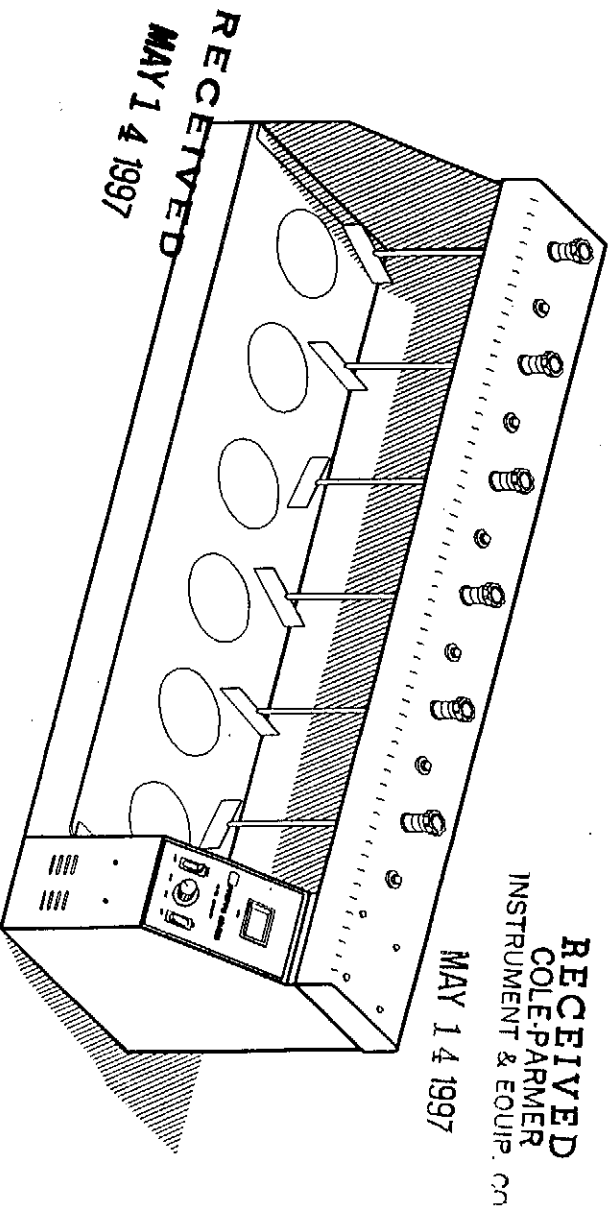


99521-00
-05

PB-700™

Standard Jar Tester



Instruction Manual

CAUTION:
DO NOT CONNECT THE EQUIPMENT TO A SOURCE OF ELECTRIC POWER AND DO NOT ATTEMPT TO OPERATE THE EQUIPMENT UNTIL THE INSTRUCTION MANUAL HAS BEEN READ AND UNDERSTOOD. PLEASE CONTACT PHIPPS & BIRD IF YOU HAVE ANY QUESTIONS ABOUT THE EQUIPMENT.



PHIPPS & BIRD™

A Division of General Medical Manufacturing Co.
Richmond, Virginia 23230 U.S.A.



MAY 02 1997



NOTICE:
WHEN AND WHEREVER THIS SYMBOL IS ATTACHED TO THE OUTSIDE OF THE EQUIPMENT, REFER TO THE INSTRUCTION MANUAL. PLEASE READ ALL APPLICABLE CAUTIONS, WARNINGS AND INSTRUCTIONS. IT IS THE RESPONSIBILITY OF THE OPERATOR TO REFER TO THE INSTRUCTION MANUAL TO PRESERVE THE PROTECTION AFFORDED BY THE EQUIPMENT.

PB-700™ Standard Jar Tester - Specifications

This equipment is designed to be operated under the following conditions:

- indoor use
- altitude up to 2000 m
- 5 °C to 40 °C (41 °C to 104 °C)
- relative humidity 50% - 80%
- supply voltage should not exceed +/- 10% of the nominal voltage
- transient over voltage category II

If the equipment is used in a manner inconsistent with the above environmental conditions, the protection provided by the equipment and the functional capabilities of the equipment may be impaired.

