

MULTI-PURPOSE CENTRIFUGE



Instruction Manual



Model : LMPC-30B

Please read this manual carefully before using the instrument

Labnics Equipment

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CHAPTER 1. INTRODUCTION :

1.1 Specifications:-

MODEL	LMPC-30B
Max. Speed	6,000 rpm
Max. RCF	4,910 x g
Max. Capacity	4 x 750ml
Speed setting & display	1 rpm
Temperature	Air Cooling
Timer	99min59sec
Acceleration/Deceleration	3 step
Programs	10 memory
Applicable Rotors	RPM, RCF, Time, Program
Drive Motor	Brushless AC Induction Motor
Standard Power Supply	220V/60Hz, 2KW
Dimension (W x D x H) / mm	530x 595 x 425
Weight	71 kg

Rotor Model	Capacity	Max. RPM	Max. RCF	Radius
SBR 2	750ml x 4	3,200	2,381	20.8

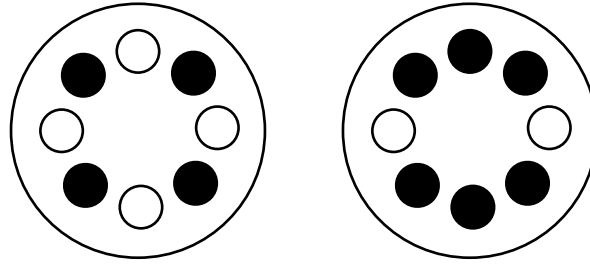
1.2 Caution:-

OVERSPEED

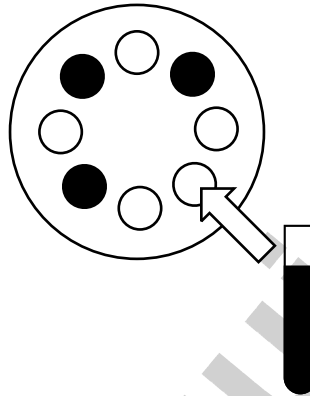
- Make sure that Rotor speed is not more than maximum rotation speed. Don't over the maximum speed of rotor.
- When the rotor is given to relative centrifugal force over the allowed seal intensity, the destruction of rotor occurs because the shape of rotor is designed so that rotor can stand an external force in accordance with the allowed seal intensity of the rotor.

IMBALANCE OF TUBE

- Put samples measured exactly into tube each and load tubes symmetrically each other in the rotor.
- If the volume of opposite sample is different, the serious turbulence occurs during rotation and a motor, rotor and shaft are damaged.



Tubes should be symmetrically loaded on the rotor.



If the tubes are not symmetrical in the number of tubes, load the another tube having as same as others' weight.

1.3 SAFETY DEVICES:-

Power On/Off

- An automatic circuit breaker, for emergency situations, such as power surges, which could damages the unit, protects instrument's circulation when it is overpowered

DOOR

- When a door opens, the door limit switch by sensor makes the rotor be still.

CHAMBER SAFETY

- If the rotor is used with over maximum speed continuously for a long time, it is incurred that rotor is destructed.
- The centrifuge should be used with designated speed according to rotors respectively and if operated with overspeed, overspeed control system gives an alarm signal and brakes the centrifuge by the designated deceleration time.

INBALANCE & VIBRATION

- If the rotor is operated with imbalance over standard during rotation, motor is also moved.
- In this case, the danger is detected by measuring the vibration of motor. With a alarm imbalance "LED" lit up and the rotation stops by preset deceleration time. Safety device as above keeps the instrument from an accident during operator's absence in lab.

SYSTEM

- When the system has abnormality itself, it is lit up and notify the user of abnormality

CHAPTER 2. NOTE FOR INSTALLATION:-

2.1 Location:-



Best Location

The rotating instrument should be set on the flat and solid surface. In the case of setting the instrument at the incline surface, it is possible the shaft become bent by the heavy weight rotor because of a long time of rotation in inclining of the shaft and ground.



AIR CIRCULATION

For the circulation of air, the distance of at least 30 must be observed around the centrifuge during operation. Avoid to set it on the dusty place.



TEMPERATURE & HUMIDITY

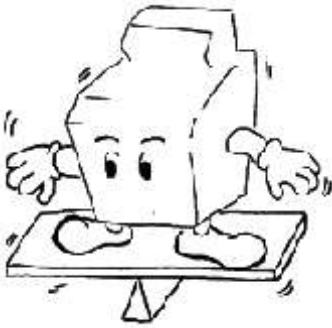
The centrifuge which is controlled by a high-tech microprocessor is affected by the external conditions such as temperature or humidity. If a room temperature is extremely high by the direct ray of light or heater, or very low, the accuracy and reliance of instrument are reduced by errors of electronic parts. On top of that the high humidity makes the corrosion of rotor or parts. A proper temperature and humidity should be maintained accordingly.



