

SEM Disintegrator
Model 0304-.375 Hard Drive Shredder
OWNER'S MANUAL



POP-0022 Rev. 2

Revised: 10/21/2016



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Please note that this manual is intended for Solid State media destruction with SEM Model 0304-.375 SSD Shredder (0.375" shred width). For standard hard drive shredding please refer to SEM Model 0304 STANDARD HD Shredders, at shred widths of 0.75", 1.0", and 1.5".



SSD SHREDDERS ARE INTENDED FOR THE
DESTRUCTION OF SOLID STATE MEDIA ONLY!
ATTEMPTING TO SHRED ROTATIONAL DRIVES WILL
VOID WARRANTY!



SHREDDING OF ROTATIONAL HDDs BY USING A SSD SHREDDER COULD
CAUSE CASTATROPHIC DAMAGE TO THE UNIT VOIDING THE WARRANTY.

Safety Considerations

- ✓ Read and understand instruction manual and be aware of all warning stickers
- ✓ Make sure that all guards and access panels are in place at all times, **EXCEPT** when the power is locked off for maintenance work or cleaning
- ✓ **Always** know where emergency stop buttons are located
- ✓ **Always** know or have quick access to emergency phone numbers
- ✓ **Always** ensure that all maintenance and operating personnel read and understand this manual, including those personnel working second or third shift
- ✓ **Always** have a standard break-in time for a new operator..... A minimum of two hours suggested
- ✓ **Always** wear safety glasses when operating shredder
- ✓ **Always** “lock-out” power, at the, disconnect when shredder is not in use, when serving shredder or when performing routine shredder maintenance including cleaning
- ✓ **Never** operate this or any other machine while under the influence of drugs, alcohol or medications
- ✓ **Never** wear loose fitting clothing, ties or jewelry while in the vicinity of this shredder.
- ✓ **Never** allow long hair to be worn in the vicinity of the machine without use of a protective hair net
- ✓ **Never** place any part of your body in or on any part of the machine while in operation
- ✓ **Never** allow tools, rags, lunch pails or debris to be placed on the input conveyor or on top of the machine
- ✓ **Never** change machine direction without first allowing machine to come to a complete stop
- ✓ **Never** allow other personnel within ten feet of this machine while in operation
- ✓ **Never** remove guards, perform maintenance or clear jam up debris without first locking out power disconnect
- ✓ **Never** allow horse play around machine

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1 - Unpacking

Your new SEM Shredder has been secured to a pallet for shipping. Please inspect equipment immediately for shipping damage.

- Using a lift truck with a minimum capacity of 6000 lbs, remove the machine from the carrier and transport to operation site. Remove pallet and discard responsibly. The feed table and output conveyor are located on top of the shredder pallet.
- SEM Hard Drive Shredders are equipped with casters for ease of handling.
- Remove all guards (see Fig.2, page 18) and inspect interior of machine for shipping damage. Check oil level in reducer, add oil if necessary, see lubrication section on page 13.
- After inspection reinstall all guards including feed table.
- If an optional discharge conveyor was ordered with your machine, then you must install it before beginning to shred. Be sure belt is tracking properly after installation (see page 15-diagram on page 32).

IMPORTANT: Check belt-tracking after first 20 hours of run time. Belts do stretch after break in period.

2 – Installation

2.1 Output Conveyor

- With the assistance of an overhead crane, a 2nd person, a fork lift or any means available, rig a sling (just off center of conveyor so that flanged side is lower). Lift conveyor assembly into place using the (6) bolts supplied at rear of machine. Attach conveyor and tighten bolts.

Note: Be sure that side frames of conveyor are aligned with side frames of shredder.

- Install conveyor belt around drive pulley (under cutter head) and pull belt together. A second person may be necessary to bring both ends together. When both ends are put together, take extra care to ensure that staples are centered with belt. The edges of the belt should be aligned, if not, move belt ends over one staple and re-check alignment. When aligned properly, put connecting pin (supplied) THROUGH STAPLE LACING. Clip off any excess pin which may be hanging out.
- Snug up take-up adjustment one half turn each side until approximately 2 inches of sag is present. Test run belt and track belt by tightening the side that rubs (as a rule of thumb) until centered

2.2 Electrical

- All electrical installation and service must be accomplished by a qualified electrician. Follow all national and local electrical codes and ordinances.

WARNING!

