



Operation and Maintenance Manual

SEM Model 3000



MAN-013 Rev 2 | Created 9/2/2021 | ECN: 00622

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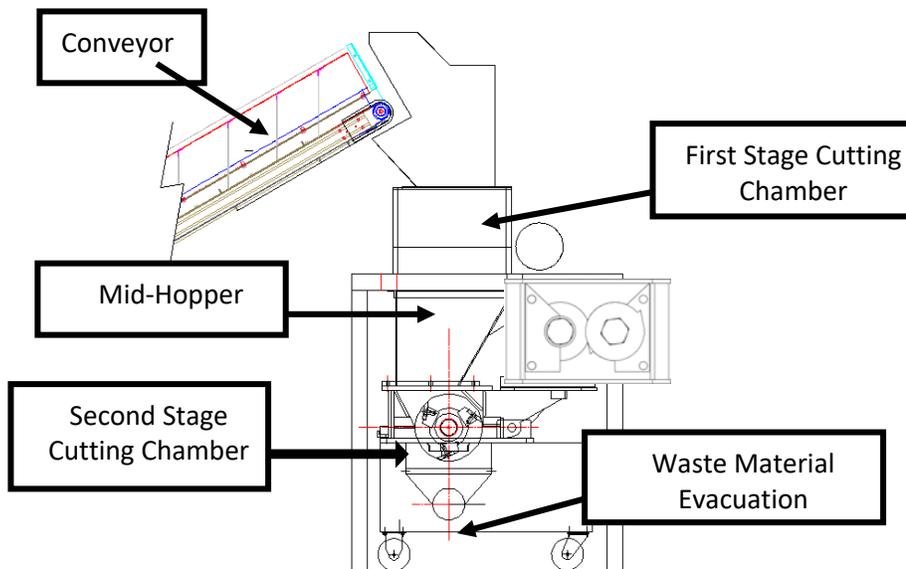
Disintegrator Safety Rules

1. Read entire manual prior to installation or initial operation.
2. **Observe and follow your company's safety policy regarding disintegrating equipment.**
3. **MOVING OR LIFTING THE DISINTEGRATOR:** Care must be taken when moving the machine along the floor or when lifting it. Damage may occur to sheet metal covers, electrical cabinets, or small brackets if pressure is applied to them when moving the disintegrator. When lifting the disintegrator, be certain of total machine weight and the capability of the lifting equipment.
4. **Always disconnect and perform lockout tagout (LOTO) when disconnecting the main electrical power to the disintegrator before performing any service.**
5. **SAFETY INTERLOCKS MUST NOT BE BYPASSED.** The mechanical and electrical safety interlocks ensure the safety of personnel. They should never be tampered with or removed for ANY reason. They should be frequently checked by a qualified mechanic for proper operation.
6. **DISINTEGRATOR LOCATION:** Provide an adequate area for routine maintenance that allows machine to be opened for service.
7. **SAFE HOUSEKEEPING:** The work area should be kept clean and uncluttered to allow personnel safe movement around the disintegrator during periods of operation or maintenance. No hand or power tools should be left on or about the machine. Any tools or other metal objects which mistakenly fall into the hopper feed opening can cause severe damage to internal screen chamber and cutting chamber components.
8. **SAFETY GLASSES OR A FACE SHIELD MUST ALWAYS BE WORN** when operating or servicing the machine. Although SEM machines are designed for the maximum in fly back control, caution must be used when operating near the area of the hopper feed opening in order to guard against unexpected material fly back.
9. **EAR PROTECTION** may be required when operating the machine during disintegration of very hard/noisy materials. The Occupational Safety and Health Act of 1970 (OSHA) has established guidelines for permissible noise exposures (1910.95) that should be followed. Each site should determine their own requirements for PPE.
10. **NEVER** operate the disintegrator unless it is fully assembled with all guards and interlocks in place and functional.
11. Observe all danger, warning, caution, and safety labels on the equipment.
12. Upon completion of any machine maintenance, be certain all safety guards and covers are securely and properly fastened prior to resuming machine operation. Failure to secure and tighten all safety guards and covers may result in injury to personnel and equipment.
13. **NEVER** wear any loose fitting clothes, neckties, or dangling items such as earrings, belts, or shoestrings. Jewelry such as wristwatches, bracelets, or rings should **NEVER** be worn. Long hair must be tied back or placed within a tight fitting hairnet. **NEVER** lean against or rest hands/feet on the disintegrator when it is in operation or opened for maintenance. **NEVER** stand on the disintegrator when it is in operation.
14. **ROTATION OF MOTORS:** All rotating items in the disintegrator are clearly marked on the machine. Always check for proper rotation of motors.
15. **ELECTRICAL GROUNDING:** All electrical equipment on the disintegrator must be grounded in accordance to all local codes and Article 250 of the National Electric Code.
16. **NEVER** modify the machine configuration or any individual component.

1. Introduction

The Model 3000 dual stage industrial disintegrator is comprised of four basic units:

1. An inclined conveyor to feed materials on a cleated belt to the feed hopper of the pre-shredder. This allows for easy loading and control of feed lots as well as operator safety
2. A first stage pre-shredder, a unit with counter-rotating shafts with cutters turning at low speed and high torque, for reducing bulk materials.
3. A second stage disintegrator / knife mill for reduction of shredded bulk into a smaller particle using interchangeable security screens.
4. A fan-based waste evacuation unit that conveys the end waste particles through ductwork to collection bags or a briquettor press system. The air pressure is exhausted through a filter.



