Operations Manual

TYLER

TEST SIEVE SHAKERS
(Ro-Tap® and Coarse Models)

Quality • Service • Value

Installation

The Sieve Shakers (Ro-Tap® & Coarse Models) must be mounted on a shaker test stand, concrete foundation or heavy bench. Moderate tension of the mounting bolts is all that is required. The rubber edging on the base will restrict the movement of the machine.

Basic Operation

A) Ro-Taps®

Assemble a stack of sieves, beginning with a top cover, then 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 cork installed, on top of the sieve stack. The sieve support clamp bar is then adjusted, by loosening/tightening the two nuts with the supplied wrench. 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

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

Make sure a sieve stack is in place at the time. To set the test run time, simply turn the thumb wheel + (plus) or – (minus) to the desired time in the digital window. Push the start bar to start test and note countdown time. An audible tone will be heard at the end of the test.

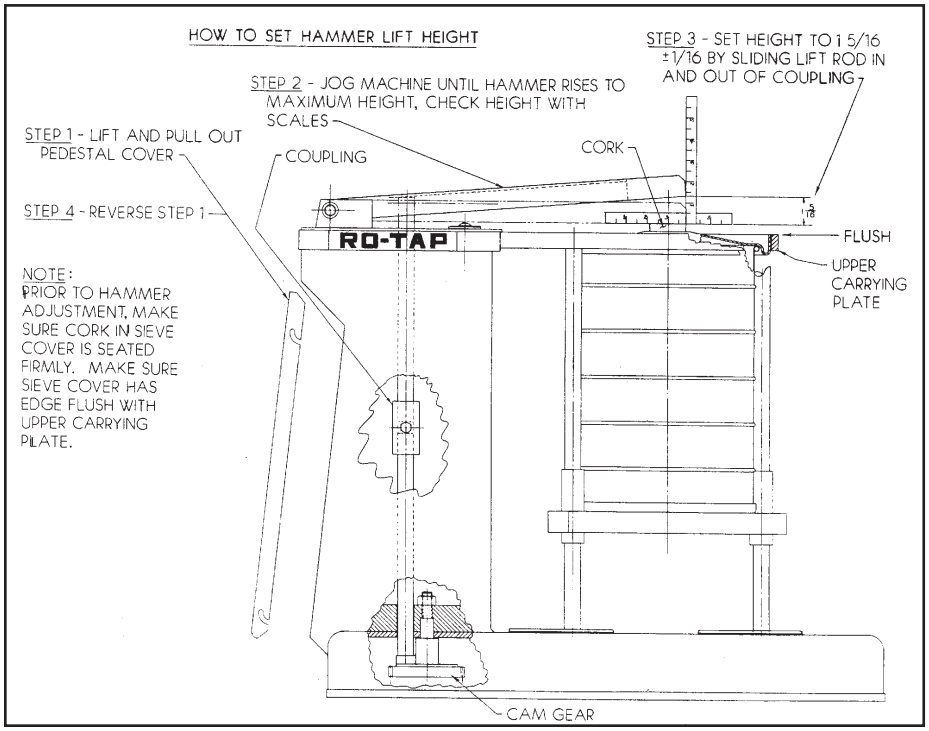
Lubrication

The 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 is all that is 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.

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

NOTE: The timing device also has a clock function. To use this option, hold the “clock” button and adjust the proper time with the thumb dial.

Hammer Drop Adjustment

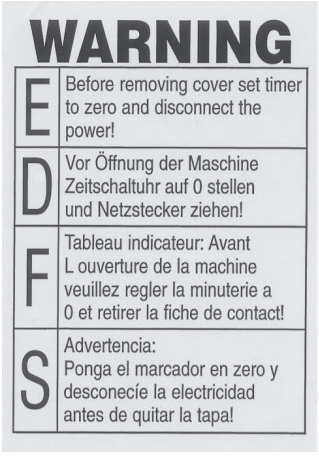


SETTING THE HAMMER LIFT HEIGHT

(RX-94 is shown. The procedure is the same for the RX-29 & RX-30)

NOTE:	Prior to hammer adjustment, make sure cork in sieve cover is seated firmly. Make sure sieve cover has top edge flush with upper carrying plate.
STEP 1	Remove pedestal cover.
STEP 2	Jog machine until hammer rises to maximum height or use a box wrench on the hex head screw, located on top of the pedestall. Check height with scales.
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.
STEP 5	Replace pedestal cover.