LOCK POWER IN “OFF” POSITION

- All internal wiring has been factory installed and tested prior to shipping. Electrical installation consists of providing adequate machine power only.
- Check building service to ensure correct voltage is available and those current requirements can be met (according to nameplate (serial Number), see fig. 7 page 19).
- Install receptacle (provided) to properly protect building circuit. Select appropriate wire size and current protection to accommodate current requirements as shown on nameplate. Plug in power cable.
- Clear all personnel from machine area. Ensure machine is clean and no tools, rags or debris have been left on conveyor belt or near cutters or drive mechanism.
- Turn building service drop power on. Check voltage at installed receptacle.
- Ensure area is clear, turn the key switch on. Jog reverse, check for proper motor rotation. If rotation is wrong, unplug power cable. Check that power is off with voltage meter at panel. Remove any two power wires from the motor starter, reverse and reconnect.
- Clear area, turn on power and recheck rotation.
- Electrical installation is complete.
- Replace all guards.

2.3 Safety Warnings

1. Read and understand instruction manual and be aware of all warning stickers.
2. Make sure that all guards and access panels are in place at all times, **EXCEPT** when the power is locked off for maintenance work or cleaning.
3. **Always** know where emergency stop buttons are located.
4. **Always** know or have quick access to emergency phone numbers.
5. **Always** ensure that all maintenance and operating personnel read and understand this manual, including those personnel working second or third shift.
6. **Always** have a standard break-in time for a new operator..... A minimum of two hours suggested.
7. **Always** wear safety glasses when operating shredder.
8. **Always** “lock-out” power, at the, disconnect when shredder is not in use, when serving shredder or when performing routine shredder maintenance including cleaning.
9. **Never** operate this or any other machine while under the influence of drugs, alcohol or medications.
10. **Never** wear loose fitting clothing, ties or jewelry while in the vicinity of this shredder.
11. **Never** allow long hair to be worn in the vicinity of the machine without use of a protective hair net.
12. **Never** place any part of your body in or on any part of the machine while in operation.
13. **Never** allow tools, rags, lunch pails or debris to be placed on the input conveyor or on top of the machine.
14. **Never** change machine direction without first allowing machine to come to a complete stop.
15. **Never** allow other personnel within ten feet of this machine while in operation.
16. **Never** remove guards, perform maintenance or clear jam up debris without first locking out power disconnect.
17. **Never** allow horse play around machine.

3 – Precautions

3.1 Start-Up Procedure

Pre-start-up procedure:

- ✓ Familiarize yourself with all controls and button locations.
- ✓ Ensure that all guards and covers are in place.
- ✓ Ensure the area is clean.
- ✓ Check input conveyor for debris, discarded tools, etc.

Start – up:

Turn key switch on. Depress momentarily the forward pushbutton. Cutters will begin to rotate and the output conveyor will begin to run forward. For machines equipped with optional automatic cutter lube system, depress lube pushbutton momentarily and allow machine to run for approximately (4) four minutes without feeding material to be shredded. This allows time for cutter lubrication to be accomplished without soaking the material to be shredded unnecessarily.

To stop machine at any time depress the red stop push button. For emergency situations the STOP pushbutton may be depressed at any time. For normal stop situations, wait for input chute to empty itself and the output conveyor to discharge all shredded material before depressing stop button.

Begin feeding material to be shred. It is recommended that during the familiarization period the operator should proceed with small amounts of media. After several hours experience the operator may wish to increase the amount of material being fed. The operator will soon be able to judge the efficiency of the operation and fees material accordingly. It is nearly inevitable that during this learning process the machine will jam. A jam condition will automatically turn off the machine just as the operator had depressed the stop button. This is normal.



Important/Warning: Debris Draw is attached to keep excess material from collecting on floor, however, it may be removed and the unit can be run if you are not going to empty draw after every 500 drives. **Warning if draw is not emptied frequently enough it may cause damage to belt which will be at the owner's expense to replace. We suggest keeping a daily log to check draw at the beginning of run and empty as well as after every 500 drives through-out the run, or if less than 500 empty at the end of said run.**

3.2 Clearing a Jam

In the event of a jam, the machine will turn itself off. Ensure that all personnel are clear of both the input chute and the cutter head.

Momentarily depress the yellow reverse pushbutton. This will cause the cutters to run backwards for as long as the reverse pushbutton remains depressed.

Release the reverse pushbutton, the machine will come to a stop. After the machine has completely stopped, press the forward button and try to shred material.

If machine jams again, reverse shredder, **LOCK-OUT POWER**, and manually remove the jammed material. Re-start machine in the forward direction to resume operation.

NEVER hold the forward button in depressed position as damage to the machine and the electrical system could occur.

NOTE: The machine has been engineered to allow **only** SSD media. The next section gives some examples of what this machine can and cannot be used to destroy.

3.3 Acceptable Media

The following media is **OK** to be destroyed with SEM Model 0304 SSD:



Solid-State Hard Drive



USB Flash Drive
(Thumb Drive)



PDA & Cell Phone

All solid-state media pictured above is OK to be destroyed using SEM Model 0304 SSD. Please Note that all batteries should be removed from cell phones, and PDAs before destruction.

