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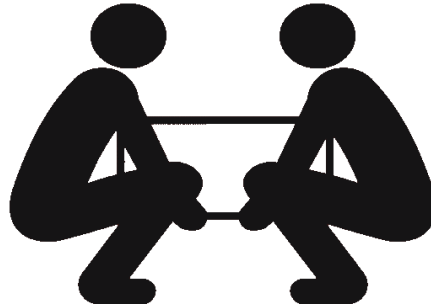
## **EL660.00 Tumbler**

1 -100 rpm, 115 Vac, 50 / 60 Hz

**USE AND CARE FOR CATALOG NUMBERS:**

**EL660.00 Tumbler**  
1-100 rpm  $\pm$ 2.0, 115V/ 60 Hz

**IMPORTANT**



**TWO PERSON LIFT**

**LIFT FROM MOTOR BASE FIRST  
DO NOT LIFT FROM THE COVER**

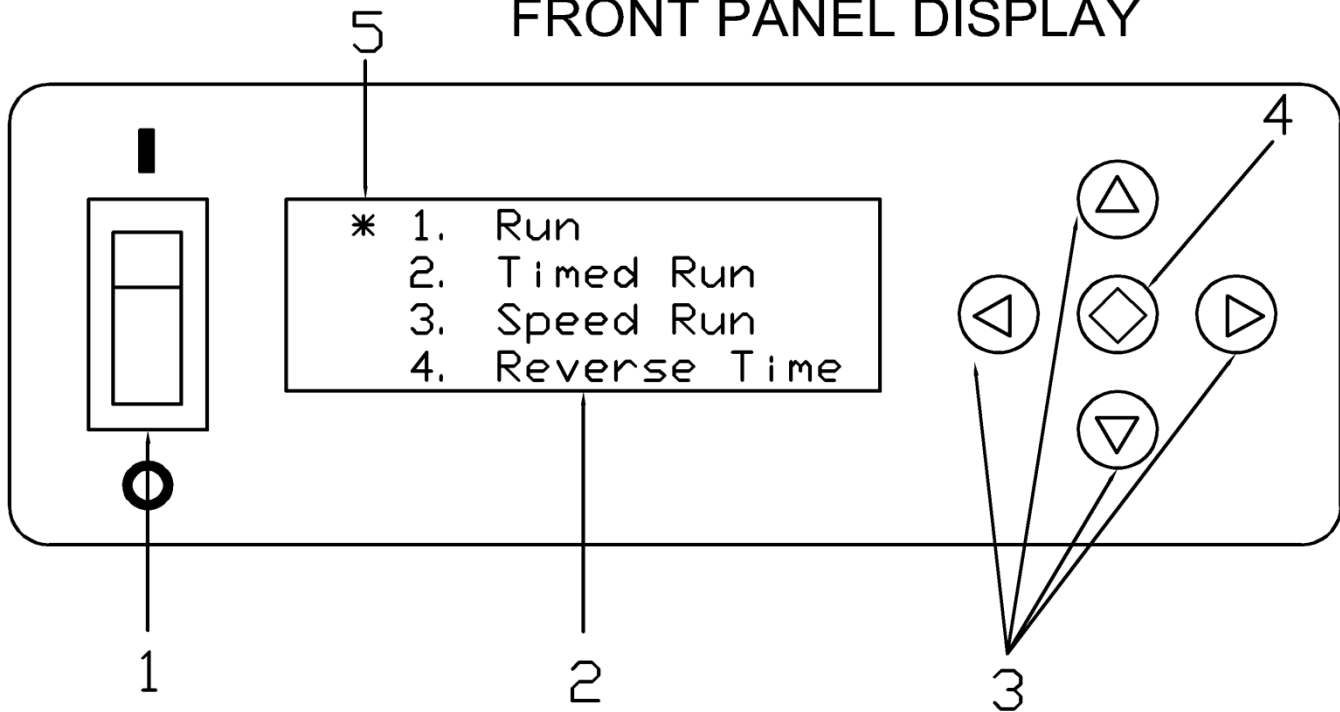
**SERVICE ON THIS MACHINE SHOULD ONLY BE  
PERFORMED BY A TRAINED TECHNICIAN**

**UNPLUG MACHINE BEFORE REMOVING PANELS**

**DO NOT OPEN DOOR UNTIL MOTOR HAS  
COME TO A COMPLETE STOP!!!**

**THE OPERATOR WILL NEED TO PAUSE  
THE MACHINE OR TURN THE POWER OFF  
PRIOR TO OPENING THE DOOR**

## FRONT PANEL DISPLAY



The **Eberbach** tumbler is recommended for extractions, re-suspensions, or any process where mild inversion agitation is required. The variable speed drive provides uniform rotary motion for up to six samples.

