

M9 / M9D

M11 / M11D

Self-Contained Steam Sterilizer

Installation & Operation Guide



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Owner's Product Identification

(information that you will need to provide for servicing - key information is highlighted)

Model Number

Serial Number

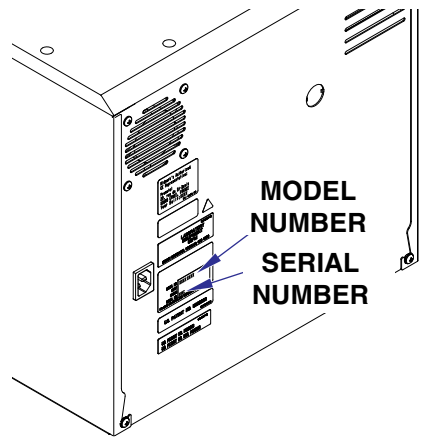
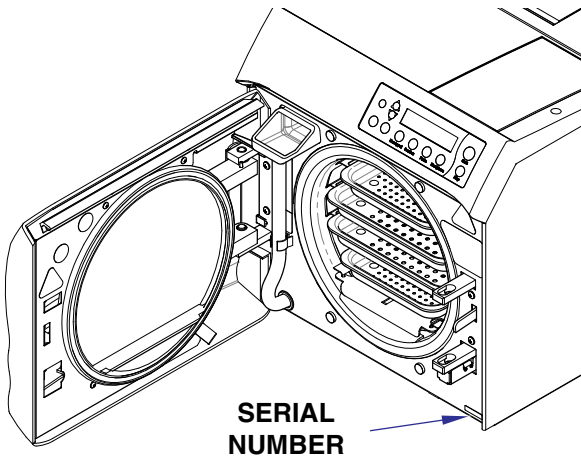
Name of Owner / Facility / Department

Date of Purchase

Name of Authorized Midmark Dealer

Telephone # of Authorized Midmark Dealer

Address of Authorized Midmark Dealer



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IMPORTANT INFORMATION

Intended Use of Product

The M9/M11 Ultraclave or M9D/M11D Autoclave can be used in medical and dental offices, hospitals, clinics, nursing homes, laboratories, and other facilities to sterilize heat and moisture stable reusable items (including dental handpieces) that are compatible with steam sterilization. Refer to Loading Trays and Standard Cycle Parameters later in this manual for detailed information.

Safety Instructions

The primary concern of Midmark is that this equipment is operated and maintained with the safety of the patient and staff in mind. To assure safer and more reliable operation:

- Read and understand this manual before attempting to install or operate the sterilizer.
- Assure that appropriate personnel are informed on the contents of this manual; this is the responsibility of the purchaser.
- Assure that this manual is located near the sterilizer, or if possible, permanently affixed to the sterilizer.

Explanation of Safety Symbols and Notes



DANGER

Indicates an imminently hazardous situation which will result in serious or fatal injury if not avoided. this symbol is used only in the most extreme conditions.



WARNING

Indicates a hazardous situation which could result in serious injury if not avoided.



CAUTION

Indicates a potentially hazardous situation which could result in minor or moderate injury if not avoided. It may also be used to alert against unsafe practices.



EQUIPMENT ALERT

Indicates a potentially hazardous situation which could result in equipment damage if not avoided.

NOTE

Amplifies an operating procedure, practice, or condition.

Transportation and Storage Conditions



EQUIPMENT ALERT

The water must be drained from the unit's reservoir before transporting or storing at 32°F (0°C) or below.

- Storage Temperature Range: -22°F to 140°F (-30°C to +60°C)
- Relative Humidity 10% to 90% (non-condensing)



Consult operator's manual for important information



Proper shipping orientation



Fragile.



Keep dry.



Maximum stacking height of ***M11 palleted*** units



Maximum stacking height of ***M9 palleted*** units



Minimum and maximum storage temperature for the unit.

INSTALLATION

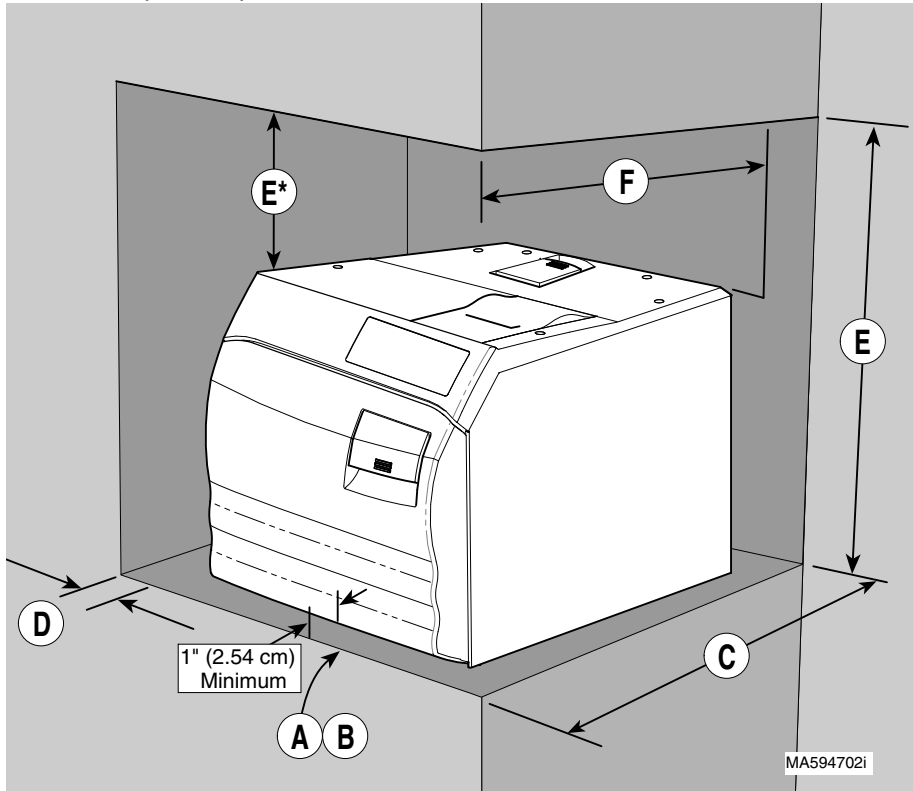
Location Requirements For Sterilizer



DANGER

Do not operate this sterilizer in areas where flammable anesthetics are used or stored. An explosion could occur, causing fatal or serious injury.

Adherence to the following recommendations for location of the sterilizer will contribute to optimum performance of the unit:



Support Surface (A) - Sterilizer must be placed on a level surface to ensure that the chamber will fill correctly. Improper water level in the chamber could cause a sterilizer malfunction.

Support Surface Material (B) - Place sterilizer on a Formica, stainless steel, stone, or other water resistant material.

Support Surface Depth (C) - Support surface should be at least 21 in. (53.3 cm) (M11) or 18 in. (45.7 cm)(M9) deep. Allow at least 2 in. (5.1 cm) clearance behind the sterilizer for air circulation.

Distance To Side Wall (D) - If sterilizer is located next to side walls, there should be no less than 2 in. (5.1 cm) clearance between the side of the sterilizer and the wall.

Distance Above Sterilizer (E) - If sterilizer is to be located beneath wall cabinets or shelves, the underside of the cabinets or shelves should be at least 23 in. (58.4 cm)(M11) or 22 in. (55.9 cm)(M9) above the support surface or *5" clearance above top of sterilizer to allow access to the printer for changing the printer paper roll.

Overhang (F) - If the sterilizer is to be located beneath an overhang, the underside of the overhang should project no further than 15 in. (38.1 cm)(M9) or 18 in. (45.7 cm)(M11) over the rear of the sterilizer.

Location On Support Surface - The front of the sterilizer should be located no less than 1" (2.54 cm) back, from the front of the support surface, but no more, so water can be easily drained from the tube into a container (See sketch on Location).

Neighboring Materials and Equipment - If the sterilizer will be operated in continuous cycles, locate the sterilizer where steam will not damage materials or equipment in the surrounding area.

Operating Environment Conditions



EQUIPMENT ALERT

The unit should be allowed to reach room temperature before operating. Failure to do so could result in damage to the unit.

- Operating Environment
Temperature Range: 68°F to 104°F (20°C to 40°C)
- Normal Operating Altitude: Below 9842 ft. (3000 m) above sea level.
- Device approved for Indoor Use Only.
- Device to be operated in a relatively dust free environment. An excessive relative humidity environment should be avoided. Less than 80% (non condensing) is recommended. (Pollution Degree 2, in accordance to IEC664)
- Device should be connected to a power source with over-voltage limits less than 1500 watts from mains to ground. (Installation Category II in accordance to IEC 664)
- The M9 and M11 will emit 5000 BTU/HR. during operation.

Re-Location Requirements For Sterilizer

1. Disconnect power cord from electrical outlet and allow sterilizer to cool.
2. Drain water from reservoir or do not tip sterilizer, allowing water to spill.

Electrical Requirements



DANGER

Do not use this sterilizer in an explosive or oxygen-enriched atmosphere, or where flammable anesthetics are stored. An explosion or fire could occur, causing fatal or serious injury.



WARNING

Use 104 - 127 VAC, 50/60 HZ alternating current only for 115 VAC rated models and 207 - 253 VAC, 50/60 HZ alternating current only for 230 VAC rated models. Failure to do so could result in electrical shock to personnel and will result in damage to sterilizer.



EQUIPMENT ALERT

Unit should be allowed to reach room temperature before operating. Failure to do so could result in damage.

NOTE

Grounding reliability can only be achieved if this unit is connected to a matching three-pronged, grounded, isolated, correctly polarized receptacle.

Electromagnetic Interference

This Midmark Sterilizer is designed and built to minimize electromagnetic interference with other devices. However, if interference is noticed between another device and this Sterilizer, remove interfering device from the room and / or plug Sterilizer into an isolated circuit.

The three-pronged grounding plug on sterilizer power cord must be plugged into a matching three-pronged, grounded, dedicated, correctly polarized receptacle.