The following media should **NOT** be destroyed with SEM Model 0304 SSD:



Standard Hard
Drive*



Cell Phone
Battery**

All media pictured above should **NOT** be destroyed using SEM Model 0304 SSD.

*Spinning Hard Drives are comprised of different materials than Solid-State Drives. Destroying them with this machine will lead to jams and premature failure

**Destruction of batteries could lead to safety hazards, and cause damage to the machine. All batteries must be removed from cell phones and PDA's prior to destruction.

3.4 Shut-Down Procedure

- Allow input chute and output conveyor to clear all material before shut down
- Depress and stop pushbutton
- Remove power cable from receptacle
- Clean any remaining debris from the machine and from the immediate area
- Remove rear guard and inspect cutters for damage
- Clear any shredded debris from cutter area

4 – Maintenance

4.1 Cleaning

Cleaning:

Always lock off power before cleaning, lubricating, maintain, removal of any guard and after shredding operation is complete

Daily cleaning (After each 8 hours of operation)

- Remove debris and any magnets that have built up on cutters and combers (Compressed air (maximum 40 PSI) or vacuum may be used).
- Visually inspect cutters for damage
- Remove side guards and visually inspect drive components for leaks or damage.
- Replace all guards.

Weekly cleaning (after each 40 hours of operation)

- Repeat all daily cleaning steps.
- Remove side guards and end guards.
- Remove debris buildup from base.
- Wipe entire machine clean being careful to observe any evidence of oil leaks. Should leakage be observed, repeat the attention of the appropriate maintenance personnel.
- Check for loose hardware on the reducer collars, the crusher paddles, etc.
- Remove all tools, rags, solvents from machine.
- Replace all guards.

4.2 Lubrication

Always lock off power before cleaning, lubricating, maintaining, removal of any guard and after shredding operation is complete.

Daily lubrication (after 8 hours of operation)

- Grease wear parts
- Grease main bearings (see lube schedule Page 14)
- Remove Rear guard
- Apply light machine oil to cutters
- Replace all guards

Weekly Lubrication (After each 40 Hours of Operation)

- Repeat steps from daily lubrication.
- Remove guards
- Apply oil to drive chains (see Fig. 3, page 15). Use chain and cable lubricant
- Replace all guards

Monthly Lubrication (After each 160 hours of Operation)

- Repeat steps from weekly lubrication
- Remove guards
- Check reducer oil level. See reducer manual at end of this manual for specifications. **DO NOT OVERFILL.**
- Check oil level in spur gear oil bath
- Grease output conveyor bearings using a multi-purpose lithium based grease (See lube schedule on page 10)
- Replace all guards

Annual Lubrication (After 2080 hours of Operation)

- Repeat steps from Monthly lubrication
- Drain oil from reducer (See reducer manual at the end of this manual for details)
- Clean magnetic drain plug
- Replace drain plug and refill to proper level using a high grade petroleum base, rust and oxidation inhibited gear oil as specified in reducer manual
- Remove spur gear oil bath and clean bottom oil pan. Refill with 85W-140 gear oil until oil level reaches middle of sight glass.

CAUTION:

Too much oil 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° F, the oil should be changed every one to three months depending on the severity of conditions.

LUBE SCHEDULE

ITEM	FREQUENCY	TYPE
Spur Gears	Check weekly - Fill when needed	85W-140 Gear Lube
Reducer	Check weekly - Flush Yearly (2500 hrs)	See attached Reducer Manual
Cutters	Every 20 Hrs	10W, 20W, 30W Motor Oil
Chains	Monthly (210 Hrs)	Chain and Cable Lube
Main Bearings	Every 8 Hrs	Multi-Purpose Grease (2 oz. per bearing)
Output Conveyor Pulley Bearings	Monthly (210 Hrs)	Multi-Purpose Grease
Wear Plates	Every 20 Hrs	Multi-Purpose Grease

4.3 Conveyor Belt Adjustment

Alignment and Tensioning

- Read all safety warnings (See page 5) before proceeding
- Lock power off
- Mark the initial position. Make all adjustment in small increments
 - By design, the conveyor belt should have 1/16" or less clearance to side frames. This assists in preventing debris from getting under the belt but some side rubbing may be expected. This is normal.
- Loosen jam nuts, each side of machine (see fig. 5, page 17)
- Turn jam nuts half turn each side, repeating until belt is at proper tension
- Ensure all personnel are clear and that no tools are on machine or input chute
- Turn machine on
- Run machine in forward
- Stop machine and turn power off
- Adjust alignment by tightening take-up bolt on side of conveyor where belt is rubbing side frame.
- Tighten only one quarter turn at a time
- Tighten jam nuts
- Replace all guards
- Turn power on
- Run machine forward for five minutes. If further alignment is required, repeat the above steps



NOTE:

Belt may run slightly off center, when machine is run in reverse the belt may run slightly off center to the opposite side. This is normal. The belt may stretch during the first few days of operation. This will affect alignment since the belt alignment relies in part on proper tensioning for effective tracking.

