EBERBACH CORPORATION

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EL680 Hand Motion Shaker

Variable Speed with Timer and Tachometer
100-960 OSC, 115-230Vac, 50/60 Hz

USE AND CARE FOR CATALOG NUMBER:

EL680 Hand Motion Shaker

Variable Speed with Timer and Tachometer
100-960 OSC, 115-230Vac 50/60 Hz

GENERAL INFORMATION

1) Handle this unit with care. Unpack and check that the contents coincide with the packing-list. If any part is damaged or missing, please advise the distributor immediately.

2) Do not install or use this equipment without first reading this manual.

3) This manual should always be attached to the equipment and made available to all users.

4) If you have any doubts or inquiries, please contact your supplier or ***Eberbach Corporation*** technical service.

5) Do not use the apparatus with liquids which can give off vapors capable of making explosive mixtures.

PACKING LIST

The standard equipment consists of the following components:

Description	Qty
Hand Motion Shaker	1
Arms	2
Clamps	8
Power Cord	1
Allen Wrench 5/16	1
Allen Wrench 3/32	1
Use and Care Manual	1

EQUIPMENT DESCRIPTION

Hand Motion Shaker: Electronic regulation between 100 and 960 oscillations per minute. Oscillation amplitude is 9mm. Easily, detachable arms equipped with 8 clamps for attaching and processing up to 8 samples at one time.

TECHNICAL FEATURES

Voltage supply 115V/230V, 50/60 Hz

Height	10 in
Length	13 in
Width	11.375 in
Maximum Capacity	4 kg (8.8 lbs)
Oscillations per minute	100-960
Power Consumption	0.7 Amps

INSTALLATION

1) Place the apparatus on a flat, horizontal, level surface with sufficient stability to resist its own vibrations.
2) Fit the arms with clamps to the shaker side shaft so that the screws tighten against the flat surface of the shaft.

