

***Bio-Lion***

# Table Top Centrifuge XC-H165



Operation Manual

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This operation manual is for the Model XC-HR20. To ensure safety, obtain optimum performance, and to familiarize yourself fully with use of this centrifuge, we recommend that you review this manual thoroughly before operating. Retain this operation manual in an easily accessible place near the work desk for future reference.

### Specification

Max Speed	16500r/min
Max RCF	18930 ×g
Timer range	0~99min
Speed accuracy	± 30r/min
Noise	≤65 db(A)
Power	110V 60Hz
Dimension	330× 420× 275mm
Weight	45 lbs



Display window  
see Table II



Locking  
lid

**Rotors (ordered separately)**

Table I

Rotor	Item #	Max Capacity (ml×tubes)	Max Speed (r/min)	Max RCF (×g)
#1 Fixed Rotor	A006-2	1.5/2.2ml×12	16500 r/min	18930
#2 Fixed Rotor	A008-4	1.5/2.2ml×24	13200 r/min	16110
#3 Fixed Rotor	A011-2	5ml×10	13000 r/min	11400
#4 Swing Rotor	S003	2×48 hole	3000 r/min	1400
#5 Fixed Rotor	A012-2	10ml×12	120000 r/min	14800
#6 Fixed Rotor	A021-3	50ml×6	12000 r/min	13000
#6 Fixed Rotor	A005	0.5ml×36	16000 r/min	23669
#7 Swing Rotor	S010-2	10ml×4	6000 r/min	3200



**A006-4**



**A008-4**



**A011-2**



**A012-2**



**A021-3**



**A024-1**



**S003**



**S010-2**

**Bio-Lion** Centrifuges are specially designed for clinical examination and teaching demonstrations in laboratories, colleges and medical fields. They are also ideal instruments for biological, bacteriological, pathological, and pharmaceutical research. Because of higher capability with lower price and humanized configuration design, it is an ideal choice for individuals, schools and scientific research organizations.

**For users:**



**Caution!** - Please read the Operation Manual first.

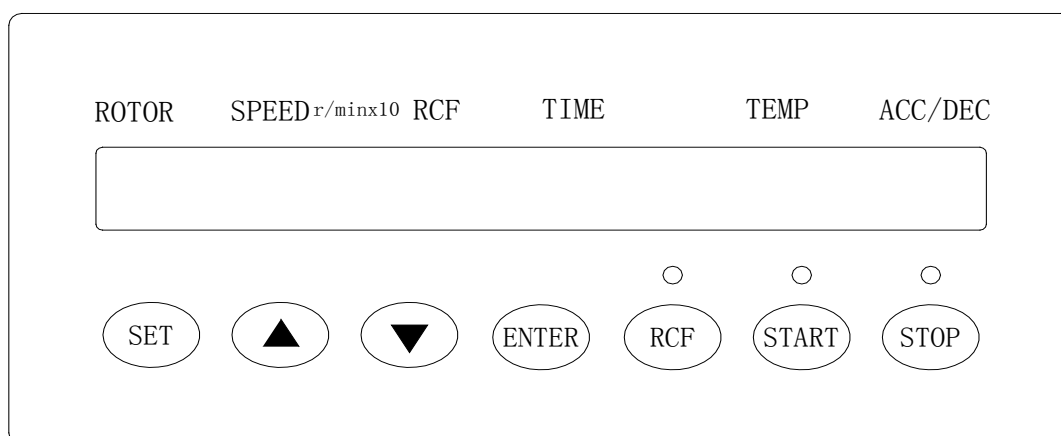
- Please **verify** the correct **voltage and frequency** of the outlet, before you plug in the unit.
- The Centrifuge should be controlled by the technical staff and maintained by an approved service technician.
- Don't use or service the centrifuge before reading the Operation Manual.
- Use only electrical plug supplied with the equipment.
- If attempting to replace fuse, make sure centrifuge is unplugged.
- Make sure the equipment is placed on a flat surface.
- This equipment is a precision instrument, always use it with care. Avoid dropping or shaking during operation.
- When moving the equipment, you should use both hands and set it down carefully with equal weight on all 4 corners.
- Do not put the equipment in direct contact with the sun. Do not expose the equipment to high temperature, damp, or dusty environment.
- ALWAYS make sure the centrifuge is balanced with equal weight and volume on opposite sides.
- The balancing weight difference should be no more than 1.5g.
- For fixed angle rotor, the sample volume should be less than 80% of the tubes' total volume.
- For swing rotor, the sample volume should be less than 90% of the tubes' total volume.
- NEVER use the following material in equipment:
  - Flammable and explosive material.
  - Poisonous and radioactive material.