General Description

SEM disintegrators are designed to uniformly and consistently reduce the size of waste products through a user selected sizing screen.

The rotor on which the cutting knives are mounted is a fabricated, steel unit supported by bearings mounted outside the cutting chamber. The rotor is driven by a motor which is capable of producing high torque loads. The disintegrator is equipped with a magnetic starter that is protected by manually resettable overload heaters. The slanted rotor knives and counter slanted bed knives produce a scissor cutting action which reduces the possibility of feedstock jamming in the cutting chamber.

Motors have overload heaters for maximum protection in compliance with the NEC.

The control enclosure houses all of the necessary wiring, circuit breakers, overload heaters, and motor starter coils, along with the 115V control transformer and disintegrator operating controls. The control enclosure is built to meet NEC regulations.

2. Installation

SCOPE

This section contains all instructions required for experienced installation personnel to install the SEM disintegrator and prepare it for production. It is essential to follow all instructions carefully, and in the sequence presented. Be sure to observe all DANGER, WARNING, and CAUTION statements in order to prevent personal injury or machine damage and all NOTE statements which are designed to assist in the performance of procedures.

GENERAL

The site of the installation should be prepared in advance. Be certain that the area is clean, level, and free of obstructions. The site must have a floor rated to easily support the weight of the machine. It is recommended that the customer talk to their engineer/architect regarding floor type.

Note: electrical disconnects should be in place prior to installation. Customer may need to talk to a licensed electrician.

SHIPPING

To prepare the disintegrator for shipment, it is mounted on wooden skids, then blocked and banded to prevent movement. All non-painted items subject to corrosion are coated with a quality rust preventative and the machine is then covered with heavy duty polyethylene to protect it from moisture and dirt.

SEM Disintegrators are normally shipped completely assembled unless the size of the machine or an agreement for special shipping arrangements causes partial disassembly.

UNPACKING

Note: When the machine arrives at your plant, inspect it carefully for shipping damage before unpacking. Report any damage immediately to the transporting company that delivered it. Sign the freight bill - noting all damage. Contact SEM customer service immediately afterwards.

Warning: if customer doesn't sign for unit damaged during shipping, customer will be responsible for repairing all damaged parts and will not be covered under warranty.

If inspection revealed no shipping damage, unpack the unit by removing the polyethylene protective covering and banding. The machine may now be lifted from the skid. A fork lift is ideal for the purpose, but care must be taken to properly position the forks. It is recommended to move the machine from the front side.

CAUTION: do not attempt to lift the disintegrator by means of any shaft or protruding member, especially the hopper.

SETUP

Make certain the floor is clean, level, and free of obstructions before placing the machine into position.

Open the machine by loosening the hex coupling nut(s) at the front of the machine enough to allow for rotation of the threaded swing bolts out of the clamp(s). Visually inspect the hopper in-feed opening to ensure that no stray packing material or debris is present.

NOTE: It is never necessary to loosen the spring block locknuts located on the front of the cutting chamber. The spring blocks are factory set and require no adjustment.

Remove the bolts on the bottom surface of the cutting chamber to lift cutting chamber to the extreme open position. Please note that there is a safety pin on the side to keep it open.

CAUTION: The knives mounted on the rotor and also located at the edges of the cutting chamber are extremely sharp. Wear heavy gloves and exercise care when working in the cutting chamber.

Remove the screen from the screen chamber and wipe it clean. The screen should then be placed aside and should always be positioned standing upright on its side. Wipe the inside of the screen chamber clean.

Carefully inspect the interior of the cutting chamber for foreign material or debris. Slowly turn the rotor by hand to verify that it freely rotates without obstruction or contact between rotor and bed knives. Wipe the inside of the cutting chamber clean. Before closing the machine, check the chamber carefully to ensure nothing has been left inside the machine. Place the screen back into its original position before closing the machine.

Securely close the machine by rotating the threaded swing bolts up into the clamps and tightening the hex coupling nut(s) at the front of the machine. Make certain all electrical connections are properly made and supported between accessories and the control enclosure (refer to the wiring diagram for wire and terminal connections).

Open the sheave guard(s) by removing the bolts attaching the cover. Check the belts for proper tension and alignment in section *Service Instructions*. Upon completion, close the sheave guards by placing the cover back into position, insert all of the bolts originally removed, and tighten them fully.

ELECTRICAL SERVICE CONNECTIONS

Carefully check the diagrams packed with the machine. All internal wiring has been completed at the factory. All safety interlocks have been verified to be functional before shipment. It is only necessary to connect the electrical power source to the machine at the control enclosure.

NOTE: All equipment must be grounded in compliance with Article 250 of the NEC and all local codes. Customers' disconnecting means and branch circuit protection must also be in compliance with the National Electric Code and all local codes.

3. Pre-Operational Procedures

This section contains the information required to carry out pre-operational procedures and the checklist of items which should always be reviewed prior to a production run.

