



w.s.tyler

TEST SIEVES, SIEVE SHAKERS & PARTICLE ANALYSIS EQUIPMENT **PARTS & OPERATIONAL MANUAL**



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A Haver & Boecker Company



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SET-UP & START-UP RO-TAP® RX MODELS

INSTALLATION

The sieve shakers (RO-TAP® Models RX-29 & RX-30 & Coarse Model RX-812) must be mounted on a RO-TAP® Test Stand (R-40041), concrete foundation or heavy bench capable of supporting 200 lbs. Moderate tension of the mounting bolts is all that is required.

BASIC OPERATION

A) RO-TAP® MODELS: RX-29, RX-30 and RX-94

Assemble a stack of sieves, beginning with the top cover, the coarsest (largest) sieve opening on top, with a pan on the bottom. Place the stack into the shaker, with the hammer tilted up and out of the way. Place the RO-TAP® sieve cover, with the plug installed, on top of the sieve stack. The sieve support clamp bar is then adjusted, by loosening/tightening the two adjustable handles. Press the yellow buttons and turn handles in the appropriate direction. Bring the top of the RO-TAP® sieve cover flush with the top of the upper carrying plate.

NOTE: Some force may be required to move the support clamp bar on the RO-TAP® II (RX-94). This is due to the resistance of the gas safety spring.

B) Coarse Sieve Shaker Models: RX-812

Assembly of the sieve stack is the same as with the RO-TAP. The clamping assembly is adjusted from the top down by screwing the two knobs down on the threaded clamp bars.

Starting the Shaker (Timer Function)

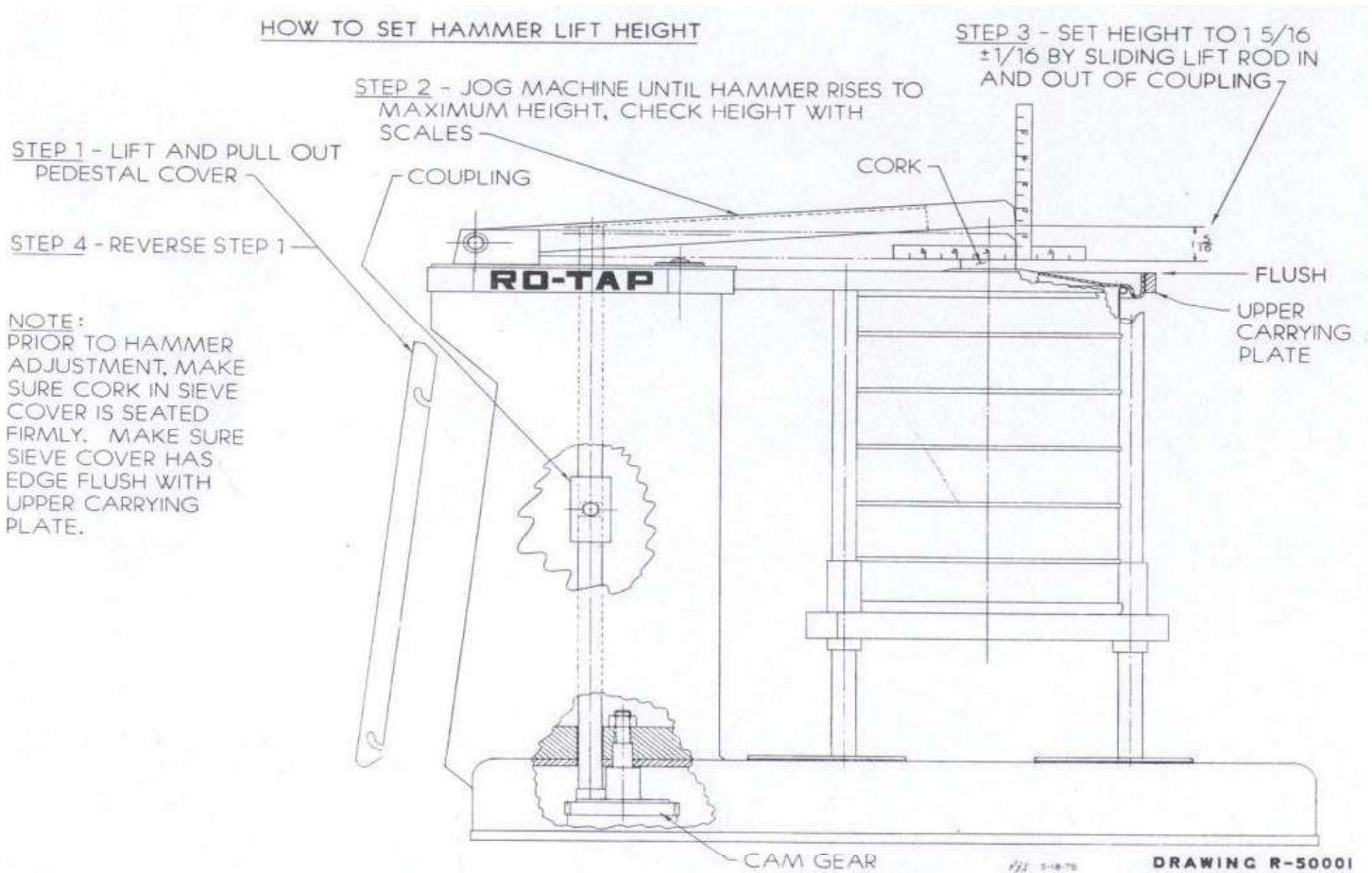
Make sure a sieve stack is in place at the time. To set the test run time, set the test duration by pushing the increase button until the desired time appears in the digital window. Push the start button to begin the test. An audible tone will be heard at the end of the test.

