

Type M71700 **Slow Speed Rotomix®** **Variable Speed Rotator**

OPERATION MANUAL
AND PARTS LIST
SERIES 1092

Model #	Voltage	Hertz	Amps	Watts
M71735	120	50/60	0.12	14
M71734	100	50/60	0.14	14
M71730-33	220/240	50/60	0.06	14
	(European only)			

Table of Contents

Table of Contents

Safety Information	3
Alert Boxes	3
Warnings	4
Introduction	5
General Usage	5
Installation	6
Principles of Operation	6
Technical Specifications	7
Environmental Conditions	7
Declaration of Conformity	7
Operation	8
Setting the Speed	8
Setting the Timer	8
Operating Tips	9
Maintenance and Servicing	10
General Cleaning Instructions	10
Timer Verification	10
Adjusting the Calibration of the Speed Control	10
Troubleshooting Guide	11
Disassembling the Slow Speed Rotomix	13
Replacement Parts Listing	14
Ordering Procedures	16
Return Goods Policy	18
RGA Card	19
Warranty	20

Safety Information

Alert Signals



Warning

Warnings alert you to a possibility of personal injury.



Caution

Cautions alert you to a possibility of damage to the equipment.



Note

Notes alert you to pertinent facts and conditions.

Safety Information

Your Thermolyne Slow Speed Rotomix[®] has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes. For safe operation, please pay attention to the alert boxes throughout the manual.

Warnings

Warning

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
2. Disconnect from the power supply prior to maintenance and servicing.

To avoid personal injury:

1. Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.
 2. Use appropriate hand, eye, face and apron protection when rotating labware containing hazardous chemicals.
 3. Refer servicing to qualified personnel.
-

Introduction

Introduction

Your Slow Speed Rotomix variable speed rotator has been designed and engineered as a general purpose laboratory rotator. Intended uses include mixing solutions in various labware vessels and trays. This orbital mixer may be used at temperature from -4°C to 37°C .

Applications include gel staining and destaining, tissue culture, reagent preparation, gentle mixing of bacteriological cultures, Western blots, solution trays, enrichment baths, and rinsing and washing samples.

General Usage

Do not use this product for anything other than its intended usage.



NOTE

The motor in this mixer will contribute some heat to an incubator or cold room environment.

Installation

Installation

Remove your Slow Speed Rotomix from the carton. Inspect to ensure that the unit has not been damaged during shipment. Set the rotator on a flat stable surface and plug into an appropriate outlet. Remove the white silicone rubber top from the protective plastic packaging and place the top on the metal platform.

Principles of Operation

The Slow Speed Rotomix has an electronically controlled DC gear motor drive which is linked to the rotator platform. Speed is adjusted by varying the DC voltage supplied to the motor.

The rotator platform is supported by four idler bushings located in the four corners, and one drive bushing located at the center of the platform. These bushings are geometrically located to insure a precise 0.80" (20mm) circular orbit.

Technical Specifications

Technical Specifications

Overall Dimensions (w x h x d): 11.25" (28.6 cm) X 6.75" (17.1 cm) X 14" (35.6 cm)
Platform Working Dimensions: 10.63" (27 cm) x 12.63" (32.1 cm)

Orbital Diameter: 0.80" (20 mm)
RPM (No Load Condition): 10-60 RPM \pm 3 RPM
Maximum Load: 5 lbs. (2.3 kg)
Timer Range: 0-2 hrs.

Environmental Conditions

Operating: -4°C - 37°C; 20% to 80% relative humidity, non-condensing. Installation Category II (over-voltage) in accordance with IEC 664. Pollution Degree 2 in accordance with IEC 664.
Altitude limit: 2,000 meters.

Storage: -40°C to 70°C; 10% to 90% relative humidity.

Declaration of Conformity (-33 models only)

Barnstead|Thermolyne hereby declares under its sole responsibility that this product conforms with the technical requirements of the following standards:

EMC: EN 50081-1 Generic Emission Standard; EN 50082-1 Generic Immunity Standard;

Safety: IEC 1010-1-92 Safety requirements for electrical equipment for measurement, control, and laboratory use; Part I: General Requirements
per the provisions of the Electromagnetic Compatibility Directive 89/336/EEC, as amended by 92/31/EEC and 93/68/EEC, and per the provisions of the Low Voltage Directive 73/23/EEC, as amended by 93/68/EEC.

