

HemataStat II™

Centrifuge Operator's Manual



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SECTION 1 DESCRIPTION AND INTENDED USE

The Separation Technology, Inc. (STI) HemataStat II™ Microhematocrit System is a small, lightweight centrifuge which provides a rapid and accurate microhematocrit determination using capillary or venous blood samples. The HemataStat II is not intended for use with materials other than blood.

The rotor will accommodate up to six standard 75mm capillary tubes. The device will achieve specimen separation in only one minute.

For convenience and ease of use, the HemataStat II system also includes a built-in automatic tube reader and a LCD that displays messages to guide the operator throughout the testing procedure and then displays the test results.

An optional rechargeable battery pack is available to permit operation in remote locations where alternating current is not available. The HemataStat II has a CLIA '88 WAIVED status.

SECTION 2 INSTALLATION

2.1 UNPACKING

The HemataStat II shipping box contains:

- Centrifuge
- Package of ten disposable tube holders
- Power supply
- Operator's manual
- Laminated quick reference procedure guide
- Laminated tube placement guide
- Instruction video

Read the operator's manual thoroughly before operating this system.

VIEWING THE INSTRUCTION VIDEO BEFORE PROCEEDING WILL BE HELPFUL FOR PROPER OPERATOR TRAINING.

Place the centrifuge on a convenient, level work surface along with the other items contained in the box.

2.2 POWER SUPPLY

Use **ONLY** the power supply packaged with the HemataStat II. Verify that the ON/OFF switch located on the top of the centrifuge is in the OFF " ⓪ " position. Always plug the power supply into the rear of the device first and then plug the three-prong end into an electrical outlet. Press the ON/OFF switch to the ON " Ⓢ " position. The lid will automatically open and the LCD will display the main menu.

2.3 OPTIONAL RECHARGEABLE BATTERY PACK

A. INSTALLATION

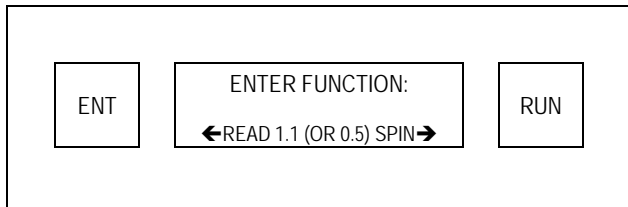
For complete portability, the HemataStat II will operate on a rechargeable battery pack, which can be ordered as an option. The battery pack will need to be installed in the device as described below and fully charged before normal operation.

1. Make certain the lid is closed and locked and the centrifuge is unplugged from the electrical outlet. Lock the lid by firmly pressing down on the lid tab.
2. Place the device upside down on a smooth, flat surface and on a cloth or other protective material to prevent scratching the lid.
3. Locate the battery pack cover. Using a small head Phillips screwdriver, remove the screws holding the battery pack cover in place. Retain the screws. Remove the battery pack cover.
4. Connect the battery pack plug into the connector located inside the battery pack cavity. Put the connector inside the hole of the housing with the connector release tab facing up. Position the battery pack inside the compartment. Lay the cable along side the battery pack to avoid crimping.
5. Replace the battery pack cover and secure with the screws provided.
6. Plug in the HemataStat II and fully charge the battery pack.

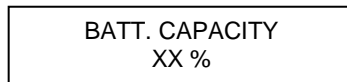
B. CHARGING THE BATTERY PACK

The battery pack is always charging whenever the HemataStat II is plugged into an electrical outlet. Since the battery pack cannot be overcharged, the device may remain plugged in continuously without harm. Charge the battery pack overnight (or an equivalent period of time). The percentage of remaining battery pack capacity may be determined at any time by performing the following procedure.

1. Unplug the device from the electrical outlet.
2. Press the ON/OFF switch to the ON position. The LCD should display the main menu.



3. Press the RUN and ENT buttons simultaneously and hold them down until the battery pack capacity is displayed.



When there is 20% capacity remaining, the main menu LCD will flash as an indication that the battery pack is beginning to run down. It will still be possible to operate the device for a few spins but the operator should recharge the battery pack soon. Once there is no longer sufficient capacity to operate the instrument, it will fail to complete a cycle and the message CHARGE BATTERY will be displayed.

4. If the device is plugged into an electrical outlet with the ON/OFF switch in the ON position and the RUN and ENT buttons are pressed simultaneously, the LCD will display either CHARGING when in the process of charging or TRICKLE CHARGING if fully charged.