This centrifuge has microprocessor control, brushless motor, real-time change of SPEED and RCF function, and a quick spin feature. In addition, it has several rotor options for the user to select (sold separately).

### Requirements for Installation:

1. The centrifuge should be stable with the centrifuge weight equally distributed on all 4 rubber feet.
2. Single phase alternating current, 110V/60HZ, with ground wire. **DO NOT use voltage converters or extension cords.**
3. Humidity level should be less than 85%.
4. There should be at least 6" (150mm) between this unit and other equipment.

Table II



- |              |  |
|--------------|--|
| SET:         | Setup button                             |
| ENTER:       | Confirm button in set up process         |
| RCF:         | Speed show in RCF                        |
| SHORT:       | Button used for quick instantaneous spin |
| START:       | Start spinning                           |
| STOP / OPEN: | Stop spinning / Door Open button         |
| ▲ :          | Up / Increase Button                     |
| ▼ :          | Down / Decrease button                   |

#### Description of Display window

- |            |  |
|------------|--|
| ROTOR:     | Displays the rotor number being used                 |
| SPEED/RCF: | Displays speed or RCF value                          |
| TIME:      | Displays length of time centrifuge will spin         |
| TEMP:      | Displays the temperature inside the centrifuge       |
| ACC/DEC:   | Displays how fast centrifuge will speed up/slow down |

## Assembly:

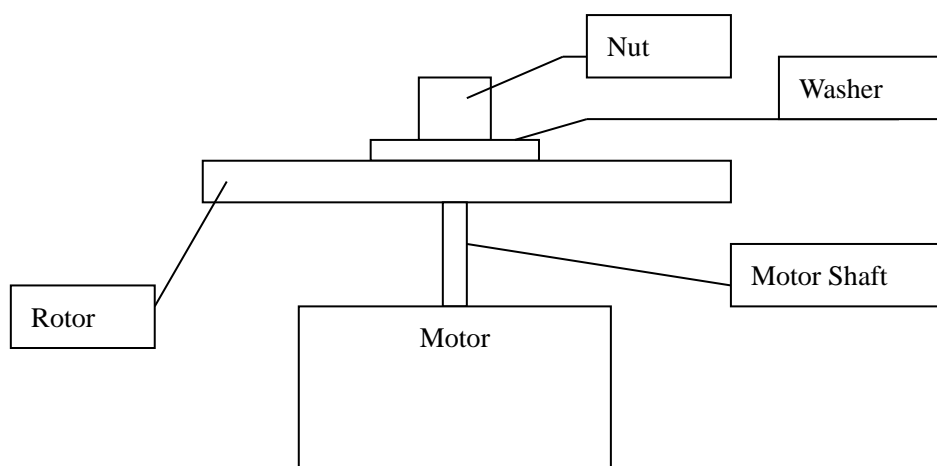
### Turning unit on

1. Insert one side of the plug into the back socket of the centrifuge.
  - The centrifuge must be grounded.
  - Make sure that outlet voltage is in accordance with centrifuge voltage.
2. Turn the power switch located on lower right hand side into the “ON” position.

### Set up

1. After unit is powered on push and hold “STOP” button. This will allow the door to open automatically. Please note door will not open if centrifuge is spinning
2. Visually inspect rotor for any flaw / weak points / or other inconsistency that may cause the rotor to fail.
3. If rotor is not installed then follow Table III and the next step. If already installed, move on to next section.
4. Put some lubricating oil (Not Included) on the motor shaft, install the rotor, washer and secure the nut cap.
5. Make sure securing nut is fastened tightly.

