

LABQUAKE[®]

Shakers and Rotators

OPERATION MANUAL

Series 1104: Small Units (11" long)
Series 1105: Large Units (18.5" long)

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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.

Your Barnstead|Thermolyne LABQUAKE® Shakers and Rotators have been designed with function, reliability and safety in mind. It is your responsibility to install your product in conformance with local electrical codes. For safe operation, please pay attention to the alert signal throughout the manual.

Introduction

Variable action LABQUAKE shakers and rotators feature removable trays which hold up to forty-six 10 ml VACUTAINER[®] tubes, and/or clip bars with clips that are easily interchangeable with the trays for shaking or rotating tubes at 8 rpm. Shaking may be instantly varied from a gentle motion (22 reversals/min.) to vigorous (70 reversals/min.). Tubes may be added or removed without turning off the motor.

Applications

- Thorough mixing of blood and other samples without impairment. Holds VACUTAINER tubes and all sizes of collection vials.
- Preparing homogeneous dispersions of particulates.
- Dialysis under agitation, retentate in membrane bags within containers.
- Liquid-liquid extractions and mixing of particulate-liquid and liquid-liquid phases in numerous applications.
- For in vitro use only.

General Usage

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

Contents

Examine the contents of the shipping carton carefully. Each package includes the following:

LABQUAKE Shaker/Rotator with Clips

- 1 LABQUAKE Shaker/Rotator with bar and 14 clips (Catalog #400110 or 400220) or
- 1 LABQUAKE Shaker/Rotator with bar and 8 clips (Catalog #4002110 or 4002220) or
- 1 LABQUAKE Shaker/Rotator with bar and 32 clips (Catalog #415110 or 415220) or
- 1 LABQUAKE Shaker/Rotator with bar and 14 clips (Catalog #4152110 or 4152220)
- 1 Instruction Manual with Warranty Card

LABQUAKE Shakers with Trays

- 1 LABQUAKE Shaker with double-deck trays (Catalog #T415110, T415220, T400110 and T400220)
- 1 Instruction Manual with Warranty Card

Combination LABQUAKE Shakers/Rotators

- 1 LABQUAKE Shaker/Rotator with double-deck trays and bar with 14 clips (Catalog #C400110 or C400200) or
- 1 LABQUAKE Shaker/Rotator with double-deck trays and bar with 8 clips (Catalog #C4002110 or C4002220) or
- 1 LABQUAKE Shaker/Rotator with double-deck trays and bar with 32 clips (Catalog #C415110 or C415220) or
- 1 LABQUAKE Shaker/Rotator with double-deck trays and bar with 14 clips (Catalog #C4152110 or C4152220)
- 1 Instruction Manual with Warranty Card

Unpacking

Remove the LABQUAKE shaker from its shipping container, examining it carefully for defects, shortages or breakage. DO NOT discard packaging if breakage is found.

Breakage in Shipment

Notify your supplier at once if you find breakage, defects or shortages upon opening packages. DO NOT RETURN THE INSTRUMENTS UNTIL INSTRUCTED TO DO SO BY YOUR SUPPLIER.

General Specifications



Warning

Use a properly grounded outlet of the proper voltage.

Power Requirements

The model numbers with the last three digits “110” operate on 120 Volts AC. Model numbers with the last three digits “220” operate on 220-240 Volts AC. The power supply is single phase, 50 or 60 Hertz and 4 Watts. All units are supplied with a molded 3 conductor grounded plug.

Motor Characteristics

The LABQUAKE shaker may sometimes stop and reverse at any point without the tray or bar hitting its stop. This effect is inherent in the motor that drives the unit and is not a malfunction.

Motor Speed

8 rpm

Weight Capacity

Total load should not exceed 800 grams.

Materials

Double-deck Trays:	Aluminum
Mats:	Vinyl
Clips:	Stainless Steel
Clip Bar:	Aluminum
Lock Nut:	Delrin
Thumbscrew:	Delrin
Reversal Control Bar:	Stainless Steel
Clip Retainer:	Stainless Steel

Environmental Conditions

Operating: 0°C - 65°C; 20% - 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: -25°C - 65°C; 10% to 85% relative humidity.

Declaration of Conformity

Barnstead|Thermolyne hereby declares under its sole responsibility that this product conforms with the technical requirements of the following standards (220-240 volt models only):

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:

Electrothermal Engineering, Ltd.
419 Sutton Road
Southend On Sea
Essex SS2 5PH
United Kingdom

Copies of the Declaration of Conformity are available upon request.

LABQUAKE Shaker/Rotator with Clips



Caution

Whenever the bar is removed or installed, stretch the frame slightly and pull or push the bar directly off or onto the motor shaft. Do not bend or twist the shaft.