REGARDLESS OF WHAT THE LCD MAY DISPLAY AT ANY GIVEN TIME DURING THE CHARGING CYCLE, IT IS IMPORTANT TO ALWAYS ALLOW THE BATTERY PACK TO CHARGE OVERNIGHT OR AN EQUIVALENT PERIOD OF TIME TO ENSURE A FULL CHARGE. A FULLY CHARGED BATTERY PACK WILL GENERALLY PROVIDE 75 SPIN CYCLES IF THE CENTRIFUGE IS TURNED OFF BETWEEN TESTS.

SECTION 3 SETUP PROCEDURE

3.1 DISPLAY OPTIONS

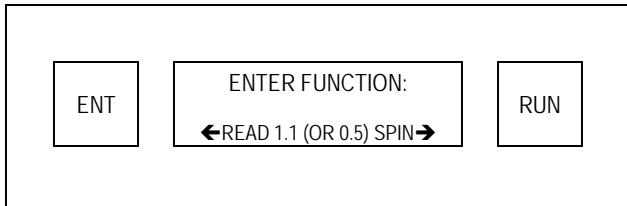
This setup procedure will allow the operator to store several functions in the display option memory until a change is required. These functions include the selection of:

- Tube size - 1.1mm or 0.5mm Inside Diameter (ID). The device must be set to the tube size being used. (The ID of capillary tubes may vary slightly - up to 0.1mm.)
- Display language - English, Spanish, French, German or Italian
- HCT value suffix - Choice of displaying % sign or only the value itself
- Decimal point - Choice of displaying hematocrit in whole numbers or with a decimal point.

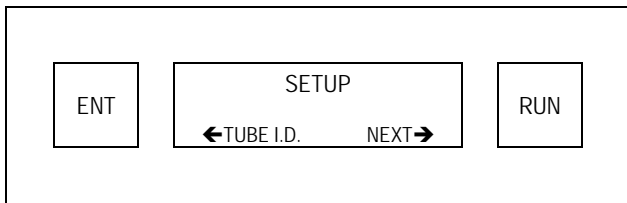
Performing this setup procedure eliminates the need to enter these settings into the device each time a test is performed.

3.2 SETUP MENU AND PROCEDURE

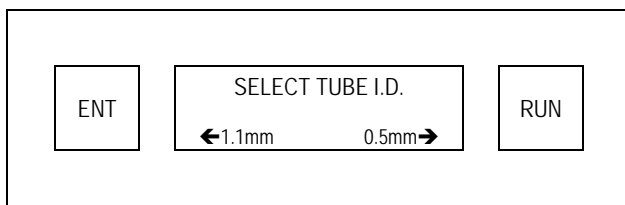
- A. With the power ON, the LCD will display the main menu:



- B. Simultaneously press and release the ENT and RUN buttons. The LCD will change to:

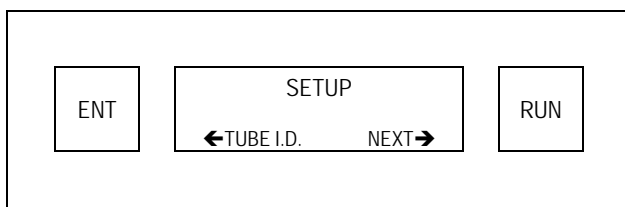


- C. Press ENT to enter the tube size menu. Press ENT again to choose the 1.1mm size or press RUN for 0.5mm.

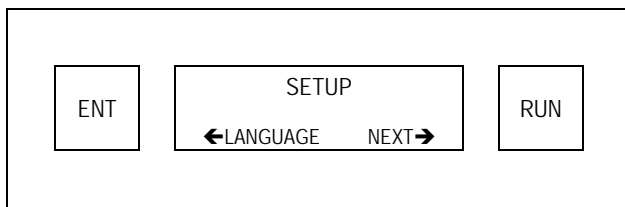


When the tube size selection is made, the LCD will return to the main menu.

- D. Simultaneously press and release the ENT and RUN buttons. The LCD will change to:

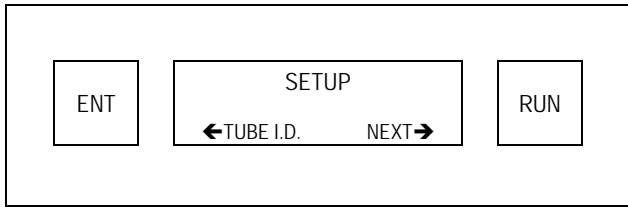


- E. Press RUN to enter the language menu. The LCD will display:

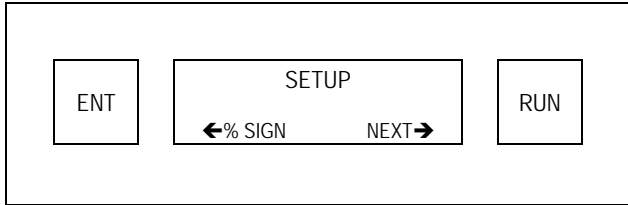


- F. Press ENT to select language display, then press RUN repeatedly to display each of the 5 language options. Press ENT to lock in the desired language. The LCD will return to the main menu.