ELECTRICAL RATINGS

M9 / M11

M9D / M11D

115 VAC Unit

115 VAC, 50/60 Hz, 12 amp

Dedicated Supply Circuit: 120 VAC, 50/60 Hz, 15 amp

Maximum Power Consumption: 1425 Watts

230 VAC Unit

230 VAC, 50/60 Hz, 6.5 amp

Dedicated Supply Circuit: 230 VAC, 50/60 Hz, 10 amp

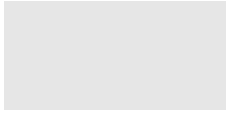
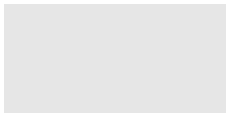
Maximum Power Consumption: 1500 Watts

DESCRIPTION

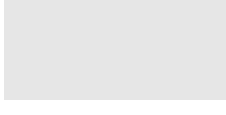
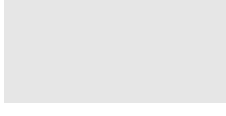
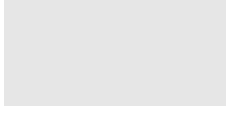
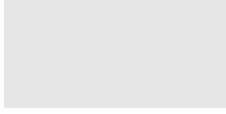
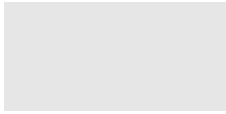
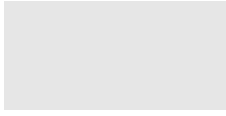
Safety Features

The M9 / M11 UltraClave™ or M9D / M11D Autoclave sterilizers have the following Safety Features . . .

- **dry cycle door stop** prevents door from opening fully if there is a slight residual pressure in chamber when door handle is operated. Door stop also retains door in a partially open position during drying cycle.
- **door latched switch** prevents operation until door is completely closed and latched. An audible “beep” sounds and message “**DOOR OPEN, CLOSE DOOR**” is displayed if door is not fully latched.
- **monitors chamber temperature** during a cycle to prevent an overheat condition. If chamber temperature exceeds its preset limit, power to the heaters is cut off and the cycle is aborted.
- **pressure relief valve** opens to reduce chamber pressure should chamber steam pressure exceed allowable limit. Released steam is directed out of bottom of unit’s cabinet.
- **fault detection circuit** monitors all functions of sterilizer during a cycle. If a fault occurs during a cycle, the sterilizer monitoring circuitry stops the cycle, sounds an audible signal, and displays an appropriate error message.
- displays message “**ITEMS NOT STERILE**” if a sterilization cycle is interrupted by power loss, by the operator, or by a unit malfunction.

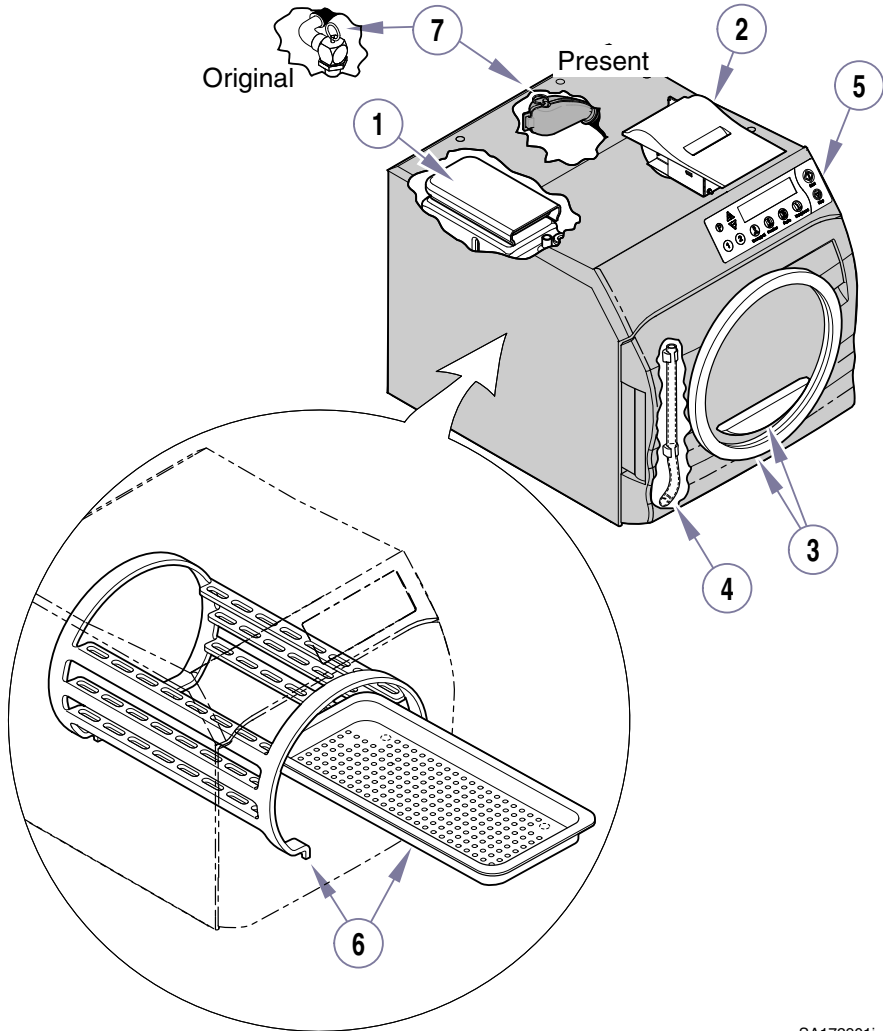


Description



COMPONENTS OVERVIEW

Illustration below shows location of sterilizer's major components..



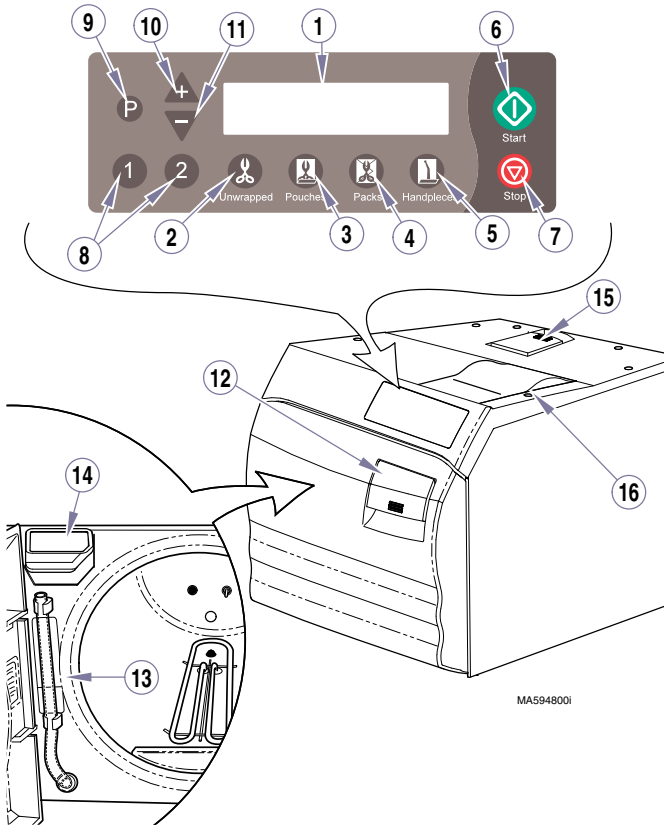
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DESCRIPTION OF COMPONENTS


1. Reservoir Access Cover	5. Display
2. Printer (Optional)	6. Trays and Tray Rack
3. Door and Dam Gaskets	7. Pressure Relief Valve
4. Water Level Indicator / Reservoir Drain Tube	











CONTROLS & INDICATORS

The following illustrations show the location of sterilizer's controls and indicators. The chart describes their function.



Controls & Indicators

Ref.	Control	Function
1	Display	indicates cycle selected, cycle temperature and exposure time for the selected cycle. During the cycle, display shows messages describing status of cycle. When cycle time enters sterilization mode, remaining cycle time is displayed as well as temperature and pressure. Display also shows error message if a malfunction occurs. Refer to Message Guide for a detailed explanation for a message.
2	UNWRAPPED button  Unwrapped	a program cycle designed to process unwrapped instruments which runs at 270°F (132°C) for 3:00 minutes with a 30 minute drying cycle .

Ref.	Control	Function
3	POUCHES button  Pouches	a program cycle designed to process instruments in combination paper / plastic sterilization pouches or wrapped instruments at 270°F (132°C) for 5 minutes with a 30 minute drying cycle .
4	PACKS button  Packs	a program cycle designed to process packs of instruments at 250°F (121°C) for 30 minutes with a 30 minute drying cycle .
5	HANDPIECES button  Handpieces	a program cycle for dental handpieces, which runs at 270°F (132°C) for 6:00 minutes with a 30 minute drying cycle
6	START button  Start	initiates selected program or, when SELECT CYCLE is displayed, pressing START will activate heater for 10 minutes.
7	STOP button  Stop	terminates selected program or function.
8	1 or 2 buttons   NOTE All material run in these cycles must be validated for sterilization by the user.	Programmable cycle buttons that allows an operator to create two different programmed cycles for special applications. Sterilization time and temperature, along with Drying time and Venting procedure can be adjusted or changed.
9	P button 	Programming mode button that allows operator to change temperature, time, and/or venting procedure(s). Used in conjunction with buttons 1 or 2. (Refer to Programming Mode).
10	+ button 	Allows temperature or time to be increased or changes Vent to Fast mode when in location 1 or 2 and the P (programming) mode is activated.
11	- button 	Allows temperature or time to be decreased or changes Vent to Slow mode when in location 1 or 2 and the P (programming) mode is activated.
12	Door Handle	for latching / opening door.
13	Water Level Indicator / Reservoir Drain Tube	shows amount of water in reservoir. Tube also used for drainage of reservoir into suitable container.
14	Fill opening	access for filling reservoir with distilled water.
15	Pressure Relief Valve Test Lever	allows operator to check pressure relief valve .
16	Printer (Optional)	The printer (optional equipment) can be used to provide a permanent record of time, temperature, and pressure during a cycle.

OPERATION



DANGER

Do not use this sterilizer in an explosive or oxygen-rich atmosphere, or where flammable anesthetics are stored. An explosion or fire could occur, causing fatal or serious injury.



WARNING

Do not run the Sterilizer without the Tray Plate in place. If the sterilizer malfunctions, immediately unplug sterilizer, and call for service; do not attempt to repair the sterilizer yourself. Doing so could result in serious injury.



EQUIPMENT ALERT

For optimal sterilizer performance, allow the sterilizer to reach room temperature before operating.

Also, Do not use toweling or packaging which may contain chlorine bleach residue. Doing so could result in trays and/or chamber rusting or discoloring. In extreme cases, the life of the chamber may be significantly shortened.

Sterilizer Preparation Before Operation



WARNING

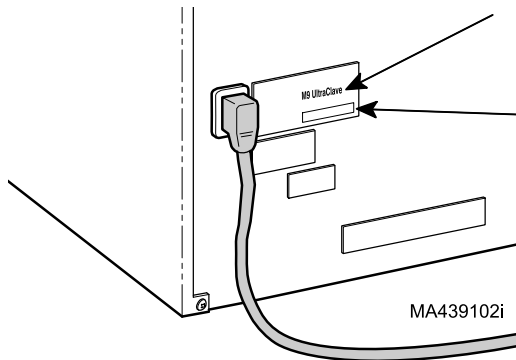
Check the serial number label (1) on back panel of sterilizer to verify voltage rating for the unit. Failure to connect sterilizer to an appropriate power supply could result in damage to the unit, and electrical shock to personnel.

