Quantim 16

Training Manual

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Features, Cycle Times & Specifications

Features: The Quantim 16 is a 10” chamber sterilizer. It comes with 3 instrument trays for sterilizing loose or bagged instruments. The trays can be removed and replaced by three 8” x 11” instrument cassettes. The steam is generated in a boiler underneath the chamber. This means water is never heated within the actual chamber thus reducing chamber build-up. The boiler has a lifetime warranty and the chamber is guaranteed for 10 years. The Quantim is filled from the front and the drain is located inside the door. If the Quantim is a single use type, a waste bottle will be connected to the rear of the unit. The primary feature of the Quantim is closed door drying. If the unit is allowed to go through a complete drying cycle the instruments should come out dry. As with all sterilizers the chamber should not be overloaded as this may effect the operation of the unit.

Cycle Times: There are three cycles available on the Quantim: Unwrapped approximately 55 minutes cold start, Wrapped approximately 67 minutes cold start and Packs approximately 80 minutes cold start. All times include a complete drying cycle of approximately 30 minutes. If the unit is preheated or hot from a previous cycle the cycle times will be 8-10 minutes shorter. Cycle times will also vary depending on load size. Note: The multi-use Quantim also has a liquids cycle available.

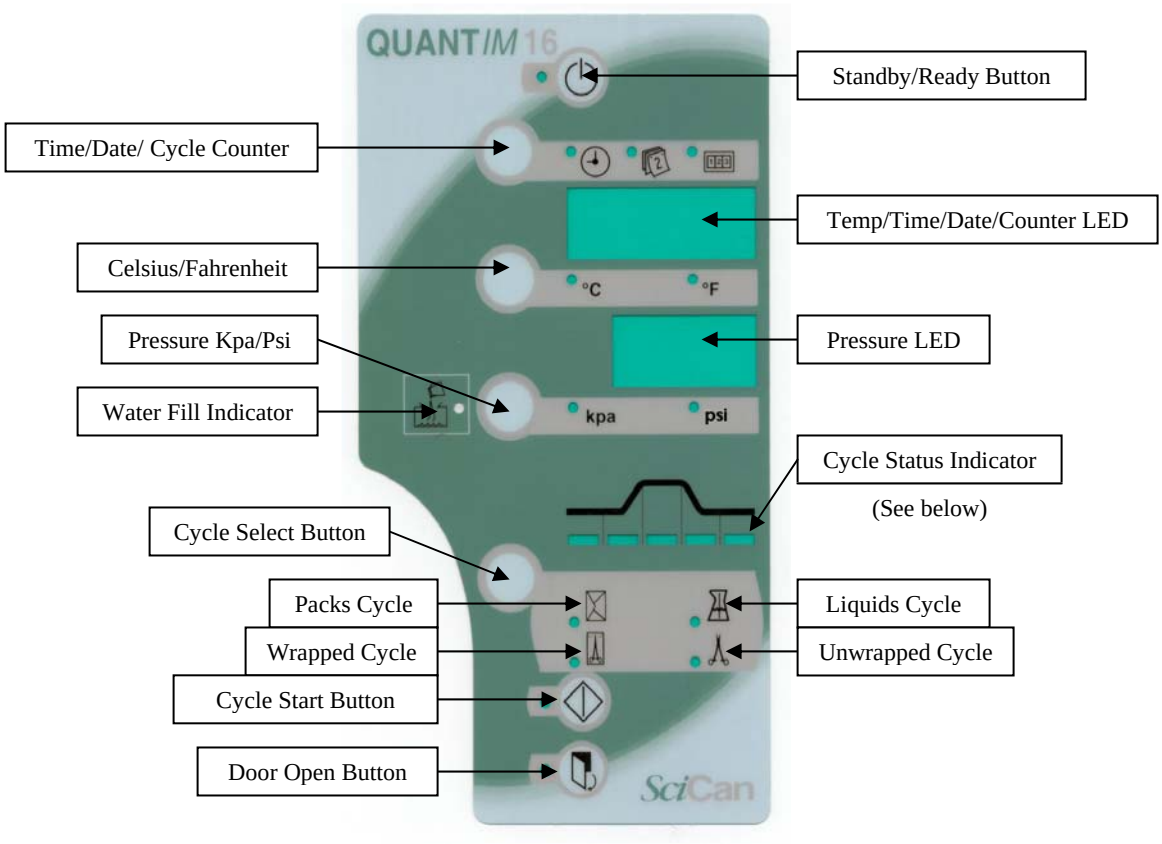
Voltage Requirements: 110V/15A Circuit (separate circuit if possible)

External Dimensions: Height 16.1”
Width 18.9”
Depth 17.3”

Chamber Size: Diameter 9.8”
Length 13”

Weight: 93 lbs (without water)

Control Panel



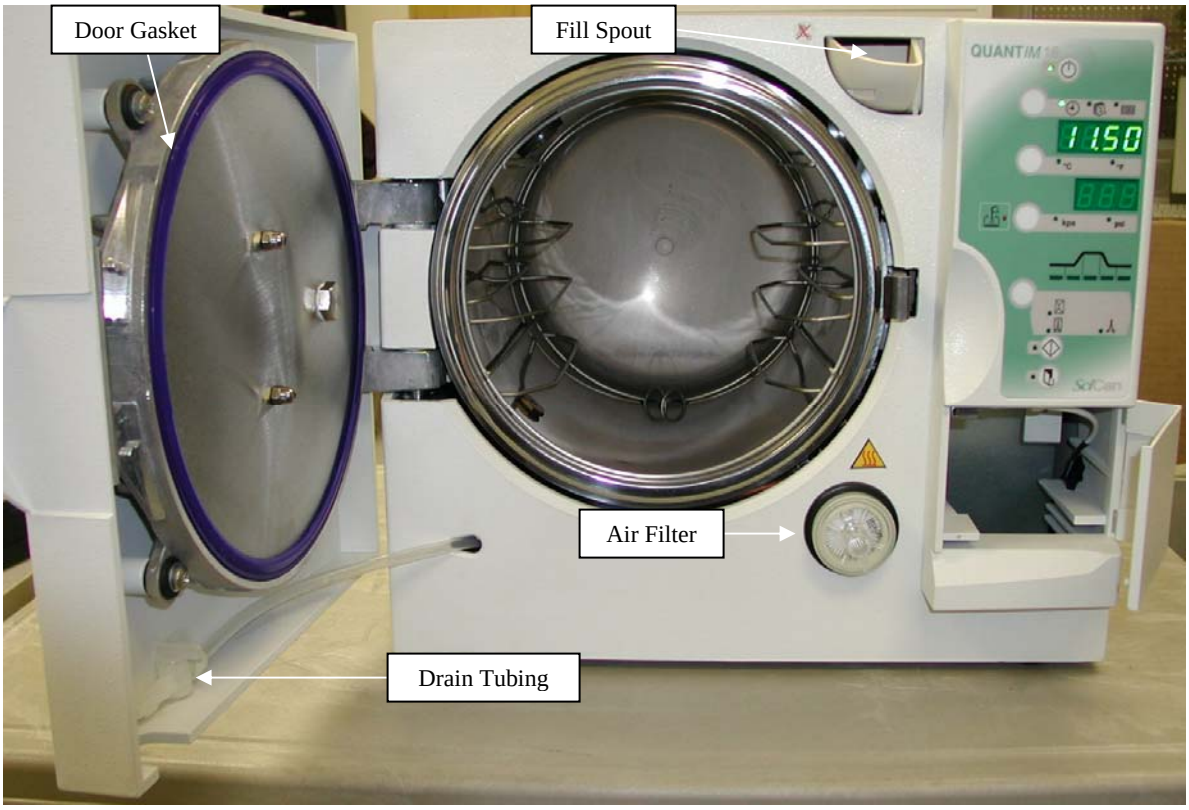
A visual cycle indicator shows the stages of the cycle	
Stage 1	Pre-Vac/Water Fill
Stage 2	Heating and Air Bleed
Stage 3	Sterilizing
Stage 4	Depressurization/Air Drying
Stage 5	Cycle Complete the buzzer beeps 3 times

When the Quantim is plugged in the time will appear on the top display, the light next to the top button (Standby/Ready Button) will be ON and the light next to the clock will be ON. The lower display will be OFF. This is the Standby Mode. The unit should be left in the standby mode when leaving the office at night, unless the unit is running a cycle. When the Standby/Ready Button is pressed, the light next to it will turn OFF, the lower display will turn ON and other miscellaneous lights will turn ON. This is the Ready Mode. The light next to the Door Open Button will come ON, if the door is closed. When the Door Open Button is pressed the door will open. The boiler will begin to preheat and the heating pad, located under the front of the chamber, will preheat the chamber. As long as you remain in the Ready Mode the unit will be preheated.

While in the Standby or Ready Mode (prior to starting a cycle) the top display may be set to one of three positions; time, date or cycle count. You may change the setting by pressing the button to the left of the clock above the top display. Once a cycle has started the top display will show the chamber temperature. You may change the temperature reading from Celsius (C) to Fahrenheit (F) by pressing the button to the left of the temperature lights.

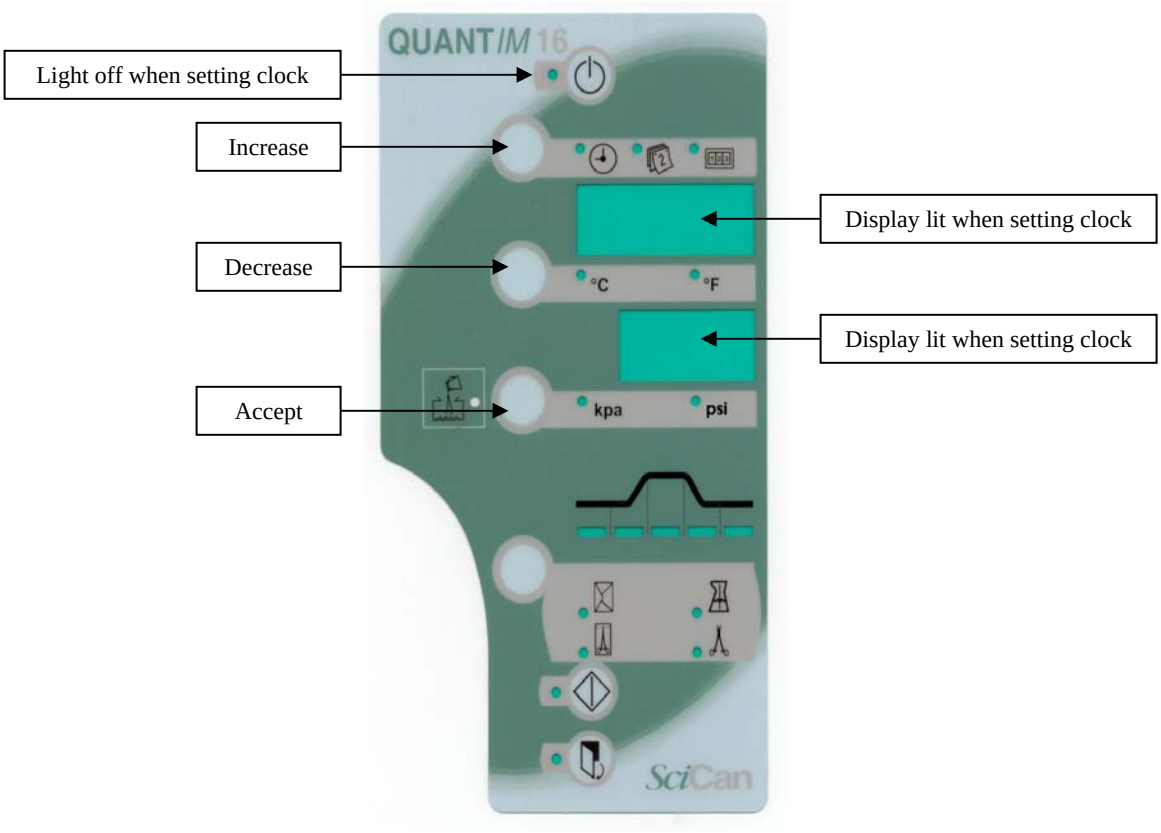
When you enter the Ready Mode the lower display will display 000, this is the pressure reading for the chamber. The display will remain 000 until a cycle is started and the chamber reaches approximately 100°C/212° F. At this temperature the chamber will start to pressurize and the pressure reading will begin to rise. You may change the pressure reading from Kilopascals (Kpa) to Pounds per square inch (Psi) by pressing the button to the left of the pressure lights.

Installation Instructions



Note: The Quantim must be positioned so that the rear is not accessible to personnel and is not directly in front of an electrical outlet in the event of an overpressure release valve operating. The Quantim cooling fan outlet, located on the left side of the unit, must be placed 100mm/4" from any nearby surface.
Place the Quantim on a flat level surface. Plug the unit into an 110V/15A circuit. The Standby/Ready light will come on and the time will be displayed on the top LED.
Press the Standby/Ready Button to put the Quantim in the Ready Mode. The Standby/Ready light will turn OFF.
Press the Door Open Button and remove the packing material or waste bottle from inside the chamber. To verify the unit is level, pour half a cup of distilled water into the chamber. The water should flow towards the rear of the chamber.
Do not position the Quantim directly in front of an electrical outlet and allow 4" on the left side for the cooling fan.
Pour distilled water into the fill spout to the maximum line located within the fill spout. The unit will hold approximately 1 gallon of distilled water. When the low water indicator lights, the water reservoir will need to be refilled.
Note: Never use tap water.

