BKM electronics

GILSON COMPANY, INC.

OPERATING MANUAL

Gilson Rotary Sifter

SS-20 and SS-20F

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SAFETY INFORMATION

Please read these instructions thoroughly to familiarize yourself with the operation of the SS-20 before attempting to run it.

The buyer is responsible for ensuring that users are properly trained, that they are aware of all of the information and instructions in this document, and that they are aware of the potential risks of operating the machine. The manufacturer will not be responsible for any damage to people and/or property caused by noncompliance with any instructions in this manual.

NOTE: These instructions are intended only as a guide for general operation of this device and should not be used in place of test protocol. Refer to current specification(s) for complete and detailed test procedures.

ALWAYS ensure the motor and other electrical components are properly configured for your intended use and available power source. SS-20 operates on 115V,60Hz and SS-20F operates on 230V,50/60Hz. Both models must be connected to a properly grounded, dedicated outlet with a minimum 15A capacity.

ALWAYS use a properly wired, 3-pronged plug, or otherwise ground the machine. Make sure the cord is located where no one will trip or get tangled in it.

ALWAYS check electrical wiring for loose connections and for pinched or frayed wiring.

ALWAYS disconnect and lock out power supply when the machine is not in use, especially before performing maintenance and repairs. The electric motor on this machine has internal thermal protection. If the motor shuts off from overload, the machine may restart by itself after cooling off, unless the machine is unplugged during cooldown.

⚠ **WARNING:** This machine operates on an electric current. Improper operation could result in electric shock, electrocution, or an explosion! Motors are **NOT** explosion-proof!

⚠ **WARNING:** Do not wear loose clothing that might be caught in the machine and keep all body parts away from moving parts of the machine. **ALWAYS** wear safety glasses, hearing protection, and other personal protective equipment while operating this machine.

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

⚠ **WARNING:** **DO NOT** perform tasks on the machine other than those for which it was designed. Only use the machine in the manner for which it was intended, as described in this instruction manual.

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

NEED ASSISTANCE? CONTACT US:

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1.0 INTRODUCTION

Rotary Sifters hold a sieve stack in a totally enclosed cabinet for safe, dust-free operation. The sieve stack is placed inside the cabinet, resting against the rollers; no clamping is required. An ergonomic knob allows easy tilting of the cabinet between the loading and testing positions. A drive roller system continuously rotates the sieve stack and particle separation is assisted by hammers tapping against individual sieves in the stack. The digital countdown timer with a large LED screen precisely times operation.

2.0 UNPACKING AND SETUP

WARNING: The SS-20 weighs 219lb. Use appropriate equipment and personnel to uncrate and assemble the sifter. Wear safety glasses and work gloves.

The SS-20 Gilson Rotary Sifter is shipped with the steel support stand detached. The sifter cabinet must be installed on the support stand to operate properly. DO NOT attempt to operate the sifter until properly assembled. See section 3.4 for components.

1. Remove the two halves of the steel support stand from the box. Each half has a frame crossrail partially bolted to the bottom rail.
2. Set the support stand halves parallel to each other on a sturdy surface. Swing each crossrail out 90° and connect to the opposite bottom rail, securing with the bolts and nuts supplied. Tighten all connections securely.
3. Remove the top half of the pivot post mounts from the floor stand and set aside.
4. **Use two people** to lift the sifter cabinet and carefully set it vertically on the frame so that both pivot posts rest in the “saddle” of the pivot post mounts.
5. Replace the top half of the mounts and secure the bolts.
6. Check that all connections are secure and that the sifter properly rotates 45° back from vertical to its testing position, resting against the cabinet rotation stops.

3.0 OPERATION

NOTE: Please read and understand all safety and operating instructions for the Gilson Rotary Sifter before putting it into service.

3.1 Preparing the Test Specimen and Sieve Stack Assembly

Gilson Rotary Sifters efficiently separate most free-flowing materials with particle sizes ranging from 1in to No.200 (25mm to 75µm). Performance on finer size ranges down to No.635 (20µm) can be determined with experimentation. The test specimen should be large enough to be representative without overloading any individual sieve.

For materials with specific gravities similar to mineral aggregates, the maximum loading for individual sieves should be limited to 200g for 8in sieves and 450g for 12in sieves. It is considered good sieving practice to limit the thickness of the material on the sieve to about one particle, ensuring each particle has a reasonable opportunity to pass through an available opening.

NOTE: Overloading on one or more sieves may result in incomplete separation, inaccurate results, or damage to the sieve cloth. Large samples should be tested in two or more batches, combining the results for final calculations.

