

DID YOU KNOW?

NO: 288

DECEMBER 17, 2014

CALIBRATING THE PSS9 PRI-MATIC® STERILIZER

Overview

This is the fifth in a series of Did You Know? bulletins that will cover various topics concerning the operation of PRIMUS' Pri-Matic® PSS9 control system.

The calibration functions are accessed via the **MAINTENANCE** screen (Figure 1).

The maintenance functions are displayed on the **MAINTENANCE** screen.

The **MAINTENANCE** screen's associated buttons provide access to all maintenance functions.

The calibrator must be logged on to access the Maintenance functions.

The maintenance key switch must also be turned to the ON position (the key will be turned to the right) to access the **MAINTENANCE** screen.

NOTE

All pressure and temperature devices must be checked and calibrated using National Institute of Standards and Testing (NIST) traceable devices. This must be completed prior to operating the sterilizer.

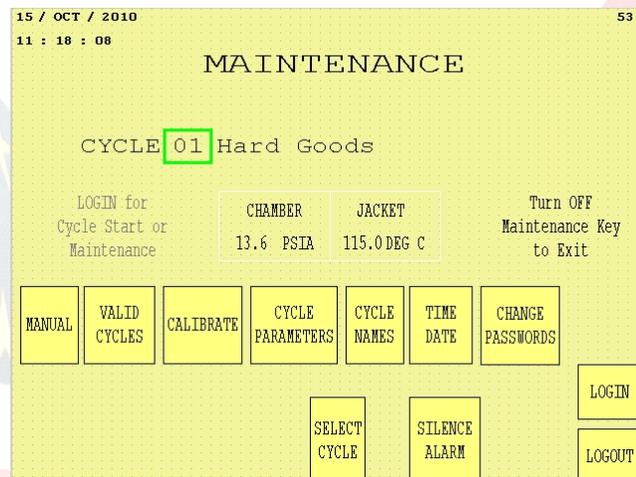


Figure 1 MAINTENANCE Screen



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If the calibrator is already logged on, turning the maintenance key to the ON position will place the sterilizer into Maintenance mode. The **MAINTENANCE** screen will open and the screen buttons will be immediately accessible. If the calibrator is not already logged on, log on at the **MAINTENANCE** screen using the **LOGIN** button.

Access to the various maintenance functions is determined by the LOGIN ID. Not all maintenance functions are available to all LOGIN IDs.

Accessing Calibration Functions

In order to logon and have access to the calibration functions, the operator must be logged on with a LOGON ID of 1 to 7. This requires the calibrator to have an Administrator, Service, or Calibrator LOGON ID to access the calibration functions.

Once the calibrator is properly logged in, the calibrator will select the **CALIBRATE** button from the **MAINTENANCE** screen to access the **CALIBRATION** screen. The **CALIBRATION** screen will then open (refer to **Figure 2 CALIBRATION Screen**).

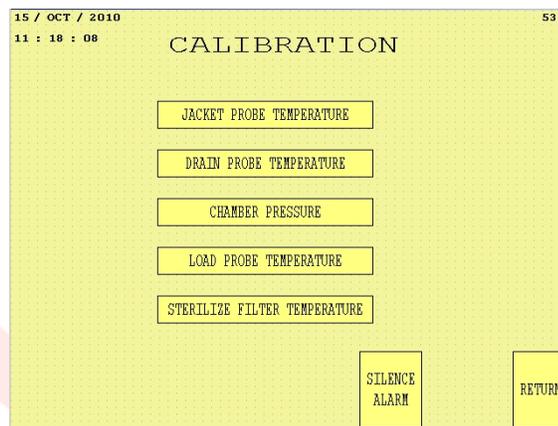


Figure 2 CALIBRATION Screen



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Not all these buttons will be available on the screen as shown in **Figure 2**. If the sterilizer does not have the Sterilize Filter as a separate cycle option, then the **STERILIZE FILTER TEMPERATURE** button will not be visible.

This also applies to sterilizers which do not have a load probe option. If the sterilizer is not equipped with a load probe, then the **LOAD PROBE TEMPERATURE** button will not be visible on the screen.

Temperature Calibration Procedure

Low and high temperature calibration is accomplished by providing a known temperature source to the appropriate sensor and entering the corrected temperature using the OIT keypad entry.

Example: To calibrate the chamber drain probe temperature, the operator would select the **DRAIN PROBE TEMPERATURE** button from the **CALIBRATION** screen and the **CHAMBER DRAIN PROBE** screen will open (refer to **Figure 3 CALIBRATE CHAMBER DRAIN PROBE Screen**).

Expose the chamber drain probe (RTD) to a known heat source (a heat well is preferable), allowing sufficient time for the probe temperature to stabilize.

If conducting the low temperature calibration of the chamber drain probe, the calibrator selects the **LOW CORRECTED TEMP** button. A popup keypad will appear. Enter the correct value from the heat well using the popup number pad (this should only be done to one decimal place) and then select ENTER. The popup screen will close. The calibrator will then select the **CAL LOW** button to lock in the new value.