PLEASE BE ADVISED



Please Review These Warnings Prior To Use

Performing a Sieve Analysis

After the proper collection, preparation, and sizing of a sample is completed, a particle size distribution analysis can begin. A set of test sieves should be selected with mesh openings that will reveal particle distributions at critical sizes. Critical sizes are usually stated in a production specification or are determined by material processing requirements.

Once the proper test sieves have been selected, they should be stacked (one on top of the other) with the coarsest (largest) opening on the top of the stack. A bottom pan should be added under the finest (smallest) opening sieve to collect "fine" material passing through the last sieve.

A laboratory scale will now be required. An extra empty bottom pan must be weighed on the scale. A tare weight, including the sample, should be calculated and recorded. Empty the sample from the extra pan into the top of the stack. A proper sample amount should cover the wire mesh of the top of the sieve, but not overload the surface. Overloading will cause blinding or blocking of the openings, not allowing the sample to be properly processed.

The test sieve stack should be placed into the sieve shaker, and a cover should then be placed on top of the stack. The sieves must be secured into place. The shaker should be activated and set to operate for the proper length of time.

After completion of the agitation, the material retained on each sieve must be weighed in order to record the data. Weighing should be by grams, with a balance scale having at least a capacity of 500 grams and a sensitivity of 1/10 gram.

Using the extra bottom pan, the materials retained on the coarsest sieve should be emptied into the pan. A soft or nylon-bristle brush should be used to gently brush the underside of the sieve, thoroughly removing all of the remaining particles into the pan. The sieve frame can be tapped with the handle of the brush to clean any remaining material on the sieve. Weigh the contents in the pan to the nearest $1/10^{th}$ gram and immediately record the data.

If several extra pans are available, it is best not to discard this portion of the sample until the entire process is completed. This same procedure should be repeated on all sieves in the stack. The material passing through the finest sieve into the bottom pan must also be weighed to obtain the total weight for percentage calculations. The total weight of the material retained on the various sieves and in the bottom pan should be extremely close to the weight of the original sample.

The percent retained on each sieve is calculated by dividing the weight of the material retained on a particular sieve by the weight of the original sample. The cumulative weight retained on the sieve, and all coarser to it, should also be calculated and recorded.

Most industries set up their specifications by the percent of material retained on a particular sieve; however, in some industries, the percent passing through a particular sieve is used.

Once all of the weights have been recorded and the percentage figures calculated; the sieve test is completed. The information can now be used for analysis.

Wet Testing (Ro-Taps® Only)

There are materials that do not process well in a dry condition. If the material is not soluble in water, accurate sieve analysis can be performed using special equipment.

The W.S. Tyler Ro-Tap® Sieve Shakers can be fitted with a Wet Test Kit. This kit includes all of the equipment necessary to conduct a sieve test, with no splashing or contamination to the sample. The test is conducted as detailed in the previous text, with the introduction of water as the stack is being shaken. Please note, however, that it is necessary to dry each sieve and material retained on it prior to weighing and recording results. A drying oven set at no more than 300 degrees Fahrenheit (150 degrees Celsius) should be used.

Other Considerations

In some applications, static electricity can make test sieve analysis extremely difficult. During the sieving process, particles come in contact with each other and sometimes "charge" themselves. Once the material being tested charges itself, it may "stick" to each other or to the metal frame and mesh of the sieve, preventing you from conducting an accurate analysis.

Because wet sieving is not always practical, W.S. Tyler recommends the following procedure when this situation exists:

> Add a small amount of powdered magnesium carbonate, burgess clay, or talc to the product sample prior to testing. For a 100 gram sample, add approximately 1 gram of chemical. Mix thoroughly and proceed with the test.

This method may not totally eliminate the static electricity, but it will significantly reduce it while not affecting your test results.