1. Adjust the Rotary Sifter to the proper settings based on the diameter of the test sieves to be used.

   1.1. There are two openings approximately 2in apart in the bottom of the cabinet (see section 3.4). Insert the post of the sieve turntable into the proper position; the opening toward the front is for 12in or 300mm dia. sieves, and the one toward the back is for 8in or 200mm dia. sieves.

   1.2. Set the sieve size selector knob on the front control panel to **12in or 300mm** or **8in or 200mm** to match the sieves' diameter. This adjusts the springs controlling the tapping hammers for the best tapping force.
2. Assemble the sieve stack, including the appropriate receiving pan. Start with the pan and finer sieves on the bottom, progressing to the coarser sieves on top.
3. Add the prepared test specimen to the top sieve and put the sieve cover on.
4. Open the cabinet door and allow it to swing the full 170° for complete and easy access to the interior.
5. Carefully place the entire sieve stack on the sieve turntable, resting the stack against the rubber-covered rollers in the back of the cabinet.
6. Use the ergonomic knob on the side of the case to tilt the cabinet back against the cabinet rotation stops to its operating angle of approximately 45°.
7. Close the cabinet door completely.

NOTE: Before starting a test cycle, the Rotary Sifter cabinet **must** be tilted back against the rotation stops. Failure to do this may result in incomplete separation or loss of the test specimen.

NOTE: The door safety switch prevents operation of the sifter and timer until the cabinet door is completely closed. Disabling this switch makes operation of the sifter dangerous and voids the warranty.

3.2 Setting the Countdown Timer

This unit is equipped with an easy-to-operate Gilson countdown timer. The timer has a large 0.6in LED display and operates in four different modes.

The current timer mode is indicated by the four red LEDs on the timer face (Fig. 1):

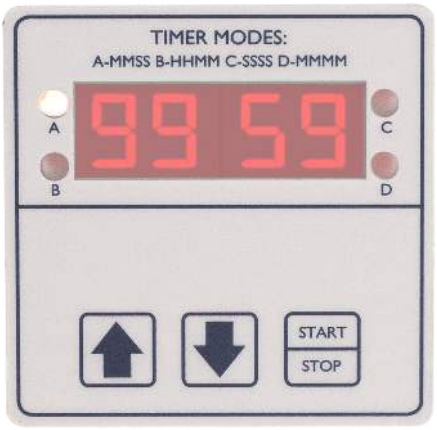


Fig. 1 Gilson timer modes

A = MMSS	(99min:59sec x 1sec)
B = HHMM	(99hr:59min x 1min)
C = SSSS	(9,999sec x 1sec)
D = MMMM	(9,999min x 1min)
H=HOURS • M=MINUTES • S=SECONDS	

3.2.1 Adjusting the Timer Mode

1. Press and hold both the up and down arrow keys at the same time until the display shows the mode.
2. Press the up or down arrow to change modes.
3. Press **START/STOP** to accept the new mode.

NOTE: The timer is factory set to mode "A."

3.2.2 Setting the Run Time

1. Press either the up or down arrow key. The first digit on the righthand side will flash in half-second intervals.
2. Press either arrow key to adjust to the desired value.
3. Enter the displayed digit and move to the next by pressing **START/STOP.** Once the last digit on the left is entered, the timer is ready to start.

The time required to complete a test will vary depending on the physical characteristics of the test material. Most separations are completed in 10min or less. However, determining the optimum test time for a particular material may require experimentation.

