

SPECTRAFUGE™ 6C

User Manual



C0060
C0060-230V



Lit M00031

Labnet

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About This Manual

This manual is designed to assist you in the optimal usage of your Labnet Spectrafuge 6C Centrifuge. The manual is available in English, French, German, Italian, Portuguese, and Spanish on our website at:
www.labnetinternational.com/document-center

Safety Precautions

- NEVER** use the centrifuge in any manner not specified in these instructions.
- NEVER** operate the centrifuge without a rotor properly attached to the shaft.
- NEVER** fill tubes while they are in the rotor. Liquid spillage may harm unit.
- NEVER** put hands in the rotor area unless the rotor is completely stopped.
- NEVER** move the centrifuge while the rotor is spinning.
- NEVER** use solvents or flammables near this or other electrical equipment.
- NEVER** centrifuge flammable, explosive or corrosive materials
- NEVER** centrifuge hazardous materials outside of a hood or proper containment facility
- ALWAYS** load the rotor symmetrically. Each tube should be counterbalanced by another tube of the same type and weight
- ALWAYS** locate the centrifuge within easy access to an electrical outlet.
- ALWAYS** use only centrifuge tubes designed to withstand centrifugal forces of at least 4,000 xg.
- ALWAYS** use a wrench to tighten rotor nut.

Symbols and Conventions

The following chart is an illustrated glossary of the symbols that may be used in this manual or on the product.

	The electrical warning indicates the presence of a potential hazard which could result in electrical shock.
	CAUTION This symbol refers you to important operating and maintenance (servicing) instructions within the product Instruction Manual. Failure to heed this information may present a risk of damage or injury to persons or equipment.

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1. General Information

This manual provides important safety information for the Spectrafuge 6C laboratory centrifuge. It should be kept near the centrifuge for quick and easy reference.

1.1 Description

The Spectrafuge 6C is a small benchtop centrifuge designed for separation of various research samples. The Spectrafuge 6C is supplied with a 6 x 15ml rotor. Adapters are available for tubes smaller than 10ml. The Spectrafuge 6C reaches speeds of up to 6,500rpm/4,000 x g.

1.2 Safety precautions

Note: All users of the centrifuge must read the Safety Precautions section of this manual before attempting to operate the unit!

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Do not operate the centrifuge if any of the following conditions exist:

- The centrifuge has not been installed properly
- The centrifuge is partially dismantled
- Service has been attempted by unauthorized or unqualified personnel
- The rotor has not been installed securely on the motor shaft
- Rotors and accessories not belonging to the standard range are being used without permission being obtained from the manufacturer to use such rotors and/or accessories in the centrifuge
Exception: Centrifuge tubes, normally available in the laboratory.
- The centrifuge is located in an explosive atmosphere
- Materials to be centrifuged are combustible and/or explosive
- Materials to be centrifuged are chemically reactive
- The rotor load is not properly balanced

1.3 Technical data

Dimensions

Width 8.25 inches

Depth 9.5 inches

Height 7.0 inches

Maximum speed 6,500rpm

Maximum RCF 4,000 x g

Maximum volume 6 x 15ml

Admiss. density 1.2kg/dm³

Electrical/fuse rating 100V~,50-60Hz, 1.0A/1.0 AT

120V~, 50-60Hz, 1.0A/1.0AT

230V~, 50-60Hz, 0.6A/.05AT

1.4 Accessories supplied with centrifuge

Each unit is supplied with 1 instruction manual and 1 power cord. Some models are supplied with a rotor screw wrench.

1.5 Warranty

This centrifuge has been subject to thorough testing and quality control. In the unlikely event of a manufacturing fault, our one year warranty (from the date of delivery) covers the centrifuge and the rotor. This warranty becomes invalid in the case of incorrect operation, use of nonstandard spare parts or accessories and unauthorized modification of the rotor or centrifuge.

Labnet reserves the right to make technical modifications. Statements contained herein are not to be considered binding.

2. Installation

2.1 Unpacking the centrifuge

Before unpacking the centrifuge, inspect the outside of the carton for any shipping damage.

The centrifuge is delivered in a carton with protective cushions. Remove the centrifuge from the carton. Retain the carton and cushions until it has been established that the centrifuge is working properly.

Inspect the centrifuge for any visible signs of shipping damage.

Shipping damage is the responsibility of the transportation carrier. Any claims for damage must be filed within 48 hours.

