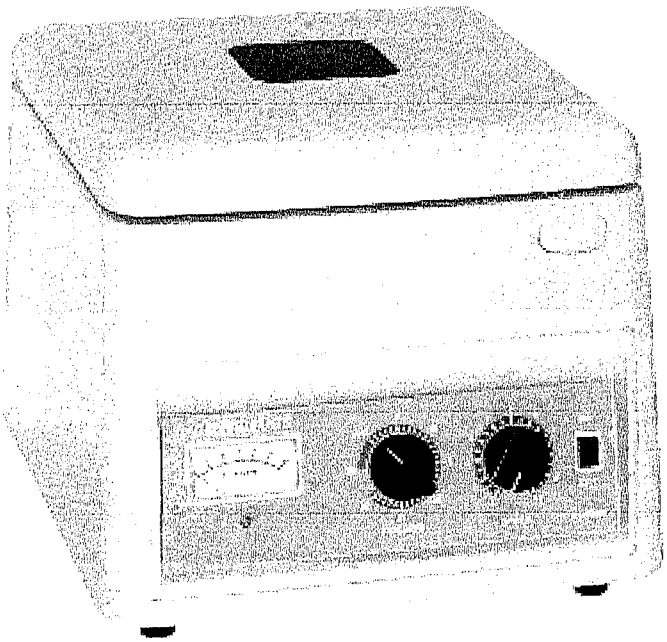
OPERATION & MAINTENANCE MANUAL

FOR

SCEN-207

PRACTICAL TYPE CENTRIFUGE



INDEX

(I) SPECIFICATION

Model	SCEN-207
Speed (rpm)	0~5,500 needle tachometer
Centrifugal Force	3,180 x g
Max. Capacity	200 ml
Electronic	Changeable speed by non-step
Safety Device	Motor at over-heat protective
	Triple balance system
	Manual Lid lock, lift cover and power cut off
	Fuse 110V/ 4A, 220V/ 2A
Timer	ON or 0 ~ 30 min. (regressive type)
Weight (kg)	9
Dimension (cm)	29 x 32 x 24.5
Power	110 / 220V, 50 / 60Hz
Power Consumption	150W
Basic Accessory	Operation and maintenance manual

(II) ROTOR AND ACCESSORY

1. Centrifugal force calculation: Use its speed and radius to calculate force as following formula.

   $RCF = (rpm)^2 \times 0.00001118 \times R$

   R: radius (cm)

   RCF: Relative Centrifugal Force (xg)

2. Acceptable speed and load:

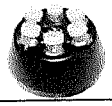
   Please refer to the form (II -4) to see the max. speed each model of rotor and tube carrier can be load. The load weight including: rotor, tube carrier, washer, samples, and so on.

3. Sterilizing and cleaning rotor:

   Rotor is made of stainless steel or steel or aluminum with high density coating and highly resistant to corrosion, but not fit to alkaline and strong acid substance.

   Note: Don't heat the rotor to a high temperature (100℃) to clean or sterilize it.

4. Rotor Specifications:

Rotor		Capacity (ml x pcs)	Max. RCF	Tube size (φ x l) mm		Cat. No.
				Max.	Min.	
RA-1508		15 x 8	3,310	16.5 x 122	15 x 90	2-5052-11
RA-1512S		15 x 12	3,350	16.5 x 122	15 x 90	2-5052-21
RA-5004		50 x 4	3,350	29.5 x 115	27.5 x 90	2-5052-12
RA-5006		50 x 6	3,350	29.5 x 115	27.5 x 90	2-5052-22
REA-1520		1.5 x 20	2,640	11 x 48	11 x 40	2-5052-13

* Tubes are not attachable. **

Before using the centrifuge, please must refer to the rotor's max. speed setting value.

(III) INSTALLATION

1. When you take out centrifuge from carton, please check if there is any scratch, press trace and damage on knob or not. If yes, please contact local dealer immediately.

2. Please install the centrifuge on a horizontal and stable table or bench. If not, it will affect anti-vibration efficiency.

3. Please use power voltage as following range. To avoid electric shock please make sure to connect ground wire to the ground terminal.

Power voltage	**Acceptable voltage range**
100V / 110V	90V ~ 110V / 99V ~ 121V
220V / 240V	198V ~ 242V / 216V ~ 264V

4. Keep it away from dusty and moist working place.

5. Avoid the same power source with the large electric consumption machine at same time.

6. After dismantle or clean rotor, please must screw it tightly.

(IV) OPERATION

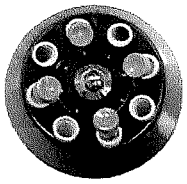
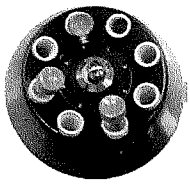
1. Tube & Sample Setting

(1) The tubes in use must be placed in even number such as 2, 4, 6, 8. Glass tube must be placed in carrier completely which are positioned symmetrically toward rotor center. When you use tubes in odd number, it is necessary to put same volume of water in a separate tube and then place such tubes into carrier for dummy use.

(2) Please consider the speed and centrifugal force the tubes can bear or not, or it will cause the tubes easy broken from rotation.

(3) Please note tube length, if it is too long than the top of tube will hit the rotor and break. If you have to put longer tubes in angle rotor, please place an interval between tubes.

(4) Adapter is available for tube's diameter much smaller than carrier's, it can prevent tube broken from rotation.

correct	incorrect	Adapter	
		 50cc→15cc	 15cc→6cc

Caution:

a. Adapter should be placed into tube carrier properly, if it is slanted, then tube is difficult to take out from carrier. If glass tube is broken or if rotor elapsed over one year, then rotor needs to be renewed. Damaged rotor or rotor containing broken glass will cause glass tube broken easily.

b. Carrier should be placed onto rotor properly, if not, it will be imbalanced and destroy centrifuge, meanwhile to check if carriers swing normally by hand first.