1. Plug in sterilizer power cord.
Follow instructions.
Display shows:

**INITIALIZING
SYSTEM**

**TOTAL CYCLES XXXX
M9*, vX.XX**

SELECT CYCLE



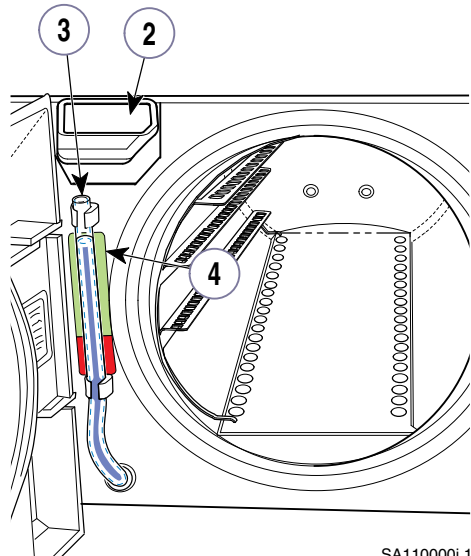
(*will display Model Number, M9, M9D, M11, or M11D)



EQUIPMENT

ALERT

Use only distilled water. Chlorine found in normal tap water has a severe corrosive effect on the stainless steel chamber. Failure to use distilled or demineralized water may cause serious deterioration and premature failure of the stainless steel chamber which could result in serious injury.



SA1100001 1

2. Open door and pour distilled water into fill opening (2) until the water level found in the Water Level Indicator Tube (3) is at the top of the fill level label (4).

Recommended Steam Sterilization Monitoring Program

Operation

Physical monitors (temperature and pressure measuring devices) can help detect sterilizer malfunctions. The sterilizer control system aborts the cycle and displays a message if physical conditions go outside established limits. The Printer Accessory should be used to create a record of each load's actual cycle time, temperature, and pressure.

Process monitors (biological and chemical indicators) indicate if conditions in the sterilizing chamber were adequate to achieve sterilization. Process monitors cannot establish that a processed item is actually sterile.

If a process monitor indicates a sterilization failure, items in that load are considered non-sterile. Improper packaging, improper loading, and sterilizer malfunction can cause sterilization failures.

Determine the cause for all sterilization failures and take steps to remedy the cause before processing additional items in sterilizer. Follow the process monitor manufacturer's instructions for proper selection, storage, use, and interpretation for their devices.

Follow appropriate agency (state dental or medical board) sterilization monitoring guidelines for your office. Information can also be obtained from CDC, AAMI, OSAP, and ADA on monitoring programs and other sterilization issues.

NOTE

Use only FDA cleared chemical & biological indicators designed for steam sterilization that are compatible with the particular sterilization cycle temperature and exposure time being monitored. Use sterility monitors with each sterilization load. If a sterilizing cycle is terminated prematurely, reprocess instruments to ensure sterility of the load.



DANGER

Clean and dry instruments before putting them into sterilizer. Incomplete and improper cleaning of instruments will impede sterilization and could result in non-sterile instruments which could lead to personal or fatal injury.

Cleaning Instruments

Follow item manufacturer's and OSHA recommendations for handling and cleaning items.

- As soon as possible after use, remove all material or residue accumulated during use.
- Rinse items thoroughly to complete removal of material and residue.
- Dry items completely.

Guidelines For Loading the M9 / M9D or M11 / M11D

- Refer to manufacturers' recommendations for loading their items.
- Refer to cassette manufacturers' recommendations for using their cassettes.
- Pouch or wrap items to preserve sterility after processing. Use only sterilizer pouches and wraps that have been cleared by the FDA and labeled for use with the steam sterilization cycles being used. Do not wrap items too tightly. Sterilization will be compromised if an item is excessively wrapped.



WARNING

Do not overload the chamber. Adequate space is required around items in trays for steam circulation and drying. Failure to allow adequate space will compromise sterilization and drying. Do not run the Sterilizer without the Tray Rack in place.



EQUIPMENT ALERT

Trays must be used at all times when operating this sterilizer, serious equipment damage could result.

- Place all containers so that the opening allows steam to enter, and air and condensate to drain from the container.



- Sterilize jointed items in an open position.
- Use only M9/M9D or M11/M11D trays in their appropriate sterilizer. Using other trays could restrict air and steam flow to items.
- Place unwrapped items on a towel or absorbent paper.
- Pouches may overlap, but handpieces and instruments must be single height loaded (not piled or stacked), to permit proper steam flow and penetration to the items.
- Refer to below chart for maximum **M9/M9D** sterilization loads. If a load surpasses these limits, we recommend dividing the load and running multiple cycles. Listed below are the maximum recommended loads for each tray and total loads:

Load Type	Maximum Capacities		
	M9/M9D Large / Deep Tray	M9/M9D Small Tray	M9/M9D Sterilizer Total
Solid Items	42 instruments - 1089 grams (2.4 lbs.) or	28 instruments - 726 grams (1.6 lbs.) or	140 instruments - 3629 grams (8.0 lbs) or
Handpieces	9 in rack or	9 in rack or	9 handpieces in rack and 75 instruments or
Packs (†)	1082 cu. cm up to 2.5 cm thick (66 cu. in. up to 1 in. thick)	787 cu. cm up to 2.5 cm thick (48 cu. in. up to 1 in. thick)	3736 cu.cm up to 2.5 cm thick (228 cu. in. up to 1 in. thick)

† Packs to have a minimum of 1/4 in. (6.4 mm) space between each other and away from all sterilizer surfaces.

Refer to below chart for maximum **M11/M11D** sterilization loads. If a load surpasses these limits, we recommend dividing the load and running multiple cycles. Listed below are the maximum recommended loads for each tray and total loads:

Load Type	Maximum Capacities		
	M11/M11D Large / Deep Tray	M11/M11D Small Tray	M11/M11D Sterilizer Total
Solid Items	45 instruments - 1225 grams (2.7 lbs.) or	30 instruments - 816 grams (1.8 lbs.) or	150 instruments - 4082 grams (9.0 lbs) or
Handpieces	9 in rack or	9 in rack or	9 handpieces in rack and 75 instruments or

Load Type	Maximum Capacities		
	M11/M11D Large / Deep Tray	M11/M11D Small Tray	M11/M11D Sterilizer Total
Packs (†)	4425 cu. cm up to 5.0 cm thick (270 cu. in. up to 2 in. thick)	3195 cu. cm up to 5.0 cm thick (195 cu. in. up to 2 in. thick)	15240 cu. cm up to 5.0 cm thick (930 cu. in. up to 2 in. thick)

† Packs to have a minimum of 1/4 in. (6.4 mm) space between each other and away from all sterilizer surfaces.

Operating the Sterilizer



WARNING

Do not use this sterilizer for sterilizing volatile substances or for any purpose other than its intended design. Burns and toxic or explosive conditions could result.

Do not force door handle at any time. Chamber pressure may cause door to open with extreme force. If door handle does not move freely, allow unit to cool and depressurize for 40 minutes before opening door. Failure to adhere could result in serious personal injury.








CAUTION

Programmable cycles 1 & 2 are provided for those applications requiring sterilization parameters different than the preset cycles. All material processed in these cycles must be validated by the user to ensure sterility of the processed load.

Standard Cycle Parameters

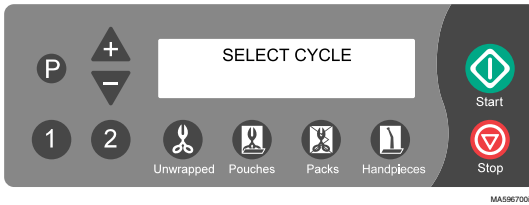
The following table lists the standard cycle parameters for the various cycles.

Standard Cycle Parameters

PROGRAM	TEMP / PRESSURE/ TIME (minimums)	ITEMS TO BE STERILIZED <i>(Always consult the item manufacturer's recommendations for sterilization.)</i>
 Unwrapped	270°F (132°C) / 27.1 psi (186 kPa) Sterilize for 3 minutes 30 minute Dry*	<ul style="list-style-type: none"> • Instruments loose on a tray. • Open glass or metal canisters. • Tubing not used in surgical procedures. • Loose items manufacturers recommend for exposure at 270°F (132°C). <p><i>The sterility of unwrapped items is compromised on exposure to a non-sterile environment.</i></p>
 Pouches	270°F (132°C) / 27.1 psi (186 kPa) Sterilize for 5 minutes 30 minute Dry*	<ul style="list-style-type: none"> • Pouched or loosely wrapped instruments. • Multiple layers of instruments separated by fabric. • Wrapped trays of loose instruments. • Tubing not used in surgical procedures. • Wrapped items manufacturers recommend for exposure at 270°F (132°C).
 Packs	250°F (121°C) / 15 psi (104 kPa) Sterilize for 30 minutes 30 minute Dry*	<ul style="list-style-type: none"> • Textiles and surgical packs wrapped for sterilization. • Items, except liquids, manufacturers recommend for exposure at 250°F (121°C) for 30 minutes.
 Handpieces	270°F (132°C) / 27.1 psi (186 kPa) Sterilize for 6 minutes 30 minute Dry*	<ul style="list-style-type: none"> • Dental handpieces <p>NOTE <i>Verify acceptability of sterilization parameters with handpiece manufacturer.</i></p>
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin-bottom: 10px;">1</div> <hr style="width: 100%;"/> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">2</div> </div>	<p><u>Programmable</u> <u>User Defined</u></p> <p>230°F (110°C) to 275°F (135°C) 6 PSI (41 kPa) to 31 PSI (214 kPa) 3 min. to 90 min.</p>	<ul style="list-style-type: none"> • Items appropriate for user's defined parameters. <p> CAUTION <i>All material run in these cycles must be validated by the user.</i></p> <p>These programmable functions allow you to set different time and temperature parameters. It is important to properly coordinate sterilization temperature with cycle time. Permitted temperature range for proper sterilization is 250° - 275°F (121° - 135°C). Temperatures below 250°F (121°C) should only be used for disinfection.</p> <p>Items with long small diameter tubular canals (complex lumens), e.g. dental handpieces, scopes, etc. should not be processed for less than 6 minutes at 270°F (132°C).</p>

*Dry time can be changed from 0 to 60 minutes. Refer to Standard Cycle Operation.