Setting Time & Date



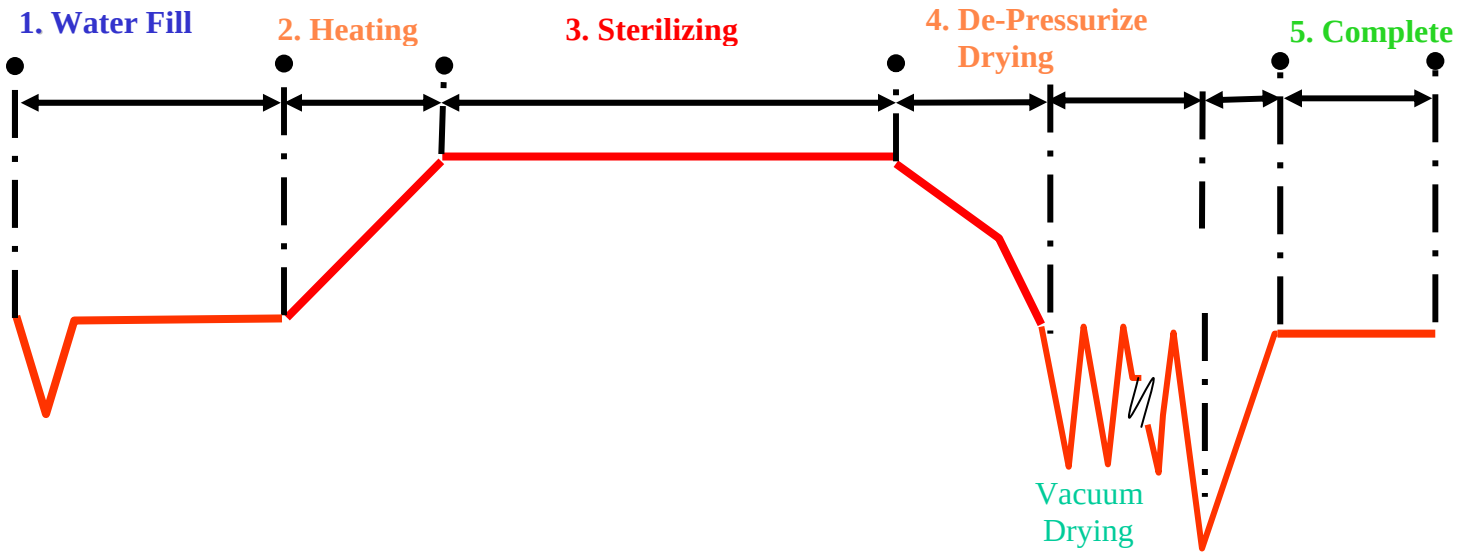
Ensure that the Quantim 16 is in the ready mode. Press the button next to Quantim 16 so the light is OFF and the lower lights on the front display are ON. Both LED's should be lit.

Press and hold the clock button for 5 to 10 seconds, until the 2 right digits on the upper LED start flashing. The flashing numbers indicate the year (i.e. 03, 04, and 05). Press and release the clock button to increase the year or press and release the temperature button to decrease the year. When the correct year is displayed press the KPA (pressure button) to accept the year. When the year is accepted the 2 left digits will start flashing. These flashing numbers indicate the century (i.e. 19, 20). Increase or decrease century by pressing the clock or temperature buttons, same as above. When century is 20, press the KPA (pressure button) to accept, same as above.

When the century is accepted the date will appear on the upper LED. The month will be the 2 flashing digits on the right, after accepting the correct month the day will be the 2 flashing digits on the left. Always press the KPA (pressure button) to accept and move to the next displayed item.

After accepting the month and day the time will start flashing. Set the minutes first 2 flashing digits on the right, press KPA (pressure button) to accept. Then select the correct hour 2 flashing digits on the left. The clock is a 24-hour clock only. Once the hour is correct be sure to accept by pressing the KPA (pressure button). When there are no more flashing lights on the display the Quantim 16 is ready to run cycles. Observe the clock for 1 minute to be sure that the clock advances 1 minute on the display.

Operating Sequence



Stage One: Water Fill: When the start button is pressed, the cooling fan and vacuum pump start and a small vacuum is created in the chamber and boiler. If the unit has 116 or higher software the vacuum pump will not run if the previous cycle has been aborted. The vacuum pump then stops and the water fill solenoid will energize and water travels from the reservoir through the water fill solenoid and water filter into the boiler. The boiler probe acts as a level sensor. When the water reaches the boiler probe the water fill solenoid closes. **Note: Two attempts are made to fill the boiler with water. If the sensor does not detect water in a given time frame, error 13 will be displayed.**

Stage Two: Heating: Once the boiler is full the heating element and air bleed solenoid are energized. Steam rises into the rear of the chamber and pushes the air out through the hole at the front of the chamber and then to the condensate tray via the air bleed solenoid. At approximately 90°C we begin to monitor the differential rise between the boiler and chamber probes. When no differential is evident the air bleed solenoid closes and the cooling fan shuts off, the temperature continues to rise to sterilizing temperature. **Note: Failure to achieve zero differential within 10 minutes results in error 03.**

Stage Three: Sterilizing: As the temperature approaches the sterilizing start temperature, 121.5°C/132.5°C the energy input is reduced avoiding the possibility of temperature overshoot. Upon reaching 121.5°C/132.5°C the sterilizing timer is started for 30,15 or 3 minutes respectively, depending on which cycle has been selected. The temperature continues to rise to the target temperature. This is the temperature at which sterilization will be controlled 122°C/133°C. During the sterilization period the temperature in the boiler is compared with the temperature in the chamber and this should be within 2°C. **Note: Possible error messages in this stage are: b02, d02 & t02.**

Stage Four: Depressurization: At the end of the sterilizing period the cooling fan turns on. Then the flush valve opens and the pressure in the chamber forces the water out of the boiler and back to the water reservoir. If a single use water system is used the water from the boiler is forced into the waste bottle. Once all the water has been removed from the boiler, the pressure in the chamber falls rapidly. Once the pressure has reached atmosphere, the cycle progresses to the drying phase.

Vacuum Drying: The door will remain closed and power is applied alternately to the boiler and heater pad, a vacuum forms in the chamber. The vacuum is then pulled for approximately 2 minutes. At the end of this time air is admitted to the chamber for approximately 10 seconds. The whole process is then continuously repeated 13 times. **Note: During this phase of the cycle the door light will be flashing. You may interrupt the drying phase at this time by pressing the Door Open Button. After approximately 2 minutes the door will open about 1 inch and the unit will continuously beep and flash 15 on the top display. Press the Standby/Ready Button once the beeping will stop and 15 will stop flashing. Press Standby/Ready again and the door will open completely. The items in the chamber may be wet at this time so extreme caution should be taken in the handling of these items to avoid contaminating them.**

Air Equalization: Once atmospheric pressure is achieved at the end of the drying period, the air solenoid, boiler and heater pad are de-energized, and power is applied to the air bleed solenoid. The air bleed solenoid opens and atmospheric pressure is maintained in the chamber through this route.

Stage Five: Cycle Complete: After a few moments delay, the cycle will complete. Indicated by 3 beeps from the buzzer. Once the door open button is pressed, the boiler and heater pad are turned on and they will remain on until the start of the next cycle in order to ensure that the unit is warm and ready for the next cycle.

Quantim Error Messages

Unit will not open when door button is pressed

1. Door is held closed due to some mechanical condition. Try to manually open the door.
2. The chamber is still pressurized or a vacuum has developed in the chamber. Manually activate the PRV to release the pressure.
3. Door microswitch or wiring harness is short-circuited
4. Power control module fault

Unit flashes door intermittently or door open light is not illuminated when door is shut

Occurs when pressing cycle start button with door open

1. Door is open
2. Door latch is not fully engaged, check solenoid springs
3. Door microswitch harness fault, open circuit
4. Check microswitch set position
5. Power control module fault

Flashing red LED

Insufficient water in fresh water tank to run cycle

When unit fails error code flashes & unit beeps

E01

Power failure

Power failure at any time during sterilizing cycle

1. Check for power at wall outlet
2. Check fuses under plate by power cord
3. Thermal cutout on boiler open, needs reset
4. If unit has 116 software replace with 117

E02

Sterilizing parameter fault

The autoclave is fitted with an electronic comparator that checks the following conditions during the sterilizing cycle:

(t02) Error Message: With software 114 or lower when the start temperature is reached, the on board computer sets to zero the cycle timer, it also reads the time clock. When the cycle timer has timed out, the on board computer reads the time clock. The cycle time and timer clock values must agree to better than a 10 second error.

With software 115 or higher when the start temperature is reached, the software triggers a cycle timer validation by corroborating the software implemented cycle timer against the hardware clock implemented in the real time clock chip. Each elapsed minute of cycle time is checked and if three consecutive minutes differ by more than +/- 3 seconds then error t02 is generated.

1. If software is not 115Y or higher replace software.
2. Reset clock
3. Install a noise filter on the outlet for the Quantim
4. Keep Ultrasonic cleaners at least 6 feet away or have a physical barrier between the Ultrasonic and the Quantim

(d02) Error Message: Compares boiler and chamber PT100 probe values starting 15 seconds into sterilization until the end of sterilization. During this sterilizing period they must agree, with an error of 2°C.

1. Check for leaks, clean gasket and chamber face
2. Clean and check boiler and chamber PT100 probes (109 ohms)

(b02) Error Message: Temperature range check is carried out to validate the chamber temperature during a cycle. The acceptable limits are .5°C below and 4.5°C above the sterilizing temperature for the cycle selected. This check starts 15 seconds into sterilization until the end of sterilization.

1. Check for leaks, clean gasket and chamber face
2. Clean and check boiler and chamber PT100 probes (109 ohms)

E03

Air bleed was not successful

Autoclave has failed to obtain a balance between boiler and chamber PT100 probes within 20 minutes of water being detected in the boiler and full power applied. The unit starts checking for this balance when the chamber reaches 93°C.

1. Check for large steam leak
2. Check boiler heating element (7 ohms)
3. Air bleed tube or solenoid blocked (Eng 003 first light)
4. Check that the water fill solenoid is closing.

Error Messages

E07

Boiler thermistor failure

1. Boiler thermistor open circuit or short circuit to ground (68K ohms)
2. Power control module fault

E10

Water in boiler

Water in boiler at end of cycle when door open is enabled

1. Fill solenoid leaking (Eng 003 fourth light)
2. Flush solenoid not venting (Eng 003 third light)
3. Check boiler water filter

E13

Boiler failed to fill

Note: If level sensor has failed the boiler may overfill into the chamber, be careful when opening door as water may come out of chamber.

1. Water filter dirty
2. Fill solenoid not operating (Eng 003 fourth light)
3. Check level sensor

E14

PT100 failure (chamber)

1. Check chamber PT100 for open or short circuit to ground. (109 ohms)
2. Power control module fault.

E15

Drying cycle interrupted 15 flashing on top display. Can only be caused by pressing the door open button when the door light is flashing interrupting the drying cycle. If unit has 115 or higher software "Abt" will appear on the pressure display. After the door open button is pressed it will take approximately 2 minutes for the 15 to appear on the top display.

1. Door pops open slightly, 15 flashes on top LED & unit beeps
2. Recovery sequence:
   Press standby/ready button once flashing and beeping stops
   15 still appears on top display door open partially
   Press standby/ready button again, door will open completely and unit goes to standby mode

E17

Temperature failed to drop to 110°C in 100 seconds after flush valve opens

1. Check software must be 115X or higher
2. Check water filter
3. Check flush valve (Eng 003 third light)

uod1 (previously E12)

Boiler dry appears in 115 and higher software

Autoclave detects that the boiler has run out of water

1. Check for large steam leak
2. Boiler did not fill properly check water filter

Note: Thermal cutout operation is often preceded by uod1

uod2 (previously E18)

Unit fails to reach the correct sterilizing temperature within a twenty-minute period appears in 115 and higher software

1. Check for leaks
2. Check heating element (7 ohms)

Cycle Failure & Recovery
Unit Beeping and Flashing

When a Quantim fails to complete a cycle, normally the unit will start beeping and the top display will show a flashing error code.

t02

b02

d02

To recovery from a failed cycle, press the Standby/Ready Button once and the beeping and flashing will stop. Press the Standby/Ready Button a second time and 4 cycle status bars will light. After the 4 cycle status bars light it will take approximately 15 minutes for the recovery mode to finish. When the recovery mode is completed the 5th cycle status bar will light, the unit will continuously beep and the door light will turn ON. Press the Door Open Button the beeping will stop and the door should open. You may then try another cycle.

Note: If an error 10 appears on the top display when you press the Door Open Button after the 15 minute recovery, this indicates the boiler is full of water. Press the Standby/Ready Button twice and the door light should come ON and pressing the Door Open Button should open the door.

Recovery Mode

Standby/Ready Button press once beeping and flashing stops press again 4-cycle status bars light

t02 Error

Cycle Status Bars

Door Open Button

Aborting the Drying Cycle
Quantims with software 114 and lower

During the drying phase of the cycle (four cycle status indicator bars lit) the door light will be flashing. You may interrupt the drying phase at this time by pressing the Door Open Button. (See Figure 1) After approximately 2 minutes the door will open about 1 inch and the unit will continuously beep and flash 15 on the top display. (See Figure 2) Press the Standby/Ready Button once the beeping will stop and 15 will stop flashing. Press Standby/Ready again and the door will open completely. **The items in the chamber may be wet at this time, extreme caution should be taken in the handling of these items to avoid contaminating them.**