Table III



### Choosing the correct rotor

1. Push the “SET” button to adjust the rotor. The 2 digit number under the word “ROTOR” should be flashing. If the numbers under “ROTOR” are not flashing then continue to push the “SET” button until this happens.
2. Select your rotor by using the following chart and the “▲” or “▼” arrow buttons
  - “01” refers to 1.5/2.2 ml×12
  - “02” refers to 1.5/2.2 ml×24
  - “03” refers to 5ml×10
  - “04” refers to 2×48 hole well plates (not provided)
  - “05” refers to 10ml×12
  - “06” refers to 100ml×4 **AND** 50ml×6
  - “07” refers to 10ml×4
3. Push “ENTER” to confirm.

### **Operation:**

After the correct rotor has been chosen and installed (see Assembly if this has not been done) then you can add your tubes to the centrifuge. Make sure tubes are correct size and fit in the holders. Screw on the locking cap to the rotor. Press the lid down until the lid is locked and will not open.

### Speed Adjustment

1. Push the “SET” button 2 times to adjust the speed setting. The 4 digit number under the word “SPEED / RCF” should be flashing. If the numbers under “SPEED / RCF” are not flashing then continue to push the “SET” button until this happens.
2. NOTE speed increments are X 10. For example if you set the speed in the display to 2000, this really means 20,000 RPM’s. If you set the display to 350 then this is 3,500 RPM’s
3. This centrifuge default setting for speed is in RPM’s. Please select desired speed (shown in RPM’s) by using the “▲” or “▼” arrow buttons. If you would rather adjust speed setting based on RCF values, then push the RCF button to the right of the display window. This will convert RPM into RCF values.
4. Push “ENTER” to confirm.

### Time Adjustment

1. Push the “SET” button 3 times to adjust the time setting. The 2 digit number under the word “TIME” should be flashing. If the numbers under “TIME” are not flashing then continue to push the “SET” button until this happens.
2. Select your desired time (in minutes) using the “▲” or “▼” arrow buttons. You can set the time from 1 – 99 minutes.



3. Push “ENTER” to confirm.
4. If you prefer to run the centrifuge for time less than 1 minute then you can hold the “SHORT” button down for this time frame. By holding the “SHORT” button down the centrifuge will run at your desired speed until you release this button.

#### Temperature Adjustment

1. Push the “SET” button 4 times to adjust the temperature setting. The 3 digit number under the word “TEMP” should be flashing. If the numbers under “TEMP” are not flashing then continue to push the “SET” button until this happens.
2. Select your desired temperature (in degrees Celcius) using the “▲” or “▼” arrow buttons. You can set the temperature from -20°C to 40°C.
3. Push “ENTER” to confirm.

#### Acceleration Adjustment

1. Push the “SET” button 5 times to adjust the acceleration setting. The 1 digit number under the word “ACC” should be flashing. If the number under “ACC” is not flashing then continue to push the “SET” button until this happens.
2. Select your desired acceleration setting using the “▲” or “▼” arrow buttons. “0” is the FASTEST acceleration setting and “9” is the SLOWEST acceleration setting.
3. Push “ENTER” to confirm.

#### Deceleration Adjustment

1. Push the “SET” button 6 times to adjust the deceleration setting. The 1 digit number under the word “DEC” should be flashing. If the number under “DEC” is not flashing then continue to push the “SET” button until this happens.
2. Select your desired deceleration setting using the “▲” or “▼” arrow buttons. “0” is the FASTEST deceleration setting and “9” is the SLOWEST deceleration setting.
3. Push “ENTER” to confirm.

