



## OPERATING MANUAL

### Motor Driven Sand Equivalent Shaker SE-2B & SE-2BF



SE-2B shown with SEA-101

Rev: 05/08/2018

## SAFETY INSTRUCTIONS

Whether you are the owner, employer, operator, or maintenance person for this machine, safety is your responsibility. You are responsible for operating and maintaining this equipment in compliance with these instructions and for using common sense. Review and completely understand the operating and safety instructions before using this machine.

### WARNING!

**This machine operates on electric current. Improper operation could result in electric shock, electrocution, or an explosion!**

1. **ALWAYS** make sure the motor and other electrical components are appropriate and properly configured for your intended use and available power source. The Motor Driven Sand Equivalent Shaker is normally wired for 115V/60Hz and comes with a 1/6hp DC gearmotor.
2. **ALWAYS** check electrical wiring for loose connections and for pinched or frayed wiring.
3. **ALWAYS** use a properly-wired, three-pronged plug, or otherwise ground the machine. Connect the machine to a properly-wired, three-pronged receptacle. Make sure the cord is located where no one will trip or get tangled in it.
4. **ALWAYS** disconnect and lock out power supply before performing maintenance and repairs.

### WARNING!

**Do NOT use this machine in an explosive atmosphere. It is NOT explosion proof.**

**WARNING:** Operate only in a properly ventilated area.

**WARNING:** Your Motor Driven Sand Equivalent Shaker is **NOT** counterbalanced. It must be adequately mounted to a substantial, rigid foundation, preferably a poured concrete floor. Otherwise, the machine will vibrate excessively and move around.

**WARNING:** Level the machine following the procedure outlined in the Unpacking & Set-up section, prior to operation.

**WARNING:** Stop the machine immediately if excessive vibration or machine movement occurs.

**WARNING:** **DO NOT** operate the machine without all guards and covers in place.

**WARNING:** Keep all parts of your body away from moving parts of the machine while it is operating.

**WARNING:** **DO NOT** wear loose clothing which might be caught in moving parts of the machine.

**WARNING:** Wear safety glasses, protective clothing, and hearing protection. Wear approved NIOSH/MSHA respirator as required by the sample to prevent your inhaling any dust which may be considered hazardous.

## 1.0 UNPACKING & SET-UP:

SE-2B and SE-2BF Motor Driven Sand Equivalent Shakers are shipped completely assembled and ready for use. Merely plug the unit to 115V/60Hz supply (or 230V/50Hz for model SE-2BF). Adjust the level using the four adjustable feet and lock them in place.

## 2.0 OPERATING INSTRUCTIONS:

Place a SEA-101 Clear Plastic Cylinder with rubber stopper in position on the slide assembly of the shaker. The spring-loaded holder fits over the cork in the open end of the clear cylinder.

The shaker has a throw of 8in (203mm) at 175 cycles per minute. The 3-position center switch is used to select 45 second test time (left), or 10 minute test time (right). Center position is off.

**NOTE:** This manual is a general guide to operation and maintenance of this device. The user is responsible for conducting the test in accordance with applicable ASTM or AASHTO specifications.

The 45 second time is used for Sand Equivalent tests described in ASTM D 2419, AASHTO T 176 or California Test Method 217. The 10 minute time is used for the Durability Index Test described in AASHTO 210 or California Test Method 229.

Once time is selected, push the bottom START button and the machine will run for the selected time, then reset when it shuts off. The top red STOP button is used to terminate a test during a timing cycle if necessary for emergency or other reasons. When the STOP button is pressed, the machine resets and will run for the full test time when the START button is pressed again.

## 3.0 MAINTENANCE:

Normal routine maintenance consists of lubrication as follows:

Once a year, apply a small amount of automotive chassis grease at five locations. The gearmotor is lubricated at the factory and is sealed for the life of the unit.

1. Remove the top and rear covers.
2. Locate one grease zerk at the crank pin on the gearmotor shaft.
3. Locate one grease zerk at each of the four vee wheel attaching shafts.