3.3 Running a Test Cycle

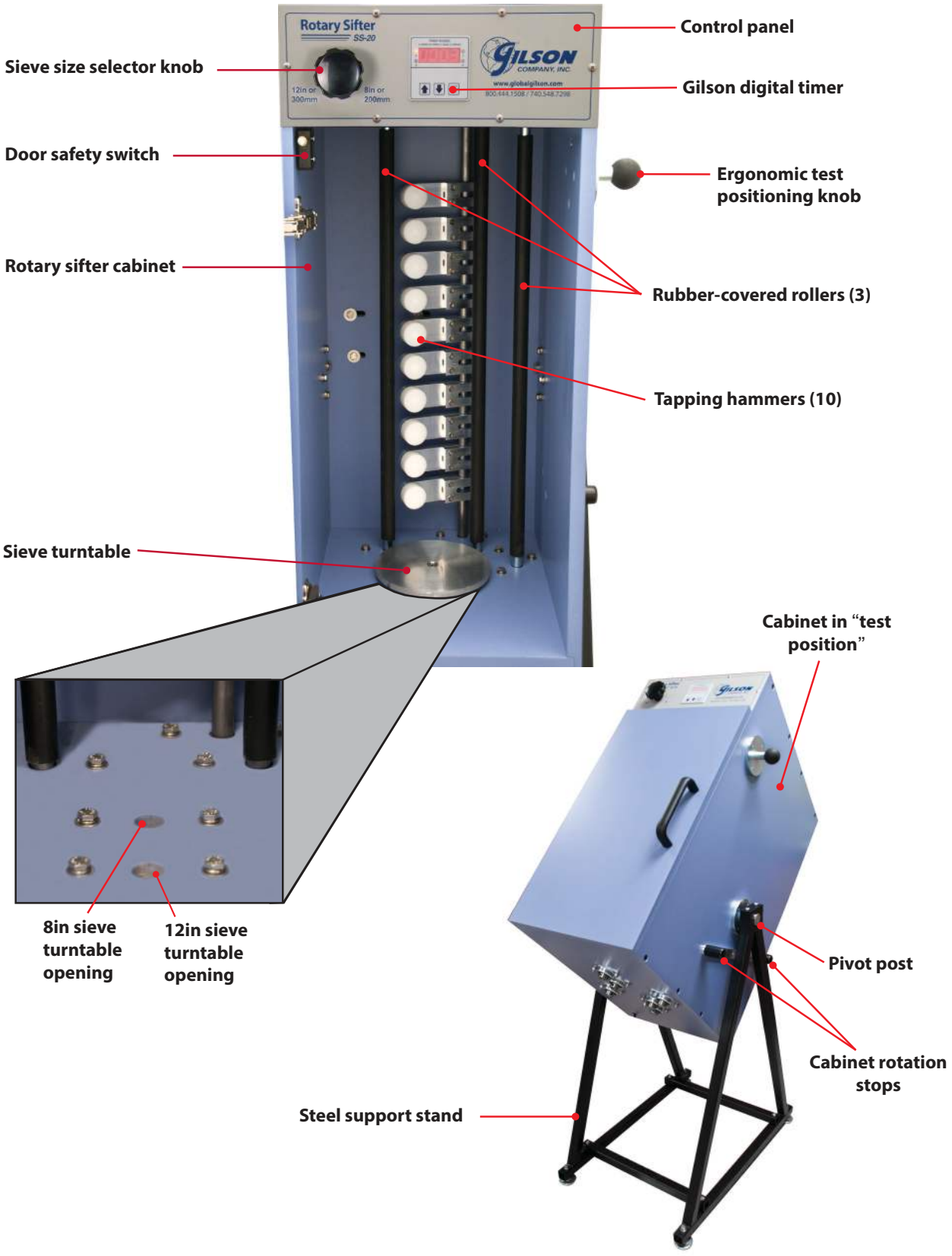
1. Ensure the cabinet is rotated back to its operating angle of 45°.
2. Press **START/STOP** to initiate the current run program. At the completion of the test cycle, the timer beeps and displays **DONE.**

NOTE: Pressing **START/STOP** while the sifter is running will pause the timer with the current amount of time remaining on screen.

NOTE: Opening the cabinet door in the middle of a test cycle shuts off all power to the timer and motor. When the door is closed again, the timer will be reset to the originally programmed time interval.

3. Press any key to reset the timer and prepare it for the next cycle. Setting and mode values are saved automatically.
4. Once the test cycle is complete, open the cabinet door and remove the sieve stack for weight determinations.

3.4 Components of the SS-20 Gilson Rotary Sifter



4.0 TROUBLESHOOTING

Before performing maintenance or repairs on the sieve shaker, **ALWAYS** read and understand the safety, operating, and maintenance instructions.

