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Barnstead International

MaxQ 2000
Open-Air Platform Shakers

MODEL NO.
SHKA2000
SHKE2000
SHKA2000-1CE
SHKE2000-1CE

057-278-00 • 1/17/05

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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.



Hot Surface
Hot surfaces alert you to a possibility of personal injury if you come in contact with a surface during use or for a period of time after use.



Electric Shock
Cautions you to risks of electric shock.

Your Barnstead|Lab-Line MaxQ 2000 Shaker 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 signals throughout the manual.

This manual contains important operating and safety information. The user must carefully read and understand the contents of this manual prior to the use of this equipment.

Warnings

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. Not rated for use in hazardous atmospheres.
2. Use appropriate hand and eye protection when handling hazardous chemicals.
3. Refer servicing to qualified personnel.
4. Do not modify construction and/or assembly of equipment.
5. Do not remove tags, labels, decals, or other information from the unit.
6. Stand clear of equipment when it is operating.
7. If shaking action will result in the evolution of gases or fumes, carry out the operation in a well-ventilated laboratory hood.

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Note
If installing these shakers on an uneven surface, a leveling kit may be ordered directly from the factory at no charge.

8. Use equipment only for 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.

9. Perform regular maintenance service as specified in this manual and keep unit in good repair. Do not operate with known defects.

10. User is to determine optimum load/speed combinations to ensure that shaker operates safely with a balanced load. Normal operation can include the requirements of the type of studies to be performed I.E. aeration, solubility, mixing, etc. The vessels should be securely clamped before turning on shaker and contain a stopper whenever possible to prevent hazardous substances from being thrown out during shaking action. Shaking action should be set to begin at a slow speed and gradually increased to desired speed. The following stability chart indicates if additional bracing is required.

	10 lbs	20 lbs	30 lbs	40 lbs	50 lbs
100 rpm	No	No	No	No	No
200 rpm	No	No	No	No	No
300 rpm	No	No	No	No	No
325 rpm	No	No	No	No	No
350 rpm	No	No	No	No	No
400 rpm	No	No	No	No	No
450 rpm	No	No	No	**Yes**	**Yes**
475 rpm	No	No	No	**Yes**	**Yes**
500 rpm	No	No	No	**Yes**	**Yes**

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General Specifications

Model No.	SHKA2000	SHKA2000-1CE	SHKE2000	SHKE2000-1CE
Exterior Unit Dimensions in. (cm)				
Width	13.5” (34.4 cm)	13.5” (34.4 cm)	13.5” (34.4 cm)	13.5” (34.4 cm)
Height	6.4” (16.3 cm)	6.4” (16.3 cm)	6.4” (16.3 cm)	6.4” (16.3 cm)
Length	17.4” (44.2 cm)	17.4” (44.2 cm)	17.4” (44.2 cm)	17.4” (44.2 cm)
Weight lbs (kg)	40 lbs (18.1 kg)	40 lbs (18.1 kg)	40 lbs (18.1 kg)	40 lbs (18.1 kg)
Electrical				
Volts (AC)	120	220-240	120	220-240
Amps	0.6	1.0	0.8	0.4
Watts	45	100	45	45
Freq.	50/60	50/60	50/60	50/60

Speed	40 to 400 rpm ±2 rpm	40 to 400 rpm ±2 rpm	15 to 500 rpm ±1 rpm	15 to 500 rpm ±1 rpm
Timer	Continuous or timed from 1-60 mins.	Continuous or timed from 1-60 mins.	Continuous or timed 0.1-999 hours or 0.1-999 min.	Continuous or timed 0.1-999 hours or 0.1-999 min.
Recorder Output	None	None	None	None
RS232 Interface *	None	None	Monitor speed and time with a computer	Monitor speed and time with a computer
Display	Analog tachometer displays speed in rpm	Analog tachometer displays speed in rpm	2 individual LED displays indicate time and speed simultaneously. 3 characters height 1/2 inches (1.27 cm)	2 individual LED displays indicate time and speed simultaneously. 3 characters height 1/2 inches (1.27 cm)
Soft Start Feature	None	None	Software algorithms prevent sudden start/stops	Software algorithms prevent sudden start/stops
Mutable Alarms	None	None	Audible portion of the alarm can be silenced for a period of 1hr. without deactivating the actual alarm condition by depressing any key	Audible portion of the alarm can be silenced for a period of 1hr. without deactivating the actual alarm condition by depressing any key

