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Calibration

This chapter provides procedures to perform all adjustments required to calibrate the Spot Vital Signs to conform to Welch Allyn specifications. Calibration requires qualified personnel to open the device housing.



WARNING Electric shock hazard. There are no user-serviceable parts inside Spot Vital Signs other than battery replacement (see “Battery removal and replacement” on page 70). An operator may only perform maintenance procedures specifically described in this manual. For service, refer the device to an Authorized Service Center.

Note Always disconnect the sealed lead-acid battery in the Spot Vital Signs before performing any calibration function.

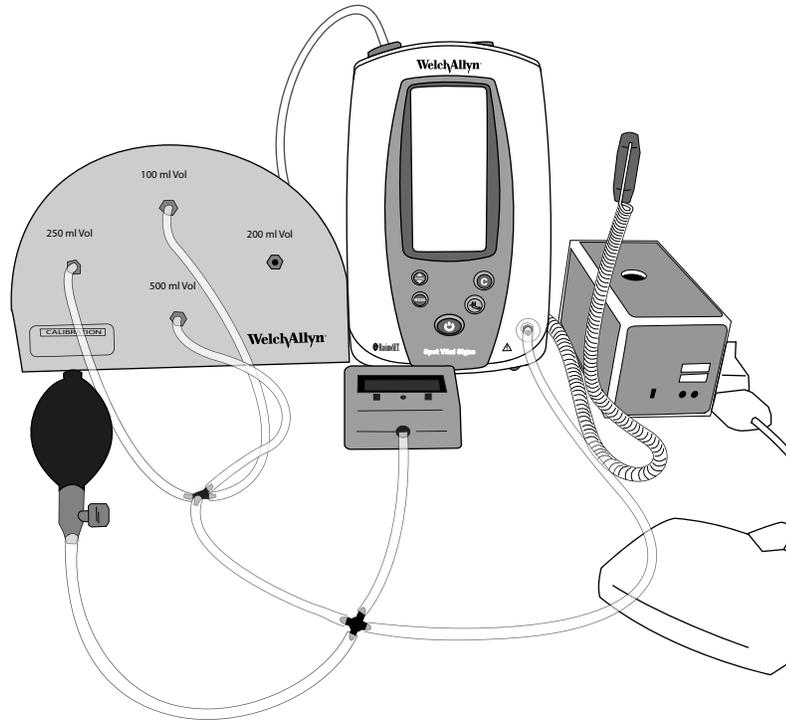
Gather the tools listed on [page 39](#) to have available during the procedures.

Connections

1. Connect the blood pressure pneumatic tubing to the Spot Vital Signs and to the test station (part number 401028).
2. Connect the IR Data Interface cable to the computer.
3. Start the Spot Vital Signs repair software on the computer.
4. Remove the battery and connect the power supply to the Spot Vital Signs.
5. Confirm the IR Data Interface is not obstructed.

Figure 5. Connect Diagram

Part Number
401028



Voltage calibration

1. Follow the steps in ["Connections"](#).
2. Adjust the power supply to 5.6 Vdc \pm 0.1 Vdc (+0.3/-0.0 Vdc).
3. Hold down the **Blood Pressure Start/Stop** button while powering up to enter the "configuration test mode". After the software versions are displayed, press the **Mode** button until the Spot Vital Signs displays "**BAT**" in the LCD window.
4. Select **Calibrate > Voltage** in the repair software. The Spot Vital Signs display window goes blank.
5. Read the voltage on the digital multi-meter (DMM) connected to the power supply.
6. Type the voltage reading in the Calibrated Voltage box and select **Update**.
7. Enter your initials in the Calibration Signature field to complete the voltage calibration, and select **OK**. The voltage on the LCD display matches that of the DMM.

Blood pressure calibration

1. Follow the steps in ["Connections"](#) on page 25.
2. Adjust the power supply to 6.5 Vdc (+0/- 0.25 Vdc).
3. Hold down the **Blood Pressure Start/Stop** button while powering up to enter the "configuration test mode". After the software versions are displayed, press the **Mode** button until the Spot Vital Signs displays "**CAL**" in the LCD window.
4. Select the **Calibrate > Manometer** on the computer.
5. Verify the valve is "open" and select **Calibrate 0**.
6. Press the **Blood Pressure Start/Stop** button to close the valve and verify the 500 cc cylinder is the only volume in the system.
7. Increase the pressure to 250 mmHg \pm 5 mmHg using the bulb and valve.
8. Use the bulb and the calibrated digital pressure meter to manually inflate the device to 200 mmHg and enter the pressure meter reading from Spot Vital Signs in the **Calibration Gain** text field.
9. Place the cursor into the box below the **Calibrate 0** button and type in the value of the pressure reading seen on the pressure meter. Select **Calibrate 250**.

Date/time set

After recharging a dead battery or after disconnecting the battery for a few minutes, you must program the date and time screen.

To set the date/time after a power loss (Version 1 only):

1. Press and hold the **Blood Pressure Start/Stop + Power** buttons to enter the Internal Configuration mode. The Spot Vital Signs displays an E38 error. Press the **C** button to cancel the error, and the revision level of the internal software displays.
2. Press the **Mode** button to advance to the Date Set Screen. The day, month, and year show in the systolic, diastolic, and heart rate displays, respectively.
3. Use the **Mode** button to select the date item for change. When a date option is selected, the respective display flashes.
4. Use the **Next Patient/Clear** or **Blood Pressure Start/Stop** buttons (arrow up or arrow down) to change the selected date option. After making all the desired date changes, press the **Mode** button once to save the change and advance to the Time Set Screen.

When in the Time Set Screen the hour (in 24-hour format) and minutes appear in the systolic and diastolic displays, respectively. Use the **Mode** button to select the time item for change. When selected, the time option flashes. Use the **Next Patient/Clear** or **Blood Pressure Start/Stop** buttons to set the time (in the same manner as described previously).

5. Press the **Mode** button to save the time and advance to the next screen.
6. Press the **Power** button to turn off the Spot Vital Signs.

To update the displayed date and time:

1. Press and hold the **Blood Pressure Start/Stop + Power** buttons to enter the Internal Configuration Menu. Spot Vital signs displays the revision level of the internal software.
2. Press the **Mode** button to advance to the Date Set Screen. The day, month, and year appear in the systolic, diastolic, and heart rate displays, respectively.
3. Use the **Mode** button to select the date option for change. When a date item is selected, the respective display flashes.
4. Use the **Next Patient/Clear** or **Blood Pressure Start/Stop** buttons (arrow up or arrow down) to change the selected date option. After making all the desired date changes, press the **Mode** button once to save the change and advance to the Time Set Screen.

When in the Time Set Screen the hour (in 24-hour format) and minutes appear in the systolic and diastolic displays, respectively. Use the **Mode** button to select the time item for change. When selected, the time option flashes. Use the **Next Patient/Clear** or **Blood Pressure Start/Stop** buttons to set the time (in the same manner as described previously).

5. Press the **Mode** button to save the time and advance to the next screen.
6. Press the **Power** button to turn off the Spot Vital Signs.