

MANUAL

OPERATION

MANUAL NO. 057-057-00
REV. H

LAB-LINE® TITER PLATE SHAKERS

MODEL No_s. | 4625
4625JPN
4625-1
4625-1CE
4625-2



DESIGNERS AND MANUFACTURERS

A SUBSIDIARY of Barnstead|Thermolyne

1999 North 15th Ave., Melrose Park, IL 60160-1491 USA

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INTRODUCTION

THANK YOU

for selecting LAB-LINE 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.

SAFE OPERATION

BE ADVISED:

READ OPERATION MANUAL BEFORE USING EQUIPMENT. FAMILIARIZE YOURSELF WITH CONTROLS AND ACCESSORIES.

ALWAYS DISCONNECT EQUIPMENT FROM POWER SOURCE BEFORE SERVICING OR PERFORMING ANY MAINTENANCE PROCEDURES.

WHEN OPERATING THIS EQUIPMENT, ALWAYS WEAR PROTECTIVE CLOTHING, GLASSES AND OTHER ACCESSORIES AS SPECIFIED BY THE SAFETY REGULATIONS OF YOUR LABORATORY OR INSTITUTION.

WE RECOMMEND THAT YOU DO NOT LEAVE EQUIPMENT UNATTENDED WHILE IT IS IN OPERATION. DO NOT OPERATE EQUIPMENT WITH A DAMAGED ELECTRICAL CORD OR ALLOW CORD TO COME INTO CONTACT WITH A HOT SURFACE.

DO NOT MODIFY CONSTRUCTION AND/OR ASSEMBLY OF EQUIPMENT. KEEP GUARDS IN PLACE. DO NOT INSERT FINGERS INTO EQUIPMENT WHEN IT IS OPERATING. DO NOT REMOVE LABELS, DECALS OR OTHER INFORMATION CONCERNING OPERATION OR SAFETY FROM THE UNIT.

MAKE SURE ALL VESSELS ARE SECURELY CLAMPED BEFORE TURNING ON UNIT. TO ELIMINATE HAZARD OF ELECTRICAL SHOCK, MAKE SURE FLOOR AROUND MACHINE IS DRY. IN THE EVENT OF ACCIDENTAL SPILLING OR SPLASHING OF LIQUIDS, CLEAN UP AND/OR NEUTRALIZE THE SPILLED LIQUIDS BEFORE CONTINUING.

DO NOT USE EQUIPMENT FOR OTHER THAN ITS INTENDED PURPOSE. USE ONLY THE ACCESSORIES AND ATTACHMENTS THAT ARE SHIPPED WITH THE EQUIPMENT OR ARE SPECIFIED FOR IT. SUBSTITUTING OTHER ATTACHMENTS OR ACCESSORIES CAN PRODUCE HAZARDS OR MAKE THE UNIT INOPERATIVE.

DO NOT OPERATE SHAKER FOR EXTENDED PERIODS UNDER HIGH HUMIDITY CONDITIONS. DO NOT OPERATE SHAKER IN AMBIENT TEMPERATURES EXCEEDING 40°C. DO NOT OPERATE EQUIPMENT IN AN EXPLOSIVE ATMOSPHERE. DO NOT OPERATE SHAKER IN A CO₂ ENRICHED ATMOSPHERE.

PERFORM REGULAR MAINTENANCE SERVICE AS SPECIFIED IN THIS MANUAL AND KEEP UNIT IN GOOD REPAIR. DO NOT OPERATE WITH KNOWN DEFECTS.

DESCRIPTION

Lab-Line Models 4625, 4625JPN and 4625-1 Titer Plate Shakers are sturdy, heavy-duty units designed to produce an accurate 0.120-inch orbital shaking motion that is ideal for many kinds of laboratory work with titer plates.