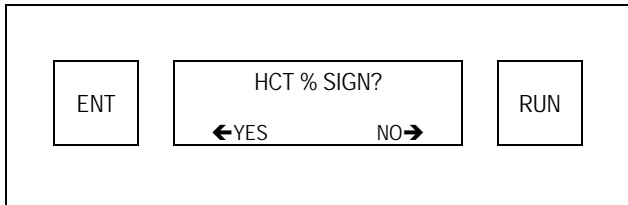
- G. Simultaneously press and release the ENT and RUN buttons. The LCD will change to:



- H. Press RUN twice to enter the HCT suffix menu. The LCD will display:

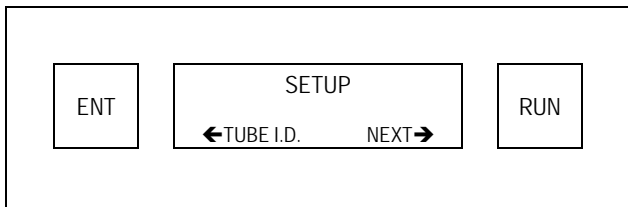


- I. Press ENT to make HCT suffix selection. The LCD will display:

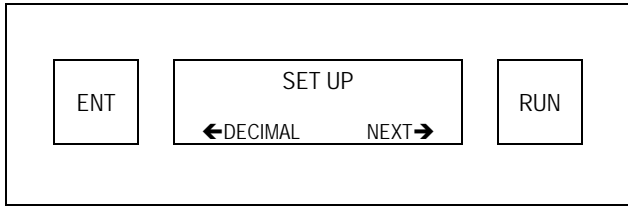


- J. Press ENT again to lock in the % suffix or press RUN to remove the % suffix. When the option is selected, the LCD will return to the main menu.

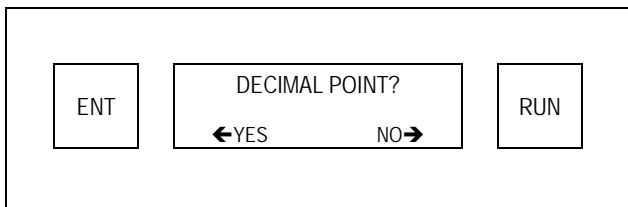
- K. Simultaneously press and release the ENT and RUN buttons. The LCD will change to:



- L. Press RUN three times to enter the decimal point menu. The LCD will display:



- M. Press ENT to make decimal point selection. The LCD will display:



- N. Press ENT again to lock in the decimal point or press RUN to remove the decimal point. When the option is selected, the LCD will return to the main menu.

SECTION 4 OPERATING INSTRUCTIONS

4.1 START UP

Press the ON/OFF switch to the ON position. The lid will automatically open and the LCD will display the main menu.

THE INSIDE DIAMETER (ID) OF THE TUBES BEING USED MUST MATCH THE SIZE DISPLAYED ON THE LCD (EITHER 0.5 OR 1.1MM) (SEE SECTION 3.2).

4.2 ROTOR LOADING AND BALANCING

FOR SMOOTH OPERATION AND EXTENDED LIFE OF THE CENTRIFUGE, THE ROTOR MUST ALWAYS BE BALANCED BEFORE THE SPIN CYCLE IS INITIATED.

Install 2, 4 or 6 tube holders in the rotor. There should always be an even number of tube holders in the rotor and they should be opposite each other to balance the rotor.

When an even number of capillary tubes (2, 4 or 6) are centrifuged, balancing is accomplished by placing the tubes on opposite sides of the rotor from one another so that the weight is distributed equally. If an odd number of tubes (1,3 or 5) are centrifuged, use an empty capillary tube to balance the rotor.