The accessories supplied with the centrifuge should be kept with the instruction manual near the centrifuge's place of installation.

2.2 Required space

The centrifuge should be installed on a rigid, even surface such as a stable laboratory bench, cabinet, etc. To guarantee sufficient ventilation, ensure that the centrifuge has at least 15cm (6 inches) of free space on all sides, including the rear.

The centrifuge should not be located in areas subject to excessive heat such as in direct sunlight or near radiators or the exhaust of a compressor, as a buildup of heat may occur within the chamber.

2.3 Installation

Before operating the centrifuge, check that the power source corresponds to that on the manufacturer's rating label, then connect the power cord to the centrifuge and the power source.

3. Installation or rotors and rotor maintenance

3.1 Rotors and accessories

The following accessories are available for the Spectrafuge:

Angle rotor for 6 x 15ml tubes

Order no. Included with unit (C0060-RTR)
 Tube measurement 15ml (17x120mm)-10ml (16x100mm)
 Max. speed 6,500rpm
 Centrifuging radius 8.5cm
 RCF (g-value) 4,000 x g

Adapter for 5ml(12x75mm) and 7ml (13x100mm) tubes

Order no. C0200-17A
 Tube measurement 12x75mm, 13x100mm, or common Sarstedt style tubes

Tube and tube adapter reference chart.

	Standard Blood Collection Tubes				Sarstedt Blood Collection Tubes								
Dimensions (mm)	17 x 120	16 x 100	13 x 100	12 x 75	15 x 102	16 x 92	15 x 92	13 x 90	11 x 92	11 x 66	13 x 65	8 x 66	
Capacity *	15ml	10ml	7ml	5ml	10ml	9-10ml	7-8ml	4.9ml	4-5ml	2-3ml	2-3ml	1-1.4ml	
Tube Image													
Radius (cm)	8.2	8.5	7.7	7.7	8.5	8.5	8.5	7.7	7.7	7.7	7.7	7.7	
Max. RCF	3,873	4,015	3,637	3,637	4,015	4,015	4,015	3,637	3,637	3,637	3,637	3,637	
Tubes Per Rotor	6	6	6	6	6	6	6	6	6	6	6	6	
Adapter	-	-	C0200-17A	C0200-17A	-	-	-	C0200-17A	C0200-17A	C0200-17A	C0200-17A	C0200-17A	

* Capacity may vary based on serum volume.

3.2 Rotor maintenance

The rotor should be cleaned thoroughly after each use. **Thorough cleaning must be performed when spinning samples containing phenol or phenol chloroform.** Periodically inspect the rotor for dents, dings, scratches, discoloration and cracks. If any damage to the rotor is found, discontinue use of the rotor immediately and replace.

3.3 Removing and Installing the angle rotor

Remove the rotor screw from the motor shaft by turning the screw counterclockwise. Lift the rotor upward and remove from the centrifuge.

Ensure that the motor shaft adapter remains on the motor shaft (Figure 1).
Clean the motor shaft and motor shaft adapter (see figure 1).

Place the rotor on the motor shaft (figure 1) and over the motor shaft adapter (see figure 1 and 2). Note: Figure 1 and 2 are located on the following page.

When loading the rotor, refer to figure 3 (located on the following page). Loading in the pattern indicated will ensure a balanced load. Tubes to be loaded should be filled equally by eye. The difference in the weight between the tubes should not exceed 2-3 grams. A partially loaded rotor may be centrifuged if the loading scheme for balancing a rotor given in figure 3 is followed.