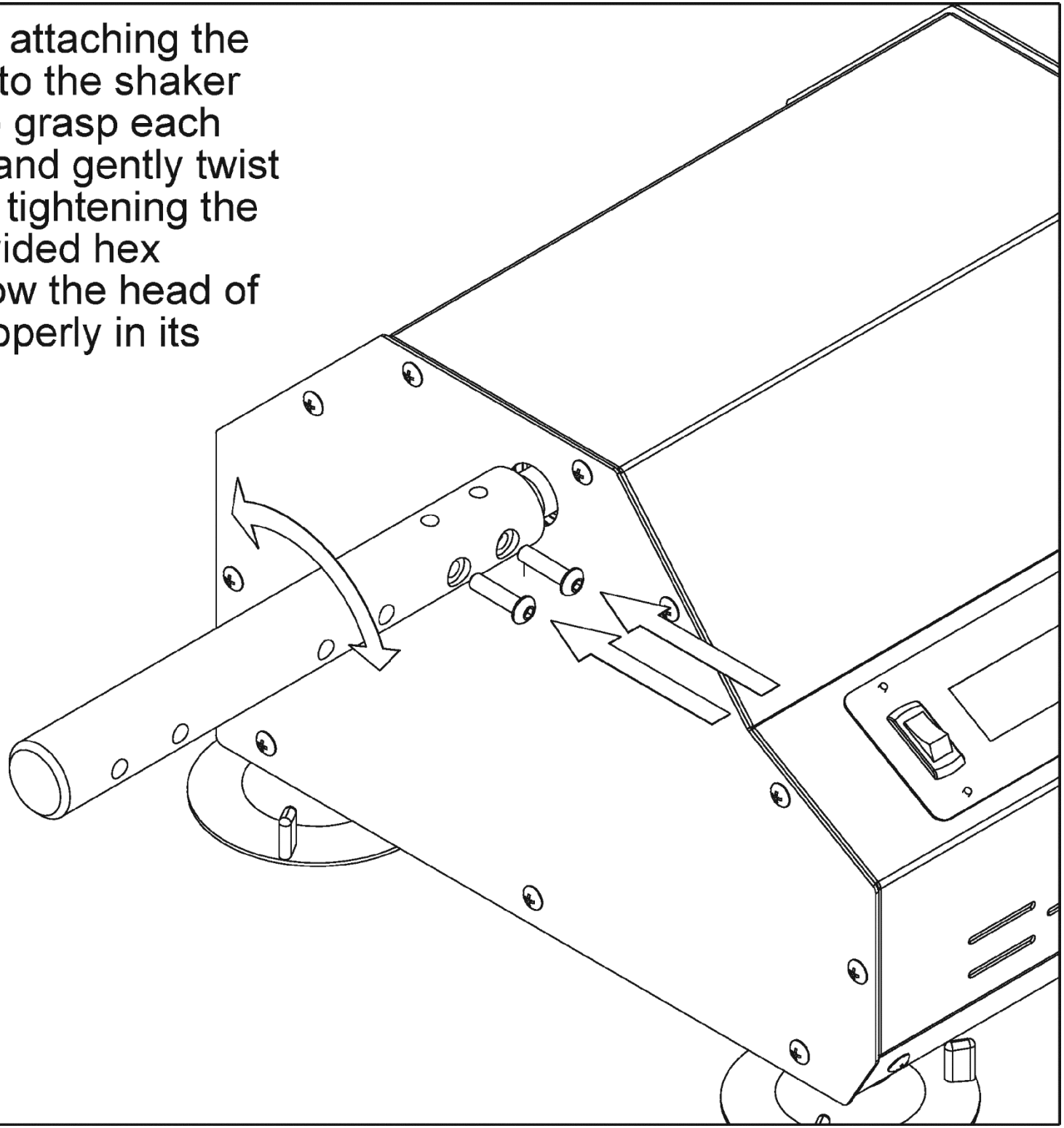
CAUTION!!! IMPORTANT FOR YOUR SAFTEY

Be sure that the voltage supply is the same as the one indicated on the serial tag. Operating range is 115-230Vac +/- 10%

Do not shake products capable of making an explosive mixture.

Do not use the apparatus if it is not grounded properly.

Initial setup requires attaching the two horizontal arms to the shaker power unit. To do so grasp each arm with your hand and gently twist back and forth while tightening the screws with the provided hex wrench. This will allow the head of the screw to seat properly in its countersunk hole.