W.S. Tyler Test Sieve Products

The test sieves are produced in standard 3", 8" and 12" diameters as well as the international standard 200mm and 300 mm dimensions. Special 6", 10", and 18" diameter sieves, wet testing, and Air Jet Sieves are also available. Each and every product is supplied with an individual serial number for complete traceability.

Standard Production test sieves, in compliance with the appropriate specification, are serialized and supplied with a "Test Sieve Certificate".

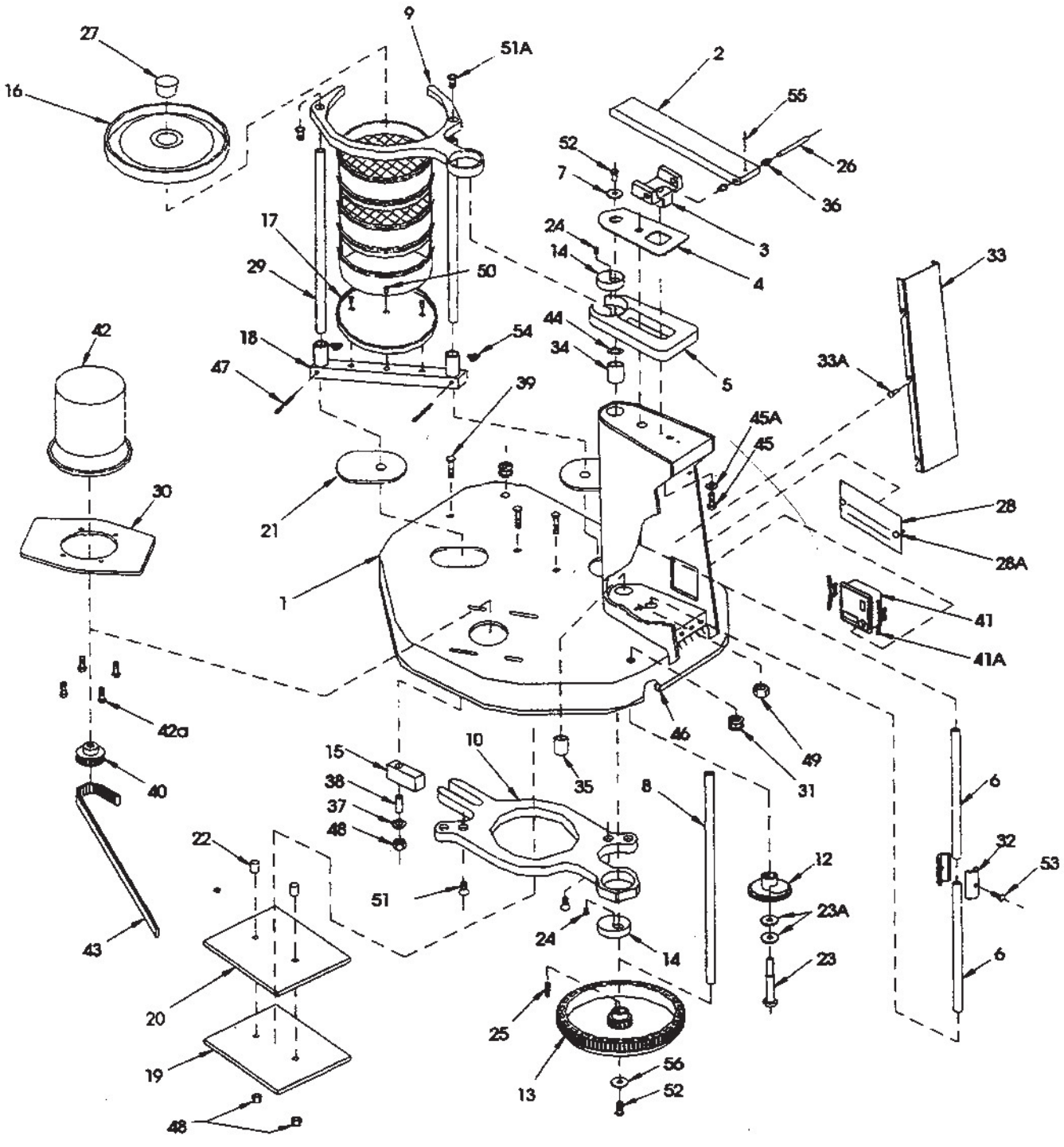
Certified test sieves are standard production products, specifically reexamined for assurance to referenced specification. The sieve is serialized and supplied with documentation detailing the openings and wire diameters of the testing media.