4.4 Cutting Head Adjustment

NOTICE: Over tightening of cutter head can result in excessive wear to brass wear plates and cutters. This may also shorten cutter and bearing life.

MAKE SURE MACHINE IS LOCKED OUT BEFORE CHECKING CUTTER CLEARANCE.

SEM recommends thoroughly cleaning the cutter head and ensuring that cutters move freely on the shafts before checking clearance

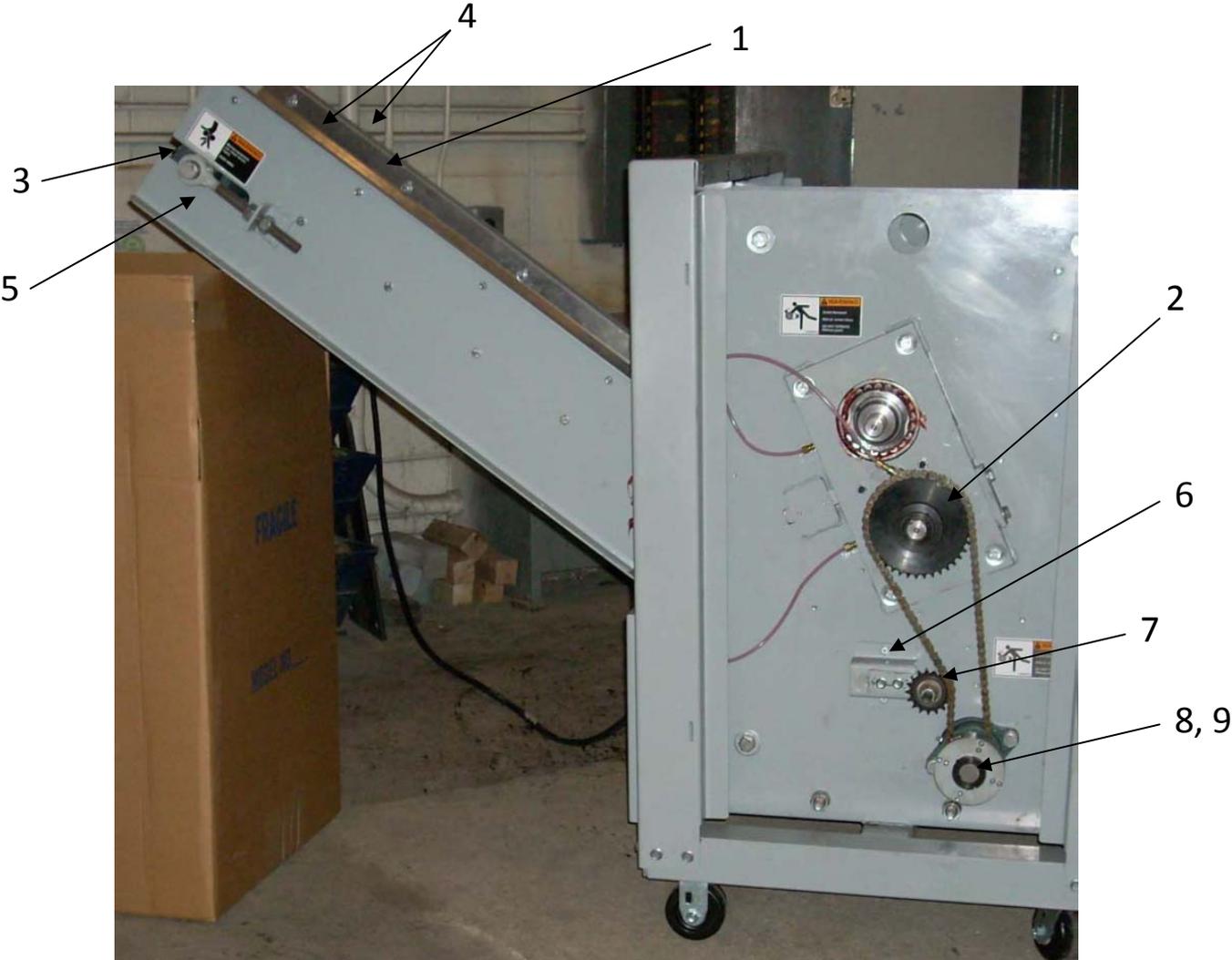
Cutter clearance should be checked if any of the following conditions exist:

- Shred capacity drops noticeably
- Media is passing through cutters without being completely shredded
- Cutter head becomes extremely hot
- Abnormal noise being generated from cutter head
- Noticeable large gap between two cutters

NOTICE: CUTTER HEAD ADJUSTMENT MUST BE MADE ON A COLD CUTTER HEAD!

