manual stop	user has stopped the cycle
F5	BLACK OUT	Black out alarm	check power supply, check cord condition and location in the rear, check 2x mains fuses in rear (size is 3ag 8amp)
F6	H2O	Waste tank full	Check that the drain line is free to drain, use manual fill bottle to drain unit from lower drain point.



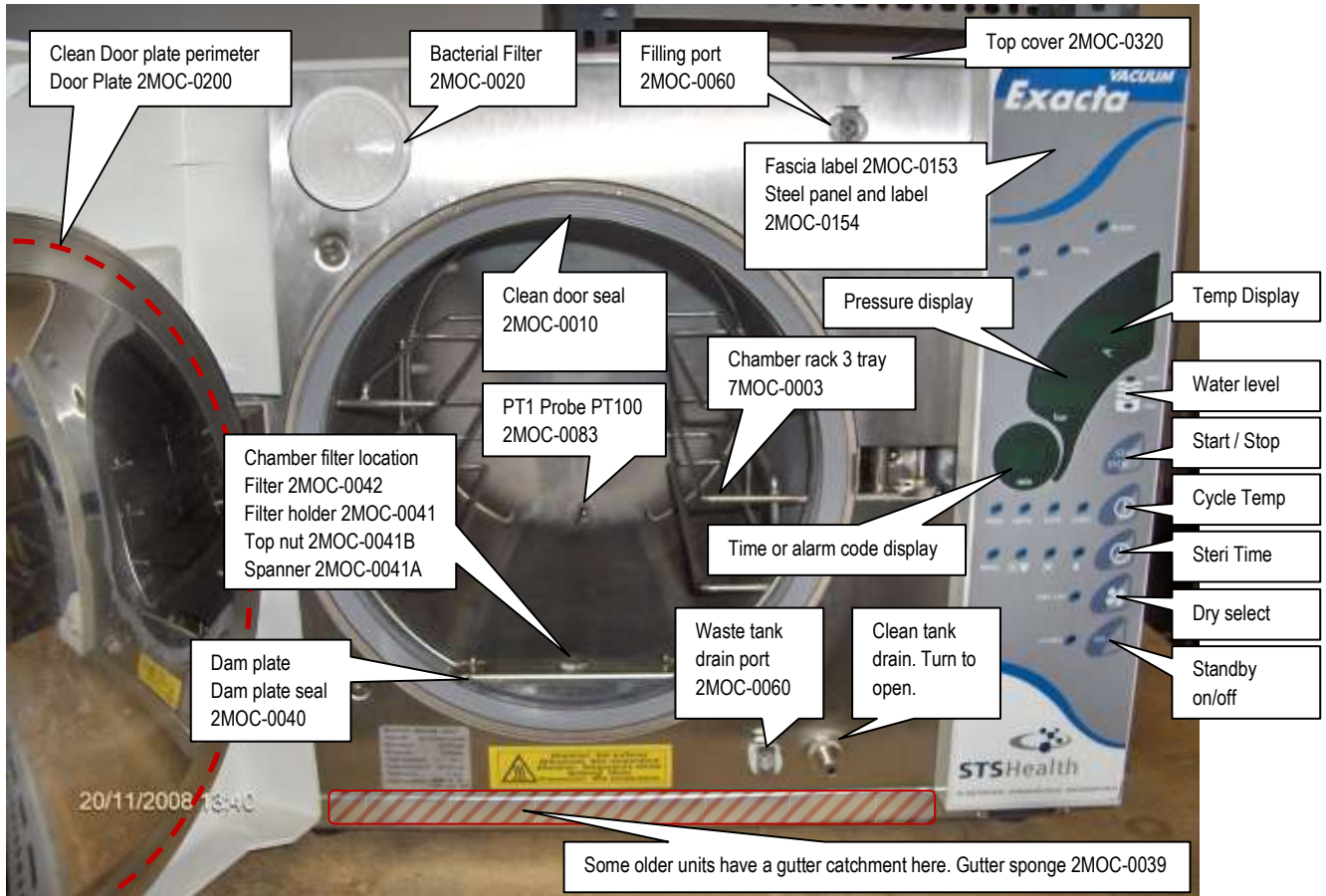
COMPONENT FUNCTION SCHEDULE EXACTA



PHASE	EV1	EV2	EV3	EVWP	WP	EVP1	VP1	HE (Heating Resistor)			Notes
	Filling/Drain	Air Purge	Bact. Filter	Water Injection	Vibration Pump	Steam Suction	Vacuum Pump	Status	Set Point	Ref. Sensor	
<b>OFF</b>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	-	0	
<b>ON</b>	OFF (ON) see note	OFF	OFF	OFF	OFF	OFF	OFF	ON (st-by)	164C 75C	Ts2 (out) Ts1 (in)	EV1 ON if P>0.04 bar EV3 OFF if P>0.04 bar
<b>START</b>	OFF	OFF	ON	ON	ON	OFF	OFF	ON	164C T<Tset	Ts2 (out) Ts1 (in)	
<b>FL (1st water filling)</b>	OFF	OFF	ON	ON	ON	OFF	OFF	ON	164C T<Tset	Ts2 (out) Ts1 (in)	Water injections 7s
<b>TV (therm. vacuum)</b>	OFF (ON) ON=1.00 bar	OFF (ON) ON=1.00 bar	OFF	OFF	OFF	OFF	OFF	ON	164C T<Tset	Ts2 (out) Ts1 (in)	End of this phase when P=1.00 bar or after 60s water injection
<b>PV (pre-vacuum)</b>	ON (OFF) see note	ON (OFF) see note	OFF	OFF	OFF	ON	ON	ON	Tset -10C T<Tset	Ts2 (out) Ts1 (in)	EV2 OFF when P<0.20 bar EV1 OFF when P<0.20 bar
<b>FL (2nd water filling)</b>	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	Tset -10C T<Tset	Ts2 (out) Ts1 (in)	Water injection 29s
<b>HG (heating/air purge)</b>	OFF	OFF (ON) see note	OFF	OFF	OFF	OFF	OFF	ON	Tset +20C T<Tset	Ts2 (out) Ts1 (in)	EV2 ON (start of air purge) when P>0.08bar (OFF after 30s)
<b>HP (pressure rising)</b>	OFF	OFF (ON) see note	OFF	OFF	OFF	OFF	OFF	ON	Tset +30C T<Tset	Ts2 (out) Ts1 (in)	EV2 ON if P>Pmax (0.08 bar over set point)
<b>PROCESS</b>	OFF	OFF (ON) see note	OFF	OFF	OFF	OFF	OFF	ON	T=Tset	Ts2 (out) Ts1 (in)	EV2 ON if P>Pmax (0.08 bar over set point)
<b>d9-...-d0 (drying)</b>	ON (OFF) see note	OFF (ON) see note	OFF (ON) see note	OFF	OFF	OFF(ON) see note	OFF(ON) see note	ON	Tset +20C T<Tset - 5C	Ts2 (out) Ts1 (in)	EV1 OFF if P<0.06 bar EV2 ON P=1.00 bar (OFF if P<0.06) EV3 ON at P=- 0.04bar (for 30s) VP1+EVP1 ON when P>0.08bar
<b>dl (drying liquids)</b>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	-	-	At the end of <b>dl</b> (drying liquids) a short vacuum drying is performed
<b>I2-...-I0 (levelling)</b>	OFF	OFF	ON	OFF	OFF	ON	ON	ON	Tset +20C T<Tset - 5C	Ts2 (out) Ts1 (in)	No levelling phase after <b>dl</b> (drying liquids)
<b>END</b>	OFF (ON) see note	OFF	ON (OFF) see note	OFF	OFF	OFF	OFF	OFF	-	-	EV1 ON if P>0.04bar EV3 OFF if P>0.04bar
<b>OFF</b>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	-	-	