4.3 TUBE PREPARATION

- A. Perform a capillary finger stick.
 1. The patient should be seated comfortably. The patient's hand should be below the heart. It should be warm and relaxed with the fingers straight but not tense. Warm the finger by moving the blood from the base to the tip several times.
 2. The puncture site should be on the fingertip of the middle finger or ring finger. Ideally, there should not be a ring on the finger. The outer and upper region of the fingertip, halfway between the center of the finger pad and the edge of the fingernail, is the site of choice. Using the side of the fingertip rather than the center of the fingertip hurts less and provides more blood flow.
 3. Clean the puncture site with an alcohol swab. Allow the area to dry completely or wipe it off with a lint free wipe (such as gauze).
 4. Using your thumb, lightly press the finger from above the knuckle to the tip to stimulate blood flow toward the puncture site.
 5. While applying light pressure toward the puncture site, use the lancet.
- B. Wipe off the first drop of blood. Fill a capillary tube $\frac{1}{2}$ to $\frac{3}{4}$ full with blood. Let the specimen flow down the tube until it is near the dry end. Then place your finger over the top of the tube to stop the flow.
- C. Insert the dry end vertically into the sealant, pushing it to the bottom of the tray. Twist the tube when removing it from the sealant to prevent the sealing plug from being extracted.
- D. Repeat Step B. Gently tap the sealed end of the tube on a flat surface to help insure proper sealant contact in the tube.
- E. Wipe off the prepared capillary tube.
- F. Place the capillary tube carefully in the centrifuge tube holder with the sealant end down. Do not force the tube; let it slide into the tube holder. All tube positions are numbered on the rotor and can be used to record the position of each patient specimen.

WHEN USING CAPILLARY TUBES WITH PAINTED FILLER BANDS DO NOT FILL THE TUBES MORE THAN $\frac{3}{4}$ FULL. SEAL THE END OF THE TUBE WITHOUT THE BAND.

WHEN DRAWING A SAMPLE FROM A VENOUS BLOOD COLLECTION TUBE

ENSURE THAT THE SAMPLE IS WELL MIXED.

4.4 TUBE CENTRIFUGATION

With the tube holders and hematocrit tubes in place, lock the lid by firmly pressing down on the lid tab. Start the run cycle by pressing the RUN button. The centrifuge will not operate unless the lid is closed and properly locked. If the RUN button is pressed without locking the lid, the message LOCK LID will appear on the LCD.

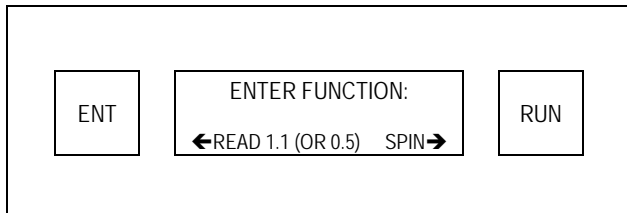
Do not lean on the instrument.

During the period of time when the motor is accelerating, a test number is displayed on the LCD. This number is a count of the completed spin cycles. Within seconds the centrifuge will reach the proper operating speed and the rpm will be displayed on the LCD during the cycle. The LCD will display a countdown of time for the remainder of the run cycle, and the device will stop automatically after 60 seconds.

When the run cycle is completed, an automatic braking system will engage to completely stop the rotor. An audible tone will indicate that the spin cycle is complete and the automatic lid lock will disengage to allow the lid to be opened.

4.5 READING A CAPILLARY TUBE

- A. Look at the LCD to insure that the proper tube size (1.1 or 0.5mm) appears in the LCD between the READ and SPIN messages.

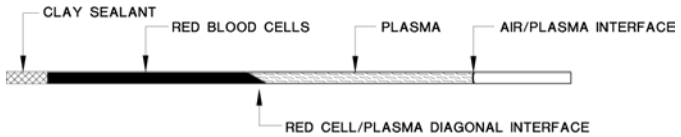




- B. Move the slider to the far left side of the reader tray.

ONLY ONE CAPILLARY TUBE AT A TIME SHOULD BE REMOVED FROM THE ROTOR FOR READING. ADDITIONAL TUBES MAY BE LEFT IN THE ROTOR FOR UP TO FIVE (5) MINUTES WITHOUT ANY ADVERSE EFFECTS. ONCE A TUBE HAS BEEN REMOVED FROM THE ROTOR, IT SHOULD BE READ WITHIN ONE MINUTE.

