

# SERVICE MANUAL

## Mini Centrifuges

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D1008



VERSION201207

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# 1 General Information

## 1.1 General Safety Guidelines



### WARNING:

- This centrifuge is not explosion-proof. Never use explosive or flammable samples.
- Do not install the centrifuge in or near places where inflammable gases are generated or chemicals are stored.
- Make sure to prepare necessary safety measures before using samples that are toxic, radioactive or contaminated with pathogenic micro-organisms at your own responsibility.
- If the instrument, the rotor, and or accessories that has been contaminated by solutions with toxic, radioactive or pathogenic materials, clean it according to the decontamination procedure that you specified.
- If the above equipment requires services of Dragon lab or authorized agency of dragon lab, either at the customer's site, or at the agent facilities, sterilize and decontaminate it in advance. Make sure to notify the service representatives of the use of such materials.
- Do not handle the power cord or turn on or off the POWER switch with wet hands to void electrical shocks.
- For safety purposes, do not enter within 30 cm around this centrifuge while it is in operation.
- While the rotor is rotating, never forcedly release the door lock.
- Unauthorized repairs, disassembly, and other services to the centrifuge except by our service personnel are strictly prohibited.



### CAUTION

- This centrifuge must be located on one firm and level table.
- Do not move or relocate this centrifuge while the rotor is rotating.
- If dewdrops are in the rotor chamber, drain the chamber through the drain hose to prevent the sample to get mixed up with them or prevent them from leaking into the drive unit.
- Remove any objects and fragments of the tubes dropped inside the rotor chamber before running this centrifuge.
- Cautions on rotors

(1) Always check for corrosion and damages on the rotor surface before using it. Do not use the rotor if such abnormality found.

(2) Run the centrifuge under well balance.

(3) Use the rotor tubes and bottles within their actual capacities.

If any abnormal condition occurs during operation, stop it immediately and contact our service representative.

## 1.2 Warranty on product

The model D1008 Mini Centrifuge is warranted to operate according to the specifications given in the user manual, provided it is used in accordance with the instructions described in the manual.

### (1) Scope of Warranty

- (a) Any parts that prove to be defective in design or workmanship during the warranty period will be repaired without charge.
- (b) A substitute part may be used for repair, or replacement with an equivalent product may be made instead of repair.
- (c) Abandoned instrument, resale instrument, selective part, accessory without our company's agreement will be maintained in charge even within warranty period.

### (2) Warranty Period

One years from the date of initial installation.

### (3) Service work time

Within work time started by Dragon lab.

### (4) Limitations and exclusions on Warranty

Note that this warranty is void in the following cases, even if they occur within the warranty period.

- (a) Failure due to operation at a place not meeting the installation requirements specified by us.
- (b) Failure due to power supply voltage/ frequency other than specified by us or due to abnormality in power supply.
- (c) Corrosion of the electric circuits or mechanical elements due to highly corrosive atmospheric gas.
- (d) Failure due to use of spare parts other than those supplied by us.
- (e) Failure due to improper handling or maintenance by the user.
- (f) Failure due to maintenance or repair by a service agent not approved or authorized by us.
- (g) After disposal of the instrument, or after its resale without our approval.
- (h) Failure due to disassembly, modification or relocation not approved by us.
- (i) Consumables, and failure of parts that have reached the end of specified useful life.
- (j) Failure of parts exclude from the warranty in the instruction manual or other documents.
- (k) Failure due to acts of God, including fire, earthquake, storm, lighting, social disturbance, riot, crime, insurrection, war (declared or undeclared), radioactive pollution, contamination with harmful substance, etc.

### (5) Disclaimer of Warranty

- (a) Any express warranties other than the explicit conditions indicated in (1) are excluded from this warranty.
- (b) Any other implied warranties of merchantability and fitness for a particular purpose are not included in this warranty. No liability is assumed for direct or indirect damages arising out of explicit or implied warranties.
- (c) Oral or written information or advice given by our dealers, distributors, agents or employees without our express permission shall not create a warranty or in any way increase the scope of the warranty.