** Interface cables not to exceed 9.8’ (3m) in length*

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General Specifications

Model No.	SHKA2000	SHKA2000-1CE	SHKE2000	SHKE2000-1CE
Motor	Permanent Magnet DC	Permanent Magnet DC	Solid State Brushless DC	Solid State Brushless DC
Alarms				
Speed	None	None	Audible with flashing LED indicates when speed deviates more than 10% of set point	Audible with flashing LED indicates when speed deviates more than 10% of set point
Speed Shut Off	None	None	When speed deviates 10% of set point, unit will shut down immediately	When speed deviates 10% of set point, unit will shut down immediately
Timer	None	None	Beeps twice when time has expired. Shaking motion stops	Beeps twice when time has expired. Shaking motion stops
Unbalanced Load	None	None	If the unit is running in an unbalanced condition, an alarm will sound and the shaker will stop until the end user corrects the condition. The speed display will flash “bAL” on speed panel LED.	If the unit is running in an unbalanced condition, an alarm will sound and the shaker will stop until the end user corrects the condition. The speed display will flash “bAL” on speed panel LED.

Optional Platform Dimensions in. (cm)	
Catalog Number	**L x W**
30100	Universal 13” x 11” (33 x 27.9 cm)
30110	Universal 18” x 18” (45.7 x 45.7 cm)
30106	Universal 18” x 24” (45.7 x 60.9 cm)

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The Barnstead|Lab-Line MaxQ 2000 series bench top, orbital, open-air shakers are available in one of two control configurations:

- SHKA2000 and SHKA2000-1CE incorporate a mechanical timer for the control of time and speed, adjustable with rotary dials. Analog tachometer displays speed in RPM, verifying accuracy of speed setting.

- SHKE2000 and SHKE2000-1CE control time and speed by a microprocessor controller, adjustable with membrane switches on keypad in one rpm increments. Flashing display indicates power interruption. Pressing any key will clear display. Non-volatile memory maintains speed and time set points in the event of a power interruption. Speed and time set points are automatically reactivated after power is restored.

In addition, both versions offer:

- 3/4 inch (1.9 cm) triple eccentric orbital drive
- 6 permanently lubricated ball bearings
- 35 lb (15.9 kg) platform load capacity at safe speeds less than 400 rpm for SHKA2000/SHKA2000-1CE and less than 500 rpm for SHKE2000/SHKE2000-1CE
- UL, cUL and CE certification

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Environmental Operating Conditions

Pollution Degree**	2
Installation Category**	II
Altitude	2000 meters MSL (Mean Sea Level)
Relative Humidity	20% to 80% maximum, non-condensing
Electrical Supply	120 VAC or 240 VAC
Voltage Tolerance	±10% of normal rated line
Temperature	0°C to 40°C
Product Usage	This product is intended for use indoors **only**

***Refer to IEC 664-1*

Declaration of Conformity

(for CE models only)

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

EMC:	EN 61000-3-2	Limits for harmonic current emissions
	EN 61000-3-3	Limits for voltage fluctuations and flicker
	EN 61326-1	Electrical equipment for measurement, control, and laboratory use; Part I: General Requirements
Safety:	EN 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use; Part I: General Requirements
	EN 61010-2-051	Part II: Particular requirements for laboratory equipment for mixing and stirring

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:

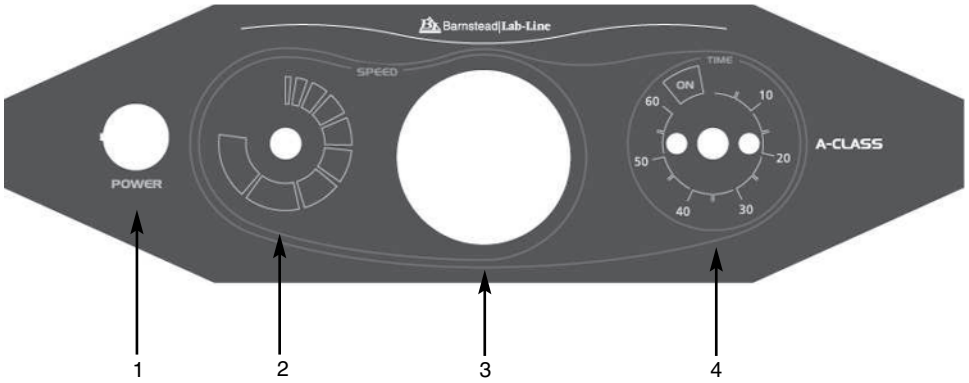
Electrothermal Engineering Ltd.
419 Sutton Road
Southend On Sea
Essex SS2 5PH
United Kingdom

Copies of the Declaration of Conformity are available upon request.

