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Vet ABC Hematology Analyzer

Calibration

** Before Calibration is performed run a concentrated cleaning and make sure your Photometer is within range. After both are completed run a “Startup” by pressing the start up button. To Check the Photometer:

1. a. Cursor to **4) SERVICE** and press ENTER
- b. Cursor to **8) TECHNICIAN** and press ENTER
- c. At the **PASSWORD** prompt, type in the numbers **421** and press ENTER
- d. Cursor to **2) ADJUSTMENTS** and press ENTER
- e. Cursor to **1) CAL PHOTOMETER** and press ENTER
2. In about 30 seconds, a number will appear on the screen. This is the current setting for the hemoglobin photometer and, when properly adjusted, is usually around 230 -243. If it is not within this range please refer to the photometer adjustment instructions at <http://www.vetnovations.com/service.html>

Materials required:

1. *Blood Control card*
2. One vial of *Minocal* calibration solution. Prior to use, bring the solution to room temperature by gently rolling the vial between the palms until it is warm and completely resuspended. Then let the vial sit undisturbed for about five minutes. Invert 13 times before using. Do not shake the vial or place it on a blood rocker.
3. The reference sheet that comes with your calibrator. You will need the reference ranges (**ABX Micros 45, disregard the variances listed**), lot number and expiry date from this sheet. **Disregard the instructions that come with the calibrator.**
4. Pen and paper to write down sample values in chart form. (WBC/RBC/HGB/HCT/PLT)

*Note - Calibration may be performed with or without a Calibration SmartCard.

-Calibration can NOT be performed in SI units

Procedure:

1. Insert the BLOOD CONTROL SmartCard. From the MAIN MENU, move the cursor to 2) VETERINARY and press ENTER. The display should read TYPE: BLOOD CONTROL. Press ENTER again to verify the card type.
2. From the MAIN MENU, press 3) CALIBRATION and press ENTER.

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3. From the CALIBRATION menu, move the cursor to 1) AUTOCALIBRATION and press ENTER. The instrument will then move through a series of entries that require input from the operator.
4. The first entry asks that the operator be identified by displaying the SELECT OP menu. If desired, the initials of all potential operators may be entered into the computer in advance (see User's Manual). If operators have not been identified, however, the menu lists generic OP_1, OP_2, etc. Select one by moving the cursor to that position and press ENTER.
5. The instrument will then look for a Calibration SmartCard and display an error message (ERROR: NO or BAD SMART CARD) when no card is found. Press ESC to exit this function.
- 6a. The next entry asks for the lot number of the calibrator solution. At the CHANGE LOT #? prompt, compare the lot number currently in memory to the lot number of the solution to be used. If the lot number is the same, press ESC to indicate that the lot is not to be changed. If the number is different, however, press ENTER.
- 6b. At the LOT # prompt, type in the new lot number. Numbers are entered using the keypad; letters are entered using the UP and DOWN arrow keys followed by ENTER to advance to the next letter. When the entry is complete, press ENTER again.
- 7a. The next entry asks for the expiration date of the calibration solution and shows the expiration date of the solution currently in memory. If the date is the same, press ESC. If the date is to be changed, press ENTER.
- 7b. At the EXP DATE prompt, type in the date using the displayed format then press ENTER. Make sure you use the decimal point to separate day, month and year.
8. The next entry asks for the target values for each parameter, following the same format as above (displaying the currently stored values, asking if change is required, and allowing new values to be entered if needed). Complete the target value entries for each parameter. **You will find these values on the reference sheet included with your calibrator. The values that you use are ABX Micros 45. Ignore the variances provided.**

The number of samples to be run is the next entry, six is recommended. At the CHANGE # SAMPLE? prompt, press ESC to maintain the stored sample number or press ENTER to enter a new value