Matched test sieves are recommended for applications requiring critical, multiple location testing and results comparison. The required product is selected and "Matched" in Tyler's laboratory by repeated performance testing. The resulting products significantly reduce test analysis variations. The sieve is serialized and supplied with documentation detailing the performance results vs. a "Master" test sieve.

Gold Series test sieves are fabricated using a fine mesh screen media produced to extraordinary "tight" tolerances. The product assures the user the permissible variation of the average openings of the instrument is one-half (50%) of the allowable ASTM or ISO specifications. The Gold Series products are available with stainless steel frames and media, on a "Special Order" basis, and sell at premium prices.

Recertification Services are offered to those involved with their own internal or ISO 9000 series quality programs. Test sieves are reexamined and measured against appropriate specifications, serialized, and supplied with traceable documents when in compliance. Test sieves "Out of Compliance" with referenced specifications, will be returned and noted as such.

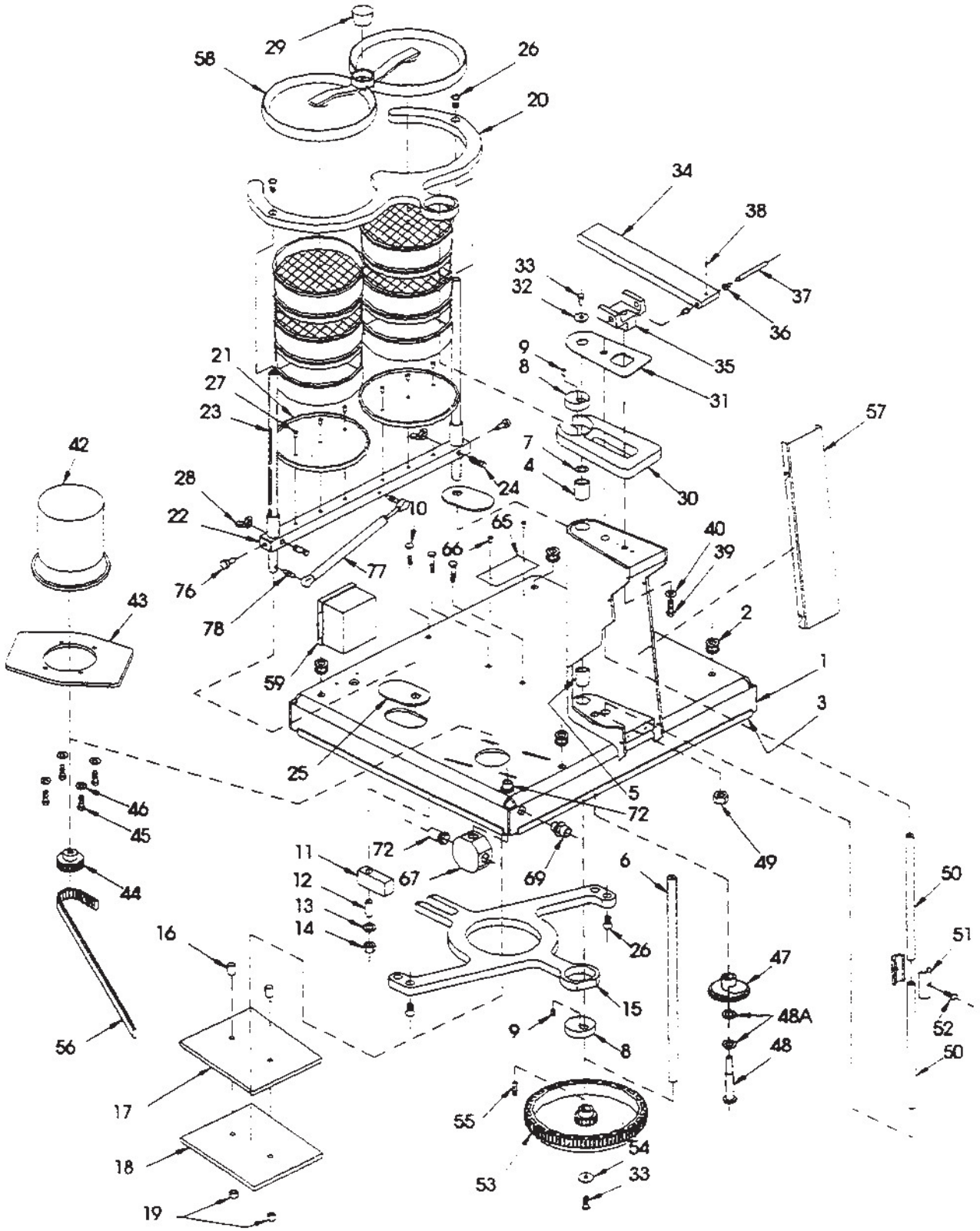
RX-29 & RX-30 Parts Diagram



ITEM	PART	DESCRIPTION	QUANTITY
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	1
9	R-30027	Upper Carrying Plate/RX-30	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 Disc	2
15	R-10032	Block	1
16	R-30007	Sieve Cover (RX-29)	1
16	R-30011	Sieve Cover (RX-30)	1
17	R-30006	Sieve Support Plate (RX-29)	1
17	R-30013	Sieve Support Plate (RX-30)	1
18	R-30023	Sieve Support Clamp Bar (RX-29)	1
18	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	°” I.D. Shim	2
