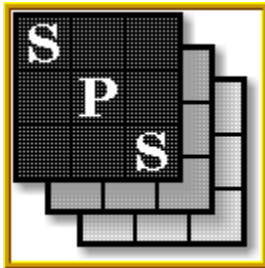




Gyratory Sifter Manual

Provided By:



Sifter Parts & Service

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GYRATORY SIFTER

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Introduction

We are pleased to welcome you as a user of a Sifter Parts & Service Gyratory Sifter. We believe you have the best machine possible for the job intended, and with reasonable care and attention, your gyratory sifter will give you long trouble-free service.

High quality materials and engineering skill have combined to make this a simple machine to operate, maintain, assemble, and dismantle. Very little time will be required for maintenance.



This instruction book will acquaint you with the easiest and most practical way to install, operate, and maintain your sifter. We suggest you read the entire book before installing or operating the machine. Keep it handy for future reference and as a guide for ordering parts. If we can be of assistance in any crushing, grinding, flaking, or screening problems, please call or write your Sifter Parts sales representative. He will be pleased to assist you in solving any of these problems.



Check for Damage In Shipment

Since it is possible for machinery to be damaged in shipment, we suggest you check each item carefully with the shipping manifest. If any damage or shortage is found, call it to the attention of the carrier **immediately**. Proper notation should be made by the carrier on the bill of lading. This will help prevent any controversy when a claim is made and will facilitate prompt and satisfactory adjustment.

Great care was taken in the manufacture of this gyratory sifter. It was thoroughly inspected and tested at the correct operating speed and was in perfect alignment when turned over to the carrier. The sifter was shipped assembled as a complete operating unit, with motor and V-belt drive.

Handling

We suggest the sifter be kept on its shipping skid until it is ready to be positioned. After the skid is removed, it should be raised simultaneously at each of the four legs, using suitable padded steel cables or rope slings, to avoid distortion.

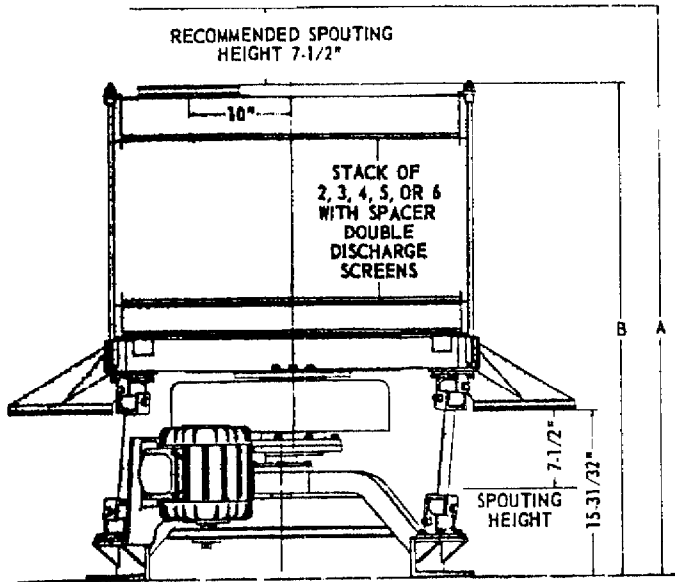
Use of Catalog Numbers

Itemize the parts, giving the quantity required, the description, and catalog number of each part. Special care in furnishing this information on all orders will facilitate quick shipment. A listing of parts by description and catalog numbers is found at the back of this book.

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MODEL CS-1 GYRATORY SIFTER

Dimensions

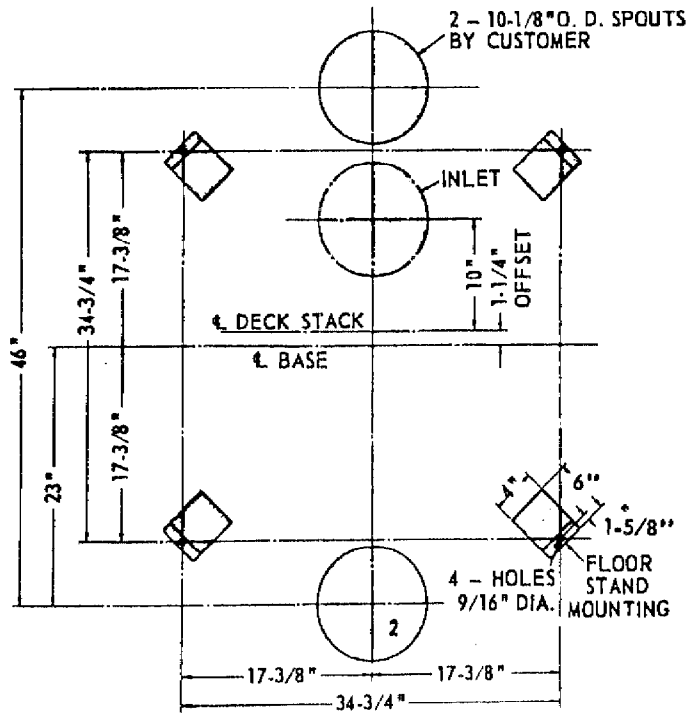


06-150-046

TWO SEPARATION – DOUBLE DISCHARGE DECKS

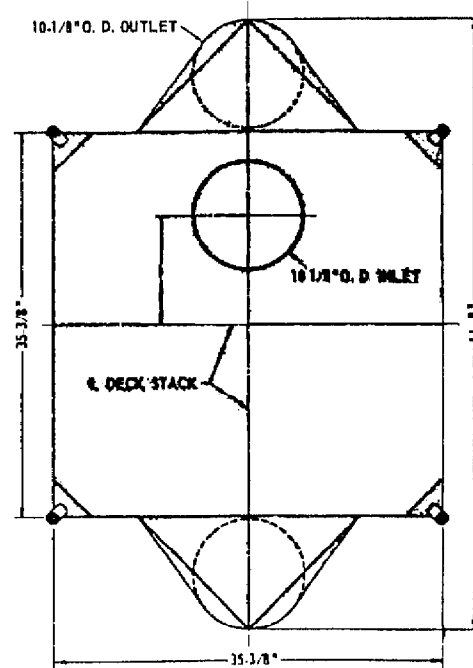
HEIGHT OF SCREEN

2 DECK APPROX.	A = 3' 11-1/16"	B = 3' 3-9/16"
3 DECK APPROX.	A = 4' 3-1/16"	B = 3' 7-9/16"
4 DECK APPROX.	A = 4' 6-7/16"	B = 3' 10-15/16"
5 DECK APPROX.	A = 4' 9-13/16"	B = 4' 2-5/16"
6 DECK APPROX.	A = 5' 1-3/16"	B = 4' 5-11/16"



06-130-044

PLAN VIEW OF FLOOR STAND MOUNTINGS – TWO SEPARATIONS

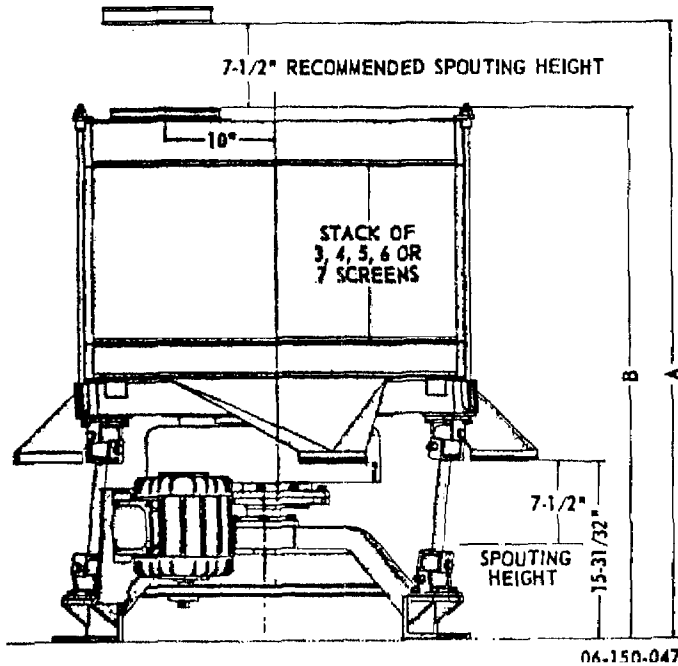


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MODEL CS-1 GYRATORY SIFTER

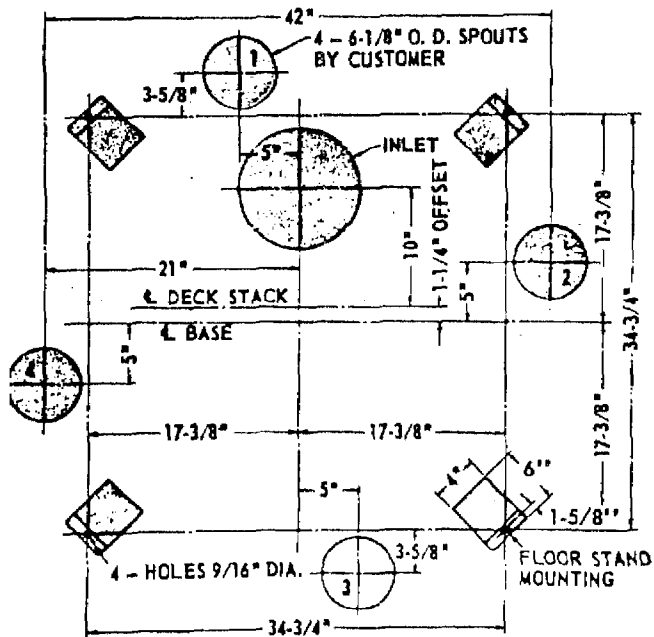
Dimensions



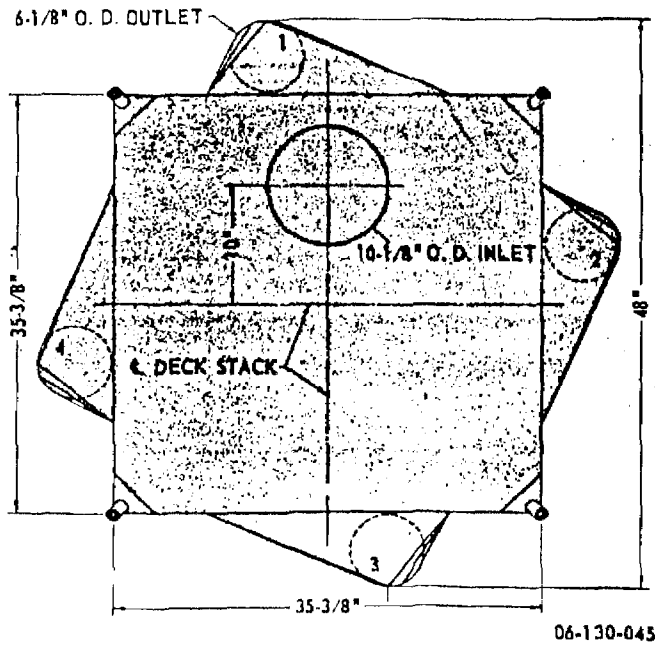
TWO, THREE AND FOUR SEPARATIONS - SINGLE DISCHARGE DECKS

HEIGHT OF SCREEN

3 DECK APPROX.	A = 4' 2 ¹ / ₁₆ "	B = 3' 7 ¹ / ₁₆ "
4 DECK APPROX.	A = 4' 5 ¹³ / ₁₆ "	B = 3' 10 ³ / ₁₆ "
5 DECK APPROX.	A = 4' 9 ¹³ / ₁₆ "	B = 4' 2 ⁵ / ₁₆ "
6 DECK APPROX.	A = 5' 0 ⁷ / ₁₆ "	B = 4' 4 ¹³ / ₁₆ "
7 DECK APPROX.	A = 5' 0 ¹³ / ₁₆ "	B = 4' 5 ¹ / ₁₆ "



PLAN VIEW OF FLOOR STAND MOUNTINGS
- FOUR SEPARATIONS



PLAN VIEW - FOUR SEPARATIONS

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Every gyratory sifter is properly balanced before leaving the factory. **CAUTION:** Do not attempt to change the balance, since a slight unbalance of the sifter may result in harmful vibrations and reduced screening efficiency. The gyratory sifter should be carefully installed according to the installation drawing supplied with the machine.

Care should be taken to insure a perfectly level base and level machine. This is important because the sifter will lose efficiency and capacity if it is not level.

Positioning

When positioning the sifter over the base use a sling (refer to "handling"). Lower the sifter until one or more of the mounting feet just touch the base. Use a mechanic's or carpenter's level to be sure that the sifter is level. Place suitable shims under the mounting feet that are not touching. When all four mounting feet are solid against the base or foundation, again check the level and bolt securely. All bolts holding the machine to the base or foundation should be checked periodically to make sure that they are tight. If the bolt holes in the mounting feet do not line up with the holes in the base or the bolts in the foundation, relocate or enlarge the holes in the base or foundation to obtain proper alignment. Do not force the mounting feet out of position.

External Wiring

All wiring to the motor and motor starter should be installed in accordance with the National Electric Code and the requirements of any local inspection department having jurisdiction in the territory in which the motor is installed.

V-Belt Drive

Protect belt from grease or oil. Do not use dressing at any time. Belt is replaced by loosening the four bolts on the motor base and sliding the motor back in the bolt slots. Realign motor before tightening bolts.

Motor Starter

Across-the-line type starters with overload thermal elements should be used and located near sifter.

Main line fuses must be large enough to handle momentarily at least five times full-load current.

Before starting the motor for the first time:

1. Check all connections to the motor and motor starter with the wiring diagrams.
2. Check the voltage, phase and frequency on the motor nameplate against the line circuit.
3. If possible, remove all external load and turn the rotor by hand to make certain it rotates freely.
4. To reverse motor rotation: Two phase--interchange two stator leads of either phase, being careful not to change the leads from one phase to the other. Three phase — interchange any two stator leads.
5. Before putting the motor in actual service, it is advisable to start it up without a load and run it long enough to make certain no unusual condition develops.

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Feed and Discharge Spouts

Never feed oversized material into your sifter unless it is designed for it.

It is recommended that ample clearance be provided between the sifter and all connecting spouting, hoppers and conveyors. Additional clearance to allow for changes in feed spouting must be considered, and that the moving parts of the sifter do not come in contact with any stationary fixture (hoppers, conveyors, columns, etc).

To insure that your sifter operates efficiently, it is necessary that the material to be screened is distributed evenly over the entire width of the screen insert, and that the feed spout be placed to utilize the full area of the top insert. The velocity of the material as it enters the screen should be reduced to a minimum in order to obtain best screening results and prevent excessive wear on the screen surface. It is desirable to enter the feed inlet spout of the sifter with pitched spouting which retards the velocity and the impact absorbed by the top screen insert. This pitch must also be adequate to slow the material flow to a minimum rate, but not stop the flow at any time. The proper pitch angle is determined by the coefficient of friction between the product and the spouting angle.