### **1.3 Installation, Relocation and After-sale Technical Service**

Installation of this instruction shall be carried out by or under supervision of qualified service personnel of our company or its authorized service agent.

Before installation of this instrument, the user shall make preparations for satisfying the installation requirements in accordance with the user manual.

If relocation of the instrument becomes necessary after initial installation (delivery), please notify your local sales representative or nearest service office of our company.

### **1.4 Other Precautions**

#### **1.4.1 Handling and protection of the instrument and rotor**

- (a) Use the instrument correctly according to the user manual. Periodical maintenance should be made on the instrument.
- (b) Use rotor correctly according to user manual. Periodical check and maintenance should be made.

#### **1.4.2 Service Manual**

- (a) Information contained in this manual furnished with the instrument is subjected to change without notice for product improvement.
- (b) This manual is copyrighted by Dragon lab technical department with all right reserved.
- (c) No part of this manual may be reproduced or transmitted in any form or by any means without our express written permission.

### **1.5 Safety Summary**

Before using D1008 Mini Centrifuge, be sure to read the following safety instructions carefully.

#### **▲General Safety Guidelines**

- Follow all the operation procedures provided in this manual.
- This centrifuge must be installed and troubleshoot only by the person trained and authorized by Dragon lab.
- Be sure to observe the warnings indicated on the product and in the user manual. Failure to do

so could result in personal injury or damage to the product.

- The hazard warnings which appear on the warning labels on the product or in the manual have one of the following alert headings consisting of an alert symbol and signal word WARNING, or CAUTION.

- ▲ WARNING: Indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.
- ▲ CAUTION: Indicates a hazardous situation which, if not avoided, will or can result in minor or moderate injury, or serious damage to the product.
- ▲ Precedes every signal word for hazard warnings, and appears in safety-related description in the manual.

“NOTICE” and “NOTE” are heading words which do not concern personal safety directly.

- △ NOTICE: Used to indicate an instruction for preventing damage to the product.
- △ NOTE: Used to indicate an instruction for ensuring correct use of the product and accurate analysis therewith.

#### ▲ General Safety Guidelines

- Do not modify the product, replace parts that are not user-serviceable, use non-specified parts, nor remove safety devices, as it could be hazardous.
- Installation at delivery, maintenance and relocation should be referred to our qualified service personnel.
- Do not perform any operation or action other than described in the user manual. When in doubt, please contact our sales representative or service office nearest you.
- Keep in mind that the hazard warnings in the manual or on the product cannot cover every possible case, as it is impossible to predict and evaluate circumstances beforehand. Be alert and use your common sense.

This manual contains the following caution instructions:

Power supply

Confirm that work power supply of D1008 Mini Centrifuge is AC110V~240V/50Hz (60Hz)

Unpacking

Remove the packing materials. Clean and store the packing materials for future use.

Checking parts count

Check that all the standard accessories come with the centrifuge according to the accessories list.



D1008



A08-2



A2-PCR8



SA02P2



SA05P2

## 2 Introduction

### 2.1 Specifications

Max. Speed [rpm]	7000
Max. RCF x g	2680
Rotor	1) 8×0.5/1.5/2.0ml Tubes 2) 16 x 0.2ml PCR tubes, 2×0.2ml PCR 8-tube Strip 3) 2 standard slides
Run Time	Continuous
Driving Motor	DC motor
Power	AC 100V~240V, 50Hz/60Hz
Noise Level (dB)	45
Dimensions [D×W×H mm]	150 x 150 x 117
Weight [kg]	0.5

### 2.2 Installation Condition

#### 1) Location

- Need a firm and level table without obvious distortion. The table should be larger than an area of 50cm(L) × 50cm(W).
- Keep clearances of at least 10 cm on both sides of this centrifuge and at least 30 cm behind it to ensure its cooling efficiency.
- Ideal ambient temperature is from 15°C to 25°C. Temperature exceeding 30°C is not suitable. Do not locate it under the direct sunlight.