Standard Cycle Operation



Refer to following steps for a detailed description of operating procedures:

1. Display shows: **SELECT CYCLE**
2. **Close and latch door**; sterilizer will not operate unless door is closed and latched properly.




EQUIPMENT ALERT

Using an incorrect sterilization program could result in non-sterile goods and may damage instruments. Consult instrument manufacturer for specific sterilization instructions.

NOTE

*Pressing the START button when SELECT CYCLE is displayed, at beginning or end of a cycle, activates the heater for **10 minutes**. The display flashes **ADDITIONAL HEAT**. This allows the Operator to preheat the chamber before starting an operation or to add additional time to the Dry mode at the end of an operation. Pressing STOP will end the ADDITIONAL HEAT time.*

3. Select either **Unwrapped, Pouches, Packs, or Handpieces** sterilization cycle in accordance with the Standard Cycle Parameters table.
 - Press UNWRAPPED.  Display shows the program's parameters:

UNWRAPPED
270°F, 3 MINUTES



and then

FAST VENT
30 MINUTE DRY

NOTE

On units using the metric display, °F will display as °C and PSI will display as KPA.

*Pressing **P** enables operator to change DRY time from 0 to 60 minutes in 1 minute increments on a pre-programmed cycle.*

Pressing  decreases time. Pressing  increases time.

Operation



WARNING

STOP button may be pressed at any time to stop or interrupt a cycle. Goods must not be considered sterile if this occurs before Dry Cycle. Sterilizer will return to **SELECT CYCLE mode.**

Press START. 

Sterilizer sounds a “beep” for two seconds to indicate cycle has started.

- **Filling Chamber:**

Display shows: 

Chamber automatically begins to fill to the correct level with water.

When chamber is full, display shows 

- **Heat Up** portion of the cycle begins.

Display shows: 

(can also be in metric values depending on set-up).

Display changes as temperature and pressure in chamber changes.

- **Sterilizing** portion of cycle begins when correct temperature and pressure is reached.

Display shows: 

Time remaining in cycle is counted down while current temperature and pressure in chamber is continuously updated.

- **Ready to Vent** is displayed when there is 10 seconds remaining in Sterilization Cycle.

Display shows: 

- **Vent opens** when time runs out in Sterilizing mode.

Display shows: 

The display changes as temperature and pressure in chamber changes. Vent valve opens, venting steam and water from chamber back into reservoir.



CAUTION

Keep clear when M9/M11 door is ready to open. Do not attempt to open M9D/M11D door until steam dissipates. Failure to do so could result in severe burns from steam being released.

- **Automatic Door Open** (*Pertains **only** to **M9/M11 UltraClave™***)
- **Door To Open**

Display shows: **DOOR TO OPEN
XXX°F XX.X PSI**


An Audible signal is emitted to indicate to Operator door is about to open. When pressure in chamber reaches zero, door actuates to partially open (Drying mode) position.

Manual Door Open (*Pertains **only** to **M9D/M11D AutoClave***)

- **Open Door**

Display shows (*top display line flashes*): **OPEN DOOR TO DRY
STOP TO ABORT**

An Audible signal is emitted when pressure inside chambers reaches zero to indicate to Operator to open door. The door should be opened to the first stop (drying mode) position.

The audible signal will continue to repeat every minute until either the door is opened to the DRY (partially opened) position, or by pressing the STOP  button, aborting the DRY cycle.

- **Drying**

Display shows: **DRYING
MM:SS**

Time of Dry Cycle is counted down.

NOTE

*If desired, Drying Cycle can be aborted by pressing **STOP**  button.*

- **Dry Cycle Complete** when Drying time reaches 0:00.

Display shows: **DRY CYCLE
COMPLETE**

An audible signal is emitted for 10 seconds, the display shows:

SELECT CYCLE

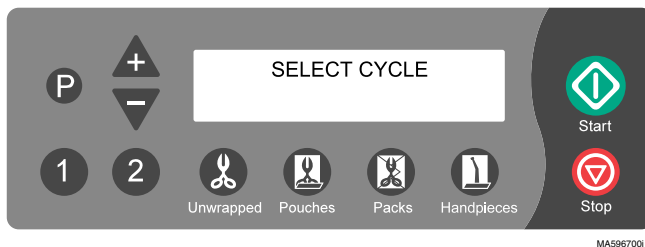


CAUTION

The processed load and inner surfaces will be hot. Avoid contact with hot surfaces. Failure to do so could result in serious burns

4. Remove processed load from chamber (See Unloading Hot Trays and Cassettes later in this manual).
5. The sterilizer may now be reloaded for another cycle.

Programming Mode



The following steps are for programming buttons 1 and/or 2 for applications that are not covered by standard cycle programs:

Displays: **SELECT CYCLE** Press **1**

Displays: **PROGRAM 1
XXX°F, XX MINUTES** then **FAST VENT
XXX MINUTE DRY** Press **P**

Displays: **STERILIZATION TEMP:
XXX.X°F** then **<+> OR <-> TO ADJUST** then **<P> FOR NEXT
<STOP> TO CANCEL**

Press **+** raises temperature 1°. Press **-** lowers temperature 1°.

Sterilization temperature can be adjusted from a *minimum of 230°F (110°C)* to a *maximum of 275°F (135°C)*. Permitted temperature range for proper sterilization is 250°- 275°F (121°- 135°C).



CAUTION

*Temperatures set below 250° F (121°C) should **not** be used for sterilization, unless otherwise required by the device manufacturer. Temperatures below 250° (121°C) are provided for disinfection only.*

NOTE

If the STOP button is pressed anytime during the Programming Mode the settings entered will be aborted and revert back to the original settings before programming began.

then displays: **<P> FOR NEXT
<STOP> TO CANCEL** Press **P**

Displays: **STERILIZATION TIME
XX MINUTES** then **<+> OR <-> TO ADJUST**

Press **+** raises time 1 minute. Press **-** lowers time 1 minute.

Sterilization time can be adjusted from a *minimum of 3 minutes* to a *maximum of 90 minutes*. It is important to properly coordinate the cycle time with the sterilization temperature.

then displays: **<P> FOR NEXT
<STOP> TO CANCEL** Press **P**

Displays: **VENT TYPE:
FAST** then **<+> OR <-> TO ADJUST**

Press **▲** changes VENT to FAST. Press **▼** changes VENT to SLOW.

When in FAST vent, valve fully opens and vents chamber.

When in SLOW vent, valve opens periodically for a fraction of a second once per minute to slowly vent chamber.

then displays: **<P> FOR NEXT
<STOP> TO CANCEL** Press **P**

Displays: **DRY TIME
XX MINUTES** then **<+> OR <-> TO ADJUST**

Press **▲** raises time by 1 minute. Press **▼** lowers time by 1 minute.

Dry time can be adjusted from zero to a maximum of 60 minutes, in 1 minute increments.

then displays: **<P> FOR NEXT
<STOP> TO CANCEL** Press **P**

The display shows the new programmed conditions.

Displays: **PROGRAM 1
XXX°F, XX MINUTES** then **FAST VENT
XX MINUTE DRY**

NOTE

The programmed settings entered are retained under Program 1 button. Even if power is interrupted or the unit unplugged the settings will be retained.

Load articles to be sterilized into chamber.



CAUTION

All materials run in these cycles must be validated by the user. Failure to do so could result in incomplete sterilization.

Press START button **⏪** to begin sterilization cycle for Program 1.

NOTE

*After any cycle has been selected but not started, depressing the STOP **⏹** button or allowing 5 minutes or more time to pass, the display will go back to*

SELECT CYCLE

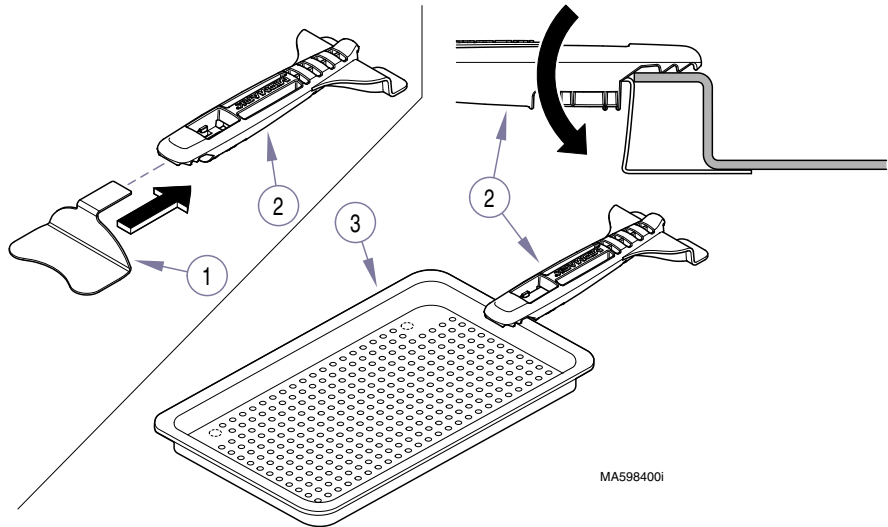
Unloading Hot Trays and Cassettes (Using Tray/Cassette Tool)



CAUTION

Only use the 9A307001 Tray / Cassette tool with Midmark manufactured trays. Use care when removing or transporting trays, or cassettes as they may be hot. Hold the tray level and slightly elevated to prevent it from shifting and becoming dislodged. Failure to comply may result in personal injury due to burns.

Tray Removal



Operation

Insert tray (smaller) plate (1) into end of tool (2)

Hook the top tab of the tool (2) to top center of tray lip.

Rotate tool (2) downward until bottom forks are completely beneath tray (3).