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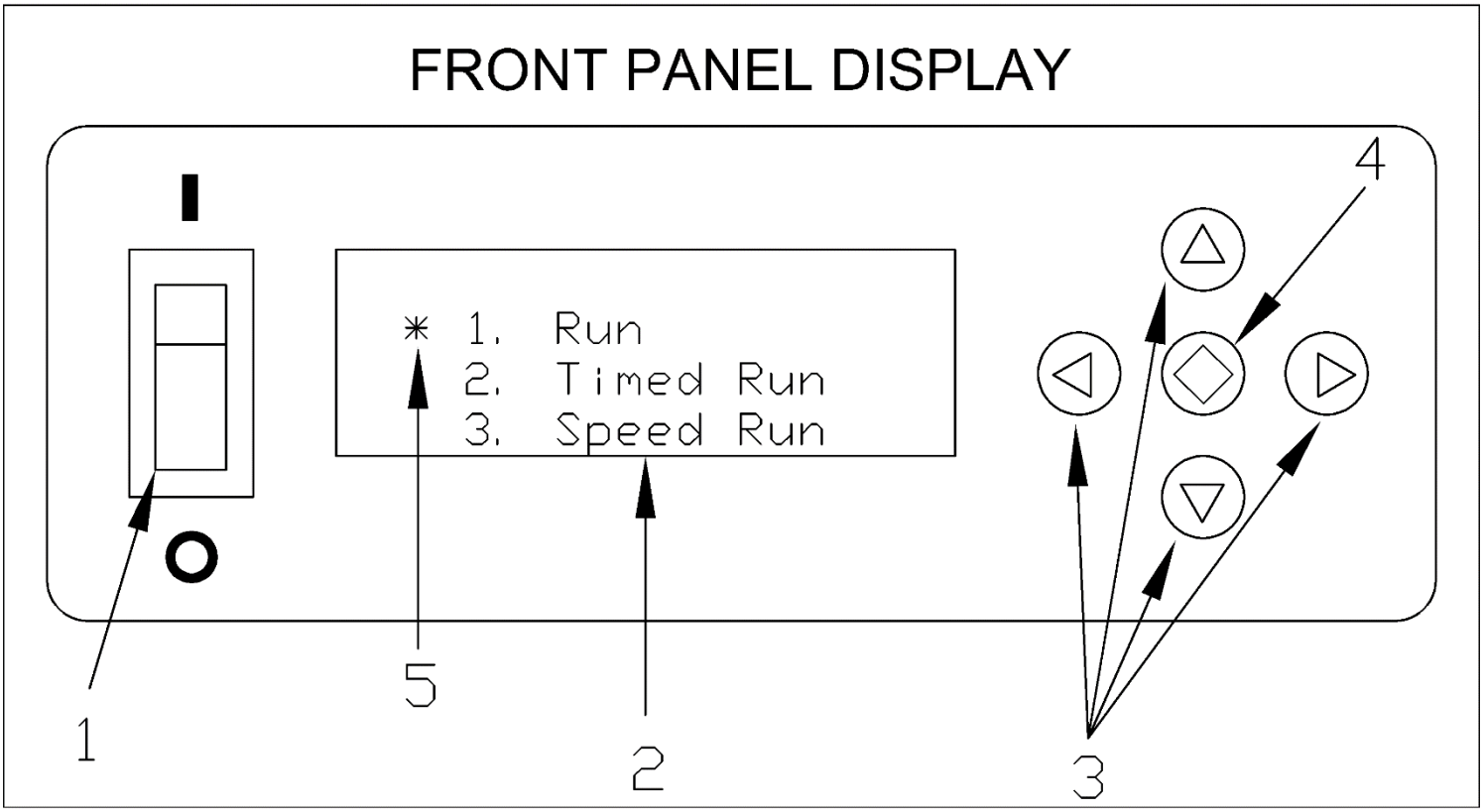
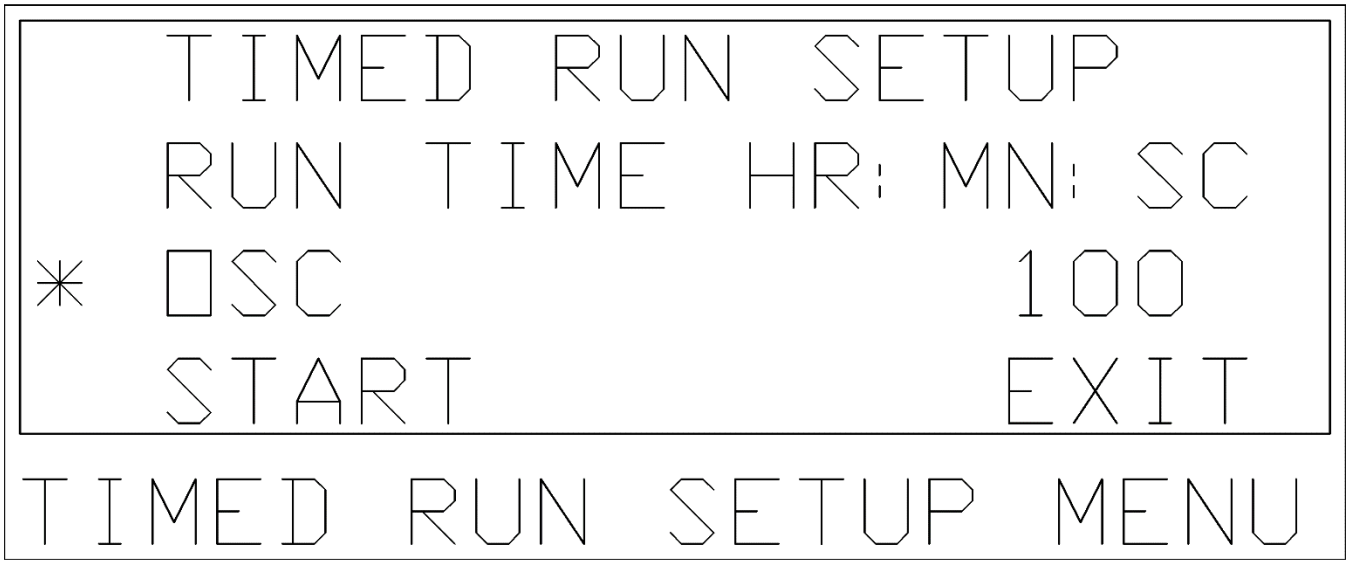


1) Power Switch
2) Liquid Crystal Display (LCD)
3) Directional Pad (D-Pad)
4) Enter Button
5) Cursor

Operation: Press the **Power Switch** down into the ON position. The **LCD** should be lit up showing 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**.