#### WARNING:

- No Person or any hazardous materials are within 30cm around the centrifuge.
- Do not install near by a heat-generating device or waterworks from where water may drip or splash. Such location may cause temperature rise in the precious sample or malfunction of this centrifuge.
- There is no electric dust, explosive gas and corrodibility gas in the ambient air.

#### 2) Connection of the power cord

- This centrifuge is equipped with a 2P flat plug.
- The outlet must have bigger current capacity than 3A.

#### WARNING

- Do not touch power wire by wet hands to prevent from electric shock.

### 2.3 Installation Qualification

#### 1) Routine check

- Check if the centrifuge and accessories are completed.
- Check if there is nick or paint falling on centrifuge outside.
- Check if there is nick, injury and corruption on rotor surface. If yes, packing it and wait for a further treatment.

#### 2) Make sure the centrifuge stands firmly

- Make sure that the four feet of the centrifuge adsorbed the table.

#### 3) Power on

- Insert power plug into power socket directly.
- Open the door, and rotate the drive shaft slightly. Make sure no obvious shaking occurs while drive shaft is spinning.
- Put the rotor on drive shaft , it should be stable and no abnormal noise during running.
- After turning on the power, the rotor will rotate.

### 2.4 Rotor installation



Open the door



Install the rotor



Push the rotor on shaft

### 2.5 The structure introduce

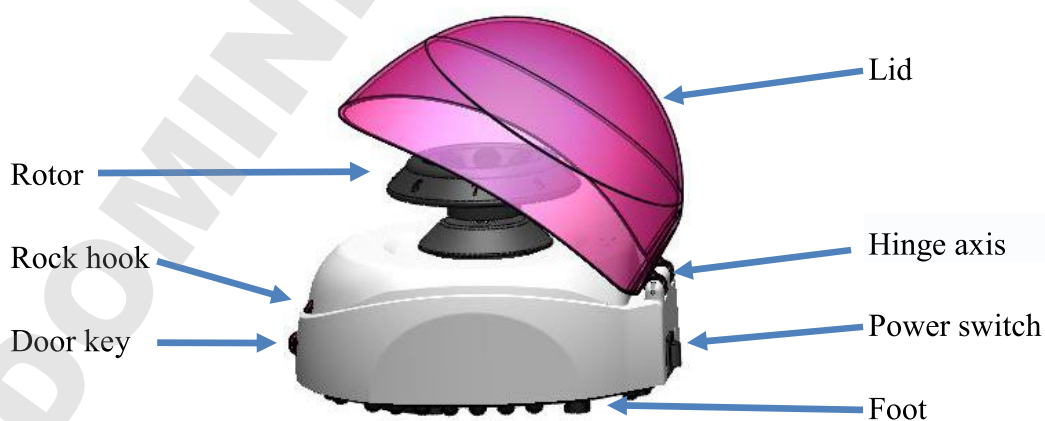


Fig. 2-1 D1008 centrifuge



### 3 Troubleshooting

If failure occurs during operation, measures can be taken according to the following table.

#### 3.1 Alarm Codes

Fault code	Failure information	Possible Causes	measure
E01	Turn on the power, but the rotor does not run	1) door switch failure. 2) Motor carbon brush exhausted. 3) connection between motor and circuit failure	1) Check and make sure if door switch work well. 2) Replace the motor 3) reconnect
E03	Abnormal vibration	1)Rotor do not match with shaft 2)Samples are imbalance	1)Install the rotor again or replace the rotor. 2)Weighting scales, install symmetrically

### 4 Electrical Components

#### 4.1 D1008 main board

Position	Description	Normal	Failure	Remark
P1	Power supply	+24V		
P2	Lock switch			
P3	Motor			