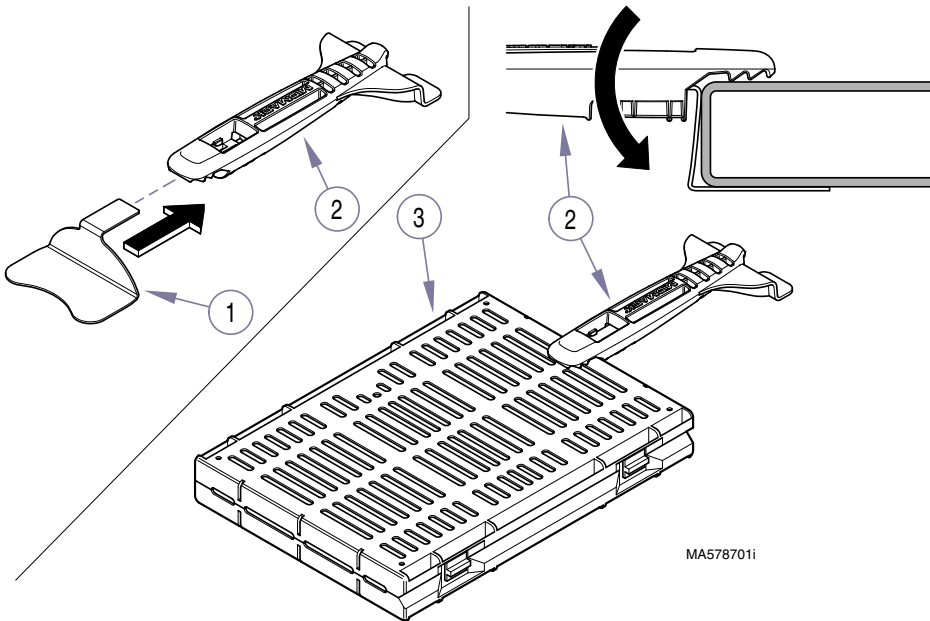
Check to ensure tray (3) is being held securely and then remove tray from chamber.

Cassette Removal

NOTE

Cassette tool can handle cassettes up to 1 1/2" (3.8 cm) thick

Insert cassette plate (A) (larger plate) into end of the tool.



CAUTION

When removing the cassette, hold the cassette tool so the end of the cassette is slightly elevated and use care to prevent it from sliding off the cassette tool.

Hook top, saw-toothed tab of tool to the top center of the cassette (3) while rotating tool downward until bottom plate is completely beneath the cassette.

Check to ensure the cassette is being held securely and then remove the cassette from the chamber.

List of Authorized Accessories

Listed below are the accessories which are authorized for use with these sterilizers. Unless noted, accessory can be used on the M9 and M11.

<u>Accessory Name</u>	<u>Order Number</u>
• Speedclean, 1 (16 oz. [.47 liter]) bottle	002-0396-00
• Speedclean, 1 case (12-16 oz. [.47 liter] bottles)	002-0396-01
• Speedclean, 1 case (12-32 oz. [.95 liter] bottles)	002-0396-02
• Printer Refill Kit	002-0371-00
• Rack / Cassette (Horizontal)	9A215001 (M11/M11D Only)
• Rack / Cassette (Vertical)	9A215002 (M11/M11D Only)
• Tray / Deep (2 1/2" [6.4 cm])	9A224001 (M9/M9D Only)
• Tray / Deep (2 1/2" [6.4 cm])	9A225001 (M11/M11D Only)
• Rack / Pouch	9A226001
• Printer	9A259001
• Cassette Tray (Large)	9A306001 (M11/M11D Only)
• Tray / Cassette Tool	9A307001
• External Condensing Tank	9A260001

OPERATOR MAINTENANCE

User is responsible to establish a periodic maintenance procedure to assure correct operation of equipment and reliable sterilization of loads.

Contact your local Midmark distributor or service representative to develop a program for planned maintenance.

NOTE

After the Sterilizer is plugged into a power source at **7, 14, and 21 days** a message will be displayed **PERFORM WEEKLY MAINTENANCE** informing the Operator that maintenance is due.

At the 28th day a message will be displayed **PERFORM MONTHLY MAINTENANCE**. Refer to the appropriate maintenance instructions in this manual.

If power is interrupted the timer will reset initiating a new cycle of messages.

Tray Rack & Plate

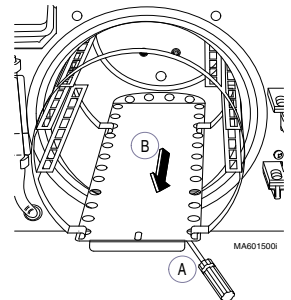


WARNING

Make sure that unit is cool before attempting to remove or install tray rack and plate. Use care to prevent injury when handling metal tray rack. Do not run Sterilizer without Tray Rack in place.

1. Removal

- After removing trays, pry upward (A) on end of tray plate with a screwdriver while pulling tray rack and plate assembly out (B) of chamber.



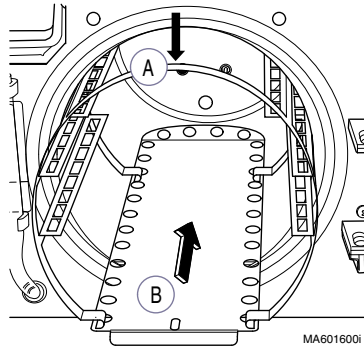
2. Installation



EQUIPMENT ALERT

Install tray rack and plate assembly so that angled end of plate is toward back of chamber. Do not allow plate to contact water lever sensor.

- Place back edge of tray in chamber. Pressing downward (A) on top of tray rack, slowly insert assembly into chamber (B).



Daily



EQUIPMENT ALERT

If the sterilizer is used frequently to process dental handpieces that have been lubricated or dipped in dental milks, drain the water from the reservoir daily. Refill the reservoir with distilled water.

1. Clean External Surfaces .



CAUTION

Make sure that unit is cool when cleaning door gasket and any mating surfaces to prevent being burned.

2. According to your facility's procedure:

- Use only quaternary disinfectants to disinfect unit . Staining, pitting, discoloration, or softening could occur if phenolic, iodophor, or glutaraldehyde-based disinfectant is used on plastic surfaces of the unit. Also, use of alcohol or aerosol spray cleaner / disinfectant containing substantial amounts of alcohol in the formula can damage the faceplate.
- Wring excess solution from cloth.
- Using soft cloth, wipe all external surfaces.
- Do not rinse or dry external surfaces. Allow germicidal solution to air dry.

3. Clean Sterilizer Door Gasket

- Clean door gasket sealing lip and mating surface with a damp cloth.
- Examine gasket for possible damage.

Operator
Maintenance

Weekly



EQUIPMENT ALERT

Do not use abrasive or bleaching agents in chamber (i.e. steel wool, scouring powder, bleach, etc.) or wire brush.

Possible damage to metal surfaces of chamber and other components could result.

1. Clean Chamber and Trays




- Drain water from the reservoir using drain tube located on front of unit.
- Wash inside of chamber and trays with mild soap or Speed-Clean and distilled water.
- Refill reservoir with distilled water.

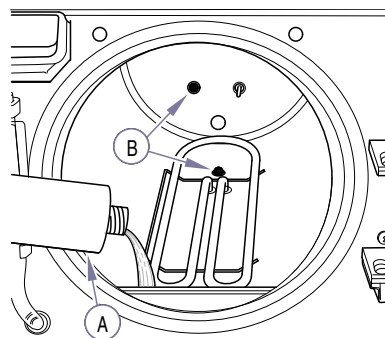
Monthly

NOTE

Do ***not*** process instruments while cleaning sterilizer.

1. Clean Chamber and Plumbing

- (a) With a cooled chamber, drain reservoir and fill with clean, distilled water. Add one ounce of Speed Clean Sterilizer Cleaner (E) directly to the bottom of chamber.
- (b) Run one **POUCHES**  cycle.
- (c) Press **STOP**  button when **Drying** portion of cycle begins.
- (d) Drain reservoir and refill with clean, distilled water.
- (e) Rinse by running one **UNWRAPPED**  cycle.
- (f) After cycle has completed:
Drain and refill reservoir with clean distilled water, then allow sterilizer to cool.
- (g) Remove trays and tray rack and wipe off with a damp cloth.
- (h) Remove and clean filters (A) (*Refer to Non-Scheduled Maintenance in this booklet*)
- (i) Wipe out the inside of chamber using care not to damage the heating element (B), steam temperature probe (C), or level sensor probe (D).
- (j) Re-install filters (A) and tray rack.



MA601401i

Perform Pressure Relief Valve Check

NOTE

Pressure Relief Valve must be checked each month to assure it functions properly.

(a) Press **UNWRAPPED**



(b) Press **START**



CAUTION

During the pressure relief valve check, steam will be vented from under the sterilizer. To keep from being burned, place a steam barrier (a rolled up towel) around the bottom of the sterilizer.

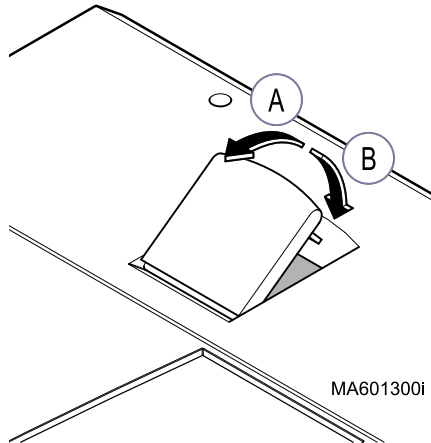
(c) Wait until pressure in chamber reaches between 25 PSI (172 kPa) and 26 PSI (179 kPa).

Display: **HEATING - UNWRAPPED**
XXX°F 25.5 PSI


Pull upward on the pressure relief lever (A) for approximately 3 seconds. Steam should discharge freely from beneath rear of unit.

NOTE

If pressure relief valve does not close completely when lever is released, pull upward on lever again and release it quickly so valve snaps back into position. Do this until valve seats properly.



(a) Release lever (B). Valve should close, stopping release of steam.

(b) Press **STOP** button  to abort the cycle, preventing unit from overheating.

(c) If excessive force is required to open pressure relief valve or pressure relief valve will not reseat properly, the pressure relief valve must be replaced (See Calling For Service later in this manual).

Operator
Maintenance

Non-Scheduled Maintenance



CAUTION

Always unplug unit power cord from outlet and allow unit to cool before performing maintenance. Failure to comply may result in injury.

1. Cleaning Fill / Vent and Air

Filter Screens

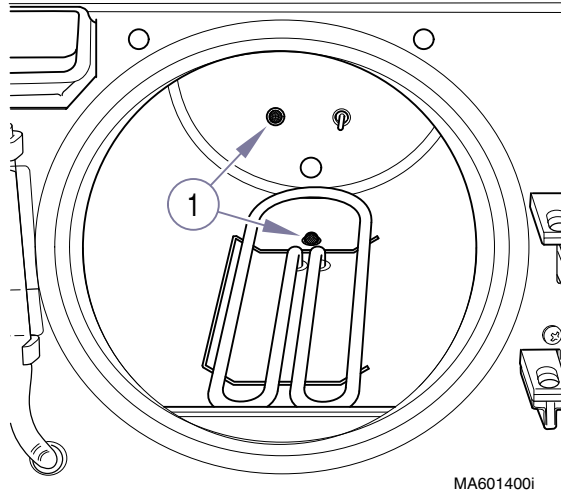
The filter screens (1) are intended to prevent debris from causing valve failures. The screens should be cleaned if fill or vent times become too long or items will not dry.