**Always balance the load on the bottle holders when mixing multiple samples.**

**The max load of the machine is 25 Lbs.**

### Technical Features

Height (in)	-	19
Length (in)	-	48
Width (in)	-	16.25
Speed rpm	-	100 rpm $\pm$ 2.0
Weight (lbs.)	-	191

- 1) Power Switch
- 2) Liquid Crystal Display (LCD)
- 3) Directional Pad (D-Pad)
- 4) Enter Button
- 5) Cursor

**Operation:** Press the **Power Switch** down into the ON position. The **LCD** should light up and show the main menu. There are three different run modes to choose from. Select a run mode by moving the **Cursor** (using the **D-PAD**) and press the **Enter Button**.

**Run Mode:** The shaker will begin the run mode at its lowest speed. The speed shown in parenthesis (xxxx) is the set speed controlled by the user. The speed listed to the right is the tachometer read out or the actual speed of the shaker in real time. The speed can be increased/decreased by pressing and holding the up/down arrows on the **D-PAD**. The longer the button is held down the faster the speed will increase/decrease. Once engaged the timer will begin counting all the way up to 999 hours before the timer overflows back to zero. To pause the shaker move the **Cursor** to the PAUSE item by pressing the left arrow on the **D-PAD** and press the **Enter Button**. The clock will pause at its current time and the shaker will gradually come to a complete stop. The clock and shaker can be resumed at its current time and speed by selecting RESUME and pressing the Enter Button. To go back to the main menu move the **Cursor** to the EXIT item by pressing the right arrow on the **D-PAD** and then press the **Enter Button**.

RUN TIME	00: 00: 00
RPM	( 100) 100
* PAUSE	EXIT

RUN MENU

**Timed Run Mode:** The timed run mode features a count down timer that automatically shuts the shaker off when the time runs out. When selected the user will be taken to the Timed Run Setup Menu and will need to input the run time in hours, minutes, seconds and select the speed for the run. The left/right arrows on the **D-PAD** can be used to move the cursor between hours, minutes or seconds and the up and down arrows can be used to set the time. The longest run time allowed is 999:59:59. Once the time is set move the **Cursor** down by pressing the right arrow on the **D-PAD** until the **Cursor** is next to the RPM line item. The speed can be set using the up and down arrows on the **D-PAD**. Now that the data is set navigate the **Cursor** to the START line item using the left/right arrows on the **D-PAD** and press the **Enter Button**.

TIMED RUN SETUP		
RUN TIME HR: MN: SC		
* RPM		100
START		EXIT

TIMED RUN SETUP MENU

After selecting START the shaker will begin at the selected speed and the timer will begin counting down. The speed can be adjusted in real time using the up/down arrows on the **D-PAD**. The speed shown in parenthesis is the target speed controlled by the user and the speed listed to the right is the actual speed as read by the tachometer. The shaker and countdown timer can be paused and resumed. Move the **Cursor** to the line item PAUSE by pressing the left arrow on the **D-PAD** and then press the **Enter Button**. Exiting the Timed Run Menu will bring the user back to the Timed Run Setup Menu.

```

RUN TIME 999: 59: 59
RPM      ( 100)      100
* PAUSE                                EXIT

```

TIMED RUN MENU

**Speed Run Mode:** The speed run allows the user to program in a set run speed. Once engaged the timer will begin counting all the way up to 999 hours before the timer overflows back to zero. Select the speed run mode from the main menu and press the **Enter Button**. The user will be prompted with the speed run setup menu. Set the desired speed using the up/down arrows on the **D-PAD**. The left/right arrows can be used to move the **Cursor** between START and EXIT. EXIT will take the user back to the main menu. Keep the **Cursor** next to the START line item and press the **Enter Button**.

```

SPEED RUN SETUP

RPM                               100
* START                            EXIT

```

SPEED RUN SETUP MENU

The user will now be taken to the speed run menu. The shaker will begin at the speed selected in the setup menu. The speed run menu behaves in the same way as the run menu with one exception. Pressing EXIT will not take the user back to the main menu instead pressing EXIT will take the user back to the speed run setup menu.

```

RUN TIME 00: 00: 00
RPM      ( 100)   100
*PAUSE                                EXIT

```

SPEED RUN MENU



**Reverse Time Setup Menu:** This menu allows the user to configure the motor to reverse direction of rotation. The user can set the time from 1 -60 seconds or choose to turn the feature off. Select this option from the main menu by navigating the cursor to the Reverse Time option and press the **Enter Button**. The Reverse Time Setup Menu will appear.

```
REVERSAL TIME SETUP
Periodic Reversal:
10      (Seconds)
* SAVE          EXIT
```

## REVERSAL TIME SETUP MENU

Select a reversal time or turn the feature off by using the up/down arrows on the **D-PAD**. Move the cursor between the SAVE and EXIT line items with the left/right arrows. After selecting a time, move the cursor to SAVE and press the **Enter Button**. Exit the menu and select a run option. You will now notice the motor periodically reversing direction during your run modes. If you selected a reversal time (for example 10 seconds) your motor will change direction every 10 seconds during the run process. The motor has limited acceleration so that selecting a short reversal time (less than 4 seconds) will limit the practical maximum speed of the run process.