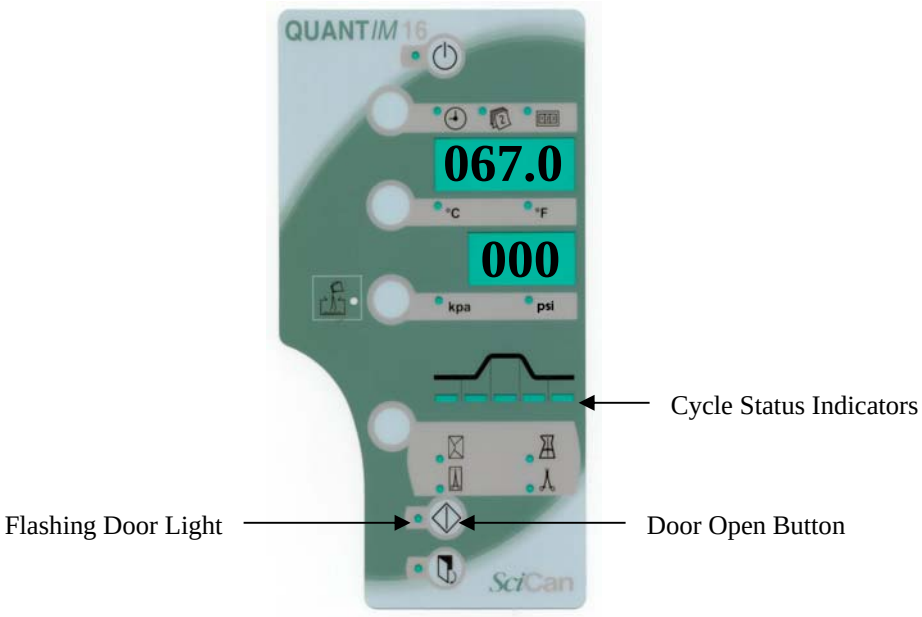


Figure 1

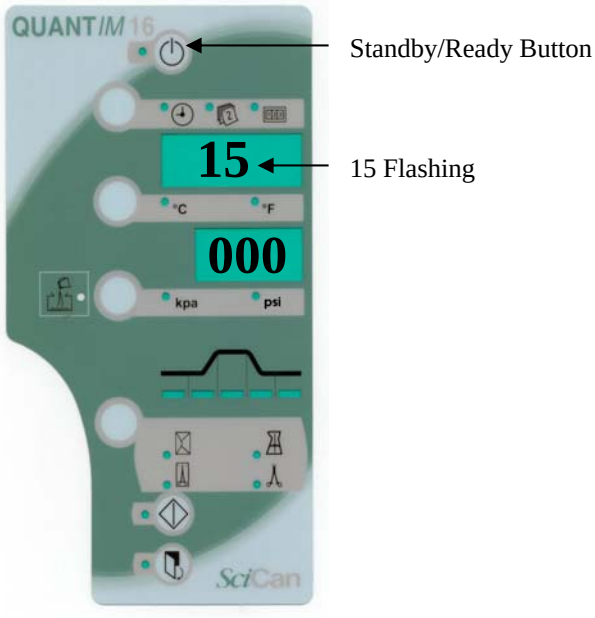


Figure 2

Aborting the Drying Cycle
Quantims with software 115 and higher

During the drying phase of the cycle (four cycle status indicator bars lit) the door light will be flashing. You may interrupt the drying phase at this time by pressing the Door Open Button. “Abt” will appear on the lower display. (See Figure 1) After approximately 2 minutes the door will open about 1 inch and the unit will continuously beep and flash 15 on the top display. (See Figure 2) Press the Standby/Ready Button once the beeping will stop and 15 will stop flashing. Press Standby/Ready again and the door will open completely. **The items in the chamber may be wet at this time, extreme caution should be taken in the handling of these items to avoid contaminating them.**

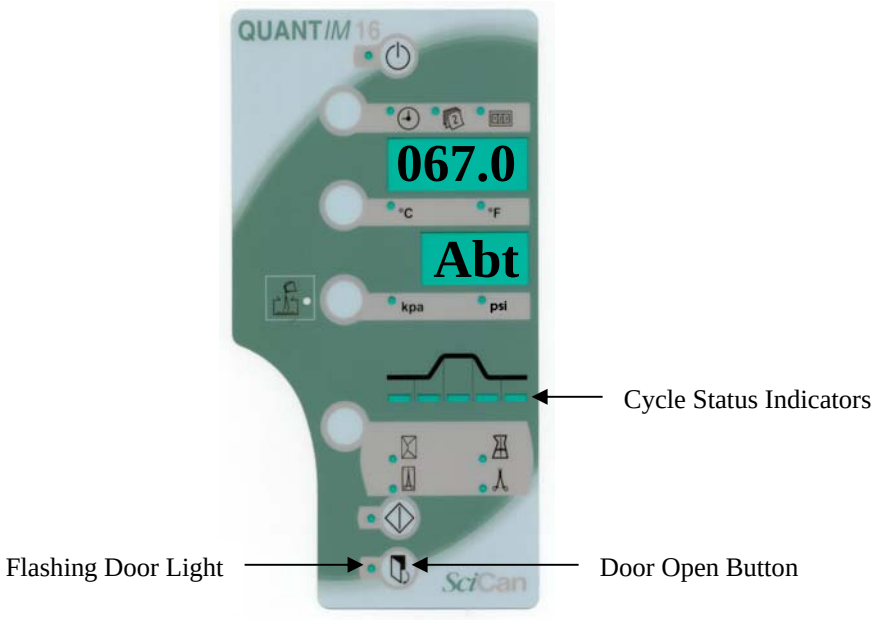


Figure 1

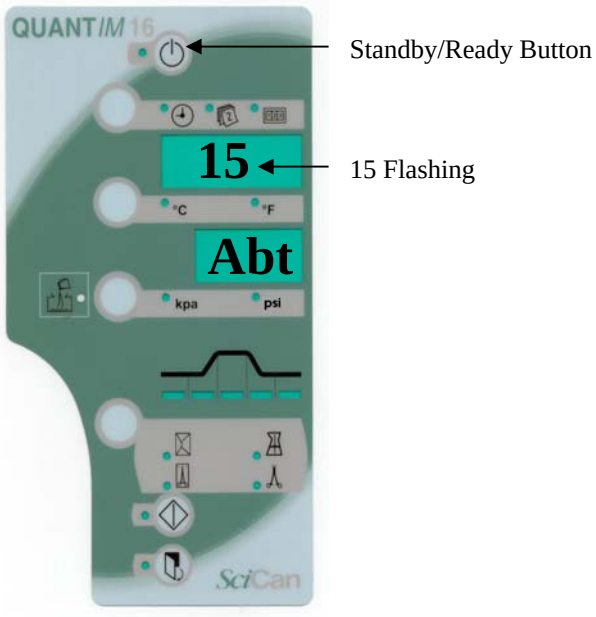
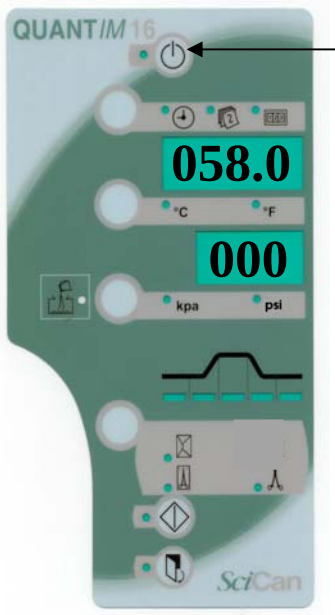


Figure 2

Aborting a Cycle
Quantims with software 116 and higher



Press Standby/Ready Button to abort to abort.

Figure 1

Pressure display flashes “Abt”. If the Standby/Ready Button is not pressed again in ten seconds the display reverts back to normal and the cycle continues.

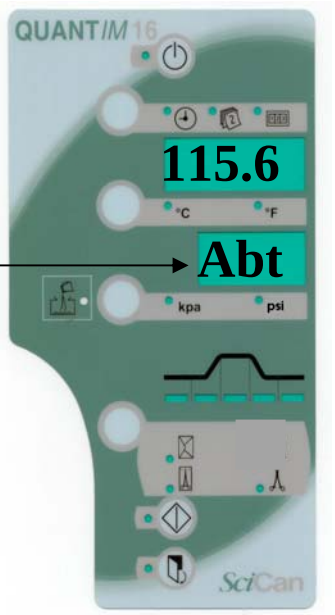
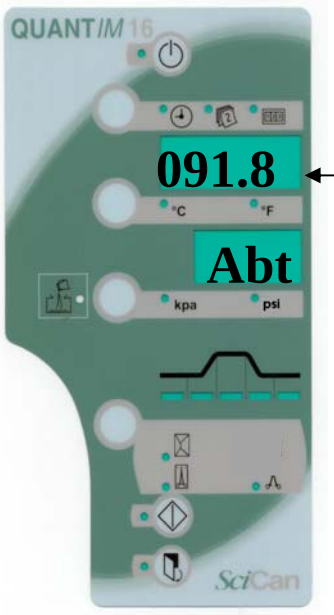


Figure 2



If the Standby/Ready Button is pressed again within the ten-second period the display reverts to the Ready Mode if the temperature is below 95°C. Press the door button and the door will open.
***** SEE NOTE*****

Figure 3

If the temperature is above 95°C four cycle bars will come on. When the temperature drops to 95°C the fifth cycle bar will come on and the door light will be illuminated. Press the door button and the unit returns to the Ready Mode.
*****SEE NOTE*****

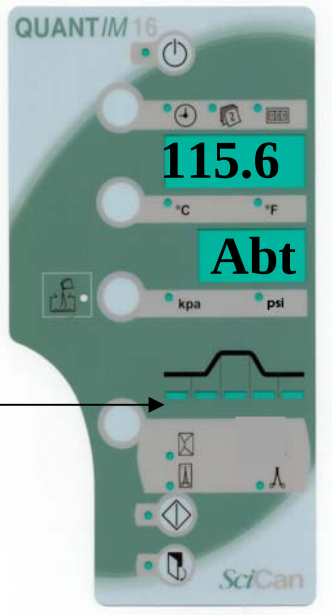


Figure 4

NOTE: When the Door Open Button is pressed if the unit beeps and 10 is flashing on the top display, press the Standby/Ready Button once the beeping will stop and the 10 will stop flashing, press the Standby/Ready Button a second time the door light will come ON again. When the Door Open Button is pressed again the door will open. The 10 error message indicates that the boiler is filled with water. You may start another cycle at this time.

Calibration Modes

Calibration modes are entered by using an access code complete with up/down and accept buttons; **door must be open with unit in ready mode**. Ignore 'door' flashing on the display when entering Calibration modes.

To enter CAL modes, press and hold door open and cycle start buttons for10 seconds. The letters "CAL" will appear in the time/date display, "001" will appear in the pressure display window. Press increase or decrease to achieve the CAL number you need then press accept.

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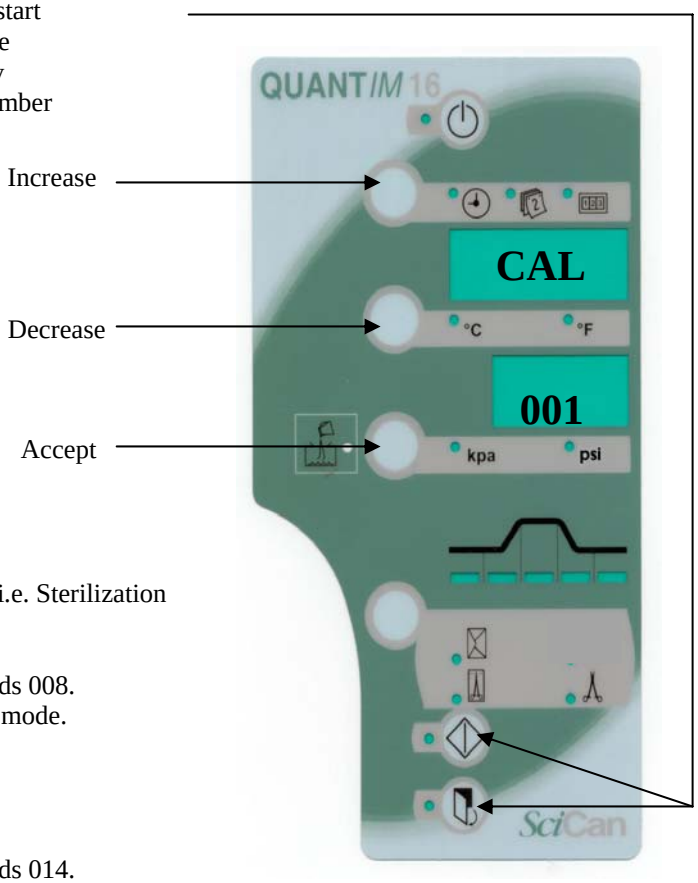


CAL 08 Factory default
This mode is used to return unit to factory default settings i.e. Sterilization Temperature and Time.

Enter CAL mode.
Press and release increase button until display reads 008.
Press accept button, unit should return to standby mode.

CAL 14 Set cycle availability
This mode allows you to select which cycles can be used.

Enter CAL mode.
Press and release increase button until display reads 014.
Press accept button, 014 is now flashing on the pressure display.
The temperature display is now showing ON.
The cycle indicator LED for liquids is now lit.
If you wish to turn off the liquids cycle press the down button, the temperature display will now show OFF i.e. not selected.
To go to the next cycle press the increase button the LED for packs is now lit.
Using the decrease button turn ON or OFF as needed.
Proceed with this procedure until all cycles have been selected or not selected.
Once all cycles have been selected or not selected press accept, 014 stops flashing on the pressure display.
Press the standby/ready button, the unit will automatically be in CAL 15 (Default Setting) i.e. 015 flashing on the pressure display and the temperature display is now showing ON.
Scroll through all selected cycles by pressing the increase button. When the cycle required is reached press the accept button, 015 stops flashing and ON is still showing on the temperature display.
Press the standby/ready button and the unit returns to the ready mode.

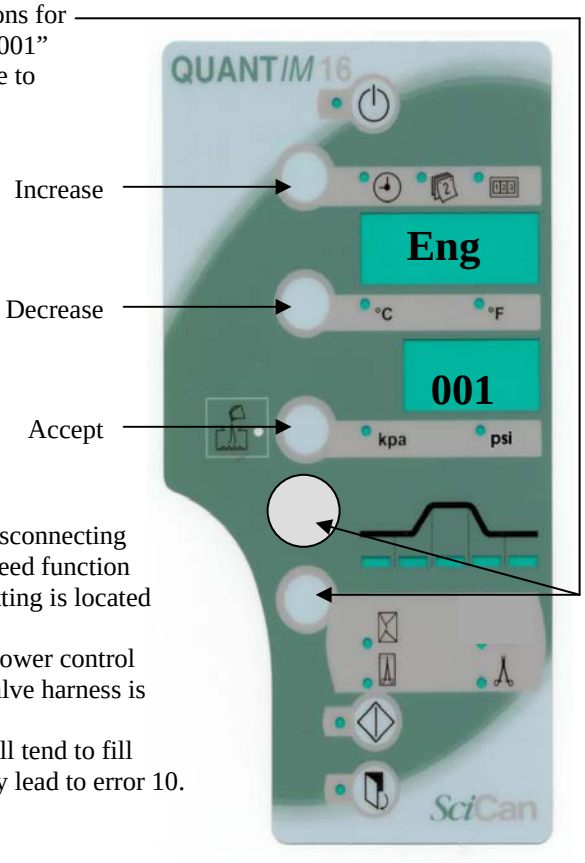
CAL 15 Set machine default
This allows you to set the desired cycle the unit will default to when placed in the ready mode.

Enter CAL mode.
Press and release increase button until display reads 015.
Press accept button, 015 is now flashing on the pressure display.
Scroll through all selected cycles by pressing the increase button. When the cycle required is reached press the accept button, 015 stops flashing and ON is still showing on the temperature display.
Press the standby/ready button and the unit returns to the ready mode.