Should you wish to stop or interrupt the test at any time, simply push the stop button. Note that the remaining test time is frozen on the readout. To continue, simply push the start button. Once a test is complete, if you wish to repeat the prior process, simply push the start button. The most recent time will remain in memory.

NOTE: The timing device also has a clock function. To use this option, hold the "clock" set/display button and adjust the proper time with the increase/decrease buttons.



HAMMER DROP ADJUSTMENT



SETTING THE HAMMER LIFT HEIGHT

RO-TAP® MODELS: RX-29 AND RX-30 AND RX-94

(NOTE: THIS SETTING HAS BEEN MADE ON ALL NEW UNITS)

NOTE: Prior to hammer adjustment; make sure cork is seated firmly in sieve cover.

Make sure sieve cover has top edge flush with upper carrying plate. A stack of sieves must be used to achieve this setting.

STEP 1

Remove pedestal cover.

STEP 2

Jog machine until hammer rises to maximum height using a box wrench on the hex head screw, located on top of the pedestal.

STEP 3

Set height to 1-5/16 +/- 1/16" by loosening screw on coupling and adjusting lift rod.

STEP 4

Tighten screw on coupling to lift rod.

STEP 5

Replace pedestal cover.

LUBRICATION

The W.S. Tyler Sieve Shakers require only minimal periodic lubrication.

The units incorporate plastic and oil-impregnated bronze bearing materials, which are self-lubricating. A few drops of light oil or WD-40™ every six months may be necessary to prevent drying of the parts. Application of the same lubricants will suffice if a squeak or a drag should develop in the mechanism.

W.S. TYLER RO-TAP®



**PLEASE BE ADVISED:
REVIEW THESE WARNINGS
PRIOR TO USE**

WARNING

E Before removing cover set timer to zero and disconnect the power!

D Vor Öffnung der Maschine Zeitschaltuhr auf 0 stellen und Netzstecker ziehen!

F Tableau indicateur: Avant L ouverture de la machine veuillez regler la minuterie a 0 et retirer la fiche de contact!

S Advertencia:
Ponga el marcador en zero y desconecte la electricidad antes de quitar la tapa!



WARNING

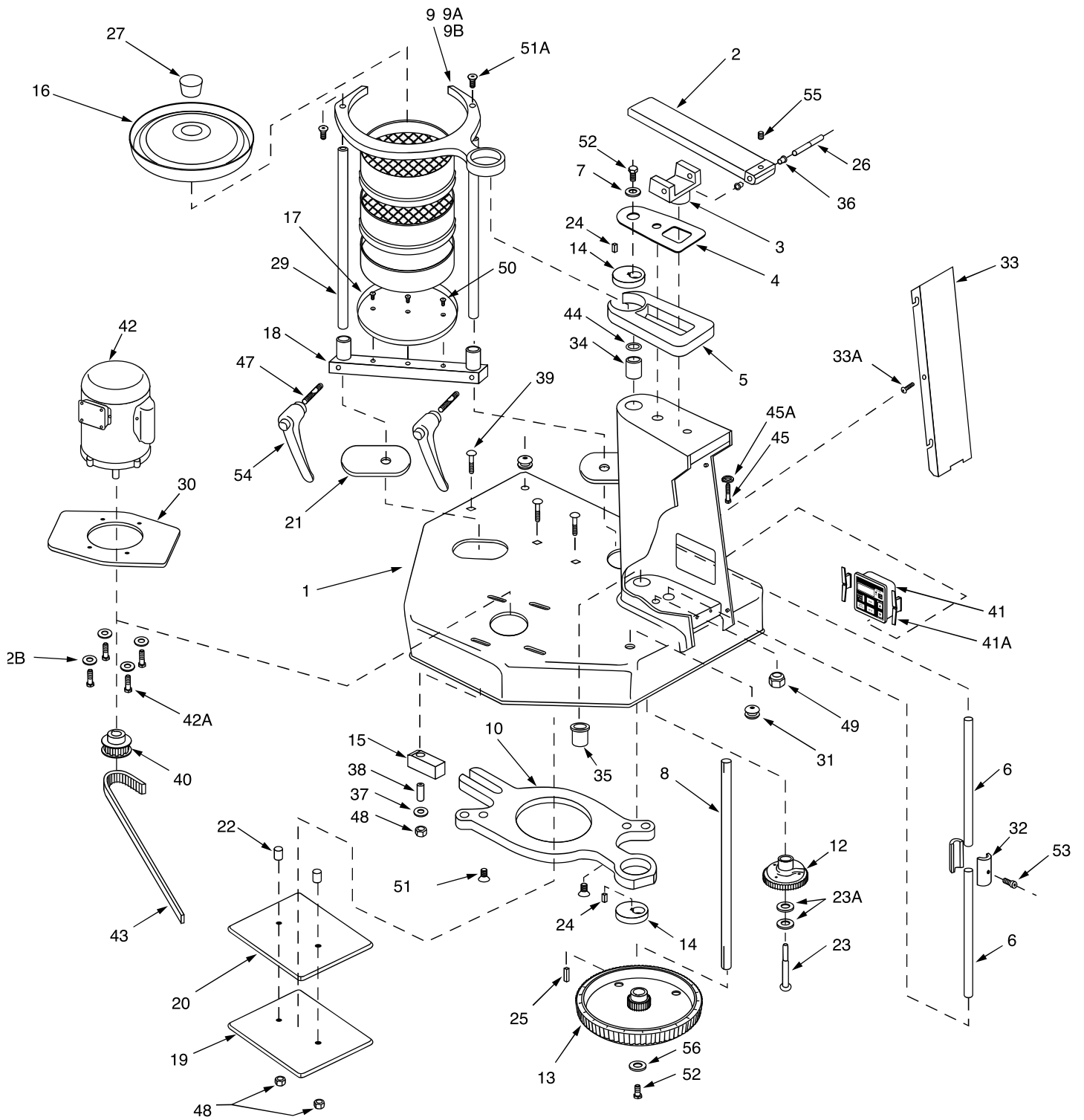
DO NOT USE THIS EQUIPMENT
WHERE HAZARDOUS OR
EXPLOSIVE DUST, VAPOR OR
LIQUIDS MAY BE PRESENT