CAUTION: Before undertaking any machine repairs or maintenance, always make certain that the machine disconnect switch is turned to the **OFF** position or that the control enclosure is disconnected from the main power source. Lockout all sources of power including the main disconnect switch and follow all of your plant lockout procedures.

ELECTRICAL TEST

Before applying power to the machine, check the incoming voltage from L1 to L2, L2 to L3, and L1 to L3. The voltage should be the same as indicated on the silver tag in the control enclosure. If the voltage is not the same, contact SEM customer service for voltage modification instructions.

Once it has been determined that the voltages are correct, it is necessary to start the motors and check for the proper direction of rotation.

- Turn the main disconnect switch to the **“ON”** position.
- Press the **DISINTEGRATOR START** push-button to power the disintegrator motor.
- Visually compare the direction of motor shaft rotation to the rotation arrow label (clockwise when viewed from the shaft end).
- If the motor turns in opposite direction, reverse any two incoming power leads.

Once the rotation direction is correct, the remaining electrical controls need to be tested as follows:

Press the **DISINTEGRATOR STOP** button and allow the machine to stop. If customer orders a master control panel, the machine will be equipped with a timed shutdown. This feature allows the disintegrator to finish its cycle and shutdown over a short period of time.

For disintegrators equipped with conveyors, fans, etc., test their operation by pressing the appropriate buttons. Check fan outlet for proper airflow.

For disintegrators with **EMERGENCY STOP** buttons, test the buttons to insure all motion stops.

Loosen the hex coupling nut on the threaded swing bolts at the front of the machine to verify the safety interlock switch shuts the machine off.

NOTE: If there is an access door on the hopper (for inspection or clean-out purposes) that its limit switch interlocked, make certain that removal of the limit switch actuator bracket shuts the machine off.

3.1 Pre-Operation Checklist

After all electrical and mechanical machine elements have been inspected and any defects corrected, the following pre-operational checklist should be used to ensure the disintegrator is ready for operation:

- Have all installation and preparation instructions been read and followed?
- Have the disintegrator operator and all other necessary personnel been fully trained on machine operation and all machine safety mechanisms?
- Have sufficient location clearances been allowed?
- Has the equipment been grounded as required by local codes and/or Article 250 of the National Electric Code?
- Have all motors been checked for rotation?
- Have all machine controls, buttons, and limit switch safeties been checked for proper functioning?
- Have the cutting and screen chambers been checked for foreign matter?
- Have the drive belts been checked for alignment and tension?
- Is the machine properly closed with all visible fasteners tight?
- Are all accessory components electrically and mechanically connected with proper support and with all fasteners tight?
- Are the cyclonic air separator and filter bags empty? (optional equipment)
- Has the fan/cyclone been verified for proper rotation direction?
- Are all electrical enclosure boxes tightly closed and clamped shut?
- Are all personnel clear of the machine?
- Does the machine have the correct size security screen for the desired particle outcome?
- Have the dust filter tubes been shaken? (Do this with the fan motor off.)

4. Operation Instructions

NOTE: Please read this section carefully, as most problems occur during the first days of operation. These problems can be eliminated by a careful review of this section.

Machine ready: all doors, covers, guards, and limit switches are in place, securely fastened, and functional. All accessory components are properly connected.

Turn the main disconnect switch to the **ON** position.

1. Press the **FAN START** button on the control panel.
2. Press the **DINSINTEGRATOR START** button on the disintegrator control panel.
3. Press the pre-shredder **CONTROL ON** pushbutton and then wait 10-15 seconds.
4. Press the pre-shredder **EQUIPMENT ON** button. Lamp will illuminate, indicating that the motor is running.
5. If a briquettor was ordered with this machine, press the **BRIQ ON** button on the briquettor control panel.
6. At this point, check the conveyor belt to ensure that no tools or foreign materials have been placed on the unit. Press the **CONVEYOR ON** button and feed materials. The belt will stop and run intermittently by timers.
7. Load feedstock at a uniform rate that does not exceed the capacity of the machine.

New Operators: Start with feed rates of 5 lbs. per minute to get a feel for the output rates. Allow a pause between feed lots for cutting time and evacuation.

NOTE: Overfeeding can cause the disintegrator to jam. However, the stage 1 shredder has a built-in auto reverse feature to clear moderate jams. Depending on final particle size and security screen hole size, output rates can vary.

NOTE: If there is an access door on the hopper (for inspection or clean-out purposes) that is limit switch interlocked, make certain the limit switch actuator bracket is re-installed and is properly in contact with the limit switch or the machine will not start.

Temporary machine stops:

When temporarily stopping the machine, allow all material to run out of the cutting chamber.

Never try to restart the machine with material remaining inside the cutting chamber.