Clean separations can best be obtained with a moderate and constant feed velocity. The feed rate to each newly installed machine should be carefully checked to give the maximum capacity with the cleanest separations.

Attach the flexible tubes to the inlet and outlets of the sifter and secure the ends of each tube with the clamps furnished. Tubes must not be stretched too taut to restrict gyration.

How to Install Screen Cloth

All new screen cloth purchased from Sifter Parts is ready for installing.

1. To replace screen cloth on the inserts, remove insert from deck frame.
2. On each side of the insert frame are five socket head cap screws and washers which are to be loosened (when coarse wire cloth is used, remove machine screws holding cloth and insert new cloth). The original cloth can now be easily removed from the insert frame.
3. Remove the tightening rods from the original cloth. The white webbing loops around the edges of the screen cloth should be opened or cut at the four corners, so that the rods can be pulled out.
4. Replace the rods in the new screen cloth. Tuck the ends of webbing under to conceal the rods.
5. The screen cloth is now ready for securing to the insert frame. If a customer desires to change from fine to coarse wire cloth, new inserts which are drilled and tapped for coarse wire may also be purchased.

Comparative Openings of Screen Cloths

U.S. Std. Mesh	Tyler Std. Mesh	Aper-ture	Mill Screen			TUF-TEX			XX Silk			Dur-loy & Stainless Steel		
			Mesh	Aper.	Area	Mesh	Aper.	Area	Mesh	Aper.	Area	Mesh	Aper.	Area
	2½	.312	2	.446	79.6									
	3	.263	3	.292	76.7									
4	4	.185	4	.215	74.0									
5	5	.156	5	.168	70.6									
6	6	.131	6	.139	69.6									
7	7	.110	7	.115	64.8									
			8	.100	64.0									
8	8	.093	9	.088	62.7									
10	9	.078	10	.080	64.0									
12	10	.065	12	.065	60.8	14	.0620	76.4				14	.0620	76.4
14	12	.055	14	.054	57.2	16	.535	73.3	0000	18	.520	16	.535	73.3
16	14	.046	16	.0465	55.4	18	.466	70.2				18	.0466	70.2
						20	.0410	67.2				20	.0410	67.2
18	16	.039	18	.0406	53.4	22	.0380	69.7	000	23	.0385	22	.0380	69.7
			20	.0360	51.8									
20	20	.0328	22	.0320	49.6	24	.0342	67.2				24	.0342	67.2
			24	.0287	47.4	26	.0310	64.8				26	.0310	64.8
25	24	.0276	26	.0275	51.1	28	.0282	62.4	00	29	.0286	28	.282	62.4
			28	.0257	51.8	30	.0268	64.8				30	.0268	64.8
30	28	.0232	30	.0238	51.0	32	.0248	62.7				32	.0248	62.7
						34	.0229	60.7				34	.0229	60.7
			32	.0223	50.9	36	.0213	58.7	0	38	.0206	36	.0213	58.7
			34	.0204	48.1									
35	32	.0195	36	.0188	45.8	38	.0198	56.7				38	.0198	56.7
			38	.0178	45.8	40	.0185	54.8				40	.0185	54.8
						42	.0183	59.1				43	.0183	61.6
						44	.0172	57.4				46	.0172	62.9
40	35	.0164	40	.0165	43.6	46	.0162	55.8				48	.0163	61.5
						48	.0153	54.2	1	48	.0157	50	.0155	60.1
						50	.0145	52.6				54	.0145	61.5
45	42	.0138	45	.0142	40.8	52	.0137	51.0	2	54	.0138	56	.0138	60.2
						54	.0130	49.4				58	.0132	59.0
			50	.0125	39.1	58	.0127	54.6	3	58	.0125	60	.0127	57.8
						60	.0122	53.3				62	.0121	56.5
50	48	.0116	55	.0112	37.9	64	.0111	50.7	4	62	.0111	66	.0112	54.2
						66	.0106	49.4	5	66	.0105	70	.0106	54.9
			60	.0102	37.5	70	.0103	51.8				72	.0102	53.8
60	60	.0097				72	.0099	50.7				74	.0098	52.7
						74	.0095	49.6				76	.0095	51.7
						76	.0092	48.4	6	74	.0092	78	.0091	50.6
						78	.0088	47.3				80	.0088	49.6
70	65	.0082				80	.0085	46.2	7	82	.0082	84	.0084	49.8
						84	.0079	44.1				88	.0079	47.9
80	80	.0069				88	.0074	42.0	8	86	.0076	94	.0071	45.0
						90	.0071	41.0						
						94	.0066	38.9						
100	100	.0058							9	97	.0059	105	.0065	46.9
									10	109	.0054	120	.0057	47.3
												135	.0051	47.4
120	115	.0049							11	116	.0049	145	.0047	46.4
140	150	.0041							12	125	.0042	165	.0042	47.1
									13	129	.0039			
									14	139	.0037			
170	170	.0035							15	150	.0036	200	.0034	46.2
200	200	.0029										230	.0029	46.0
230	250	.0024												
270	270	.0021												
325	325	.0017												
400	400	.0015												

DUR-LOY light wire screen is woven from a special composition, highly durable wire. It is a smooth, non-corrosive, tough, resilient and highly durable screen assuring long dependable service.

NOTE: Area in the above tables indicates the percentage of open area per unit screen area.

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Application

The all-metal Model CS-1 gyratory sifter was designed for ease of maintenance, simplicity and compactness. It was developed for economical sizing and cleaning of granular products and materials. Construction is of lightweight magnesium alloy which is non-rusting, sanitary, and easy to clean. The spouts on the bottom hopper, screen cloth, and carrier pans are manufactured of stainless steel.

Components

The sifter consists basically of a dynamically balanced driving mechanism and a stack of screen decks having a screening area of 15 to a maximum of 35 square feet. The driving mechanism has a floor stand, a combination driven sheave and balance wheel (lower), an upper balance wheel, three bearings, two spindles, one bearing housing, an X-frame, and four universal-type stabilizer rods. The driving mechanism is powered by a 1-hp explosion proof induction motor through a V-belt drive.

The driving mechanism is shown in the parts list. The four arched legs of the screen floor stand (#1) converge to form a bracket that supports the main thrust bearing (#2). This bearing supports the entire driving mechanism by means of the lower spindle (#6). A combination balance wheel and sheave is secured to the lower spindle by means of a magic grip bushing (#30), as illustrated in the parts list.

Upper bearing housing (#9), which is bolted to the lower spindle with six bolts, contains two bearings (#26 and #24). Upper balance wheel (#15) is bolted to the upper bearing housing (#9) by six bolts. Upper spindle (#21) passes through the inner race of the upper bearings (#26 and #24) and is bolted to the X-frame by twelve bolts.

The X-frame is the part that supports the stack of screen decks. The flange of the mechanism is bolted to its bottom side. Four arms of the X-frame are spaced 90° apart and have an arrangement on the end of each arm to secure the hold-down rods.

The stack of screens consists of one hold-down box, two to seven screen decks, and one bottom hopper. Each screen deck consists of the main frame and screen insert. The insert can be readily removed from the screen frame for cleaning or repairs. It has fine wire or silk cloth on top and heavy ballwire on the bottom side. This ballwire supports the cleaner balls which bounce against the screen cloth to help prevent plugging or blinding. Each insert is divided into nine sections to help support the screen cloth and to confine the cleaner balls to their specific areas.

Since the upper bearing housing is 1¼ inch off the center of rotation, the entire upper spindle gyrates in a 2½-inch circle. The upper spindle is secured to the X-frame and is stabilized by four rods. This prevents rotation of the upper spindle on its own centerline. Resulting motion imparted to the X-frame is called gyratory motion.

Both upper and lower balance wheels are supplied with counterweights which counteract the centrifugal force resulting when the X-frame and the deck stack are gyrated on a 2½-inch circle.

Starting

Before any attempt is made to run the screen, check the following points:

- All mounting and motor base bolts should be drawn up tight and floor stand must be level.
- Current characteristics applied properly to motor.
- Screen is grounded.
- Check clearance between screen and all stationary members, such as spouts, hoppers, etc.
- Screen should be in operation before feed is allowed to enter the machine.
- **Caution:** Under no circumstances should the screen be put into operation without having all screen decks properly secured.

Stopping

- Shut off feed at the feed inlet and allow enough time for the screen decks to empty completely before stopping the machine.

Lubrication

Anti-friction bearings are lubricated at the factory to prevent damage while in storage. Before the machine is operated, force fresh lubricant into grease fittings of both bearings until grease is forced out of labyrinth (upper bearing) and until lower bearing is completely filled.

Grease used in the sifter mechanism should comply with the following general specifications.

NLGI Consistency No. 1
 Penetration WKD at 77° F 300-340
 Melting Point, 350° F, Approx. 300° F Min.

Most of the leading oil companies have greases which are satisfactory.

NOTE: For special high temperature operations, consult the factory.

Table I

Condition around Bearings	Operating Temperature of Bearings	Grease Intervals
Fairly Clean	Up to 120° F	3 - 6 months
Fairly Clean	120° F to 160° F	1 - 2 months
Moderately dirty	120° F to 160° F	1 - 4 weeks
Extremely dirty	120° F to 160° F	1 week
Heavy moisture & water splash		1 week

In general local conditions will influence the amount of grease used. A machine that operates continuously will require more lubrication than one operated for short periods of time. Heavy or light screen loads will influence greasing intervals. Table I may be used as a guide in determining proper greasing intervals until local conditions dictate a change.

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Dismantling Screen Decks

CAUTION: Never run a gyratory sifter with the screen decks removed.

1. Be sure that feed to the sifter has been stopped and that feed has been completely discharged from the outlets before stopping the machine.
2. Remove inlet flexible tube.
3. Remove nuts and hold-down brackets on hold-down rods and remove rods.
4. Lift deck stack cover from top of deck stack.
5. Remove each screen deck separately, being careful not to damage the cloth or frame. Do not use tools that will damage or distort the screen decks, as they should separate easily by hand.
6. Clean each deck separately. Do not tamp or jar inserts, but clean with low pressure air and soft brush. If need be, both frame and insert can be thoroughly cleaned by removing the insert from the frame.. Inserts can be easily removed by pushing the insert away from the deck from the underside. Use care not to damage the cloth or extrusion on the bottom of the insert.

Assembling Screen Decks

1. After cleaning frames and inserts, inspect all seals to make sure they are not damaged or loose on frame. The degree of sealing is only as good as the condition of the seals and the smoothness of the sealing surface. If a seal is damaged, it is advisable that all seals on that deck frame be replaced and cemented with the correct adhesive compound. When fitting seals, see that corners butt together and that they are firmly cemented. When ordering seals and adhesive, always give the catalog number and description of the part as shown in the parts list.

2. To reassemble the deck stack, reverse the dismantling procedure, being careful to replace the decks in proper order. Since decks are made to fit into position easily, do not use tools which may damage or distort the deck frame. Do not restrict gyration by adjusting the flexible tubes too taut.

3. **Tighten the nuts for all hold-down rods to a pressure of 30 foot-pounds.**

Dismantling Base (Videos available)

X-frame from Upper Spindle

1. After removing the entire stack of screen decks, lift the bottom hopper from the X-frame.
2. Remove the twelve bolts securing the X-frame to the upper spindle flange and the four cap screws securing the mounting plate of each stabilizer rod assembly to the X-frame.
3. Lift X-frame from the stabilizer assemblies (#35).
4. Remove the bearing housing (#9) from the lower spindle (#6) by removing the six bolts and lifting off, as a unit, the housing, upper spindle (#21), and counterweight wheel (#15).

Upper Spindle Assembly

5. Loosen the bearing locknut, but do not remove entirely. Tap the locknut with a brass drift in order to break the fit of the tapered bearing adapter (#27).
6. Remove the locknut and washer and the lower outer bearing snap ring (#10).
7. Push upper spindle assembly out of the bearing. This consists of the upper bearing (#24), the thrust collar (#23), and the upper spindle (#21).

8. The lower bearing (#26) and its adapter (#27) can now be easily removed.

9. Remove the middle outer bearing snap ring (#10), filler ring (#25), and upper spindle inner bearing snap ring (#22).

10. To move the upper bearing (#24) from the upper spindle (#21) use a bearing puller or threaded pusher holes, located on back of upper spindle.

11. The thrust collar (#23) can now slide off the spindle.

Lower Spindle Assembly

12. Block up the counter balance sheave (#28) so that it maintains a level position and will not drop.

13. Remove the three cap screws in the bushing and insert two of them as jackscrews in the threaded holes in the collar. This action moves the sheave and permits the bushing to expand and break the grip on the shaft. Also remove the cotter pin in bottom of spindle.

14. Loosen the set screws in the lower spindle bearing collar so that the collar turns easily. Remove the lower spindle (#6).

15. Remove the bearing collar.

16. Remove the four bolts holding the base bearing (#2) to the spider base (#1) and remove the base bearing housing.

17. Loosen the set screws in the base bearing (#2), pull and replace bearing, and tighten set screws. To reassemble bolt back into spider base.

Handling and Installing Bearings

- Keep bearings in original package or in oil-proof paper until you are ready to install them.
- Work with clean tools in clean surroundings.
- Hands should be clean and dry.
- Use clean, lint-free rags. Do not use cotton waste.
- Do not spin bearing with compressed air.
- Do not use emery on spindles or bearings.
- Remove all old grease from bearings and housings, then wash bearings in gasoline or kerosene, drain and dry. Rinse in light oil and repack the bearings as indicated in lubrication instructions with the recommended lubricant.
- Be sure that grease completely surrounds the rollers and that the housing voids and labyrinth seal (part of #9) are filled.
- Before reassembling parts of the mechanism, examine all parts for wear and replace if necessary.

Assembling

Lower Spindle Assembly into Spider Base

1. Place a 1" piece of lumber between counter balance sheave and spider base legs to keep level.
2. Tighten the set screw in magic grip bushing on the counter balance sheave and replace the cotter pin. The counter balance sheave should now be relocated and locked in its original position.

