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A DIVISION OF GLOBAL DEVELOPMENT

Global Recycling Systems, with the City of Stamford CT, the City of Louisville KY, Bristol Myers Squibb, GM, Boeing and 8000 other satisfied users worldwide…..

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Operations Manual for :

1. Global Development Asian Model Y330, B330, L330 Shredder…..

Or

2. Global Development USA Model 3434 Unit…..

Or

3. Global Development 13” Shaft Center Shear Type Shredder…..

Table of Contents:

1. **History and Applications**
2. **Main Shredder Specifications**
3. **Working Principle and Features**
4. **Installation**
5. **Startup or Test Run of the Machine**
6. **Operation and Service and Maintenance**
7. **Tables of Lubrication Data**
8. **Electric System**
9. **Drawings**

1. **Application**

This data is for your review:

This is a view of the Slow Speed Shear Type Shredding machine before painting so that you can see some of the basic design components of the shredder. Contrary to many who would like to make this machine seem high tech …its just a box with two shafts and a design to shred material like an office paper shredder…just made bigger…build it to industrial standards and you have a very reliable machine. Use it properly and it will last an average of 25 to 50 years.

The Slow Speed Shear Shredder is a machine designed to process a wide variety of materials. The design is now worldwide and originated from a Patent for a Horse Manure Shredder in the mid 1800's. It soon was lost to history due to the Automobile. But it was resurrected from the grave when recycling began to rear its ugly head in the late 1960's and early 1970's.

The design was brought back to life by several groups, all at the same time.

One of the major pioneers for this machines commercial success, was the lifelong ambition and work of Vernon Burda (1927-2005) and his son Dan Burda (1953 -) of Wilsonville Oregon (USA), who brought into existence

the commercial access of their Patented Electric and Hydraulic Driven Shear Type Shredders and the companies they founded such as the "Saturn Shredder, SSI (Shredding Systems Inc) , Eidal Shredder, Burda Group Shredder, Global Development Shredder and the Shredderhotline.com Shredder.

Shown above is an early Saturn Picture of Dan Burda in Wilsonville Oregon 1977 with the first 96-50 Shear Shredder applied for Solid Waste Applications and Bulky Waste Applications. Successful applications worldwide with companies like Boeing, Metro Miami Dade, Chemung County NY, Stamford CT Recycling and Transfer Station, Mercedes Freightliner, and 8000 other locations worldwide.

Included in this Pioneer Hall of Fame for Shear Type Shredders is the Lindemann-Svedala Metso Group of Germany, Metal Box of England, Moco of Germany, Piergo Columbo of Italy, Werner Schwartz and Al Kaszmerick (via Kleco and Shred Pax) of Germany/USA, Eugene Biancoff of Austria and Centro Moorgardshammer of Sweden, Zeus of Italy, the Schriptek Holman Particalizer, the Coats Hennessey Group of the USA. All of these groups have contributed to the development of this industry through their hard work and efforts in the early years of the 1970's…and 1980's…when recycling was just a dream to many…and not many groups considered tire recycling or pallet recycling a viable alternative to throwing the material down a gulley or burning it at night for a bon fire.

Licensed or Copied or Stolen.….the technology has blossomed and many have contributed to the worldwide acceptance of the Shear Shredder in the recycling field. Additional groups like Columbus McKenna, Tryco Untha, Komar, American Pulverizer, Williams Pulverizer, Gruendler Pulverizer, Powerscreen, RBA, Morbark, Triple S Dynamics, Cumberland, Nelmor, Rapid, MTB, ERS, Bloapco, have all contributed to the use of the machines in this field, especially in the growth years of the late 1990's…

Today….hundreds of companies build these basic Shear Shredders worldwide. To move the industry forward we elected to break from the group and move the manufacturing to Asia so that the pricing of these machines could be dramatically reduced. As of today, we are still the only American and US manufacturer who has moved its manufacturing of these shredders to Asia. We want to reduce their price so that recycling can be more economical to perform. Many groups are "greedy" and there is a lot of money to be made manufacturing and marketing these machines, but we feel that those days are over, and we are the primary reason why they are over…..so remember our warnings…NO ONE LIKES WHAT WE ARE DOING….

What is wonderful is that there is not a country in the world that does not have one of these machines manufactured in their country or used in processing some form of waste materials. As you may not know, one of the great aspects of the Slow Speed Shear Type Shredder that insured its success, was its low speed, low hp, extreme versatility, and safety from self destruction….