Electrical Requirements:

Model 7790-701:	120 volt AC, 60 Hz, 1 ampere
Model 7790-702:	220 volt AC, 50 Hz, .75 amperes
Model 7790-703:	220 volt AC, 60 Hz, .75 amperes

Fluorescent Lamp: F30T12/CW/RS

Fuses:

Model 7790-701:	1 ampere, type 3AG, slo-blo
Model 7790-702:	1 ampere, type 5x20mm, time lag
Model 7790-703:	1 ampere, type 5x20mm, time lag

Dimensions: 9-1/4"(W) x 42-1/4"(L) x 15-1/2"(H)
23.5(W) cm. x 107.3 cm.(L) x 39.4 cm.(H)

Weight: 49 lb.
22.2 kg.

Stirring Speed:
Low range: 0-35 r.p.m.
High range: 30-300 r.p.m

Stirrer Shafts and Paddles: Type 304 Stainless Steel

A STATEMENT ABOUT OUR LIMITED WARRANTY

PHIPPS & BIRD is proud of its reputation as a manufacturer of dependable products.

If you should experience any difficulty with our products, just phone, fax or write. We'll make every reasonable effort to resolve the difficulty to your satisfaction within the terms of our WARRANTY. You may contact Phipps & Bird at:

Shipping Address: 1519 Summit Ave., Richmond, VA 23230

Mailing Address: P. O. Box 27324, Richmond, VA 23261-7324

Via Phone:

Inside U.S. tollfree: 800/955-7621

Outside U.S.: 804/254-2737

Via fax machine: 804/254-2955.

E-mail address: phippsbird@aol.com

Web site: www.phippsbird.com

Please see the last page of this manual for the complete text of the LIMITED WARRANTY. It is important that you complete and return the Warranty Card provided. This is the only way to validate your LIMITED WARRANTY coverage. The Warranty Card is self-addressed and requires no postage when mailed in the United States.

CAUTION

IF THE EQUIPMENT IS USED IN A MANNER INCONSISTENT WITH THAT EXPRESSED BY PHIPPS & BIRD IN THIS INSTRUCTION MANUAL, THE PROTECTION PROVIDED BY THE EQUIPMENT AND THE FUNCTIONAL CAPABILITIES OF THE EQUIPMENT MAY BE IMPAIRED.

UNPACKING INSTRUCTIONS

The PB-700™ JarTester is partially disassembled for ease in shipping and to avoid damage in shipment. Upon receipt, carefully unpack the unit and verify that the following are included in the package:

- 1 ea. PB-700™ Standard JarTester Unit (Main assembly)
- 1 ea. Power Cord
- 6 ea. Paddles
- 6 ea. Paddle Shafts w/ knobs, adjustment collars & thumbscrews.
- 6 ea. 1000 ml. Round Laboratory Beakers
- 1 ea. Fluorescent Light Tube
- 1 ea. Flat Blade Screwdriver with 5/64" Hex

If all items are not found please contact Phipps & Bird as soon as possible.

- ☞ Save all packing material and the shipping carton if in the event your PB-700™ needs to be returned for repair or service.

What to do if shipping damage (Concealed Damage) is discovered?

The shipping carton and packaging have been specially designed to protect the equipment against damage during shipment and short-term storage.

If, upon opening the shipping carton and removing the equipment, the equipment is found to be damaged, the CARRIER must be notified immediately. The carrier will advise you what to do. The carrier may request that the damaged equipment be set aside for their inspection. If the carrier chooses to waive the inspection, a NOTICE OF WAIVER should be requested by you for your records.

If the carrier honors the damage claim, the equipment becomes its property. UNDER NO CIRCUMSTANCES SHOULD YOU DISPOSE OF DAMAGED GOODS WITHOUT WRITTEN CONSENT OF THE CARRIER.