AVOID CORROSIVE GAS

Place the centrifuge at the place which the corrosive gas doesn't occur. If there is sulfur dioxide or chlorine gas in atmosphere, it causes a corrosion of rotor and shaft, and cause great damage of metals.

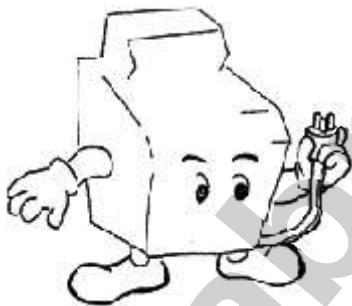
2.2 Balance:-



BALANCING

The shaft has to be perpendicular to the ground.

2.3 ELECTRICAL REQUIREMENTS:-

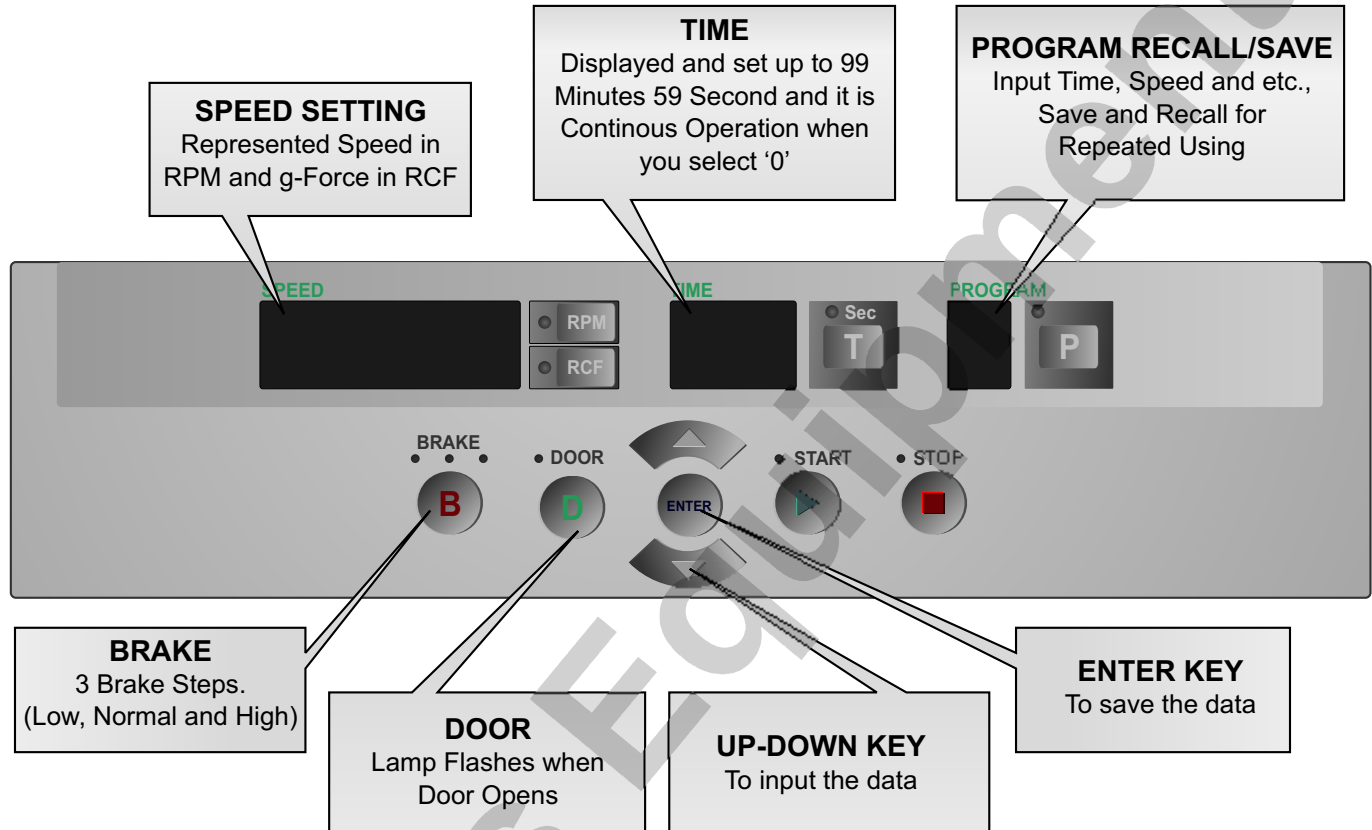


POWER

The standard power requirements are a single phase and 115V. Therefore, plug in after checking the name plate located on the rear panel. Make sure there should not be three phases.

CHAPTER 3. PARTS DESCRIPTION:-

3.1 Control Panel:-



CHAPTER 4. OPERATION PROCEDURE:-

4.1 Standard Operation-

1. Power Supply

- Turn on the main power switch on the back of the instrument.
- Turn the key switch located in front of instrument to "On" position.
- With the power being connected, the lamp is off and be to the operation standby status.
- When turn the switch to "Power on" status, all the indicators on the board light off with alarm and last data before power out is indicated.