Basically, if the Shear Shredder can not cut through the material in a general manner, then it is not intended for the unit but it is not damaged while trying….. Solid Steel that is very thick is an example of one of the items that can not be shredded with the Shear Type Shredder. …but now onto the manual…and this short rendition is dedicated to the memory of Vern and Pat Burda and the lovely dreams that they had and fulfilled during their lifetimes…as your son I thank you for what you have done for the world.

If one child does not get Malaria due to a Shear Shredder cutting up scrap tires….where they normally breed…then your efforts are notable…quote from Linda Taylor on the subject of the value of Shear Type Shredders for humanity…

This ends your lesson in History.

2. **Main Specifications**

This data is for your review:

The slow speed shear shredder is based on the General Shaft Center Distance of the machine. The shaft center distance (on two shaft shredders and even four shaft shredders) determines the size of the shaft and the size of the cutters for the unit.

This in turn determines the general width of the machine and then the only other design aspect is the length of the machine and the type of blades used and the Hp and Torque associated with the machine.

The Model 3434 unit is a 13” shaft center machine that has a 5.5” shaft (flat to flat on a Hex Design) and a 17.5” diameter cutter (double hook design).

(All specifications provided in this manual are general and can vary from machine to machine depending on the application and other factors in the design and manufacturing)

The general opening of this unit is 34” long by 34” wide. It can be made longer depending on the application and can also be made shorter too.

3. **Working Principals and Features**

This data is for your review:

The principal of the machine is that it is like an office paper shredder. It grabs the material and makes strip type cuts (depending on the cutter width and hook configuration).

It’s nothing more than an office paper shredder made very very large.

Sorry to spoil your fun but it’s an office paper shredder made very very large.

Due to the coacting cutters on each shaft they cut like scissors.

4. **Installation**

This data is for your review:

After receiving the unit ensure that is properly connected electrically and that all bearings and gearboxes are properly lubricated for startup and daily operation.

General Setup of Machine on Factory Floor.

5. **Startup or Test Run of Machine**

This data is for your review:

There is no special procedure for the machine. Push the start button and place material into the shredder for processing. But it is important to know that all machines have their best operational conditions and feed rate in a slow speed shear shredder is important to obtain optimum throughput rate.

If you overfeed a shear shredder then it backs off on the material and you lose time and production. Care should be taken to determine the best conditions for shredding.

6. **Operating and Service and Maintenance**

This data is for your review:

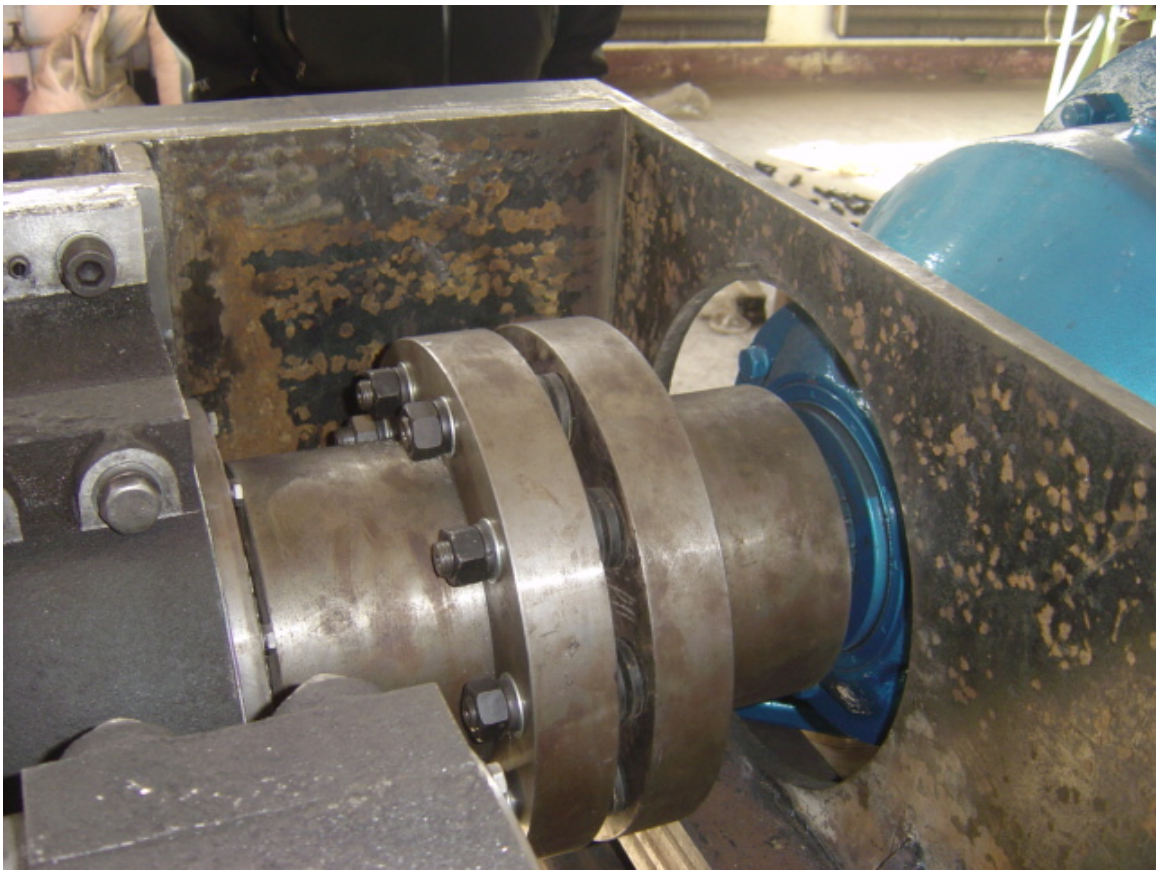
General Service of the Unit should be done daily.