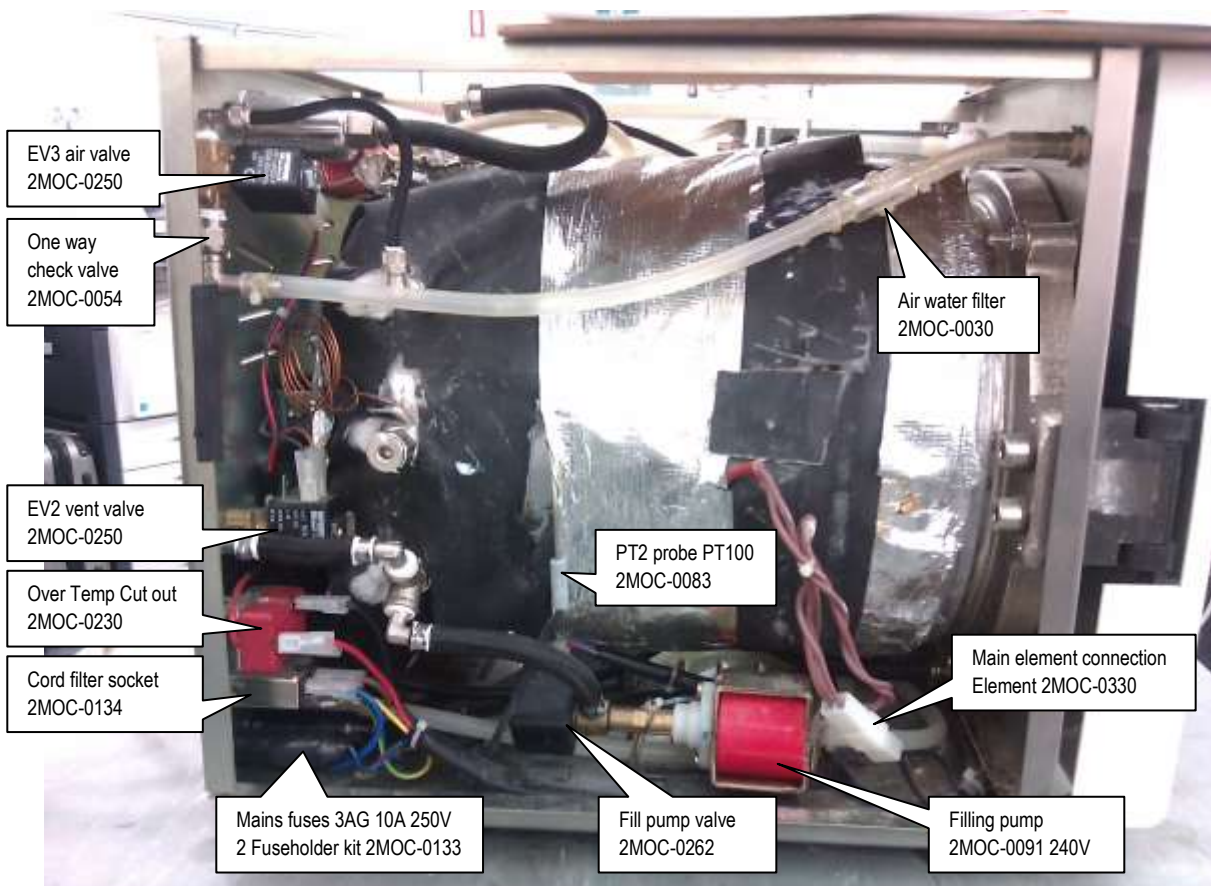
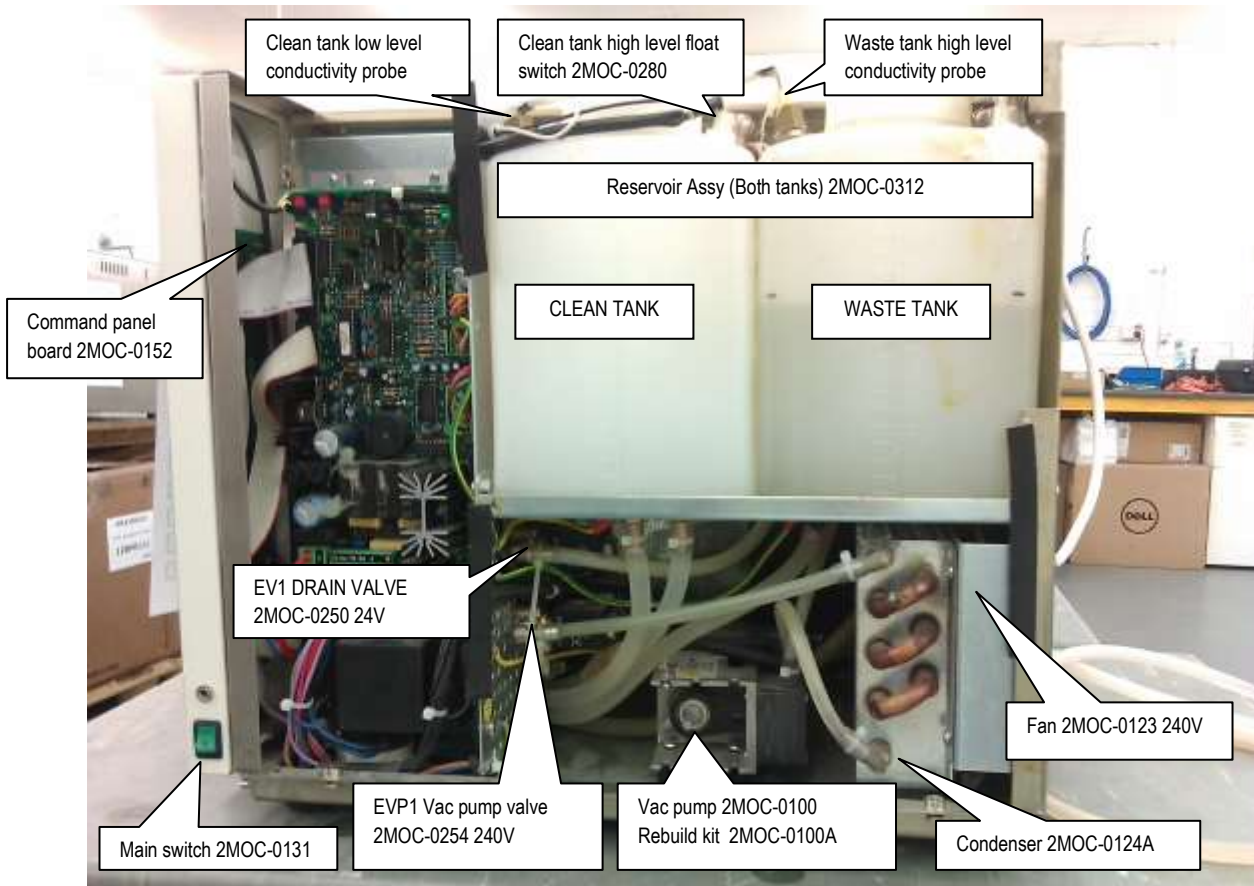