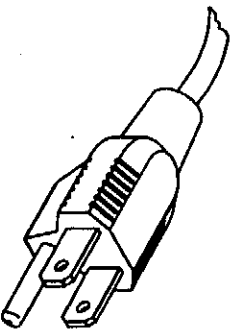
CAUTION

DO NOT CONNECT THE EQUIPMENT TO A SOURCE OF ELECTRICAL POWER AND DO NOT ATTEMPT TO OPERATE THE EQUIPMENT UNTIL THE OPERATING INSTRUCTIONS HAVE BEEN READ AND UNDERSTOOD. SEE THE ELECTRICAL REQUIREMENTS SECTION FOR INFORMATION REGARDING THE PROPER SOURCE OF ELECTRICAL POWER. PLEASE CONTACT PHIPPS & BIRD IF YOU HAVE ANY QUESTIONS.

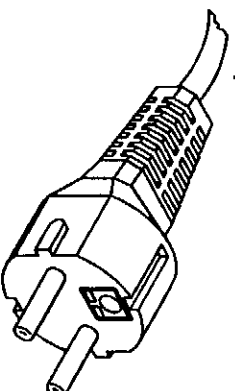


ELECTRICAL REQUIREMENTS

This equipment is designed to operate on nominal 120 volt, 60 Hz (cycle) or 220 Volt, 50/60 Hz AC current. Unless requested otherwise by the customer, PHIPPS & BIRD normally supplies 120 Volt, 60 Hz apparatus. The customer should examine the plug on the power supply cord. The plug types shown below are the two types used on the equipment. The number and orientation of the prongs will indicate the electrical requirements of the instrument. In addition, the electrical requirements of each unit is indicated on the serial no. label on the back of the jarstester adjacent to the power (mains) receptacle.



120 Volt, 50/60 Hz AC



220 Volt, 50/60 Hz AC

For either 120 or 220 volts, a fused electrical supply should be used (time delay fuse or circuit breaker recommended). Although not required, it is also recommended that a separate circuit, serving only this instrument, be provided, and that an extension cord not be used. If an extension is used, it should be a three-wire type (to provide a grounding circuit).



YOUR INSTRUMENT *MUST* BE ELECTRICALLY GROUNDED.

RECOMMENDED GROUNDING METHOD

The 120 volt power supply cord is provided with a three-pronged grounding plug, which should be plugged into a mating grounding type receptacle in accordance with National Electrical Code and applicable local codes and ordinances. When a proper grounding type receptacle is not available, the existing receptacle should be changed to the proper receptacle and grounded in accordance with applicable codes.



DO NOT UNDER ANY CIRCUMSTANCES, REMOVE THE POWER PLUG'S GROUND PRONG. DO NOT OPERATE THE EQUIPMENT IF THE GROUND PRONG IS MISSING.

The 220 volt power supply cord is provided with a CEE 7/7 standard two-prong plug which should be plugged into a mating grounding type receptacle in accordance with the ordinances of the safety agencies of the local community, province, state or country. When a proper grounding type receptacle is not available, the existing receptacle should be changed to the proper receptacle and grounded to earth. Phipps & Bird suggests that the operator DOES NOT attempt to use a grounding adapter with a 220 volt unit.

