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## **E5900.00 Shaker Power Unit**

Reciprocating, Variable Speed,  
60-240 osc/min, 115V, 60 Hz

## **USE AND CARE FOR CATALOG NUMBER:**

- **E5900.00 Shaker Power Unit, Reciprocating, Variable Speed, 60-240 osc/min, 115V, 60 Hz**

### **INITIAL PREPARATION:**

This shaker power unit is furnished without carriers, and prior to installing any carrier, the shaker should be run for a short period of time. With the 2-speed switch on the front panel in the OFF position, plug the cord into a 115 V, 60 HZ source for the E5900.00.

**NOTE:** Speed adjustments should be made **only** when Shaker is operating. Use slowest speed necessary to produce required shaking action.

**NOTE:** NEVER touch the carrier or sample while unit is in motion.

### **SPEED CONTROL:**

The small hand wheel, located at the right side of the front panel is used to adjust the speed with the shaker running. The large hand wheel clamps the setting obtained.

1. Turn large hand wheel counter-clockwise initially to loosen the limit spacer and clamp hand wheel.
2. Loosen clamp hand wheel by turning counter-clockwise.
3. Turn small speed change hand wheel clockwise to reduce speed or counter-clockwise to increase speed of the shaker platform. (It will be necessary to manipulate the clamping hand wheel to keep it from binding and thus preventing the operator from getting full adjustment.)
4. When the desired speed is reached, hold the small hand wheel and tighten the large clamping hand wheel to hold the adjustment.
  - Minimum speed is reached when the belt rides the bottom of the automatic idler pulley and at the rim of the variable pitch crankshaft pulley. Maximum speed is reached when the belt is riding at the rim of the idler pulley and deep in the groove of the crankshaft pulley.
5. This shaking apparatus is equipped with a 2-speed motor and a 2-speed switch with a center-OFF position. When the switch is set on SLOW, the speed range is approximately 60-150 osc/min. When the switch is set on HIGH, the speed range is approximately 100-260 osc/min. Always operate on HIGH motor setting if desired speed is above 100 osc/min.

### EXAMPLE #1:

To operate the shaker at 90 excursions per minute the operator should set the switch on the SLOW speed setting and adjust the variable pitch pulley controls to get the speed required.

### EXAMPLE #2:

To operate the shaker at 120 excursions per minute the operator should set the switch on the HIGH speed setting and adjust the variable pitch pulley controls to get the speed required.

### INSTALLATION OF CARRIERS:

To install the large platform, Cat. No. E5910.00 onto the shaker platform, use the eight (8) 1 inch spacers and the truss head screws supplied with the platform. This large platform has 1/4-inch diameter holes for mounting Cat. No. E6090.00 Flask Holders by means of the threaded strips, Cat. No. E5913.00.

The large utility carrier (E5915.00 or E5919.00) is secured to the large platform by means of eight (8) machine screws and hex nuts furnished with the carrier. Additional crosswise bar clamps can be added to hold various size and shapes of containers. It will secure six (6) five-gallon Carboys or six (6) five-gallon Jerry Cans.

### LOADING:

It is impossible to outline the exact limitations for loading a shaker, as resulting shaking action is dependent upon several factors. Principal among these is the size and shape of the containers, speed, length of stroke, and the amount and type of material being shaken.

Basic considerations should be:

1. Use lowest speed consistent with the required shaking action.
2. At higher speed use less weight on platform.
3. At lower speeds and weight on platform can be increased.
4. When using one platform tiered above the other, place equal load on each, or if it is possible, place heavier mass on lower platform and lighter on the top. If shaking action imparts a "whip" to the upper platform, then either the speed is too high, or the load is too heavy on that platform.
5. If shaker has tendency to "walk" on floor, then rubber suction cup feet should be secured to the floor using rubber or contact cement.

6.

Good judgement in the selection of the factors will contribute to proper use of the shaker.

### MAINTENANCE:

FOR THE FOLLOWING LUBRICATION AND MAINTENAINCE IT WILL BE NECESSARY TO REMOVE EITHER THE FRONT OR BACK LOWER PANEL.