- Lock out machine power to prevent injury
- Remove rear guard
- Clean and oil the cutter head ensuring that there are no obstructions
- Move all of the cutters to the spur gear side of the cutter head
- Check distance between the overlap of an upper and lower cutter using a pry bar and a feeler gauge. Cutter clearance should be set to a minimum of .030" (Approximately 1/32")
- Locate the set screws on the chain side of the cutter head. Loosen the jam nut and using an allen wrench to turn the screws clockwise to close the gap
- Once the wear plate touches the cutter, back the screw off half a turn. This will closely approximate a 1/32" clearance. Tighten the jam nuts and replace all guards and covers

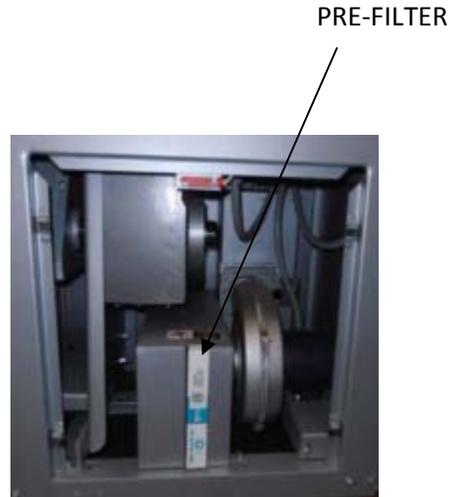
4.5 General Parts



ITEM	DESCRIPTION	PART NO.
1	Belt	20" Wide - Consult Factory
2	Drive Sprocket	103447
3	Tall Pulley	Consult Factory
4	Aluminum Guides	15318-40
5	Take-up Assembly	Consult Factory
6	Tension bracket	13476-92
7	Idler Sprocket	103443
8	One-way Sprocket Assembly	32493
9	Drive Pulley	111788

4.6 Air Filtration System (Optional)

The air filtration system (AFS) on the 0304 is designed to help reduce possible odors and possible contaminants from escaping into the atmosphere during the process of hard drive destruction.



Note: Picture shown is not of actual machine. Position and orientation may differ.

The AFS is a very low maintenance system that only requires periodic inspection, some possible cleaning and perhaps a filter change. The frequency of the inspections is dependent on usage. As a general guide, the AFS should be inspected once for every four hours of shredding.

Note: All inspection or work to the AFS must be done with the shredder turned OFF with the power disconnected from the shredder.

After each 8 hours of operation

- Inspect the air inlet tube and remove any debris

After 40 hours of operation

- Repeat steps below
- Inspect the Pre-Filter and clean
- Inspect the HEPA Filter

Note:

- Pre-Filter should be change 2 - 3 times per year depending on use
- HEPA Filter should be changed every 1 - 5 years depending on use and pre-filter upkeep.

Steps for checking Air Filtration System:

- 1. Inspect the air inlet tube of the AFS by opening the inspection door on top of the conveyor.



Note: The air inlet tube has several small slots on the bottom of the tube to allow air to enter the AFS. Inspect the slots to make sure they are open and remove any debris that may be covering the slots.



Bottom of Air Inlet

2. Inspect is the pre-filter this can be accessed from the back of the shredder by removing the panel to the left of the output conveyor. With panel removed the pre-filter can be removed.



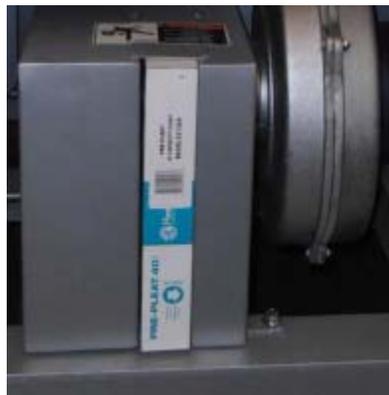
PRE-FILTER

Note: Picture shown is not of actual machine. Position and orientation may differ.