The authorized representative located within the European Community is:

European Manager
Barnstead|Thermolyne
Saarbrückener Str. 248
D-38116 Braunschweig
Germany

Copies of the Declaration of Conformity are available upon request.

Operation



NOTE

If the unit is to be operated continuously, the timer control knob must be set in the "HOLD" position.



NOTE

Your Rotomix has an internal circuit breaker installed to protect the motor from overload situations. Should your Rotomix stop running, first check to see that the platform is neither jammed nor over-loaded. Then set the power switch to the off position, wait thirty (30) **seconds** for the circuit breaker to reset, and then set the power switch to the on position again.

Operation

Set the power toggle switch into the "ON" position. The green power switch will illuminate to indicate that the unit is "ON." Set the speed and the timer control knobs. Place the timer control knob in the (hold) position for constant operation. The platform should rotate in a quiet, smooth orbital motion.

Setting the Speed

Set the speed control knob to the desired speed within the 10 - 60 RPM range. The speed control reference scale is laid out in 2 RPM increments.

Setting the Timer

Set the timer control knob to the time required, within the 2 hour time range. Carefully observe the timer reference scale. The timer reference scale is laid out in 10 minute increments with the 30 minute, 1 hour, 90 minute and 2 hour positions noted. The outer perimeter scale is referenced for 120/240 volt, 60 Hertz timer motor operation. The inner reference scale is for 120/240 volt, 50 Hertz timer motor operation. (It is necessary to provide a dual scale as this rotator is sold worldwide.) The timer does not include an audible alarm, so the rotator will simply stop operating when the set time has elapsed.

Once the speed and time control knobs have been set, the platform should rotate in a quiet, smooth orbital motion.

If your Rotomix does not operate after you have turned it off and back on as described, set the power switch to the off position, wait thirty (30) **minutes** for the circuit breaker to reset, and then set the power switch to the on position again. If the unit still will not start, call Barnstead|Thermolyne customer service at 1-800-553-0039 or your local distributor.

Operating Tips

1. It is safer to mix reagents and chemicals in small mouth labware to avoid splashing. Test vessel stability to assure vessel will not tip, teeter, walk or slide. Improvised tie downs or trays may be used to hold unstable vessels in position if you prefer.
2. The white silicone rubber top is removable. Lift one corner to remove top. The top must remain clean to maintain its friction-gripping quality. Wash with soap and water, dry and reinstall.
3. It is recommended that partial loads are centered on top to evenly distribute weight over rotator bearings for longer life.
4. A drop of light weight household oil should be applied to the rotator bearings where the offset bearing mounts in the case bushing and on the offset bearing washer. These bearings should be oiled every six months for mild intermittent operation and every three months for continuous heavy load operation. Access to the bearings requires removing the silicone top and standing unit on its side.
5. When the Slow Speed Rotomix is used within an incubator, the incubator temperature must be stabilized with the rotator on, as the motor generates heat.

Maintenancing and Servicing



WARNING

To avoid electrical shock, always disconnect from power supply before maintenance and servicing.

Refer servicing to qualified personnel.



NOTE

The rotator must be off a minimum of 8 hours before the following adjustment can be made.



NOTE

If a tachometer is not available, count the number of revolutions of the top as it rotates.

Maintenance and Servicing

Your rotator requires minimal maintenance. Lubrication with a light weight oil is recommended semiannually for the platform offset bushing and bearing assembly. The drive motor is permanently lubricated.

General Cleaning Instructions

Wipe exterior surfaces with lightly dampened cloth containing mild soap solution.

Timer Verification

The timer settings may be verified by setting the red line indicator on a specified reference mark and timing the elapsed time with a calibrated elapsed timer.

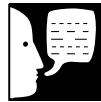
Adjusting the Calibration of the Speed Control

1. With the speed control knob set at the 10 RPM setting and the power and time switches off, plug the unit into an outlet with the proper voltage.
2. Turn the power switch on and check the rotation speed of the top with a tachometer. The rotating speed should be 10 RPM \pm 0.5 RPM. If it's not, continue with step 3.