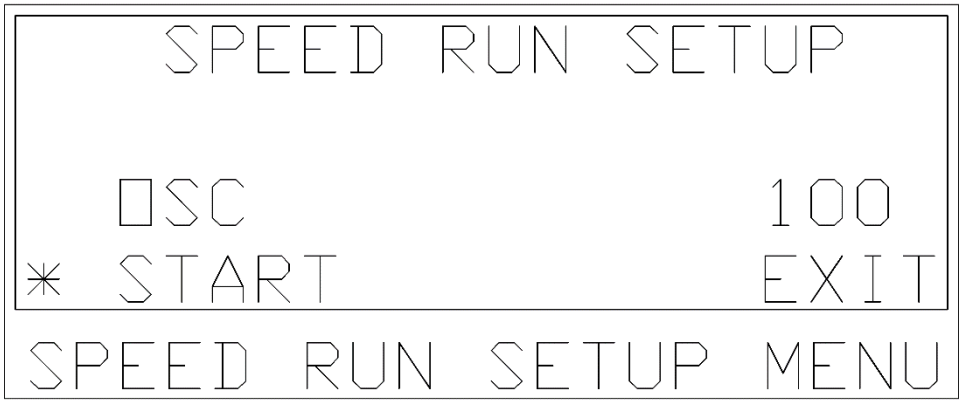
Run Mode: When selected the shaker will begin at its lowest speed. The speed shown in parenthesis (xxxx) is the set speed controlled by the user. The speed listed to the right is the tachometer read out or the actual speed of the shaker in real time. The speed can be increased/decreased by pressing and 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**.

Timed Run Mode: The timed run mode features a countdown 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 OSC 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.**

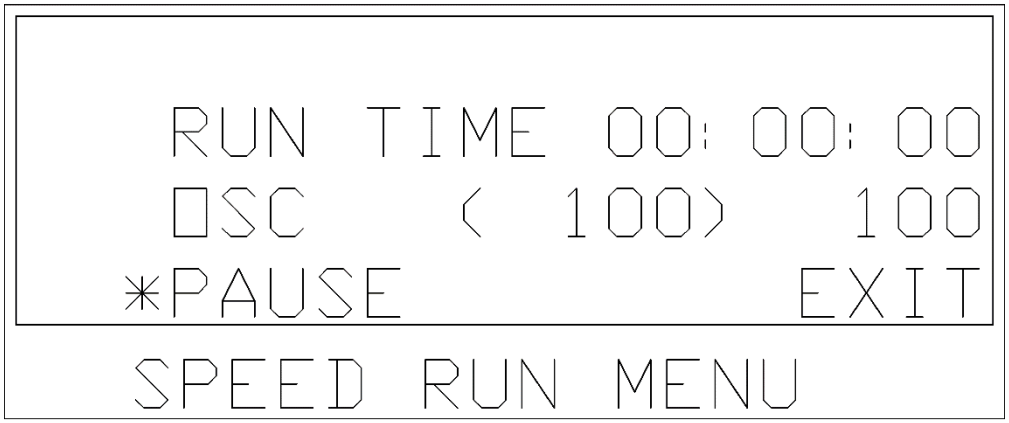


After selecting START the shaker will begin at the selected speed and the timer will begin counting down. The speed can be adjusted in real time using the up/down arrows on the **D-PAD**. The speed shown in parenthesis is the target speed controlled by the user and the speed listed to the right is the 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.

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**.



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.



Note: All run menus will have two speeds listed. The leftmost speed will be displayed inside parenthesis. This is the target speed controlled by the user. The shaker will attempt to match this speed and should do so within ten seconds after making an adjustment. The rightmost speed is the tachometer reading, which shows the user what the shaker is actually running at. The tachometer is accurate within +/- 1% of actual speed.

Note: Reciprocating shakers will display OSC (oscillations) instead of RPM (revolutions per minute).

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

MAINTENANCE

CLEANING:

Before removing the casing, disconnect the apparatus from the mains.

The manipulation of the internal electronic circuits of the apparatus by unauthorized personnel can cause irreparable damage to the apparatus.

When cleaning the plastic, use alcohol with a cotton cloth. When cleaning the painted metal case, use warm soap and H2O solution.

BELT INSPECTION AND REPLACEMENT:

Inspect belt periodically and replace if actually broken or if the cords are exposed or frayed. Small outer fabric breaks are not harmful.