2. Input desired setting parameters.

- Reset the desired data for RPM, Time Brake system
- Press the control button to change the data for speed, time and so on.
- Input desired parameters.
- Press the "Enter" key.

3. Press "start" button to run the instrument.

- Press "start" button to run the unit without changing any parameters such as rpm or time.
- The centrifuge will start to decelerate when it reaches the time limit. When it stops completely the first setting parameters is displayed.
- If you want the centrifuge to stop during operation, press the "stop" button.

4.2 Program Function:-

Speed Setup

- When you set the desired speed, press the "RPM" key and set it by the up-down direction key. After that press the "Enter" key. It is not possible to input higher speed than max. This is to prevent the accident by overspeed.

Caution!

Labnics Series is designed in such way that the speed is set under 800 rpm to improve the motor control capability. Thus the speed under 800 rpm can't be input and it is not out of order.

RCF (x g)

- To calculate the Relative Centrifugal Force, it is made to calculate automatically RCF to Speed by using the Maximum Radius.
RPM and RCF are calculated mutually so if RPM is input RCF is calculated automatically and if reversely is same like above. It is like either during operation.

SETTING-

- Press the RCF key and input the data by using up-down direction key.
- After that, press the Enter key.

TIME

- The display range of time is 99mins and shows the 2 digits.
- The change of time counts down from setting time after running.
- Timer is proceeding by a unit of 1 minute and under 1 minute is used with a unit of second.

SETTING-

- Press the "TIME" key.
- Alarm sounds and is possible to set.
- Input the desired time by using the up-down direction key.
- Press the "Enter" key and if the "Start" key is pressed it starts to count

- Down, and decelerate after over setting time.
- Free run : You can use the "Free run" function for long time Operation. For that, input the "0" in display of time and start to run.

DECELERATION

- 3 Steps : High, Middle, Low

SETTING-

- Press the " Brake" key.
- Whenever the brake key is pressed, the lamp of H, M, L light on and the level of brake is changed.

PROGRAM SAVE

- All 10 Programs can be saved and the range is 0 to 9.
- The data of RPM/Time and so on are saved in Program function.

SETTING-

- The desired data should be input by up-down key.
- When you press the program, the lamp of "P" key lights on with sound and then press "Enter".

CALLING

- The program saved between 0 to 9 can be called.

SETTING-

- Press the "Program" key to call the program saved.
- When the lamp lights on "P" key with alarm, press the "P" again and turn off the lamp. After that, set the number to be called and press the "Enter" key. At that time, the data to the program is showed.

IMBALANCE

- When the rotor loses the balance of normal standard and vibrates seriously, Imbalance LED turns on with the alarm and stops according to Decel Time as a pre-input.

DOOR

- When the door closes, "Door" lights off and when the door opens, the "Door" lights on. To open the door, press the "Door" key.

CHAPTER 5. MAINTENANCE:-

This chapter explains how to keep your unit in good operating order. It includes instructions for cleaning, decontaminating and storing. This chapter also covers the cover interlock by pass.

Care and cleaning:

Keep your centrifuge clean, to ensure good operation, and to extend its life.

Clean the sample chamber, rotor and lid at the end of each work day and immediately after any spill. To clean the chamber, use a damp sponge, warm water, and a mild liquid detergent, suitable for washing dishes by hand. Don't use caustic detergents or detergents that contain chlorine ions. These attack metals.

Remove stubborn stains with a plastic scrub pad. Don't use steel wool, wire brushes, abrasives, or sandpaper. They create corrosion sites. Never pour water directly into the rotor chamber. Scrub the rotor's tube cavities with a stiff test tube brush that has end bristles and a non-metallic tip. Dry each part, after cleaning, with a clean, absorbent towel.

If glass breakage occurs, remove all broken glass embed in the plastic or rubber accessories. Glass particles can come in contact with new glass tubes, creating pressure points that may result in breakage recurring. Glass particles, in the chamber, grind to a fine gray dust, during centrifugation. This dust can coat the inside of the centrifuge.

Storage:

Store parts on a soft surface, to avoid damage. Rotors and other parts should be clean and dry. Store them open to the air, not in a plastic bag, so that any residual moisture evaporates. Face the parts upward to avoid moisture retention in the cavities.

Decontamination:

If tube breakage occurs, releasing toxic, infectious, pathogenic, or radioactive material into the unit, decontaminate the chamber. Rotors have sealed containers that provide aerosol containment and, if used as directed, keep spillage confined. If breakage occurs, it may be sufficient to only decontaminate the sealed carriers.

Cover door lock:

The cover will remain locked, if power fails. If you need to remove samples from the unit, before power is restored, use the cover door-lock, after the rotor has come to a stop.



Labnics Equipment

43040 Christy St., Fremont, CA 94538 USA.

Toll Free : (877) 620 9992

Tel. : (925) 271 4322

Fax : (925) 886 0400

Email : info@labnics.com Website : www.labnics.com