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OPERATION MANUAL

MANUAL NO. 057-885-00
REV. H

LAB-LINE® BI-DIRECTIONAL ECONOMY ROTATOR

MODELS NO_s. | 4630
4630JPN
4630-1
4630-1CE



DESIGNERS AND MANUFACTURERS
A SUBSIDIARY of Barnstead|Thermolyne
1999 North 15th Ave., Melrose Park, IL 60160-1491 USA
PHONE: (319) 556-2241 or (800) 522-5463; FAX: (319) 589-0516



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INTRODUCTION

THANK YOU

for selecting Lab-Line Instruments for your equipment needs. For maximum value and ease of start-up,

PLEASE PROCEED AS FOLLOWS:

- Inspect the carton and contents for shipping damage. Notify the carrier immediately if damage is found.
- Use the Accessory Checklist when unpacking to verify that the complete unit has been received. Do not discard packing materials until all is accounted for.
- Read this Operation Manual thoroughly *before* deciding upon an appropriate location for the unit: you will want to consider the availability of power and other unit requirements, as well as user convenience.
- Insist that every operator of this unit becomes familiar with the Operation Section of this manual.
- Be sure to fill out the Warranty Registration Card and mail it in to Lab-Line Instruments within seven (7) days after receiving the unit.

IF

after reading this manual you should have any difficulties with the installation or operation instructions, please call:

Lab-Line Customer Relations Department
(319) 556-2241 or (800) 522-5463

ALL RIGHT RESERVED

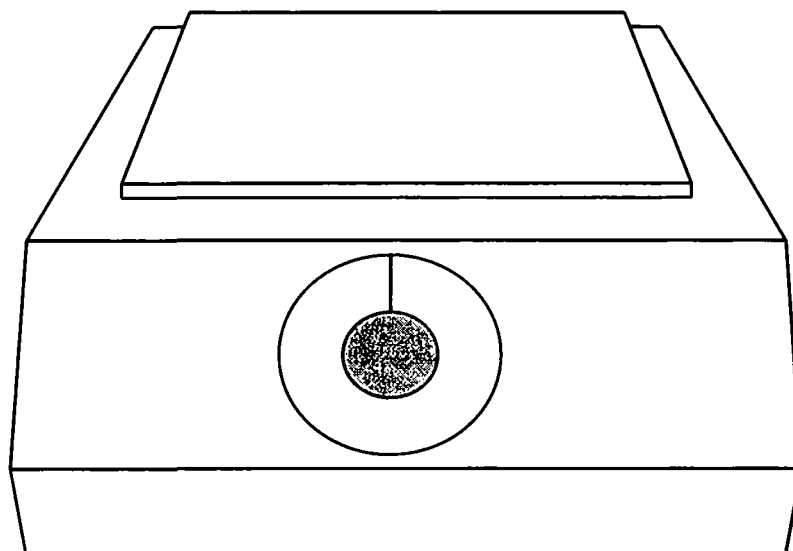
The information contained in this manual is the exclusive property of Lab-Line Instruments, Inc., and has been provided solely to enable the users of the equipment described herein to operate and maintain such equipment. Any other use of this information, or the reproduction or transmission of all or any portion of this manual without prior written consent of the manufacturer is expressly prohibited. © 2000, Lab-Line Instruments, Inc.

DESCRIPTION

The Model 4630 Bi-directional Rotator is a compact, lightweight unit designed for serological and other laboratory procedures which require a smooth, consistent mixing action. The mechanical action of the unit provides a circular motion coupled with a rocking pattern that keeps liquids and solutions gently mixed without the potential for shearing or other damage. The range of motion reaches a maximum of 10 degrees from the horizontal and the mixer operates at a fixed 30 rpm.

The rotator may be operated in the continuous or timer mode. The timer switch provides timed intervals of 1 minute up to a maximum of 60 minutes or a **CONSTANT** setting for continuous mixing action.

A lightweight body makes for easy portability and its compact size permits use in limited space areas on laboratory tops. The non-skid platform surface holds containers in place and rubber feet on the unit provide stability.