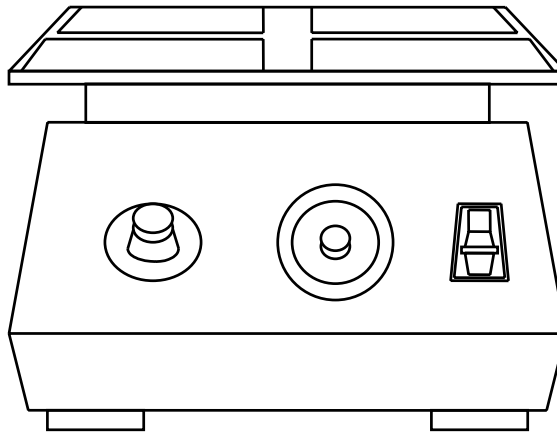
The shakers are identical except that Model 4625 is designed for a 120V, 60 Hz power source, Model 4625JPN for a 100V 50/60 Hz power supply and Model 4625-1 is designed for 240V, 50 Hz power.

Controls are clearly marked, self-explanatory and make the shaker easy to use and operate.

Users can operate the Titer Plate Shaker at a range of speeds from 40 to 1100 rpm to produce shaking movement ranging from gentle rotation to vigorous agitation to meet specific user requirements.

For increased versatility, a rocker switch on the control panel enables users to select either a constant shaking motion or a timed cycle up to 5 minutes for accurate, repetitive runs.

The ribbed platform provides a non-skid surface and retaining springs which act to hold the titer plates securely in place. In addition, rubber feet at the corners hold the shaker firmly on a counter surface and prevent the shaker from “walking.”



SPECIFICATIONS

POWER REQUIREMENTS:

Model 4625:	120 VAC, 60 Hz, 120 Watts, 1Amp
4625JPN:	100 VAC, 50/50 Hz, 120 Watts, 1.2 Amps
Model 4625-1, 4625-1CE:	240 VAC, 50 Hz, 120 Watts, 0.5 Amp
Model 4625-2:	240 VAC, 60 Hz, 120 Watts, 0.5 Amp

MOTOR: Continuous-duty rated, high-efficiency DC motor features high torque, full ball-bearing construction, and ceramic permanent magnets. Brushes are user replaceable.

SHAKING SPEED: Speed range is 40 to 1100 rpm.

TIMER: Range: Up to 5 minutes in 1 minute increments or continuous run operation.

SHAKER MOTION: 0.120-inch orbit

DIMENSIONS: 11" W x 11" D x 7" H (28 x 28 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:	±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.

LEVELING:

Place the shaker on a level surface in a convenient location and near a properly grounded electrical outlet that matches the requirements of the unit as indicated on the nameplate. A minimum of ½-inch clearance is required on all sides of the unit to provide unobstructed rotation.

ELECTRICAL REQUIREMENTS:

120 VAC models require a 120 VAC, 50/60 Hz power source. They are supplied with a 3-wire line cord. It 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 models require 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 models require 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.

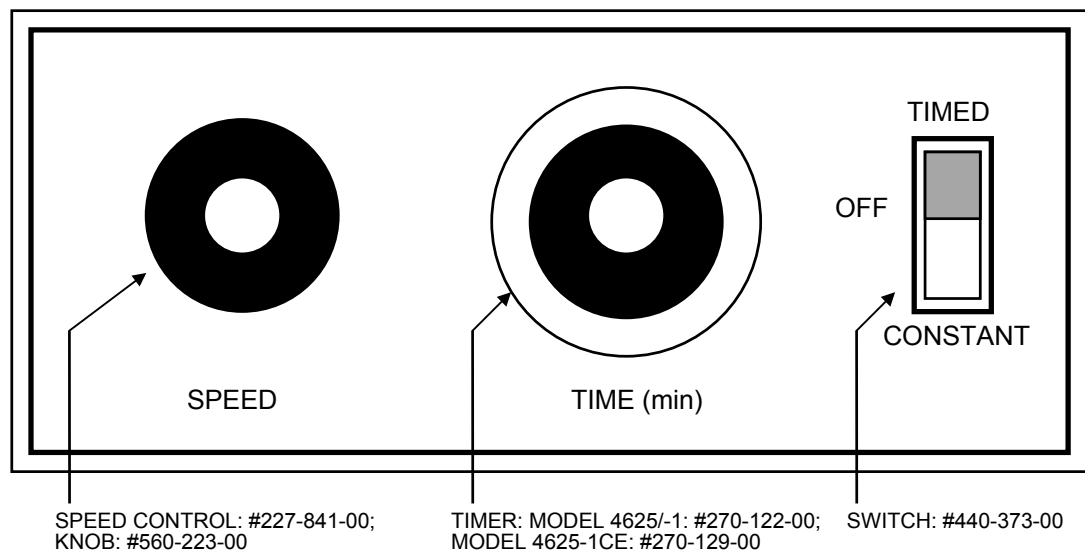
NOTE: LEAVE THE SHAKER DISCONNECTED WHEN NOT IN USE.