- C. Remove a capillary tube from the rotor and place it in the groove located in front of the LCD. Make sure the sealant end of the tube is to the far left, against the end of the groove. Rotate the tube in the groove

so that the full diagonal interface of the Red Blood Cells (RBCs)/PLASMA can easily be seen as shown below:

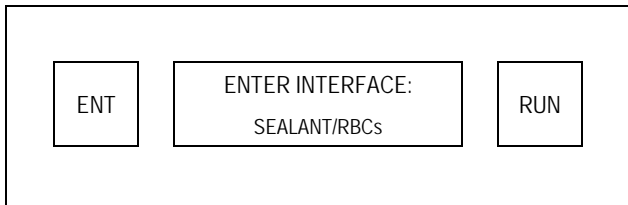


Note that the diagonal can be in this position  or in this position , whichever way provides the clearest view of the interface.

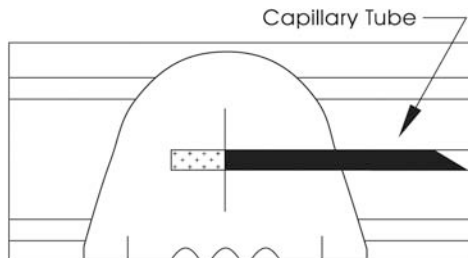
Once it has been properly positioned, **make sure you do not move the tube** during the reading process.

D.

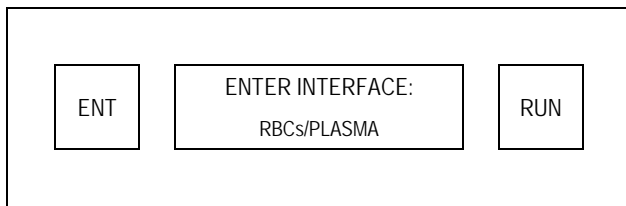
Press the ENT button. The LCD will change to:



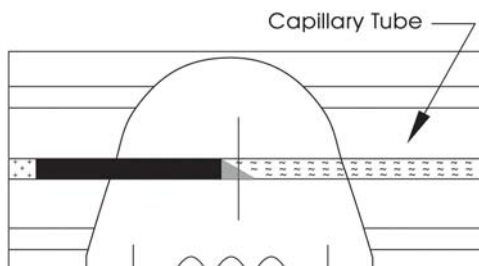
Move the slider along the capillary tube to the interface of the tube sealant and red blood cells. Look through the transparent slider and position the vertical black line on the interface as shown in the following diagram.



E. Press the ENT button. The LCD will change to:

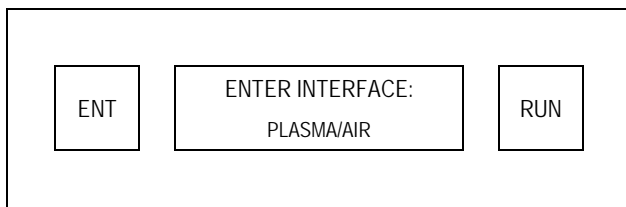


F. Move the slider to the RBCs/PLASMA interface. Look through the transparent slider and position the vertical black line on the middle of the diagonal interface as shown in the following diagram.

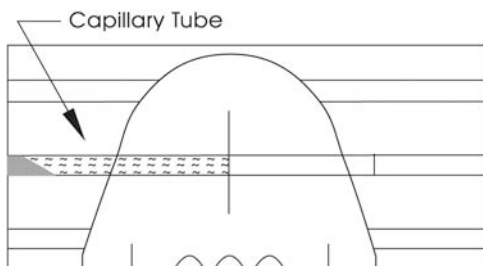


In some instances, a line of red blood cells extending from the RBCs/PLASMA interface through the PLASMA/AIR interface can be observed. These fine lines of red blood cells are residuals from the migration and they have not been found to affect the results.

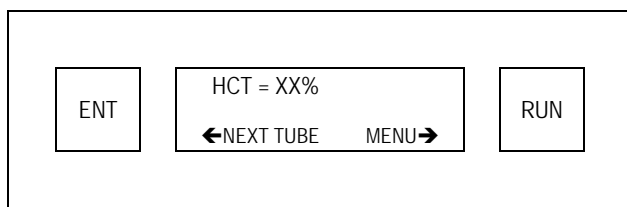
G. Press the ENT button. The LCD will display:



H. Move the slider to the PLASMA/AIR interface. Place the vertical black line of the slider over the interface at the end of the plasma curve as shown in the following diagram.



- I. Press the ENT button. The LCD will display the hematocrit result.



- J. Press ENT to read another tube. Press RUN to return to the main menu.