Engineering Modes

Engineering modes are entered by using an access code complete with up/down and accept buttons.

To enter ENG modes, press and hold cycle selection and hidden buttons for 10 seconds. The letters “ENG” will appear in the time/date display, “001” will appear in the pressure display window. Press increase or decrease to achieve the ENG number you need then press accept.



ENG 03 Valve test

This mode is used to test that the valve block is working. After entering ENG mode press increase button until display reads 003. Press accept button and first cycle status LED will light. Continue to press and release the accept button to test the solenoid valve block.

Key for identifying valves

1st cycle status LED “ON” = Air Bleed Valve open.
2nd cycle status LED “ON” = Vacuum Valve open
3rd cycle status LED “ON” = Flush Valve open
4th cycle status LED “ON” = Water Fill Valve open.
5th cycle status LED “ON” = Air Inlet Valve open.

During this mode it is possible to check valve function by disconnecting pipes and checking for flow, it is possible to check the air bleed function by blowing into the air bleed fitting using a piece of tube (fitting is located bottom front left of chamber with door open.)

It is possible to us a Multimeter to check the voltage at the power control module connector block, also check coil resistance (when valve harness is disconnected from control module.)

Note: If there is any water in the reservoir then the boiler will tend to fill when either the water fill or flush valves are opened this may lead to error 10.

ENG 04 Vacuum pump test

This mode is used to determine if the vacuum pump is working.
Enter ENG mode.
Press and release the increase button until display reads “004”.
Press accept button “004” is flashing on the pressure display and the vacuum pump is running.
Press accept button again “004” is flashing on the pressure display and the vacuum pump shuts off.
The vacuum pump can be switched on and off by pressing the accept button.
When finished exit by pressing the standby/ready button, the unit will return to the ready mode.

ENG 05 Fan test

This mode is for testing the fan.
Enter ENG mode.
Press and release the increase button until display reads “005”.
Press accept button “005” is flashing on the pressure display and the fan is running at varying speeds.
When finished exit by pressing the standby/ready button, the unit will return to the ready mode.

ENG 06 Door solenoid test

This mode is used to test that the door solenoid is working.
Enter ENG mode.
Press and release the increase button until display reads “006”.
Make sure door is closed.
Press accept button “006” is flashing on the pressure display and the door opens to the drying position.
Press accept button “006” is flashing on the pressure display and the door opens completely.
When finished exit by pressing the standby/ready button, the unit will return to the ready mode.

ENG 08 LED & Buzzer test

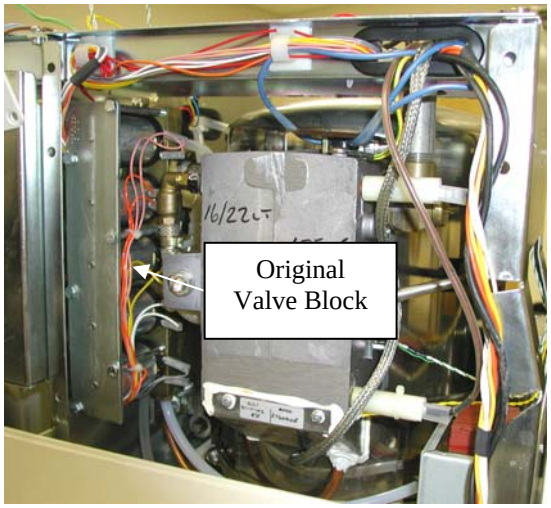
This mode is used to test that all the display LED's and buzzers are working.
Enter ENG mode.
Press and release the increase button until display reads "008".
Press accept button all LED's begin to flash on and off accompanied by a buzzer.
Press standby/ready button to exit, unit returns to ready mode.

ENG 10 Drying cycle heater test

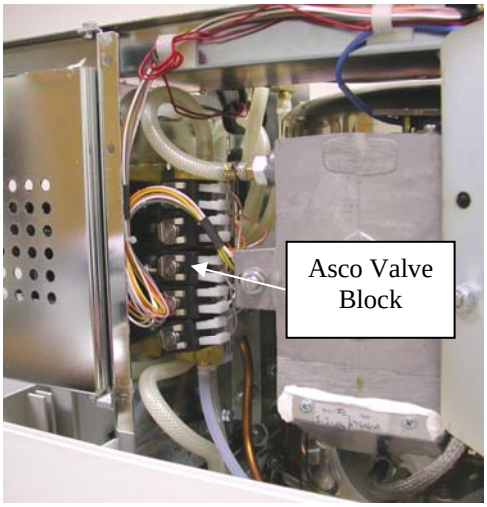
This mode is used to check the drying cycle heater warms up.
Enter ENG mode.
Press and release the increase button until display reads "010".
Press accept button "010" is flashing on the pressure display and OFF is showing on the temperature display. This indicates that the band heater is turned off.
Press accept button "010" is flashing on the pressure display and ON is showing on the temperature display. This indicates that the band heater is turned on.
Check using a thermometer attached to the bottom of the chamber.
Press the standby/ready button to exit, unit returns to standby mode.

ENG 17 Set Valve Block Type

This mode is used to select either the original valve block or the new Asco valve block.
Enter ENG mode.
Press and release the increase button until display reads "017".
Press accept button and the pressure display will read either OFF or ON.
Off is for the new Asco valve block and ON is for the original valve block.
Pressing and releasing the decrease button will toggle between OFF & ON.
Set display to match the valve block and press the accept button.
Press standby/ready button to return to the ready mode.



Original Valve Block



Asco Valve Block

ENG 18 Set Door Switch Type

This mode is used to select either the original two-wire door switch or the new three-wire door switch.
Enter ENG mode.
Press and release the increase button until display reads "018".
Press accept button and the pressure display will read either OFF or ON.
Off is for the new three-wire microswitch and ON is for the original two-wire microswitch.
Pressing and releasing the decrease button will toggle between OFF & ON.
Set display to match the microswitch and press the accept button.
Press standby/ready button to return to the ready mode.
Note: The two-wire door switch has two of the same color wires attached to the switch. The three-wire door switch is attached to a small circuit board with two wires of different colors attached to the board.

Cover Removal

No Waste Bottle or Rear Fan

With Waste Bottle and Rear Fan

If the Quantim has a waste bottle and/or rear fan assembly remove exhaust tubing from the back of the Quantim and remove the plate with the rear fan assembly attached. Disconnect the plug for the fan from PL34 on the Control Module.
Remove 4 Phillips screws from plate holding power cord.
Remove 3 large Phillips screws.
Slide cover back and pass power cord mounting plate and power cord through cutout as cover is removed.

When reinstalling the cover reconnect the exhaust fan plug to the 2-pin connector marked fan and the rear fan assembly to PL 34. **Note: Not all Quantims have a rear fan assembly**. Also reconnect the exhaust tubing if used.

No Power

1. Check wall outlet for line voltage.
2. Remove cover where line cord goes into back of Quantim. Check 2 fuses using ohmmeter (see figure 1).
3. If the fuses check good with an ohmmeter, check for line voltage at the bottom of both fuses, if good check for line voltage at the top of both fuses.
4. If voltage is good through the fuses, remove the cover and check for line voltage at brown & blue wires in Molex plug (PL24)(see figure 1) on the far right side of the PCB.
5. If no voltage is present, try resetting the thermal cutout on the back of the boiler (see figure 2).
6. If voltage is good in step four check connection on plug to display board (see figure 3).

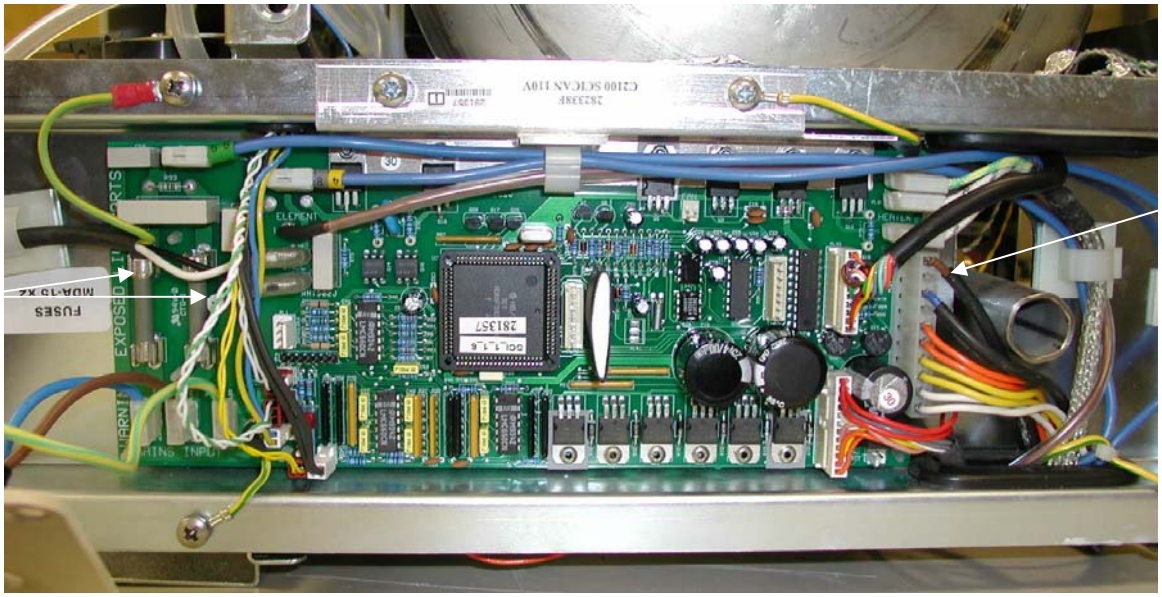


Figure 1

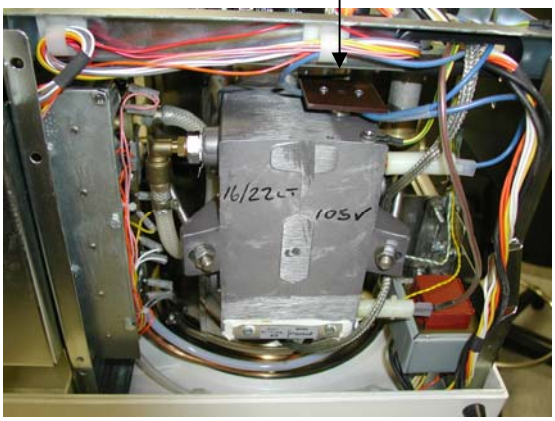
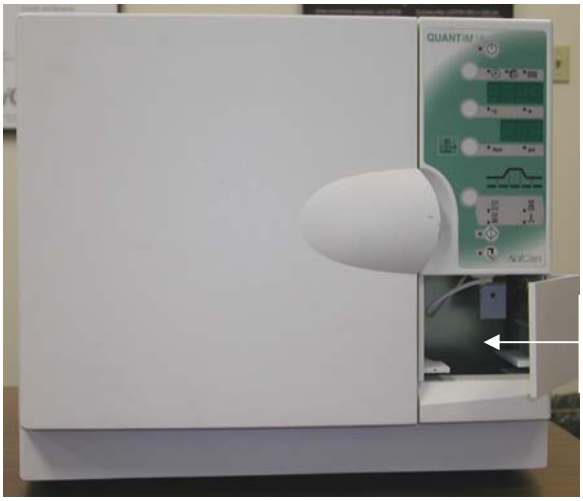