- (a) Unplug the power cord from outlet receptacle. Open door and remove trays.

- (b) To access Fill / Vent filter screen, remove tray rack.

Air filter screen is located in back of chamber.

- (c) Grasp filters (1) and gently pull upward while twisting slightly (a pair of pliers may be used if filter is stuck). Clean filters with mild soap and distilled water. A small stiff bristled brush or ultrasonic cleaner may be helpful. Rinse filters with distilled water.



Operator Maintenance



EQUIPMENT ALERT

Do not operate sterilizer without filters in place.

- (d) Re-install filters (1) by inserting into the hole, and pressing downward while twisting slightly.
- (e) Install tray rack.
- (f) Plug unit power cord into outlet receptacle.

Troubleshooting Guide

Use the following table to assist in correcting minor problems with the sterilizer.

TroubleShooting Guide

Problem	Possible Cause	Solution
<i>Sterilizer does not operate (no display)</i>	<i>Sterilizer power cord came loose from supply outlet or back of sterilizer.</i>	<i>Assure Sterilizer power cord is plugged into outlet and sterilizer.</i>
	<i>No power at Sterilizer supply outlet</i>	<i>Check circuit breaker for supply outlet. If problem recurs, unplug unit power cord and contact an authorized service technician (see Calling For Service).</i>
	<i>Fuse open on main P.C. Board.</i>	<i>Unplug unit power cord and contact an authorized service technician (see Calling For Service).</i>
<i>Steam is escaping from pressure relief valve</i>	<i>pressure relief valve not properly seated.</i>	<i>reseat pressure relief valve (see Perform Pressure Relief Valve Check under Monthly maintenance).</i>
<i>Sterilization failure evidence from process monitor (chemical indicator, biological indicator, etc.)</i>	<i>sterilization conditions were not present at location of the indicator.</i>	<i>reload sterilizer in accordance with Guidelines For Loading the M9/M9D or M11/M11D. If problem recurs, unplug unit power cord and contact an authorized service technician (see Calling For Service).</i>
	<i>indicator is out-of-date, is inappropriate for sterilization cycle, or has otherwise malfunctioned.</i>	<i>use an indicator, appropriate for the load and cycle selected, that has been stored properly. Contact the indicator manufacturer for additional information on proper selection, use, storage, and potential misapplication or malfunction.</i>
<i>Door gasket leaks</i>	<i>door gasket is damaged or dirty.</i>	<i>clean or replace door gasket (see Clean Door Gasket under Weekly maintenance).</i>
<i>Items are not dry at end of drying portion of cycle.</i>	<i>sterilizer is improperly loaded.</i>	<i>reload sterilizer in accordance with Guidelines For Loading the M9/M9D or M11/M11D. If problem recurs, unplug unit power cord and contact an authorized service technician (see Calling For Service)</i>
	<i>filter screen(s) clogged. (Check Fill / Vent and Air Valve filter screens)</i>	<i>clean or replace filter screen(s) (see Non-Scheduled Maintenance).</i>

**Operator
Maintenance**

TroubleShooting Guide - Continued

Problem	Possible Cause	Solution
<i>Printer not printing</i>	<i>Printer cable is not connected properly.</i>	<i>Ensure that printer cable is connected to printer and PC board properly.</i>
	<i>Software malfunction.</i>	<i>Unplug sterilizer power cord, wait 15 seconds, and then plug sterilizer power cord back in.</i>
	<i>Printer is out of paper.</i>	<i>Insert a new paper roll (see <i>Inserting the Paper Roll</i> under <i>Printer Installation and Operation</i>).</i>
	<i>Cartridge Ribbon is dried out or needs to be replaced.</i>	<i>Hold the switch in the ON / FEED position for three seconds. If this doesn't correct the problem, replace the cartridge ribbon (see <i>Installing a New Cartridge Ribbon</i> under <i>Printer Installation and Operation</i> in this manual).</i>

Message Guide



CAUTION

The Message Guide list some of the messages that may occur during operation, along with possible causes and solutions.

If an error occurs more than once, do not continue to use sterilizer.

Note the message or error code, unplug unit and call an authorized service representative (see "Calling For Service").

Also, if an error message contains the phrase "**Items Not Sterile**", the items in sterilizer **shall not** be considered sterile; they **must** be run through a successful sterilization cycle.

Message Guide

Message	Possible Cause	Solution
Informational Messages		
INITIALIZING SYSTEM	<i>Unit power cord was just plugged in - standard informational message.</i>	<i>normal operation will occur after a 4 second pause.</i>
TOTAL CYCLES XXXX M9*, vX.XX.	<i>Unit power cord was just plugged in - standard informational message.</i>	<i>normal operation will occur after this message.</i>
(*will display Model Number, M9, M9D, M11, or MIID).		

Message Guide - Continued

Message	Possible Cause	Solution
PERFORM WEEKLY MAINTENANCE	<i>This message is displayed every 7, 14, and 21 days after the unit is plugged into a power source to prompt the operator to perform weekly maintenance described in this manual.</i>	<i>Perform weekly maintenance. The message will automatically clear after the next cycle is completed.</i>
PERFORM MONTHLY MAINTENANCE	<i>This message is displayed every 28 days to prompt operator to perform monthly maintenance described in this manual.</i>	<i>Perform monthly maintenance. The message will automatically clear after the next cycle is completed.</i>
Error Messages		
C101: POWER UP MODE SYSTEM PWR LOSS	<i>Unit had loss of power during cycle.</i>	<u>Press STOP</u> button to restart.
ITEMS NOT STERILE PUSH STOP TO RESTART		
C060: POWER UP MODE SYSTEM HARDWARE	<i>Power was interrupted briefly or an internal glitch.</i>	<u>Unplug unit power cord for 1 minute and then plug back in.</u> If problem persists, contact an authorized service representative (see <i>Calling For Service</i> later in this manual).
C102: FILL MODE STOP PRESSED	STOP button was pressed during cycle.	<u>Press STOP</u> button to restart.
C103 through C105 HEATUP, STERILIZE, OR VENT MODE STOP PRESSED	STOP button was pressed during cycle.	Wait briefly (up to one minute) while chamber pressure / temperature dissipates. <u>Press STOP</u> button to return to Select Cycle mode where a new cycle may be initiated.
C106: DOOR MODE STOP PRESSED	STOP button was pressed during cycle.	<u>Press STOP</u> button to restart.
C232: FILL MODE WATER LOW	<i>Water level in reservoir is too low.</i>	<i>Refill water reservoir with distilled or demineralized water. Wait briefly (up to one minute). <u>Press STOP</u> button to return to Select Cycle mode where a new cycle may be initiated</i>
	<i>Fill / Vent filter (in bottom of chamber) clogged.</i>	<u>Clean Fill / Vent filter</u> (Refer to <i>Non-Scheduled Maintenance</i>).
C326: DOOR MODE DOOR CLOSED	<i>Door latch is still making contact after door motor operated.</i>	<u>Open Door</u>

Operator Maintenance

Message Guide - Continued

Message	Possible Cause	Solution
C382 FILL DOOR OPEN	Sterilizer detects that door switch contacts opened.	Close the sterilizer door. (Cycle will continue where left off.)
C383 HEATUP MODE DOOR OPEN	Sterilizer detects that door switch contacts opened.	Wait briefly (1 minute) while chamber pressure / temperature dissipates. Press STOP button to return to Select Cycle mode. Initiate a new cycle.
C384 STERILIZE MODE DOOR OPEN	Sterilizer detects that door switch contacts opened.	<u>Unplug unit power cord for 1 minute and then plug back in.</u> If problem persists, contact an authorized service representative (see Calling For Service later in this manual).
C533 through C633 STEAM TEMP LOW or STEAM TEMP HARDWARE or PRESSURE LOW	Sterilizer detects that temperature and / or pressure is outside the limits for normal operation.	<u>Unplug unit power cord for 1 minute and then plug back in.</u> If problem persists, contact an authorized service representative (see Calling For Service later in this manual).
C642 through C647 PRESSURE HIGH	Pressure inside chamber is outside the limits for normal operation.	Wait briefly (up to one minute) while chamber pressure / temperature dissipates. Press STOP button to return to Select Cycle mode. Initiate a new cycle.
C660 through C677 PRESSURE HARDWARE or PRESSURE OVERLIM	Pressure inside chamber is outside the limits for normal operation.	<u>Unplug unit power cord for 1 minute and then plug back in.</u> If problem persists, contact an authorized service representative (see Calling For Service later in this manual).
C980 through C987 HI-LIMIT OPEN	High Limit switch has opened for at least 1/4 second during specific operational mode.	<u>Unplug unit power cord for 30 minutes, to allow unit to cool, and then plug back in.</u> If problem persists, contact an authorized service representative (see Calling For Service later in this manual).

CALLING FOR SERVICE

NOTE
Please mark down any displayed Code(s) and be sure to relay this information to the Service Technician.

Contact your **Midmark Authorized Dealer**, or log onto **www.midmark.com**

Model and serial number information will be required when calling for service. To contact Midmark directly:

1-800-Midmark (1-800-643-6275) or 937-526-3662
8:00 a.m. until 5:00 p.m. Monday through Friday
(Eastern Standard Time in the U.S.)
[excluding standard U.S. holidays].

SPECIFICATIONS

M9/M9D Sterilizer

Physical Dimensions:

- Overall Length w/Plug 20.38 in. (51.8 cm)
- Overall Width..... 15.3 in. (38.9 cm)
- Overall Height w/Printer 15.8 in. (40.1 cm)
- Counter Area..... 15.3 in. x 18 in. (38.9 cm x 45.7 cm)
- Chamber
9.0 in. diam. x 15.0 in. deep
(22.9 cm x 38.0 cm)
- Standard Trays Large: 7 5/16 in. x 12 in. x 7/8 in.
(18.6 cm x 30.5 cm x 2.2 cm)
Small: 5 5/8 in. x 12 in. x 7/8 in.
(14.3 cm x 30.5 cm x 2.2 cm)

Weight:

- Empty Reservoir..... 73 lbs (33.1 Kgs)
- With Shipping Carton 81 lbs (36.7 Kgs)

Water Reservoir Capacity..... 1.1 Gallons (4.1 liters) to Full Mark
usable volume is 0.5 gallons (1.9 liters)

Electrical Requirements:

NOTE: A separate (dedicated) circuit is required for this sterilizer. Sterilizer should not be connected into an electrical circuit with other appliances or equipment unless circuit is rated for the additional load.