4.6 HEMATOCRIT DETERMINATION REMINDERS

TO ENSURE CORRECT RESULTS, BE SURE TO:

- Use only the size tube displayed on the LCD.
- Use only heparinized capillary tubes.
- Spin sample one time (60 seconds) ONLY.
- Read the tube within one minute after removing it from the rotor.
- Align vertical black line of the slider at the middle of the RBCs/PLASMA full diagonal interface.
- Tubes spun in HemataStat must be read on the HemataStat.
- Tubes spun in any other brand of centrifuge cannot be read on the HemataStat.
- Inspect and replace disposable plastic tube holders monthly or more frequently as needed.

SECTION 5 QUALITY CONTROL AND ASSURANCE

QUALITY CONTROL AND ASSURANCE TESTS ARE LEFT TO THE SOLE DISCRETION OF THE LABORATORY DIRECTOR WHERE THE HEMATASTAT II MICROHEMATOCRIT SYSTEM IS IN USE.

5.1 USE OF HEMATOLOGY REFERENCE CONTROL

To insure proper daily performance of the HemataStat II, STI provides a hematology reference control called HemataChek™. The product has an assay value for the hematocrit test and is packaged in a variety of combinations of LOW, NORMAL and HIGH (See Section 8).

The HemataStat II's accuracy and the user's technique can be confirmed by using HemataChek hematology reference control.

HemataChek does not require refrigeration and features a 2 year expiration from date of manufacture and a 31 day open vial stability. It provides hematocrit assay values for all HemataStat centrifuges as well as for other microhematocrit centrifuges.

WHEN USING HEMATACHEK:

- Step 1 Ensure bottle cap is tightly closed.
- Step 2 Vigorously tap the bottle against the palm of your free hand. As soon as the plastic mixing bead can be heard, continue to tap the bottle for one minute.
- Step 3 After mixing one minute, look through the bottom of the bottle. If a clump of unmixed control material can still be seen, repeat Steps 1 and 2.
- Step 4 Use this mixing technique each time before filling capillary tubes.
- Step 5 After each use, clean the threads of the vial and the cap with an absorbent material.
- Step 6 Always replace the cap after use.

5.2 CALIBRATION

Microprocessor technology is used to monitor the speed and spin cycle of the HemataStat II. A maximum packing time test is not applicable. If an abnormal operating condition is encountered, a programmed error message will automatically appear in the display. The accuracy of the HemataStat II hematocrit tube reader can be verified by using HemataChek hematology reference control, available from STI.

5.3 SPIN TIME/RPM TESTS

A. SPIN TIME

Spin time is factory set at 60 +/- 3 seconds. A count down of the time remaining is displayed on the LCD. Spin time may be verified by using a stopwatch. The motor takes less than 10 seconds to accelerate to proper rpm. Once achieved, the spin time will be displayed on the LCD. Start timing the spin when WAIT 60 SEC is displayed on the LCD. Stop timing the spin when the motor shuts off.

B. RPM

The HemataStat II is designed to operate between 5,670 and 6,930 rpm. An internal microprocessor continuously monitors the rpm during operation. If the rpm should drop below the specified range, the motor will shut off, and the message LOW RPM will display on the LCD. To verify the LOW RPM message, press the ENT or RUN button to return to the main menu. Press the RUN button to restart the spin cycle. If the LOW RPM message is displayed again, refer to Section 7.

The rpm reading on the LCD should be within 2% of a tachometer reading.

SECTION 6 MAINTENANCE

6.1 CLEANING

As with all electrical devices, make sure the centrifuge is unplugged before cleaning. Always wear protective clothing when using any cleaning materials.

NEVER USE BLEACH, ABRASIVES OR CORROSIVE SOLVENTS.

DO NOT SPRAY OR ALLOW ANY LIQUID TO GET INSIDE THE CENTRIFUGE. LIQUID WILL HARM THE ELECTRONICS. SUBSEQUENT PROBLEMS WILL NOT BE COVERED UNDER WARRANTY.

Use a disinfectant towelette or a cloth slightly dampened with any non-corrosive disinfectant solution to clean the lid and other parts of the centrifuge housing. Dry all surfaces with a soft tissue or cloth after cleaning.

The rotor should be removed and cleaned at least monthly or as required by the laboratory protocol. Remove the rotor from the motor shaft by first unscrewing the rotor knob. Gently lift the rotor vertically off of the motor shaft. Make sure the rotor is thoroughly dry before reinstalling. Liquid left on the rotor will cause damage to the device. Re-install the rotor making certain that the rotor knob is tight.

6.2 TUBE HOLDERS

Cleaning the tube holders is not recommended. Should a capillary tube break or a sealant blowout occur, simply discard the affected tube and tube holder in accordance with proper laboratory procedures and replace with a new tube holder. Inspect tube holders regularly and replace them when they become dirty and/or contaminated. Replacement tube holders are available (See Section 8).