OPERATION

DANGER: DO NOT USE IN THE PRESENCE OF FLAMMABLE OR COMBUSTIBLE MATERIALS OR EXPLOSIVE GASES. DO NOT USE IN THE PRESENCE OF PRESSURIZED OR SEALED CONTAINERS. FIRE OR EXPLOSION MAY RESULT, CAUSING DEATH OR SEVERE INJURY.

NOTE: DEPRESS METAL TAB PRIOR TO ROTATING KNOB. THE TAB FIXES KNOB SETTING AND PREVENTS INADVERTENT MOTION OF THE KNOB.

CONTROL PANEL:



CONTROLS:

Located on the front panel are easily accessible controls, from left to right: speed control, timer and selector switch.

The speed control is easy to operate: rotate knob clockwise to increase shaking speed and counterclockwise to decrease the speed.

The timer permits setting a timed shaking period from approximately 5 seconds to 5 minutes. Each timed cycle is exactly repeatable until a new timed period is selected.

The selector switch allows the operator to select either a "Timed" cycle or a "Constant" run position. The center position is the off position.

CAUTION: BEFORE PROCEEDING MAKE CERTAIN THAT SELECTOR SWITCH IS IN THE **OFF** POSITION AND SPEED CONTROL IS AT THE **ZERO** POSITION.

*AS LISTED ON REPLACEMENT PARTS LIST

OPERATION: (Con't)

LOADING THE PLATFORM:

Insert a filled titer plate in the spring-tensioned holder by pushing the plate against the springs until the titer plate is resting on the ribbed bottom of the platform and is securely locked in position.

STARTING/STOPPING THE SHAKER:

- For continuous shaking action, push the selector switch to the **CONSTANT** position.
- In the event a timed period of shaking is desired, push selector switch to **TIMED**. Next, turn the black arrow on the timer dial to the setting corresponding to desired timing period. Press center button on timer to start the timing period. The shaker shuts off automatically at the end of the timed cycle. During the cycle the white dot on the dial will rotate to indicate elapsed time.
- During either the **CONSTANT** or **TIMED** shaking periods, the operator can stop the shaker by simply pushing selector switch to the center or **OFF** position.

SETTING THE SPEED CONTROL:

After starting the shaker, turn the speed control clockwise to the desired level of shaking action.

It is not necessary to return the speed control to the start or zero position after completion of each shaking cycle. Once a satisfactory shaking speed is found, the control may be left at that setting.

To stop the shaker, turn the switch to **OFF**.

If the shaker will not be used again soon, disconnect the plug from its electrical outlet.

POWER MAINS PROTECTION:

If a fuse or circuit breaker blows, have a qualified person replace them with a properly rated fuse or circuit breaker—these now follow here: The motor lead circuit breaker is: 1 AMP, ETA® #44-100-P10 (Lab-Line Part #330-158-00); The speed control fuse is: 4 AMP, Littlefuse® #313.004, Slo-Blo Type (Lab-Line Part #330-371-00).

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.

CAUTION: DISCONNECT PLUG FROM ELECTRICAL OUTLET BEFORE ATTEMPTING ANY MAINTENANCE OR REPAIR OF THIS UNIT.

MAINTENANCE-FREE DESIGN:

The shaking mechanism is equipped with permanently lubricated bearings and the unit is basically maintenance-free. The only parts that require periodic inspection are the silicone rubber tubing sections under the platform and the motor brushes.