24	R-10042	Main Shaft Key to Eccentric	2
25	R-10039	Main Shaft Key-Lower	1
26	R-10035	Hammer Pin	1
27	R-10066-A	Cork Plug-Mat’l Cork	1
	R-10066-B	Cork Plug (optional) Mat’l Rubber	1
28	108184	Name Plate	1
28A	Std. No. 7	Drive Screws	2
29	R-10033	Tie Rod	2
30	R-30018	Motor Adapter	1
31	ZA11167	Grommet	2
32	R-10030	Lift Rod Coupling (2.50” Long)	1
33	R-40011	Pedestal Cover	1
33A	8/18 x.75	Self Tapping Screw	1
34	R-10061	Flange Bearing	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 2.25” Carriage Bolt	3
40	R-10070	Sprocket-14 teeth (1800 RPM) w/Set Screw	1
	R-10048	Sprocket-17 teeth (1500 RPM) w/Set Screw	1
	R-10049	Sprocket-21 teeth (1200 RPM) w/Set Screw	1
41	R-40029	Electronic Timer (60 Hz)	1
41	R-40037	Electronic Timer (50Hz)	1
41A	R-40040	Timer Mounting Clip	2
42	P-1500-23	Motor-Standard 115/230V 60/50 Hz 1 Phase	1
42A	ZF10183	3/8-16 x 1” Hex Flange Bolt	4
43	R-10058	Timing Belt	1
44	R-10055	Shim	1
45	ZZ10068	˚-13 x 2.50” Long Hex Hd. Bolt	1
45A	ZZ10323	˚ I.D. Lock Washer	1
46	R-10052	Rubber Channel (7” Long)	1
47	R-10079	Clamp Screw	2
48	ZF10221	3/8” Lock Nut	3
49	ZF10222	°” Hex Lock Nut	1
50	ZF10231	10-32 x .50” Long Flat Head Socket Cap Screw	3
51	ZF10241	3/8-16 x .75” Long Flat Head Socket Cap Screw	2
51A	ZF10183	3/8-16 x 1” Hex Flange Bolt	2
52	114162	3/8-16 x 62” Long Hex Head Screw	2
53	ZF10251	5/16-24 x 1.25” Long Socket Head Cap Screw	1
54	ZF10222	°”-16 Hex Lock Nut	2
55	ZA10148	#10-24 x .25” Socket Hd. Set Screw	1
56	ZF10271	3/8 I.D. x 1.50” O.D. Fender Washer	1
60*	R-10018	Timer Cord w/Plug	1
61*	R-10019	Cable Tie Ml’g	3
62*	R-10112	Straight Connector (APC-050)	2
66*	107764	Flexible Conduit	1
67*	R-10076	Wire Clip	1
68*	ZZ10011	Screw For Wire Clip & Ground Screw	3
69*	R-20081	Wrench	1