Removal of the drive belt may require the adjustment or removal of the motor and/or the large drive pulley. Installation of a new belt is as follows:

1. Unplug unit to avoid shock and/or electrical component damage.
2. Remove the left side panel to expose the motor and other components.
3. Take note or mark the location of the motor along the adjustable slots in base plate.
4. Loosen the socket ("allen") screws that fasten the motor to the base plate.
5. Slide the motor towards the large pulley to allow the belt to slacken.
6. Remove belt and install new belt with identical number of teeth.
7. Adjust tension on belt. **Note:** cogged style belt does not need excessive tension.

FUSE REPLACEMENT:

Replacement fuses for the unit are (2) 3 Amp Slow Blow (Time Delay). Replace fuses only once. Preventative maintenance has set the fuse to blow if the motor is over worked. The problem is generally in extreme wear of the bearings or an object obstructing the shaking action.

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

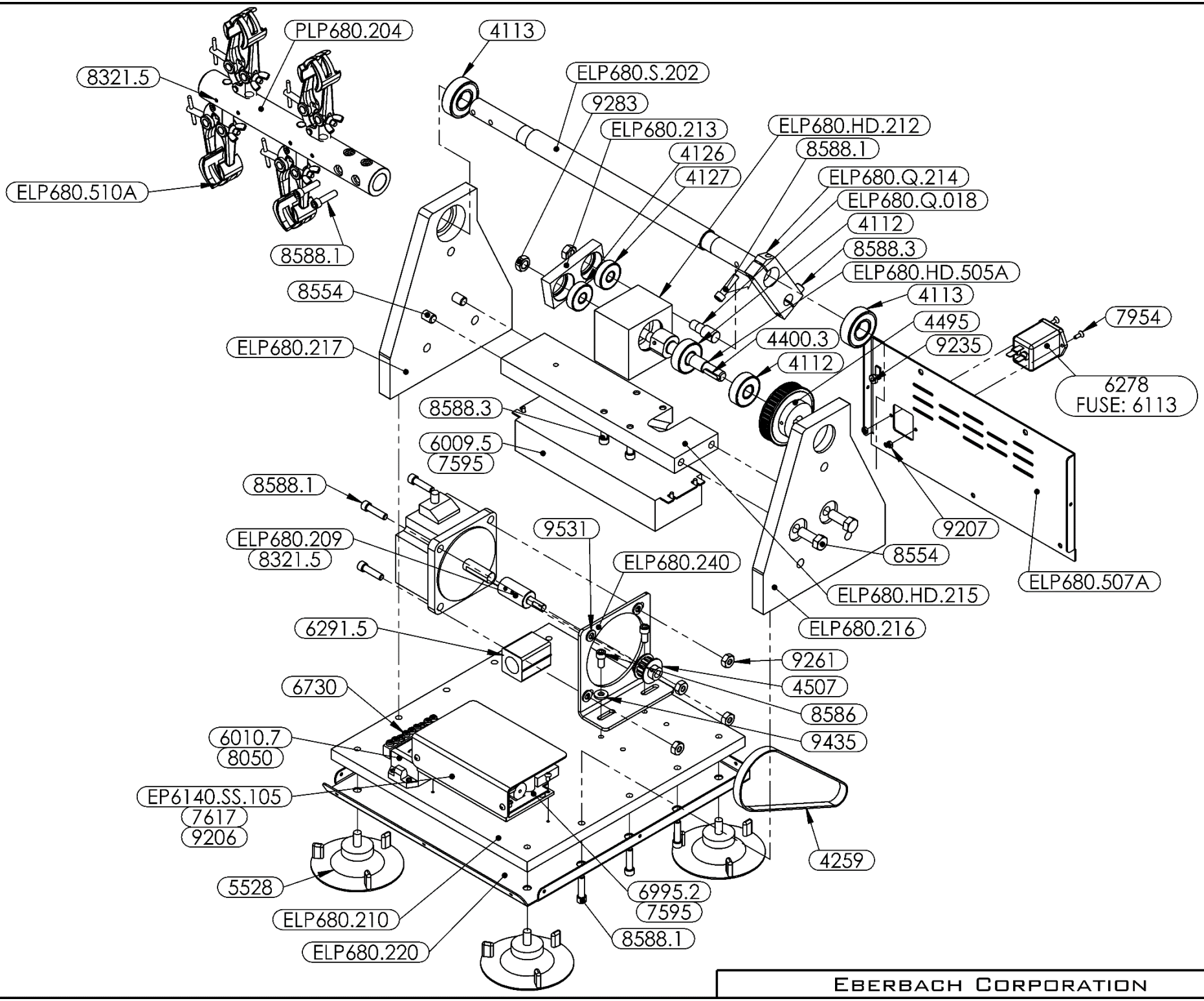
If you have any doubts or inquiries concerning operation contact your supplier or ***Eberbach Corporation*** technical service.