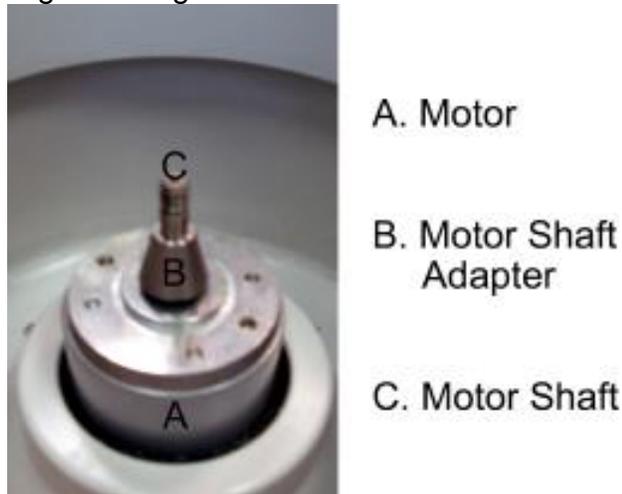


Figure 1. Chamber and motor shaft



Figure 2. Bottom of angle rotor

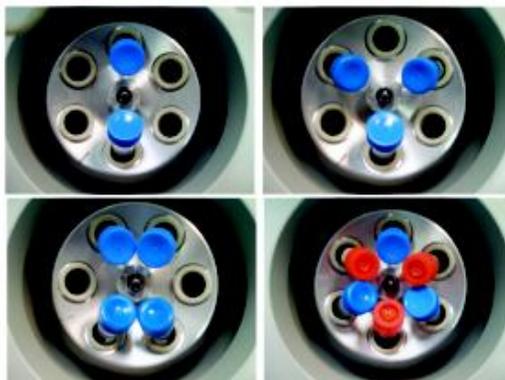


Figure 3. Loading the rotor

3.5 Overloading the rotor

The maximum load of the rotor and the maximum speed has been established by the manufacturer. Do not attempt to exceed these values.

The maximum speed of the rotor has been measured for liquids having a homogeneous density of 1.2g/ml or less. In order to centrifuge liquids with a higher density it is necessary to reduce the speed.

Failure to reduce the speed may result in damage to the rotor and centrifuge.

The revised maximum speed can be calculated with the following formula:

$$\text{Reduced speed } (n_{\text{red}}) = \sqrt{\frac{1.2}{\text{higher density value}}} \times \text{max speed } (n_{\text{max}})$$

Example:

Where the density of the liquid is 1.7, the new maximum speed would be calculated as follows:

$$n_{\text{red}} = \sqrt{\frac{1.2}{1.7}} \times 6,500 = 5,461 \text{ rpm}$$

If in doubt concerning maximum speeds, please contact the manufacturer for assistance.

4. Operation



ATTENTION: Never attempt to operate the centrifuge with rotors or adapters that show signs of corrosion or mechanical damage. Never centrifuge strongly corrosive materials that may damage the rotors or accessories.

4.1 Closing the lid

After the rotor has been properly secured and loaded, close the centrifuge lid, making sure that the interlock has been engaged.



Figure 4.
Spectrafuge
control panel
layout

4.2 Lid release

Following a run, the centrifuge will display will show flashing “00”. This signals the end of a run and the lid can now be opened by pressing the “lid knob” (left). Note that the lid can not be opened until the display flashes “00” and the rotor has stopped.



WARNING: Do not attempt to open the lid of any centrifuge until the rotor has come to a complete stop.

In the event of a power failure or malfunction, it may be necessary to open the lid manually.

1. Disconnect the power cord from the wall socket.
2. Remove the plastic plug, located on the left side of the unit, below the quick button.
3. Pull the cord (attached to the plug) to open the lid lock manually.

4.3 Lid lock

The centrifuge can be started only with the lid securely closed. Do not attempt to open the lid until the end of run signal “00” is displayed.

4.4 Speed selection

The speed (rpm) can be selected from 300 to 6,500rpm with the knob (right). The set speed can be viewed at all times on the large LED display (right).

4.5 Selection of operating time and momentary operation

Time can be selected in half minute intervals from 0.5 to 10 minutes, and in one minute intervals from 11 to 30 minutes. Time can also be set to continuous/hold by turning the timer knob past the thirty minute position. This will display the continuous setting “On”.

When the preselected time expires, the centrifuge will stop automatically. To stop the centrifuge prior to the expiration of set time, press the “start/stop” knob.

The centrifuge may be operated manually by pressing and holding the “start/stop” knob. The centrifuge will continue to run as long as the knob is depressed.

4.6 Starting the centrifuge

Once the time and speed have been set the centrifuge can be started by pressing the “start/stop” knob. The centrifuge will then run for the specified amount of time.

5. Service and Maintenance

5.1 Centrifuge service

The Spectrafuge 6C requires no routine maintenance other than the occasional routine cleaning. All repairs should be performed by authorized, qualified personnel only. Repairs performed by unauthorized personnel may void the warranty.

5.2 Cleaning the centrifuge

Always keep the centrifuge housing, rotor chamber, rotor and rotor accessories clean. All parts should be wiped down periodically with a soft cloth. For more thorough cleaning, use a neutral cleaning agent (pH between 6 and 8) applied with a soft cloth.