**EXACTA (EX) IDENTIFICATION GUIDE**

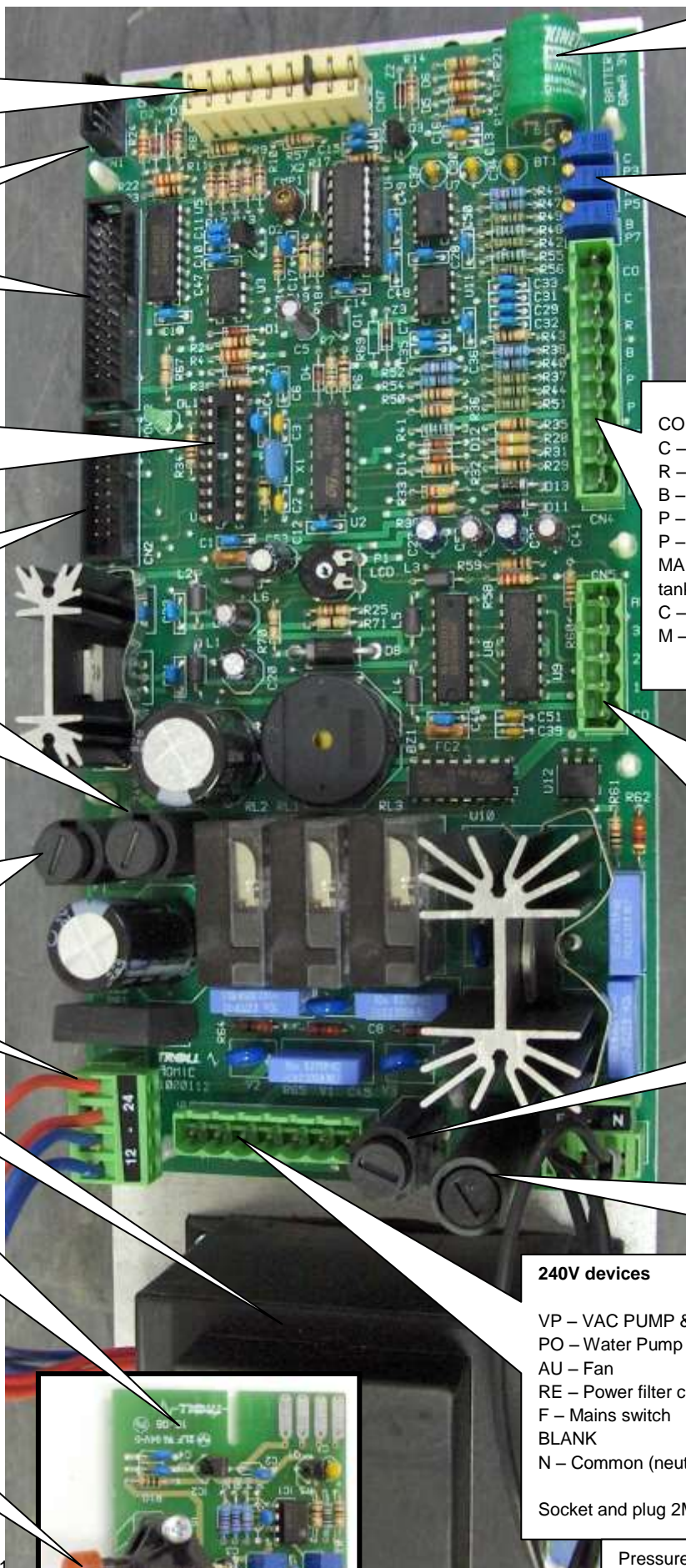




**EXACTA (EX) IDENTIFICATION GUIDE**



**(EX) EXACTA – (PR) PRIMA MAIN BOARD 2MOC-0150**



Pressure board  
plugs here (see  
inset pic below)  
  
2MOC-0151

RS232  
Programming  
  
To Printer outlet

Software chip  
(not supplied)  
  
EXACTA  
2MOC-0156  
VER – 2.32

To Display /  
Command panel

F2 FUSE = M205  
6.3A 250V  
  
24V supply to  
valves etc.