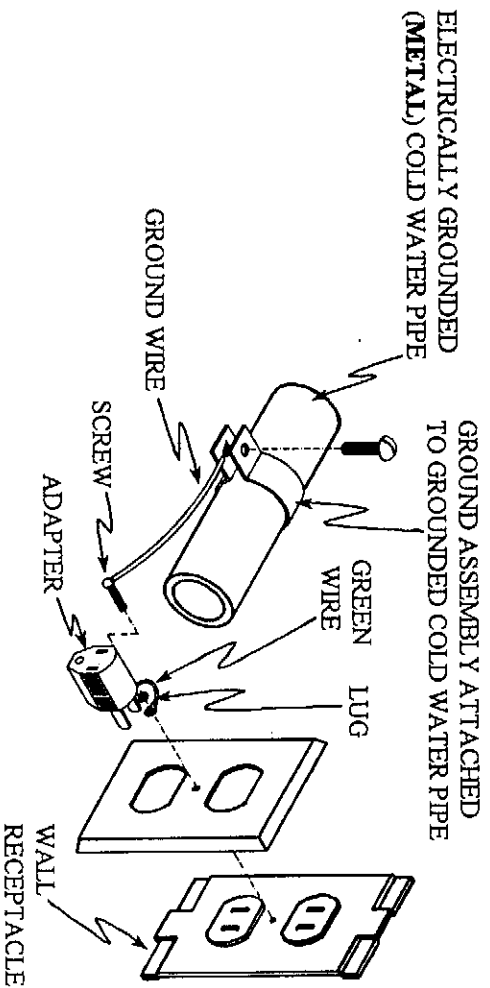
ALTERNATE GROUNDING METHOD(120 Volt AC)

If changing and properly grounding the receptacle is impossible and where local codes permit (consult your electrical inspector), a grounded adapter may be plugged into the existing three-pronged electrical power supply receptacle.

To ground the adapter, the plug of the green wire on the adapter must be connected to the receptacle cover plate screw. From this same screw a separate ground wire must be connected to a grounded cold water pipe which has metal continuity to electrical ground, uninterrupted by plastic, rubber or other electrically insulating connectors (see figure below).



CAUTION: DO NOT GROUND TO A GAS SUPPLY PIPE.

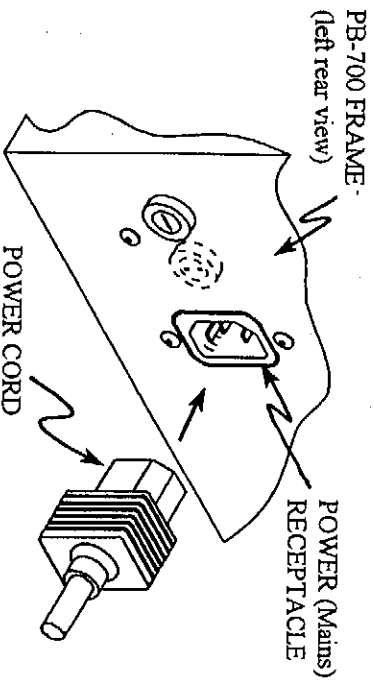


ASSEMBLY INSTRUCTIONS

Select a reasonably level, stable surface for locating the PB-700™ JarTester. The JarTester should be located with access to electrical power as described in ELECTRICAL REQUIREMENTS. When placing the JarTester allow a minimum of 2" (50 cm) between the back of the JarTester and any wall or structure. Do not block the ventilation holes on the back of the JarTester.

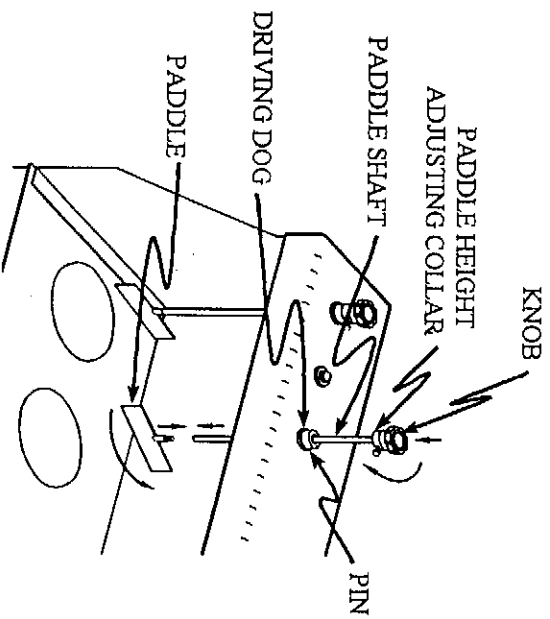
POWER CORD ASSEMBLY

Unpack the power cord and insert the chassis end of the cord into the POWER (Mains) RECEPTACLE on the stirrer frame (see adjacent figure). Insert the plug completely into the receptacle so as to make full electrical contact.