DO NOT MOUNT ON
COMBUSTIBLE SURFACES

PASSED
FINAL INSPECTION

BY *A. J. [Signature]* DATE 6.10.20
A. J. [Signature]

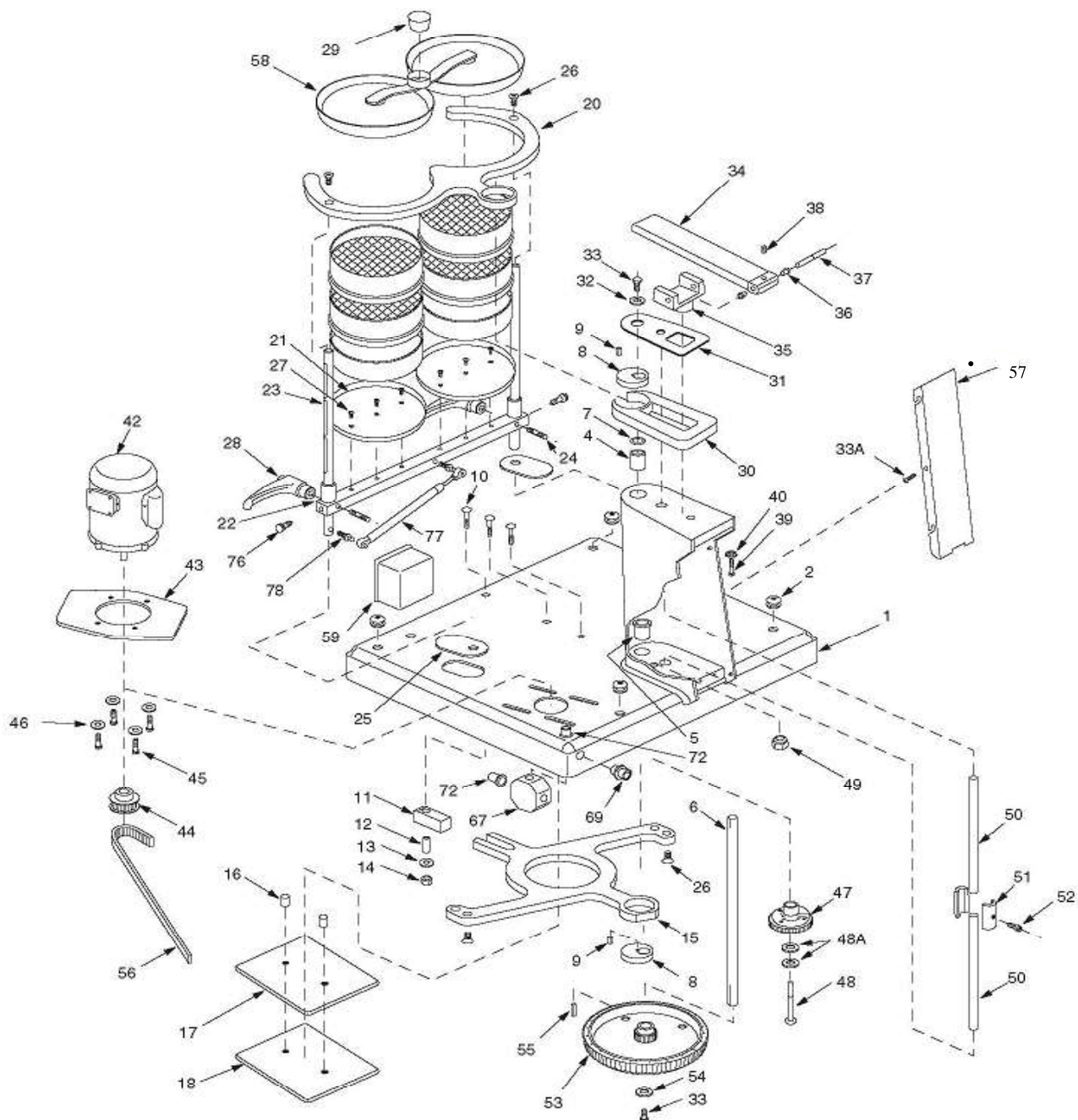
RX-29 & RX-30 RO-TAP® PARTS DIAGRAM



RX-29 & RX-30 RO-TAP® PARTS LIST

Item #	Part #	Description	Required
1	107770	Base	1
2	R-20029	Hammer	1
3	R-20023	Hammer Block	1
4	R-30019	Sheet Guard	1
5	R-30010	Rotating Guard	1
6	R-10036	Lift Rod	2
7	R-10038	Upper Main Shaft Washer	1
8	R-20027	Main Shaft	1
9	R-30008	Upper Carrying Plate: RX-29 (plastic)	1
9A	R-30008-1	Upper Carrying Plate: RX-29 (heavy-duty cast aluminum)	1
9B	R-30027	Upper Carrying Plate: RX-30 (steel)	1
10	R-30009	Lower Carrying Plate	1
12	R-20039	Cam Gear	1
13	R-30015	Timing Belt Pulley	1
14	R-10034	Eccentric Discs	2
15	R-10032	Block	1
16	R-30007	Sieve Cover (RX-29)	1
	R-30011	Sieve Cover (RX-30)	1
17	R-30006	Sieve Support Plate (RX-29)	1
	R-30013	Sieve Support Plate (RX-30)	1
18	R-30023	Sieve Support Clamp Bar (RX-29)	1
	R-30022	Sieve Support Clamp Bar (RX-30)	1
19	R-20019	Backup Plate	1
20	R-20020	Bearing Plate	1
21	R-20033	Shield	2
22	R-10028	Tube Spacer	2
23	R-10029	Cam Shoulder Screw	1
23A	106582	1/2 in. ID Sham	2
24	R-10042	Main Shaft Key – Eccentric	2
25	R-10039	Main Shaft Key – Lower	1
26	R-10035	Hammer Pin	1
27	R-10066-A	Cork Plug (10 per pk.)	1 pk.
29	R-10033	Tie Rod	2
30	R-30018	Motor Adapter	1
