LC-05A TABLETOP
LOW SPEED CENTRIFUGE

OPERATION MANUAL

MAINTENANCE INSTRUCTIONS

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1. GENERAL

The frame of this instrument is made of high strength plastic.Its model is beautiful, and it has the advantages of small cubage, low weight, large capacity, low noise, high efficiency and so on. It can be used in hospitals and biochemical labs for qualitative analysis of serum, urea and plasma.

2. PECULIARITY

2.1 Rotor imbalance protection device.

2.2 Speed choice in advance & acceleration accurate gradually.

2.3 Door switch.

3. PRINCIPLE OF OPERATION

Put tubes with sample that can be balance into a angle rotor symmetrically, the rotor will spin on axis after you start the machine, and the relative centrifuge force (RCF) comes into being while rotating, It will make the composition at different weight density separate from solution.

The formula of calculating RCF is as follows:

$$RCF=1.118\times10^{-5}n^2r$$

n-------- rotating speed

r-------- radius of rotating

The formula of calculating separation time is as follows:

$$\frac{27.4(\log_e Rmax-\log_e Rmin)\mu}{n^2r^2(Q-\rho)} \quad (min)$$

ρ-------- density of mixed liquid (g/cm^3)

μ-------- glutinousness of mixed liquid (p)

n-------- rotating speed

r-------- radius of particle (cm)

Q------- density of particle (g/cm3)

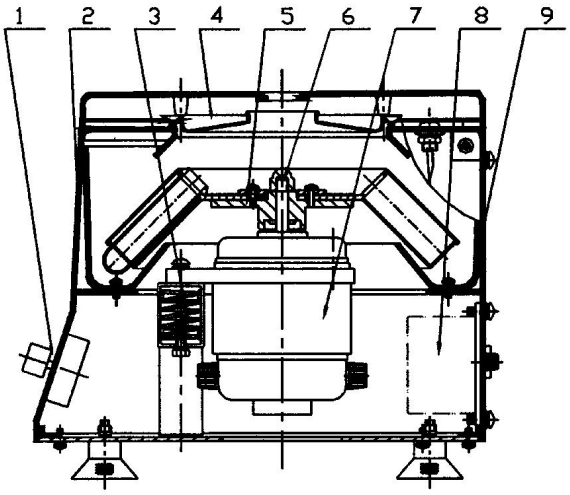
Rmax-------- The horizontal distance from the bottom of solution to the center of the rotating axis (cm)

Rmin-------- The horizontal distance from the surface of solution to the center of the rotating axis (cm)

4. SPECIFICATION

Max. speed:	5000r/min
Max. RCF:	3600×g
Capacity:	12×20ml
Time range:	0-30 min
Power source:	220V 50Hz / 110V 60Hz
Power supply:	135W
Dimension:	280×310×265 (L*W*H)mm
Net weight:	10Kg
Noise:	<70dB

5. PARTS IDENTIFICATION



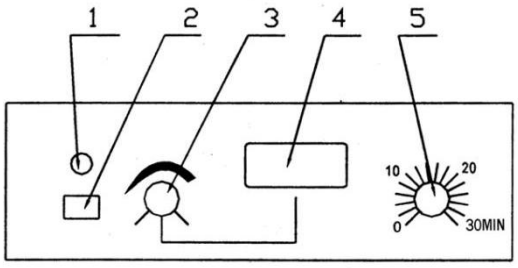
1.Control panel 2. Framework 3. Damping system
4. Cover 5.Rotor 6.Nut 7.Motor
8. Electric controlling system 9. Cavity

6. USING CONDITIONS

6.1 Ambient temperature: 0~30℃
6.2 Relative moisture: <80%
6.3 No electro conductive dust, explosive and corrosive gas in the surrounding air.

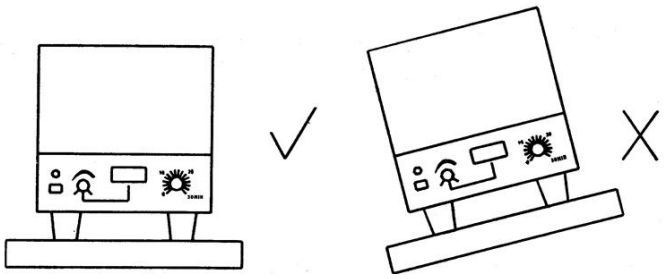
7. OPERATION PROCEDURE

7.1 Control panel (see the following fig)



1.Indicator light 2. Power switch 3. Speed knob
4. Speed display 5.Timer knob

7.2 Preparation
① Put the centrifuge on a steady table, and the centrifuge must be 10cm distance from the wall.



② Set up the rotor, then screw the nut.