EL680.00 REPLACEMENT PARTS LIST

PartNo	DESCRIPTION	QTY.
4112	BEARING 1621-2RS	2
4113	BEARING 1630-2RS	2
4126	BEARING 1200 NSK	1
4127	BEARING 6200ZC3 NTN	1
4259	TIMING BELT 160XL .2"P X 3/8"W NEOPRENE	1
4507	ALUMINUM MOTOR PULLEY 14 GROOVES	1
5528	3.75" SUCTION CUP W/ 5/16-18 THREADED POST	4
5631	3/32 STANDARD ALLEN WRENCH	1
5647	3/16 ALLEN HEX KEY	1
6009	175W POWER SUPPLY 24V/12V RAILS	1
6027.510A	5V VOLTAGE REGULATOR	1
6100	OVERLAY, NO ENCODER	1
6113	FUSE, CYLINDER TIME LAG 3A	2
6278	AC INLET	1
6507.5	ROCKER SWITCH RED ILLUMINATED	1
6649	PLUG 15A/125V TYPE B (115V)	1
6850	DISPLAY BOARD	1
6995.2	100W MOTOR CONTROLER (REPLACEMENT ONLY)	1
6996.500A	100W BRUSHLESS MOTOR	1
7595	#6-32 X 1/4" 18-8 S/S MACHINE SCREW	3
7954	#5-40 X 3/8" FLAT HEAD CAP SCREW	2
8001	#4-40 X 9/32" NYLON BINDING HD SCREW	8
8277	8-32 X 3/8 S/S THSMS	1
8285	#8-32 x 1/4 TRUSS HEAD PHILLIPS	29
8321.5	10-32 x 1/4 SET SCREW KNURLED CUP POINT	8
8554	3/8"-16 X 1" HEX HD. CAP SCREW	4
8586	1/4-20 X 1/2" SOCKET HD CAP SCREW	2
8588.1	1/4-20 X 1" SOCKET HD. CAP SCREW	15
8588.3	1/4-20 X 1.25" SOCKET HD CAP SCREW	5
8589.5	1/4-20 X 2" SOCKET HEAD CAP SCREW	4
9235	#8-32 18-8 S/S MACHINE SCREW NUT	2

9261	1/4-20 ZINC PLATED GRADE 5 STEEL HEX NUT	4
9283	3/8"-24 THINK HEX NUT	2
9435	#12 STEEL WASHER ID 1/4, OD 9/16	2
9531	1/4" ZINC PLATED SPLIT LOCK WASHER	8
9799	4-40 x 5/8" STAND OFF MALE-FEMALE	8
ELP680.202	BAR ARM	1
ELP680.209	MOTOR EXTENTION ADAPTER	1
ELP680.210	BASE WEIGHT	1
ELP680.211	SIDE COLUMNS	2
ELP680.212	PULLEY BLOCK	1
ELP680.213	CRANK BLOCK	1
ELP680.215	CROSS STRAP	1
ELP680.220	BASE PLATE	1
ELP680.223	SIDE PANEL	2
ELP680.240	MOTOR BRACKET	1
ELP680.505A	ECCENTRIC SHAFT ASSEMBLY	1
ELP680.507A	REAR PANEL ASSEMBLY	1
ELP680.508A	CASE ASSEMBLY	1
ELP680.510A	FOUR FINGER CLAMP ASSEMBLY	8
ELP680.Q.018	CONNECTING PIN	1
ELP680.Q.200	GEAR	1
ELP680.Q.214	DRIVE CLAMP	1
EP6130.650A	WIRING HARNESS ASSEMBLY	1
PLP680.203	RIGHT SHAFT EXTENSION	1
PLP680.204	LEFT SHAFT EXTENSION	1