SPECIFICATIONS

POWER REQUIREMENTS:

Model 4630:	120 VAC, 50/60 Hz, 0.5 Amps, 60 Watts
Model 4630JPN:	100 VAC, 50/60 Hz, 0.6 Amps, 60 Watts
Model 4630-1(CE):	240 VAC, 50/60 Hz, 0.2 Amps, 50 Watts

NOTE: ACCEPTABLE SUPPLY VOLTAGE FLUCTUATION RANGE FOR PROPER EQUIPMENT OPERATION (E.G., $\pm 10\%$ OF NORMAL SUPPLY).

SHAKER MOTION: A three-dimensional action that combines rocking and circular motions with a maximum range of movement of 10-degrees from the horizontal.

SHAKING SPEED: 30 revolutions-per-minute.

TIMER: 60-minute timer adjustable in 1-minute intervals or for continuous mixing, use the **CONSTANT** setting.

DIMENSIONS:

PLATFORM:	6 $\frac{3}{4}$ " W x 5"D (17 x 13 cm)
OVERALL:	6-7/8" W x 8-1/8"D x 7"H (17 x 21 x 18 cm)

SHIPPING WEIGHT: 25 lbs. (11 kg)

UNIT'S ENVIRONMENTAL OPERATING CONDITIONS:

POLLUTION DEGREE:	2
INSTALLATION CATEGORY:	II
ALTITUDE:	2000 Meters MSL (Mean Sea Level)
HUMIDITY:	80% maximum, non-condensing
ELECTRICAL SUPPLY:	120VAC or 240VAC
VOLTAGE TOLERANCE:	$\pm 10\%$ of normal rated line
TEMPERATURE:	15°C to 40°C
PRODUCT USAGE:	This product is intended for use indoors only

INSTALLATION

✓SHIPPING CARTON:

This should be inspected upon delivery. When received, carefully examine for any shipping damage before unpacking. If damage is discovered, the delivering carrier should both specify and sign for the damage on your copy of the delivery receipt.

Open the carton carefully making certain that all parts are accounted for before packaging materials are discarded—after unpacking, if damage is found, promptly report it to the carrier and request a damage inspection promptly.

IMPORTANT: Failure to request an inspection of damage within a few days after receipt of shipment absolves the carrier from any liability for damage: you must call for a damage inspection promptly.

ELECTRICAL REQUIREMENTS:

120 VAC model requires a 120 VAC, 50/60 Hz power source. It is supplied with a 3-wire line cord and should be plugged into an outlet designed for 3-prong plugs. If an extension cord is used, it also should be the 3-wire grounded type. For an outlet designed to accept 2-prong plugs (ungrounded), it is required that a qualified electrician replace the outlet with a new grounded type.

240 VAC model requires a 240 VAC, 50/60 Hz power source. Because of the variety of plug configurations in use worldwide for 240 VAC power, the unit is furnished with the plug removed. The user must install a plug to conform with local code and configuration requirements.

100 VAC model requires a 100 VAC, 50/60 Hz power source. Because of the variety of plug configurations in use worldwide for 100 VAC power, the unit is furnished with the plug removed. The user must install a plug to conform with local code and configuration requirements.

If a plug must be installed, use only the 3-prong grounded type, rated for the unit load requirements and matching the power outlet. Make sure the green ground wire is secured to the plug ground terminal.

NOTE: LEAVE UNIT DISCONNECTED WHEN NOT IN USE.

LOCATION:

For optimum performance, place the unit on a level, stable surface and in an area free from drafts, extraneous heat sources and vibration. Be sure to provide clearance on all sides so as to avoid contact of the moving platform with any surrounding equipment or objects.

Do not use in a room with a temperature higher than 40°C.

Do not use in a room with a temperature lower than 15°C.

Do not use in a damp atmosphere.

NOTE: POSITION ROTATOR SO THAT IN CASE OF EMERGENCY THE PLUG IS WITHIN EASY TO BE QUICKLY DISCONNECTED FROM THE POWER OUTLET.

OPERATION

DANGER: DO NOT USE IN THE PRESENCE OF FLAMMABLE OR COMBUSTIBLE MATERIALS OR EXPLOSIVE GASES—FIRE OR EXPLOSION MAY RESULT CAUSING DEATH OR SEVERE INJURY

The single rotating switch controls power to the unit and the timing mechanism.