The new value will replace the previous value on the screen. If using factory standards for setting the low temperature, this would be 90.0°C. The display will show 090.0 DEG C.



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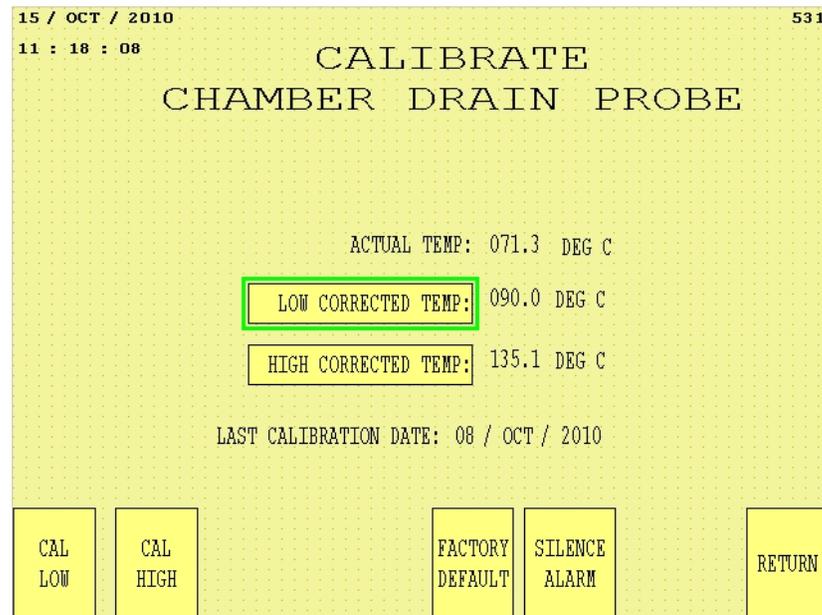


Figure 3 CALIBRATE CHAMBER DRAIN PROBE Screen

The **LAST CALIBRATION DATE** will be updated to show when the calibration was done and the printout will show the calibration and new values.

Factory default temperature calibration is accomplished by touching the related push button. **ACTUAL TEMP** and **LAST CALIBRATION DATE** is updated following the pressing of the **CAL LOW**, **CAL HIGH** or **FACTORY DEFAULT** buttons. Factory default uses 0.0 °C for **LOW CORRECTED TEMP** and 130.0 °C for **HIGH CORRECTED TEMP**.

After calibrating the temperature RTDs for low temperature, repeat this procedure for the high temperature, selecting the **HIGH CORRECTED TEMP** button, entering the value, and then selecting the **CAL HIGH** button. Again, the date will be updated and the printout will show the calibration values.



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Due to the way the controls calculate the scale between low and high temperatures, the upper and lower temperatures displayed may shift slightly after calibrating the opposite value. The calibrator may have to perform low-high calibration up to three times to get the scale to stay steady.

NOTE

The temperature displayed is an interpolated (calculated) value based on scaling by the computer based on the inputs for low and high. This is why the end points may shift slightly when the lower and upper values are set. Calibrate temperature using values as close to factory standard (90.0° C and 130.0° C) as possible to get the most accurate readings.

Pressure Calibration Procedure

Low and high pressure calibration is accomplished by providing a known pressure source to the appropriate sensor and entering the corrected pressure using the OIT key-pad entry.

The operator will be logged on and at the **CALIBRATION** screen as described above. The operator must have sufficient privileges to do the calibrations (Administrator, Service, or Calibrator LOGIN ID).

The calibrator will select the **CHAMBER PRESSURE** button from the **CALIBRATION** screen. Once the **CHAMBER PRESSURE** button is selected, the **CALIBRATE CHAMBER PRESSURE** screen will open (refer to **Figure 4 CALIBRATE CHAMBER PRESSURE Screen**).

PRIMUS recommends the pressure calibration start with calibrating the low pressure first. The calibrator selects the **LOW CORRECTED PRESSURE** button and enters the new value using the popup keypad screen. Again, only enter the value to one decimal place. Once the **ENTER** key on the popup is selected, the popup screen will close and the new pressure value will be shown. The calibrator will then select the **CAL LOW** button to lock in the new value.

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Since the PSS9 controls are set for PSIA, not PSIG, the low pressure is usually the standard atmospheric pressure (approximately 14.7 PSIA) as corrected for the altitude where the sterilizer is located. Thus, the calibrator would not enter the usual 0.0, but instead 14.7 for zero pressure in the chamber.

Factory default pressure calibration is accomplished by touching the related button. **ACTUAL PRESSURE** and **LAST CALIBRATION DATE** is updated following the pressing of the **CAL LOW**, **CAL HIGH** or **FACTORY DEFAULT** buttons.

Factory default uses 0.0 for PSIA **LOW CORRECTED PRESSURE** and 60.0 PSIA for **HIGH CORRECTED PRESSURE**.

