MULTI-PURPOSE CENTRIFUGE

Instruction Manual

Model : LMPC-60

Please read this manual carefully before using the instrument

Labnics Equipment

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CHAPTER 1. INTRODUCTION :

1.1 Specifications:-

MODEL	LMPC-60
Max. Speed	4,000 rpm
Max. RCF	2,898 x g
Max. Capacity	24 x 15ml
Temperature	Air cooling
Timer	99 minutes 59seconds
Acceleration/Deceleration	Slow, Normal, Fast (3 steps)
Programs	10 memory
Applicable Rotors	Swinging rotor & Angle rotor
Display	Digital type Speed, Time, Program, Breaking Steps
Power requirement	Single Phase, 220V, 50Hz
Dimension (W x D x H) mm	530 x 640 x 410
Weight	34.6 kg
Drive Motor	High torque DC Motor

Rotor Model	Capacity	Max. RPM	Max. RCF	Radius
LAR-125	15ml x 24	4,000	2,898	16.5 cm
LSR-127	50ml x 6	3,600	2,608	15.7 cm
LSR-126	50ml x 4	4,000	3,077	16.0 cm

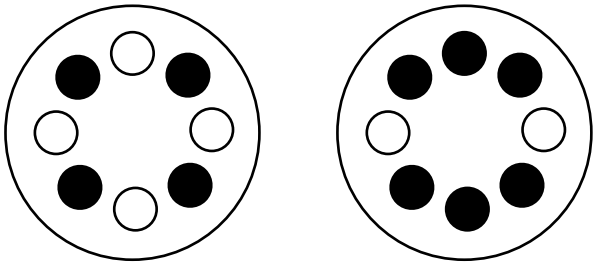
1.2 Caution:-

OVERSPEED

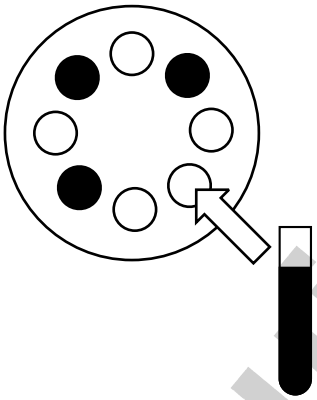
Make sure that Rotor speed is not more than maximum rotation speed. Don't over the maximum speed of rotor. When the rotor is given to relative centrifugal force over the allowed seal intensity, the destruction of rotor occurs because the shape of rotor is designed so that rotor can stand an external 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 must be loaded symmetrically when you put the tubes on rotor



If the tubes are not loaded symmetrically then load another tube having same 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

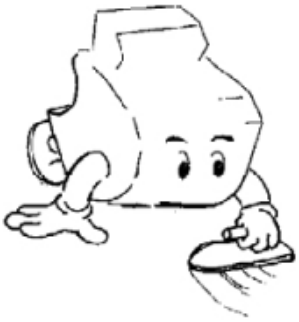
When a door opens, the door limit switch by sensor makes the rotor be still.

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

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.n

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

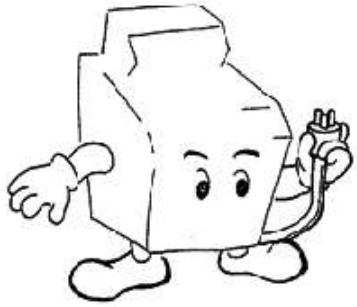
Place the centrifuge at the place which the corrosive gas doesn't occur. If there is sulfur dioxide or chlorine gas present in the atmosphere, it cause a corrosion of rotor and shaft, and cause great damage of metals.

2.2 Balance:-

BALANCING

The shaft has to be perpendicular to the ground.