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Caution
It's not recommended to operate shaker in a CO_2 enriched atmosphere. The formation of carbonic acid could cause electrical failures.

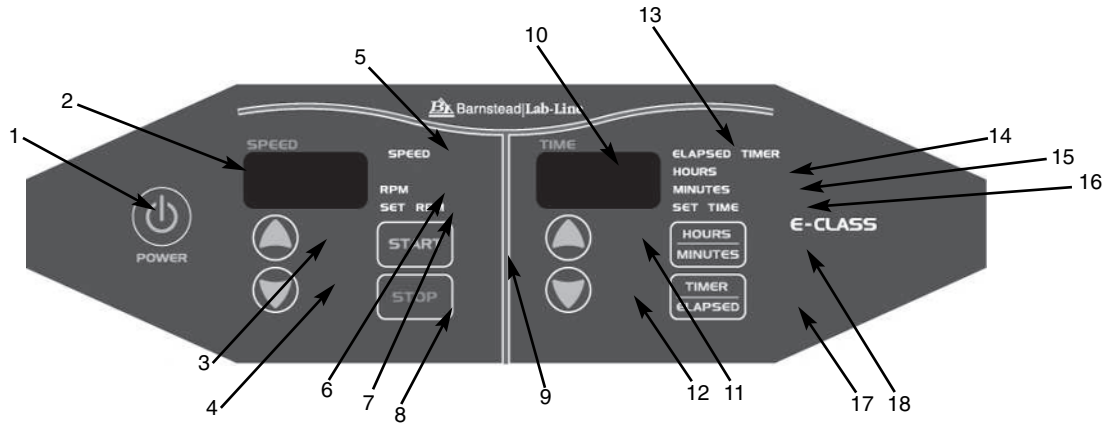
SHKA2000, SHKA2000-1CE, A-Class Control Panel Features



1. Power Switch: Turns power on and off to shaker
2. Speed Control: Sets platform rotation speed
3. Speed Tachometer: Analog display of platform rotation speed
4. Time(r): Allows user to choose either continuous or timed operation

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SHKE2000, SHKE2000-ICE, E-Class Control Panel Features



1. Power Switch: Turns power on and off to shaker
2. Speed Display: 3 digit LED indicates actual or set point speed
3. Up Arrow Key: Increases platform rotation speed
4. Down Arrow Switch: Decreases platform rotation speed
5. Speed Light: Red light Illuminates when a locked rotor or over-speed condition exists
6. RPM Light: Illuminates to indicate actual speed
7. Set RPM Light: Illuminates when speed is being set
8. Stop Switch: Stops platform rotation
9. Start Switch: Starts platform rotation
10. Time(r) Display: 3 digit LED indicates time remaining or elapsed time
11. Up Arrow Key: Increases shaking time
12. Down Arrow Key: Decreases shaking time
13. Elapsed Timer Light: Indicates accumulated time
14. Hours: Timer indicates hours
15. Minutes: Timer indicates minutes
16. Set Time: Illuminates when time is being set
17. Timer/Elapsed: Allows the user to choose elapsed time operation, Elapsed, or timed operation, Timer
18. Hours/Minutes Membrane Switch: Allows user to choose timing operation in either hours or minutes

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Unpacking and 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 specify and sign for the damage on you 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 properly.

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.

Unpacking

Use the packing list below when unpacking to verify that the complete unit has been received. Do not discard packing materials until all is accounted for.

The following items are included in the shipment:
Model No. SHKA2000, SHKE2000, SHKA2000-1CE, or SHKE2000-1CE
Operator's Manual- 057-278-00
Product Registration Card- 528-022-00
Mounting Plate Mat- 790-316-11
Thumb Screw Knob- 562-184-10
Inspection Tag- 528-028-00

If any items are missing, contact Barnstead International at 1-800-553-0039.

Location

Put the shaker on a level table or bench capable of supporting the weight of the shaker with any accessories while in operation. Place shaker near an electrical outlet that matches the unit nameplate requirements. Allow clearance around the unit for free air convection, accessory attachments and user convenience.

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Warning
Do not operate shaker with a damaged electrical cord.