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CALIBRATE
CHAMBER PRESSURE

HIGH CORRECTED PRESSURE:

ACTUAL PRESSURE: 13.6 PSIA

LOW CORRECTED PRESSURE: 014.2 PSIA

HIGH CORRECTED PRESSURE: 060.0 PSIA

LAST CALIBRATION DATE: 4 / OCT / 2010

CAL LOW CAL HIGH FACTORY DEFAULT SILENCE ALARM RETURN

Figure 4 CALIBRATE CHAMBER PRESSURE Screen



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NOTE

Just like temperature, this is a calculated value so the display end points may shift when the opposite value is calibrated. Again, it may take up to three times calibrating the low-high pressure for the end points to stabilize.

If the sterilizer is equipped with a pressure transmitter, there may be a separate display showing what the transmitter is reading. This transmitter display and the sterilizer display will differ during operation due to inherent delays in reading the pressure and the controller putting in a correction based on calibration values.

After calibration, use the **RETURN** button to return to the **CALIBRATION** screen. Use the **RETURN** button to return to the **MAINTENANCE** screen.

The calibrator can then log out. The calibrator **must** turn the maintenance key to the OFF position (to the LEFT) to return the sterilizer to normal operations. Operators will then have to login to run the sterilizer.

The **SILENCE ALARM** button turns off the audible alarm notification.

Reference Tables

Two tables are provided as a quick reference to the calibration screens.

The first table, **Table 1 Calibration Parameters**, lists the various calibration screens, the parameters available on the screen, the input units, and the upper and lower limits for each parameter.



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SCREEN	PARAMETER	UNIT	LOW LIMIT	HIGH LIMIT
CALIBRATE JACKET TEMPERATURE	ACTUAL TEMPERATURE	°C	0	138.0
	LOW CORRECTED TEMPERATURE	°C	0	138.0
	HIGH CORRECTED TEMPERATURE	°C	0	138.0
	DATE LAST CALIBRATED	MM/DD /YYYY	N/A	N/A
CALIBRATE CHAMBER TEMPERATURE	ACTUAL TEMPERATURE	°C	0	138.0
	LOW CORRECTED TEMPERATURE	°C	0	138.0
	HIGH CORRECTED TEMPERATURE	°C	0	138.0
	DATE LAST CALIBRATED	MM/DD /YYYY	N/A	N/A
CALIBRATE LOAD PROBE TEMPERATURE	RTD ACTUAL TEMPERATURE	°C	0	138.0
	RTD LOW CORRECTED TEMPERATURE	°C	0	138.0
	RTD HIGH CORRECTED TEMPERATURE	°C	0	138.0
	RTD DATE LAST CALIBRATED	MM/DD /YYYY	N/A	N/A
CALIBRATE CHAMBER PRESSURE	ACTUAL PRESSURE	PSIA	0	60.0
	LOW CORRECTED PRESSURE	PSIA	0	60.0
	HIGH CORRECTED PRESSURE	PSIA	0	60.0
	DATE LAST CALIBRATED	MM/DD /YYYY	N/A	N/A
CALIBRATE FILTER PROBE TEMPERATURE	ACTUAL TEMPERATURE	°C	0	138.0
	LOW CORRECTED TEMPERATURE	°C	0	138.0
	HIGH CORRECTED TEMPERATURE	°C	0	138.0
	DATE LAST CALIBRATED	MM/DD /YYYY	N/A	N/A

Table 1 Calibration Parameters



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SCREEN	PARAMETER	DESCRIPTION
CALIBRATE JACKET TEMPERATURE	ACTUAL	Actual calibrated jacket temperature
	LOW CORRECTED TEMPERATURE	Low temperature entry, used for low calibration
	HIGH CORRECTED TEMPERATURE	High temperature entry, used for high calibration
	DATE LAST CALIBRATED	Date of last calibration
CALIBRATE CHAMBER TEMPERATURE	ACTUAL TEMPERATURE	Actual calibrated chamber temperature
	LOW CORRECTED TEMPERATURE	Low temperature entry, used for low calibration
	HIGH CORRECTED TEMPERATURE	High temperature entry, used for high calibration
	DATE LAST CALIBRATED	Date of last calibration
CALIBRATE RTD LOAD PROBE TEMPERATURE	ACTUAL TEMPERATURE	Actual calibrated load probe temperature
	LOW CORRECTED TEMPERATURE	Low temperature entry, used for low calibration
	HIGH CORRECTED TEMPERATURE	High temperature entry, used for high calibration
	DATE LAST CALIBRATED	Date of last calibration
CALIBRATE CHAMBER PRESSURE	ACTUAL PRESSURE	Actual calibrated chamber pressure
	LOW CORRECTED PRESSURE	Low pressure entry, used for low calibration
	HIGH CORRECTED PRESSURE	High pressure entry, used for high calibration
	DATE LAST CALIBRATED	Date of last calibration
CALIBRATE FILTER PROBE TEMPERATURE	ACTUAL TEMPERATURE	Actual calibrated filter temperature
	LOW CORRECTED TEMPERATURE	Low temperature entry, used for low calibration
	HIGH CORRECTED TEMPERATURE	High temperature entry, used for high calibration
	DATE LAST CALIBRATED	Date of last calibration

Table 2 Calibration Parameter Descriptions



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