Upper Bearings and Spindle Assemblies

3. To assemble the upper and lower bearings (#24 and #26) keep the counterweight wheel on its side or rim.
4. Place thrust collar (#23) on upper spindle (#21).
5. Press the lubricated upper bearing on the spindle against the collar and insert the inner bearing snap ring (#22).
6. Pack grease between top of bearing and lower face of spindle and seal ring. Also pack labyrinth groove in the bearing housing (#9).
7. Place ¼" bars between seal ring of spindle and outer race of upper bearing (#24) at opposite sides. The bars hold the bearings outer race straight and guide it into the housing.
8. Insert spindle with bearing into the bearing housing (#9). The bearing must rest against the upper inner bearing snap ring (#10).
9. Place filler ring (#25) against snap rings (#10 and #22) and install middle outer bearing snap ring (#10).
10. Check upper bearing (#36) clearance. The bearing before assembly has an internal clearance of 0.0025 inches. This is found by setting the bearing on its outer race and measuring the clearance between the rollers and the outer race at both sides with a feeler gauge.
11. Lubricate the upper bearing (#26). Slide the tapered adapter (with wide taper end first into housing) on the upper spindle and then insert bearing.
12. If possible force additional grease into bearing. Install but do not tighten lockwasher and nut.
13. Insert lower outer bearing snap ring (#10). Push bearing assembly against inner snap ring (#10).
14. Tighten locknut only enough for bearing adapter to grab shaft.

15. Tap upper spindle shaft end with a brass drift in order that axial movement can be felt between snap rings (#10). The lower bearing (#26) is now slightly away from lowest snap ring and the races of the bearing will align themselves.

16. Tighten locknut until internal bearing clearance is reduced by 0.001 inches plus. The feeler gauge is used again to check the clearance as the nut is drawn tight. If, as previously mentioned, the clearance was 0.0025 inches before assembly, and if it is now impossible to get a 0.0015-inch feeler gauge between the rollers and outer race after the nut is tightened, then the clearance is correct.

Important: Clearance removal must be accomplished or the adapter will not be tight on spindle. Failure to do this will result in bearing and adapter sliding down the upper spindle and rubbing in the top of the lower spindle flange (#6) and scoring the upper spindle (#21)

When using a feeler gauge in this operation place the flange of the upper spindle (#21) either up or down to take the weight of the flange off the bearing (#26) so that the gauge can be inserted. If the flange is held up, insert gauge at the top of the bearing; if flange is down, then insert gauge at bottom.

17. Make final check for axial clearance of lower bearing (#26) between two lower snap rings (#10). With spindle pushed in, bearing should be slightly away from lower snap ring. Pull spindle on flanged end, axial movement should be felt in spindle between two lower snap rings. Bearing will now be farther from lower snap ring. Bearing is now correctly located with axial float between two lower snap rings.

Upper and Lower Spindle

.....Assemblies Together

18. Place counterweight wheel (#15) and bearing housing (#9) on lower spindle flange (#6) and bolt

securely in place. The weight in the counterweight wheel is always 180 degrees opposite the weight in the counterbalance sheave.

X-frame to Upper Spindle

19. With the X-frame (#32) on a level, flat surface place it on the flange of the upper spindle (#21). Place 1/8" rods in four spots between spindle and x-frame. Line up stabilizer legs over spider base pads. Level counterbalance sheave wheel with shim stock, equal on all four legs. Fill in distance between bottom of stabilizer assemblies and spider base with shim stock. Remove 1/8" rods and bolt down stabilizer assemblies. Securely bolt down x-frame to upper spindle.

20. Assemble sifter deck stack and hold-down rods to the X-frame. **Caution:** Never run the sifter unless the hold-down rods, X-frame, stabilizer rods and upper spindle are securely bolted.

21. Unit is now ready for operating.

Replacing Stabilizer Rod, Bushing or Knuckle Assemblies

Refer to catalog parts list in back of book. Complete stabilizer rod assemblies (#35) are available from stock for replacement, as are silent block bushings (#44), or complete knuckle assemblies (#42).

Because special tools are required to replace bushing (#44) in knuckle casting, it is advisable to replace complete knuckle assembly (#42).

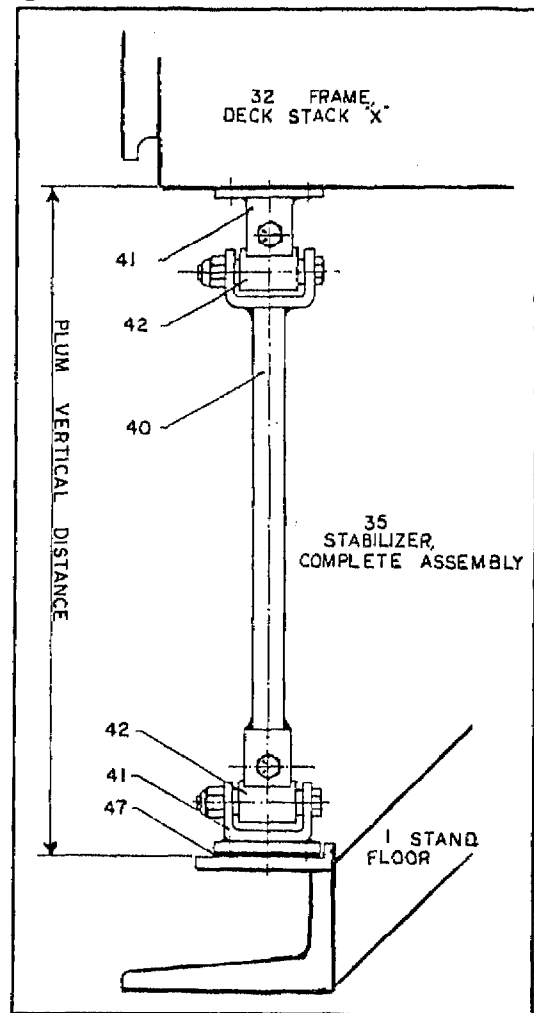
To replace the stabilizer assembly (#35)

1. Remove the entire stack of sifter decks.
2. The assembly is removed by taking out eight cap screws holding the rod to the X-frame and spider base. Remove shims under the rod; they will be used in replacement of the new assembly.

3. The floor stand must be level and should have been at original installation. If floor stand is not level, re-level at this point.

4. Be sure upper bearing (#24) is seated against large snap ring (#10). To insure, tap with soft hammer against center of X-frame.

5. Level the X-frame across all four corners and block between counterbalance sheave (#28) and spider base (#1). Do not add excess thrust while doing this blocking.



6. Measure (plum vertical distance) between X-frame pads and spider base pads. Remove blocks.

7. Bolt all four stabilizer assemblies to X-frame.

8. Bolt stabilizer assembly to spider base, adding shims at spider base, to maintain the previously plum vertical distance measured. Stabilizer assembly itself is at an angle and not plumb. This is due to offset in the mechanism to obtain gyratory motion.

9. After the stabilizer assemblies are in place recheck each corner and make final shimming adjustments as required to plum vertical dimension.

10. To recheck make certain X-frame is level. If properly done, X-frame will be level.

11. Lubricate bearings.

12. Assemble deck stack and run sifter for two hours. Check temperature of base bearing (#2). If bearing temperature is 160F or lower, assembly is correct. If bearing temperature is higher add shim in minimum thickness until bearing runs at regular temperature.

To replace the knuckle assembly (#42)

1. Spread the ends of the clevis on both stabilizer rod and upper and lower clevis plates after removing knuckle bolt (#45) and nut (#46). **(Do not pull clevis bushing because serrations on bushing ends are hardened and will destroy the seating surface on the clevis.)**

2. Install the new knuckle assemblies (#42). Reinsert knuckle bolt (#45) and nut (#46). Tighten nut just enough to contact serrations of bushing (#44). To present bushing serrations into clevis, use a ferrule over the head of the cap screw and over the nut, place in press and exert 10-ton clamping pressure. After presetting all four (4) bushings on each stabilizer rod and clevis, tighten nuts (#46) on knuckle bolt (#45) to 75-ft-lbs. torque value.

3. If top and bottom clevis plates do not appear at right angles to stabilizer rod, they can be adjusted by merely holding clevis plates stationary and moving rod at an angle greater than 45 degrees.

To replace silent block bushing (#44) in knuckle casting

A pressing and inserting tube will be required to remove old bushing and install the new bushing. This tube should be of such an outside diameter to pass easily through the inside diameter of the knuckle casting, yet the inside diameter of the tube should be large enough to fit over the outside diameter of the inner tube of the bushing. This tube must have square cut ends and be approximately as long as the bushing itself.

1. Lubricate the outside tube of the bushing (#44) with a graphite grease (do not use an excess amount of lubricant.)

2. Insert bushing (#44) in knuckle casting using previously described inserting tube. Use steady, even pressure and bushing will slide easily into place.

3. Be sure bushing (#44) is centered in knuckle casting; that is, projects equally on each end.

4. Knuckle assembly is now ready to be installed in stabilizer assembly.

CS-1 Sifter Sanitation

CS-1 sanitation procedure:
(sanitation time frame depends on the product being sifted & the environment the sifter is running in)

Every 25-28 days the CS-1 sifter decks and screen insert frames need to be disassembled and thoroughly cleaned.

Remove the clamps and connecton sleeves from the top inlet and bottom discharge outlets.

Dismantle the (4) hold down rods by removing the nut and bracket with a 3/4" wrench or socket.

Remove the deck stack from the sifter.

The insert frames need to be removed from the deck and cleaned with a soft brush or compressed air to remove any loose product which has accumulated on the insert frame or screen. With the insert frame removed the deck is ready to be brushed or blown off to remove any remaining product.

Renewal Parts

It is recommended that the following renewal parts be kept on hand to minimize down time and consequent loss of production.

1. Set of screen cloth
2. Seals and adhesive
3. Set of bearings
4. Flexible Tubes or Sleeves
5. Screen Cleaner Balls
6. Spare set of (4) Stabilizer Assemblies

Trouble Shooting & Tips ?

Instructions for Ordering Parts

When ordering parts, furnish the following information to Sifter Parts & Service.

Catalog Number of Part

Description of Part

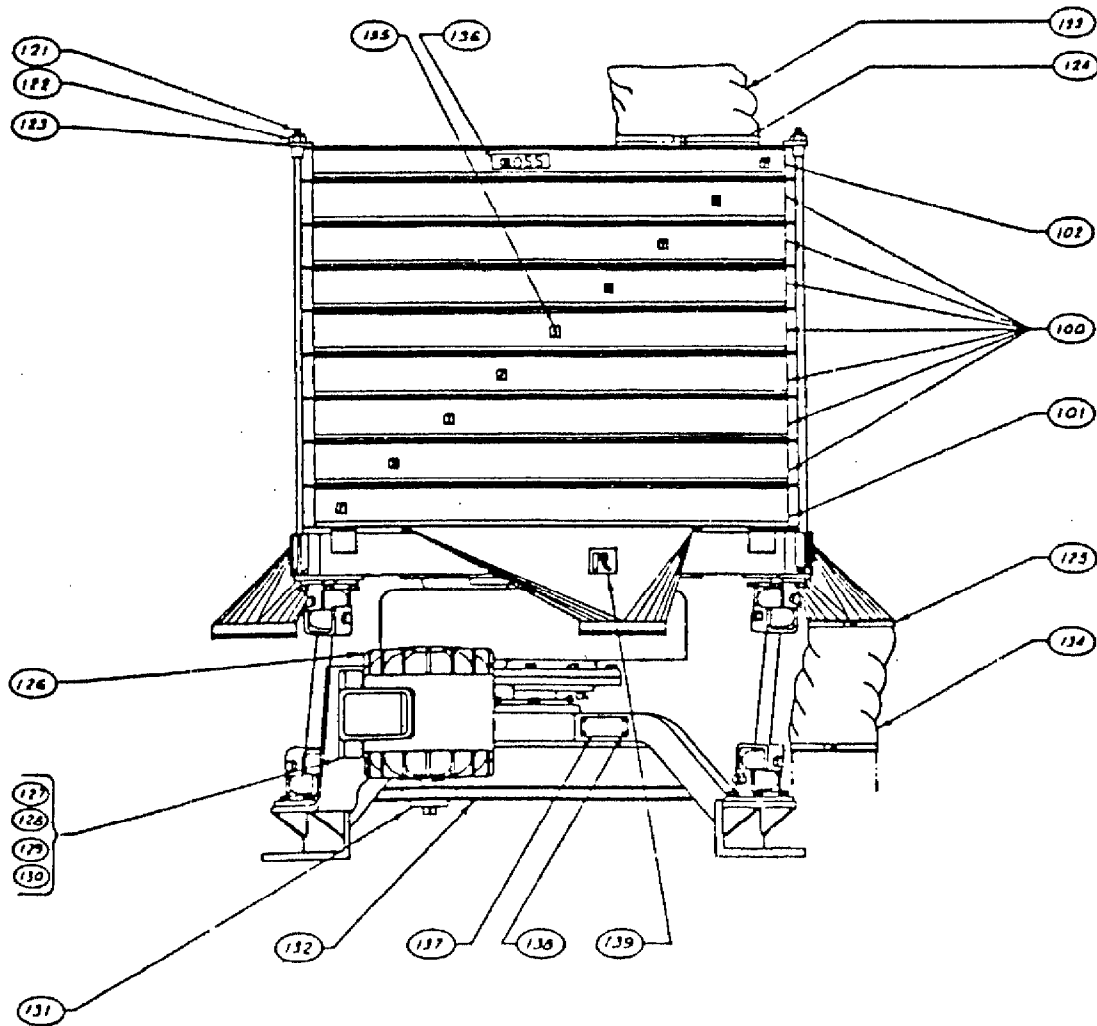
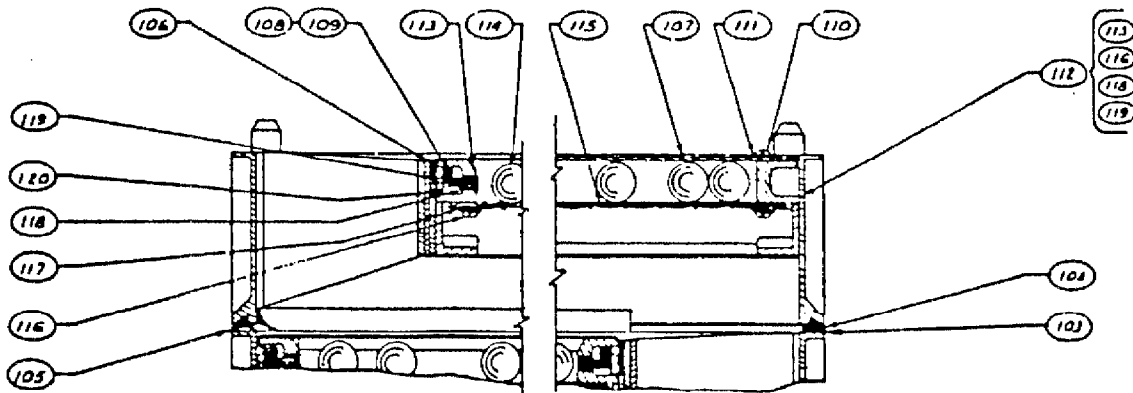
Quantity Required