NOTE

It requires very little movement to increase or decrease the rotation speed.



NOTE

To avoid carbon build-up, set Rotomix at top speed and run for five minutes each week.

3. Locate the calibration potentiometer on the back panel. Remove the cap. Insert a screwdriver and turn the screwdriver clockwise to increase the RPM and counterclockwise to decrease the RPM .

Your Slow Speed Rotomix will operate within the specified operating range of 10-60 RPM under a no-load condition. You may calibrate the RPM with a specific load using this procedure. However, loads heavier or lighter than your specific load may cause an RPM variation.

MAINTENANCING AND SERVICING

Troubleshooting Guide

Problem	Possible Causes	Solutions
Unit will not rotate (though power light illuminates).	Platform bushing is binding, causing platform to stall. Timer is defective. Defective motor, printed circuit board or speed control. Refer to note on page 5.	Apply oil or replace bushings and bearings. Replace timer. Replace appropriate part.
Unit will not rotate (power light does not illuminate).	Unit is unplugged, or power supply is bad. Cord set defective.	Verify that unit is plugged into a working power supply. Replace cord set.
Rotator speed has decreased.	Gears in gear motor failing. Carbon buildup in motor. Bushings are binding or worn. Excessive loading.	Replace motor. Operate at maximum speed for one hour. Replace or oil. Reduce load weight.
Timer does not function.	Defective timer. Knob setscrew loose.	Replace timer. Tighten setscrew and recalibrate.
Timer does not turn off after elapsed time has expired.	Defective timer.	Replace timer.
Timer inaccurate.	Knob slipped on shaft. User reading 50 Hz scale instead of 60 Hz scale.	Replace knob or tighten setscrew. Use the 60 Hz scale for 60 Hz power supplies.
Internal components are corroded.	Excessive humidity. Corrosive atmosphere.	Decrease humidity. Remove from corrosive environment.

Problem	Possible Causes	Solutions
Unit turning off.	Defective motor. Rotating platform jammed. Internal circuit breaker has tripped.	Replace motor. Remove obstruction. Reset circuit breaker according to the note on page 5.
Internal circuit breaker has tripped.	Rotating platform jammed. Defective motor. Carbon buildup in motor.	Remove obstruction and reset circuit breaker according to page 5. Replace motor and reset circuit breaker according to note on page 5. Set Rotomix at top speed and run for one hour and reset circuit breaker according to note on page 5.

Disassembling the Slow Speed Rotomix

1. Unplug unit.
2. Remove the eight chrome Phillips® head case screws (three on each lower side, two on the top).
3. Lift upper case assembly and stand on end within lower case. A pad placed on bottom case ridges will prevent scrapes on edge of upper case.
4. The top case assembly may be disassembled further by removing the white silicone rubber pad. The metal top plate is removed by removing the four screws, washers, curved spring washers, and spacers located in the four corners inside the top case assembly.
5. All the components in the lower case are easily accessible for replacement and removal. However, some assembly tips are given as follows:
 - a. Remove the four Phillips head screws holding the motor to the mounting plate to remove motor.
 - b. Removing the timer control knob requires resetting the red line indicator to the point where the time elapses and tightening the set screws. Check timing with a calibrated elapsed timer.
6. Reassembly may be completed by reversing the disassembly procedure.

Replacement Parts List

Replacement Parts Listing



WARNING

To avoid electrical shock, always disconnect from power supply before maintenance and servicing.

Refer servicing to qualified personnel.

Replace fuses with same type and rating.