- 115 VAC, 50/60 Hz Model 15 AMP Circuit, Single Phase (1425 Watts)
- 230 VAC, 50/60 Hz Model 10 AMP Circuit, Single Phase (1500 Watts)

Calling For Service

Specifications

Fuse Ratings

115 VAC Unit

- F1 0.25 Amp, 250 V, Slo-blo, 1/4" x 1 1/4"
F2 15 Amp, 250 V, Fast Acting, 1/4" x 1 1/4"

230 VAC Unit

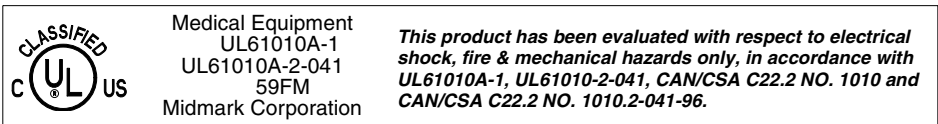
- F1 0.125 Amp, 250 V, Slo-blo, 5 x 20 mm
F2 8 Amp, 250 V, Fast Acting, 5 x 20 mm

Chamber Pressure at

270°F (132°C) 27.1 psi. (186.2 kPa)

Safety Valve Setting 40 psi. (275.8 kPa)

Certifications ASME Boiler & Pressure Vessel Code,
Section VIII, Division 1.



M11/M11D Sterilizer

Physical Dimensions:

- Overall Length w/Plug 23.8 in. (60.5 cm)
Overall Width 17.8 in. (45.2 cm)
Overall Height w/Printer 17.8 in. (45.2 cm)
Counter Area 17.8 in. x 21 in. (45.2 cm x 53.3 cm)
Chamber 11.0 in. diam. x 18 in. deep
(28 cm diam. x 46 cm deep)
Standard Trays Large: 9 in. x 15 in. x 1 1/8 in.
(22.9 cm x 38 cm x 2.9 cm)
Small: 6 5/8 in. x 15 in. x 1 1/8 in.
(14.3 cm x 38 cm x 2.9 cm)

Weight:

- Empty Reservoir 99.0 lbs (44.9 Kgs)
With Shipping Carton 131.0 lbs (59.4 Kgs)

Water Reservoir Capacity Approximately 1.4 Gallons (5.3 liters) to Full Mark
usable volume is 1.0 gallons (3.8 liters)

Electrical Requirements:

NOTE: A separate (dedicated) circuit is required for this sterilizer. The sterilizer should not be connected into an electrical circuit with other appliances or equipment unless the circuit is rated for the additional load.

115 VAC, 50/60 Hz Model 15 AMP Circuit, Single Phase (1425 Watts)

230 VAC, 50/60 Hz Model 10 AMP Circuit, Single Phase (1500 Watts)

Fuse Ratings

115 VAC Unit

F1 0.25 Amp, 250 V, Slo-blo, 1/4" x 1 1/4"

F2 15 Amp, 250 V, Fast Acting, 1/4" x 1 1/4"

230 VAC Unit

F1 0.125 Amp, 250 V, Slo-blo, 5 x 20 mm

F2 8 Amp, 250 V, Fast Acting, 5 x 20 mm

Chamber Pressure at

270°F (132°C) 27.1 psi. (186.2 kPa)

Safety Valve Setting 40 psi. (275.8 kPa)

Certifications ASME Boiler & Pressure Vessel Code,
Section VIII, Division 1



	Medical Equipment	<i>This product has been evaluated with respect to electrical shock, fire & mechanical hazards only, in accordance with UL61010A-1, UL61010-2-041, CAN/CSA C22.2 NO. 1010 and CAN/CSA C22.2 NO. 1010.2-041-96.</i>
	UL61010A-1	
	UL61010A-2-041	
	59FM	
	Midmark Corporation	



PRINTER INSTALLATION AND OPERATION

The printer is an optional add-on that some units may have. The printer may also be purchased as an accessory at a later date and installed.

Installing the Printer

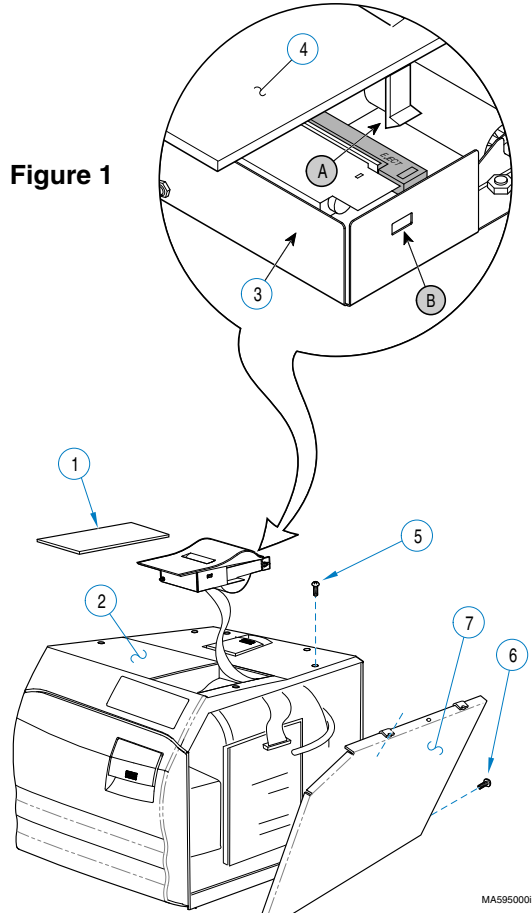


WARNING

Disconnect all electrical power to the unit before removing any of the unit's covers/shrouds or making any repairs to prevent possibility of electrical shock. Failure to comply with these instructions could result in serious personal injury.

1. Unplug sterilizer power cord from electrical outlet.
2. Using a flat bladed screwdriver, carefully pry existing printer cover plate (1, Fig. 1) from top cover (2) and discard (*cover plate is held in place with double sided tape*).
3. If not already assembled, attach printer assembly (3) to printer housing (4) by inserting two locking tabs (A) into locking slots (B). Set printer assembly aside.
4. Remove two screws (5) and one screw (6) securing right hand side panel (7).
5. Pull outward and down on top edge of right hand side panel (7) and remove right hand side panel from sterilizer.

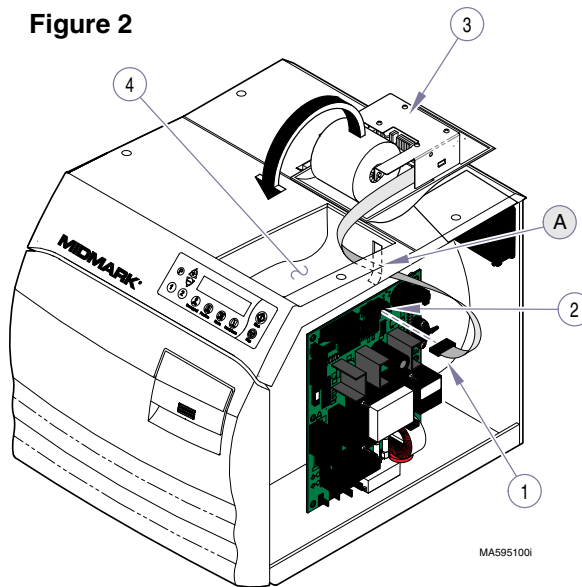
Figure 1



MA5950001

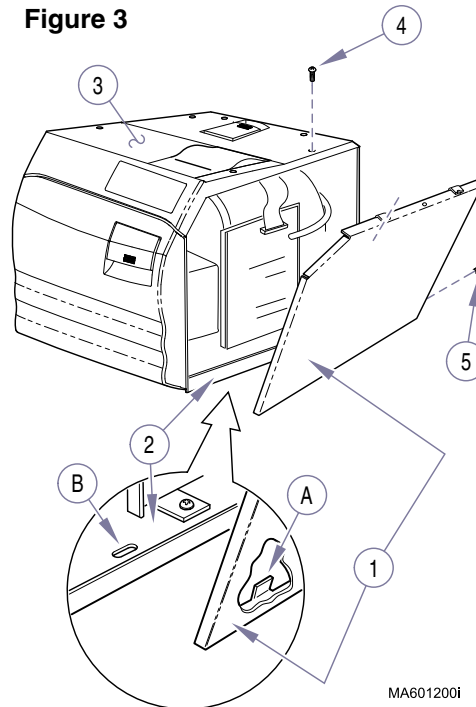
6. Route loose end of PCB printer harness (1, Figure 2) through slot (A) in printer cavity (4) of top cover.
7. Plug PCB printer harness (1) into printer terminal (2) of PC Board.
8. Position printer assembly (3) in printer cavity (4).
9. Insert two tabs (A, Figure 3) of right hand side panel (1) into slots (B) in base (2).

Figure 2



10. Raise top edge of right hand side panel (1) into position under top cover (3) and secure using two screws (4) and one screw (5). Make sure back lip of right hand side panel is on outside of back panel; not on inside.
11. Plug sterilizer power cord into electrical outlet.
12. Insert a paper roll if necessary (see Inserting Paper Roll later in this manual).

Figure 3



Operating the Printer

When the sterilizer is plugged in, the printer is automatically powered up and initialized; no user intervention / setup is required.

Inserting the Paper Roll

1. Remove the printer assembly (1, Fig. 4) from the printer cavity (A) and turn it onto its back.

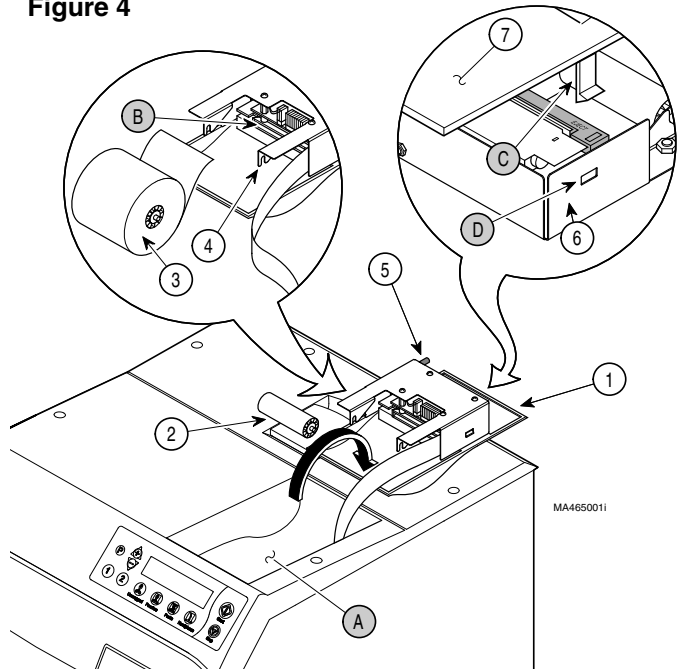
2. Remove paper spindle (2) from used paper roll and insert it in new paper roll (3).