Definite Shipping Instruction

Sifter Parts & Service
www.sifterparts.com
(800) 367-3591

GYRATORY SIFTER

Parts List



Sifter Parts & Service
www.sifterparts.com
(800) 367-3591

CS-1 Sifter Parts List

<u>Item #</u>	<u>Part #</u>	<u>Description</u>
1	B01	Spider Base
2	B2-LB	Base Bearing
3		Hex Head Cap Screw 7/16" x 1 1/4
4		Lockwasher 7/16"
5		Grease Fitting
6	B06	Lower Spindle
7	B7-CP	Cotter Pin
8	8	Grease Fitting
9	B9-BH	Bearing Housing
10	B10-LRG	Large Outer Bearing Snap Ring
11	11	Bearing Housing Plug, Gasket & Grease Fitting
13		Hex Head Cap Screw 1/2" -13 x 1 1/4"
14		Lockwasher 1/2"
15	15	Counterweight Wheel
16		Hex Head Cap Screw 1/2" - 13 x 1 1/4"
17		Lockwasher 1/2"
18	18	2" Counterweight
19		Hex Head Cap Screw 1/2" - 13 x 1 1/2"
20		Lockwasher 1/2"
21	B21-U	Upper Spindle
22	B22-SML	Small Inner Bearing Snap Ring
23	23	Thrust Collar
24	B24-U	Upper Bearing
25	25	Filler Ring
26	B26-L	Lower Bearing
27	B27-A	Bearing Adapter
28	28-CB	Counter Balance Sheave
29	B30-Key	Magic Grip Bushing Key
30	B30-MGB	Magic Grip Bushing
32	32	X-Frame
33		Hex Head Cap Screw 1/2" - 13 x 1"
34		Lockwasher 1/2"
35	35	Stabilizer Assembly
36		Hex Head Cap Screw 5/16" -18 x 1"
37		Lockwasher 5/16"
38		Hex Head Cap Screw 5/16" -18 x 3/4"
39		Lockwasher 5/16"

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GYRATORY SIFTER

Parts List

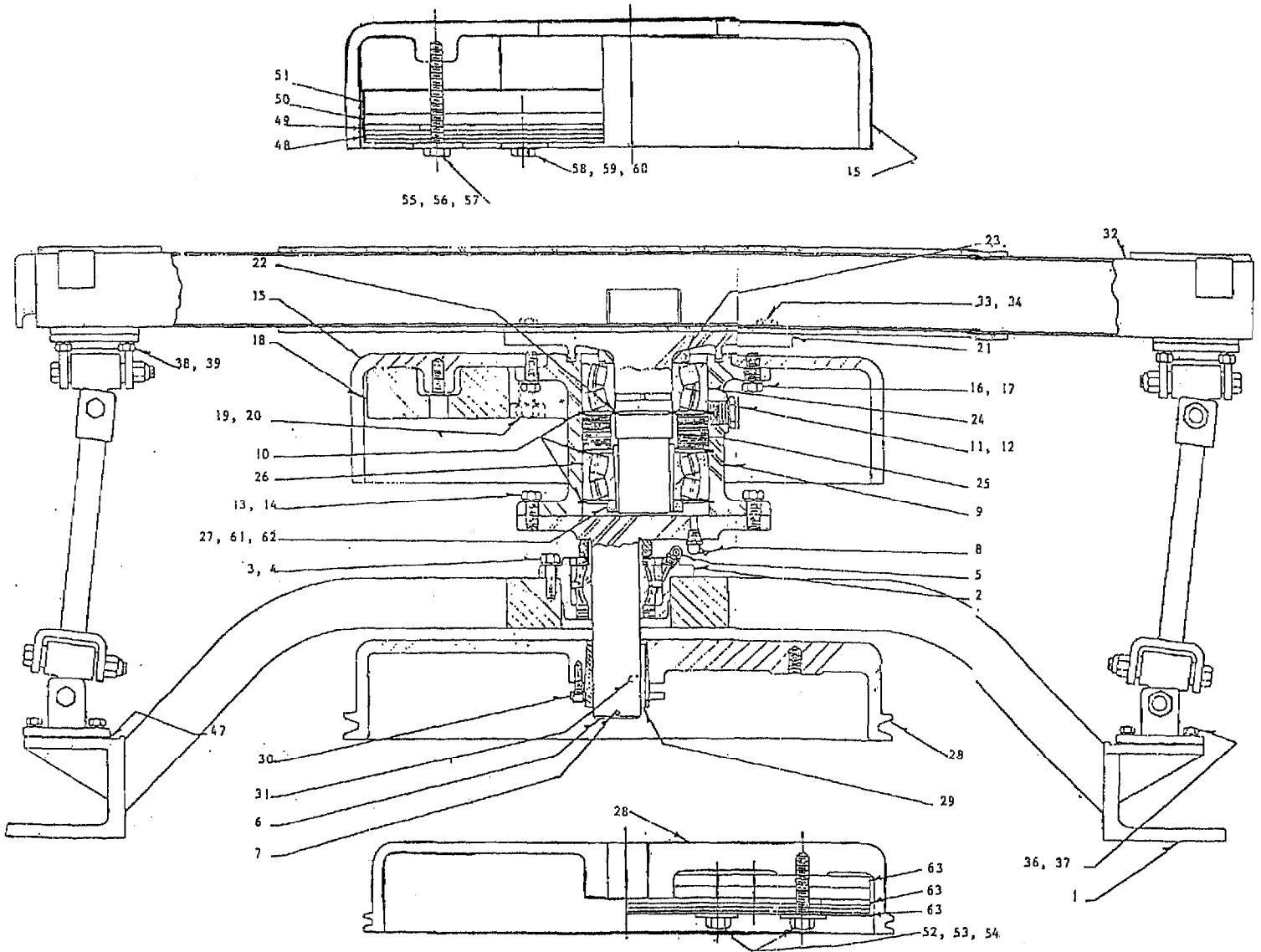
<u>Item #</u>	<u>Part #</u>	<u>Description</u>
40	40	Stabilizer Rod
41	41	Clevis
42	42	Knuckle Assembly
44	44	Silent Block Bushing
45		
46	45/46	Stabilizer Bolt & Nut
47	47	Shim Kit
48	48	1/16" Counterweight
49	49	1/8" Counterweight
50	50	1/2" Counterweight
51	51	1" Counterweight
52		Hex Head Cap Screw - Counterweight
53		Flat Washer - Counterweight
103	G201-00228	Corner Seal
104	G201-00234	Plain Seal
105	G201-00251	Lipped Seal
106	G201-00243	Tail Seal
107		Screen Cloth
108		Screen Rod
113	S201-01434	Type A Insert Frame
	S201-01270	Type B Insert Frame
116	116	Ballwire Screw
117	117	Threaded Lockwasher - Ballwire
118	118	Insert Assembly Plug
119	119	Screen Screw
120	120	Screen Washer
121	50-?	Hold Down Rod
122	51	Hold Down Nut
123	52	Hold Down Bracket
124		Clam (inlet/outlet)
126	30	1 HP Explosion Proof Motor
132	B 80	V-Belt

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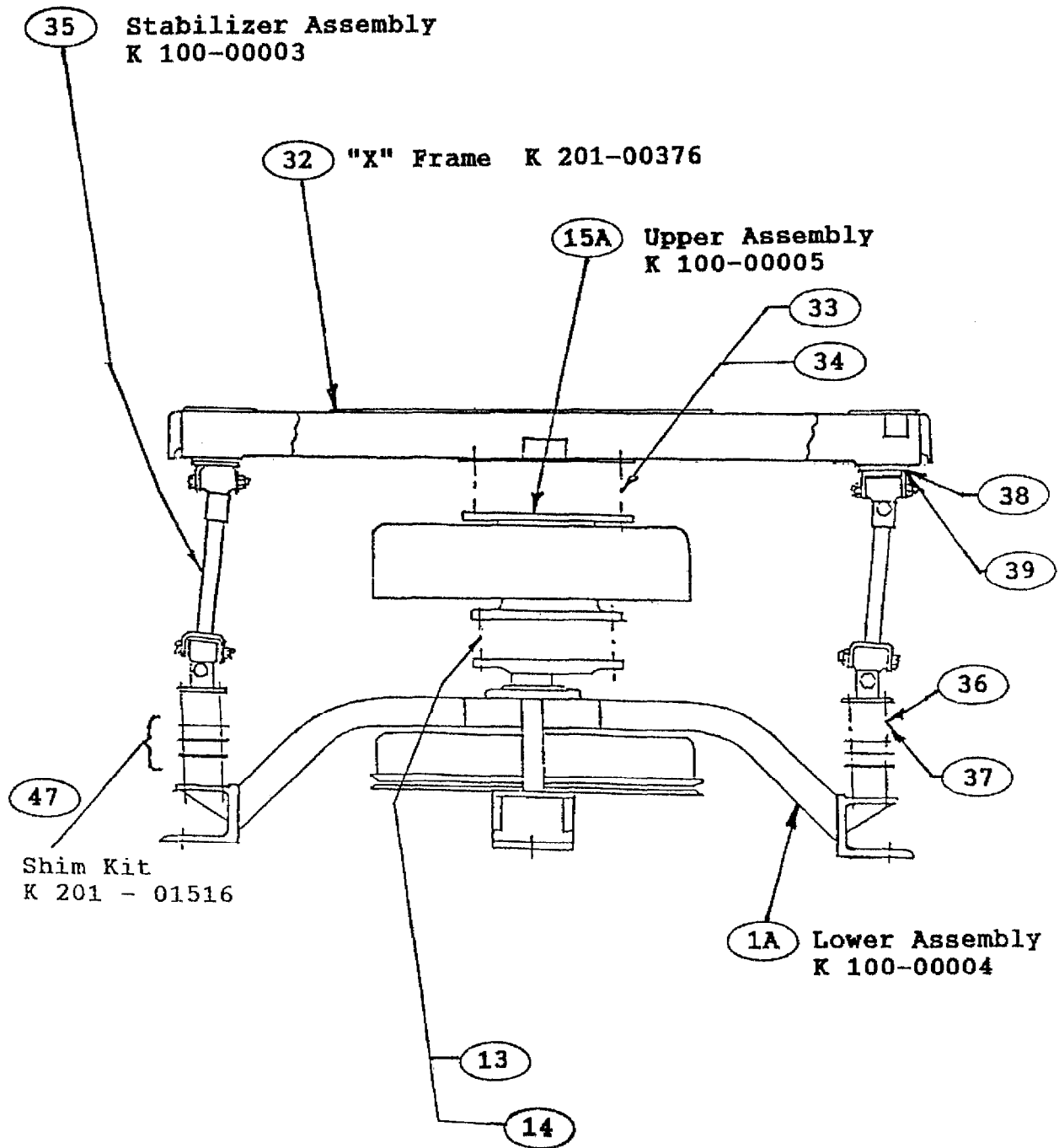
Parts List