This is a simple machine and due to that fact the only main items to service daily are the bearings and the gearboxes or hydraulic power units and drive motors.

Proper lubrication and maintenance schedules should be maintained and monitored.

This is a very heavy machine and the parts and components are also very heavy and care should be taken to use qualified riggers and maintenance personnel familiar with machinery so that you do not put anyone in danger due to their inexperience.

The two Gearboxes each drive a cutter shaft. Each shaft is independent on the Y and the B and the L designs. The gearbox is coupled to its respective shaft by a Torque Coupling. The Torque Coupling has a row of torque bolts that attach the Gearbox to the main shaft.

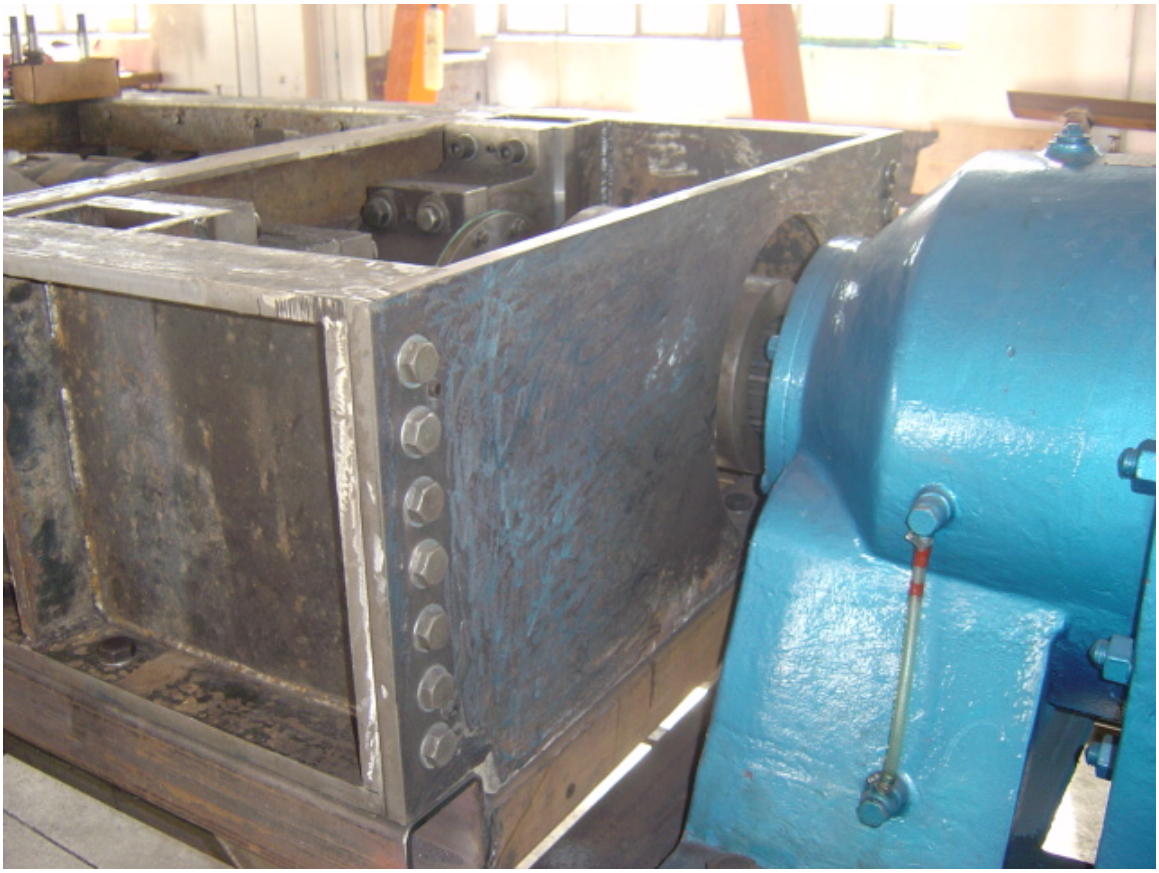


To perform a removal of the Shaft or the Gearbox this coupling must be disconnected to allow the removal of the gearbox or the main shaft assembly.