**Note:** Use slowest speed necessary to produce required shaking action.

**Note:** When using the main power switch to turn the machine on and off, always wait at least 15 seconds before reapplying power with the main power switch. During operation if the motor stops responding when it should be running turn the power off and wait 15 seconds. This will allow the residual charge in the motor driver to dissipate and clear any lingering error codes.

**Warning:** The door has a safety kill switch that will turn power off to the machine. Never use the door switch or the main power switch to bring the machine to a stop. Make sure the machine comes to a complete stop before either opening the door or using the mains power switch.

## **MAINTENANCE**

### **CLEANING:**

Plastic: Alcohol with cotton cloth.

Painted Metal Case: Warm soap and H<sub>2</sub>O solution.

### **FUSE REPLACEMENT:**

Replacement fuses for the 115 Volt units is a 3 Amp Time Delay (5x20mm).  
Replace fuses only once.

NOTE: If replacement fuse blows immediately, repairs may be necessary.

If you have any questions or inquiries concerning operation please contact your supplier or  
***Eberbach Corporation*** Technical Service @ ***1-800-422-2558***.

## **EL660.00 REPLACEMENT PARTS LIST**

<b>PartNo</b>	<b>DESCRIPTION</b>	<b>QTY.</b>
4166	BEARING 17MM X 40MM X 12MM	2
4354	SPIDER, JD21-33-98R	1
4354.1	14MM HUB, MJC33-14-A	1
4354.2	3/8" HUB, JC21-6-A	1
4772	HINGE	5
4849	HANDLE	1
5002	SPRING PIN	1
5538.7	FOOT	6
6010	POWER SUPPLY	1
6100	OVERLAY, NO ENCODER	1
6113	FUSE, TIME DELAY 3A	1
6277	FILTERED AC INLET 115V	1
6492	LIMIT SWITCH	1
6507.5	ROCKER SWITCH RED ILLUMINATED	1
6649	CORD AND PLUG	1
6850	DISPLAY BOARD	1
7003.500A	MOTOR PACKAGE	1
7397	#2-56 X 1/4" S/S PAN HD MACHINE SCREW	1
7398	#2-56 X 5/16" S/S PAN HD MACHINE SCREW	1
7407	M5 X 10MM S/S PHMS	4
7699	#8-32 X 5/8" S/S ROUND HD MACHINE SCREW	2
7779	#10-32 x 1/2" 18-8 S/S RROUND HEAD MACHINE SCREW	4
7857	1/4"-20 x 1/2 ROUND HEAD STEEL MACHINE SCREW	2
7954	#5-40 X 3/8" FLAT HEAD MACHINE SCREW	2
8001	#4-40 X 9/32" NYLON BINDING HD SCREW	6
8277	#8-32 X 3/8" SS TRUST HD. SCREW	2
8277.11	#10-32 X 1/4" SS TRUSS HD. SCREW	4
8277.4	#10-32 X 3/8" SS TRUSS HD. SCREW	10
8277.7	#10-32 X .75" S/S TRUSS HD. SCREW	10
8285	#8-32 X 1/4" TRUST HEAD SCREW	46
8587.6	1/4"-20 X 7/8" SOCKET HD CAP SCREW	4
8588.4	1/4"-20 X 1.125" S/S SOCKET HD CAP SCREW	6
9207	#5-40 NYLON-INSERT HEX LOCKNUT	2
9261	1/4"-20 ZINC PLATED GRADE 5 STEEL HEX NUT	10
9531	1/4" ZINC PLATED SPLIT LOCK WASHER	10
9799	4-40 x 5/8" STAND OFF MALE-FEMALE	6