Final machine stops:

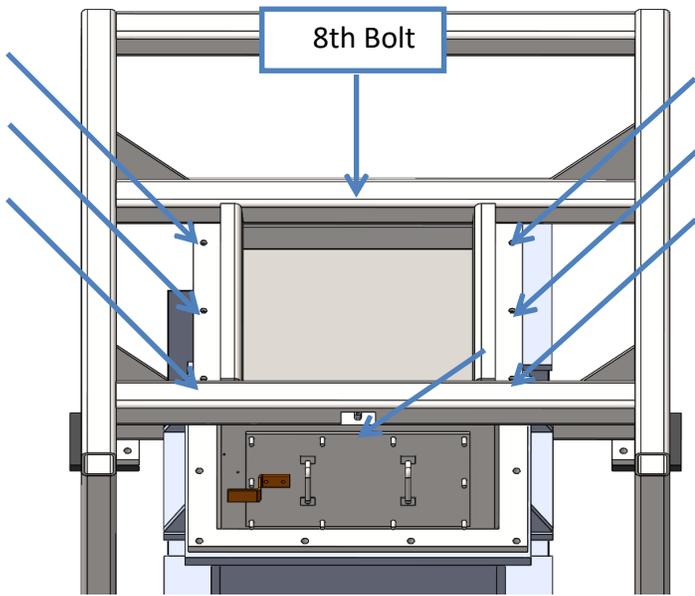
When shutting the machine down, allow all material to pass through the fan (optional) and into the cyclonic air separator (optional) before pressing the **STOP DISINTEGRATOR** button.

Emergency stops:

Feedstock must be cleaned out of the hopper and cutting chamber prior to restarting. Be sure to follow proper LOTO procedures before maintaining this device.

5. Service Instructions

- 1).** Make sure the machine is de-energized from its power source using proper Lock-Out Tag-Out (LOTO) procedures before servicing.
- 2).** Remove the bolts (7x) located on the top of the mid-hopper that are securing it to the frame in order to adjust it for servicing. (See figure 1 on following page). There is an 8th bolt hole in the back, using it is optional.
- 3).** In order to remove the main cutting chamber, first loosen the bolts around the sides of the mid-hopper sleeve; there are 12 bolts, located near the top of the mid-hopper. (See figure 2 on following page). There are four (4) bolts on front, left, and right, none on back.
- 4).** Once the bolts are loosened and the mid-hopper sleeve is lowered, you can then pull the main cutting chamber away from the support frame. (See figure 3 on following page).
- 5).** Remove the bolts that hold the cutting chamber in place. They are the two swing bolts that pivot located on the front of the machine (See figure 4 on following page).
- 6).** Use the provided machine jack to open up the mid-hopper in order to service the cutting chamber. (See figure 4 on following page). Make sure that the safety clips are locked in place before servicing the machine.
- 7).** After knives and or other services are completed, lower cutting chamber and mid-hopper using machine jack. Disengage the safety pins in order to lower the chamber back into position.
- 8).** Secure cutting chamber using the swing bolts from step 4. (See figure 4 on following page).
- 9).** Push cutting chamber back into position under the support frame. Realign the holes on the mid-hopper with the holes on the frame in order to make the next two steps easier.
- 10).** Raise mid-hopper sleeve and secure the sleeve to the frame using the bolts that were removed in step 1.
- 11).** Secure the mid-hopper sleeve back into place using the 12 bolts that were loosened in step 2. (See figure 2 on following page).