CS-1 Sifter

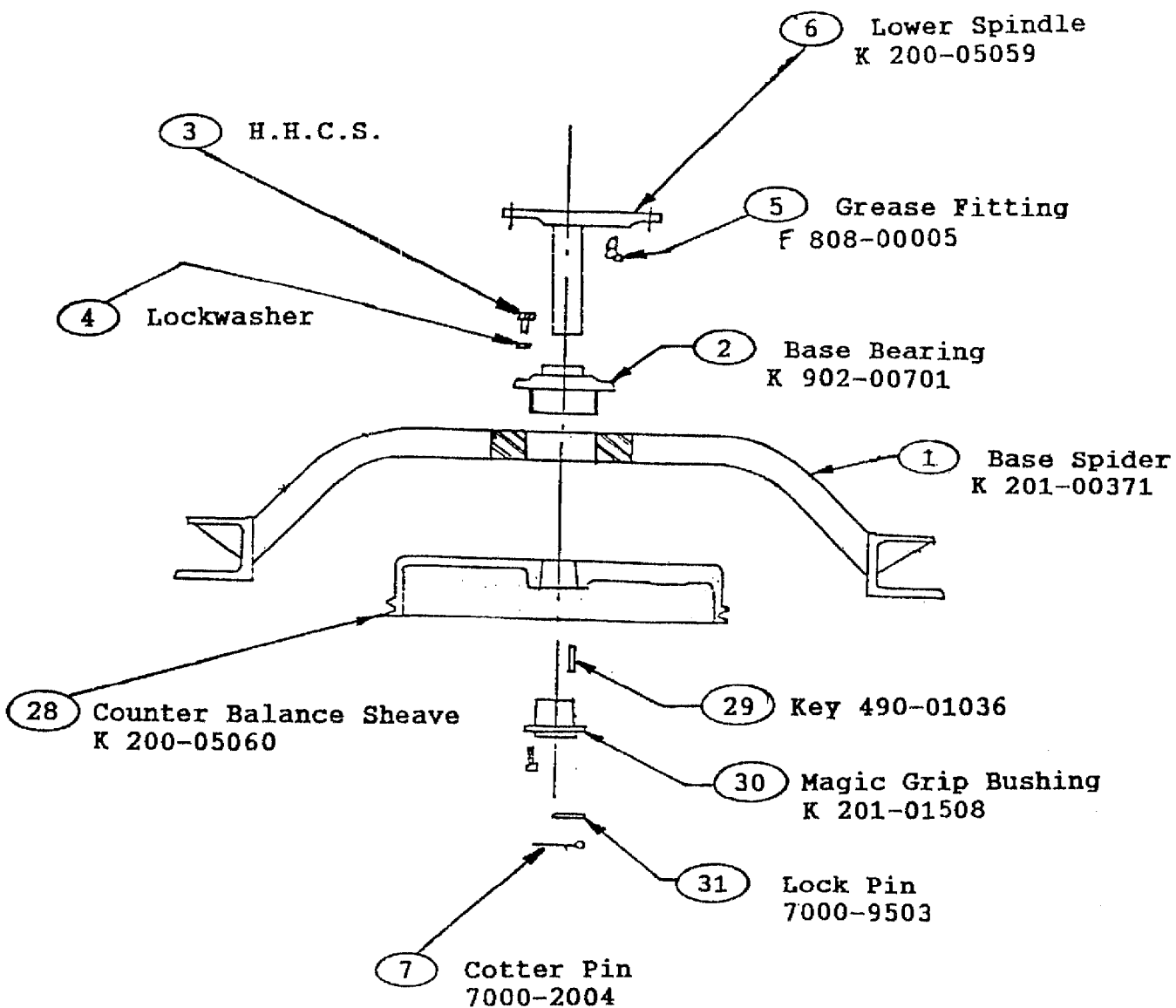


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CS-1 Sifter Base

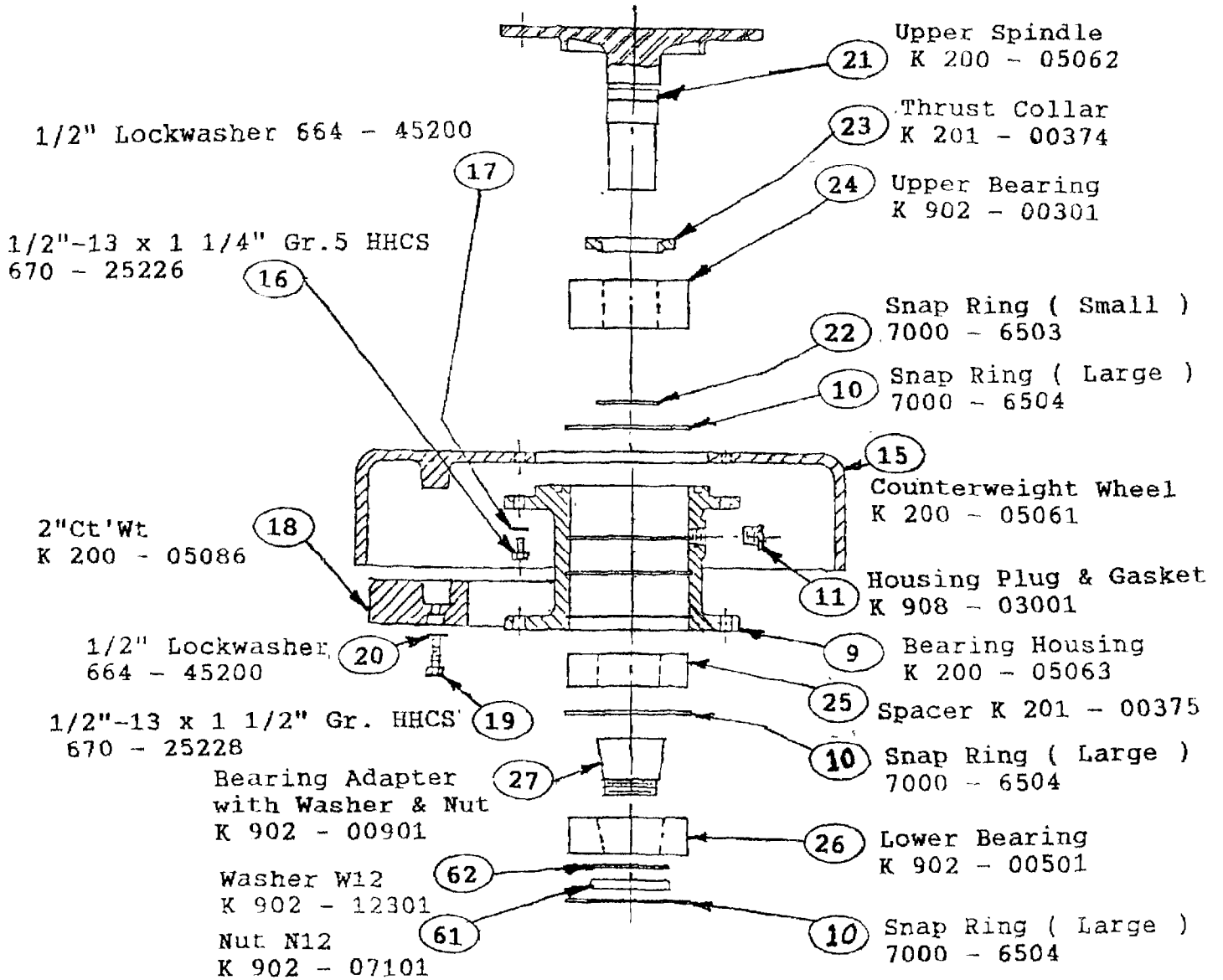


**CS-1 Sifter Base
Lower Assembly**



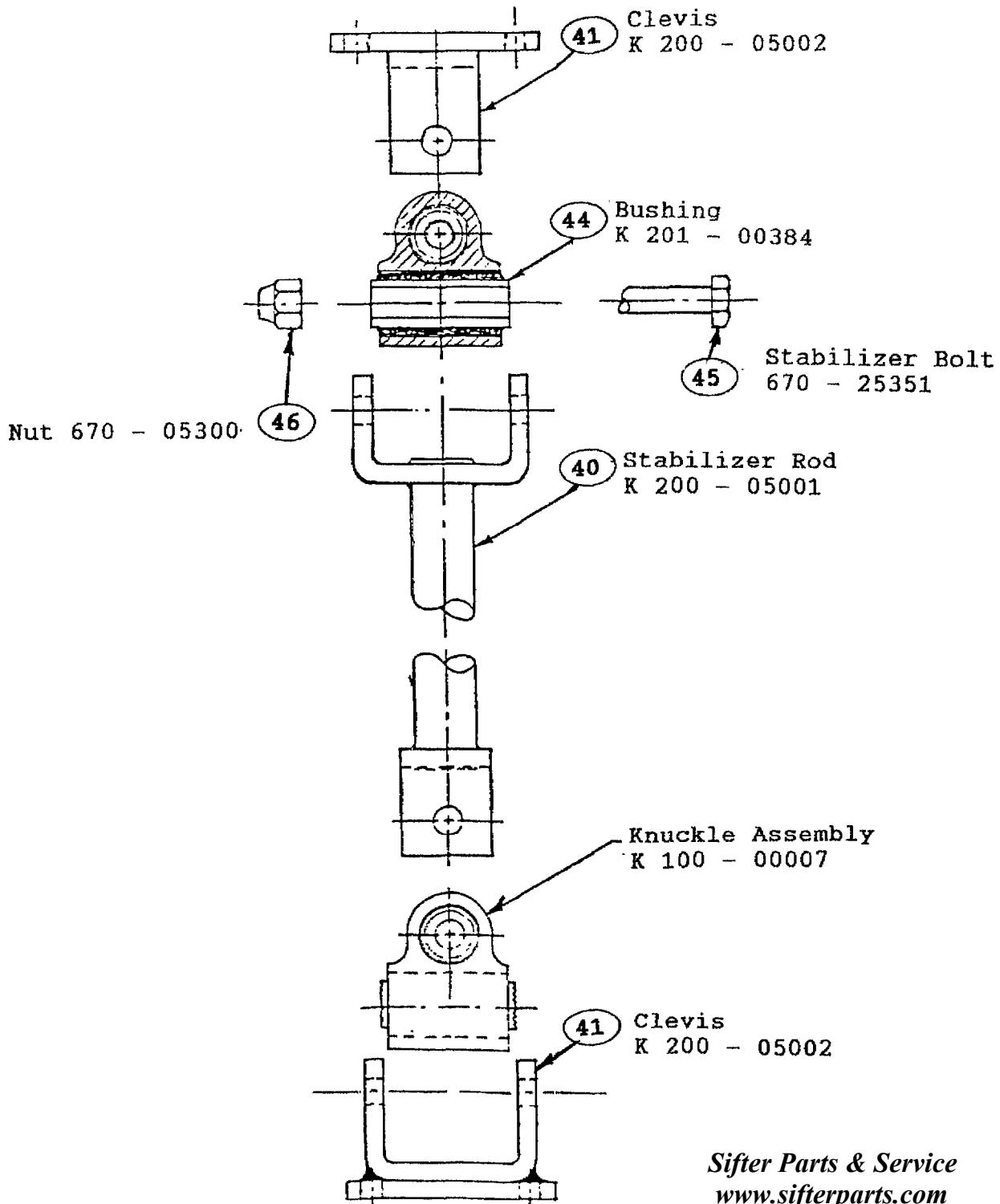
Sifter Parts & Service
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(800) 367-3591

CS-1 Sifter Base
Upper Base Assembly



Sifter Parts & Service
www.sifterparts.com
(800) 367-3591

**CS-1 Sifter Base
Stabilizer Assembly**



Sifter Parts & Service
www.sifterparts.com
(800) 367-3591

Base Maintenance

We have found most of the maintenance required on the CS-1 Sifter to be in the stabilizer knuckles, cracked decks, or worn pins.

These problem areas are interrelated. Eighty percent of the problems stem from improper shimming of the stabilizers. When new or rebuilt stabilizers are installed, it is absolutely necessary to reshim between the base and stabilizers. The following section explains the proper procedure to follow.

The assembly is designed to give an equal slope to the stabilizer rod in any direction, but never straight up and down. With improper shimming the stabilizer may be vertical at one part of the circle, but excessively sloped at another part of the circle. This will cause an up and down movement to the X-frame and twisting of the deck stack.

All this vertical motion and twisting causes the decks to crack. Cracked decks and much of the knuckle breaking can be eliminated with proper stabilizer shimming. (See the following section for instructions.)

The worn corner holes and pins can be attributed to untightened hold down rods. When stacking a sifter, it is necessary to tighten the nuts to 30 ft. pounds. If the safety nuts loosen during operation, they should be replaced either with new safety nuts or locked with double nuts.

When replacing worn stabilizers, never replace only one. Always replace all four stabilizers and reshim, making sure knuckle bolts all face the same direction on all four rods. If worn stabilizers are removed before wear gets into the knuckle or flange weldment, they can be rebuilt by replacing bushings only.

When decks start to show corner hole wear consider replacing corner pieces and pins, before the decks crack and must be replaced. Corner pieces are available with steel pins and bushings.

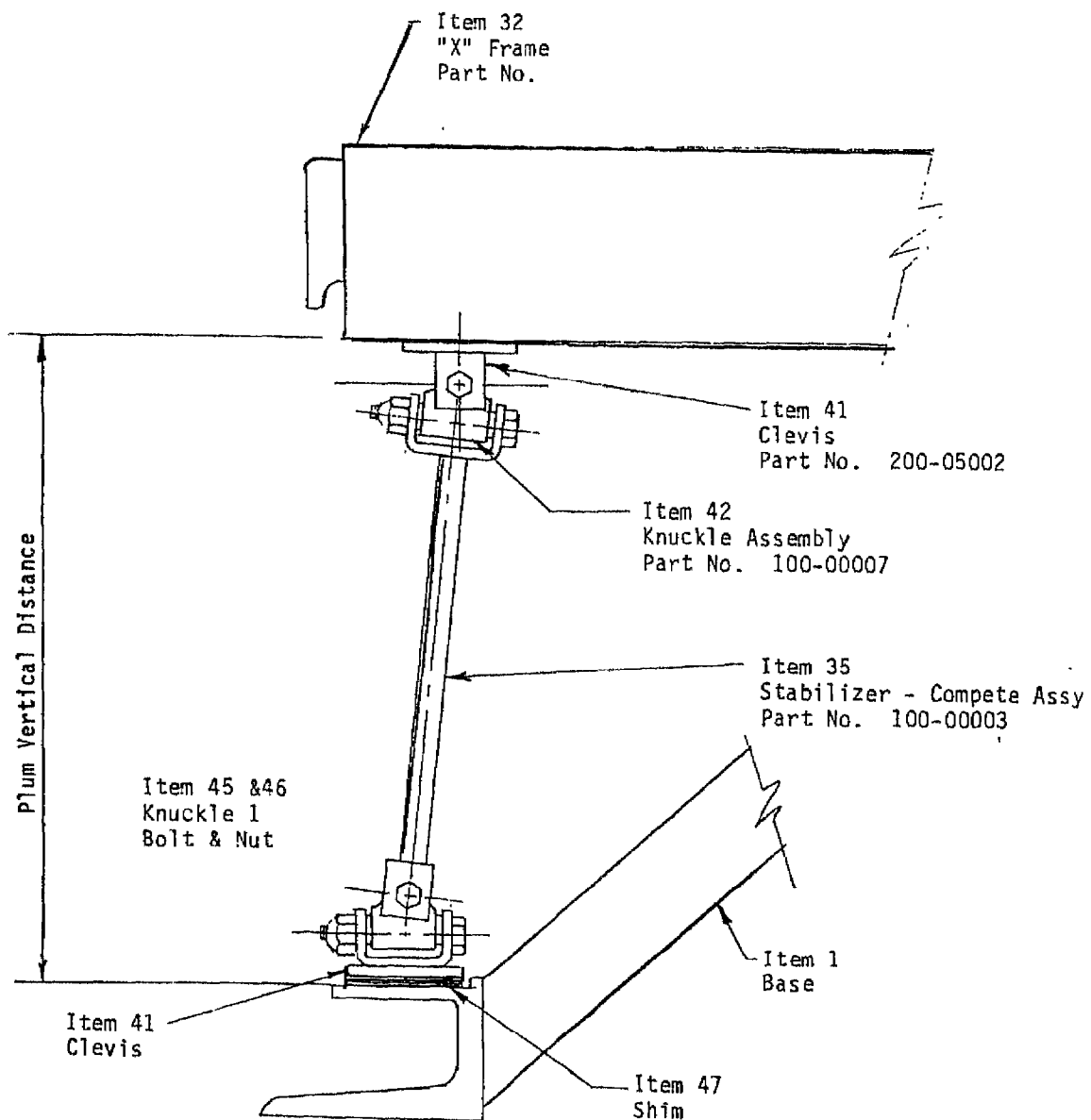
Stabilizer Shimming Instructions

When replacing stabilizers on the CS-1 Sifter, it is necessary to reshim between the base and stabilizer lower clevis.

1. Remove the entire deck stack and hopper bottom.
2. The rods are removed by taking out the eight cap screws holding the stabilizer to the base and X-frame.
3. Remove the shims from below the stabilizers; set aside. The shims will be used later.
4. Remove the 12 cap screws holding the X-frame to the upper spindle.
5. The floor stand must be level and should have been at original installation. If not, relevel at this time.
6. Bolt stabilizers to X-frame, making sure all stabilizer knuckle bolts face the same direction. (Clockwise)
7. Insert a piece of .0625" thick steel between upper spindle and X-frame.
8. Be sure upper bearing is seated against snap ring; to insure, tap center of X-frame with a soft hammer.
9. Place 25 to 35 pounds of weight on center of X-frame.
10. Level the X-frame across all 4 corners and across center.
11. With stabilizer rods hanging straight down, shim between spider base and stabilizer lower clevis, checking level as you did in Step 10.
12. Check level of X-frame to make sure X-frame is tight against upper spindle.