31	ZA11167	Grommet	2
32	R-10030	Lift Rod Coupling (2-1/2 in. long)	1
33	R-40011	Pedestal Cover	1
34	R-10061	Flange Bushing	1
35	R-10062	Bearing	1
36	R-10063	Flange Bearing	2
37	ZF10168	Thrust Washer	1
38	R-10065	Steel Bushing	1
39	ZF10174	3/8-16 NC x 2-1/4 in. Carriage Bolt	3
40	R-10070	Sprocket w/ Set Screw: 14 teeth (1800 RPM) – 60 Hz	1
	R-10048	Sprocket w/ Set Screw: 17 teeth (1500 RPM) – 50 Hz	1
41	R-40029	Electronic Timer: 115v	1
	R-40037	Electronic Timer: 230v	1
42	RP-1500-23	Motor: 1/4 HP (115v/230v) (60Hz/50Hz) 1 Phase	1
42A	ZF10183	3/8 -16 x 1 in. Long Hex Head Screw	4
42B	ZF10168	3/8 ID Flat Washer	4
43	R-10058	Timing Belt	1
44	R-10055	Shim	1
45	ZZ10068	1/2- 13 x 2-1/2 in. Long Head Bolt	1
45A	ZZ10323	1/2 ID Lock Washer	1
47	R-10079	Clamp Screw	2
48	ZF10221	3/8 in. Lock Nut	3
49	ZF10222	1/2 in. Lock Nut	1
50	ZF10231	10- 32 x 1/2 in. Long Flat Head Socket Cap Screw	3
51	ZF10241	3/8- 16 x 3/4 in. Long Flat Head Socket Cap Screw	2
51A	ZF10240	3/8- 16 x 3/4 in. Long Hex Head Screw	2
52	114162	3/8- 16 x .62 in. Long Hex Head Screw	2
53	ZF10251	5/16- 24 X 1-1/4 in. Long Socket Head Cap Screw	1
54	R-20082	Adjustable Handles (pair)	1
55	ZA10148	#10-24 x 1/4 in. Socket Head Set Screw	1
56	ZF10271	3/8 ID x 1-1/2 in. OD Fender Washer	1
60*	R-10017	Timer Cord w/ Plug (110v)	1
60A*	R-10017-220	Timer Cord w/ Plug (220v)	1