Make sure that the switch is in the off or **0** position. Connect unit to an electrical outlet providing power requirements as listed on nameplate.

Position glass slides, microtiter plates, test tube racks or other vessels on the platform, so as to avoid any possibility of contact during the mixing action.

The unit is easy to operate and requires only determining beforehand whether the liquids or solutions are to be mixed on a continuous or timed basis.

Turn switch to **CONSTANT** position for continuous mixing action or select timing action in 1-minute intervals up to a maximum of 60 minutes. Once the switch is advanced, the rocking motion starts and continues until the timed period has elapsed. At any time the unit can be stopped by turning the switch to the **0** position.

To lengthen life of unit, it is recommended that unit be disconnected from its power source when not in use.

CAUTION: DO NOT OPERATE ROTATOR WITHOUT PLATFORM IN PLACE. EXPOSED ROTATING PARTS CAN BE A HAZARD TO FINGERS AND/OR CLOTHING SUCH AS SHIRT CUFFS, TIES, BUTTONS AND SIMILAR ITEMS.

CAUTION: PROTECTION PROVIDED BY THE EQUIPMENT MAY BE IMPAIRED IF NOT CORRECTLY USED IN THE MANNER SPECIFIED.

MAINTENANCE

BE ADVISED:

NOTE: MAKE NO ATTEMPT TO SERVICE OR REPAIR A LAB-LINE PRODUCT UNDER WARRANTY BEFORE CONSULTING YOUR LAB-LINE DEALER. AFTER THE WARRANTY PERIOD, SUCH CONSULTATION IS STILL ADVISED, ESPECIALLY WHEN THE REPAIR MAY BE TECHNICALLY SOPHISTICATED OR DIFFICULT.

IF ASSISTANCE IS NEEDED BEYOND WHAT THE DISTRIBUTOR CAN PROVIDE, PLEASE CALL THE LAB-LINE CUSTOMER RELATIONS DEPARTMENT AT (319) 556-2241 OR (800) 522-5463. NO MERCHANDISE, HOWEVER, SHOULD BE RETURNED DIRECTLY TO LAB-LINE WITHOUT PRIOR APPROVAL FROM LAB-LINE.

NEUTRALIZING SPILLS:

In the event of any spills on the surfaces of the unit, carry out appropriate neutralization procedures and/or wash off with a cleaning solution made of warm water and a mild detergent. Rinse off with clean water and dry thoroughly. Do not use abrasive cleaners on surfaces.

TIMER MOTOR:

The timer motor mechanism is equipped with permanently lubricated bearings and is basically maintenance free.

PARTS REPLACEMENT:

WARNING: TO AVOID RISK OF ELECTRIC SHOCK, DISCONNECT EQUIPMENT FROM POWER SOURCE BEFORE PERFORMING ANY MAINTENANCE PROCEDURE

ON-OFF SWITCH/TIMER CONTROL:

Replacing the combination on/off switch and timer control requires removal of the bottom cover. Turn unit over and remove 4 screws holding the bottom cover, move control panel forward and lift cover from the housing.

Next, remove the control knob (2 setscrews) and a retaining nut to separate it from the panel. Unplug the connections from the old terminal connector and plug them into the new one. Reverse sequence to put new on/off switch/timer control into position.

Replace bottom cover and tighten the 4 screws that were previously removed.

REPLACEMENT PARTS

DESCRIPTION	PART NUMBER
Bearing:	140-258-00
Bellows:	790-340-00
Cordset, 4630, 4630-1:	470-187-00
Cordset, CE (Euro):	470-299-00
Fuse, 0.5 Amp:	330-291-00
Knob (for timer switch):	560-223-00
Motor, 110/120V, 60 Hz:	370-317-00
Motor, 220/240V, 50 Hz:	370-318-00
Rotator Spindle:	659-028-00
Rubber Feet (4):	790-214-00
Rubber Mat:	790-316-02
Timer, 60-minute:	270-109-00
Wiring Schematic, 120V unit:	228-059-00
Wiring Schematic, 240V unit:	228-060-00

**NEED A PART? CALL THE LAB-LINE PARTS HOTLINE.
CALL: (319) 556-2241 or (800) 522-5463; FAX: (319) 589-0516.**

LAB-LINE RESERVES THE RIGHT TO MAKE CHANGES TO SPECIFICATIONS WITHOUT PRIOR NOTICE.