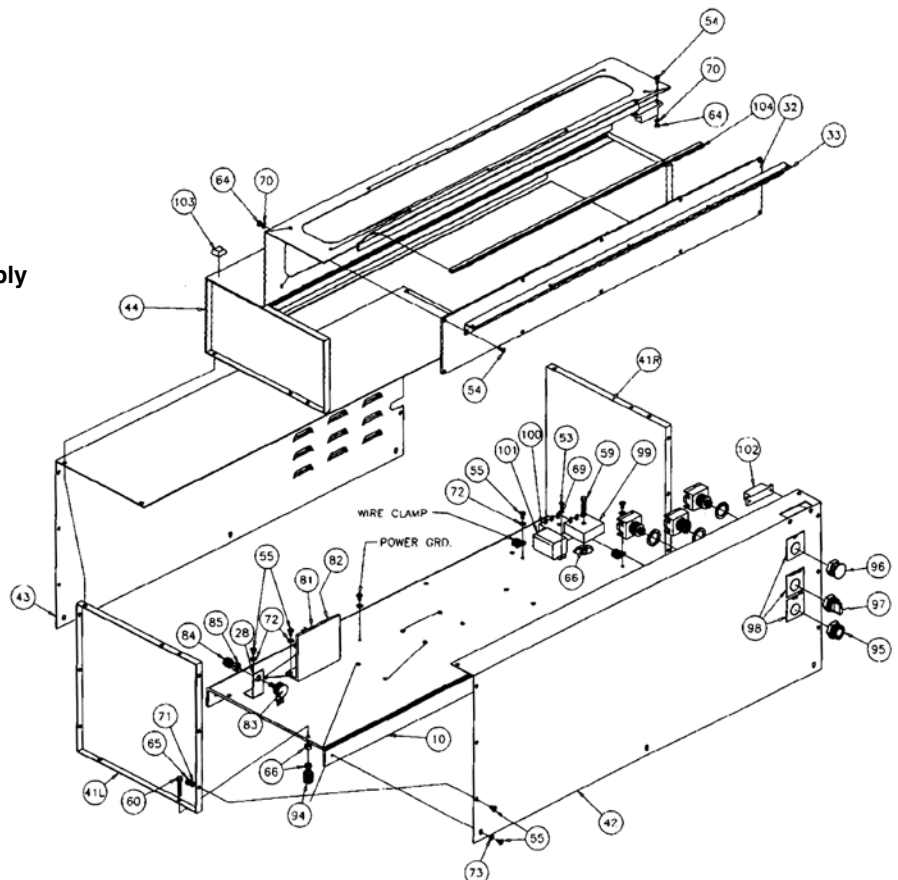
## 4.0 PARTS LISTS & DIAGRAMS:

### 4.1 SE-2B & SE-2BF Case Assembly Parts List & Diagram

Item No.	No. Req'd	Description
<b>CASE ASSEMBLY</b>		
10	1	D-SE2B-010 Base
28	1	B-SE2B-28 Pot Bracket
32	2	Window
33	1	Cover Stifner
41L	1	D-SE2-41L End Left
41R	1	D-SE2-41R End Right
42	1	D-SE2A-42 Case Front Lower
43	1	D-SE2A-43 Case Rear Lower
44	1	D-SE2A-044 Top Cover Assy
53	2	#6-32 x 3/8 Lg. RDHDMS
54	24	#8-32 x 1/2 Lg. FLHDMS
55	22	#10-24 x 3/8 Lg. THMS
59	2	1/4-20 x 1 1/4 Lg. HDCS
60	4	1/4-20 x 1 1/4 Lg. HHCS Full Thread
64	24	Nut, 8-32 Hex
65	8	Nut, 10-24 Hex
66	10	Nut, 1/4-20 Hex
69	24	#6 Lockwasher External
70	24	#8 Lockwasher Internal

Item No.	No. Req'd	Description
<b>CASE ASSEMBLY</b>		
71	15	#10 Lockwasher Helical Spring
72	5	#10 Lockwasher Internal
73	8	#10 Lockwasher External
81	1	Motor Chassis
82	1	Motor Resistor Kit
83	1	Motor Pot
84	1	Pot Locking Nut
85	1	Pot Mounting Nut
94	4	Foot
95	1	Start Switch
96	1	Stop Switch
97	1	Selector Switch
98	1	Switch Labels Set of 3
99	1	45 Sec Timer
100	1	10 Min Timer
101	1	Motor Relay
102	1	Safety Switch
103	2	Lid Bumper
104	1	Lid Handle Cover