③ Set tubes with sample that can be balance, and put them into holes within the rotor.

7.3 Operation Step

① Check up: Make sure the speed knob point to “0” position.

② Turn on the POWER switch, the power indicating light comes on, then turn TIMER knob to a time that you need.

NOTE：Turn TIMER knob right, you can set time from 0 to minutes; turn left, the instrument will run continuously.

③ Set SPEED knob to make the speed indicator points to a desired value that you need, the machine start running.

④ When the preselected time is up, the machine stops automatically.

⑤ Turn off POWER switch, and take out test tubes.

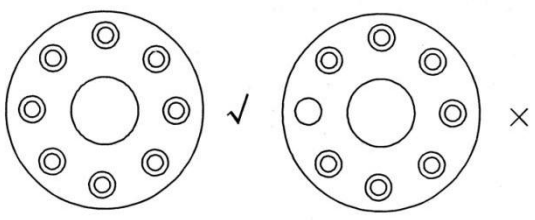
8. MAINTAIN

8.1 Please read the manual book before operation.

8.2 If you found test tubes were aging or corroded before using it, please replace them in time.

8.3 The power should have reliable grounding.

8.4 The test tube must be set with sample that can be balance and put into the rotor symmetrically so as to keep balance.

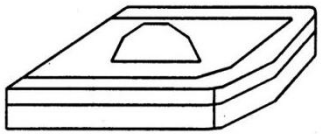


8.5 You should cut off the power as soon as hearing abnormal noise.

8.6 Don't remove the machine while it is running.

8.7 Replace the carbon brushes in time when it's length is less than 6mm.

8.8 Don't put any goods on the machine cover.



8.9 If the sample density is more than 1.2 g/cm^3, you must calculate Max. speed(N) in the following formula:

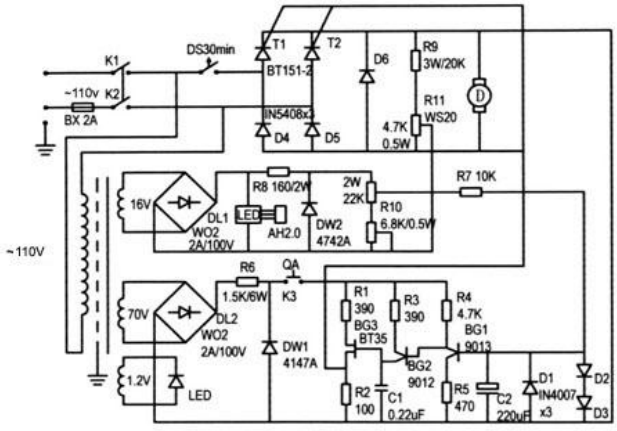
$$N=N_{max}\sqrt{1.2/\rho}$$

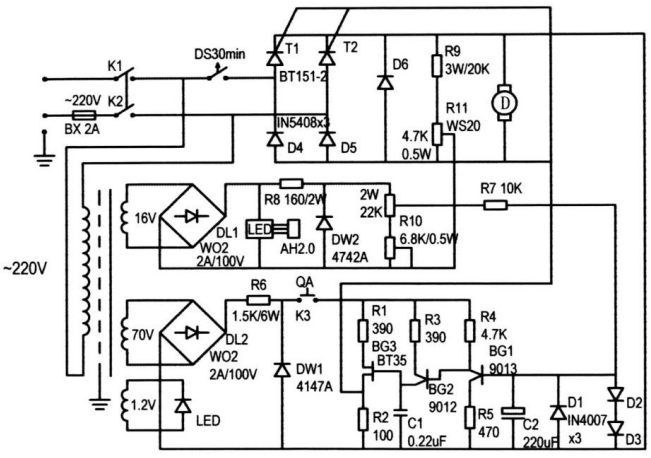
Nmax-------- the limit speed

ρ -------- sample density

9. GUARANTEE: 6 months.

10. CIRCUIT DIAGRAM





11. COMMON TROUBLE & RESOLUTION

No.	Common trouble	Wrong part	Solution
1	The indicator light can't light	Fuse light diode transformer	Replace
2	The indicator light can light, but the instrument can't run	The timer The door switch The speed control potentiometer The control panel The motor	Check if there exists loose contact, or replace the wrong parts
3	The instrument runs at high speed at once when turning on the switch	Potentiometer	Replace
		Control panel 2CM117 23-25V	Replace if>25V
		Control panel 2CM110 9-10V	Replace if>12V
		The thyristor BT37F	Replace
4	The running speed can't rise,and there is peculiar smell	The motor is wrong	Replace
5	The fuse is always burned out when turning on the power switch	Circuit board rectifying tube or thyristor is short circuit or the motor creepage	Replace the wrong parts