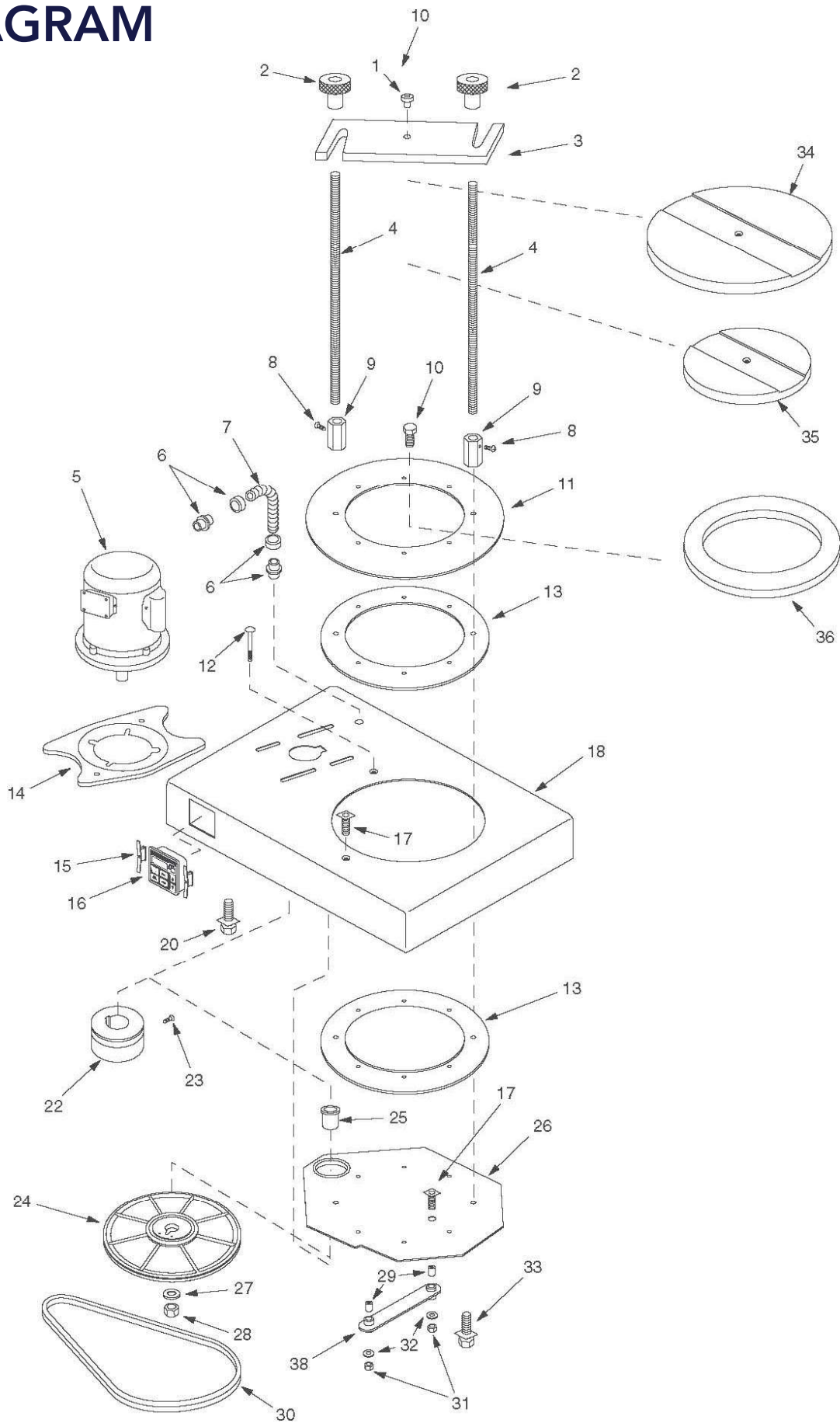
RX-94 RO-TAP® II PARTS DIAGRAM



RX-94 RO-TAP® PARTS LIST

Item #	Part #	Description	Required
1	R-40023	Painted Base Weldment	1
2	ZA11167	Grommet	4
4	R-10061	Flanged Bearing	1
5	R-10062	Bearing	1
6	R-20027	Main Shaft	1
7	R-10055	Shim 1.42 OD x .0155 Thick	1
8	R-10034	Eccentric Discs	2
9	R-10042	Main Shaft Key	2
10	ZF10174	3/8 -16 x 2-1/4 in. Carriage Bolt	3
11	R-10032	Block	1
12	R-10065	Steel Bushing .62 OD x .385 ID x 1-1/4 in.	1
13	ZF10168	3/8 in. Flat Washer	1
14	ZF10221	3/8 - 16 Locknut	1
15	R-40017	Lower Carrying Plate	1
16	R-10028	Tube Spacer	2
17	R-20020	Bearing Plate	1
18	R-20019	Back-up Plate	1
19	ZF10221	3/8 -16 Locknut	2
20	R-40019	Upper Carrying Plate	1
21	R-30006	Support Plate	2
22	R-40018	Dual Sieve Support Clamp Bar	1
23	R-40021	Tie Rod	2
24	R-10079	Clamp Screw	2
25	R-20033	Shield	2
26	ZF10241	3/8 -16 x 3/4 in. Long Flat Head Screw	4
27	ZF10231	#10-32 x 1/2 in. Long Flat Head Screw	6
28	R-20082	Adjustable Handles (pair)	1
29	R-10066-A	Cork Plug (10 per pk.)	1
30	R-30010	Rotating Guard Assembly	1
31	R-30019	Sheet Guard	1
32	R-10038	Upper Main Shaft Washer	1
33	114162	3/8 -16 x .62 Long Head Hex Cap Screw	2
34	R-20029	8 in. Hammer	1
35	R-20023	Hammer Block	1
36	R-10063	Flanged Bearing	2
37	R-10035	Hammer Pin	1
38	ZA10148	#10-24 x 1/4 in. Long Flat Point Socket Head Cap Screw	1
39	ZZ10068	1/2-13 x 2-1/2 in Long Hex Head Bolt	1
40	ZZ10068	1/2 ID Lock Washer	1
42	P-1500-23	Motor: 1/4 HP (115v/230v) (60Hz/50Hz) 1 Phase	1
43	R-30018	Motor Adapter Plate	1
44	R-10070	Sprocket -14 teeth (1800 RPM) w/ Set Screw	1
45	ZF10183	3/8- 16 x 1 in. Long Hex Head Screw	4
46	ZF10168	38/ ID Flat Washer	4
47	R-20039	Cam Gear	1
48	R-10029	Cam Shoulder Screw	1
48A	106582	1/2 ID Shim	2
49	ZF10222	1/2- 13 Locknut	1
50	R-10036	Lift Rod	2
51	R-10030	Lift Rod Coupling	1
52	ZF10251	5/16- 24 x 1-1/4 in. Long Socket Head Cap Screw	1
53	R-30015	Timing Belt Pulley	1
54	ZF10271	3/8 ID x 1-1/2 in. OD Fender Washer	1
55	R-10039	Main Shaft Key (lower)	1
56	R-10058	Timing Belt	1
57	R-40011	Pedestal Cover	1