6.3 INSPECTIONS

Periodically inspect the lid, lid gasket and rotor to ensure there are no cracks or damage.

6.4 SERVICE

To obtain service, contact Customer Service at 800-777-6668, 407-788-8791, or by email at custserv@separationstechnology.com.

All instruments or accessories must be cleaned prior to shipment to the manufacturer for service. This decontamination is required by Federal law and EPA Regulations. Employees of STI cannot perform this decontamination.

When transporting the HemataStat II, removal of the rotor or placement of packing material around the rotor will help prevent damage to the motor shaft in the event the unit is dropped.

SECTION 7 TROUBLESHOOTING

SYMPTOM	PROBLEM	SOLUTION
No display	Power supply not firmly plugged into electrical outlet or in back of device	Check both plugs
	Power supply not functioning	Replace power supply.
	ON/OFF switch not ON	Turn ON/OFF switch ON
	Faulty electrical outlet	Try a different electrical outlet
Rotor will not spin	Lid not locked	Press firmly down on the lid tab.
Unit Noisy	Rotor knob is not tight	Tighten rotor knob
	Rotor not balanced	Balance the rotor
Lid will not open	Device is in the spin cycle	Allow spin cycle to end (Section 4.4) Turn ON/OFF switch off, wait 5 seconds and turn it back on.
	Lid lock is engaged	Use the key tool on the underside of the unit. Insert the "L" shaped end of the tool into the "L" shaped key opening on the left side of the unit. Push gently until the lid opens.
LOW RPM message	Low rpm	Insure that the rotor moves freely Check rotor balance
RUN ABORTED message	Power failure	Restore power
	Power supply disconnected	Reconnect plug
ENTRY ERROR message	If the slider is moved out of sequence or is moved in the wrong direction.	Move the slider to the far left and start the reading process over. (Section 4.5)
LCD flashing	Low battery pack charge (less than 20% capacity)	Recharge or replace battery pack
	Power supply not firmly plugged into electrical outlet or in back of device	Check both plugs Try a different electrical outlet
Battery pack will not charge	Power supply not properly connected	Section 2.2 - Power Supply
	Battery pack not properly connected	Section 2.3 - Optional Rechargeable Battery Pack
	Faulty battery pack	Replace battery pack
Battery pack does not hold adequate charge	Voltage is inadequate to charge HemataStat II	Plug in fewer power supplies in electrical outlet (same circuit)

SECTION 8 ACCESSORIES, CONTROLS AND SUPPLIES

CONTROLS HemataChek™ Hematology Control is specific for monitoring the Hematocrit determination and is stable for 2 years from date of manufacture at room temperature. Open vial stability is 31 days. Each box contains six 2.5ml vials.

- 300-101 HemataChek - Normal Control Level, 6 Vials, 2.5ml ea.
- 300-102 HemataChek - Low, Normal & High Control Levels, 2 Vials/Level, 2.5ml ea.
- 300-103 HemataChek - Low & Normal Control Levels, 3 Vials/Level, 2.5ml ea.
- 300-104 HemataChek - Normal & High Control Levels, 3 Vials/Level, 2.5ml ea.
- 300-105 HemataChek - Low Control Level, 6 Vials, 2.5ml ea.
- 300-107 HemataChek - High Control Level, 6 Vials, 2.5ml ea.

SUPPLIES

- 230-100 Tube Holders - 50/Pack
- 260-100 HemataSeal™ Tube Sealant
- 260-105 Unistik® 2 Lancets, Normal, 100/Box
- 260-109 Unistik® 2 Lancets, Dual, 200/Box
- 260-110 Unistik® 2 Lancets, Extra, 200/Box
- 260-111 Unistik® 2 Lancets, Extra, 1,000/Box
- 270-106 ClearCrit™ Plastic Microhematocrit Capillary Tubes, Heparinized, 75mm length, 1.1mm ID, Box of 5 Vials; 200 Tubes/Vial
- 270-107 ClearCrit™ Plastic Microhematocrit Capillary Tubes, Heparinized, 75mm length, 0.5mm ID, Box of 5 Vials; 200 Tubes/Vial
- 270-108 ClearCrit™ Mylar® Coated Glass Microhematocrit Capillary Tubes, Heparinized, 75mm length, 1.1mm ID, Box of 5 Vials; 200 Tubes/Vial
- 270-109 ClearCrit™ Self Sealing, Mylar® Coated Glass Microhematocrit Capillary Tubes, Heparinized, 75mm length, 1.1mm ID, Box of 20 Vials; 100 Tubes/Vial 75mm length, 0.5mm ID, Box of 5 Vials; 200 Tubes/Vial