TO REMOVE THE FRONT PANEL, PROCEED AS FOLLOWS:

First, loosen the socket set screw in the hub of the small speed change hand wheel just enough to allow the hand wheel to slip off. Use a #10-32 allen set screw wrench. Next, remove the limit spacer. The larger clamping hand wheel can now be removed by turning it on the speed adjusting screw. Do not remove the speed adjusting screw or the tubular metal spacer that projects through the hole in the panel. The nine (9) screws holding the panel can now be removed, permitting removal of the panel.

To remove the back panel, remove the nine (9) screws and lift off the panel.

LUBRICATION: (USE A GOOD GRADE OF SAE #30 OIL)

LUBRICATION WHEN THE SHAKER IS USED IN CONTINOUS DUTY APPLICATIONS OF 100 HOURS OR MORE:

1. Oil crank bearings through hole in center of bearing housing ever three (3) months.
2. Oil the idler bearing bracket through the hole in the top of the bearing block every three (3) months.
3. Oil the thirty-two (32) bearings located at the top and bottom of each of the sixteen (16) rocker arms every three (3) months. Place oil on the shaft next to the bearing.
4. Oil the connecting rod bearings every (3) months. Place oil on the shaft next to the bearing at the upper end and the crank end of the connecting rod.
5. Place a small blob of grease (lithium base preferably) on the thrust bearing on the end of the speed adjusting screw.

LUBRICATION WHEN THE SHAKER IS USED FOR INTERMITTENT DUTY:

1. Oil crank bearings through hole in bearing housing every six (6) months.
2. Oil the idler bearing bracket once every six (6) months through the hole in the top of the casting.
3. Oil the thirty-two (32) rocker arm bearings every six (6) months. Place oil on the shaft next to the bearing.
4. Oil the connecting rod bearings every six (6) months. Place oil on the shaft next to the bearing at the upper end and the crank end of the connecting rod.
5. Put a small blob of grease (lithium base preferably) on the thrust bearing on the end of the speed adjusting screw.

## MAINTENANCE:

### BELT INSPECTION AND REPLACEMENT:

Inspect both belts at each oiling period and replace if broken or if the cords are exposed and frayed. Small outer fabric breaks are not harmful.

If inspection reveals that belts are to be replaced, then speed controls should be to the fast position with the shaker operating. When setting is established, disconnect power cord from power source to prevent accidental starting.

1. The motor belt driving the large idler pulley is changed by first removing the front panel. To change the motor belt, first remove the speed-changing belt from the small automatic variable pitch pulley that is mounted on the same shaft end as the large pulley. Now remove the motor belt from the large pulley. Replace the motor belt with the new belt and replace the speed-changing belt on the automatic pulley.
2. To replace the speed-changing belt, the operator will first have to remove the front panel and speed change plate and bushing. To remove the speed change plate, proceed as follows: First, remove the two (2) hex head cap screws holding the speed change plate to the pulley bearing frame. With the speed change plate removed, the belt can be removed and a new one installed.

At this time it is well to oil the automatic idler pulley slide bearing by placing a small amount of oil on the exposed end of the bearing in the sliding pulley segment. Also, pull out the outer portion of the crankshaft pulley sufficient to permit greasing the sliding shaft. Clean and grease the thrust bearing on the end of the speed adjusting screw. Use lithium base grease preferably. To reassemble the shaker, replace all parts in reverse order of disassembly.

### BELT ADJUSTMENT:

The motor belt driving the nine (9) inch idler pulley may stretch and loosen after a short time in operation, or a replacement belt might be slightly different in length.

To adjust the belt, the operator should run the shaker and set it to fast speed. Turn off the shaker and remove the front and rear panels. Next loosen the four (4) hex head cap screws holding the motor and adjust the motor belt to proper tightness. Tighten the motor screws but do not tighten either belt to the point where the bearings will be overloaded. When a belt is tight, the operator should be able to press lightly on the middle of the belt and cause it to bow in an amount equal to the width of the belt.