3. Unroll 2 to 3 in. (5 to 7.5 cm) of paper (3).

4. Cut a straight edge on the paper (3) if it is torn or jagged; this will facilitate the entry of paper into the printer.

5. Slide the paper (3) into the slot (B) on the back of the printer; it will slide in 1/4 in. (6.4 mm) before it stops.

Figure 4



NOTE

If paper (3) does not feed out of top of printer by itself, remove printer assembly (6) from printer housing (7) by pulling two locking tabs (C) from locking slots (D). Feed paper through paper slot in printer housing (7) by hand and then re-attach printer assembly (6) to printer housing (7) by inserting two locking tabs (C) into locking slots (D).

6. While holding the paper (3) in place, press the PAPER FEED button (5) and hold. The printer will activate and a rubber roller will pull the paper into the printer compartment. Continue to hold the PAPER FEED button down until the paper emerges from the top of the printer mechanism. Then, when 1 in. (2.5 cm) of paper has emerged from the top of the printer, release the PAPER FEED button.

7. Pull the paper (3) through the printer until 2 to 3 in. (5 to 7.5 cm) of paper is exposed.

8. Install the paper roll (3) by inserting the ends of the paper spindle (2) in slots of spindle holders (4).

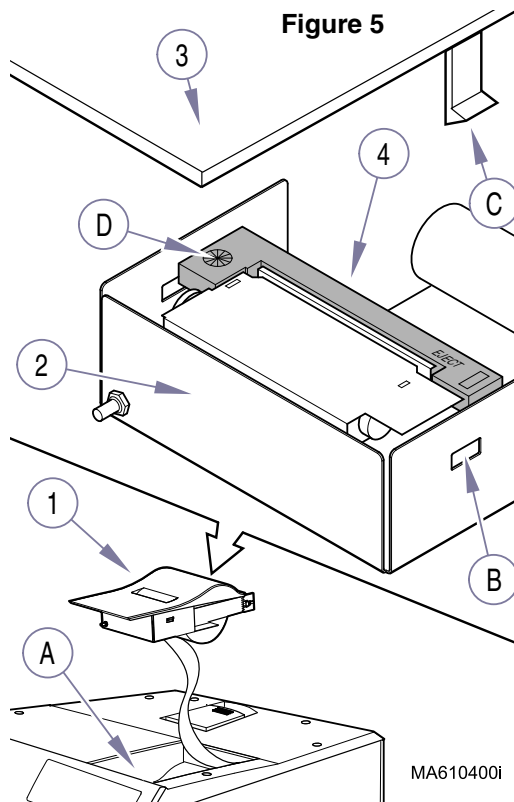
9. Turn the paper roll so as to take up the slack in the paper feeding to the printer. Make sure the roll of paper turns freely. If it does not turn freely, the paper will jam and possibly damage the printer mechanism.
10. Install the printer assembly (1) back into the printer cavity (A).

About the Cartridge Ribbon

The printer takes a cartridge ribbon. If the printed material is difficult to read and you suspect a dried out ribbon is the cause of the problem, advance to a properly inked portion of the ribbon by pressing the PAPER FEED button for three seconds. When printing becomes faint or difficult to see and pressing the PAPER FEED button for three seconds does not correct the problem, you should replace the cartridge (see Installing a New Cartridge Ribbon later in this manual).

Installing a New Cartridge Ribbon

1. Unplug the sterilizer power cord from electrical outlet.
2. Remove the printer assembly (1, Figure 5) from the printer cavity (A).
3. Separate the printer (2) from the cover (3) by slightly bending the housing (B) to release the locking tabs (C)
4. Push down on side of printer cartridge (4) marked EJECT and remove the old ribbon cartridge.
5. When installing the new cartridge be sure the ribbon is inserted in front of the paper and flat against the paper. Press the ribbon cartridge (4) downward until it snaps into place.
6. Turn the knob (D) on the ribbon cartridge clockwise until ribbon is tight.
7. Re-attach cover (3) to printer (2) by inserting locking tabs (C) into slots of housing (B).
8. Place printer assembly (1) in cavity (A).
9. Plug sterilizer power cord into electrical outlet.



Removing the Paper Roll



EQUIPMENT ALERT

Be sure to pull the paper out of the top of the printer. Pulling the paper out of the back of the printer will damage the printer mechanism.

nism.

Before removing the paper roll, advance the paper about 1 in. (2.5 cm) by pressing down and holding the PAPER FEED button. Lift the paper roll away from the printer housing, and with a scissors, cut the paper roll feeding to the printer. Try to make the cut as straight as possible to facilitate the next reloading of the paper. Now, pull the remaining paper through the printer mechanism.

Power Up Message

When the printer successfully initializes after the sterilizer is powered up, it prints the word READY to assure the operator that its built in microprocessor is working properly and the sterilization cycles will be recorded by the printer.

Printer Tape Description

The printer will print the following information for each program cycle:

Cycle Type

Set Temperature

Set Time

Run Number

Date: Lines are printed for the month, day, and year so that the date can be recorded on the printer tape.

The printer will print the chamber temperature, the chamber pressure, and the time elapsed in two (2) minute increments during the heat up phase.

During the actual Sterilization Phase of the program cycle, the printer will record the chamber temperature, chamber pressure, and the time elapsed for each 1/2 minute of the program cycle.

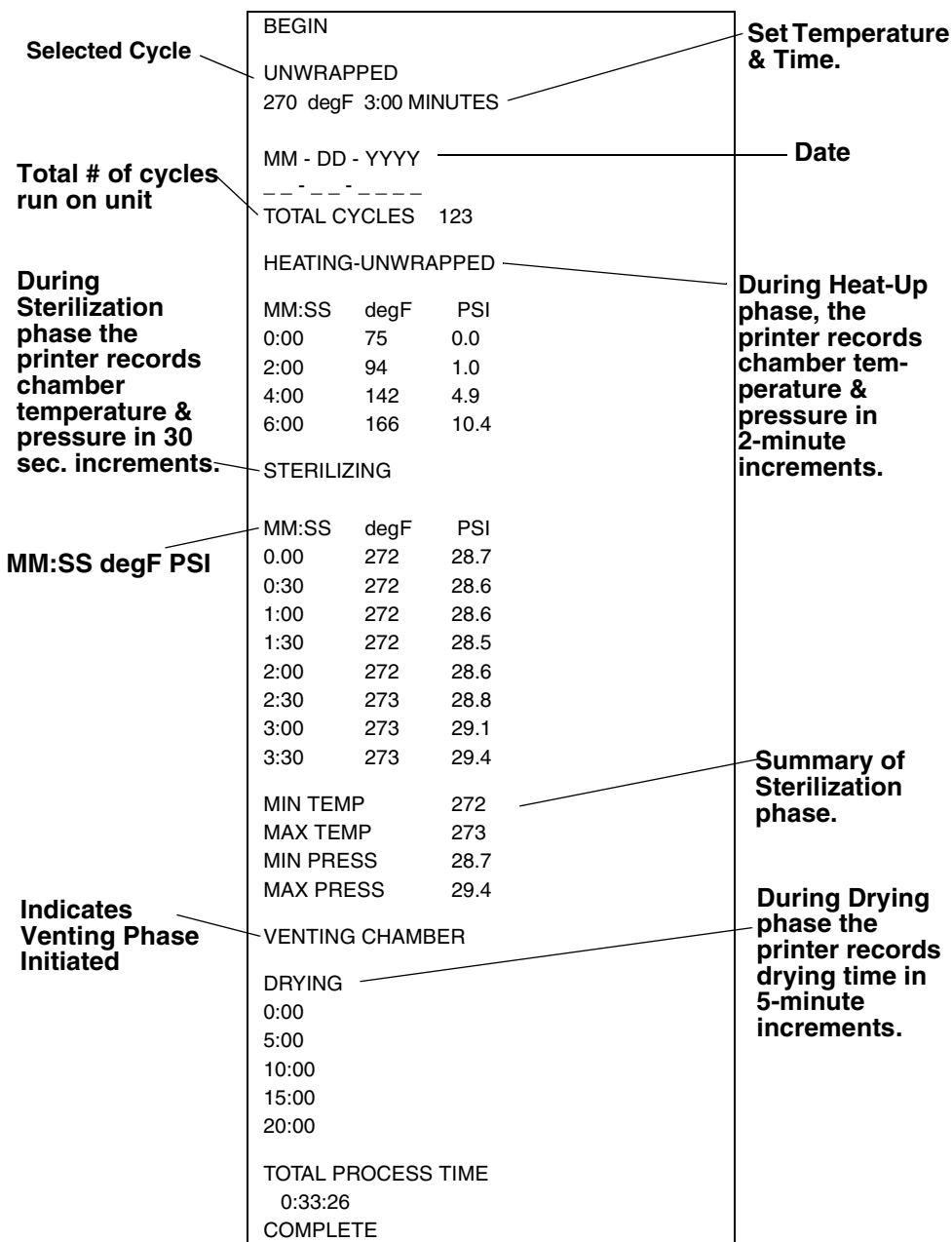
When the sterilizer has completed the Sterilization Phase of the program cycle, the printer will print the word VENTING CHAMBER to show that the steam pressure is being exhausted from the chamber.

During the Drying Phase of the cycle, the printer will record the elapsed time in five (5) minute increments. In the event the Dry Time has been programmed to something other than five (5) minute increments the printer will still only record in five (5) minute increments, e.g. a programmed Dry time of 12 minutes will only record 5 & 10 minutes under Drying on the printout. However, the addition drying time is included in the Total Process Time printed on the printout.

When the sterilizer has completed the Drying Phase of the program cycle, the word COMPLETE will be printed to show that the sterilizer has completed the sterilization program cycle.

The figure below shows an example of a typical printout of a program cycle:

Typical Printout of a Program Cycle



LIMITED WARRANTY

SCOPE OF WARRANTY

Midmark Corporation (“Midmark”) warrants to the original purchaser its new Alternate Care products and components (except for components not warranted under “Exclusions”) manufactured by Midmark to be free from defects in material and workmanship under normal use and service. Midmark’s obligation under this warranty is limited to the repair or replacement, at Midmark’s option, of the parts or the products the defects of which are reported to Midmark within the applicable warranty period and which, upon examination by Midmark, prove to be defective.

APPLICABLE WARRANTY PERIOD

The applicable warranty period, measured from the date of delivery to the original user, shall be one (1) year for all warranted products and components.

EXCLUSIONS

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SF-1487 REV. A1

Notes:

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To reorder informational materials for this unit, use the following part numbers:
User Training CD: **Go to Midmark.com** Paper I/O Manual: **003-1249-00**

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