F1 FUSE = M205  
1.6A 250V  
  
12V CPU Control  
power

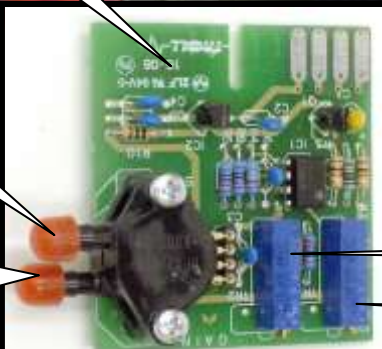
Transformer supply  
24 VAC  
12 VAC

AC Transformer

**Pressure Board  
2MOC-0151**  
Inserted this face  
downward  
(Available  
separately while  
stocks last)

Pressure  
Transducer  
(Remove red cap)  
open to atmosphere

Pressure  
Transducer  
(Remove red cap)  
Pressure input from  
chamber



Clock memory  
battery  
  
2MOC-0157

CALIBRATION  
POTS  
  
TOP = CHAMBER  
PROBE (PT10)  
CENTRE = JACKET  
PROBE (PT2)  
LOWER = UNUSED

CO – Common for probes  
C – Chamber probe PT1  
R – Jacket probe PT2  
B – Max level waste tank  
P – Door switch  
P – Door switch  
MA – Max float level clean  
tank  
C – Common for float switch  
M – Min level clean tank

ELECTROVALVES  
  
AU – BLANK  
E3 – EV3  
E2 – EV2  
E1 – EV1  
  
CO - COMMON

F4 FUSE – M205  
2A 250V  
Transformer

F3 FUSE – 3AG  
10A 250VAC  
  
Jacket Element

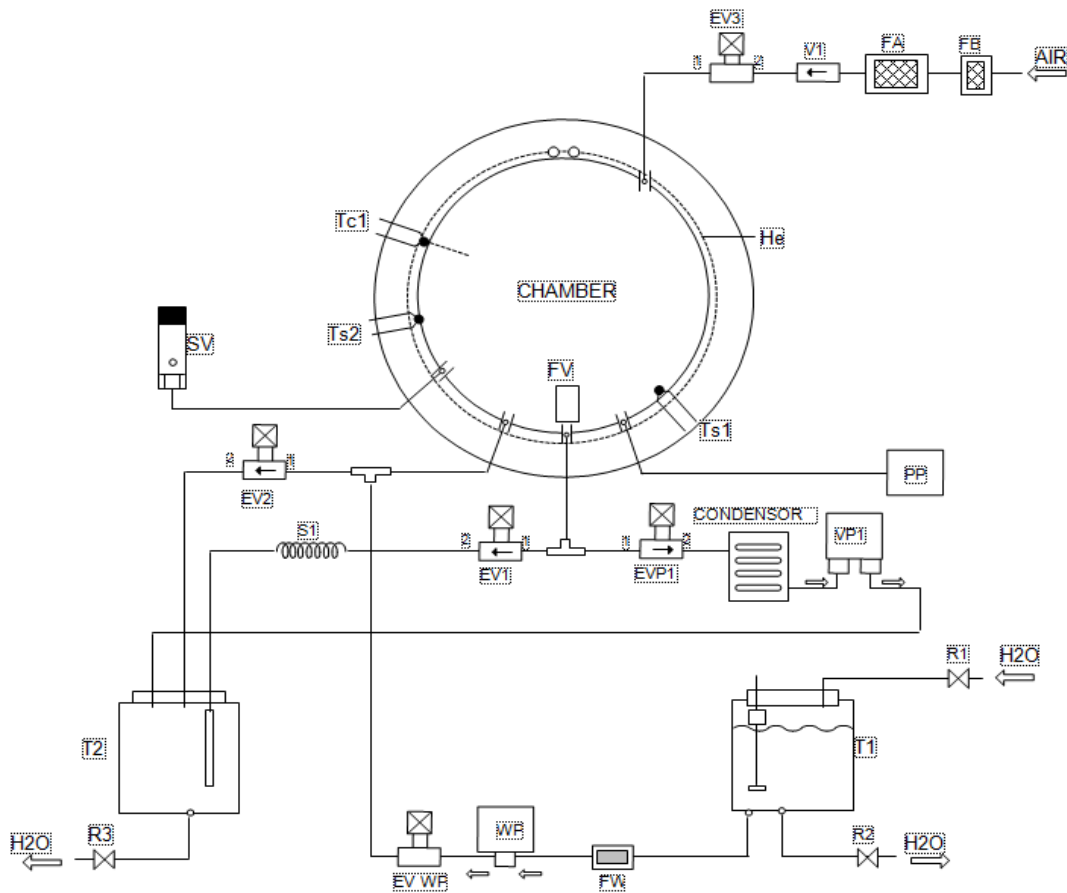
**240V devices**  
  
VP – VAC PUMP & EVP1 (PARALLELED)  
PO – Water Pump  
AU – Fan  
RE – Power filter capacitor  
F – Mains switch  
BLANK  
N – Common (neutral)  
  
Socket and plug 2MOC-0156B

Pressure Calibration POT Span

Pressure Calibration POT Zero



**(EX) EXACTA HYDRAULIC SCHEME**



**LEGEND**

EV1	Electrovalve 24Vdc 2 ways	R2	Distilled water draining point
EV2	Electrovalve 24Vdc 2 ways	R3	Used water draining point
EV3	Electrovalve 24Vdc 2 ways	SINK	Vapour heatsink
EVP1	Pump electrovalve 220Vac 2 ways	S1	Air bleeding coil
EVWP	Water electrovalve 220Vac 2 ways	T1	Distilled water reservoir
FA	Air filter	T2	Used water reservoir
FB	Bacteriologic filter	Tc1	Safety thermostat
FV	Vapour filter	Ts1	Inner temperature probe
FW	Distilled water filter	Ts2	Outer temperature probe
He	Heating resistance	V	One-way valve
PP	Pressure transducer	VP1	Vacuum pump
R1	Distilled water filling point	WP	Distilled water pump