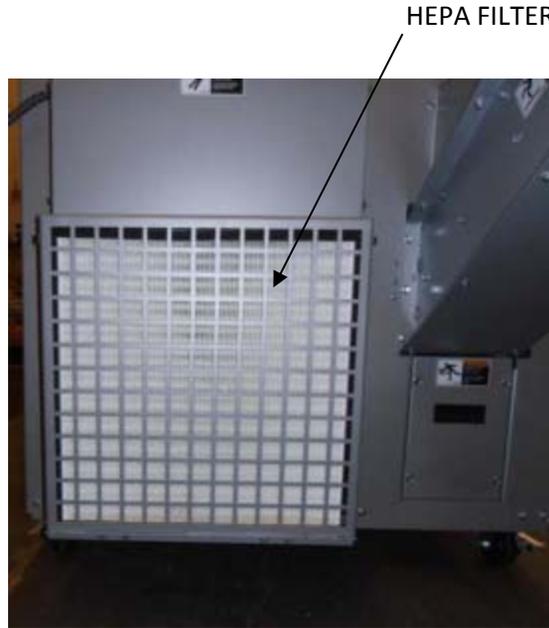
Note: Handle the Pre-Filter with care. Do not jar or drop the Pre-Filter as it is covered with dust from shredded hard drives.

3. Place the Pre-Filter over a disposal container and gently tap the frame of the filter on the edge of the container until all the dust has been removed from the filter.
4. Inspect the pre-filter material for holes or damage. If the filter looks acceptable reinstall in proper location.

IMPORTANT: Pre-filter must be installed so that the arrow is pointing to your right when looking at the front of the shredder. The arrow points in the direction of the air flow. The air flow for the AFS goes from left to right.



5. The final inspection point is at the back of the shredder at the HEPA filter. Simply inspect the HEPA filter by visual observation. The side of the HEPA filter you can see should be an even white color across the entire surface.



Note: If the HEPA filter does not appear to be white, then perhaps your Pre-Filter is damaged and should be replaced. If there is an area on the surface of the HEPA that appears dark or dirtier than the rest of the filter, then perhaps your HEPA filter is damaged and should be replaced.

4.7 Current Relay Adjustment

Note: Press the STOP button before making any changes to the Current Relay. The power does not need to be off for this adjustment.

- 1) Remove cover to gain access to the Current Relay
- 2) Turn knob labeled "Threshold" clockwise to the next tick mark
- 3) Test the machine by feeding one drive at a time to ensure proper operation

Note: If the machine does not automatically reverse after three adjustments check the incoming power and voltage drop, this may require an electrician to verify. For power requirements refer to page 6.

Warning: Over adjustment can cause the Overload to trip which will not allow the machine to start until the overload has been reset. The overload will automatically reset once it has cooled down (this may take several minutes)