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9. At the RUN CAL? prompt, press enter and the machine will begin a “prime” cycle. Once the cycle is complete the screen will read “Start Calibration #1/6, Press Start to Aspirate” and the sample probe will **not** come down. This is a “Blank” cycle to create a reference point without a blood sample. No sample is to be aspirated at this point. Once the “Blank” cycle is complete the screen will read “Start Calibration #1/6, Press Start to Aspirate” again and the sample probe will come down. You are now ready to calibrate your machine.
10. Mix the Minocal solution by gentle inversion about 10 times before each of the six samples that are aspirated during the calibration. Open the vial and place the sample probe into the solution, then press the sampling bar. The sample probe aspirates the solution and moves into the instrument. Do not hold the calibrator vial in your hand after aspirating a sample or the vial may get too warm.
11. Have a pen and paper ready to write down your 5 values for each of the six calibration samples that are aspirated. (WBC/ RBC/ HGB/ HCT/ PLT). Keeping track of each run will enable you to decide which, if any, sample results should be discarded throughout the process. See last page for example.
12. Once the Sample has been analyzed the values will show up on the screen. Once you have written the values down Press Enter. The machine will then ask you if you want to discard the sample run by pressing ESC or validate the sample run by pressing ENTER. If you validate the sample run then the machine will display “Start Calibration #2/6, Press Start to aspirate”. If you decide to discard the run by pressing ESC the machine will revert back to “Start Calibration #1/6, Press Start to aspirate”. You can discard as many runs as you think are necessary. The measured values will probably not be exactly the target values indicated on the Minocal Sheet, they will be higher or lower, after the calibration is completed the machines coefficients will be adjusted. The values measured, whether higher or lower, should still be close to each other throughout the six sample runs.
13. The display then asks for the remainder of the runs. As before, mix the solution by gentle inversion, then aspirate the sample. Evaluate the results of each run against the target values and accept or discard the run as needed. When the pre-programmed numbers of runs is entered, the instrument calculates the statistical values and indicates if calibration passed or failed.

If all criteria are met, OK is printed under each parameter, and the display reads CALIBRATION ENDED WITH NEW COEFF. Press any key to return to the main menu.



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If any of the parameters failed, the word FAILED is printed under that parameter. Note that if any of the parameters fail, none of the new calibration coefficients are entered. The instrument reverts to the previously stored factors and returns to the calibration menu. The operator should then attempt to calibrate the instrument second time. If the calibration fails again, consult Technical Services for troubleshooting options.

Examples Of Calibration

Calibration Passed

TARGET	10.2	4.49	13.5	38.2	245
	<u>WBC</u>	<u>RBC</u>	<u>HGB</u>	<u>HCT</u>	<u>PLT</u>
Sample 1/6	10.7	4.78	13.8	41.3	257
Sample 2/6	10.4	4.65	13.6	40.2	248
Sample 3/6	10.8	4.59	13.8	39.7	249
Sample 4/6	10.9	4.68	13.9	40.4	265
Sample 5/6	10.5	4.66	13.8	40.2	274
Sample 6/6	10.5	4.69	13.9	40.4	253
Status	OK	OK	OK	OK	OK

Calibration Failed

TARGET	10.2	4.49	13.5	38.2	245
	<u>WBC</u>	<u>RBC</u>	<u>HGB</u>	<u>HCT</u>	<u>PLT</u>
Sample 1/6	10.7	4.78	13.8	41.3	257
Sample 2/6	10.4	4.65	13.6	40.2	248
Sample 3/6	11.3	4.59	13.1	39.7	249
Sample 4/6	10.9	4.68	13.9	40.4	265
Sample 5/6	10.5	4.66	13.8	40.2	274
Sample 6/6	10.5	4.69	13.9	40.4	253
Status	FAIL	OK	FAIL	OK	OK

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Calibration Passed w/ rejected run – Press ESC to Discard, Enter To Valid

TARGET	10.2	4.49	13.5	38.2	245
	<u>WBC</u>	<u>RBC</u>	<u>HGB</u>	<u>HCT</u>	<u>PLT</u>
Sample 1/6	10.7	4.78	13.8	41.3	257
Sample 2/6	10.4	4.65	13.6	40.2	248
Sample 3/6	11.3	4.59	13.1	39.7	249
Sample 3/6	10.8	4.59	13.8	39.7	249
Sample 4/6	10.9	4.68	13.9	40.4	265
Sample 5/6	10.5	4.66	13.8	40.2	274
Sample 6/6	10.5	4.69	13.9	40.4	253
Status	OK	OK	OK	OK	OK