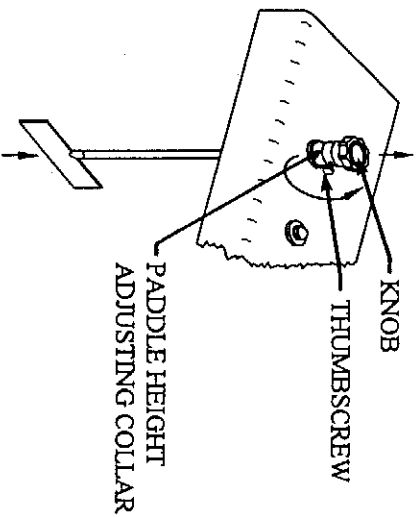
PADDLE ASSEMBLY

Unpack the six (6) PADDLE SHAFTS and six (6) PADDLES. Insert a PADDLE SHAFT into a DRIVING DOG on the JarTester. Ensure that the HEIGHT ADJUSTING COLLAR is engaged with the PIN on the DRIVING DOG. Hold the PADDLE SHAFT by the KNOB and screw the PADDLE onto the bottom of the PADDLE SHAFT. Tighten the PADDLE until snug, but do not tighten to the point that it will be difficult to remove. Repeat for all six (6) paddles (see adjacent figure).

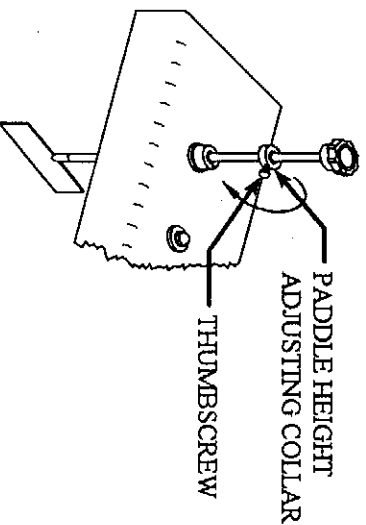


ADJUSTING PADDLE HEIGHT

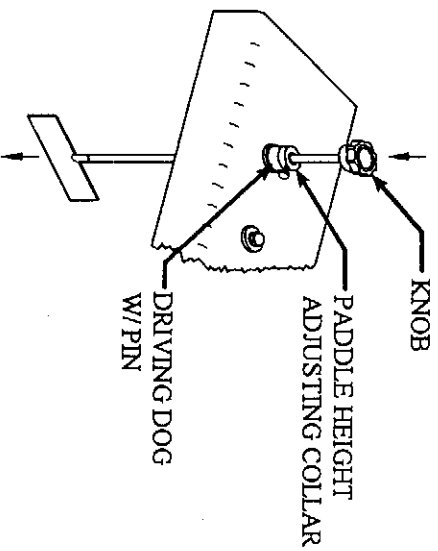
The paddles on the PB-700™ can be raised and lowered by means of the PADDLE HEIGHT ADJUSTING COLLARS. To raise or lower the paddles :



1. Grab **KNOB** and raise paddle.
2. Turn **THUMBSCREW** counterclockwise and loosen **PADDLE HEIGHT ADJUSTING COLLAR** from paddle shaft.



3. Set **PADDLE HEIGHT ADJUSTING COLLAR** at desired height and tighten **THUMBSCREW** to paddle shaft.



4. Lower **KNOB** until **PADDLE HEIGHT ADJUSTING COLLAR** engages with **PIN** on **DRIVING DOG**.

STIRRER OPERATING INSTRUCTIONS



CAUTION
IN ORDER TO GUARD AGAINST PERSONAL INJURY, PHYSICAL CONTACT WITH THE STIRRER BLADES AND KNOBS SHOULD BE AVOIDED WHEN THE STIRRER IS OPERATING AND THE PADDLES ARE ROTATING.