58	R-40020	Dual Sieve Cover	1
59	R-40030	Timer Enclosure	1
60*	R-40029	Electronic Timer (115v)	1
60A*	R-40037	Electronic Timer (230v)	2
66	R-10118	3-1/4 in. Octagon Box (Appleton #30)	1
76	R-40028	Hand Retractable Plunger	1
77	R-10099-30	Gas Spring (Guden #CGS24-30)	1
78	114165	Spring Stud (Guden #BS11-02)	2

RX-812 COARSE SIEVE SHAKER PARTS DIAGRAM



RX-812 COARSE SIEVE SHAKER PARTS LIST

Item #	Part #	Description	Required
1	LC10016	Locating Pin	1
2	LC10017	Clamping Knobs	2
3	LC10008	Clamp Bar	1
4	LC10015	Clamping Rods	2
5	P-1500-23	Motor: 1/4 HP (115v/230v) (60Hz/50Hz) 1 Phase	1
6	R-10112	Flexible Conduit Connector	2
7	102542	Oilite Flexible Conduit – 8-1/2 in.	1
8	ZA10956	10-24 Cup Point Set Screw	4
9	LC10014	Coupling	2
10	LB10266	Rolok 10-24 Self Tap Screw	6
11	LC10007	Shield	1
12	LB10041	Special Carriage Bolt	1
13	LC10005	Bearing Ring	2
14	R-30018	Adapter	1
15	R-40040	Timer Mounting Clip	2
16*	R-40029	Electronic Timer (115 v.)	1
	R-40037	Electronic Timer (230v.)	1
17	ZZ10792	1/4- 28 x 3/8 in. Cup Point Set Screw	2
18	LC10003	Base, Sieve Shaker	1
20	ZF10183	3/8 in. -16 x 1 in. Hex Head Bolt	3
22	LB10111	Drive Pulley (1-1/2 in. OD)	1
23	ZA10148	10-24 x 3/8 in. Cup Point Set Screw	1
24	LB10051	Pulley/ Eccentric Assembly	1
25	LB10191	Flanged Standoff Bushing	1
26	LC10006	Carrying Plate	1
27	ZF10168	3/8 in. Hard Washer	1
28	ZF10221	3/8 in. -16 Locknut	1
29	LB10201	Stand Off Bushing	2
30	LB10211	Drive Belt- 2L310	1
31	ZZ10801	1/4 in. -28 Black Lock Nut	2
32	ZZ10301	1/4 in. Flat Washer	6
33	ZF10184	5/16 in. -18 Black Hex Head Bolt	2
34	LC10010	12 in. Cover Clamping Plate	1
35	LC10011	8 in. Cover Clamping Plate	1
36	LC10009	12 in. to 8 in. Conversion Plate	1
37*	R-10018	110v Cord Set	1
38	LC10012	Arm	1

TEST SIEVE ANALYSIS



TEST SIEVE ANALYSIS

TEST EQUIPMENT

Test sieves “nest” together to form a “stack” of sieves. In most sieving tests the 8 inch diameter sieve is used. A test sieve shaker that provides both circular and tapping energy is recommended. Uniform mechanical motion will provide the most consistent results.