***ITEMS NOT SHOWN**

RX-94 Ro-Tap II Parts Diagram

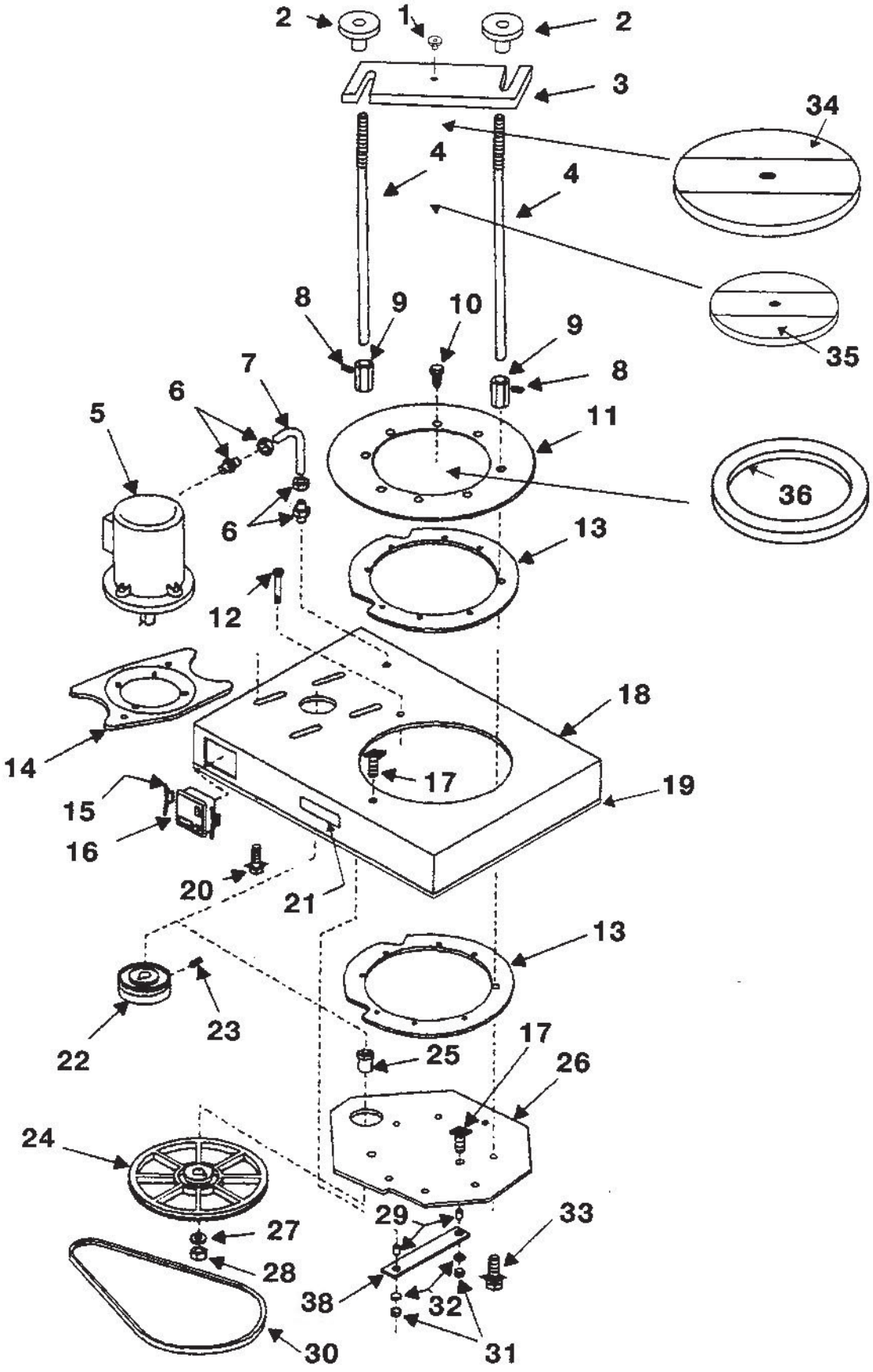


RX-94 Ro-Tap II Parts List

ITEM	PART	DESCRIPTION	QUANTITY
1	R-40023	Painted Base Weldment	1
2	ZA11167	Grommet	4
3	R-10117	Gasket Channel	4
4	R-10061	Flanged Bearing	1
5	R-10062	Bearing	1
6	R-20027	Mainshaft	1
7	R-10055	Shim 1.42 O.D. x .0155 Th.	1
8	R-10034	Eccentric Disc	2
9	R-10042	Main Shaft Key	2
10	ZF10174	3/8-16 x 2.25" Carriage Bolt	3
11	R-10032	Block	1
12	R-10065	Steel Bushing .62 O.D. x .385 I.D. x 1.25"	1
13	ZF10168	3/8" Flatwasher	1
14	ZF10221	3/8-16 Locknut	2
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 .75" Long Flat-Head Screw	4
27	ZF10231	#10-32 x .50" Long Flat-Head Screw	6
28	ZF10261	˚-13 Wing Nut	2
29	R-10066-A	Cork Plug	1
30	R-30010	Rotating Guard Assembly	1
31	R-30019	Sheet Guard	1
32	R-10038	Upper Mainshaft Washer	1
33	114162	3/8-16 x .62" Long Hex Head Cap Screw	2
34	R-20029	8" 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 .25" Long Flat Point Socket Head Cap Screw	1
39	ZZ10068	˚-13 x 2.50" Long Hex Head Bolt	1
40	ZZ10323	˚ I.D. Lockwasher	1
42	P-1500-23	Motor-Standard 115/230V 60/50Hz 1 phase (Motor runs CCW at Shaft End)	1
43	R-30018	Motor Adapter Plate	1
44	R-10070	Sprocket-14 Teeth (1800 rpm) with Set Screw	1
45	ZF10183	3/8-16 x 1.00" Long Hex Head Screw	4
46	ZF10168	3/8 I.D. Flat Washer	4
47	R-20039	Cam Gear	1
48	R-10029	Cam Shoulder Screw	1
48A	106582	˚ I.D. Shim	2
49	ZF10222	˚-13 Locknut	1
50	R-10036	Lift Rod	2