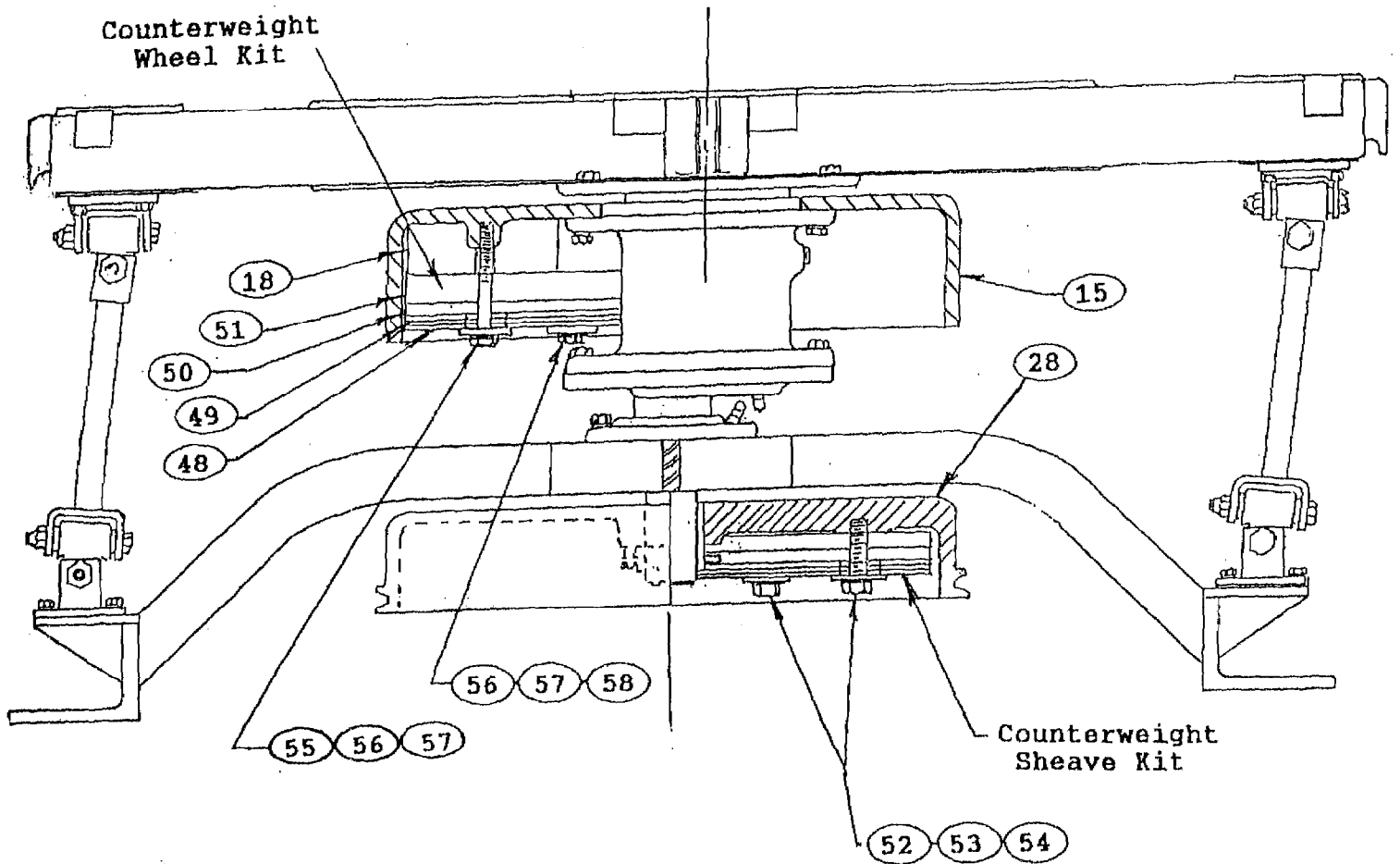
Shimming Instructions Continued...

13. Bolt stabilizer rods through shims into base.
14. Remove steel placed between upper spindle and X-frame. Refer to Step 7.
15. Pull X-frame over to match bolt holes in upper spindle. The 1/16" gap should close as the X-frame is bolted to the upper spindle. The stabilizer rods are no longer vertical.
16. Remove the weight from X-frame and restack the decks.
17. After restacking the sifter, a test run should be performed. If the bearings get hot, the problem can usually be corrected by adding an additional shim to each corner.



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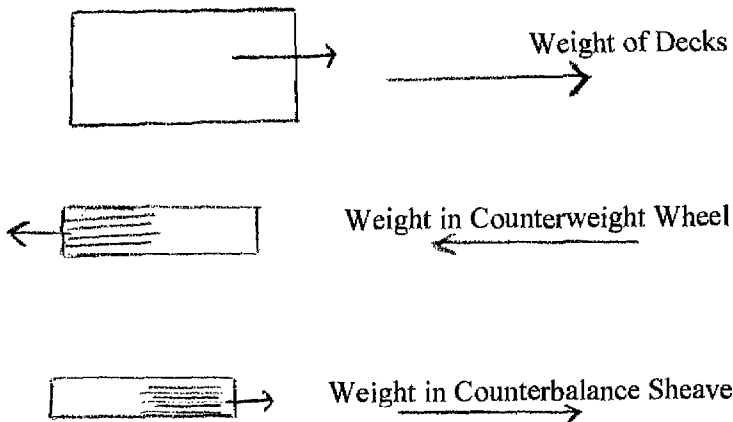
CS-1 Sifter Balancing



CS-1 Sifter Balancing

The CS-1 Gyrotary Sifters are available with several different flow pattern and number of decks. Each flow and number of decks will vary in weight; therefore it is necessary to rebalance the sifter if you add or remove decks. Different number of decks may require different weights in both the counterweight wheel and counterweight sheave.

Theory of CS-1 Balancing



The weight of the stack of decks and the height of the center of the mass is taken into consideration when calculating the weight to be placed in the counterweight wheel and sheave.

The sifter drive unit must be balanced to offset the precise number of decks and the stacking arrangement. They are balanced when they leave our factory. Therefore if for any reason you remove or add to the total number of decks, care must be taken to adjust the weights in both the counterweight wheel and counterbalance sheave.

The following tables show a list of the balance kits and part numbers for both the wheel and sheave, for each size sifter and flow. The two tables following will list the components of each kit, and the part numbers.

Weight Kits for Double Discharge Sifters (Two Spout Discharge Hopper)

Number of working decks	Counter-balance Sheave Kit	Counter-weight Wheel Kit
2	K201-01527	K201-01532
3	K201-01525	K201-01530
4	K201-01525	K201-01530
5	K201-01529	K201-01534
6	K201-01528	K201-01533
7	K201-01528	K201-01533

Weight Kits for Single Discharge Sifters (Four Spout Discharge Hopper)

Number of working decks	Counter-balance Sheave Kit	Counter-weight Wheel Kit
3	K201-01526	K201-01531
4	K201-01525	K201-01530
5	K201-01529	K201-01534
6	K201-01528	K201-01533
7	K201-01528	K201-01533

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GYRATORY SIFTER

Parts List

Counterbalance Sheave Weight Kits					
Description	K201-01525	K201-01526	K201-01527	K201-01528	K201-01529
1/2" Counterweight	1	-	-	2	1
1/16" Counterweight	2	1	2	2	1
1/8" Counterweight	1	3	1	2	3
1/2" - 13 X 1 1/4 HHCS	-	-	3	-	-
1/2" - 13 X 1 1/2 HHCS	-	3	-	-	-
1/2" - 13 X 1 3/4 HHCS	3	-	-	-	3
1/2" - 13 X 2 1/2 HHCS	-	-	-	3	-
1/2" Flat Washer	3	3	3	3	3
1/2" Lockwasher	3	3	3	3	3

Counterweight Wheel Weight Kits					
Description	K201-01530	K201-01531	K201-01532	K201-01533	K201-01534
1" Counterweight	-	-	-	1	-
1/2" Counterweight	2	1	-	1	3
1/16" Counterweight	3	1	1	2	2
1/8" Counterweight	3	4	4	4	2
1/2" - 13 X 2" HHCS	-	-	2	-	-
1/2" - 13 X 2 1/4" HHCS	-	2	-	-	-
1/2" - 13 X 2 3/4" HHCS	2	-	1	-	-
1/2" - 13 X 3" HHCS	-	-	-	-	2
1/2" - 13 X 3 1/4" HHCS	-	1	-	2	-
1/2" - 13 X 3 1/2" HHCS	1	-	-	-	-
1/2" - 13 X 3 3/4" HHCS	-	-	-	-	1
1/2" - 13 X 4 1/4" HHCS	-	-	-	1	-
1/2" Flat Washer	3	3	3	3	3
1/2" Lockwasher	3	3	3	3	3

Sifter Decks

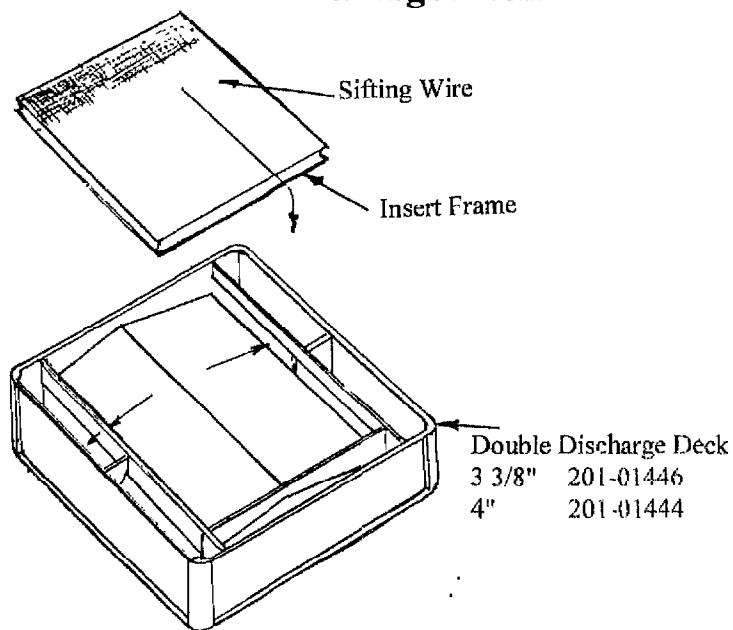
There is no standard deck or deck arrangement for the CS-1 Sifter. The Cs-1 is available with 2, 3, 4, 5, 6, or 7 working decks; with 2, 3, or 4 separations. The number of working decks will depend on the desired capacity.

The two different type flows are double discharge and single discharge and these decks are not interchangeable. The double discharge decks cannot be used in a single discharge flow and vice versa. The two machines can be visually identified. The double discharge sifter has 2 discharge outlets. The single discharge sifter has 4 outlets.

The double discharge sifter is designed for a large percentage of the incoming feed material to pass through the screen and be carried on the pans in two directions (the double discharge). This flow only allows for overs and throughs.

The single discharge sifter allows for 2, 3, or 4 separations. The 2 & 3 separation flows use only single discharge long decks while the 4 separation flow uses single discharge long decks in all but the last two decks.

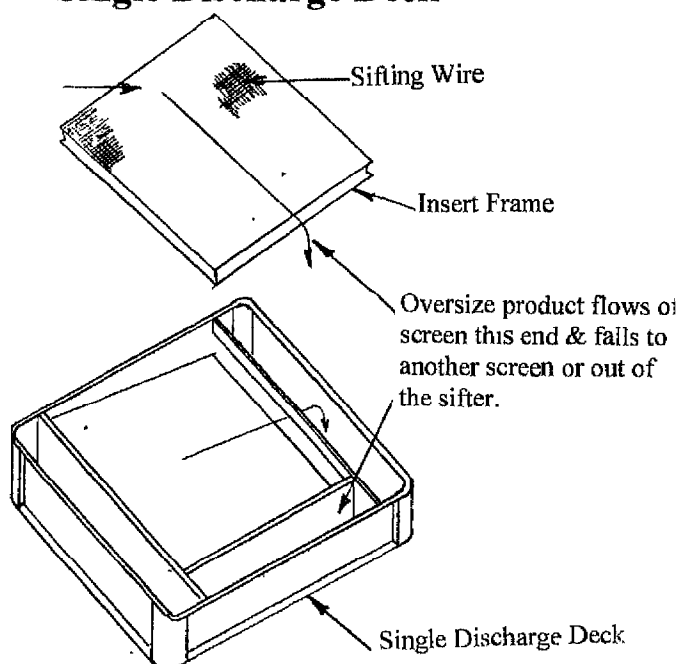
Double Discharge Deck



Possible flow Numbers: 323, 424, 525, 626, 727

- The first number indicates the number of working decks in the sifter.
- The second number indicates the number of separations.
- The third number indicates the number of meshes of the first mesh

Single Discharge Deck

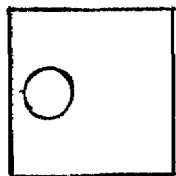


Flow number examples: 5314, 5323, 6324, etc.

- The first number indicates the number of working decks in the sifter
- The second number indicates the number of separations
- The third number equals the number of decks with course wire.
- The fourth number equals the number of decks with the next finer wire.

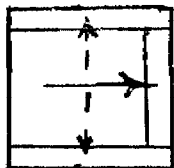
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Double Discharge Deck



Deck Stack Cover
2 1/4" 201-01068
4" 201-01060

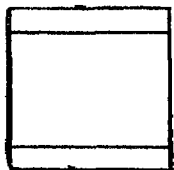
Always use on top



Deck
3 3/8" 201-01446
4" 201-01444

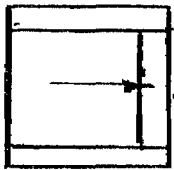
3 3/8" use 5 less than total stack number