Figure 2

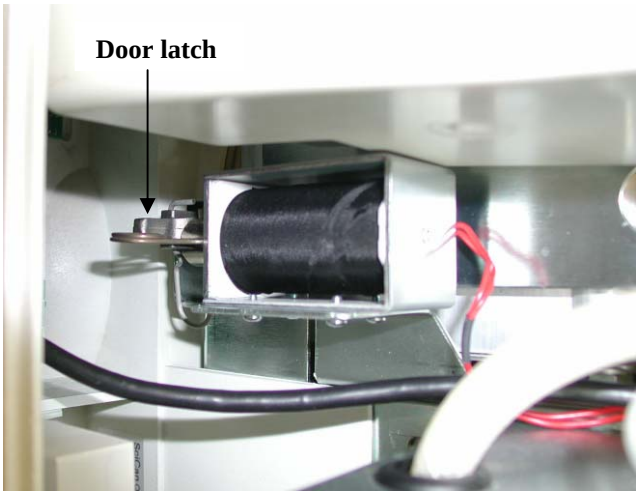
Figure 3

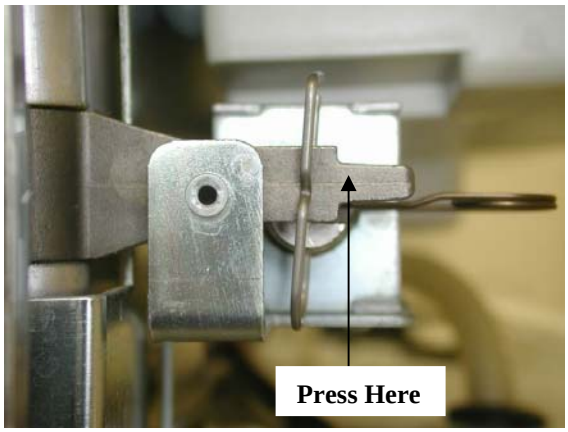
Door Solenoid Manual Operation

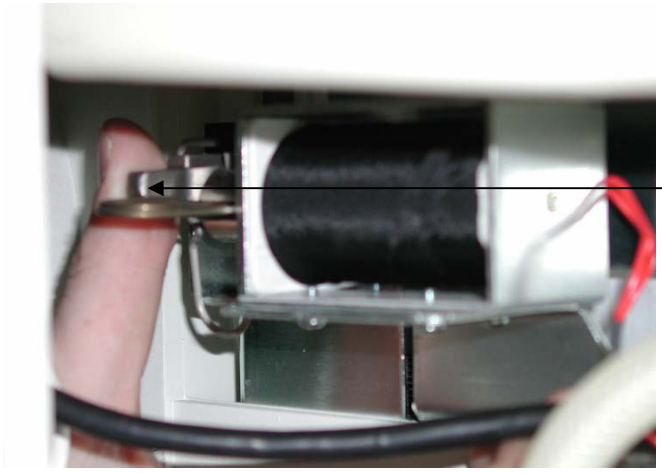
<u>Unplug Quantim from wall outlet</u>



Open door and insert hand to access door solenoid

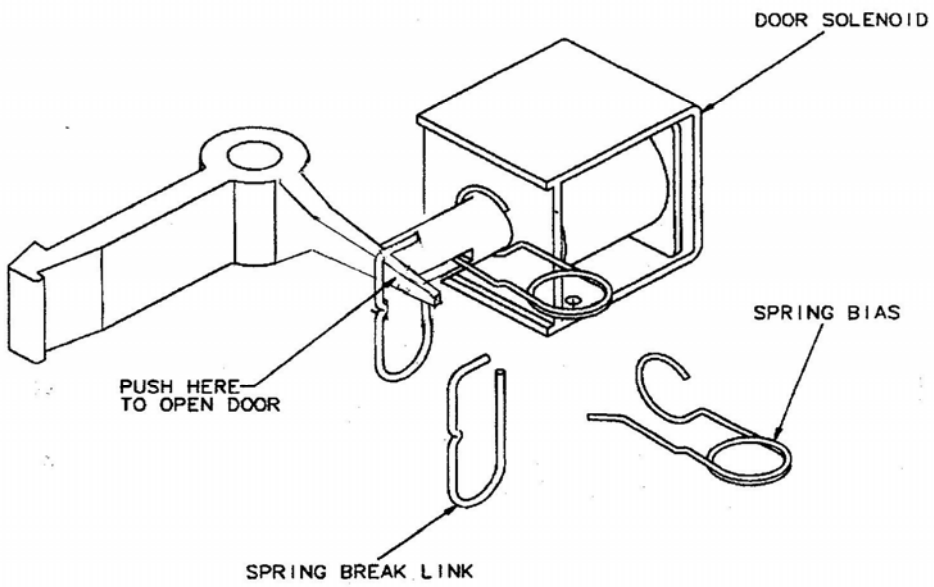


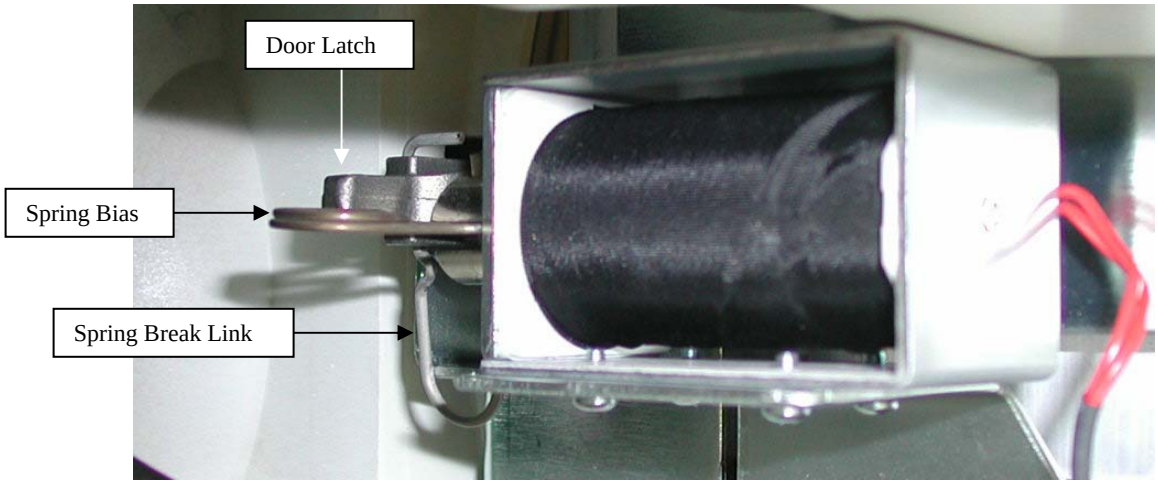




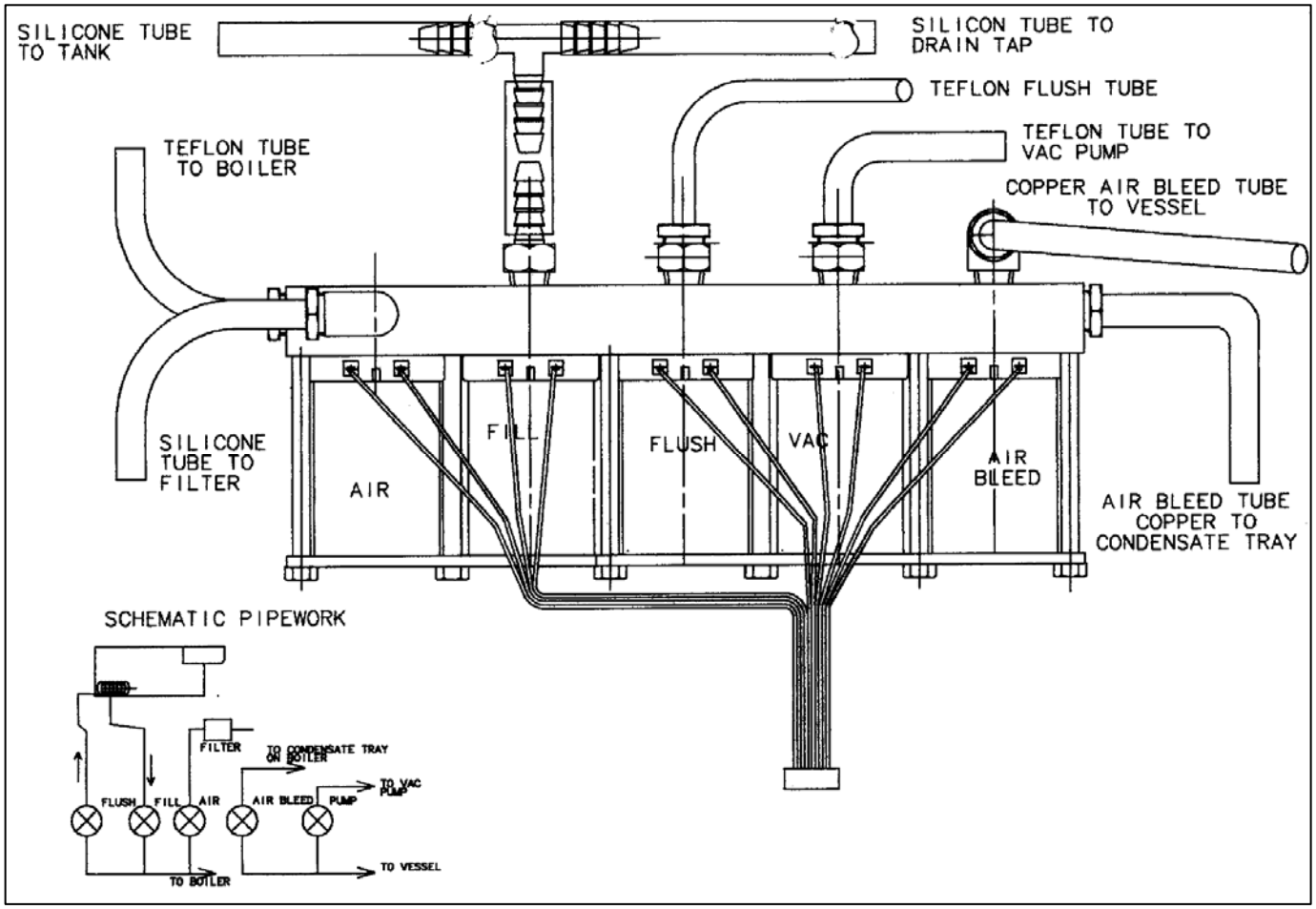
Press latch towards back of unit with your thumb

Door Solenoid Spring Diagram





Valve Block Diagram



Air Solenoid Valve – Eng 003 fifth light - Opens when vacuum motor shuts off during drying cycle to allow chamber to return to atmosphere with dry filtered air.

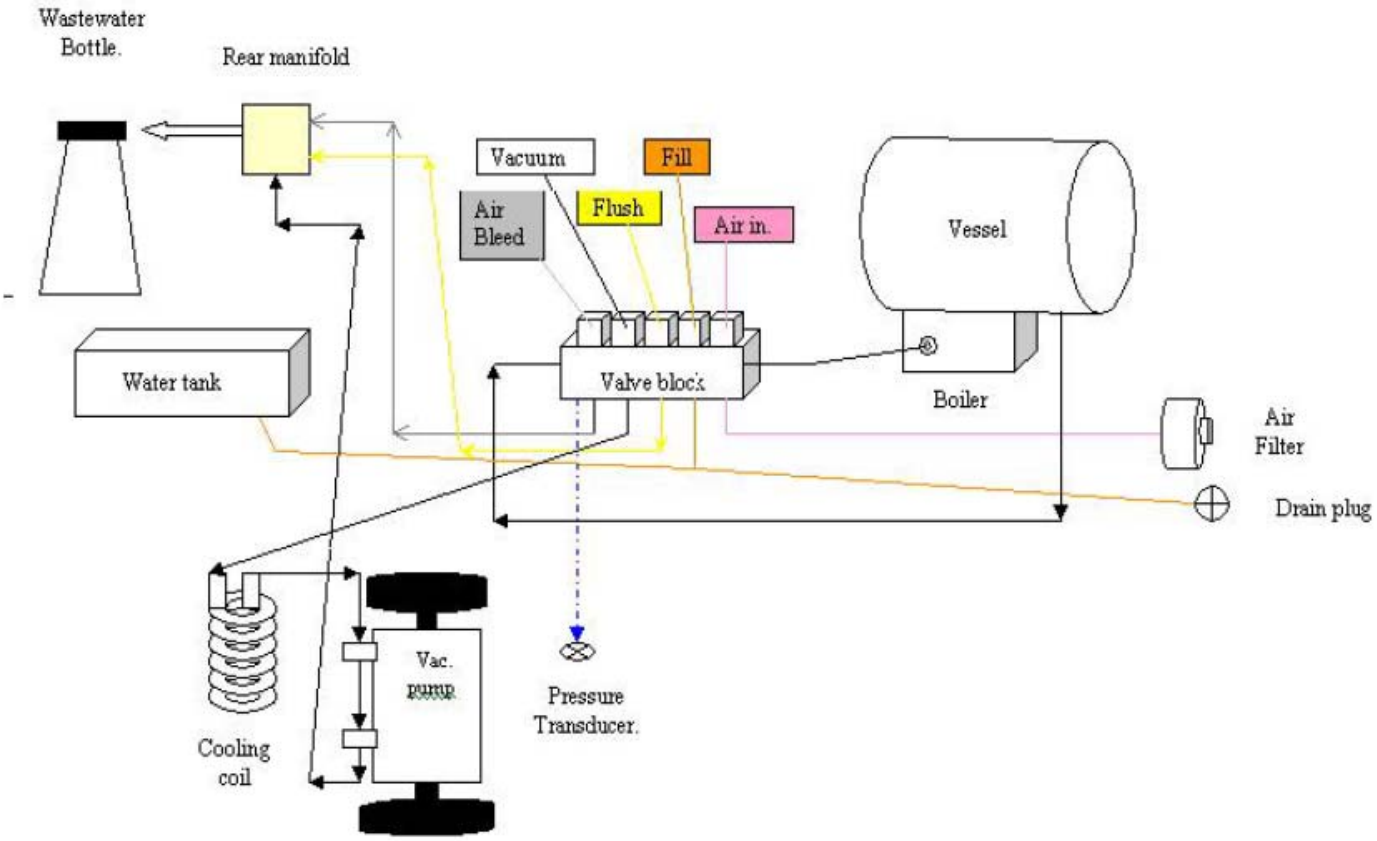
Fill Solenoid Valve – Eng 003 fourth light - Opens after vacuum motor shuts off at beginning of cycle to allow boiler to fill with water. Valve will close when the water level sensor detects water in the boiler.

Flush Solenoid Valve – Eng 03 third light - Opens when the sterilization phase of the cycle is complete. Valve will close after 150 seconds of venting.

Vacuum Solenoid Valve – Eng 003 second light - Opens at beginning of cycle when vacuum motor starts to depressurize chamber. Valve will close after approx. 10 seconds. Opens again when venting is complete and vacuum motor turns on for drying phase of the cycle. Valve will close after 2 minutes and air solenoid valve opens. The vacuum motor will cycle on &off 13 times during drying phase of the cycle.

Air Bleed Solenoid Valve – Eng 003 first light - Opens when the Quantim is placed in the ready mode. Valve will close when start button is pressed. Valve will open again when the boiler is filled with water. The valve will close again when no differential is evident between the boiler and chamber approx. 106°C. At the end of the drying cycle the air bleed valve remains open to avoid a pressure increase or vacuum forming in the chamber.

Asco Valve Block



Door Gasket Replacement

Serial #00041001 thru 04020601

The plate gasket assembly is mounted to the door using 2 dome nuts with the black o-rings fitting inside the dome nuts (see figure 3). Remove the plate gasket assembly from the door and remove the gasket from the plate. Install the replacement gasket onto the plate with the wide side facing the chamber. Reinstall the plate gasket assembly onto the door using the dome nuts with the new black o-rings under the dome nuts.

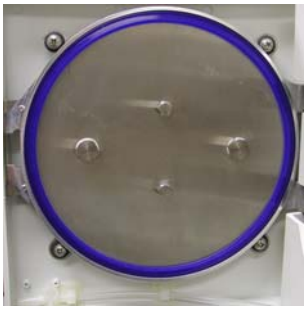


Figure 1

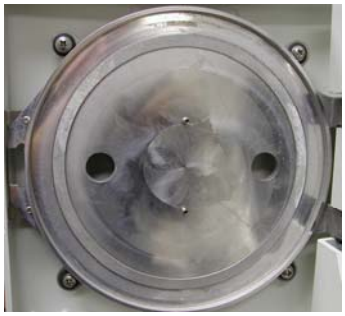


Figure 2

Figure 3

Serial #04020601 & Higher

The plate gasket assembly is mounted to the door using 2 acorn nuts (see figure 6). There are no black o-rings under the acorn nuts. Remove the plate gasket assembly from the door and remove the 2 black o-rings from the threaded studs under the plate. Install the new o-rings onto the studs in the groove on the door. Install the replacement gasket onto the plate with the wide side facing the chamber. Reinstall the plate gasket assembly onto the door, on top of the new o-rings using the acorn nuts.