(Top View) Figure 1

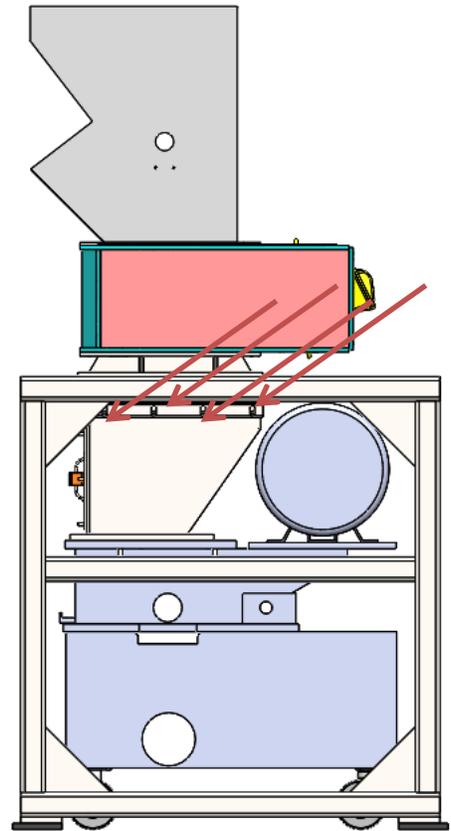


Figure 2

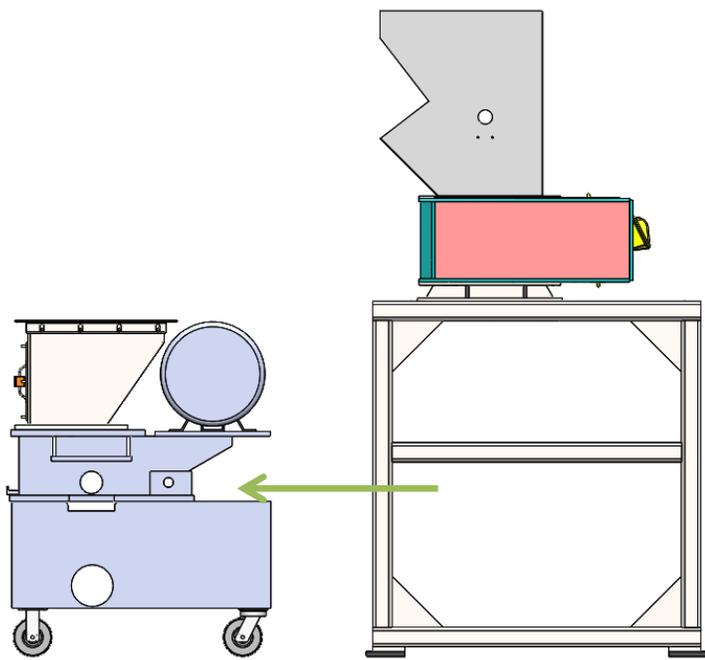


Figure 3

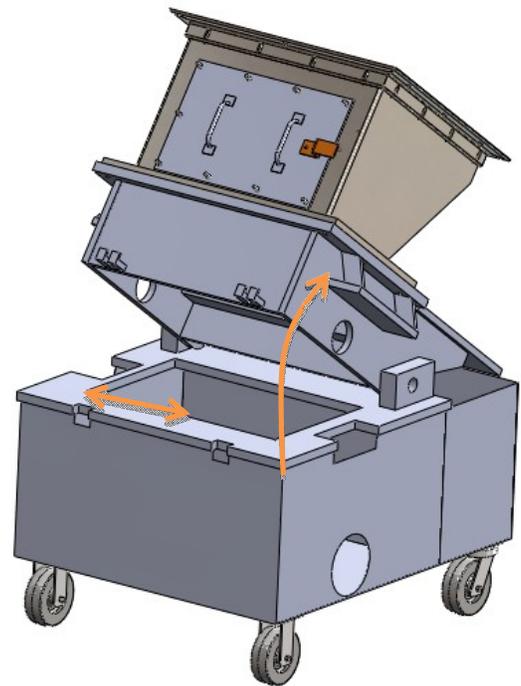


Figure 4

5.1 Changing Knives:

1. Disconnect all power.
2. Unbolt and lower the screen cradle, exposing the knife chamber for access. The safety limit switch is now open, preventing accidental start circuit continuity.
3. Prior to replacing or removing the rotor knives, cover the edge of each knife with heavy gauge tape, such as Scotch filament or cloth tape. All rotor knife bolts should be loosened before removing any one knife as this will keep the rotor in balance. Remove all knives prior to replacing any one knife.
4. **Bed Knives:** A clamp bar holds bed knives in place. Note that the rear bed knife cutting edge is pointed downward. Take the spare bed knife with the original clamp bar and replace the bed knife. Be sure that the clamp bar lip is in towards rotor cavity. Repeat this procedure for the front bed knife, except the cutting edge should face up.
5. **Rotor Knives:** Remove the tape covering the edge of all rotor knives. Then, adjust the distance between the rotor and bed knives by means of the bed knife adjusting screws, and by manually rotating the rotor in reverse. Adjust to a minimum of **.005-inch** clearance using a feeler gauge.
6. Rotor knife hex head cap screws should be adjusted to 190 ft. lbs. for the rotor knives and 45 ft. lbs. for the bed knives

Note: Before tightening bed knives to full torque, determine that knives are set properly by manually rotating the rotor in the operating direction, ensuring that the bed knives do not touch.

5.2 Sharpening Knives:

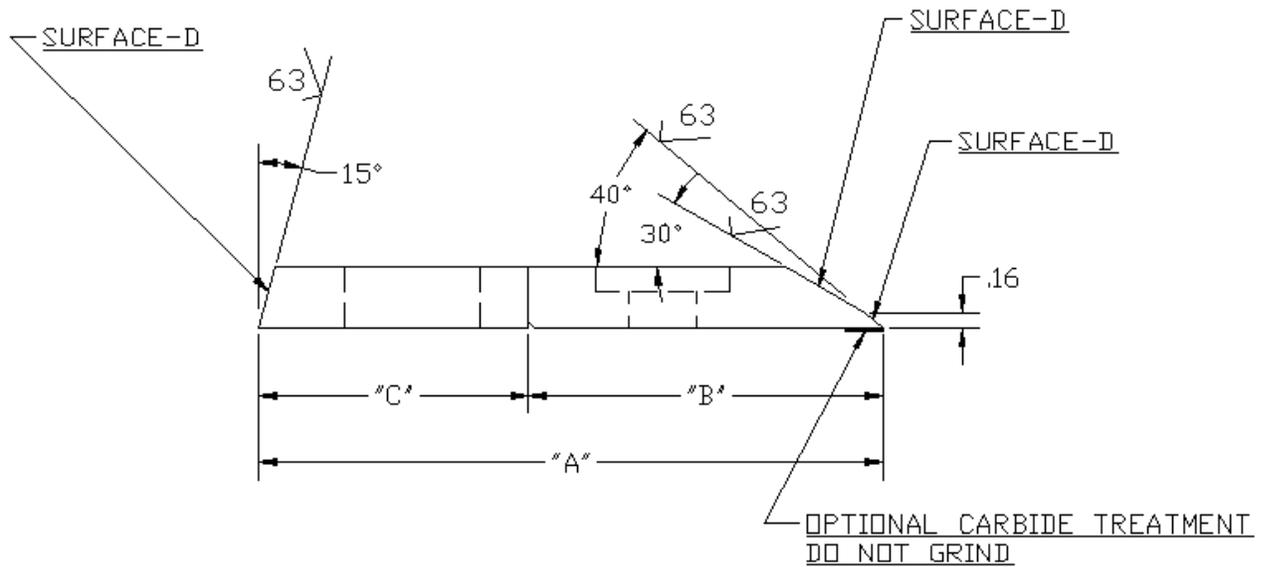
Inspect knives weekly and sharpen after every 80-100 hours of use.