The only control devices on the Stirrer are the ON/OFF POWER SWITCH, SPEED CONTROL (RPM) KNOB and the HIGH/LOW SWITCH. These controls are located on the front panel of the MOTOR CONTROL BOX. Below are brief descriptions of the control devices.

ON/OFF POWER SWITCH - Controls power to JarTester. When in the ON position the ILLUMINATOR is always lit.

SPEED CONTROL (RPM) KNOB - Controls the speed in RPM of the paddle blades.

HIGH/LOW SWITCH - Toggles between the HIGH and LOW speed ranges for the paddles.

The RPM DIGITAL DISPLAY is located above the control devices on the front panel. The operating speed of the stirrer blades is indicated by the display in revolutions per minute (RPM)

SPEED CONTROL

When the HIGH/LOW SWITCH is in the LOW position and the SPEED CONTROL KNOB'S is in its extreme counter-clockwise position the stirrer blades rotation is OFF. Before plugging the power supply cord into a power receptacle, make certain the speed control knob is in its extreme counter-clockwise position. This prevents unintentional rotation of the stirrer shafts and paddles (when the power supply cord is plugged into a "live" power receptacle).

The RPM speed of the stirrer paddles are adjustable by turning the SPEED CONTROL KNOB clockwise. The HIGH/LOW SWITCH toggles the speed control between it's HIGH and LOW ranges. Speed is adjustable from 0-35 RPM's with the HIGH/LOW SWITCH on LOW range and between 30-300 RPM's with the HIGH/LOW SWITCH on HIGH range. The HIGH/LOW SWITCH may be toggled while the stirrer is operating.

Once plugged in, the stirrer will provide a continuous range of near-constant stirring speeds from zero to 300 RPM. The speed is electronically controlled and regulated.

MAINTENANCE

The PHIPPS & BIRD PB-700™ Standard Jar Tester is designed and constructed to provide long-term service with a minimum of maintenance. The operator should only need to perform the following:

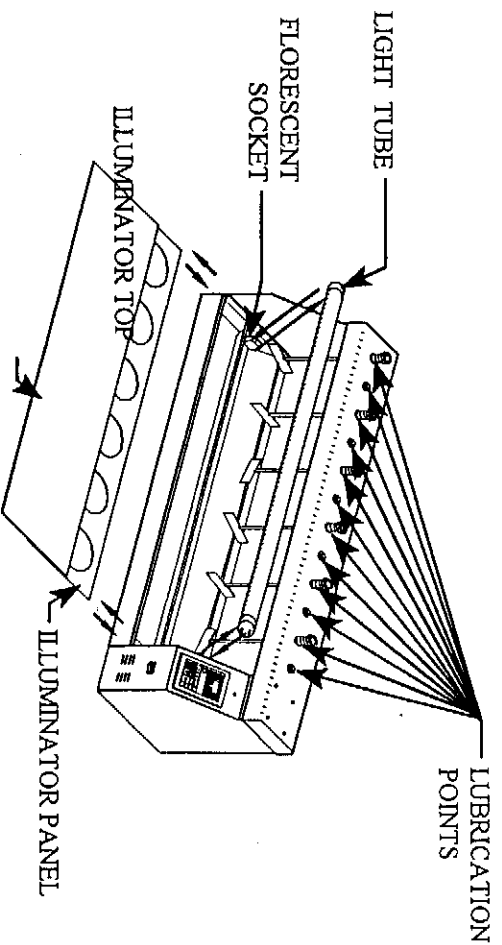
- **LUBRICATE BEARINGS.** Lubricate the Paddle Bearings and the Idler Bearings at least once a year. A good quality multi-purpose, lightweight (SAE 10 or 15) oil is satisfactory. A small drop is sufficient. No disassembly is required to perform this simple maintenance. See lubrication points in figure below.