5 –Shredder Operation

5.1 General Layout



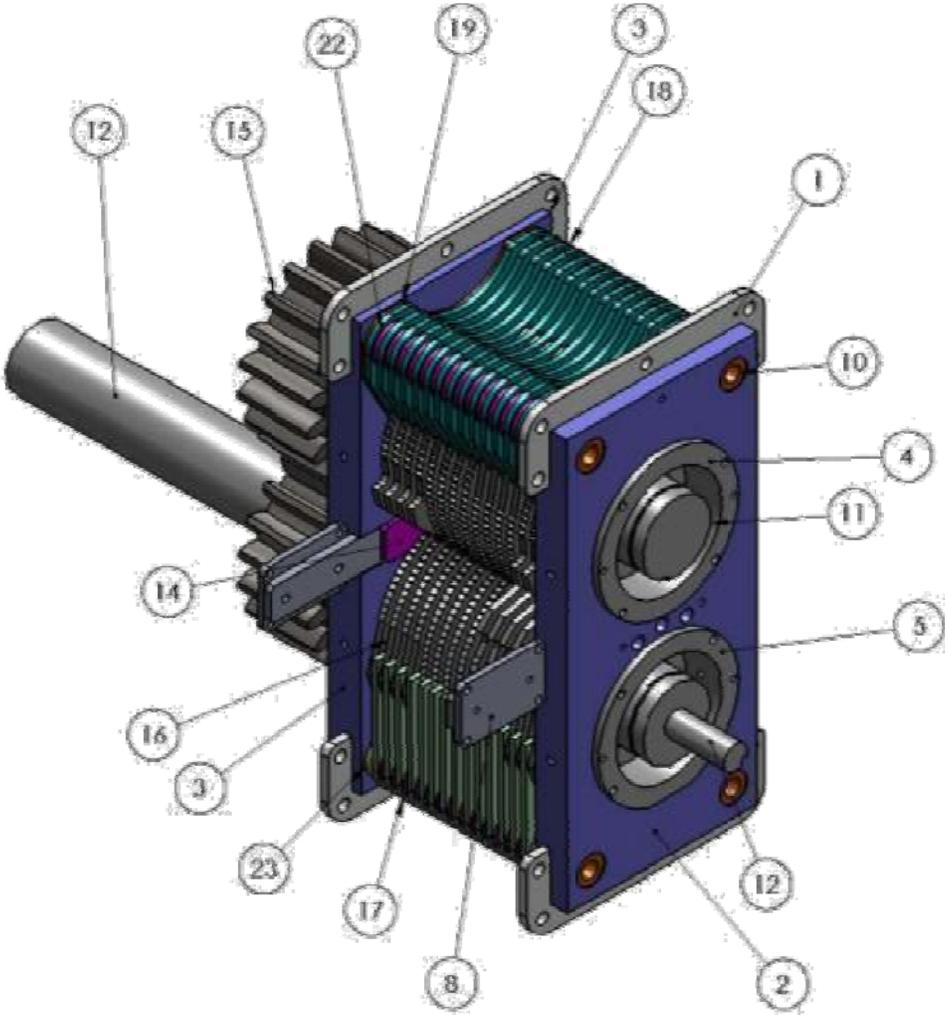
6 – Troubleshooting

WARNING:

Lock out Power before performing any cleaning, oiling, maintenance or troubleshooting.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Machine will not turn off with STOP buttons	Defective STOP button	Check for proper operation. If defective then replace
	Reversing contactor malfunctioning	Check each leg of forward side of contactor for continuity. There should be no continuity, if there is, consult factory for replacement part.
Machine will not run (FWD or REV)	No Power	Check power supply for proper incoming power
	Key switch OFF	Turn to ON position
	Blown fuse/disconnect	Check fuses in disconnect, and transformer
	Tripped overheat	Reset heaters
	STOP button stuck in	Check buttons
	Loose connection	Check terminal strip and tighten any loose wires
	Defective contactor	Check contact block for continuity
Motor hums or buzzes but doesn't run	Single phasing	Check each leg and fuse of the incoming power
	Contactor malfunctioning	Check contactor and replace if faulty
	Defective motor	Check motor and replace if faulty
Overloads tripping	Low voltage	Check for proper power
	Current relay set too high	Consult factory for setting current relay
	Motor overheating	Check motor for obstructions
	Dirty cutter head	Clean and lube
	Defective motor	Check motor and replace if faulty
Machine will only run in reverse	Defective FWD button	Check contact block, replace if faulty
	Loose wire	Check FWD button for a loose or disconnected wire and reattach
	Current Relay	Check for continuity or a disconnected wire
Machine will only run in FWD	Reverse button	Check continuity and replace if faulty
	Contact block	Check for loose wire or faulty and replace if needed
Shredding capacity is low	Cutting head	Clean and oil head
	Low voltage	Check incoming power
	Current relay	Consult factory

7 – Cutting Head Assembly



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	33710	BEARING BLOCK MOUNTS	4	13	34634	WEARPLATE	1
2	33685	MDI-HDS LEFT SIDE	1	14	34635	WEARPLATE	1
3	33686	MDI-HDS RIGHT SIDE	1	15	2DP 20T 14.5PA 4.5FW --- S20B3.0H2.0 L3.9375R1	SPUR GEARS	2
4	15214	BEARING HOUSING UPPER	1	16	34614	MDI-HDS HOOK CUTTER	29
5	15215	BEARING HOUSING LOWER	1	17	34636	BOTTOM COMBER	14
6	15216	BEARING HOUSING LOWER	1	18	34637	UPPER COMBER	15
7	15217	BEARING HOUSING UPPER	1	19	34641	OUTER COMBER	2
8	33724	WEARPLATE RETAINER	2	20	34638	LOWER COMBER SPACER	27
9	33725	WEARPLATE RETAINER	2	21	34639	UPPER COMBER SPACER	2
10	15250-N	TIE BAR	4	22	34640	COMBER SPACER	54
11	15218-N	UPPER SHAFT	1	23	34642	OUTER COMBER SPACER	4
12	15219-N	LOWER SHAFT	1				

8 – Extra Options

Below is a list of options offered for the Model 0304 SSD.