1 - 4" deck as 2nd working deck



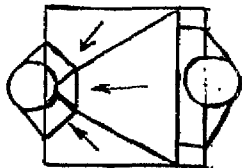
Spacer
2 1/4" 201-01071

Always used under 1st working deck



No Pan Deck
2 1/4" 201-01419

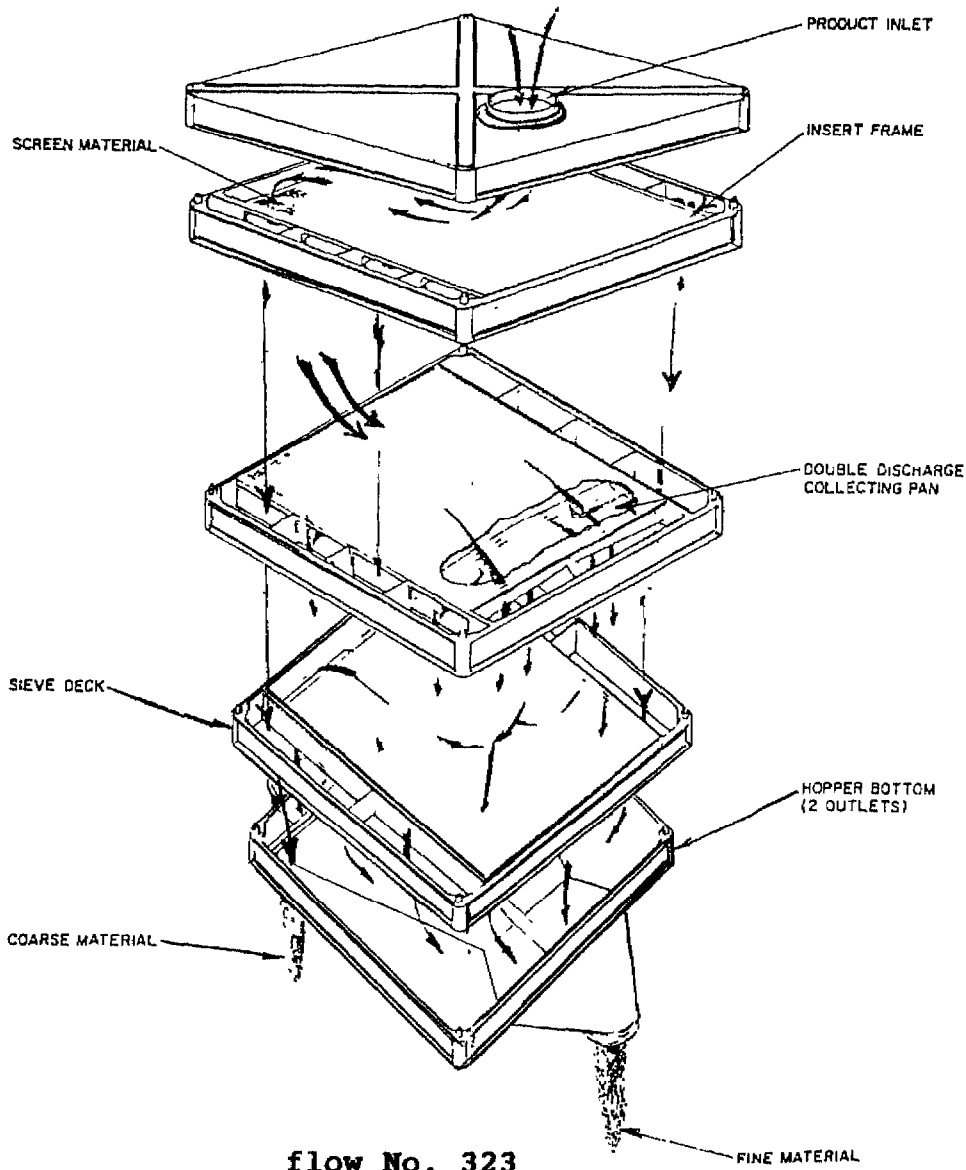
Always used in number 2 position



Bottom Hopper
3 3/32" 201-01323

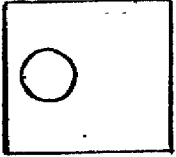
Always used in number 1 position

Double Discharge Deck

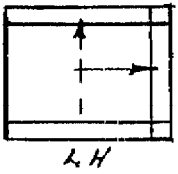


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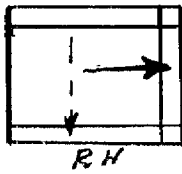
Single Discharge Deck



Deck Stack Cover 2 1/4" 201-01068
4" 201-01060

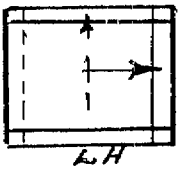


LH

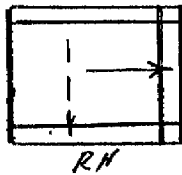


RH

SDL Deck 3 3/8" LH 201-01342
3 3/8" RH 201-01332

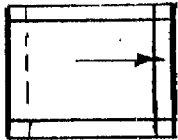


LH

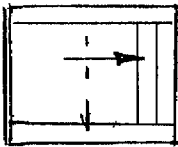


RH

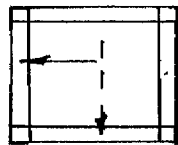
SDL Deck 3 3/8" LH 201-01352
3 3/8" RH 201-01353



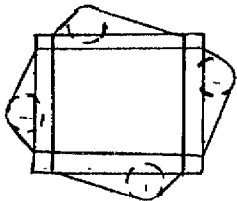
SDL Deck 4" 201-01365



SDS Deck 3 3/8" LH 201-01373



SDL Deck 3 1/8" LH 201-01385

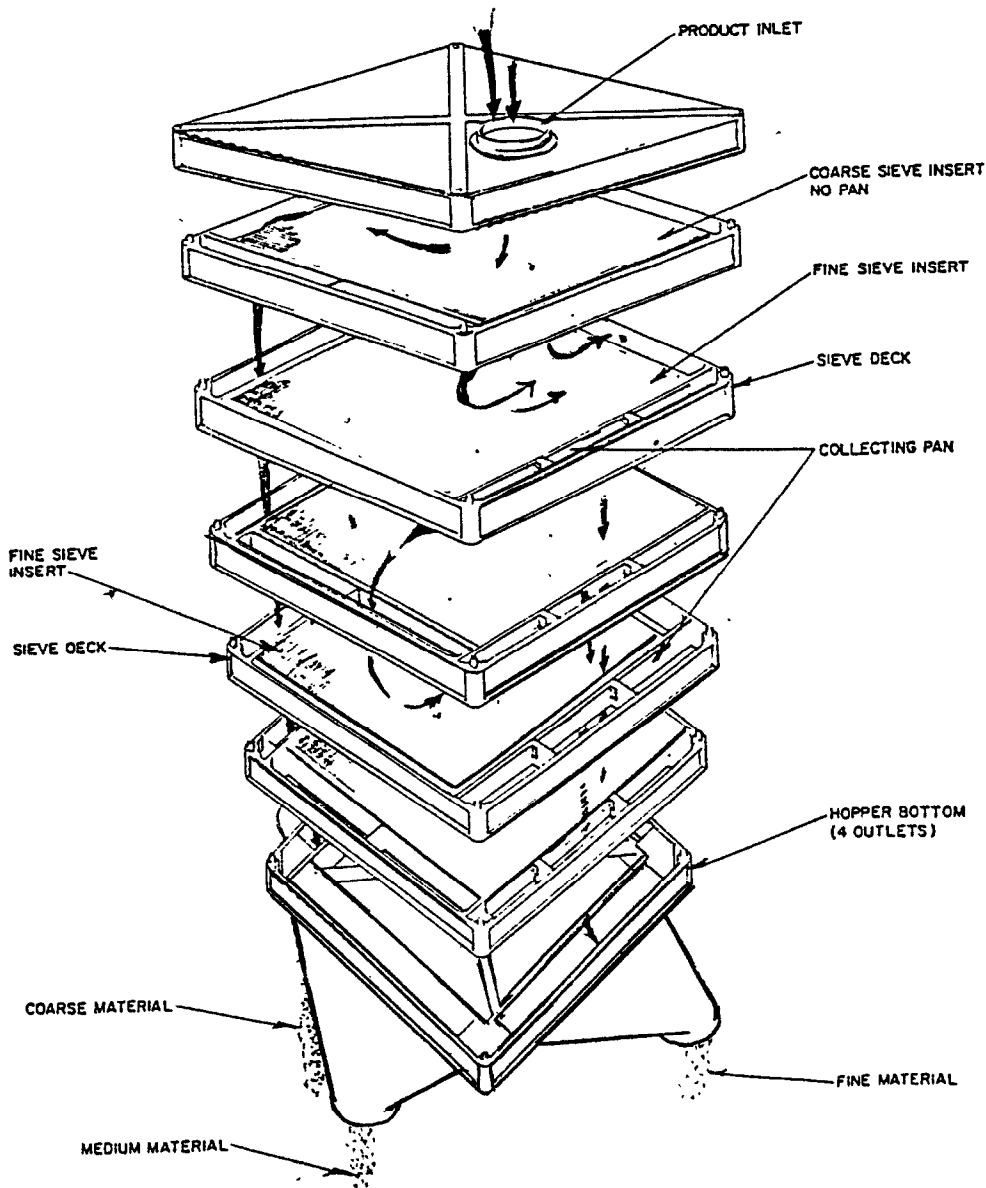


Hopper Bottom 3 3/32 201-01297

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Single Discharge Deck

FLOW 5314

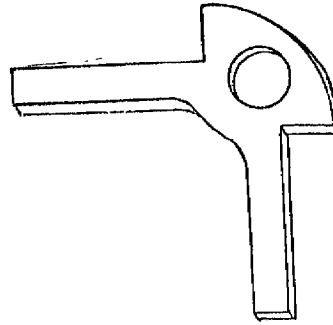


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CS-1 Sifter Seals

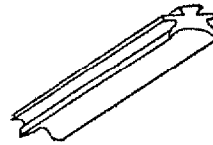
Corner Seal.....4 required per deck

Gum Rubber.....G201-00228



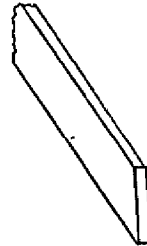
Plain Seal.....Stocked in 9 ft pieces
One 9 ft. piece required per deck

Rubber.....G201-00234



Tail Seal.....1 required per screen deck

Gum Rubber.....G201-00243



Lip Seal.....Stocked in 9 ft. pieces
One 9 ft. piece required per deck

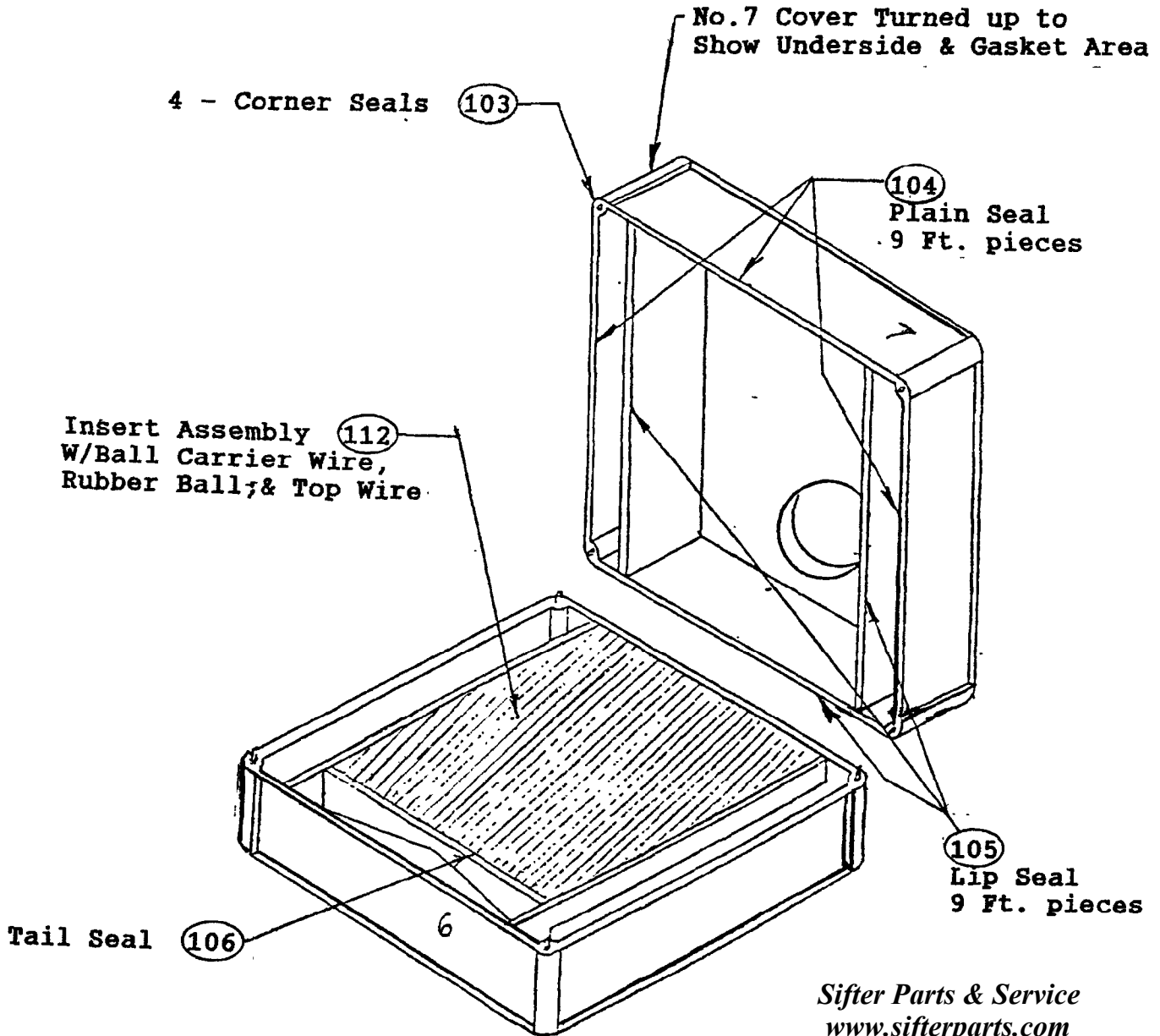


CS-1 Sifter Seals

Necessary Seals				
Screen Deck	Plain Seal	Lip Seal	Tail Seal	Corner Seal
Cover	9 ft	9 ft	None	4
Number of working decks	9 ft per deck	9 ft per deck	1 per deck	4 per deck
Spacer Deck	9 ft	9 ft	None	4
No-pan Deck	18 ft	None	1	4
Hopper	None	None	None	None