CAUTION

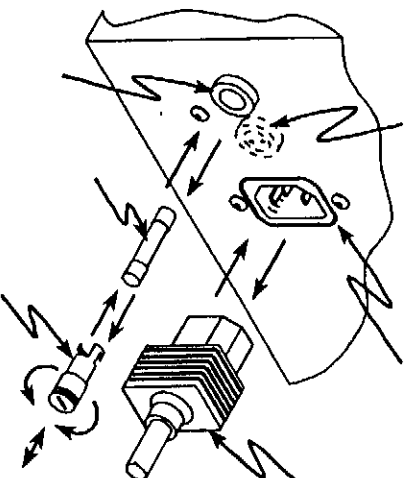
DISCONNECT THE JARTESTER FROM ITS POWER SOURCE BEFORE REPLACING THE LIGHT TUBE. THE FLORESCENT LIGHT TUBE CONTAINS GASES, USE CAUTION TO PREVENT BREAKAGE.



- **REPLACE ILLUMINATOR LIGHT TUBE** (see figure below). After extended use the florescent LIGHT TUBE may burn out and will require replacement. Using both hands, slide the ILLUMINATOR TOP and the ILLUMINATOR PANEL from the JarTester frame. Grasp the LIGHT TUBE and turn approximately one-quarter turn so that the pins on the end of the LIGHT TUBE align with the slots on the FLORESCENT SOCKET. Lift the old LIGHT TUBE from the FLORESCENT SOCKETS and discard the tube. Install the new tube by sliding the end-pins of the LIGHT TUBE into the slots on the FLORESCENT SOCKETS. Turn the tube approximately one-quarter turn until the tube fits snugly in the fixture. Slide the ILLUMINATOR TOP and the ILLUMINATOR PANEL back into place into the JarTester frame.



- REPLACE FUSE.** The FUSE(s) on your PB-700™ Standard JarTester may on occasion require replacement. The JarTester will not function if the FUSE is blown or defective. To check to see if a FUSE is defective, first unplug the POWER CORD from the MAINS RECEPTACLE. Locate the FUSE HOLDER(s) on the back of the JarTester unit (see adjacent figure). Use the small flat blade SCREWDRIVER included with your JarTester and insert the blade into the slot on the FUSE CARRIER. Push the FUSE CARRIER in and make a 1/4 counter-clockwise turn until the carrier releases from the FUSE HOLDER and springs out. The FUSE CARRIER and FUSE can now be removed. Remove the FUSE from the carrier and check to see if the FUSE has a "break" or appears "blown". If the fuse appears defective, replace it with a 1 amp, type 3AG Slo-Blo Fuse.



Note: 220 volt JarTesters require two (2) 1 amp, type 5x20mm Time Lag fuses.

To replace the new or old fuse(s), insert the FUSE in the FUSE CARRIER. Insert the fuse and carrier into the FUSE HOLDER. Insert the flat blade screwdriver into the slot on the carrier and gently push while turning clockwise until the carrier recedes into the holder and locks in place. Reinsert the POWER CORD into the POWER RECEPTACLE. The JarTester is now ready for use.



DO NOT ATTEMPT TO SERVICE THE ELECTRONIC COMPONENTS. THE MOTOR SPEED CONTROL CIRCUIT AND THE RPM INDICATOR CIRCUIT INCLUDE SEVERAL POTENTIOMETERS. THESE ARE SET AT THE PIPPS & BIRD PLANT AND MUST NOT BE DISTURBED. IF THESE ADJUSTMENTS ARE ALTERED, SPECIAL INSTRUMENTS WILL BE REQUIRED TO RESTORE PROPER CALIBRATION (OR, THE EQUIPMENT MUST BE RETURNED TO PIPPS & BIRD FOR RECALIBRATION).

- CLEANING.** Use a mild household detergent when cleaning the PB-700™ JarTester. Disconnect the JarTester from its power source. Dampen a cloth with the cleaner and wipe the soiled area of the JarTester. Allow the unit to dry before reconnecting to its power source.