Electrical Requirements

SHKA2000 and SHKE2000 require a 120 VAC, 50/60 Hz power source. They are 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 replaces the outlet with a new, grounded type.

SHKA2000-1CE and SHKE2000-1CE require a 240 VAC, 50/60 Hz power source. They are supplied with a Schuko cordset.

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.

To eliminate hazard of electrical shock, make sure floor around shaker is dry. In the event of accidental spilling or splashing of liquids, clean up and/or neutralize the spilled liquids before continuing.

Leave shaker disconnected when not in use.



Caution
Do not operate shaker with an unbalanced load. Platforms should be loaded for optimum stability and operation. Do not lift shaker by the platform.

Platform Installation

1. Select the appropriate platform for the vessels to be shaken. A wide variety of platforms and accessories are available:

   • Dedicated platforms have the maximum number of flask clamps attached for safe operation.

   • Combination platforms allow the user to shake a wide variety of different sized vessels on the same platform.

2. Carefully position the platform horizontally over the shaker's mounting plate, allowing the 4 thumb knobs on the sides of the mounting plate to line up with the corresponding cut outs on the platform's sides.

3. Once the platform is in place over the outside edges of the mounting plate, tighten the 4 thumb knobs to secure platform to the mounting plate.

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Warning
Do not operate the shaker at speeds that will cause the contents of vessels to be thrown out.

Flask Clamp Installation

1. Carefully place the desired vessel in the clamp by first pulling the clamp spring far enough apart to enable the flask base to be positioned inside the clamp. Gently slide the flask into its proper position securing it to the wider bottom of the clamp. The spring will hold the neck of the flask securely in place and provide security during shaking.

   • Each flask clamp contains a support spring located at the narrow top of the clamp.

   • Depending on the size of the clamp, the clamp base may contain one or several screws necessary to secure the clamp to the platform. All screws provided with the clamp must be properly attached to the platform.

2. Make sure all vessels are securely clamped before turning on unit.

Wherever possible, vessels should contain a stopper to prevent hazardous substances being thrown out during the mixing action.

Test Tube Rack Installation

1. Position the test tube rack on the combination platform so that the cutouts on the rack's outside bottom are aligned with corresponding mounting holes on the platform. There are two cutouts on each side of the rack.

2. Secure the rack to the platform with mounting screws provided with the rack.

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Operation

SHKA2000, SHKA2000-1CE

Please refer to page 8 for control panel reference.



Caution
It is recommended that shaking action be started at a low speed in order to check that all vessels are secure and that no spilling of contents will occur.



Warning
Do not use shaker to mix flammable materials or where the transfer of mechanical energy to glass could cause glass breakage.



Note
Shaker will not operate if the timer is in the off position.

Power Switch

1. Depress top portion of power switch to turn on shaker.

2. Depress bottom portion of power switch to turn off shaker.

Speed Control and Display

1. Slowly rotate the knob on the solid-state speed control clockwise to increase speed and counterclockwise to decrease speed. The markings on the outside of the dial are for reference purposes only.

2. The speed control tachometer provides an analog readout of the actual platform rotation speed up to a maximum of 400 rpm.

Time(r)

1. From the 12 o'clock off position, rotate timer knob counterclockwise to the ON position to initiate continuous operation.

2. For timed operation, rotate timer knob clockwise from 1 minute to 60 minutes. The markings on the side of the dial are in 5-minute increments.

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SHKE2000 and SHKE2000-1CE

Please refer to page 9 for control panel reference.



Note
There will be a 3 second delay from the time power is turned on to the time the shaker is activated. Control panel will illuminated when shaker power is activated.

Turning Shaker On

Beginning with the shaker power being turned off:

1. Press membrane POWER switch once (I) to turn on shaker.

2. Press membrane POWER switch a second time (0) to turn off shaker.



Note
Speed can be changed without pressing the start or stop membrane switches. Simply press the appropriate up or down membrane switch until desired rpm is reached.

Setting Shaking Speed

1. Hold down appropriate arrow membrane switch in the SPEED module of the control panel, up or down, until desired speed is set up to 500 rpm. SET RPM light will illuminate.

2. Press START membrane switch to begin shaking. RPM light will illuminate.

3. Press STOP membrane switch to end shaking. SET RPM light will illuminate.

Calibrating Shaking Speed

1. Choose a speed for which calibration is desired by using the shaker's UP or DOWN arrow keys.

2. Measure current shaker speed by using a digital hand held tachometer.

3. If the tachometer reading matches the shaker display, no calibration is necessary. If the tachometer reading is different from the shaker's display, then calibration is required.