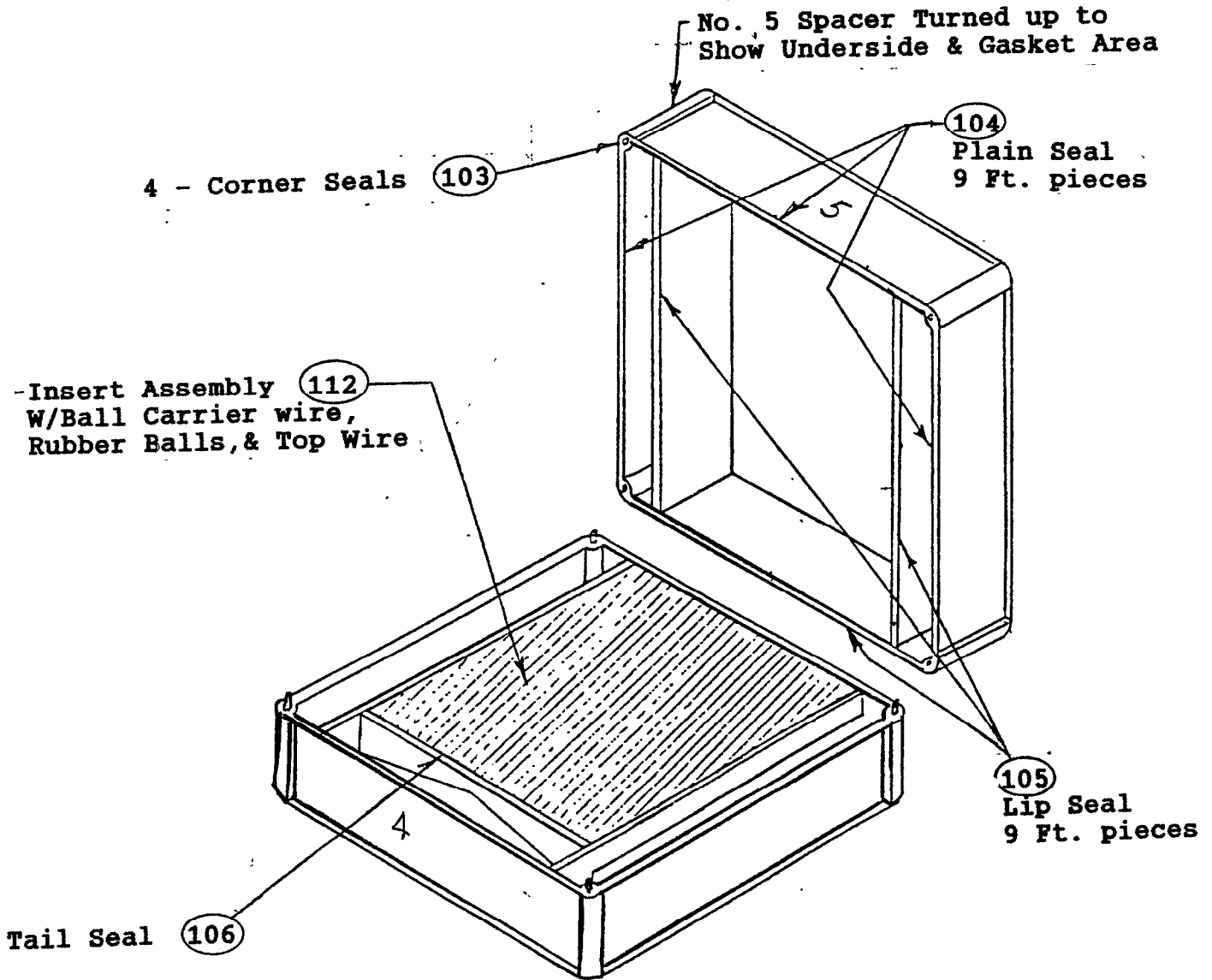
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CS-1 Sifter Seals

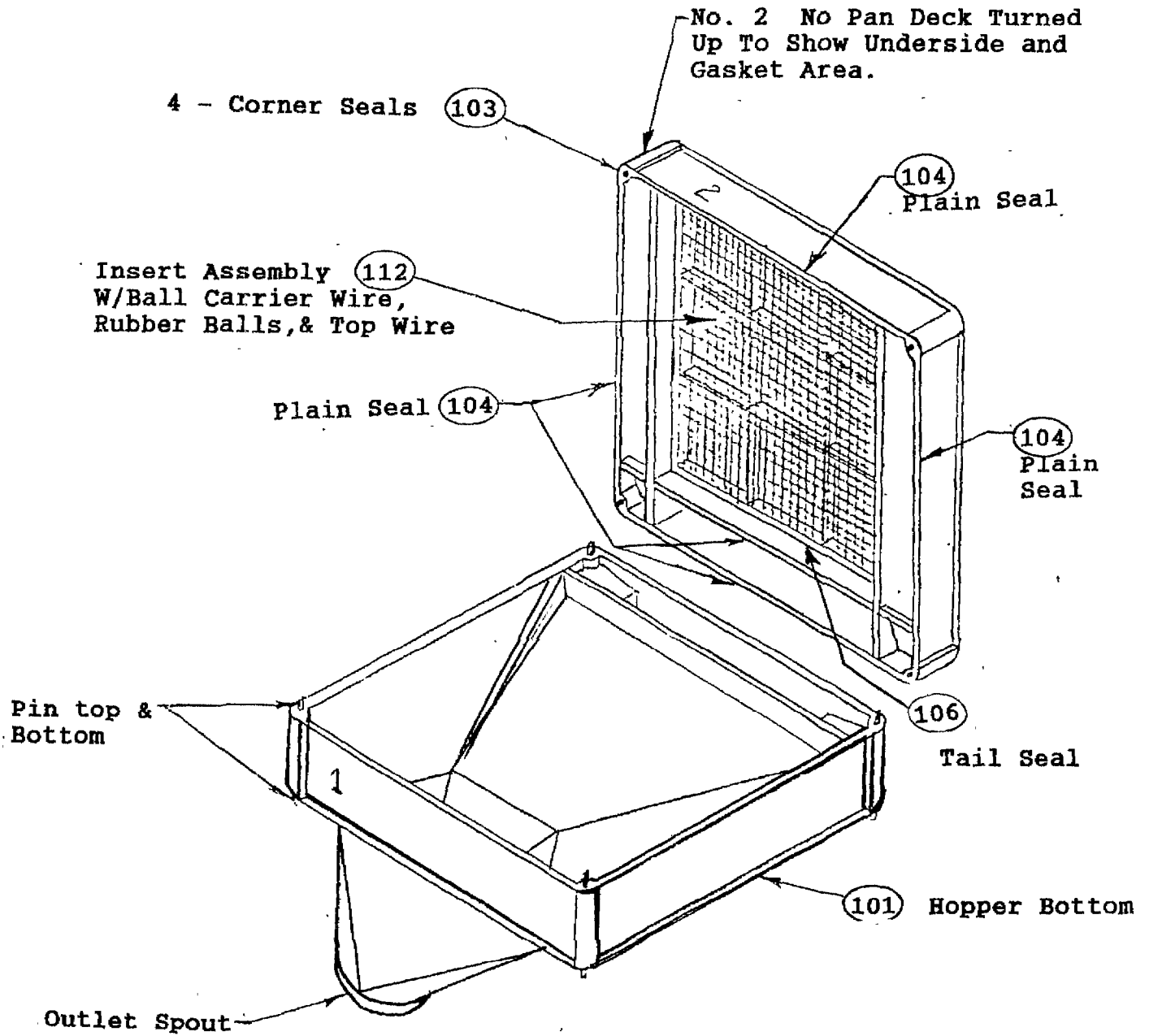


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GYRATORY SIFTER

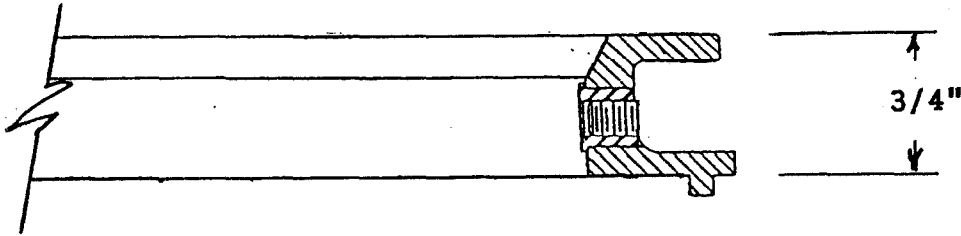
Parts
List

CS-1 Sifter Seals

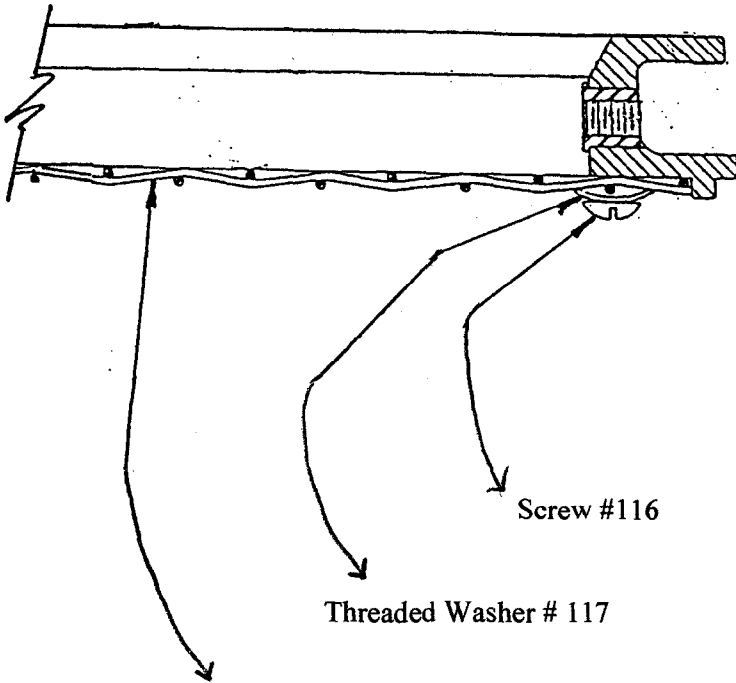


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CS-1 Sifter Insert



Double Discharge Insert	S201-01434	27 5/8" X 30"
Single Discharge Insert Long	S201-01270	27 5/8" X 31 5/16"
Single Discharge Insert Short	S201-01272	27 5/8" X 27 7/8"



304 Stainless Steel Ball Carrier Wire

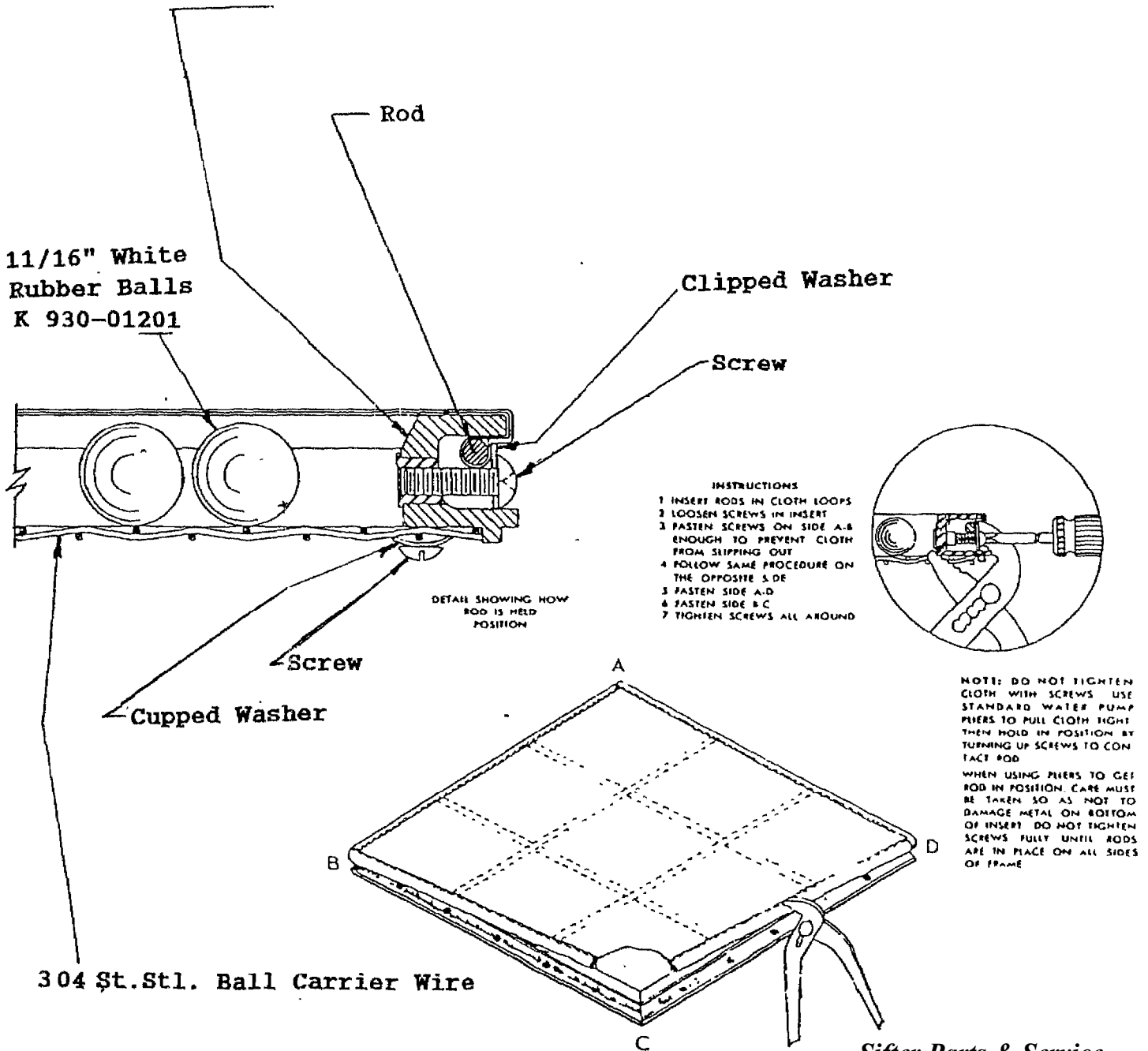
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GYRATORY SIFTER

Parts List

CS-1 Sifter Insert

Double Discharge Insert K 201-01434
 Single Discharge Long Insert K 201-01270
 Single Discharge Short Insert K 201-01272



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Screen Cleaners

There are a variety of cloth cleaners available to clean the screen cloth under varying operating conditions.

Balls should be placed between the wire cloth and the ballwire (coarse intercrimped wire). Our recommendation for optimum capacity is 27 balls per deck (3 per each of the nine sections). On screens coarser than 48 mesh we also recommend using three nylon balls and one cube per section. There is no proven industry standard; however, through experience this is what we have found obtains the best results.

<i>Part #</i>	<i>Size</i>	<i>Material</i>
S126	5/8"	Rubber Ball
S127	5/8"	Nylon Ball
S128	1/2"	Nylon Cube
S129	5/8"	Silicone Ball
S130	11/16"	Rubber Ball

Hold Down Rods

The length of hold down rods will vary due to of the variety of deck stacks available. The proper length can be calculated by taking the total height of all the decks (including hopper and cover) and add 4-9/32" to the total. This will be the needed length of the hold down rod to fit a deck stack from the x-frame through the top of the deck stack.

Hold down rods are available in the following lengths:

<i>Part #</i>	<i>Length (including 5" threads)</i>
50-22	22"
50-25	25"
50-28	28"
50-32	32.5"
50-35	35.5"

Screen Cloth

Screen cloths for the CS-1 Gyratory Sifters are available in three basic sizes. The three sizes are:

Double Discharge	Type A	28-3/8" X 30-3/4"
Single Discharge	Type B	28-3/8" X 32-1/16"
Single - Short	Type D	28-3/8" X 28-5/8"

The single discharge short decks are the bottom two decks on a four separation deck stack.

Standard specifications for the screen cloth include bond tight cross strips to match the cross ribs of the insert frame. They also include nylon loops sewn around all edges of the material for mounting on the insert. Coarse meshes are normally furnished cut to size and are mounted directly to the insert frame with screws. Optional features are available to correct special problems. Some of the options include, silver soldered mounting loops, static grounding strips, magnetic stainless steel, and side flaps.

Screens are normally ordered by description instead of part number. The description should include:

- Meshes per linear inch.
- Type of material; wire, nylon, polyester, etc.
- Size of frame.
- Optional features required.

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