Knives may be sent to SEM or a capable machine shop in your area for sharpening. When sharpened, the rotor knives must be sharpened as a set to maintain consistency in tolerances between the bed knives. If knives are badly nicked or damaged, they will function after sharpening if 75% of the cutting surface is effective.

NOTE: The rotor and bed knives are subjected to severe work and it is recommended that they be inspected periodically for sharpness. The sharper the knives are kept, the better the machine will operate and the better the quality of the particle being produced. Waiting until the knives have been severely rounded, chipped, or otherwise damaged will result in heavy shock loading during operation causing a subsequent reduction in knife life.

For re-sharpening diagrams refer to page 13.

Standard Form Rotor Knife with Standard Form Bed Knife



Dimension A: Model 3000 = 5-3/4"

Note: If dimension A is close to minimum, a new set of knives should be ordered from Security Engineered Machinery. Please contact our customer service.

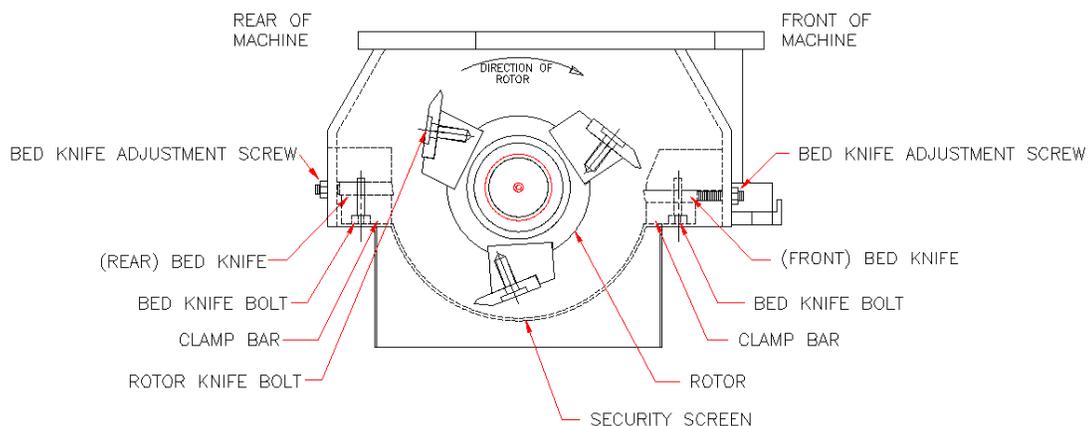
Dimension B: Bed knives tolerance must be held alike and parallel in sets within .010".

Dimension C: Rotor knives tolerance must be held alike and parallel in sets within .002".

NOTES ON KNIFE GRINDING:

After regrinding a number of times, the knives must be checked to be sure that there will be adjustment left in the bed knives. The general rule is to place a rotor knife and bed knife back to back as shown above and measure the total distance equal to dimension A above.

Cutting Chamber for Model 3000 3 Rotor Knives, 2 Bed Knives



5.3 Belts

Prior to startup of this machine it is recommended that the drive belt tension be checked for proper run in deflection force as shown in illustration. After the equipment has run between 24 and 48 hours, drive belt tension must again be checked for proper operational deflection.

A V-belt drive will successfully transmit its rated capacity if the belts are properly tensioned. The method of tensioning is explained here in detail.

1. Verify that the alignment of the pulleys is correct. Utilizing a straightedge of sufficient length to span from one pulley to the other, place it along the sides of both pulleys. The entire edge of each pulley should fully contact the straightedge.

2. Measure the belt span (see figure on right).

3. Using a spring scale, apply a perpendicular force to any ONE of the belts at the mid-point of the span.

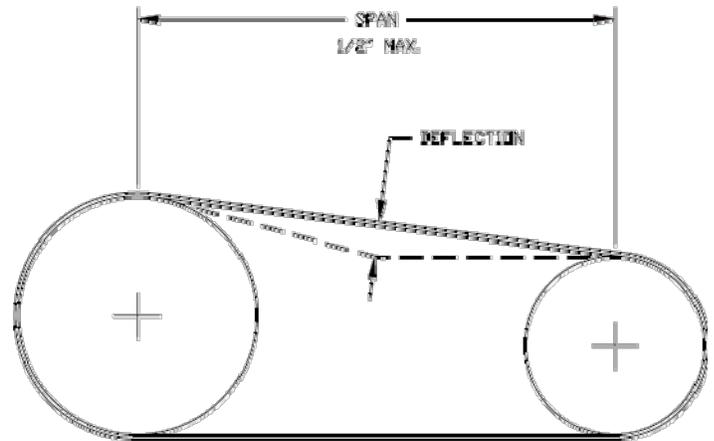
4. Measure the force (lbs.) required to deflect any one of the belts $\frac{1}{64}$ th of an inch for every inch of span. For example: the deflection for a 32 inch span would be $\frac{1}{64}$ th of an inch times 32 or $\frac{1}{2}$ of an inch.