Excessive amounts of liquid should be avoided. Liquid should not come into contact with the motor. After cleaning, ensure that all parts are dried thoroughly by hand or in a warm air cabinet (maximum temperature 50°C)

5.3 Cleaning the rotor

The rotor should be cleaned after each use. When spinning samples containing phenol or phenol chloroform, the rotor should be cleaned immediately after use.

5.4 Disinfection

Should a spill of infectious materials occur within the rotor or chamber, the unit should be disinfected. This should be performed by qualified personnel with proper protective equipment.

5.5 Replacing fuses

Check the fuse when it is recommended in the Troubleshooting Guide located in this manual. The fuse holder is located in the power inlet on the rear of the unit. Disconnect the power cord from the power inlet. Open the fuse holder drawer by inserting a small screwdriver under the tab and prying it open. Remove the innermost (operative) fuse from its retaining tabs and replace the fuse if necessary. A spare fuse is located in the outermost chamber of the fuse drawer. Replace only with a fuse of exactly the same value as the original. (Fuse type may be found in the Technical data section of this manual.)

6. Troubleshooting Guide

Please refer to this guide before calling for service.

Centrifuge will not start

Possible reason:	No power supply
Solution:	Check that power is being supplied to the outlet Check that the power cord is plugged into both the wall outlet and the back of the centrifuge. Check that power cord is not damaged
Possible reason:	Blown fuse
Solution:	Check fuse and replace if necessary

Lid lock will not release

Possible reason:	Defective lid lock
Solution:	Open manually and have unit serviced
Possible reason:	No power from PC board
Solution:	Call for service
Possible reason:	Lid lock is jammed
Solution:	Call for service
Possible reason:	Centrifuge is not receiving power
Solution:	See “Centrifuge will not start”

Centrifuge cannot be started, although power is on

Possible reason:	Lid not closed correctly
Solution:	Close lid correctly
Possible reason:	No speed or time has been selected
Solution:	Set speed and/or time

Centrifuge displays error “03”

Possible reason:	Lid opened prior to signal “00”.
Solution:	Close lid and open lid

7. Where to call

Should you have any questions about the Spectrafuge or its accessories, please call Labnet’s Customer Service Department at 732 417-0700. Customer Service is staffed from 8:30am to 5:30pm, EST, Monday through Friday. Our 24 hour fax number is 732 417-1750. Inquiries may also be sent via our electronic mailbox at labnetinfo@corning.com.

Should your Spectrafuge require service, please call Labnet’s Technical Services Department at 732 417-0700. Our Service Department is staffed from 8:30am to 5:00pm, EST, Monday through Friday. Our 24 hour fax number is 732 417-1750. Electronic mail may be sent labnetinfo@corning.com.

Please have the unit’s serial number (located on the back panel of the instrument) available when calling. Should an item require return to Labnet for service, a repair return authorization (RRA) number must first be received from Labnet. Items sent without an RA number will not be accepted.