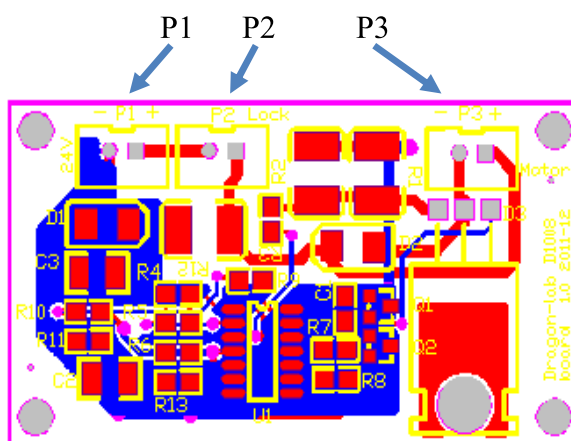


Fig. 4-1 D1008 circuit board

## 5 Replacement of the parts

### 5.1 remove the lid

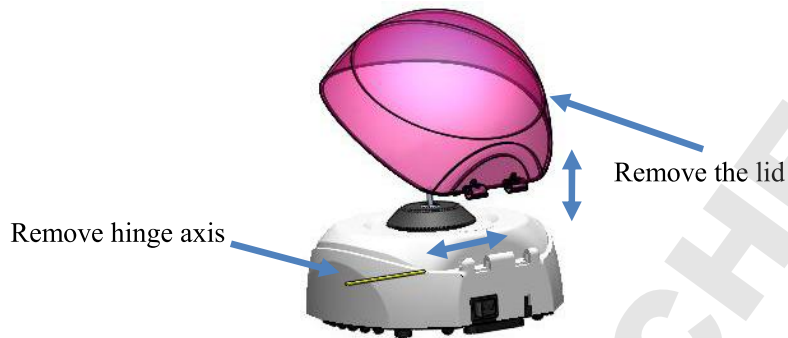


Fig. 5-1 D1008 lid remove

### 5.2 remove the cover



Fig. 5-2 D1008 cover remove

### 5.3 Remove relevant parts.

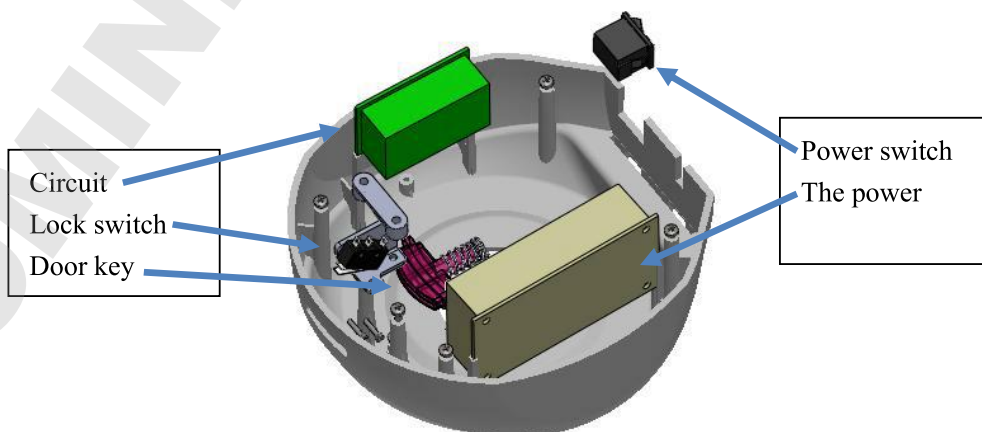
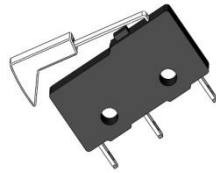
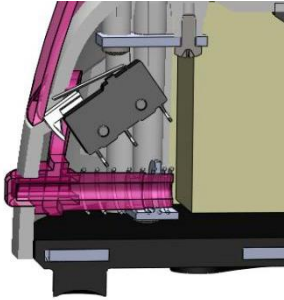


Fig. 5-3 D1008 parts remove

## 6 Frequency problem

### 6.1 The lock switch failure



- 1) Make sure that the lid switch work well.
- 2) Make sure that the lid switch will be on when close the lid.