51	R-10030	Lift Rod Coupling	1
52	ZF10251	5/16-24 x 1.25" Long Socket Head Cap Screw	1
53	R-30015	Timing Belt Pulley	1
54	ZF10271	3/8 I.D. x 1.50" O.D. 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 (60Hz)	1
60*	R-40037	Electronic Timer (50Hz)	1
61*	ZZ10014	˘-20 x 1.25" Long Hex Head Screw	2
62*	ZZ10281	˘ I.D. Flat Washer	2
63*	R-40034	Spacer (for Timer Enclos.)	2
64*	ZZ10253	˘-20 Hex Nut	2
65	108184	Name Plate	1
66	Std. No. 7	Drive Screws	2
67	R-10118	3 ˘" Octagon Box (Appleton #30)	1
68*	R-40032	3 ˘" Square Box Cover	1
69	R-10119	°" Cord Grip Strain Relief (Appleton #CG3150S)	1
70*	11478	˚ x 1.50 Long Nipple	1
71*	R-10120	°" Lock Nut (Appleton #BL-50)	3
72	R-10112	Straight Connector/APC-050	2
73*	R-10116	Extra Flex Connector/ APC-0509	2
74*	114163	Non Metallic Flex Conduit (LTC 050) O' 12" Long	1
75*	114164	Non Metallic Flex Conduit (LTC 050) 1' 91/2" Long	1
76	R-40028	Hand Retractable Plunger	2
77	R-10099-30	Gas Spring (Guden #CGS24-30)	1
78	114165	Spring Stud (Guden #BS101-02)	2
79*	114166	14 AWG Wire(Red)1'11'L	1
80*	114167	14 AWG Wire(Red)2'10"L	1
81*	114168	14 AWG Wire(Blk)2'10"L	1
82*	114169	14 AWG Wire(Blk)0'4"L	1
83*	114170	14 AWG Wire(Wht)1'11"L	1
84*	114171	14 AWG Wire(Wht)0'2"L	1
85*	114172	14 AWG Wire(Wht)2'11"L	1
86*	114173	Insulated Butt Connector (Scotchlock #23110)	4
87*	114174	Insulated Slip On Connector (Sta-Kon #RB14-250F)	4
88*	114175	Insulated Slip On Connector (Sta-Kon #B14-110F)	2
89*	114176	Wire Joints (Sta-Kon #RP12)	5
90*	114177	Shipping Carton	1