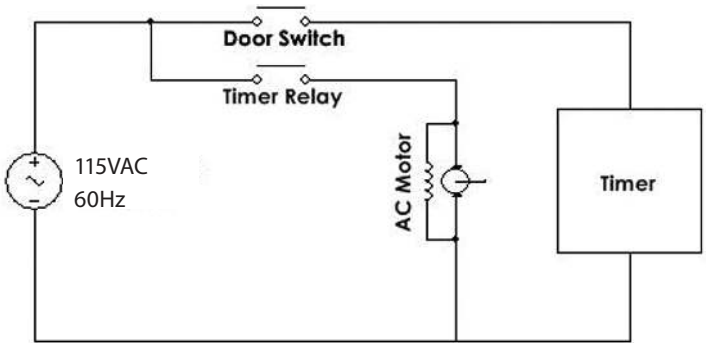
GILSON ROTARY SIFTER TROUBLESHOOTING		
Symptoms	**Possible Causes**	**Solutions**
There is no power to the display and/ or the machine will not operate.	The power is disconnected.	Reconnect to the power supply.
	The door is not closed completely.	Close the door completely.
	The door safety switch is faulty.	Check the connections and/or replace the door safety switch.
The display is lit, but the motor does not run.	The connections and/or wiring are faulty.	Trace the circuits with an electrical meter.
	The timer is faulty.	Diagnose the timer output/connections.
	The motor is faulty.	Replace the motor.
The display is lit, and the motor runs, but the machine does not operate properly.	There is a loose or broken drive belt.	Adjust the tension or replace the belt.
	The pulley(s) are loose on the shaft(s).	Tighten the setscrews on the shaft bearings.
	The turntable is installed in the wrong position.	Install the turntable in the correct position.
	The sieve size selection knob is not set correctly.	Set the selection knob to the correct sieve size.
The machine is generating excessive noise and/or vibration.	The sieve stack is not seated properly.	Seat the sieve stack properly.
	The turntable is installed in the wrong position.	Install the turntable in the correct position.
	Drive components have been improperly adjusted or are broken.	Check the belts, pulleys, bearings, and rods. Adjust or replace as needed.
	The sieve size selection knob is not set correctly.	Set the selection knob to the correct sieve size.
There is excessive loss of specimen fines during the test cycle.	Sieve frames or flanges are damaged or deformed.	Replace the damaged or deformed sieves.
	The sieve stack is not seated properly.	Seat the sieve stack properly.
The test results are inconsistent or unexpected.	The sieve cloth is damaged or out of specification.	Replace the sieve(s).
	The sieve mesh is blinded.	Clean the sieve(s).
	There is improper tapper operation.	Adjust or repair the tappers.
	The test time is insufficient.	Increase the test time (see section 3.2).

5.0 TECHNICAL SUPPORT

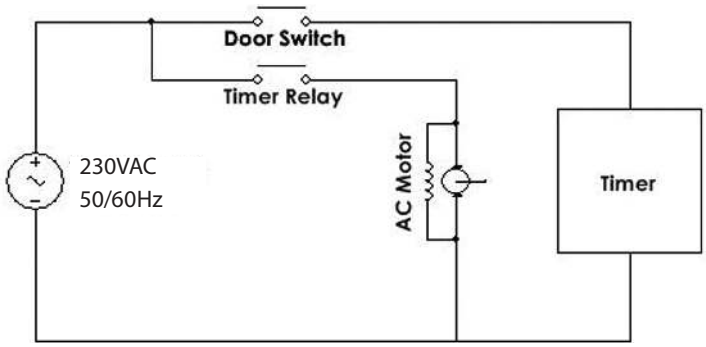
Contact Gilson technical support for assistance with applications, operation, maintenance, or repair.

Telephone: 800.444.1508 / 740.548.7298 **Email:** techsupport@gilsonco.com **Web:** globalgilson.com