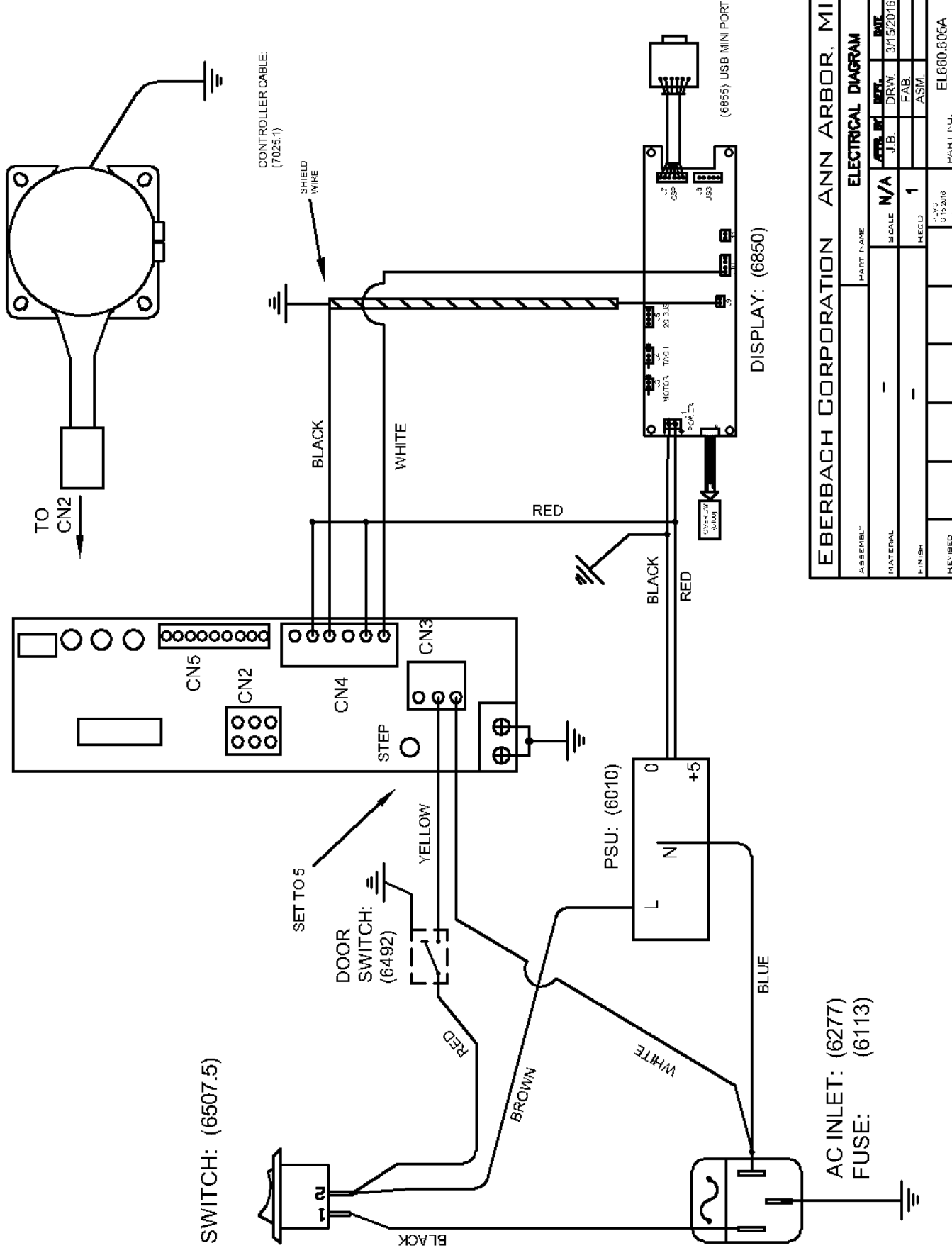
ELP655.003	BEARING HOLDER	1
ELP655.008	POWER SUPPLY BRACKET	1
ELP655.516A	12" BUNGEE ASSEMBLY RED	6
ELP655.517A	15" BUNGEE ASSEMBLY BLACK	6
ELP655.518A	20" BUNGEE ASSEMBLY BLUE	6
ELP660.010	SLAVE SIDE COLUMN	1
ELP660.011	MOTOR SUPPORT SIDE COLUMN	1
ELP660.012	SLAVE SIDE BEARING CAP	1
ELP660.013	SHAFT	1
ELP660.015	LIMIT SWITCH MOUNT	1
ELP660.023	RIGHT COVER	1
ELP660.024	RIGHT COVER MOUNTING BRACKET	1
ELP660.029	MOTOR OFFSET BRACKET	1
ELP660.031	BASE	1
ELP660.036	COVER GUARD	1
ELP660.040	TRANSPARENT COVER	1
ELP660.045	ACRYLIC COVER SPACER	5
ELP660.049	ACRYLIC COVER STANDOFF	5
ELP660.512A	FRONT PANEL ASSEMBLY	1
ELP660.513A	REAR PANEL ASSEMBLY	1
ELP660.515A	TRAY ASSEMBLY	6
ELP660.650A	WIRING HARNESS	1

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MOTOR: RKII SERIES

DRIVER: RKII SERIES  
(7003.500A)



ASSEMBLY		PART NAME		ELECTRICAL DIAGRAM	
MATERIAL		SCALE		DATE	
FINISH		REVISED		REV. NO.	
REVISED		DATE		PART NO.	
		3/15/2016		EL680.605A	
		1		EL680.605A	
		3/15/2016		EL680.605A	