Models: 415110, 41522, 4152110, 4152220, 400110, 400220, 4002110, 4002220

Assembly

To install the clip bar, stretch the frame slightly. Engage the slotted end with the motor shaft by inserting the slotted end straight into the motor shaft, avoiding any tendency to bend the shaft. Screw the supporting pivot screw in place at the other end. The LABQUAKE shaker/rotator is ready to plug in. Flip the switch to the "I" position and operate. Clips may be rearranged by removing the bar. To remove the bar, stretch the frame so that the bar may be pulled straight out from the motor shaft to avoid bending the shaft. Slide the clips off the end of the bar and replace the clips as desired.



Note

If at any time the clip bar fails to rotate continuously, there is some obstruction to its free rotation which can usually be seen immediately. At times it may be necessary to reposition a tube to prevent a tube from touching the bracket during a rotation.

The total load when using the clip should not exceed 800 grams.

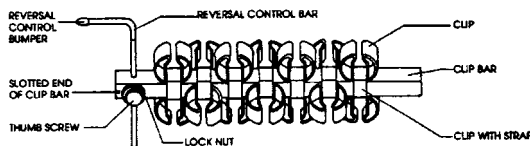
Operation

Installing Tubes

Insert tubes into clips. Distribute weight evenly. Tubes may be rotated continuously or rocked back and forth through an angle of up to 300° using the clip bars. Tubes of any length may be rocked; tubes shorter than 6-3/8" may be continuously rotated. The motor reverses direction whenever its rotation is impeded. It is not damaged by holding the clip bar and stalling the motor.

For Continuous Rotation

Turn the reversal control bar so that it is parallel to the motor case and will not touch the motor case at any time during a complete rotation of the clip bar. Lock the reversal control bar in position by tightening the thumb screw.



Clip Bar and Retainers

For Rocking Motion

The reversal control bar must be inserted into the unthreaded hole on the clip bar. Turn the reversal control bar so that it is at right angles to the motor case and pointing towards it. Lock the reversal control bar in position by tightening the thumb screw in the threaded hole. Be certain that the thumb screw and lock nut are tightened against the flat side of the reversal control bar. The reversal control bar will now limit the rotation of the clip bar in forward and reverse directions when the motor is on.

Changing the Number of Reversals

The number of reversals per unit time may be changed by altering the arc of rotation. This is accomplished by lowering or raising the position of the control bar. The number of revolutions per minute (rpm) of the motor is constant.

LABQUAKE Shaker with Trays

Models T415110, T415220, T400110, T400220

Assembly

To install the trays, remove the clip bar and engage the slotted end of the bottom tray with the motor shaft. Screw the supporting pivot screw in place at the other end. Install the top tray in position. The LABQUAKE shaker is ready to plug in. Flip the switch to the "I" position and operate. If you wish to remove or reinstall the tray assembly, see "Assembly" for the Combination LABQUAKE Shaker/Rotator. Trays may be rocked back and forth through an angle of up to 90°.



Note

Load must be evenly distributed to ensure smooth rocking motion.

Total load when using trays should not exceed 800 grams.

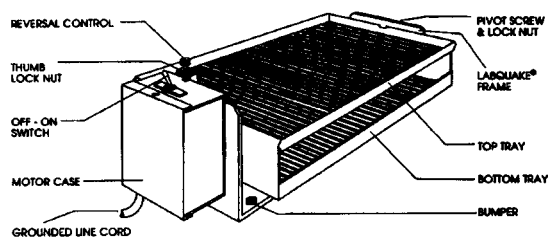
Operation

Loading Trays

Remove the top tray. Load the bottom tray with sealed tubes. Replace the top tray, and then load it with tubes. Flip the switch to the "I" position.

Changing the Number of Reversals

The motor reverses direction whenever its motion is impeded. The number of reversals per unit time is controlled by altering the arc of rotation. To alter the arc of rotation, unscrew the thumb lock nut of the reversal control. Then screw the reversal control clockwise or counter-clockwise to lengthen or shorten the arc. When you have attained a satisfactory position, screw the thumb lock nut downward until it can go no further to lock the reversal control in position.



LABQUAKE Shaker with Trays

Combination LABQUAKE Shaker/Rotator

With interchangeable, double-deck trays and bar with clips. Models C415110, C415220, C4152110, C4152220, C400110, C400220, C4002110, C4002220

Assembly

Installing the Clip Bar

To install the clip bar, stretch the frame slightly. Engage the slotted end with the motor shaft by inserting the slotted end straight into the motor shaft, avoiding any tendency to bend the shaft. Screw the supporting pivot screw in place at the other end.

Installing the Trays

To install the trays, remove the clip bar and engage the slotted end of the bottom tray with the motor shaft. Screw the supporting pivot screw in place at the other end. Install the top tray in position.



Caution

Whenever the tray or bar is removed or installed, stretch the frame slightly and pull or push the bar or tray directly off or onto the motor shaft. Do not bend or twist the shaft.

Operation

See preceding operation instructions for LABQUAKE Shaker/Rotator with Clips and/or LABQUAKE Shaker with Trays.

Maintenance



Warning

Do not immerse unit for cleaning.

Disconnect from power supply before servicing.

No oiling or greasing is required. All parts are replaceable.