Another major factor of our machine design which is always light years ahead of the competition (because they are always behind in copying our designs) is the fact that the main shafts can be removed in two ways. One way is to remove the entire side panel of the shredder that allows you to remove the entire shaft assembly which includes the one half of the torque coupling, both bearing assemblies, the main cutter shaft with its cutters, spacers and cleaning fingers entact. Another way for removing the main shafts to access the cutters is to unbolt the bearing assemblies from the main side panel and drop or pull the main assembly from the unit.

This picture shows the side view of a 3434 unit and you can see the 7 bolts that hold the end plate in place on each side end of the shredder housing. By removing these 14 bolts, 7 on each side and by removing the torque coupling bolts from their respective shaft…you can pull the entire sidewall of the shredder away from the main assembly.

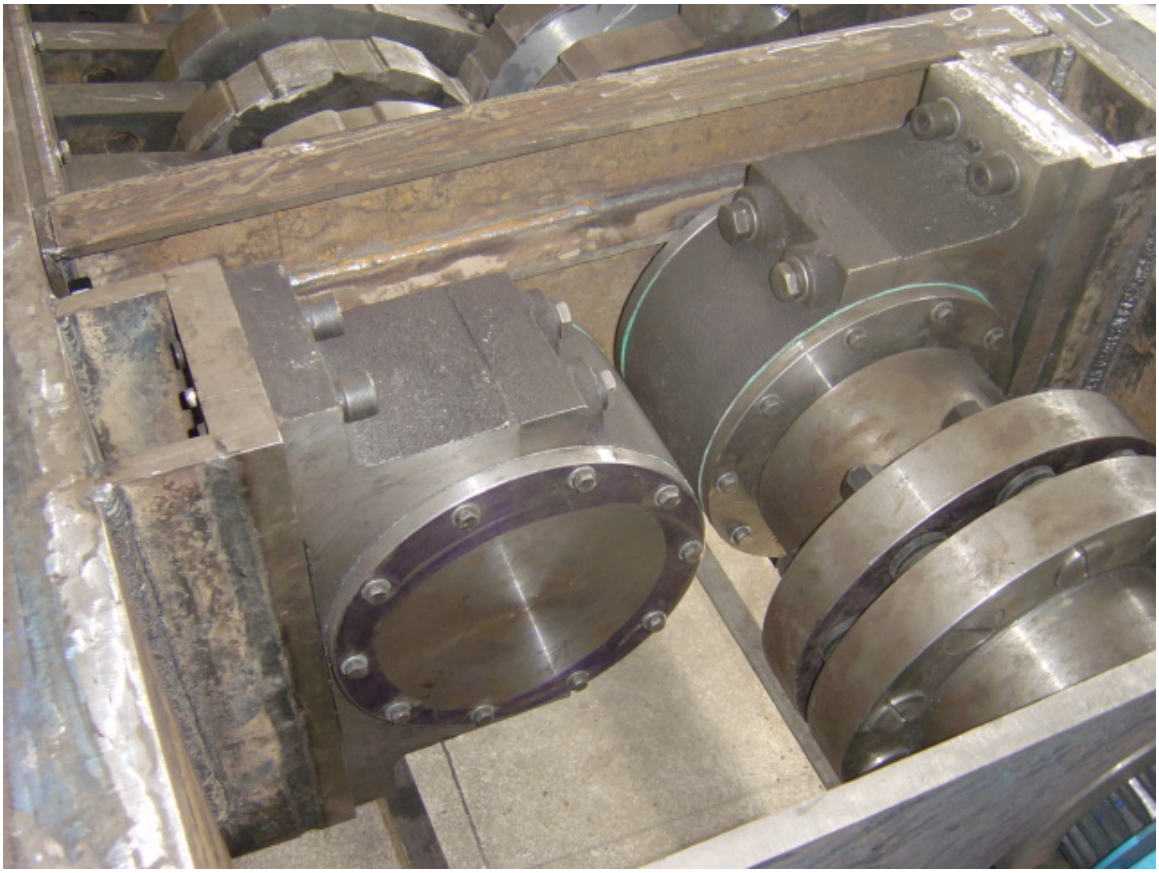
Another Picture of the 7 bolts that can be removed from each end of the shredder allowing for a total removal of the entire side plate of the shredder for fast and easy replacement of an entire cutter assembly.