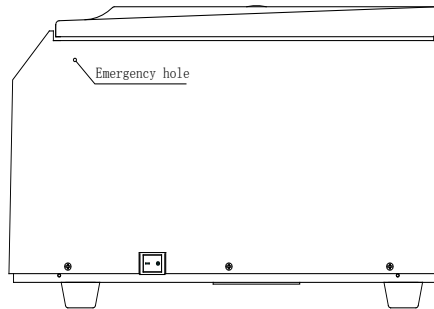
#### Spinning Centrifuge

Now that the correct rotor is selected and your desired speed, time, temperature and acceleration / deceleration setting are set you can now run your samples.

1. Make sure lid is closed and locked.
2. Press the “START” button.
3. After the centrifuge has run for the desired amount of time (when the timer gets down to “0”) then the centrifuge will slow down. Please note that the speed must reach “0”, before you can open the door.
4. When speed reaches “0” the door will open automatically and beep to indicate it has completed the spin.

**Note**

This centrifuge has an electronic lock feature. If the unit is unplugged, needs to be opened during a power outage, or for any other reason the lid can not be opened, please insert the emergency lid release tool (looks similar to a screw driver and included with centrifuge) into the lid release on the side (shown below) and open the lid.

**Maintenance**

1. Periodically clean the inside and outside of centrifuge with a lint free cloth.
2. Do not use any caustic cleaning liquids inside centrifuge.
3. Check the rotor before every use.
4. Please turn off and unplug the centrifuge if it is not regularly used.

## Trouble Shooting: Error Messages

**Table IV**

Display	E1	E2	E3	E4	E5	E7	E8	E9
Failure	Imbalance	Over speed	Temperature Senor	Electronic plate	Motor Error	Poor Contact	Setup Error	Transformer

### E1 - Imbalance:

- The weights of the tubes are not equally balanced. Error message can occur if weight is over 1.5 grams
- Rotor is not installed or spinning correctly
- Bent or damaged motor shaft.

Solutions: Make sure the tubes are equally balanced as described in the “Caution” section. If it is the Rotor, please double check that everything is assembled correctly as described in TABLE III. If there is any damage, please report to your dealer.

### E2 - Over speed:

- Power supply isn’t correct.
- Failing speed sensor

Solutions: Check to make sure the voltage and frequency of your outlet are correct, if not, unplug immediately. For any failing equipment, please report to your dealer.

### E3 – Temperature Sensor:

- Not cooling centrifuge to desired Temperature.

Solutions: Contact your authorized dealer.

### E4 - Electronic plate failure:

- Failed electronic plate.

Solutions: Check out to insure the plug is in good working condition. A failed Electronic plate needs to be replaced. Please report to your dealer.

### E5 - Motor failure:

- The connecting line between motor and electronic plate is loose.
- Motor has failed.

Solutions: These failures should be fixed by a professional. Please report to your dealer.

### E8 - Setup failure:

Solutions: Reset the setting in assembly and operation part of manual.

Display is not working

- Unit is not turned on.
- Check for secure connection of the power cord at the unit back and at the power outlet.
- Blown fuse, please report to your dealer.

*Upon receipt of your new **Bio-Lion** centrifuge  
we recommend you record the following information for future reference:*

**Date purchased/received:** \_\_\_\_\_

***Bio-Lion* Dealer:** \_\_\_\_\_

**Dealer's phone number:** \_\_\_\_\_

## **Warranty**

The manufacturer warrants this instrument to be free from defects in material and workmanship under normal use for 1 year from the date of purchase. It does not cover damage resulting from abuse or misuse, repairs or alterations performed by unauthorized repair technicians, or damage occurring in transit. If you have questions concerning this product or warranty, contact the dealer from whom it was purchased. For warranty service, centrifuge should be well packed to avoid damage in transit, preferably in original box and packing. Include your complete return address and telephone number as well as a description of the difficulty, date and place of purchase, and ship to the address below. If under warranty it will be repaired or replaced at no charge and returned. If misuse, alterations, accident or abnormal conditions of operation caused failure, an estimate for repairs will be provided for your approval prior to work being performed.

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***Bio-Lion* Centrifuges**

**[www.bio-lion.com](http://www.bio-lion.com)**