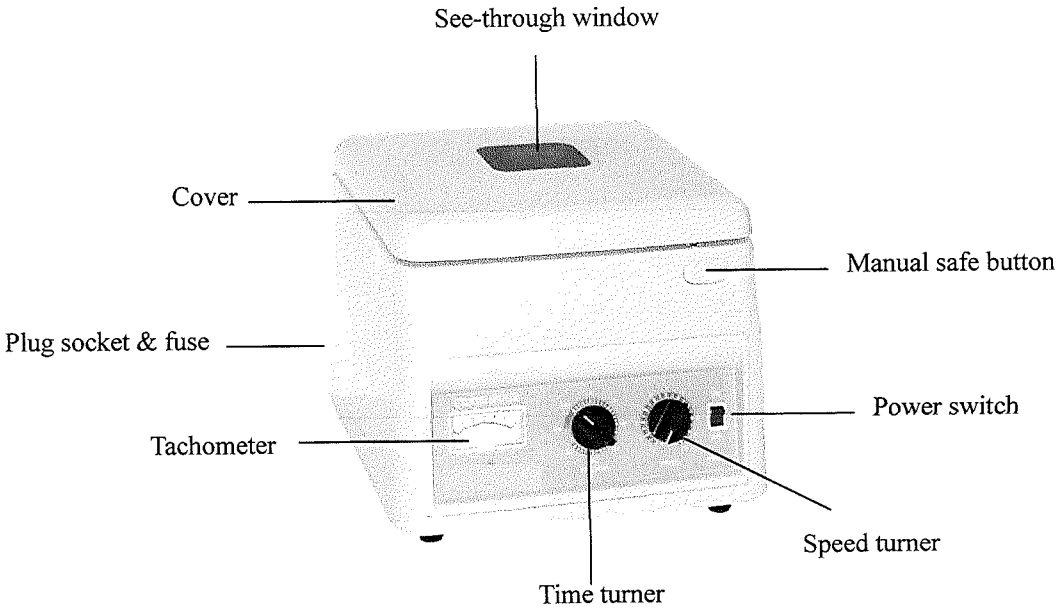
c. Stainless steel tube carrier can be used for acidity and alkalinity tube samples. (please purchase separately)

2. Door Lock & Cover

(1) Please close cover tightly, otherwise rotor can not rotate, cover can not be opened during rotation.

(2) Plug in the socket and switch it on, then press【Manual safe button】to open cover.

3. Outline:



4. Operation Procedure:

(1) Turn the speed to be "0" then plug in the centrifuge.

(2) Press【Manual Safe Button】and cover can be opened.

(3) Place sample into carrier.

(4) Close cover.

(5) Adjust timer to the desired time.

(6) Turn the speed to the required rpm, rotor begins to rotate and goes up to desired speed.

(7) Time is up, then press【Manual Safe Button】to open the cover and power cut off at the same time.

Caution:

1. Please don't open cover during rotation.
2. During rotation, please don't exceed the max. speed of the centrifuge (refer to page 3) and don't place substandard rotor.
3. The centrifuge is without anti-explosion, so please don't explosive material.

(V) REPAIR

1. Checking before and after operation
   * Check to see if there is any material or water inside chamber and keep it clean.
   * Check to see if the rotor is loose or not; if yes, after screw it then use it again.
   * Check if carriers can swing smoothly, if not, please clean the rotor.
   * Check if carrier is hung well, if not, then stop it and contact with local distributor.
   * Check if cover is properly close and screws fixed or not; if not, then stop it and contact with local distributor.
   * Check if the ground wire is connected well, lamps and switch are available.

2. Daily checking:
   Clean stain in chamber, check if there is any scratch, deformation, and corrosion on rotor or carrier.
   If yes, please contact local dealer for further checking.

3. Yearly checking:
   Check if "rotor fixing nut" is loose or not; and the indication value of speed meter can match real value or not , if not , please contact local dealer.

4. Cleaning:
   When sample is split over rotor or carrier, please use cloth with little detergent to wipe and dry it. When sterilization is made on rotor or carrier, do not heat it to a temperature exceeding 100℃.

5. Trouble shooting:

reason / symptom	Power	Electrical Circuit	Cover problem	Motor problem	Imbalance
Main lamp is not light up	*	*	*		
Fuse blows very often	*	*		*	
Motor does not drive	*	*	*	*	*
Set rpm can not be attained	*	*		*	
Big vibration			*		*
Unusual noise				*	*

Repair methods:

Cause	Details of cause	Repairing way
Power	a. Power cord is not connected. b. Power voltage is not proper.	Checking power plug, replace fuse
Lid problem	Lid can not be closed	Contact local dealer
PC board	Parts can not connect well	Contact local dealer
Motor problem	Over- heat, carbon brush use out	Stop using it and wait for cool, replace carbon brush or contact local dealer.
Imbalance	Carrier or tube is put improperly.	Please refer operation description

6. Normal problem on centrifuge:

Status	Description	Repair
Motor can not drive	Carbon brush connects badly. Wire matched badly. The outlet of controller is out of order.	1. check carbon brush 2. check wiring 3. check the outlet of controller 4. replace controller
Motor stops during operation	Carbon brush connects badly. Wire matched badly. The outlet of controller is out of order.	1. check carbon brush 2. check wiring 3. check the outlet of controller 4. replace controller
Motor is over-heat	Temp. switch skips away.	After temp. is cooler then operate it again.
Motor stops running	Temp. switch is out of order. Wire matched badly.	1. check temp. switch or replace a new one. 2. check wiring.

(VII) CIRCUIT DIAGRAM