ACCESSORIES

- 280-104 Rechargeable Battery Pack
- 290-111 Power Supply Assembly - 100-240VAC / 47-63Hz 0.7A
- 320-100 Carrying Case - Holds 2 Centrifuges
- 320-101 Training Video
- 630-124 Key Tool
- 910-100 Operator Manual

Mylar® is a registered trademark of E.I. du Pont de Nemours and Company

SECTION 9 WARRANTY

SEPARATION TECHNOLOGY, INC. (STI) warrants each new HemataStat II™ (The Product) against defects in materials or workmanship for a period of two years from the date of purchase and agrees to repair or replace any defective Product without charge. This warranty does not cover damage resulting from accident, misuse, lack of reasonable care, improper cleaning, improper maintenance or improper packaging for return shipment to STI. This warranty shall be void if the Product is repaired by anyone other than STI or an authorized service agent. This warranty does not extend to anyone other than the original purchaser nor to accessories manufactured by other vendors.

Excluded from this two year product warranty is the optional rechargeable battery pack. This item is warranted by STI against defects in material or workmanship for a period of 90 days from date of purchase.

Except as provided herein, STI makes no warranties of any kind, either expressed or implied, and specifically excluding any warranty of merchantability or warranty of fitness for a particular purpose.

STI will not be liable for any special, consequential or incidental damages arising out of the use or inability to use the Product and/or the optional rechargeable battery pack. In no event shall STI's liability hereunder exceed the purchase price of the Product. This warranty shall be void and of no force and effect with respect to any Product and/or the rechargeable battery pack which is damaged as a result of a) neglect, alteration, electric current fluctuation or accident, b) improper use, including failure to follow proper operation and maintenance, and to provide proper environmental conditions prescribed in STI's Product instruction manuals, c) repair by other than STI or authorized service agents appointed by STI and acting in accordance with STI's service announcements or d) use of supplies or parts which do not meet STI specifications.

To obtain warranty service, contact Customer Service at 800-777-6668, 407-788-8791, or by email at custserv@separationtechnology.com.

HemataStat II, HemataChek, HemataSeal and ClearCrit are trademarks of Separation Technology, Inc.

SECTION 10 SPECIFICATIONS

- Use: For the centrifugation of blood only.
- Rotor: 6 place fixed angle head.
- Capacity: Six – 75mm capillary tubes of either 0.5mm or 1.1mm ID.
(The inner diameter of capillary tubes may vary slightly – up to 0.1mm.)

- Max Rotor Capacity: Six - 75mm length, 1.1 ID hematocrit tubes filled ¾ full.
- Tube Holders: Transparent plastic disposable - 10 supplied in plastic bag.
- Motor: Sealed, ironless core, permanent magnet, DC.
- Lid: Safety interlocked to prevent opening while rotor is spinning and includes a lid gasket for biological safety.
- Timer: Fixed at one minute. Timer operates for 60 seconds when spin cycle is engaged. A series of BEEPS signals when rotor stops.
- Front Panel: LCD prompts operational modes and alarms. Two tactile membrane switch buttons engage various functions and options.
- Speed: Designed to operate between 5,670 - 6,930 rpm and 1,548 – 2,312 RCF.
- Ramp-Up Time: Less than 10 seconds.
- Power Supply:

Model	Input Volts	Freq.	Output Volts	Amps
290-111	100-240VAC± 10%	47-63Hz	20VDC	1.2
- Optional Battery Pack: Rechargeable nickel metal hydride, 12 cells, 1350m AH, 14.4 V nominal.
- Dimensions: W. 7", L. 11", H. 5"
- Bench Area Requirements: W. 9", L. 13", H. 12"
- Conditions: For indoor use only. Maximum relative humidity 95% non-condensing.
- Temperature Range:

Operating:	10°C to 40°C	50°F to 104°F
Storage:	-10°C to 60°C	14°F to 140°F
- Weight: Centrifuge 2 lbs.; Total shipping weight with battery pack 8 lbs.
- Approvals: ETL/CETL Listing for North America
UL 61010-1
CAN/CSAC22.2#61010-1
IEC 61010-1
CENELEC EN 61010-1
IEC 61010-2-020

910-100N
05/2015



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Sanford, FL 32771
www.separationtechnology.com

Made in USA