**Figure 1**  
**SE-2B & SE-2BF Case Assembly**

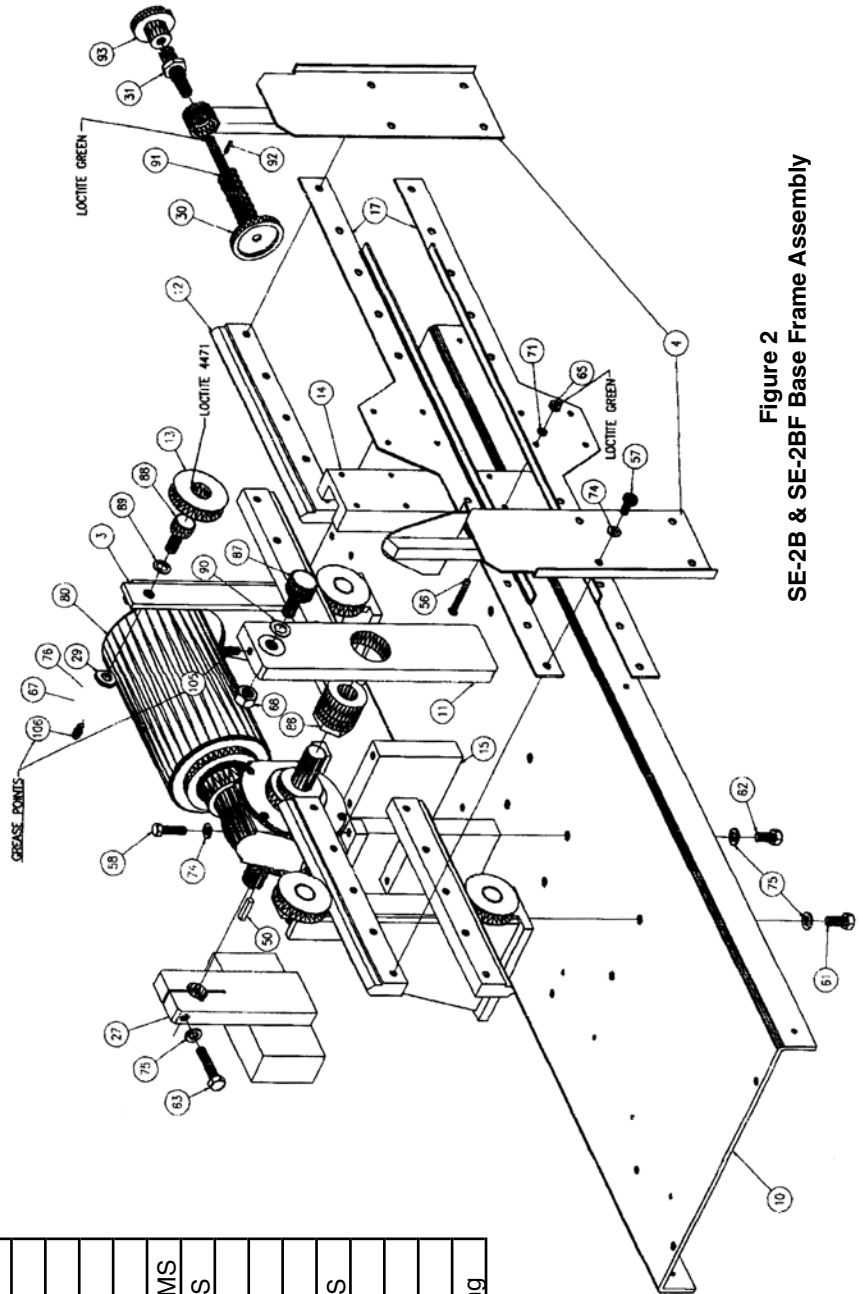


## 4.2 SE-2B &amp; SE-2BF Base Frame Assembly Parts List &amp; Diagram

Item No.	No. Req'd	Description
<b>BASE FRAME ASSEMBLY</b>		
3	2	D-SE2B-03 Carriage Support
4	1	D-SE2B-04 Tube Holder
10	1	D-SE2B-10 Base
11	1	B-SE2B-11 Crank
12	4	B-SE2B-12 Vee Track
13	4	A-SE2B-13 Vee Wheel
14	1	B-SE2B-14 Cam Block
15	2	B-SE2B-15 Motor Mtd Block
17	1	C-SE2B-17 Carriage
27	1	B-SE2B-027 Counter Weight
29	4	A-SE2B-29 Spacer
30	1	E-SE2-90 Tube Plunger
31	1	E-SE2-92 Plunger Guide