### CONTROLLING ALGORITHM EXACTA

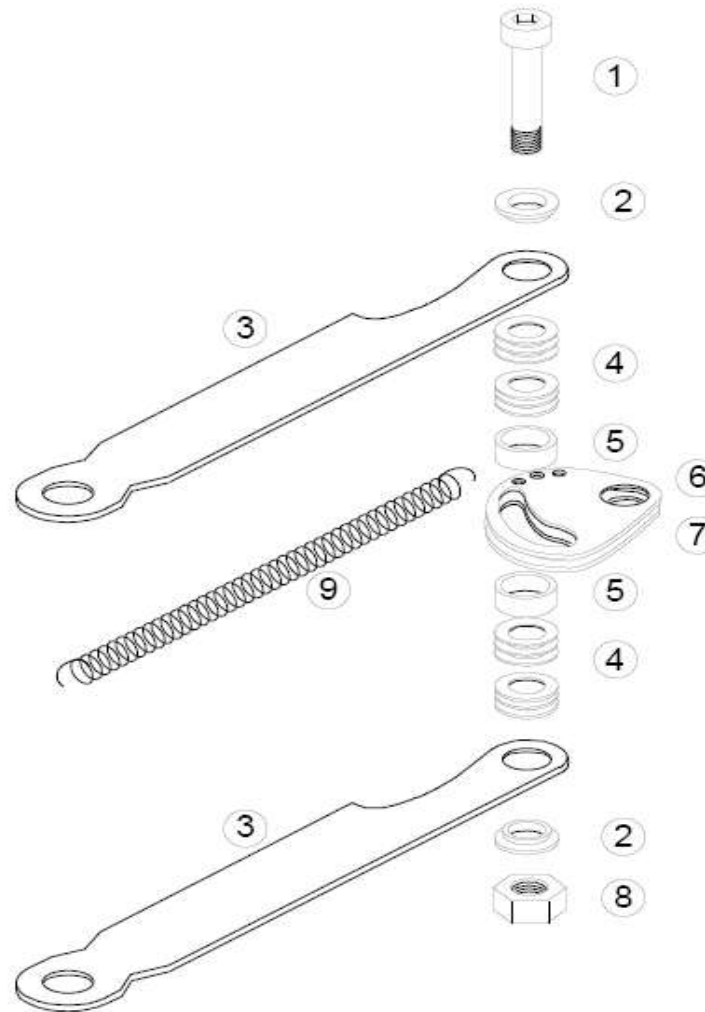
Step	PHASE	DESCRIPTION OF FUNCTIONS	CHECK	RESULT	ALARM	NOTES
1	<b>POWER ON (main switch)</b>	Initialisation of microprocessor, definition of variables, internal setting, initialisation of the printer port	State of the machine at the previous SWITCH OFF: - BLACKOUT - Logic OFF (normal (OFF))	If BLACKOUT then <b>ALARM</b> If Logic OFF then go to step 2	<b>F5 (blackout)</b>	
2	<b>OFF ("soft" key OFF)</b>	Machine powered All functions disabled (OFF)	State of the thermosensors: - Electrical signal of PTC	If electrical signal is uncorrect (thermosensor broken) then <b>ALARM</b> Alarm indication appears only by pressing ST-BY + 1st (or 2nd) key	<b>A3 (PTC open)</b>	It's possible to see the value of the thermosensor (INT, EXT) by pressing ST-BY + [1st key] or [2nd key] If internal PTC is broken, it appears "134" on the temperature display
3	<b>ON ("soft" key ON)</b>	All functions enabled (ON) Indication of cycle selected (P, T, t) STAND-BY mode (ON) Water level indications (min, MAX, none)	State of the led "READY" - led OFF - led ON	Led "READY" <b>OFF</b> if external temperature <b>&lt;154C or</b> internal temperature <b>&lt;75C</b> When the led "READY" is ON the machine is ready to be started	<b>A3 (PTC open)</b>	ST-BY ON If the electrical signal of the PTC is uncorrect (thermosensor broken) an <b>ALARM</b> is generated
4	<b>SELECTION OF CYCLE</b>	All the functions of selection and programming are enabled It is possible to select a programmable cycle with "custom" T, t values	State of the cycle parameters: - DIS. cycle (Disinfection) - STER. Cycle (Sterilisation)	If DIS. cycle is selected the led DIS. is switched ON If STER. cycle is selected the led STER. is switched ON		In the programmable cycle the led DIS. or STER. switch ON depending on the parameters of the cycle selected (Temperature and time)
5	<b>MACHINE READY</b>	Switch on of led READY	State of various sensors, water level indicators: - Continuous OK - Conditions not OK	If conditions are OK the READY ON (machine ready) If conditions are not OK the led READY OFF		You must correct the wrong condition (fill water, drain used water, check sensors, etc) till the machine is READY to work Then step 6
6	<b>START</b>	Start of the work cycle	State of the door and water levels - Door (OPEN/closed) - Water level (MIN/MAX) - Used water level (MAX)	If the door is OPEN then <b>ALARM</b> If the water level in MIN then led "READY" remains <b>OFF</b> If used water level is MAX then <b>ALARM</b>	<b>F1 (door open) == (MAX used water)</b>	The alarm F1 has priority respect the alarm == The indication == appears on the display "timer" and the led ALARM lights on