Cleaning

Wipe with a clean, damp cloth. If necessary, use a mild, non-abrasive cleanser. If necessary, the unit may be disinfected by wiping with a 1:1 solution of household bleach (5.25% sodium hypochlorite) and water.

To Replace Motor

In case of motor failure, the motor may easily be replaced by the user:

1. Unplug the LABQUAKE shaker/rotator.
2. Remove the clip bar or trays as described under "Assembly" in the LABQUAKE Shaker/Rotator with Clips section.
3. Unscrew the two screws that hold the motor case cover in place.
4. Remove the motor case cover.
5. Disconnect the motor wires from the switch.
6. Unscrew the two screws attaching the motor and motor case to the frame.
7. To install the new motor, reverse the procedure.

Parts List

Replacement Motors and Switch

Old Style Motor Assembly

- 400287A Replacement motor assembly for 110-120 volt shakers with silver toggle switch. Includes motor, case, switch and cordset.
- 400287B Replacement motor assembly for 220-240 volt shakers with silver toggle switch. (Includes motor, case, switch and cordset.)

New Style Replacement Motor

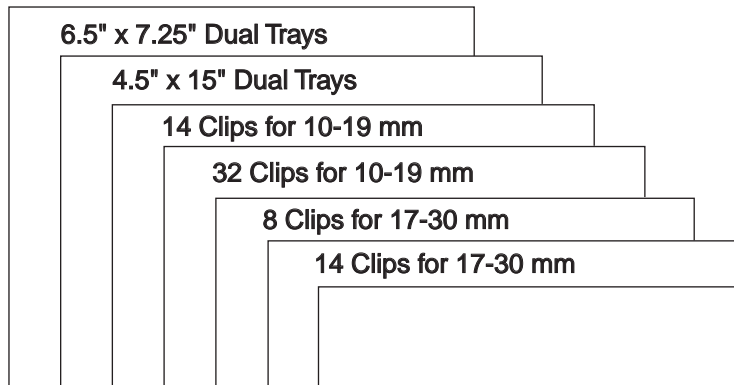
- MT842X1A Replacement motor for 110-120 volt shakers with lighted green switch. (Motor only.)
- MT842X2A Replacement motor for 220-240 volt shakers with lighted green switch (Motor only.)
- SWX137 110-120 volt green lighted switch.
- SWX138 220-240 volt green lighted switch.

Replacement Clip Bars

- 40015 Clip bar, complete (1 7-3/4" bar with 14 clips, 10-19 mm)
- 400215 Clip bar, complete (1 7-3/4" bar with 8 clips, 17-30 mm)
- 41515 Clip bar, complete (1 15-1/2" bar with 32 clips, 17-30 mm)
- 415215 Clip bar, complete (15-1/2" bar with 14 clips, 17-30 mm)
- 4002014 Set of two, 10-19 mm clips with strap
- 4003022 Set of two, 17-30 mm clips with strap

Replacement Trays

- 2026 Top tray only (6-1/2 x 7-1/2) white
- 2197 Top tray only (4-1/2 x 15) white
- 8-2501 Bottom tray with pivot arm (6-1/2 x 7-1/2) white
- 2196 Bottom tray with pivot arm (4-1/2 x 15) white
- 2080L Tray liner, (6-1/2 x 7-1/2)
- 2081L Tray liner, (4-1/2 x 15)
- TY841X1A Set of dual trays with liners (6-1/2 x 7-1/2) white
- TY842X1A Set of dual trays with liners (4-1/2 x 15) white
- 400-56 Set of dual trays with liners (6-1/2 x 7-1/2) gold color
- 41556 Set of dual trays with liners (4-1/2 x 15) gold color



Model #	Volts	Features					
C400110	120	X		X			
C400220	220-240	X		X			
C4002110	120	X				X	
C4002220	220-240	X				X	
T400110	120	X					
T400220	220-240	X					
400110	120			X			
400220	220-240			X			
4002110	120					X	
4002220	220-240					X	
Small Size (Series 1104) 6" Tall 6.5" Wide 11" Long							
C415110	120		X	X			
C415220	220-240		X	X			
C4152110	120		X				
C4152220	220-240		X			X	
T415110	120		X			X	
T415220	220-240		X				
415110	120				X		
415220	220-240				X		
4152110	120					X	
4152220	220-240					X	
Features (Series 1105) 6" Tall 4.5" Wide 18.5" Long							

Ordering Procedures

Please refer to the Specification Plate 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.

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 an RGA number will be returned.

One Year Limited Warranty

Barnstead|Thermolyne Corporation warrants that if a product manufactured by Barnstead|Thermolyne and sold by it within the continental United States or Canada proves to be defective in material or construction, it 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 (319-556-2241) or writing to:

Barnstead|Thermolyne
P.O. Box 797
2555 Kerper Boulevard
Dubuque, IA 52004-0797
USA
FAX: (319) 589-0516
E-MAIL ADDRESS: mkt@barnstead.com

Barnstead|Thermolyne's sole obligation with respect to its product shall be to repair or (at its own discretion) 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.

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