TESTING TIMES

Free flowing, coarse material requires less time than fine, bulky particles. Once you establish the proper time, duplication of testing becomes extremely important to obtain accurate, repeatable results. Conduct repeated experimental testing to determine the optimal testing time. For example, perform tests of 5, 10, 15 & 20 minutes. You can determine the optimal time when the results between the different times change no more than .5 to 1 percent. The shortest time should then be used consistently.

PERFORMING A SIEVE ANALYSIS

You can begin your particle size distribution analysis after you properly collect, prepare and size a sample. Select test sieves with mesh openings that reveal particle distribution at critical sizes. These are usually stated in a product specification or determined by material processing requirements.

To perform the analysis, do the following:

1. Stack the sieves on top of each other with the coarsest (largest) opening on the top of the stack.
2. Put a bottom pan under the finest (smallest) opening sieve. This pan collects “fine” material that passes through the last one.
3. Use a laboratory scale (accurate to .1 gram) to weigh an empty container (such as an extra empty bottom pan) and establish the tare weight.
4. Weigh the sample material.
5. Empty the sample into the top of the stack. Make sure you do not overload the surface as this causes “blinding” or blocking of the openings.
6. Put the stack into the sieve shaker.
7. Place a cover on the top of the stack.
8. Make sure the stack is securely in place.
9. Set the proper length of time to agitate the material.
10. Turn on the shaker and run the test.
11. After the shaker stops, empty the material from the coarsest sieve into the empty container that you weighed in step (3). Use a soft bristle brush to gently brush the underside of the sieve to remove all of the particles.
12. Tap the side of the frame with the handle of the brush to clean the remaining material from the sieve.
13. Weigh the contents in the pan to the nearest 1/10 gram and record the data.
14. Return the material to its original sample container.
15. Repeat steps 11 through 14, using the container referenced in step (3) for each sieve, including the fine material in the bottom pan.
16. Total the weights to make sure the sum of the retained material and the material in the bottom pan is as close as possible to the original weight. Check your specification for allowable variation.
17. Divide the weight obtained from each sieve by the weight of the original sample. Record the percentage for each sieve.
18. Calculate and record the cumulative percentages as required.

TEST SIEVE ANALYSIS



The key to successful, repetitive particle analysis is developing standard testing procedures.

BASIC ELEMENTS OF TESTING

1. Sample Preparation.
2. Test sample sizes or weights.
3. Test Equipment.
4. Testing times or intervals.
5. Recording results.

SAMPLE PREPARATION

When deciding how much material to test, consider the type of material, screen ability of the material and the range of particle sizes.

If the particle range of material representing feed to a screen or product from a crusher is wide, use a large sample (from 500 to 1,000 GRAMS). If the material is finely ground, use a smaller sample of 25 to 100 grams.

Do not use too large a sample in the test. The smaller the sample, the more consistent the results (as long as the sample is properly taken). To obtain an accurate sieve test sample, every particle must present itself to the screen openings for retention or for passing through to the next finer sieve. Make sure the sample is large enough so that the coarsest sieve retains enough representative particles.

For example, if a "stack" contains six sieves, a fine particle must repeat the passing process six times. The fine particles cannot pass through to their proper end when overloading occurs.

As a general rule, limit the size of a sample in weight so that no sieve in the "stack" is overloaded. Overloading usually occurs in testing closely graded materials, where the range of particle size is limited. In such cases, determine

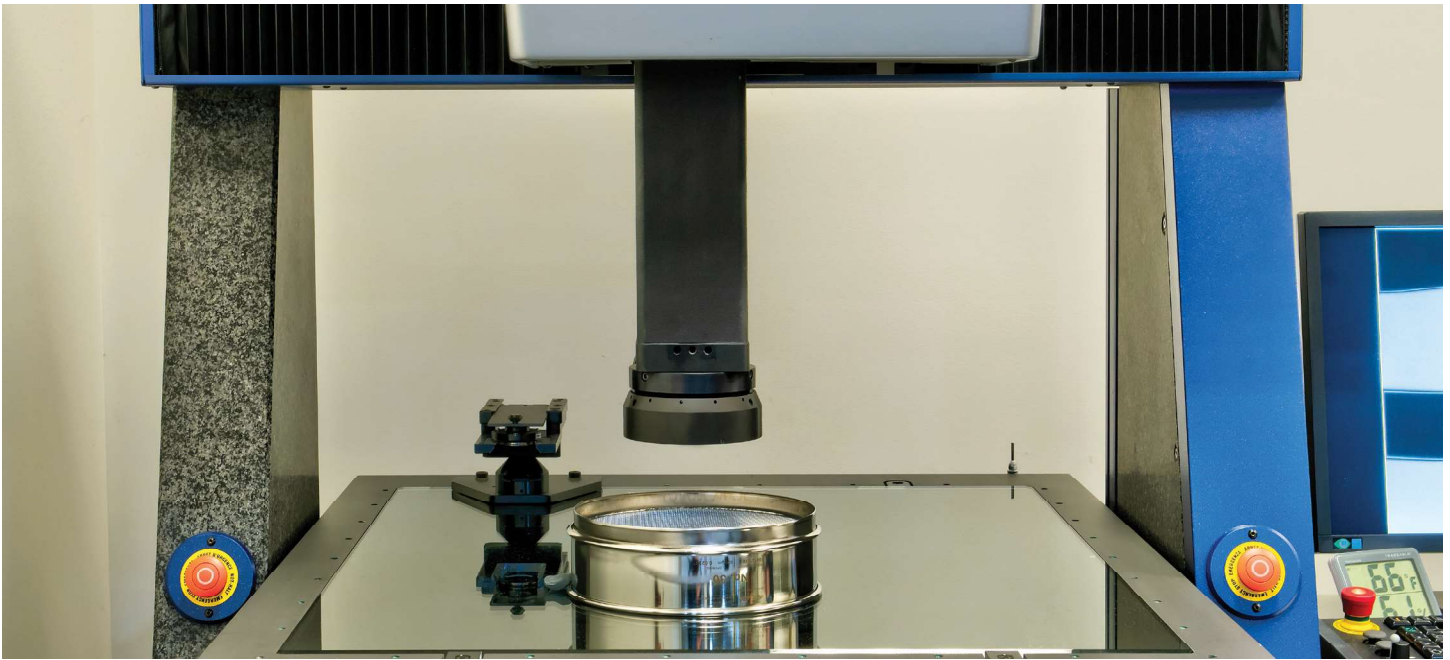
the size by capacity of the sieve that retains the largest amount of the sample.