Fig. 6-1 D1008 lock

### 6.2 The motor failure



Fig. 6-2 D1008 motor

The motor is DC motor with two carbon brush. The carbon brush will be exhausted after about 800 hours operation. If so, please replace the motor.

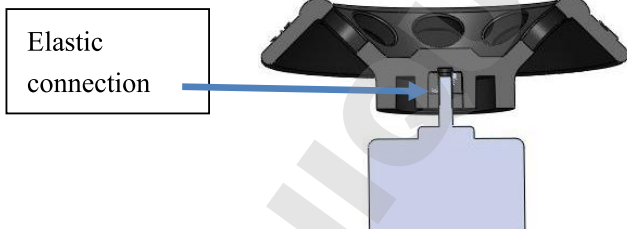


Fig. 6-3 D1008 motor and shaft

Usually, the rotor and the shaft connect with elastic, if there is some gap between the rotor and shaft, the rotor cannot rotate with the shaft together, please replace the rotor.

## 7 Parts List

### 7.1 Parts List

1	19200465	D1008 lid pink
2	19200454	D1008 lid yellow
3	19200456	D1008 lid green
4	19200434	D1008 lid blue
5	19200433	D1008cover
6	19200254	D1008 24Vpower
7	19200448	D1008 motor
8	19100074	D1008 circuit
9	19200496	DM1008 lid switch
10	18100025	Power switch
11	19200466	D1008 door key pink
12	19200461	D1008 door key yellow
13	19200459	D1008 door key green
14	19200435	D1008 door key blue
15	19200227	D1008 hinge shaft
16	19200432	D1008 up rubber
17	19200223	D1008 bottom
18	19200468	D1008 block pink
19	19200463	D1008 block yellow
20	19200460	D1008 block green
21	19200436	D1008 block blue
22	19400015	A08-2 rotor
23	19400017	A02-pcr8 rotor
24	19200029	SA02P2 adapter
25	19200026	SA05P2 adapter

## 7.2 Parts drawing

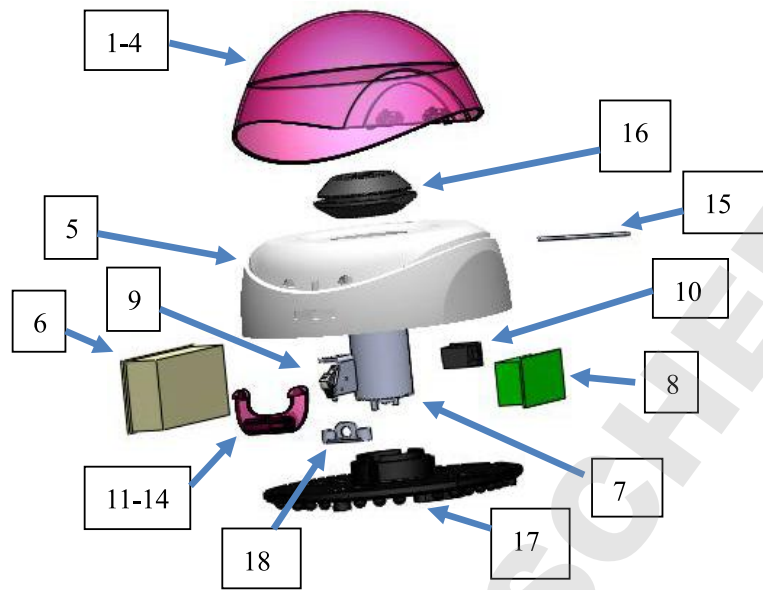


Fig. 7-1 D1008 parts

### Rotor parts list