6.0 ELECTRICAL SCHEMATICS



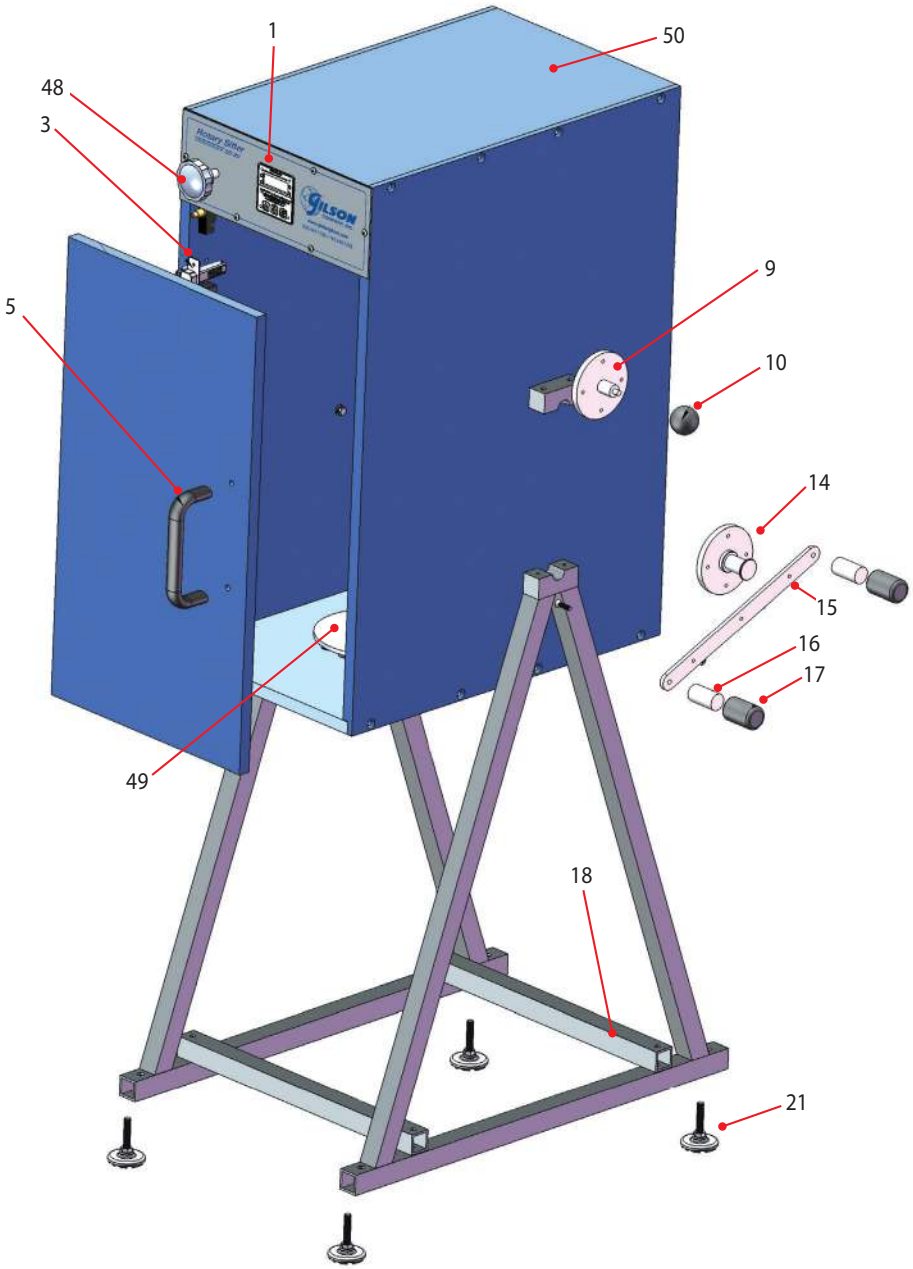
SS-20 Electrical Schematic



SS-20F Electrical Schematic

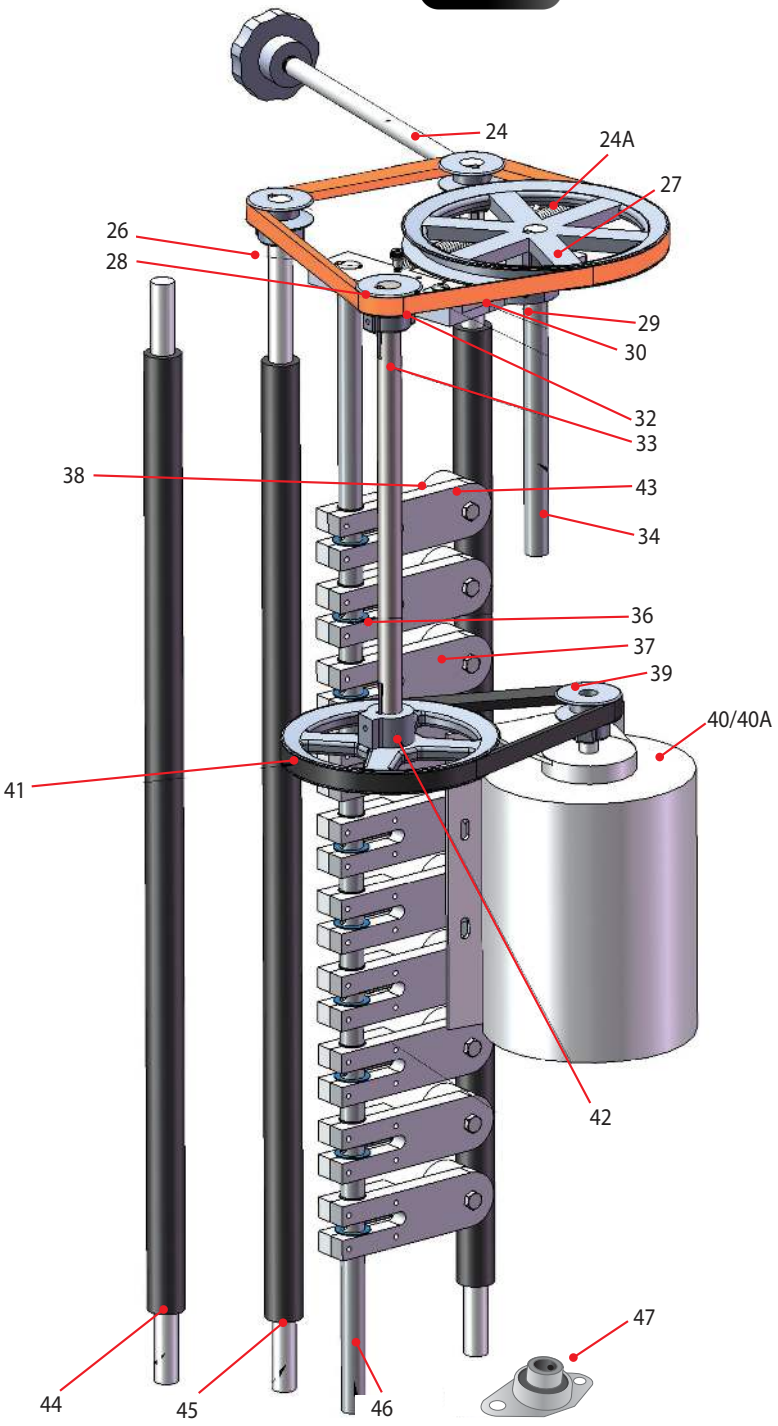
7.0 PARTS DIAGRAMS AND LISTS

7.1 SS-20 External Parts Diagram and List



Item No.	Part No.	No. Req.	Description
1	SSA-76	1	Timer/Controller
3	WGRA-HINGE_MALE	2	Door Hinge Female
3	WGRA-HINGE_FEMALE	2	Door Hinge Female
5	WGRA-DOORHANDLE	1	Door Handle
9	WGRA-PULLHANDLE	1	Mount For Pull Handle
10	WGRA-PULLKNOB	1	Pull Handle Knob
14	WGRA-ROTATEPOST	2	Pivot Post
15	WGRA-GUIDEBRKT	1	Tilt Guide

Item No.	Part No.	No. Req.	Description
16	WGRA-STOPPER	2	Tilt Stop
17	WGRA-STPRCAPS	2	Tilt Stop Cap
18	WGRA-CROSSRAIL	2	Frame Crossrail
21	WGMD-LEV.FEET	4	Feet
48	WGRA-SWITCHASSY	1	Door Switch
49	WGRA-TURNTABLEASSY	1	Sieve Turntable
50	WGRA-TOPCOVER	1	Top Cover