5. The motor position should be adjusted until the actual deflection force matches the distance of deflection referenced in step 4 above.

6. There will normally be a drop in the belt tension during the first 24 to 48 hours of operation due to belts stretching and the belts seating themselves in the sheave grooves.

7. After this initial run in period, the machine should be stopped, and the belts should be rechecked for tension. The motor position should be adjusted until the deflection force matches the values in column B.

8. Over-tensioning the belts can significantly reduce belt and bearing life.



5.4 Bearing Lubrication

Grease fittings are accessible when hopper and cutting chamber are pushed back. Grease twice yearly with Gulflex “A” multi-purpose or equivalent. Grease fittings are located on rotor bearings. Lubricate the chain every six months.

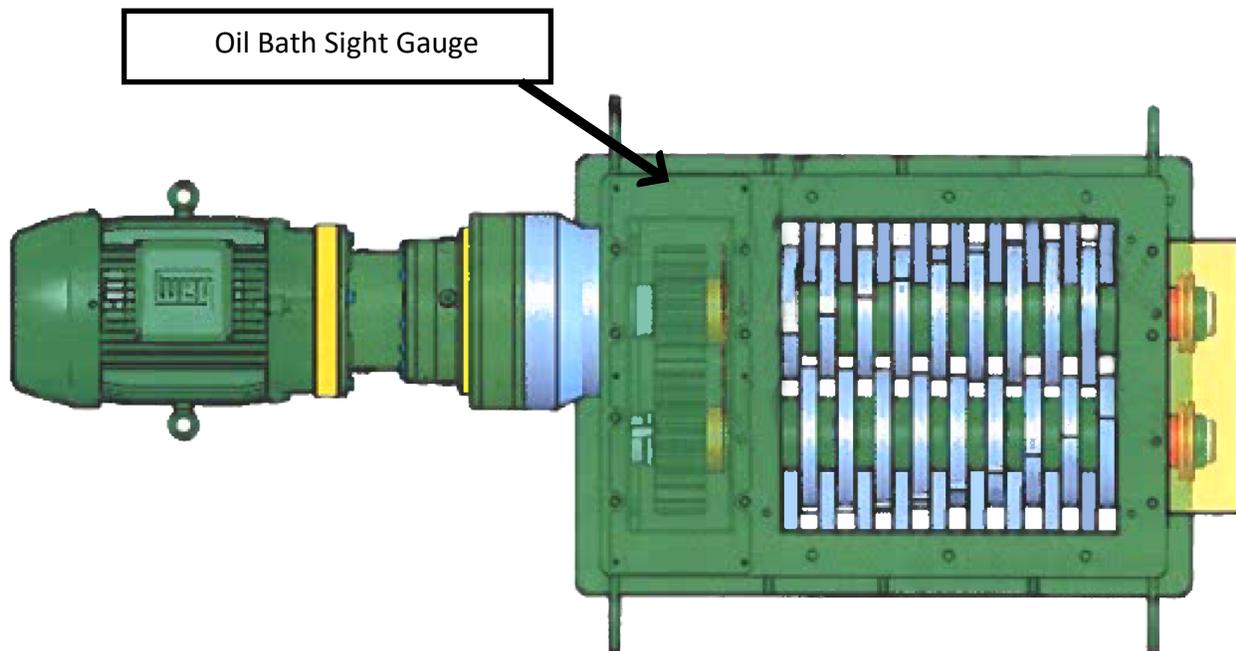
All SEM security disintegrators and accessories are supplied with pillow block bearings which are pre-lubricated from the factory. The external mounting of bearings on SEM Security Disintegrators results in a trouble free, low maintenance, and long life bearing design.

The pillow block bearings used require a high quality, lithium based, EP (extreme pressure) type of grease which conforms to the NGLI Grade 2 consistency. This grease has been chosen due to its suitability for use in heavy duty applications under heavy shock loads. It also contains rust inhibitors, has high temperature stability, and exhibits good water resistance.

5.5 Gearbox Lubrication

Spur Gear Oil Bath

Check sight gauge on spur gear oil bath and both gear reducers daily. Fill or replace if needed. The spur gear oil bath should be drained and refilled yearly with approximately one-gallon total of 85W-140 gear oil.



Planetary Reducer

Drain oil from planetary reducers and refill with approximately one gallon of Shell Omala S4-GX-220 synthetic industrial gear oil.

Caution: Too much oil in the planetary gearbox will cause overheating, and too little oil will result in gear failure. Check oil level monthly. Also, under extreme operating conditions, such as rapid rise or fall of temperatures, dust, dirt, chemical particles, chemical fumes, or oil temperatures above 200 degrees F, the oil should be changed every one to three months depending on the severity of conditions.