WARRANTY

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LAB-LINE INSTRUMENTS, INC. ("Lab-Line") warrants that the product manufactured by Lab-Line shall be free of defects in materials and workmanship for a period of time defined on the following page from the first to occur of (i) the date the product is sold by Lab-Line or (ii) the date the product is purchased by the original retail customer (the "Commencement Date"). Except as expressly stated above,

LAB-LINE MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS AND EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF DESIGN, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

An authorized representative of Lab-Line must perform all warranty inspections. In the event of a defect covered by Lab-Line's warranty, Lab-Line shall, as its sole obligation and exclusive remedy, provide free replacement parts to remedy the defective product. In addition, for products sold by Lab-Line within the continental United States or Canada, Lab-Line shall provide free labor to repair the products with the replacement parts, but only for a period of ninety (90) days from the Commencement Date.

Lab-Line's warranty provided hereunder shall be null and void and without further force or effect if there is any (i) repair made to the product by a party other than Lab-Line or its duly authorized service representative, (ii) misuse (including use inconsistent with written operating instructions for the product), mishandling, contamination, overheating, modification or alteration of the product by any customer or third party or (iii) use of replacement parts that are obtained from a party who is not an authorized dealer of Lab-Line.

IN NO EVENT SHALL LAB-LINE BE LIABLE TO ANY PARTY FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR ANY DAMAGES RESULTING FROM LOSS OF USE OR PROFITS, ANTICIPATED OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THE SALE, USE OR PERFORMANCE OF ANY PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE), ANY THEORY OF STRICT LIABILITY OR REGULATORY ACTION.

The name of your nearest authorized Lab-Line dealer may be obtained by calling 1-800-522-5463.



DESIGNERS AND MANUFACTURERS

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WARRANTY

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12 MONTH PARTS WARRANTY:

- All Environmental Chambers
- Low Temperature B. O. D. Incubators
- Animal Study Chamber
- Controlled Environment Centers
- Biological Work Station
- Refrigerators, Freezers
- Chromatography Refrigerators (5 year parts warranty on compressor only)
- Large Capacity Refrigerators and Freezers (5 year parts warranty on compressor only)

24 MONTH PARTS WARRANTY:

- Frame Clamps, Frame Sets, Lab Jacks
- Saybolt Viscosimeter
- Timers, Samplers, Flasks
- Saf-T-Shield, Safety Tongs
- All Incubators & Ovens
- Dual Action Open Air Shaker
- Reciprocating Shakers (open air and water bath)
- Rockers and Rotators
- Low Cost Shakers
- Environ Blok Shaker
- Titer Plate Shaker
- Multi Wrist Shaker
- Water Baths (excluding Aquabaths), Ultrasonic Cleaners
- Slide Warmers
- Mixers, Stirrers, Hotplates
- Thermal Cyclers
- Blok Heaters
- Aquabaths, lifetime warranty on heaters

LIFETIME PARTS WARRANTY:

- All **ORBITAL** Shakers (not carrying a 24 month parts warranty) offer a lifetime parts warranty on the drive mechanism and a 5 year warranty on all other parts
- Refrigerated Orbital Shakers carry a lifetime warranty on the drive mechanism, 1 year parts warranty on the compressor, and a 5 year warranty on all other parts.



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RESEARCH AND EDUCATION
SINCE 1908.**

ACCESSORY CHECKLIST

The following loose parts and accessories are packed with this unit. Before discarding any packing materials, please be sure that nothing has been overlooked.

MODEL NOs : 4630, 4630JPN, 4630-1, 4630-1CE

CHECKED BY: _____

DATE _____

PACKED BY _____

CHECKED	ITEM	PART NUMBER	QUANTITY
_____	Operation Manual	056-885-00	1
_____	Warranty Card	528-020-00	1