Silicone tubing sections should be inspected periodically. If any cracking is evident, replace the part.

REPLACING PARTS:

WARNING: TO AVOID RISK OF ELECTRIC SHOCK, DISCONNECT EQUIPMENT FROM POWER SOURCE BEFORE REMOVING THE BOTTOM COVER OR PERFORMING ANY SERVICE.

SPEED CONTROL:

Replacement of the speed control requires removal of the bottom cover casting. Turn unit over and remove 6 screws holding cover and lift off.

To replace speed control, remove the control knob (2 setscrews) and a retaining nut to separate it from the panel. Unplug the terminal connections from the old terminal unit and plug them into the new one. Reverse this sequence to put the control unit back into position.

The new control unit must be calibrated in the following manner. Locate the maximum and minimum speed potentiometers on the speed control. Lay the unit on its side and elevate the housing so that the titer plate platform will clear the table to permit an unobstructed area of shaking motion.

MAINTENANCE : (Con't)

SPEED CONTROL: (Con't)

Start the unit and turn the speed control knob fully clockwise (maximum speed). Using a suitable tachometer and a small plastic screwdriver, adjust the maximum speed potentiometer to 1100 rpm.

Next, rotate the speed control fully counterclockwise (minimum speed). Now adjust the "minimum" potentiometer to the point at which platform stops moving.

If the procedure as outlined has been followed carefully, the new speed control is now calibrated.

Replace bottom cover casting and insert and securely tighten the 6 screws that were previously removed.

SILICONE TUBING SECTIONS:

To replace the silicone tubing sections on the platform, remove the 4 screws holding the platform and lift off. Silicone rubber tubing is available from most laboratory supply houses or from Lab-Line. Use 1/4" ID x 7/16" OD and cut to 1-5/16" length.

Reassemble the unit carefully by following the reverse order from the preceding.

CAUTION: DO NOT OPERATE SHAKER WITHOUT PLATFORM. TO DO SO WILL PRODUCE A SERIOUS IMBALANCE AND CAUSE THE ENTIRE UNIT TO WALK. IN ADDITION, EXPOSED ROTATING PARTS WILL BE A HAZARD TO FINGERS.

MOTOR BRUSHES:

Motor brushes should be checked every three months for wear. Turn the unit upside down and remove bottom casting to expose the motor. 2 brushes are located under plastic caps on opposite sides of the lower part of the motor. Unscrew the plastic caps and slide the brushes out. Replace brushes when they are worn down to 3/16" in length. Always replace both brushes even if only one brush is worn down.

SECTION 8

REPLACEMENT PARTS

DESCRIPTION	PART NUMBER
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Bearing Housing Assembly:	015-020-00
Circuit Breaker, 1 Amp, 4625-2 (1):	330-158-00
Cordset:	470-299-00
Eccentric Shaft Assembly:	015-372-00
Motor:	370-275-00
Motor Brush Set:	370-277-00
Platform Mat:	790-316-01
Retaining Ring, 11/16":	500-339-00
Retaining Spring (2):	850-083-00
Rubber Feet (4):	790-078-00
Speed Control:	227-841-00
Speed Control Knob:	560-223-00
Switch:	440-373-00
Timer, 4625, 4625JPN, 4625-1:	270-122-00
Timer, 4625-1:	270-129-00
Transformer:	460-242-00
Tube, Restraining (3):	790-298-01
Wave Washer:	564-354-00
Wiring Schematic, 4625:	228-310-00
Wiring Schematic, 4625-1, 4625JPN, 4625-2:	228-919-00
Wiring Schematic, 4625-1CE:	228-795-00

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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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 NO.: 4625, 4625JPN, 4625-1, 4625-1CE, 4625-2

INSPECTOR _____

DATE _____

PACKED BY _____

CHECKED	ITEM	PART NUMBER	QUANTITY
_____	Operation Manual	057-057-00	1
_____	Warranty Card	528-022-00	1
_____	Voltage Warning Tag (240 Volt)	528-009-00	1