4. To get into the calibration mode, hold down the START key, press and release the STOP key, then release the START key.

5. The decimal point on the SPEED display will flash indicating you are in the calibration mode.

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6. Use the UP or DOWN arrow keys to set the shaker speed to match the tachometer's read-out.

7. Press STOP key to enter the new speed value.

8. Press START key to exit the calibration mode.

Setting Timer for Timed Shaking

1. Press TIMER/ELAPSED membrane switch until TIMER and SET TIME lights are illuminated. The HOURS or MINUTES light will also light up at this point depending on which option was previously chosen.

2. Press HOURS/MINUTES membrane switch for desired timing mode.

3. Hold down appropriate arrow membrane switch in the TIME module of the control panel, up or down, until desired timing cycle is set from 0.1 hour up to 999 hours, or from 0.1 minute to 999 minutes depending on which timing mode is chosen. SET TIME light will illuminate.

4. Press START to begin timed shaking countdown will begin from time set. TIMER and MINUTES or HOURS lights will illuminate and timer will count down from time selected. An audible alarm will sound at the end of the timing cycle and platform rotation will cease.

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Setting Timer for Continuous Shaking

1. Press TIMER/ELAPSED membrane switch until ELAPSED light is illuminated. The HOURS or MINUTES light will also light up at this point depending on which option was previously chosen.

2. Press HOURS/MINUTES membrane switch for desired timing mode.

3. TIME display should show 000. Press START to begin timed shaking. Timer will begin to count up and will display accumulated time in display window. Platform rotation will cease and TIME display will flash when ELAPSED time reaches 999 minutes or 999 hours.

RS232 Interface Port

The RS232 interface port is located on the left side rear of the shaker cabinet and requires the use of a laptop or desk top computer running Microsoft Windows 98 or newer operating system.



RS232 Interface Port

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Hyperterminal Configuration

1. Power up the host computer and close any running applications.

2. Open the HyperTerminal application by clicking on “Start” \ “Programs” \ “Accessories” \ “Communications” \ “HyperTerminal.”

3. In the “Connection Description” box, enter the name “Max Q Shaker” and choose an icon and click “OK.”

4. In the “Connect To” box, verify that “COM1” is selected under “Connect Using.” Click “OK.”

5. In the “COM1 Properties” box \ “Port Settings” folder select the following options:

   Bits per second: ⇨ 19200
   Data bits: ⇨ 8
   Parity: ⇨ None
   Stop bits: ⇨ 1
   Flow control ⇨ None

   After verifying the above settings, click “OK.”

6. In the main dialog box click on “File” \ “Save.”

7. Exit the program by clicking on “File” \ “Exit” \ “Yes”.

8. Verify the program was saved by going to “Start” \ “Programs” \ “Accessories” \ “Communications” \ “HyperTerminal” \ “Max Q Shaker.”

9. This completes the configuration of HyperTerminal.

10. Turn shaker off and connect computer (COM 1) to shaker (COM PORT) with DB-9 serial printer cable.

11. Start HyperTerminal by clicking on “Max Q Shaker.”

12. Power up shaker. Shaker will screen print



Note
RS232 Interface Port is for output only. Interface cables must not exceed 9.8’ (3m) in length.

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Note
Make no attempt to service or repair a Barnstead|Labline product under warranty before consulting your Barnstead International 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 Barnstead International Customer Service at 800-553-0039. No merchandise should be returned directly to Barnstead International without prior approval from Barnstead International.



Warning
Disconnect plug from electrical outlet before attempting any maintenance or repair of this unit.



Note
The shaking mechanism is equipped with sealed ball bearings which do not require further lubrication or adjustment.

Maintenance

Cleaning

Wash the exterior of the unit with a soft cloth using a solution of mild soap and water, rinse off with clean water and dry thoroughly.

Suggested with every 3 months of constant use

Any internal adjustments or repairs must be performed by a qualified service representative.

Remove the platform by loosening 4 flat head screws in the platform center. Remove the sheet metal panel under the platform to expose the belt and interior parts. Inspect the drive belt for wear and proper tension. Order a replacement if necessary.

SHKA2000 and SHKA2000-1CE only

1. Take out the 3 large motor mount screws and lift the motor out.

2. 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" (.48 cm) in length.