5.6 Recommended Grease

AMOCO:	AMOLITH EP 2
CASTROL:	EP2
EXXON:	RONEX MP
GULF:	CROWN #2
MOBIL:	MOBILITH AW #2
SHELL:	ALVANIA EP LF #2
SUNOCO:	SUNAPLEX #2
TEXACO:	MULTIFAK EP #2

The pillow block bearings should be lubricated with care. Too much grease applied to the bearings at one time can rupture the bearing seals. Under normal operating conditions, a moderate amount of grease applied every 2000 hours should be adequate to ensure long life. Severe operating conditions will require more frequent lubrication intervals

6. Troubleshooting

Possible Problems and Solutions:

1. Pre-shredder will not start:
 - a. Check that the emergency stop button is pulled out.
 - b. Check that the power supply switch is on.
 - c. Lastly, contact an electrician to check the electrical panel for blown fuses, tripped circuit breakers or overload resets.
2. No particle output:
 - a. Feedstock may be jammed inside the hopper. Shut the machine down and check. Be sure to de-energize the machine using proper LOTO procedures.
 - b. Security screens are jammed or plugged. Refer to *Service Instructions* for accessing the screens.
 - c. Duct run to the fan may be clogged. Clean as required.
3. Excessive power required – blown fuses:
 - a. Machine is overloaded. Reduce amount of feedstock put into the machine per unit of time.
 - b. Knives are dull. Sharpen or replace knives and re-install (See section 5.1 *Changing Knives*).
 - c. Knife gap is too large. Adjust knives to proper gap specification.
 - d. Clearance between the rotor knives and screen is too small. Check that the screen is properly seated in the screen chamber.
4. Machine stalls:
 - a. Machine is overloaded. Reduce amount of feedstock put into the machine per unit of time.
 - b. Pieces of feedstock jammed in the rotor. Clear the jammed material then visually inspect the rotor to ensure it is not damaged and that the knife gaps are correct.
 - c. Machine has loose or thrown belts. Inspect, and if acceptable for use, re-install and tighten per maintenance instructions.
5. Bearings are noisy or hot:
 - a. Lack of lubrication. Lubricate per maintenance instructions.
 - b. Machine is overloaded. Reduce amount of feedstock put into the machine per unit of time.
 - c. Bearings have exceeded their rated life. Consult with SEM customer service for replacement instructions.
 - d. Bearings are not properly installed or tightened. Consult with SEM customer service for installation instructions.
6. Belts slip or squeal:
 - a. Belts are too loose. Tighten per maintenance instructions. (see section 5.3 *Belts*)
 - b. Machine is overloaded. Reduce amount of feedstock put into the machine per unit of time.
 - c. Machine has thrown belts. Inspect, and if acceptable for use, re-install and tighten per maintenance instructions. If not, replace. (see section 5.3 *Belts*)

7. Motor will not start
 - a. Fuses are blown or circuit breaker popped. Replace fuses with the size and type shown on the wiring diagram or reset circuit breaker (located in the control enclosure).
 - b. A limit switch is open. Check the limit switches at the machine front doors and any hopper cleanout door. Ensure proper actuation and replace if required.
 - c. Verify that the correct buttons are being depressed and that the main disconnect switch is in the **ON** position.
8. Particle builds up in transition or duct:
 - a. Fan is too small. Replace with larger unit or fan wheel.
 - b. Transition or tubing is clogged. Clean as required.
 - c. Return air vents are covered or too small. Ensure the vents are open.
 - d. Fan is not evacuating properly. Check for loose fan wheel on shaft, worn fan wheel, or loose fan drive belts.
9. Feedstock hangs up in hopper or cutting chamber:
 - a. Material being placed into the machine for processing is too large for the hopper, cutting chamber, or rotor diameter. Reduce the initial size of the feedstock.
 - b. Knives are dull. Replace knives and re-install.
 - c. Overloading of the machine. Reduce the feed rate to uniformly feed the machine over an extended time-period.

7. Tools, PPE, Spare Parts

SEM recommended tools and PPE for Model 3000 disintegrator:

- Mask or Respirator
- Safety Eyewear
- Cut Resistant Gloves
- Torque Wrench with 1/2" Drive – 250 ft./lb. capacity
- Socket Wrench with 1/2" Drive
- 7/16", 9/16", 3/4", 15/16" Open Wrenches
- 1/2" to 1/4" Drive adapter
- Short Stamped Out Open Ended 3/8 Wrench for square head rear bed knife adjustment bolts
- 9/16", 3/4", 15/16" – 1/2 Drive Sockets
- 5/16" to 1/2" – 1/4" Drive Socket
- 3/16" Allen Wrench
- 2' breaker bar with 1/2" drive
- Belt Tension Gauge
- .005" Feeler Gauge

Spare Parts:

Description	QTY	Part Number	Description	QTY	Part Number
Set of Knives	1	40523K	Tool Kit	1	554GMTK230
Rotor Knife Bolts (#/set)	24	800RBM15-24	Case of Bags (50)	1	775BAG3MILA
Bed Knife Bolts (#/set)	28	800BBM12	Spare Screens	1	35123__P (call)
Set of Belts	1	VB87/4			

Replacement filter socks/bags available, call SEM customer service with the model and serial number of the filter to ensure you receive the correct parts. Additional screens are also available at many different sizes for different applications. Call for details.

NOTE: Refer to part numbers when ordering replacement parts. Check the parts carefully as knives and screens generally have their numbers etched or stamped on them. The serial number of the machine will also be required when ordering parts from SEM. This listing of recommended parts does not include all parts which are available for purchase. SEM customer service can be reached at 1-800-225-9293 or www.semshred.com.

WARNING: The use of replacement parts not manufactured or approved by SEM may void the warranty.



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