50	1	3/16 SQ. x 1" LG. CRS
56	8	Screw, #10-24x 1 1/2 LG. FHMS
57	20	Screw, 1/4 x 5/8 LG. PNHDMS
58	4	Screw, 1/4 x 1" LG. HHCS
61	4	Screw, 5/16 x 5/8 LG. HHMS
62	4	Screw, 5/16 x 3/4 LG. HHMS
63	1	Screw, 5/16 x 1 1/2 LG. HHMS
65	8	Nut, 10-24 HEX
67	4	Nut, 3/8-24 HEX
68	1	Nut, 7/16-20 HEX
71	8	#10 Lockwasher Helical Spring

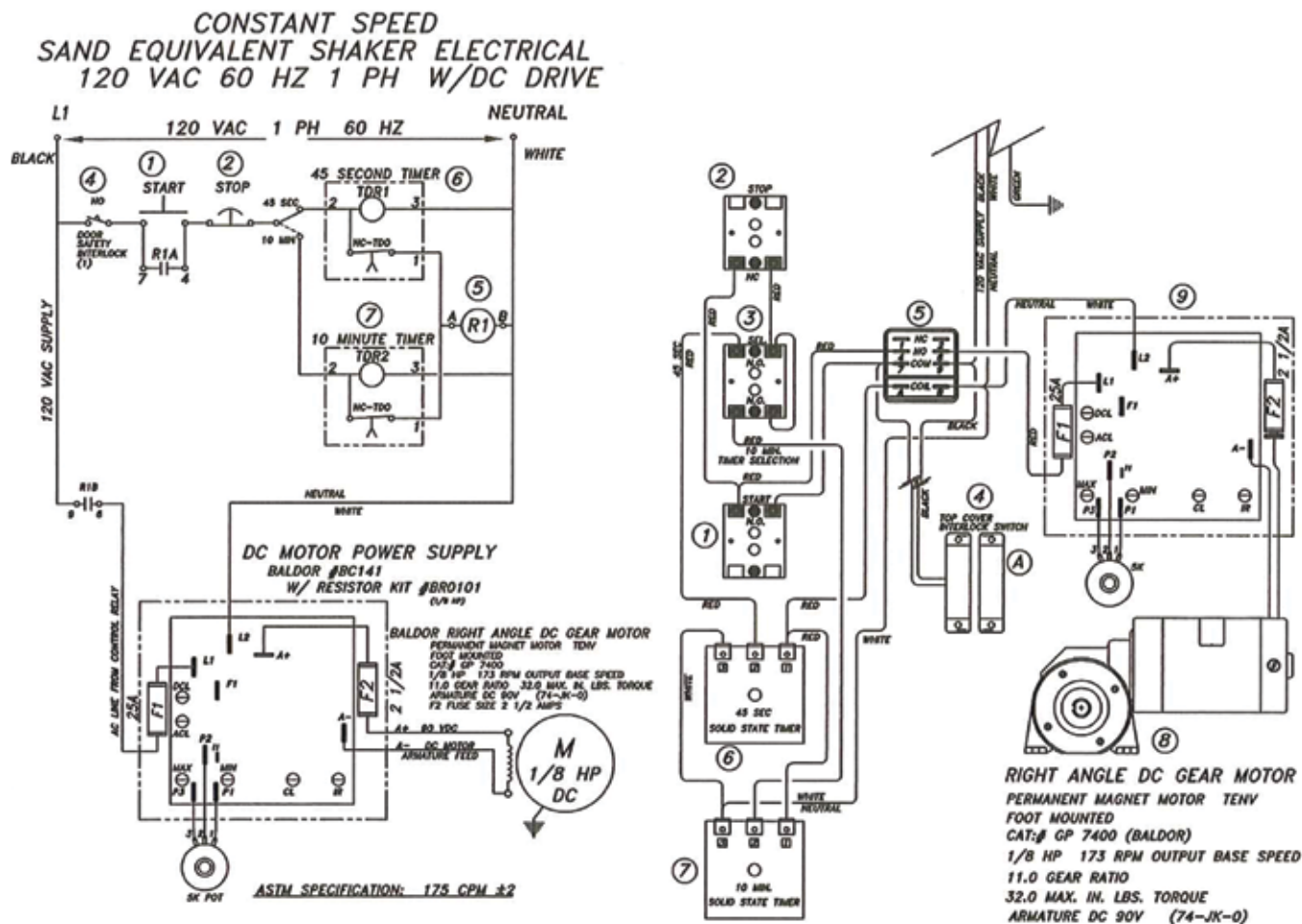
Item No.	No. Req'd	Description
<b>BASE FRAME ASSEMBLY</b>		
74	12	Lockwasher, 1/4
75	9	Lockwasher, 5/16
76	4	Lockwasher, 3/8
80	1	Baldor Gearmotor
86	1	Crank Coupling
87	1	Crank Cam Follower
88	4	Wheel Cam Follower