Model Type: M71700
Product Name: Slow Speed Rotomix Variable Speed Rotator
Series Number: 1092

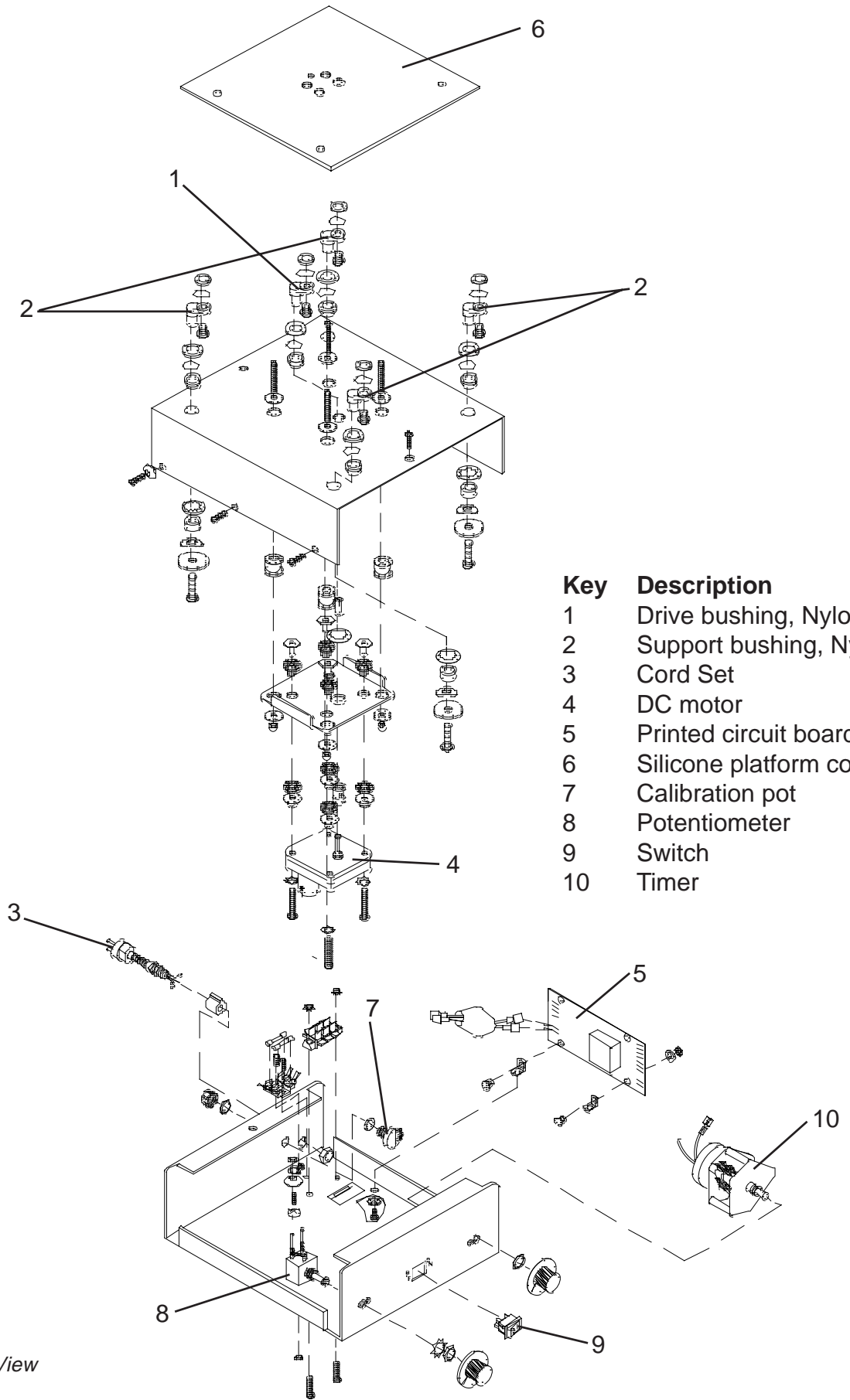
Part #	Description
BR482X1	Drive bushing, Nylon
BR717X1	Support bushing, Nylon
CR1092X1	Cord set, 100/120V,
CR1088X2	Cord set, 240V
MTX79	DC motor
PC717X1A	Printed circuit board (all components mounted) 100/120V
PT513X1	Silicon platform cover (Black)
PT717X1	Silicon platform cover (White)
RSX169	Calibration pot (on rear of unit)
RSX294	Potentiometer (speed control)
SWX135	Switch, 100/120V
SWX136	Switch, 240V
TM1092X1	Timer
FZX35	Fuse (2 required, -33 models only), 250 Volt, 0.5 Amp, Type T

Ordering Procedures

Ordering Procedures

Please refer to the Specification Plate on the back of the instrument for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the **Barnstead|Thermolyne** dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed, we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 319-556-2241 or 800-553-0039.