CAUTION:

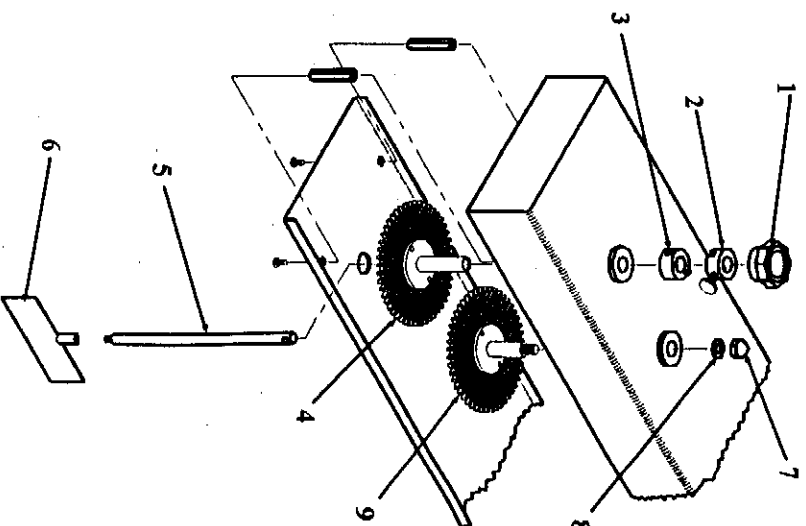
DO NOT ATTEMPT TO IMMERSE THE JARTESTER IN WATER OR LIQUID WHEN CLEANING OR OTHERWISE. DO NOT POUR LIQUIDS INTO OR ONTO THE JARTESTER. IF WATER OR ANY LIQUIDS ARE SPILLED ONTO OR INTO THE JARTESTER, UNPLUG THE UNIT FROM ITS POWER SOURCE IMMEDIATELY. WIPE ALL ACCESSIBLE LIQUIDS WITH A DRY CLOTH AND THEN ALLOW FOR ALL LIQUIDS TO DRY BEFORE PLUGGING THE UNIT TO ITS POWER SOURCE



REPLACEMENT PARTS LIST

ITEM NO.	DESCRIPTION	PART NUMBER
Paddle and Gear Train:		
1	Paddle Knob	351000010
2	Paddle Height Adjusting Collar	977904020
3	Driving Dog	977904014
4	Paddle Gear and Shaft	977904012
5	Paddle Shaft	100023302
6	Paddle Blade with Stem	977909008
7	Acorn Nut, 1/4-28	383025028
8	Washer	803025020
9	Idler Gear and Shaft	977904013
Misc:		
	Acrylic Illuminator Top	977909012

Note: ITEM NO. refers to the numbered items in the adjacent figure.



LIMITED WARRANTY

Phipps & Bird, a division of General Medical Manufacturing Company ("the Company") warrants that this equipment will be free from defects in material and workmanship under normal use and service for a period of one(1) year from the date of shipment. This warranty extends solely to the original purchaser of the equipment who uses same and may not be assigned or otherwise transferred to any other person. The Company's liability under this warranty is limited solely to replacing or repairing, at the discretion of the Company, the equipment that is defective; provided, however, that the Company shall not be liable under this warranty unless (a) the Company is notified promptly in writing, at the address printed on the warranty card, by the owner, upon the discovery of a defect, (b) if requested by the Company, defective equipment is promptly returned to the Company, and © the Company determines that the malfunction of the equipment was not caused by misuse, neglect, improper installation, repair, alteration or accident. IN NO EVENT SHALL THE COMPANY BE LIABLE TO THE OWNER OF THE EQUIPMENT FOR LOSS OF PROFITS, LOSS OF USE, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR DAMAGES OF ANY KIND BASED UPON A CLAIM FOR BREACH OF WARRANTY, OTHER THAN THE PURCHASE PRICE OF ANY DEFECTIVE EQUIPMENT COVERED HEREUNDER. This warranty shall not be enlarged, diminished or affected by, and no obligation or liability shall arise out of, the rendering of technical advice or service by the Company in connection with the equipment. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. THE FOREGOING IS IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY AND ANY WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.