## MOTOR PROTECTION:

The motor is equipped with a built-in thermal overload switch, automatic reset type. Some possible causes for overload switch to stop motor are:

1. Overloading the shaker.
2. Neglecting to oil the bearings at stated intervals.
3. Damage to the wiring resulting in a short circuit.
4. Variable Pitch pulley surface is dirty due to belt wear, making them sticky.
5. Belts are too tight.
6. Belts are stiff after prolonged storage.
7. Rapidly turning on/off the unit, which would cause the fuse to blow.

Trouble should be corrected before restarting the shaker.

## PARTS LIST FOR E5900.00

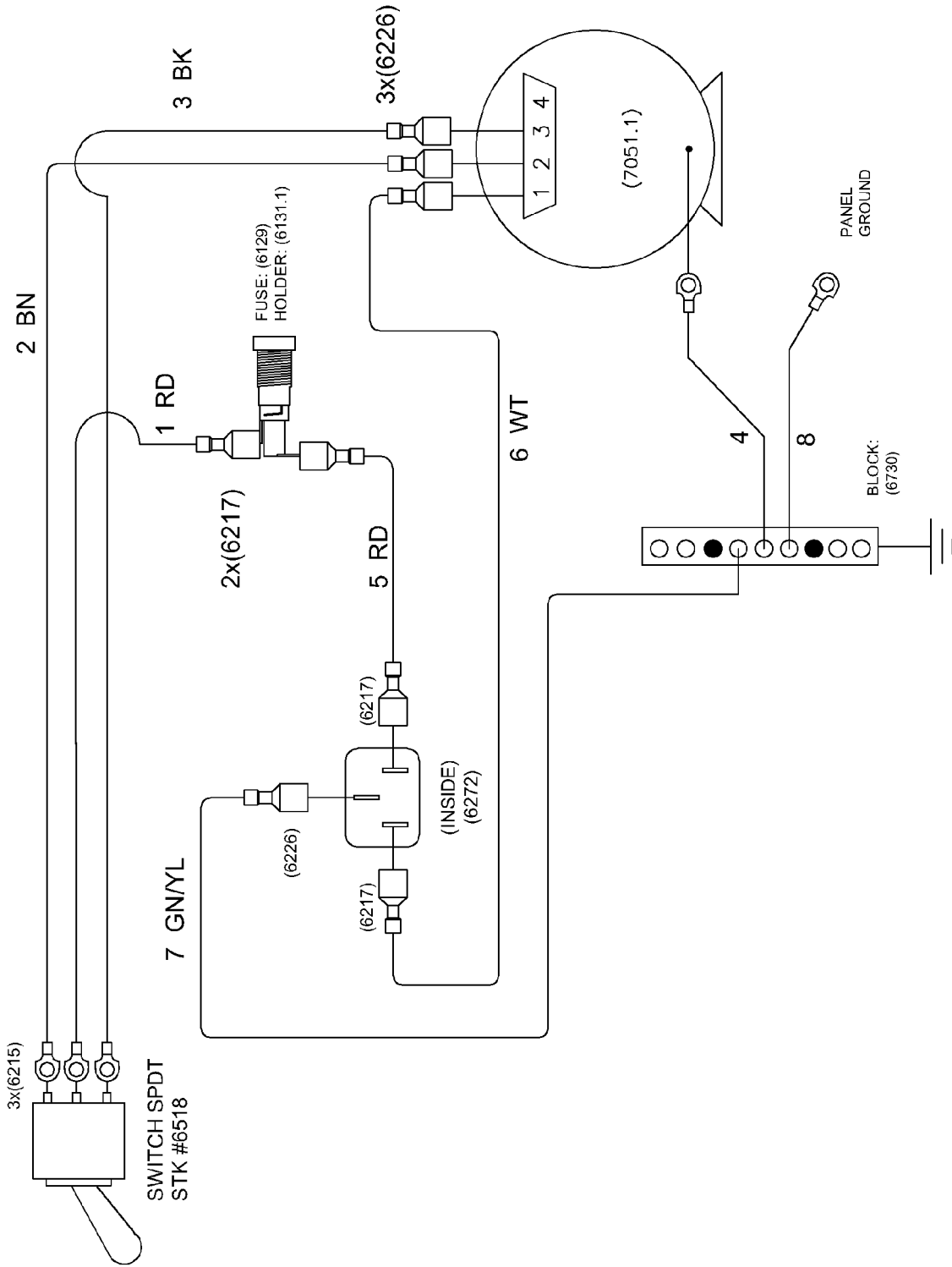
PartNo	DESCRIPTION	QTY.
4284.5	V BELT 3L330	1
4292	V BELT 4L280	1
5528	3.75" SUCTION CUP W/ 5/16-18 THREADED POST	6
6063.1	CABLE TIE MOUNT	4
6063.2	CABLE TIE	4
6130.3	7A FUSE TIME DELAY	1
6131.1	FUSE HOLDER	1
6272	AC POWER INLET	1
6518	SWITCH	1
6649	CORD AND PLUG	1
6800.5	LOGO PLATE	1
7051.1	MOTOR 1/6HP 1725/1140RPM	1
7568	#4-40 X 1/4" S/S PAN HD. MACHINE SCREW	2
7617	#6-32 X 1/2" S/S ROUND HD. MACHINE SCREW	2
8279	#10-32 X 3/8" SELF LOCKING BOTTEN HD. SOCKET SCREW	20
8285	#8-32 X 1/4" S/S TRUST HD. SCREW	48
8321.5	#10-32 X 1/4" SET SCREW	2
8323	1/4"-20 X 3/16" SET SCREW	2
8528.4	5/16"-24 X 1/2" HEX HEAD SCREW	4
8572.2	1/2"-13 X 1" S/S HEX HEAD SCREW	22
9175	#4X 1/8" PAN HD. SHEET METAL SCREW	2
9206	#6-32 S/S NYLON LOCK NUT	2
9217	#4-40 S/S NYLOCK NUT	2
9235	#8-32 S/S MACHINE SCREW NUT	1
9271	1/4"-28 GRADE 5 HEX NUT	4
9277	5/16"-24 HEX NUT	18
9437	1/4 WASHER ZINC PLATED	8
9438	5/16" SAE WASHER	4
9441	5/16" WASHER	18
9525	5/16" SPLIT LOCK WASHER	10
9531	1/4" SPLIT LOCK WASHER	4
9609	FIBER WASHER, 0.391 X 0.625 X 0.032	18
EP5900.002	STIFFENER JOURNAL	2
EP5900.004	FRONT CENTER PANEL	1
EP5900.006	REAR CENTER PANEL	1