Key	Description
1	Drive bushing, Nylon
2	Support bushing, Nylon
3	Cord Set
4	DC motor
5	Printed circuit board
6	Silicone platform cover
7	Calibration pot
8	Potentiometer
9	Switch
10	Timer

Exploded View

Return Goods Policy

Return Goods Policy

We, at Barnstead|Thermolyne, try to provide a product that will give years of uninterrupted service. If a need does arise that you must return your instrument, please follow these simple instructions to ensure the safety of all those handling the product. Thank You.

When service or replacement parts are needed, we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 319-556-2241 or 800-553-0039.

Prior to returning any materials to **Barnstead|Thermolyne Corp.**, please contact our Customer Service Department for a “**Return Goods Authorization**” number (**RGA**). Material returned without a RGA number and completed Decontamination Form will be refused. Minimum invoice: \$25.

1. Inform Barnstead|Thermolyne’s Customer Service Department about the manner in which the product was used. e.g. genetic engineering of mammalian or plant cells, viruses, DNA/RNA, isotopes, etc. Phone 800-553-0039.
2. Wipe down entire unit, including block, with soap and water.
3. Spray entire unit, including block, with a 1:10 bleach:H₂O and allow unit to air dry.
4. Complete the attached Decontamination Form and attach it to the unit before packing.

RGA Card

RGA Card

For your convenience, we have attached a self-addressed "Return Goods Authorization" (RGA) card. Please complete the card in its entirety (both sides). **Be sure to completely decontaminate the unit before you return it to us.**

On the address side of the card, please be sure to write your RGA number* (provided by our Customer Service representative) in the space provided. Using clear tape, attach the card (**Barnstead|Thermolyne** address side out) to the box holding the equipment being returned to our factory.

*If you do not have an RGA number, or if you have questions regarding this procedure, please call **Barnstead|Thermolyne** at 800-553-0039.

Warranty

Barnstead|Thermolyne One Year Limited Warranty

Barnstead|Thermolyne Corporation warrants that if a product manufactured by **Barnstead|Thermolyne** and sold within the continental United States or Canada proves to be defective in material or construction, **Barnstead|Thermolyne** will provide you, without charge, for a period of ninety (90) days, the labor, and a period of one (1) year, the parts, necessary to remedy any such defect. Outside the continental United States and Canada, the warranty provides, for one (1) year, the parts necessary to remedy any such defect. The warranty period shall commence either six (6) months following the date the product is sold by **Barnstead|Thermolyne** or on the date it is purchased by the original retail consumer, whichever date occurs first.

All warranty inspections and repairs must be performed by and parts obtained from an authorized **Barnstead|Thermolyne** dealer or **Barnstead|Thermolyne** (at its own discretion). Heating elements, however, because of their susceptibility to overheating and contamination, must be returned to our factory, and if, upon inspection, it is concluded that failure is not due to excessive high temperature or contamination, warranty replacement will be provided by **Barnstead|Thermolyne**. The name of the authorized **Barnstead|Thermolyne** dealer nearest you may be obtained by calling 1-800-446-6060 or writing to:

Barnstead|Thermolyne
P.O. Box 797
2555 Kerper Boulevard
Dubuque, IA 52004-0797
USA
FAX: (319) 589-0516

E-Mail: mkt@barnsteadthermolyne.com

Barnstead|Thermolyne's sole obligation with respect to its product shall be to repair or replace the product. Under no circumstances shall it be liable for incidental or consequential damage.

THE WARRANTY STATED HEREIN IS THE SOLE WARRANTY APPLICABLE TO **BARNSTEAD|THERMOLYNE** PRODUCTS. **BARNSTEAD|THERMOLYNE** EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE.

Barnstead | Thermolyne a subsidiary of
SYBRON
INTERNATIONAL

2555 Kerper Blvd.
P.O. Box 797
Dubuque, IA 52004-0797 USA
PHONE: 319-556-2241 • 800-553-0039
FAX: 319-589-0516
E-Mail: mkt@barnsteadthermolyne.com