***ITEMS NOT SHOWN**

RX-812 Coarse Sieve Shaker Parts Diagram



RX-812 Coarse Sieve Shaker Parts List

ITEM NO.	PART NO.	DESCRIPTION	QUANTITY
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-1/4HP 115/230V 60/50Hz 1 Phase	1
6	R-10112	Flexible Conduit Connector	2
7	102542	Oilite Flexible Conduit- 8-1/2”	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	LC10052	Adapter	1
15	R-40040	Timer Mounting Clip	2
16	R-40029	Electronic Timer (60Hz)	1
16	R-40037	Electronic Timer (50Hz)	1
17	ZZ10792	˘-28 x 1-3/4” Soc. Cap. Scr.	2
18	LC10003	Base, Sieve Shaker	1
19	LC10052	Rubber Channel	1
20	ZF10183	3/8”-16 x 1.00 Hex Hd. Bolt	3
21	108184	Nameplate	1
22	LB10111	Drive Pulley-1-1/2” O.D.	1
23	ZA10148	10-24 x 3/8” Cup Point Set Scr.	1
24	LB10451	Pulley/Eccentric Assembly	1
25	LB10191	Flanged Stand Off Bushing	1
26	LC10006	Carrying Plate	1
27	ZF10168	3/8” Hard Washer	1
28	ZF10221	3/8”-16 Lock Nut	1
29	LB10201	Stand Off Bushing	2
30	LB10211	Drive Belt-2L310	1
31	ZZ10801	˝”-28 Black Lock Nut	2
32	ZZ10301	Flat Washer	6
33	ZF10184	5/16”-18 Black Hex Hd. Bolt	2
34	LC10010	12” Cover Clamping Plate	1
35	LC10011	8” Cover Clamping Plate	1
36	LC10009	12” to 8” Conversion Plate	1
37*	R-10018	110V Cord Set	1
38	LC10012	Arm	1

***ITEM NOT SHOWN**

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Ro-Tap® Accessories Also Available:

- **Ro-Tap® Maintenance Kits**
- **Ro-Tap® Test Stand**
- **Ro-Tap® Sound Enclosure**
- **Wet Test Kits**

Contact Your W.S. Tyler Sales Representative For Additional Information

REGISTERED TO ISO 9001:2000

WARRANTY AND LIMITATION
W.S. Tyler's Particle Analysis & Fine Screening Products Group

W.S. Tyler warrants, commencing with the date of the first use and for a period of twelve (12) months thereafter, its Particle Analysis & Fine Screening Products to be free from defects in workmanship and materials.

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 charge.

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.

W.S. TYLER'S EXPRESSED WARRANTY AND THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE AND NO OTHER WARRANTIES, GUARANTEES OR REMEDIES OF ANY KIND WHETHER STATUTOR, WRITTEN, ORAL, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY.

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 direct, indirect, special, consequential, exemplary, punitive or other damage, shall not exceed the cost of replacement of the product. Upon the expiration of the warranty, all such liability shall terminate.

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.

Laboratory Equipment Warranties are null and void if other than W.S. Tyler Service Parts are used.