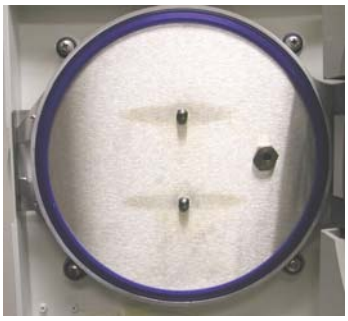
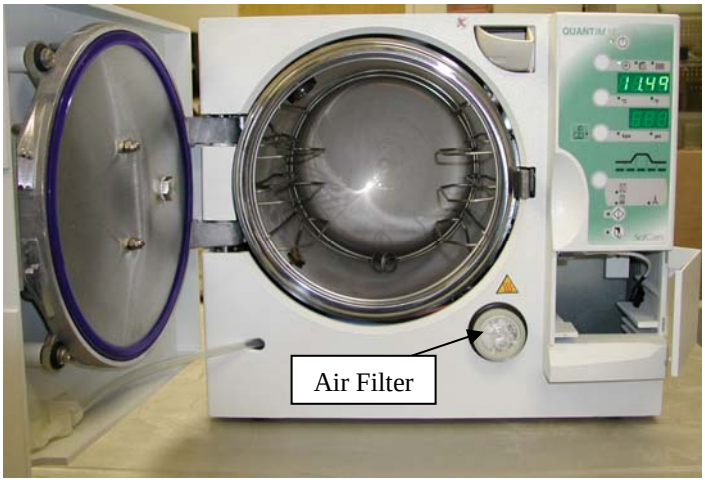


Figure 4

Figure 5

Figure 6

Air Filter Replacement

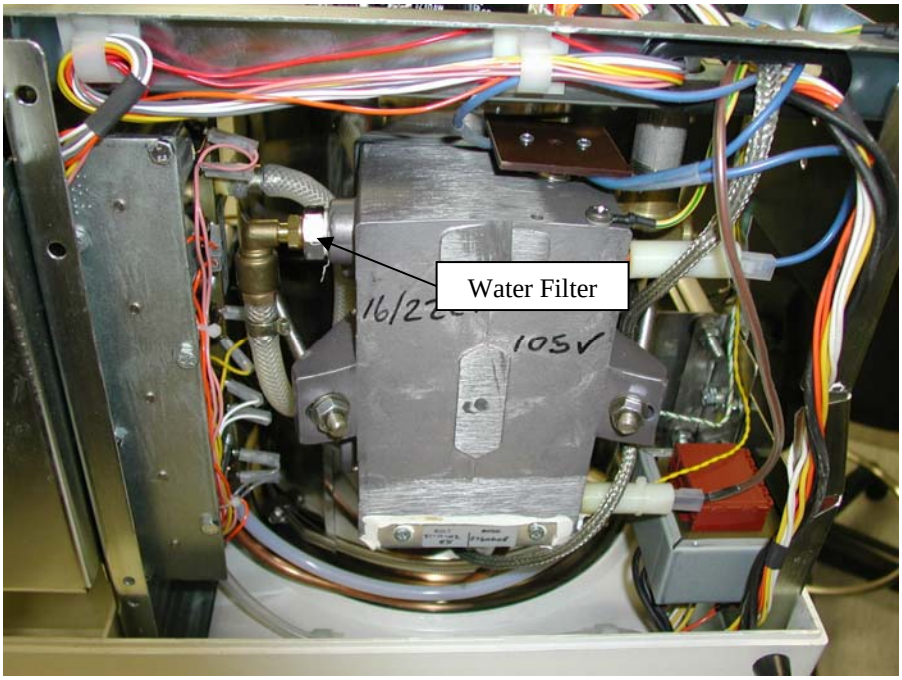


Quantim Single-Use (with waste bottle)

Quantim Multi-Use (no waste bottle)

The Air Filter should be replaced when dirty or annually whichever comes first.
For Quantim Single-Use unit open door and pull out air filter.
For Quantim Multi-Use unit remove rear cover and filter is on the right side of the unit.

Water Filter Replacement



The Water Filter should be replaced annually.
Open the chamber door and drain the Quantim using the hose on the bottom of the door.
Remove all trays from the chamber.
Close the door and position the Quantim on a cloth resting on its door.
Remove the brass elbow fitting connected to the water filter.
Remove the water filter.

Replacing Microprocessor Chip

Note: During the whole process of chip replacement the unit **MUST BE UNPLUGGED**.

To access the microprocessor chip on the PCB use a small screwdriver to remove the rectangular plastic piece from the back of the unit. You don't need to remove the whole cover. The microprocessor is the square chip.

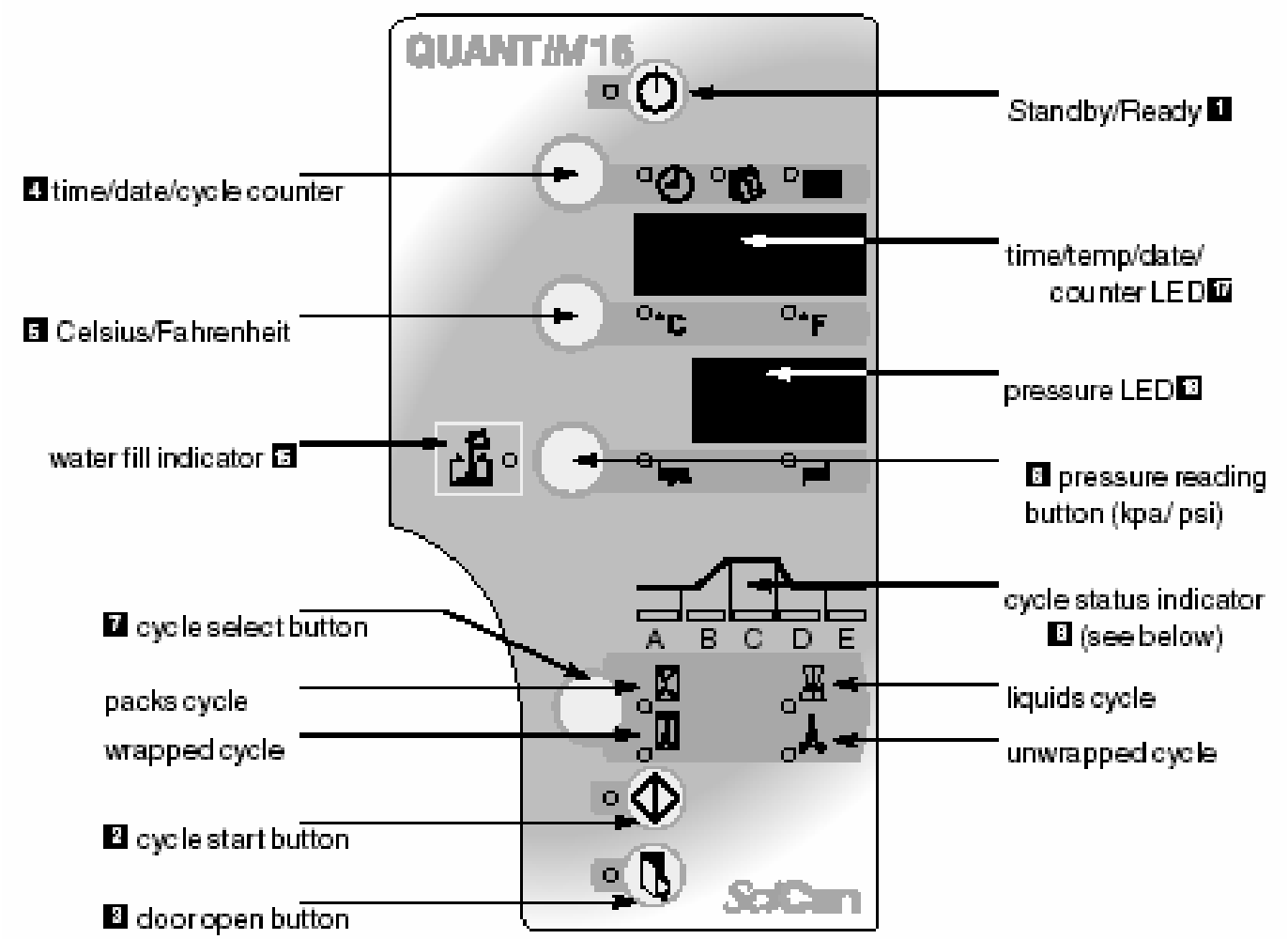
To remove the chip from the socket you will need a special IC remover (see picture). It can be purchased from Radio Shack, PLCC Square Extractor Set catalog #276-2101.

There are two small slots on two corners of the socket. Insert the remover tips in the two slots squeeze the black arms and pull the chip out.

Before inserting the new chip make sure that the serial number of the new chip matches the serial number of the old one. There is only one way to insert the chip in the socket. You will notice that the right top corner of the socket is a bit different. It is the same with one corner of the chip. There is a small dot in the middle of one side of the chip. Position the side with the dot to the right. Press the chip evenly from all corners into the socket.

Plug in the unit and turn it on. Open the door. Go to CAL mode. (To do this press and hold the DOOR OPEN (3) and CYCLE START (2) buttons at the same time for 5 seconds. The word CAL1 will appear on the display). Pressing the Time/Date/Cycle Counter (4) button will take the unit to CAL2, CAL3, etc. Go to CAL8. Then press the Pressure Reading (6) button.

The unit is ready.



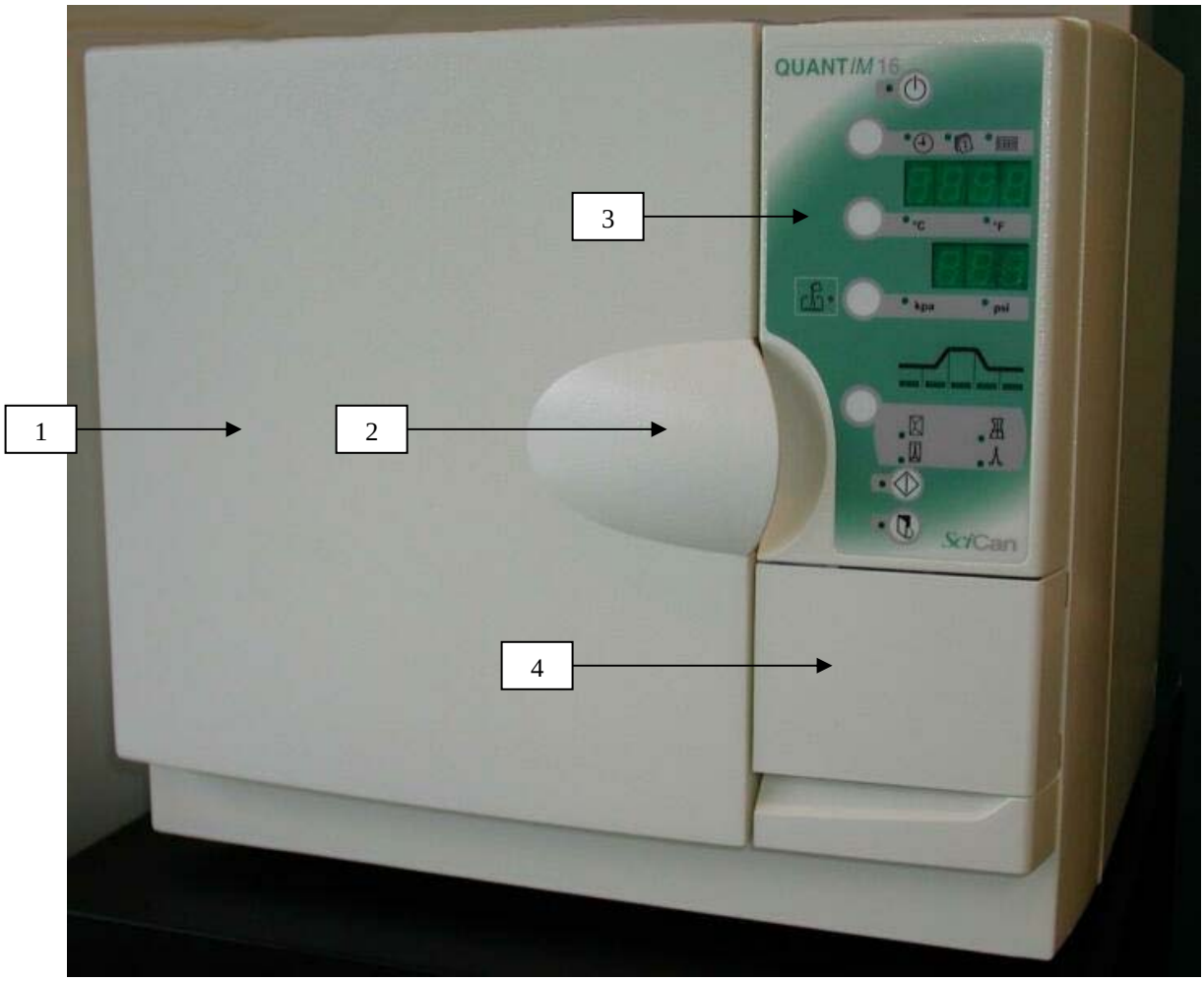
Electrical Values

Original Solenoid Valve Block Coil	13.7Ω
Asco Solenoid Valve Block Coil	21.4Ω
Door Solenoid Coil	12.8Ω
Heater, Boiler	8.0Ω
PT100, Chamber & Boiler (ambient)	109.1Ω
Thermistor, Boiler	68KΩ
Vacuum Pump Coil	5.2Ω
Heating Pad	33.0Ω
Solenoid Drive Voltage Door & Valve Block	5.1V
Cooling Fan Drive Voltage	23.0V
Transformer Output (Orange)	36.0V
(White)	10.4V
(Yellow)	12.6V
Printer Drive Voltage	12-18VDC