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



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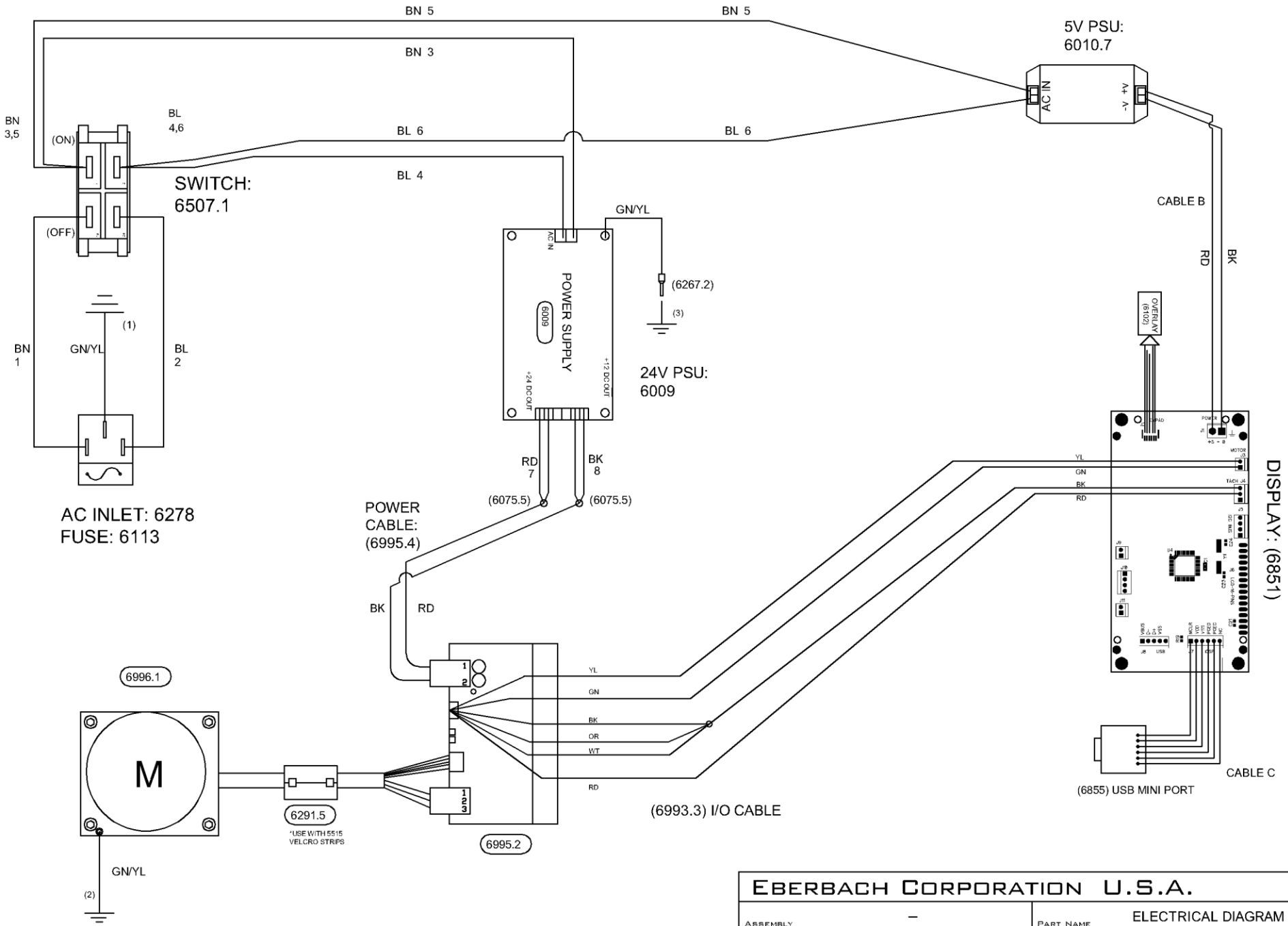

NOTE: USE 5" CABLE WRAP (6193)

EBERBACH CORPORATION U.S.A.							
ASSEMBLY	–	PART NAME	ELECTRICAL DIAGRAM				
MATERIAL	–	SCALE	N/A	APPR. BY	DEPT.	DATE	
				J.B.	DRW.	8/6/2019	
FINISH	–	REQ'D	1		FAB.		
					ASM.		
REVISED		REV 4 8-5-2019 J.B.		PART NO.	EL680.605A		