3. Belt tension is automatically set by the location of the motor and is not adjustable.

4. To align a pulley, loosen the motor pulley set screw, slide the pulley up or down into alignment then securely tighten the motor pulley set screw.

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Troubleshooting

Problem	Possible Causes	Solutions
Shaker doesn't operate	Check if power cord is plugged in	Plug in
	Check if power supply matches requirements on data label	Locate the power supply that matches unit requirements
	E-Class, Check fuse	Replace fuse
	E-Class, check for flashing lights on control panel	Press any membrane switch on control panel
	E-Class, check if elapsed timer is flashing	Reset timer
	A-Class, check if timer is in "off" position	Set timer for continuous or timed operation
	A-Class, check if power switch is functioning	Replace if defective
Platform doesn't rotate or has erratic speed	Check for power to motor	Replace motor if defective
	Check drive belt	Replace if worn, broken or slipped off pulley
	A-Class, check for power to speed control	Replace if defective

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Replacement Parts

Part No.	Description
057-278-00	Operation Manual
150-318-00	Drive Belt
227-598-00	Speed Control, SHKA2000
229-419-00	Speed Control, SHKA2000-1CE
228-612-00	Tachometer PCB SHKA2000, SHKA2000-1CE
660-111-00	Tachometer SHKA2000, SHKA2000-1CE
270-135-00	Timer, SHKA2000, SHKA2000-1CE
330-389-00	Fuse, 3 Amp
370-388-00	DC Motor SHKA2000, SHKA2000-1CE
370-390-00	Brushless DC Motor SHKE2000, SHKE2000-1CE
440-396-00	Power switch, Round SHKA2000, SHKA2000-1CE
470-262-00	Line Cord, SHKA2000, SHKE2000
470-305-00	Line Cord, CE, SHKA2000-1CE, SHKE2000-1CE
560-274-00	Knob, Speed Control SHKA2000, SHKA2000-1CE
562-184-10	Thumb Screw Knob
790-078-00	Mounting Feet
790-316-11	Mounting Plate Mat
019-455-00	Shaker Mechanism
370-272-01	Motor Brush/Spring Replacement, SHKA2000, SHKA2000-1CE
019-533-02	Main Microprocessor SHKE2000, SHKE2000-1CE
019-534-00	Power/Motor/Drive PCB SHKE2000, SHKE2000-1CE
019-535-00	Display/Time/Speed PCB, SHKE2000, SHKE2000-1CE
229-309-00	Display/Time/Speed PCB, SHKE2000, SHKE2000-1CE
Schematics	
D-229-307-00	Main Microprocessor, SHKE2000, SHKE2000-1CE
D-229-308-00	Power/Motor/Drive PCB, SHKE2000, SHKE2000-1CE
D-229-309-00	Display/Time/Speed PCB, SHKE2000, SHKE2000-1CE
Wiring Diagrams	
D-229-318-00	SHKA2000
D-229-319-00	SHKE2000
D-229-332-00	SHKA2000-1CE
D-229-345-00	SHKE2000-1CE

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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 International** 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 563-556-2241 or 800-553-0039.

Prior to returning any materials to **Barnstead International**, please contact our Customer Service Department for a “Return Goods Authorization” number (RGA). Material Returned without an RGA number will be returned.

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Warranty

Barnstead International (“Barnstead”) warrants that the drive mechanism for this product manufactured by Barnstead shall be free of defects in materials for the lifetime of the unit, the remainder of this product shall be free of defects in materials and workmanship for a period of 60 months from the first to occur of (i) the date the product is sold by Barnstead or (ii) the date the product is purchased by the original retail customer (the “Commencement Date”). Except as expressly stated above,

BARNSTEAD 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 Barnstead must perform all warranty inspections. In the event of a defect covered by Barnstead ’s warranty, Barnstead shall, as its sole obligation and exclusive remedy, provide free replacement parts to remedy the defective product

Barnstead ’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 Barnstead 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 Barnstead .

IN NO EVENT SHALL BARNSTEAD 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 the authorized Barnstead International dealer nearest you may be obtained by calling 1-800-446-6060 (563-556-2241) or writing to:

BarnsteadInternational
Your Lab Starts Here
2555 Kerper Boulevard
Dubuque, Iowa 52001-9918
Phone: 563-556-2241 or 800-553-0039
Fax: 563-589-0516
E-mail: mkt@barnstead.com
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