7	<b>FILL (FL) 1st Injection</b>	Water filling (FL) Water pump on for 7s	State of the temperature: - The internal temperature is read	If the internal temperature reaches 149C then <b>ALARM</b>	<b>A3 (PTC open)</b>	
8	<b>THERMO-DYNAMIC VACUUM</b>	Steam generation Thermodynamic air purge	State of pressure: - The pressure value is read - The internal temperature is read	The steam is released when pressure reaches 1.00 bar or after a time-out of 60s (starting from the end of water filling) If the internal temperature reaches 149C then <b>ALARM</b>	<b>A3 (PTC open)</b>	
9	<b>PRE-VACUUM (PV)</b>	Initial vacuum (PV) (time limited to 8 min)	State of pressure at the end of time-out and temperature: - The pressure value (after 8 min) is read - The internal temperature is read	If pressure cannot reach - 0.66 bar within 8 min then <b>ALARM</b> If the internal temperature reaches 149C then <b>ALARM</b>	<b>A7 (vacuum problem)</b> <b>A3 (PTC open)</b>	The alarm A7 <u>doesn't block</u> the device and its printed <b>only on the printer</b> at the end of the cycle
10	<b>FILL (FL) 2nd Injection</b>	Water filling (FL) Water pump on for 29s	State of temperature: - The internal temperature is read	If the internal temperature reaches 149C then <b>ALARM</b>	<b>A3 (PTC open)</b>	
11	<b>HEATING (HG)</b>	Temperature rising up <i>(This phase active till the air purge is completed, as to say 30s after that a pressure of 0.08 bar is reached)</i>	State of duration of this phase: - The HG time is counted	If the time of HG is >11 min then <b>ALARM</b>	<b>A5 (hydraulic problem)</b>	
12	<b>HEATING PRESSURE (HP)</b>	Temperature/Pressure rising up <i>(This phase active after air purge, till to the reaching of the pre-process conditions)</i> <b>Timeout</b>	State of time elapsed since the cycle START: - The time is calculated from START of the cycle	If the time is > 70 min then <b>ALARM</b>	<b>A2 (hydraulic problem)</b>	
	<b>HEATING PRESSURE (HP)</b>	Temperature/Pressure rising up <i>(This phase active after air purge, till to the reaching of the pre-process conditions)</i>	State of temperature and pressure: - The temperature is transformed into the corresponding pressure value - Cross check P real / P transf.	The result of the cross check is evaluated as follows: - if the difference P transf - P real is > 0.20 bar then <b>ALARM</b> - if the difference P real - P transf. is > 0.20 bar then <b>ALARM</b>	<b>A4 (heating problem)</b> <b>A2 (hydraulic problem)</b>	Refer to the water steam P/T table The cross check is disabled under 110C The check is made "on real time" The alarm is <u>immediate</u>
13	<b>PROCESS</b>	Sterilisation/Disinfection period	State of the temperature:	If the difference T real - T set-	<b>A2</b>	The thermoregulation of resistor is:

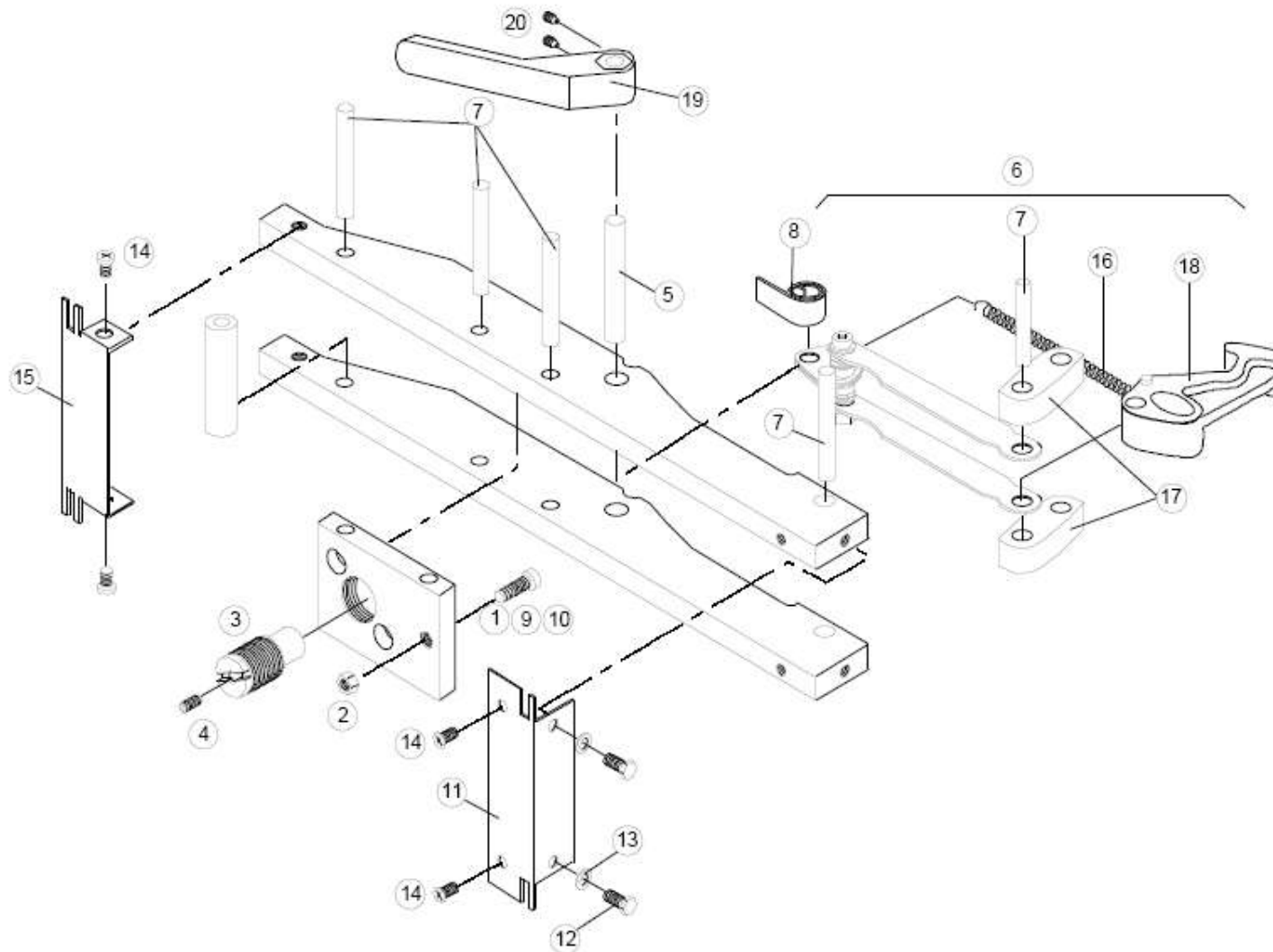