2.3 ELECTRICAL REQUIREMENTS:-

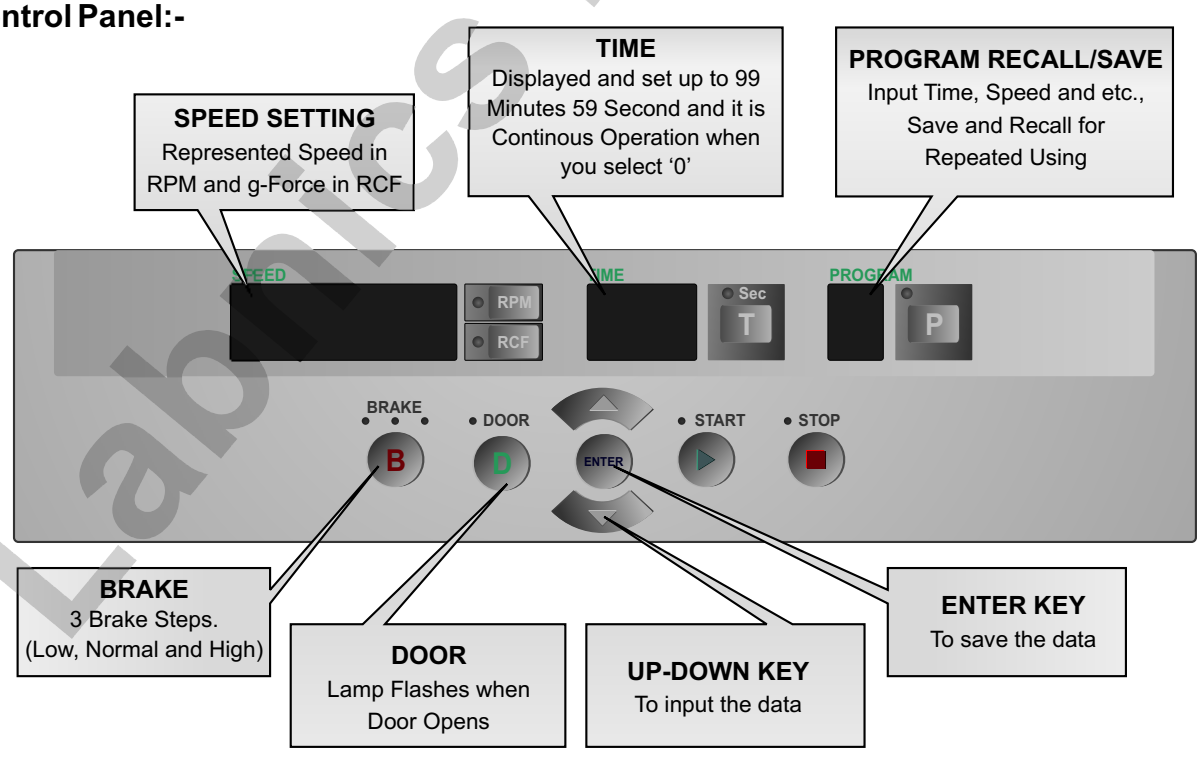


POWER

The standard power requirements are a single phase and 220V but those are changeable depending on User's request. 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.

2. Input desired setting parameters

- Set the desired data for RPM, Time, Temp. Brake system .
- Press the control button to change the data for speed, time, temperature and so on.
- Input desired parameters.
- Press "Enter" button after inputting the data.

3. Press "start" button to run the instruments:

- Press "start" button to run the unit if it is not needed any parameters such as rpm, time and temperature to modify.
- The centrifuge will start to decelerate when it reaches the time limit.
- When fully stopped, the setting values are displayed.
- If you want to stop during the spinning, you can press "Stop"button to stop the operation.

4.2 Programmed Function:

Speed RPM

- 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.speed.
- This is to prevent the accident by overspeed.

Caution ! LABNICS EQUIPMENT is designed not to set the speed 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.
- When Alarm sounds, it is possible to set.
- Input the desired time by using the up-down direction key.
- If you input the wrong data, Press “T” key and re-input the correct data.
- Press the “Enter” key and if the “Start” key is pressed, it starts to count down, and decelerate after over setting time.
- Under one minute, it is showed as a second unit.

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.

Decelebration

- 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

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

Setting-

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

Calling

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

Setting-

- Press the "Program" key to call the program saved before.
- When the lamp lights on "P" key with alarm, press the "P" again and turn off the lamp and alarm.
- After that, input the number to be called by up-down direction key and press the "Enter" key. At that time, the data of the pertinent 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

- To open the door, turn the dial on the right side of the instrument.
- When the door closes, "Door" lights off and when the door opens, the "Door" lights on.
- Close the door and press the "Start" key.

Caution ! : Don't open the door during the spinning.

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 cleans, to ensure good operation, and to extend it's life.

Clean the sample chamber, rotor and lid at the end of each works 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 results 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, infections, pathogenic, or radioactive material into the unit, decontaminate the chamber.

Rotors have sealed continers that provide aerosol containment and, if used as directed, keep sillage 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.

SERVICE REPORT

Customer's Address : _____

Tel.No.:
Fax No.:
Weekly Off.:

Contact Person / Designation :

Dept.:

Date	Time		System Configuration	Model	Serial No.
	From	To			

Date : SR. No.

Status : OK ❑ Not OK ❑

Installation ❑ Warranty ❑
Demonstration ❑
Maintenance ❑ Contract ❑
Repairs ❑
Application ❑ Billable ❑
Calibration ❑
Validation ❑ Courtesy ❑

Nature of Problem :

Observation & Action Taken :

Customer's Remarks :

Parts Replaced :

Parts Recommended / Action Required : Yes ❑ No ❑ Requisition Number :

Service Engineer's Name & Signature	Customer's Name, Signature, Date & Stamp

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LABNICS Equipment

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