7.2 SS-20 Internal Parts Diagram and List

Item No.	Part No.	No. Req.	Description
24	WGRA-SPRINGROD	1	Tensioner Rod
24A	WGRA-SPRING	2	Tension Spring
26	WGRA-VBELTUPPER	1	Upper V-Belt (orange)
27	WGRA-700X625PULLEY	1	Cam Pulley
28	WGRA-CAMARM21	1	Cam Hammer Arm
29	WGRA-CAM	1	Cam
30	WGRA-CAMHAMMERHEAD	1	Cam Hammer Head
32	WGRA-200X625PULLEY	3	Rod Pulley
33	WGRA-ROD13	1	Drive Shaft Rod
34	WGRA-ROD9	1	Cam Rod
36	WGRA-NYLINER	20	Nylon Spacer
37	SSA-72	10	Hammer Assembly
38	SSA-74	10	Hammer Head
39	WGRA-175X500PULLEY	1	Motor Pulley
40	WGRA-MOTOR	1	Motor, 115v,60Hz
40A	WGRA-MOTOR-F	1	Motor, 230v,50Hz
41	WGRA-VBELTLOWER	1	Lower V-Belt
42	WGRA-600X625PULLEY	1	Drive Pully
43	SSA-12	10	Cover for Tapper
44	WGRA-IDLERASSY	1	Idle Rod and Cover
45	WGRA-DRIVERASSY	2	Driver Rod and Cover
46	WGRA-HAMMERROD	1	Hammer Rod
47	WGRA-FLANGEBEARING	12	Flange Bearing