Use the following procedure to determine your sample size:

1. Accurately split out samples of varying weights (25, 50, 100, 150 and 200 grams) with a sample splitter.
2. Run the various samples on the selected sieves for five minutes.
3. Compare the results to get the correct sample size.

When two sample sizes provide similar results, use the larger of the two for your test size. For example, if the 100 gram sample shows approximately the same results as the 50 gram sample, but the 150 grams sample produces differing results, use the 100 gram sample as the correct sample size. Near-mesh particles (those with dimensions close to the sieve opening) require that you lightly

TEST SIEVE ANALYSIS



load the sieves. This allows presentation of the particles to the sieve opening many times, which allows maximum opportunity for accurate classification.

WET TESTING

Some materials do not test well under dry conditions. If the material is not water soluble, you can perform an accurate sieve analysis with special equipment.

The Sieve Shaker with a Wet Test Kit will be required. The wet test kit ensures there will be no splashing or contamination of the samples.

The test should be performed the same as dry material (previous section) with one exception. Water, as called for by the test procedure, must be added to the sample prior to the test run.

STATIC ELECTRICITY

Some materials generate static electricity during the dry sieving process. When particles “charge” themselves as they come in contact with other particles, they stick to the metal frame and cloth of the sieve.

This prevents you from obtaining accurate results.

As a suggestion:

- Add a small amount of talc, activated charcoal, powdered magnesium carbonate or burgess clay to the sample material. For a 100 gram sample add approximately 1 gram of chemical.
- Mix thoroughly to completely coat the particle surfaces.
- Perform the sieve test.

This method may not eliminate static electricity entirely; however, the effect should be significantly reduced and will not affect your test results.

RO-TAP® ACCESSORIES ALSO AVAILABLE:

- RO-TAP® MAINTENANCE KITS
- RO-TAP® TEST STAND
- RO-TAP® SOUND ENCLOSURE
- WET TEST KITS

**LEARN MORE ABOUT
W.S. TYLER TEST SIEVES, SIEVE SHAKERS
& PARTICLE ANALYSIS EQUIPMENT AT
WWW.WSTYLER.COM**



WARRANTY

LIMITED WARRANTY AND LIMITATION

W.S. TYLER® INDUSTRIAL GROUP, MENTOR, OH

W.S. Tyler warrants, commencing with the date of the first use and for a period of twelve (12) months thereafter, its Industrial Group Products to be free from defects in workmanship and materials. This warranty applies to the first purchaser.

If, within such warranty period, any new products shall be proved to W.S. Tyler's satisfaction to be defective, it shall be repaired, or at W.S. Tyler's option, replaced F.O.B. factory, without charges. W.S. Tyler's obligation hereunder shall be confined to such repair or replacement and does not include any charges, direct or indirect, for shipping, removing, or installing defective products.

No warranty shall apply to used products nor to products which have

been furnished, repaired or altered by others so as, in W.S. Tyler's judgment, to affect the same adversely or which shall have been subject to negligence, accident or improper care, installation, maintenance, storage or other than normal use or service.

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This warranty gives you specific legal rights, and you may also have other rights that vary from state to state. The liability of W.S. Tyler arising out of the manufacture, sale, delivery, use or resale of the product, whether based on warranty, contract, negligence, tort, strict liability or otherwise, and whether for

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IN NO EVENT SHALL W.S. TYLER BE LIABLE FOR LOSS OF PROFITS, DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER ATTRIBUTABLE TO DEFECTS IN MATERIAL FURNISHED, PRODUCT IDENTIFICATION, DELAYS IN DELIVERY, OR OTHERWISE.

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GET IN TOUCH

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