		The time counter <b>starts</b> the countdown	- The internal temperature is read and compared with the set-point value	point is >4C then <b>ALARM</b> If the difference T set-point - T real is >1C then <b>ALARM</b>	<b>(hydraulic problem)</b>	- 100% of power at set-point - 50% of power at set-point + 0.5C - 0% of power at set-point + 1C - 75% of power at <b>set-point - 4 kPa (PRESSURE)</b>
	<b>PROCESS</b>	Sterilisation/Disinfection period The time counter <b>starts</b> the countdown	State of the pressure: - The internal pressure is read and compared with the set-point value	If the difference P set-point - P real is > ± 0.12 bar then <b>ALARM</b>	<b>A2 (hydraulic problem)</b>	The thermoregulation of resistor is: - 100% of power at set-point - 50% of power at set-point + 0.5C - 0% of power at set-point + 1C - 75% of power at <b>set-point - 4 kPa (PRESSURE)</b>
<b>14</b>	<b>DRYING (d9-...-d0)</b>	Depressurisation and drying phase Releasing of steam Performing of vacuum drying	State of the temperature: - The internal temperature is read and compared with the set-point value	If the difference T real - T set-point is >10C then <b>ALARM</b>	<b>A4 (heating problem)</b>	The pressure value during the vacuum phase moves from -0.30 bar to -0.60 bar alternatively (during all the drying phase)
	<b>DRYING (d9-...-d0)</b>	Depressurisation and drying phase Releasing of steam Performing of vacuum drying	State of the temperature: - The internal temperature is read	If the internal temperature reaches 149C then <b>ALARM</b>	<b>A3 (PTC open)</b>	This alarm takes place only when a sensor get broken In this case the value indicated is the MAX value of the range
<b>15</b>	<b>LEVELLING (I2-...-I0)</b>	Ventilation of the chamber Elimination of the residual condensate	State of the temperature: - The internal temperature is read	If the internal temperature reaches 149C then <b>ALARM</b>	<b>A3 (PTC open)</b>	
<b>16</b>	<b>END</b>	End of the cycle	State of the time: - When the pressure is within + 0.04 bar the time counter starts	When the time counter reaches 32s the <b>END</b> message is generated		Acoustic indication is given to accompany the END message
<b>A</b>	<b>ACTIVE SUCTION (only in END phase)</b>	Ventilation by vacuum pump after the end of the cycle till the door opening	None			Every 15 min the vacuum pump starts (for 60s) This action is disabled with the inner temperature is < 50C
<b>B</b>	<b>DOOR OPENING</b>	Reset of the indications when door is opened after a "programmable" or "special" cycle	State of time elapsed from the cycle END: - Time is counted	The ST-BY in ON for 33 min from the cycle END After this the ST-BY is OFF		After the end of a "programmable" or "special" cycle the indicator moves on the last selected "standard" cycle
<b>C</b>	<b>VACUUM TEST</b>	Test to check the perfect sealing of the pressure vessel	State of the pressure: - The value of pressure is read at the preset vacuum (-0.70 bar) and at the end of the test	If the difference of P max - P final is > 0.08 bar then <b>ALARM</b>	<b>A2 (hydraulic problem)</b>	