EP5900.008	END GAURD	2
EP5900.018	FRONT TOP COVER PLATE	1
EP5900.019	TOP LONG PLATE	1
EP5900.040	LEVELING SHIM	1
EP5900.150	OK12 EXTENSION PULLEY	1
EP5900.500A	RIGHT END PANEL ASSEMBLY	1
EP5900.502A	LEFT END PANEL ASSEMBLY	1
EP5900.519A	DRIVE ASSEMBLY	1
EP5900.551A	TOP PLATE ASSEMBLY	1
EP5900.565A	ROCKER ARM AND SPACER ROD ASSEMBLY	4
EP5900.653A	WIRING HARNESS	1
EP5903.550A	BASE ASSEMBLY	1
EP6000.037	SWITCH ESCUTCHEON	1
EP6000.529A	CONNECTING ROD ASSEMBLY	1
EP6000.542A	IDLER JACKSHAFT ASSEMBLY	1
EP6000.SS.058	STIFFENER SPACER	1
EP6300.003	BASE SUPPORT ANGLE (FRONT)	1
EP6300.004	BASE SUPPORT ANGLE (BACK)	1
EP6300.005	IDLER JACKSHAFT SPACER STRIP	2

Contact your supplier or **Eberbach Corporation** technical support with any inquiries concerning replacement parts and installation.







EBERBACH CORPORATION U.S.A.

SPEED RANGE		PART NAME		ELECTRICAL DIAGRAM	
72-288 rpm/min (max)	-	ASSEMBLY	-	APPR. BY	DEPT.
60-240 rpm/min (max)	-	MATERIAL	-	J.B	DRW.
TOLERANCE UNLESS OTHERWISE STATED	-	FINISH	-	SCALE	7/24/2018
DECIMAL	.XX ± .01	REVISED		REQ'D	1
		REV 7		REV 8	
				PART NO.	E5900.805A