Item No.	No. Req'd	Description
<b>BASE FRAME ASSEMBLY</b>		
89	4	C616L Washer
90	1	CZ16L Washer
91	1	Spring
92	1	Roll Pin
93	1	Knob
105	1	Zerk Crank Pin
106	4	Zerk Vee Wheel

Figure 2  
SE-2B & SE-2BF Base Frame Assembly



### 4.3 SE-2B Electrical Schematic



### STROKE SPEED ADJUSTMENT

MAJOR COMPONENT LIST		120 VAC 60 HZ 1 PH
NO.	DESCRIPTION	
1	CONTROL CONCEPTS # 22PBNO-XFGN	- ONE REQ'D.
	LEGEND PLATE "START" # 22LPBK22	- ONE REQ'D.
2	CONTROL CONCEPTS # 22PBNC-XMRD	- ONE REQ'D.
	LEGEND PLATE "STOP" # 22LPRD12	- ONE REQ'D.
3	CONTROL CONCEPTS # 22SS3AC-XHBK	- ONE REQ'D.
	LEGEND PLATE "45S-OFF-10M" # 22LPBK-SP	- ONE REQ'D.
4	SENTRON #115-7Y-06K SAFETY INTERLOCK SWITCH	- 1 REQ'D
5	RELAY - DAYTON #1A491E	- ONE REQ'D.
6	45 SEC - SSAC #TSD241045S	- ONE REQ'D.
	NO SUBSTITUTES	
7	10 MIN. - SSAC #TSD241600S	- ONE REQ'D.
	NO SUBSTITUTES	
8	BALDOR RIGHT ANGLE DC GEAR MOTOR W/90 VDC PM MOTOR	
	#GP 7400 173 RPM OUTPUT (11:1)	- ONE REQ'D.
9	BALDOR CHASSIS MOUNT DC CONTROL	
	#BC141 W/RESISTOR KIT # BR0101	- ONE REQ'D.

120 VAC 60 HZ 1 PH			
REVISIONS			
NOL	DESCRIPTION	DATE	CH'G. BY
GEN REV	REPLC SWITCHES	7-10-95	JAS
GEN REV	UPGRADE TO 1/6 HP	6-14-96	JAS
A	ADD DOOR INTLK.	7-4-96	JAS
B	GEN REV	8-28-96	JAS
	REPLC ARTISAN	2-9-01	JAS
GILSON SCREEN INC			
P.O. BOX 99 MALINTA, OHIO 43335			
CUTSHIRTS			
GILSON COMPANY INCORPORATED			
JAS	SE-2	120 VAC 60 HZ	
SCRD	NONE	7-5-95	
WKS BY	JAS	FULLY TRD	
OWB		DC DRIVE	
		WKS NO	
			S950705-GCI