1. HEPA Air Filtration System
 - P/N: 600HDDSHREDAFS
 - Odor reduction
 - Dust reduction



2. Discharge Shroud
 - P/N: 600CONSHROUD
 - Added safety



3. Lexan Conveyor Cover
 - P/N: 600CONLEXCOV
 - Visual while operating



4. Caster Mounting Brackets
 - Permanent installs
 - Mobile destruction operations



5. Wider In-feed chute
 - P/N: 600HDSFEED0304
 - 2.5"x20"

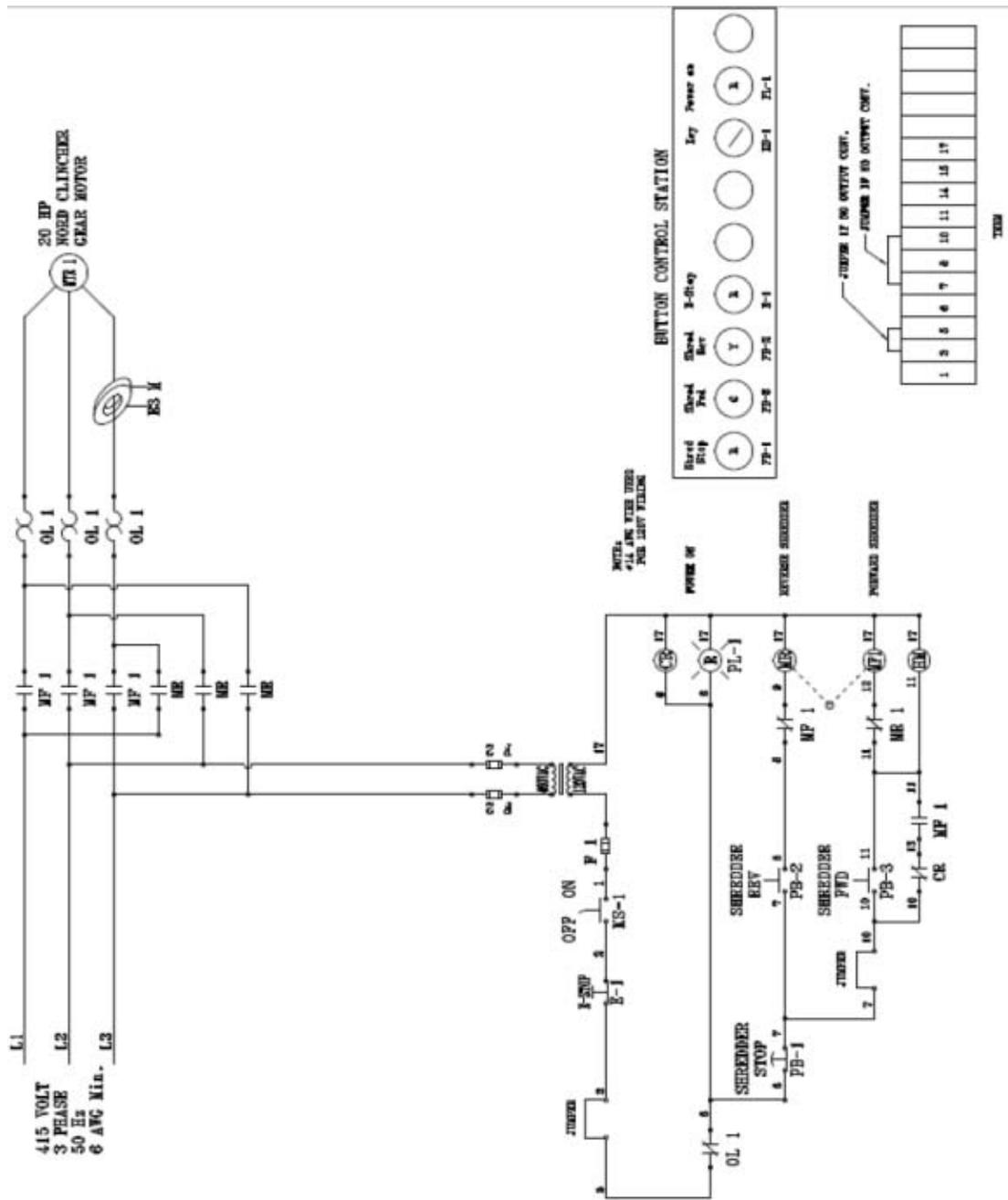


6. Input Conveyor
 - P/N: SA111972-11
 - Automate destruction



7. Removable In-feed Chute
 - P/N: 600REMCHUTE
 - Reduces size
 - Good for smaller doorways

9 – Electrical Schematics



ITEM	QTY	PART NO	DESCRIPTION	ITEM	QTY	PART NO	DESCRIPTION
TERM	13	104056	TERMINAL BLOCKS	OL-1	1	111276	OVERLOAD
E-1	1	114402	E-STOP (PUSH/PULL)	TRANS	1	104624	TRANSFORMER
KS-1	1	104442	KEYSWITCH	PL-1	1	104443	PILOT LIGHT
MTR1	1	-	MOTOR - 20 HP	PB-2	1	104441	REVERSE BUTTON
CT	1	104630	CURRENT TRANSFORMER	PB-1, PB-4	2	104439	STOP BUTTON
FU-2	2	104400	FUSE - 1 AMP	MFR 1	1	111256	MOTOR STARTER
FU-1	1	104370	FUSE - 1 1/2 AMP	HM	1	104051	HOUR METER