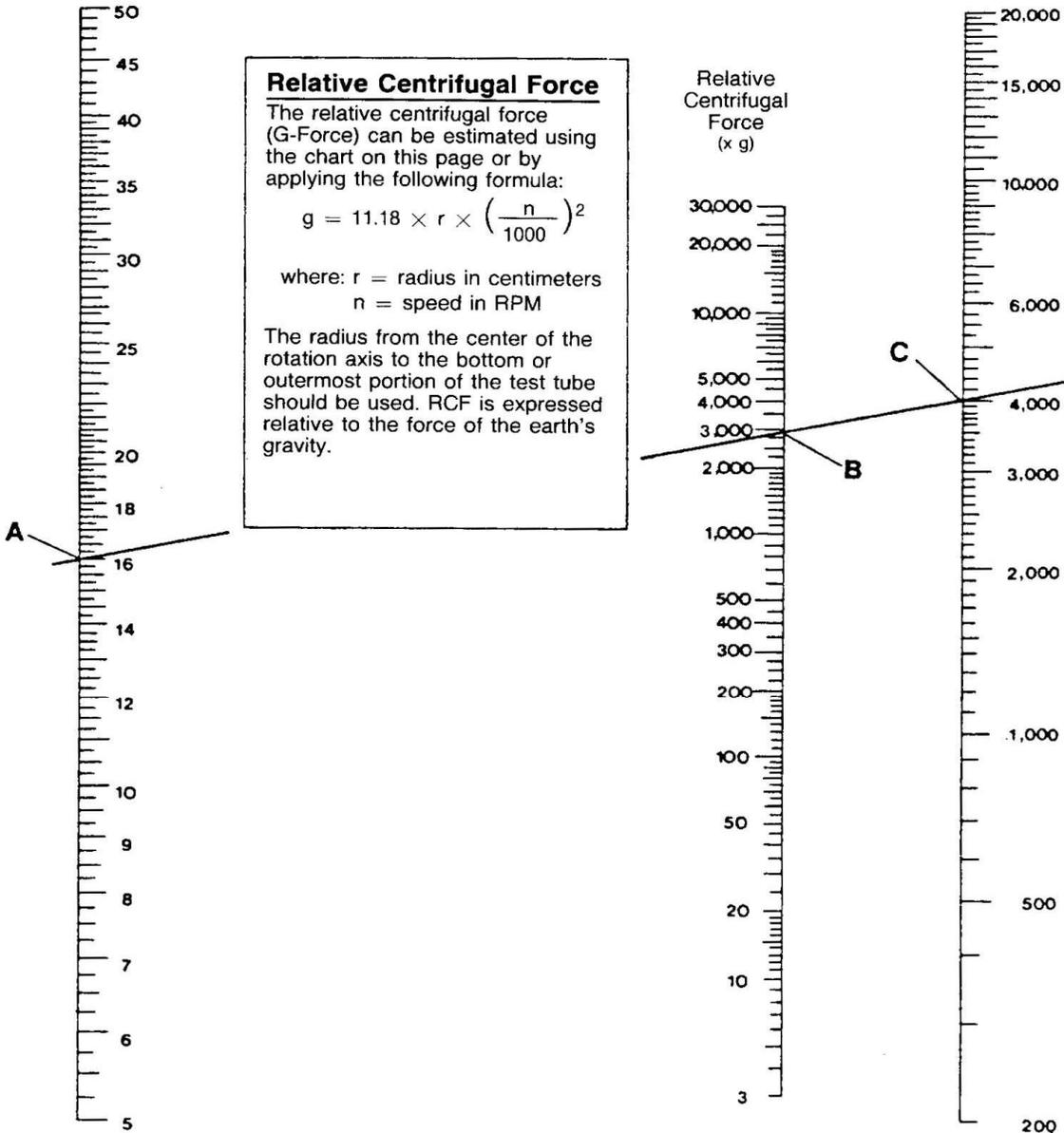
8. Determination of g-values

The centrifuging radius of the 15ml rotor is 8.5cm for round bottom tubes and 8.2 cm for conical bottom tubes. See Section 3.1 for the correct radius when using adapters and smaller tubes. The chart on the next page can be used to determine g-values.

RELATIVE CENTRIFUGAL FORCE

Radius
(in cm)

Speed
(in RPM)



EQUIPMENT DISPOSAL-EUROPEAN REGULATIONS



According to Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE), Labnet Spectrafuge 6C is marked with the crossed-out wheeled bin and must not be disposed of with domestic waste.

Consequently, the buyer shall follow the instructions for reuse and recycling of waste electronic and electrical equipment (WEEE) provided with the products and available at the following link: www.corning.com/weee

LIMITED WARRANTY

Labnet International Inc. warrants that this product will be free from defects in material and workmanship for a period of two (2) years from date of purchase. This warranty is valid only if the product is used for its intended purpose and within the guidelines specified in the supplied instruction manual.

Should this product require service, contact Labnet's Service department at 732-417-0700 to receive a return authorization number and shipping instructions. Products received without proper authorization will be returned. All items returned for service should be sent postage prepaid in the original packaging or other suitable carton, padded to avoid damage. Labnet International Inc. will not be responsible for damage incurred by improper packaging. Labnet may elect for onsite service for larger equipment.

This warranty does not cover damage caused by accident, neglect, misuse, improper service, natural forces or other causes not arising from defects in original material or workmanship. This warranty does not cover motor brushes, fuses, light bulbs, batteries or damage to paint or finish. Claims for transit damage should be filed with the transportation carrier.

ALL WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION OF 24 MONTHS FROM THE ORIGINAL DATE OF PURCHASE.

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