Torque Settings

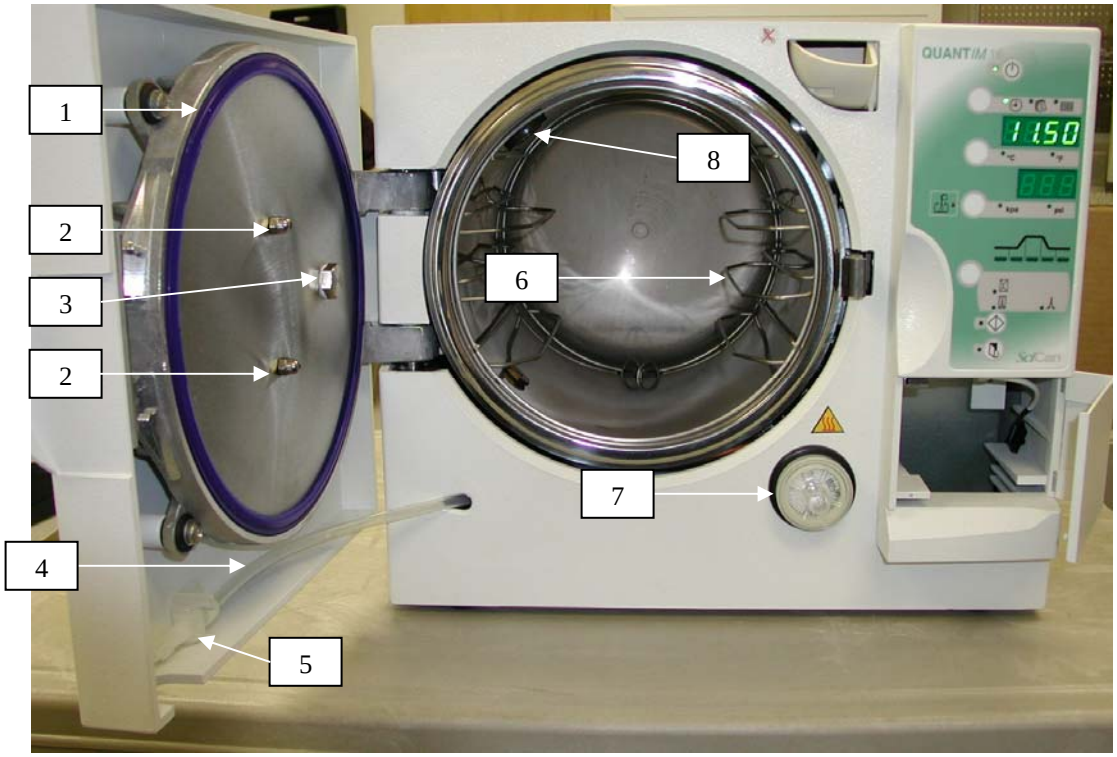
Nut Boiler Strap	10Nm (neutons)

Front View Door Closed



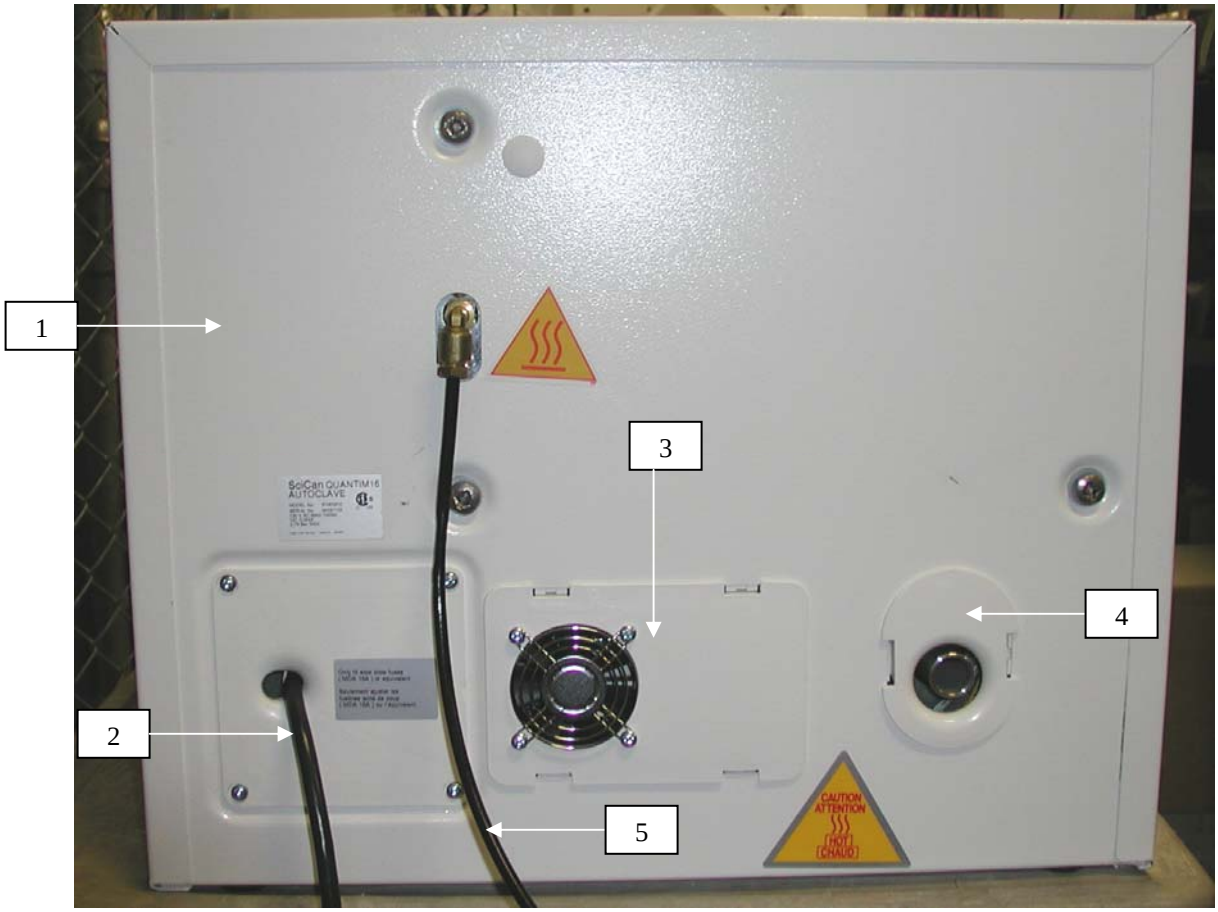
Item #	Part #	Description
1	289124	Door Molding Kit
2	279159	Door Microswitch 2 Wire (Not Shown Under Door Molding)
2	279494	Door Microswitch 3 Wire (Not Shown Under Door Molding)
3	289162	Decal Quantim 16 (New Style no Liquids Cycle Not Pictured)
4	289125	Printer Door with Hinges
Note: Door Microswitch 2 Wire, wires are connected to switch terminals. Door Microswitch 3 Wire, switch terminals are connected to door PCB.		

Front View Door Open



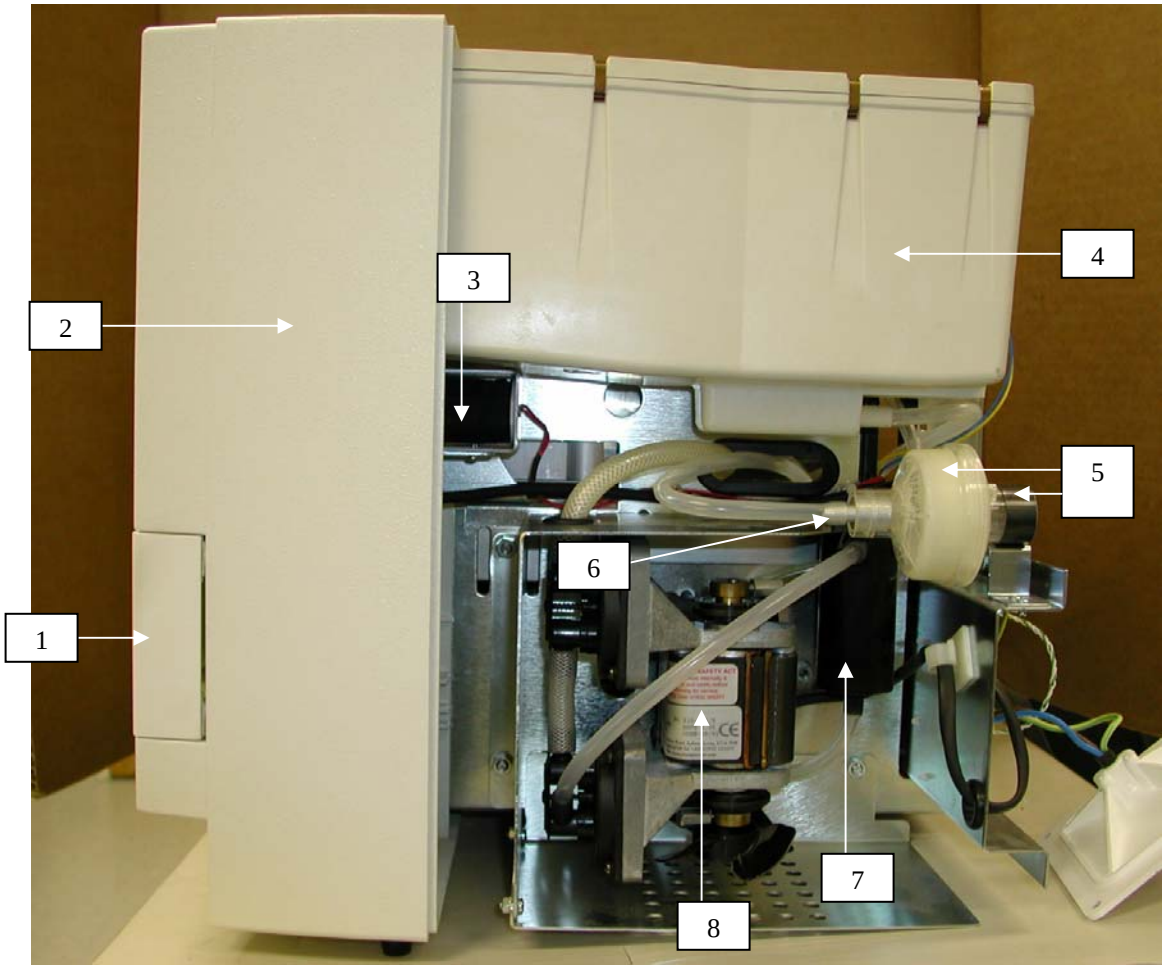
Item #	Part #	Description
1	279011	Door Gasket (Includes Door Plate Seals)
2	279490	Acorn Nut (Pkg 2) (Pictured Above)
2	279491	Dome Nut (Pkg 2) (Not Shown in Picture)
3	279107	O-ring Kit Entry Port White (Pkg 2)
3	279467	Bolt & O-ring Entry Port
4	279527	Tubing & Fitting Kit
5	279102	Drain Tap
6	289132	Rack for Chamber 3 Tray (Wire)
7	309077	Air Filter
8	289006	Temperature Probe Chamber

Rear View With Cover



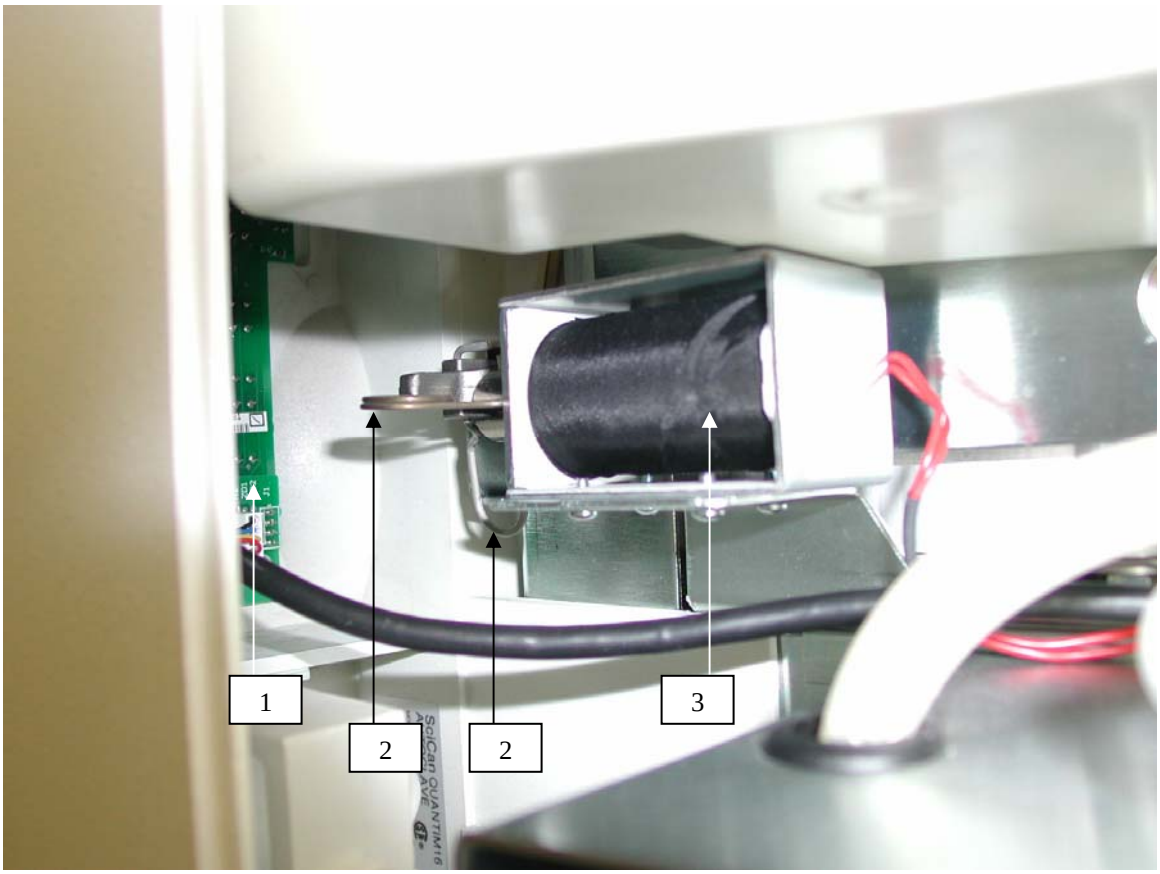
Item #	Part #	Description
1	319003	Cover w/Feet
2	319001	Power Cord
3	319014	Fan Assembly Rear
3	279468	Cover Square No Fan (not shown)
4	279469	Cover Circular
5	279503	Waste Bottle Complete Quantim 16 (Bottle Not Shown)