## DOOR CLUTCH DIAGRAM



**DOOR BRIDGE DIAGRAM**





## CLEAN TANK SENSITIVITY MOD

### AIM:

To rectify Exacta type autoclaves that shows both high and low water levels at the same time. It is only required to be done on problem machines. This problem is usually caused by exceptionally clean feed water as the low level sensor is a conductivity type and cannot detect water present even though the high level float is indicating that the tank is full. This can also be caused by a disconnected or broken level sensor wire (fill tank is actually full) or faulty or stuck high level float switch (fill tank is actually empty)

### TOOLS AND EQUIPMENT:

Normal hand tools, 1 or 2 resistors of 1M Ohm value ea.

### METHOD:

Turn the unit off. Remove the cover and unplug the Pheonix connector toward the rear at the top of the main board (below the calibration trim pots)

Connect 1 resistor between the "MI" (level Probe) and "C" (common earth) terminals on the connector. (1 resistor is usually enough.) If extra sensitivity is required 2 resistors can be used in parallel (500K Ohm)

Reassemble the unit.

### TESTING:

Fill the clean tank then empty it, checking that the level indicator shows the tank state correctly. Completely fill the clean tank and check the unit is indicating correctly.



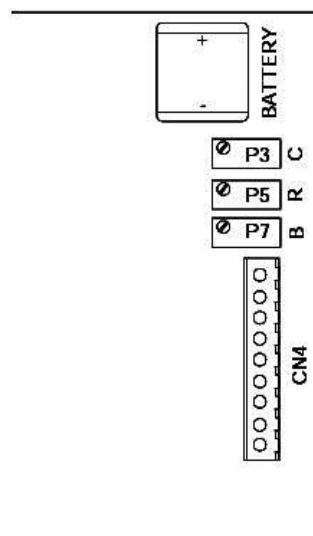
## CALIBRATION PROCEDURE


### **ACTION:** PROCEDURE AS FOLLOWS

- REMOVE COVER
- WITH POWER OFF, REMOVE 9 TERMINALCONNECTOR BLOCK CN4 FROM MAIN BOARD, NB: THE TEMPERATURE SENSOR WIRES ARE TERMINATED INTO TERMINALS 1,2,3 OF CN4.
- INSERT CALIBRATION KEY INTO TERMINALS 1,2,3 ON CN4 (See below diagram). NB: THE CALIBRATION KEY HAS BEEN MARKED WITH TEST RESULT VALUE GENERALLY 122-120.
- WITH KEY INSERTED POWER UNIT TO OFF POSITION ON DISPLAY
- BY PRESSING THE DRY-OFF KEY AND STOP/START KEY THE CHAMBER SENSOR VALUE WILL BE DISPLAYED, THIS SHOULD CORRESPOND TO THE CALIBRATION KEY VALUE. TO ALTER ADJUST POT CP3 ON BOARD, TOP POT BELOW BATTERY, NB: RESULT CHANGE IS SLOW TO REACT
- BY PRESSING THE DRY-OFF KEY AND TEMP SELECTION KEY THE JACKET SENSOR VALUE WILL BE DISPLAYED, THIS SHOULD CORRESPOND TO THE CALIBRATION KEY VALUE. TO ALTER ADJUST POT RP5 ON BOARD, SECOND POT BELOW BATTERY, NB: RESULT CHANGE IS SLOW TO REACT
- NB: THE JACKET VALUE WILL BE LOWER THAN THE CHAMBER BY APPROX 2 DEGREES. THIS PROVIDES INCREASED HEATING CAPACITY, WHICH HELPS IMPROVE CYCLE TIME.
- SECURE POTS, REPLACE CN4 CONNECTOR AND READY FOR TEST.
- FINAL ADJUSTMENT SHOULD BE DONE DURING A 12MIN WRAPPED CYCLE AND OPTIMUM CYCLE PRESSURE BE 212-215kpa TEMP 134-135 DEGREES LOADED CHAMBER. NB: ALWAYS HAVE AT LEAST TWO TRAYS IN CHAMBER PREFERRED WITH A LOAD, AND MAKE SMALL INCREMENT CHANGES AND MONITOR RESULT.

## ALARM A3 AT END OF DRY

- IF THE UNIT HAS A3, PTC OPEN ALARMS AT THE END OF THE DRY STAGE, THIS MEANS THE TEMPERATURE HAS GONE TOO HIGH DURING THE DRY(>143 DEG C), THE PROGRAMMING PREVENTS THE DISPLAY READING FROM EXCEEDING 134 DEGREES, BUT THE ACTUAL CAN CONTINUE TO RISE, AN ADJUSTMENT CAN BE MADE THE JACKET CALIBRATION TO RAISE IT TO THE SAME VALUE AS THE CHAMBER; THIS REDUCES THE OFFSET AND SLIGHTLY REDUCES THE DRYING TEMPERATURE. THIS ADJUSTMENT GENERALLY REDUCES THIS ALARM. THIS PRACTICE CAN ALSO BE USED WITH UNITS USED LIGHTLY AND WITH SMALL LOADS.



TECH WI #43 Recommended Exacta Preventative Maintenance	Page	1 of 1	
	Version	1.0	
	Amend date	21/12/09	

**METHOD:**

1.  Electrical safety check, cord check, then \*DISCONNECT POWER CORD\*
2. **FRONT**
  - Remove Check/clean/replace door seal – clean Door seal groove
  - Remove / check / replace clean chamber filter, holder and dam seal
  - Clean chamber and PT1 if necessary, Remove Debris – Discuss
  - Bact filter – Check / Replace
  - Portlight – Clean, Check for free swivel
  - Lubricate door lock mech
  - Check closing tension (via feel)
  - Check Door spring tension (via feel) Replace if necessary. Check door handle security. Check “door closed” switch operation.
  - Inspect Bulkhead fittings, Lubricate manual fill nozzle o-ring and insert.
3. **RHS**
  - Check both reservoirs open / Inspect and Clean / Flush.
  - Check for Splits, Cracks and Hose condition. Check inline filter condition.
  - Remove, Check and Clean EV1 and EVP1
  - Visual check Vac Pump and Condensor for signs of leaks
  - Inspect Main switch for smooth operation and signs of stress
  - Check bottom Phoenix Power connector CN6 for heat stress, add conductive paste if necessary
  - Check / Replace element fuse holder (look for charring) F3
  - Check / Replace Control fuse F2 Upgrade to 2A
  - Remove CN4 Phoenix connector, add Conductive paste to top 3 probe pins
  - Add 1M Ohm resistor between “C” and “M” Terminals if there is a history of fill level indication problems. ( Low and High indication at same time )
  - Check that the software is 1.31 or higher (Software is chargeable)
  - Check / Clean MPX board connections
  - General check of command panel / membrane, check for evidence water corrosion
4. **REAR**
  - Check / Clean condensor and fan unit
  - Check inlet socket condition and IEC plug for condition
  - Check / Replace incoming fuses / Holders and wiring
5. **LHS**
  - General check wiring and element connector
  - Check Coil of EV3 for Heat stress,
  - Check inline air filter for signs of moisture or heat if so Check / Replace check valve.
  - EV2 Remove / Check / Clean.
  - Check base of unit for evidence of Y fitting leaks and PT1 fitting. Remake fittings, remove old evidence for rechecking next time.
  - Check PT2 is secure with Thermal paste and covered with insulation
  - Check Thermal insulation condition, Repair with tape and / or FNI for replacement.
  - General Check for hose / clamp / fitting security and condition, check for evidence of leaks / splits
6. **FUNCTION TEST**
  - Check printer ribbon paper and operation, check data cable and connections – fit temporary printer if necessary
  - Turn unit on & set time and date – corrupt time and date indicates faulty clock battery.
  - Check Zero bar value ( 0.00 or -0.01 )
  - Conduct a Vac Test – retain printout
  - Conduct OQ test. Check PRV operation – retain printout
7. **FINAL**
  - Refit covers; reposition unit correctly on bench
  - Check drain hose is free draining
  - Check appropriate cycle is selected - leave the unit ready for use in standby
  - Apply service label; complete Service Report & file original in Steriliser Log Book
  - Discuss report with staff / PM as applicable

# AUTOCLAVE SERVICES



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## Technical Support Bulletin

Action Required

1

Information Only - No Action Required

Autoclave Model	BULLETIN # 007	Date: 8.11.01
Mocom Exacta		
DISTRIBUTION – Mocom Service Network		

**SUBJECT:** Occasional Burnt F3 fuse holder- 8A on Exacta main board. Much distress is caused due to the acrid smell of burn-insulation and down time of the unit. A sympathetic approach is best.

**ACTION:** We have had some F3 fuse holders commit suicide on the main board. The reason according to the supplier is a small batch of poor quality components. There is no way to tell which will and will not fail.  
 The best solution to this problem is to replace the fuse with a link. If you check the electrical circuit, the main incoming fuse on the back panel will protect the device. We are considering options of which and how/many should be amended.

**OUTCOME:** Minimal down time due to component failure. Continued reliable function.

**AUTHOR:** Dan

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