Right Side No Cover



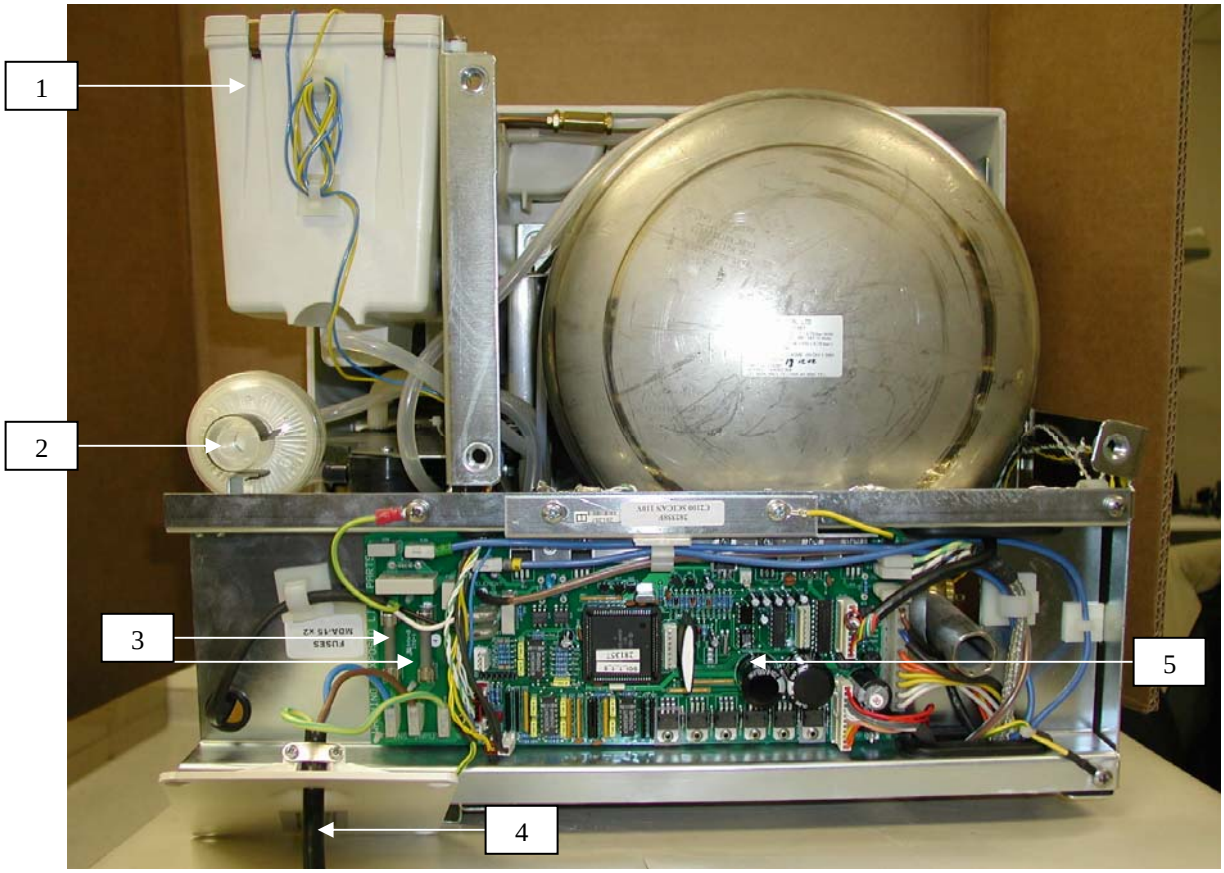
Item #	Part #	Description
1	289125	Printer Door with Hinges
2	279537	Front Bezel
3	279170	Door Opening Solenoid
4	309039	Reservoir Single Use (Quantim with Waste Bottle)
4	279117	Reservoir Multi Use (Quantim no Waste Bottle)
5	289164	Air Filter & Clip
6	299051	Air Filter Nozzle
7	289134	Silencer Vacuum Pump
8	289118	Vacuum Pump

Right Side Front View



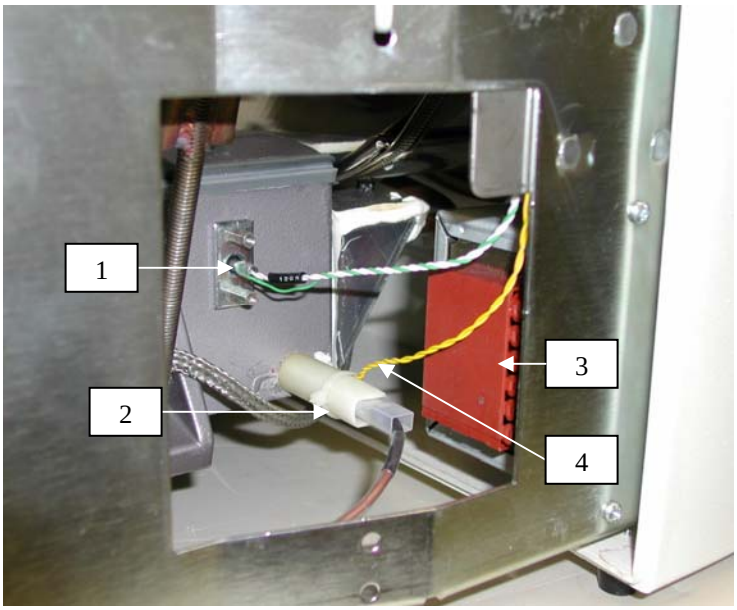
Item #	Part #	Description
1	279225	Display Module
2	279171	Door Solenoid Spring Kit (2 Springs)
3	279170	Door Opening Solenoid

Rear View No Cover



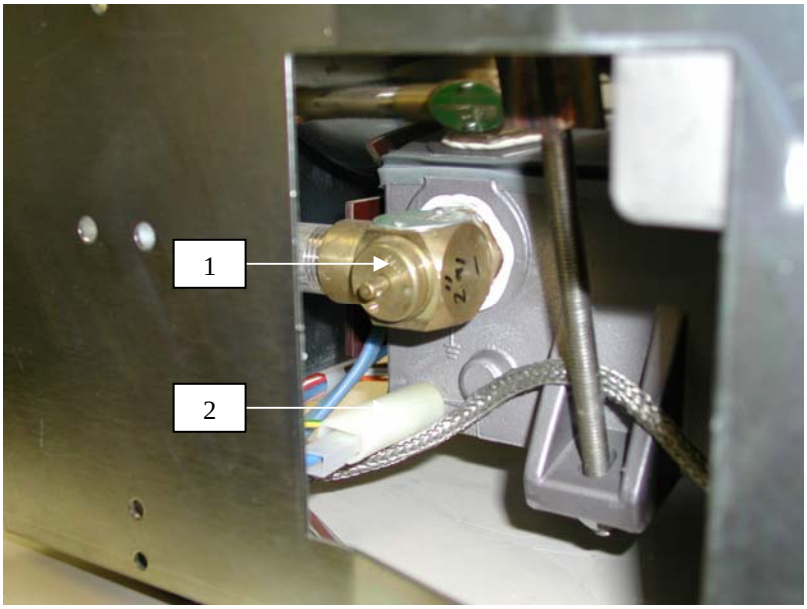
Item #	Part #	Description
1	309039	Reservoir Single Use (Quantim with Waste Bottle)
1	279117	Reservoir Multi Use (Quantim no Waste Bottle)
2	309077	Air Filter & Clip
3	319015	Fuse 15A
4	319001	Power Cord
5	319006	Control Module

Left Side Lower Front No Cover



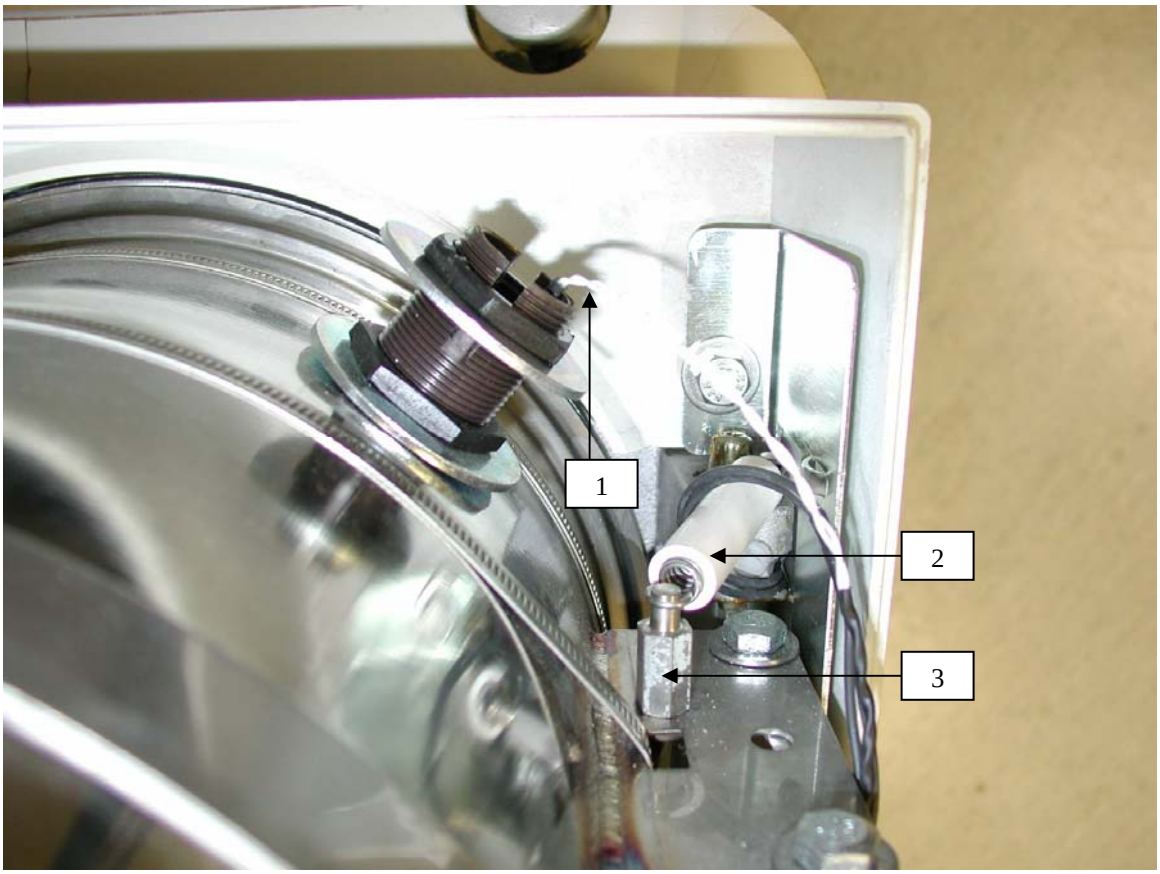
Item #	Part #	Description
1	289011	Temperature Probe Boiler
2	279155	Insulator Heating Element
3	289136	Transformer
4	279544	Boiler Thermistor

Left Side Lower Back No Cover



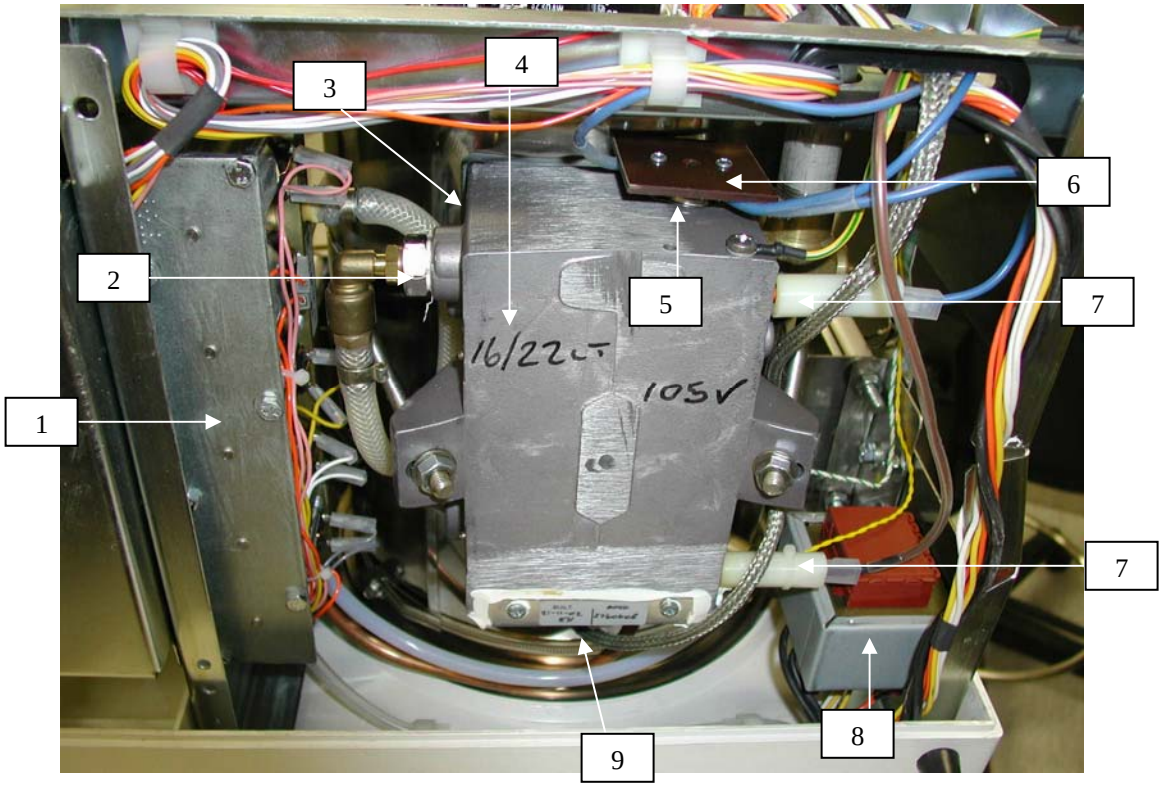
Item #	Part #	Description
1	279157	ASME Safety Valve
2	279155	Insulator Heating Element
*****Note: Boiler must be removed to replace ASME valve. A new boiler to vessel seal (#319022) will need to be installed when reinstalling boiler.**		

Left Side Top Front No Cover



Item #	Part #	Description
1	289006	Temperature Probe Chamber
2	289015	Door Opening Spring
3	289028	Door Spring Pillars (Qty 2)

Bottom View



Item #	Part #	Description
1	319019	Valve Block Kit (upgrade old block obsolete)
2	279176	Water Filter
3	319022	Seal Boiler to Vessel (Not Shown in Picture)
4	319024	Boiler w/PRV
5	279266	Thermal Cutout
6	279203	Thermal Cutout Mounting Kit
7	279155	Insulator Heating Element
8	289136	Transformer
9	289117	Heater Pad (Not Shown in Picture)