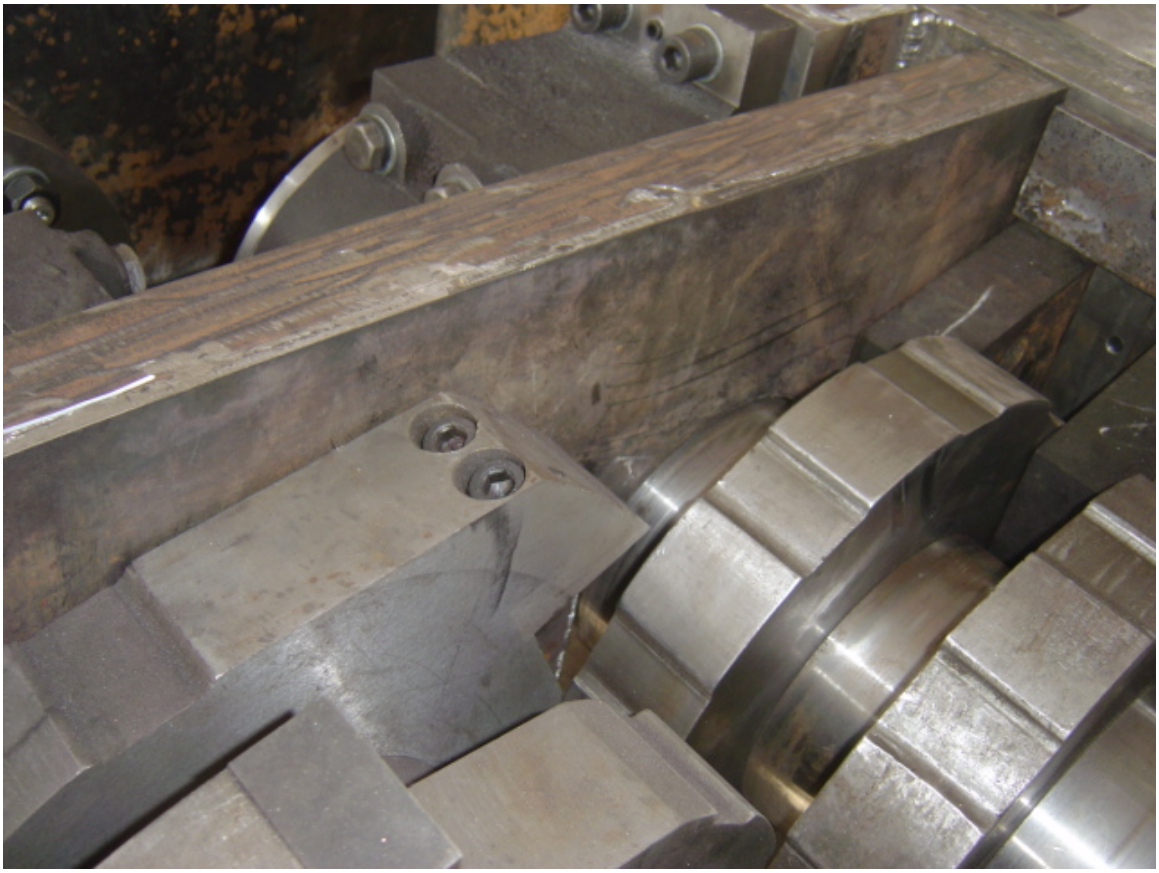
Another view of the 7 bolts that can be removed from each end that allow the entire sidewall of the shredder to be removed for fast maintenance of the cutter assembly. Global is the only group that offers this patented design.

In addition to this design we have incorporated the ability to remove the cutter shaft assembly from the sidewall using a vertical pull or horizontal drop in the event that this method is required. Obviously it is best to remove the entire sidewall of the shredder to remove this assembly but by removing the main bearing mount bolts both shaft assemblies can be removed without removal of the side wall of the shredder.

This is one of the end bearing assemblies where the cutter shaft ends and it is attached to the sidewall by the four main bolts but and two dowel pins but also has the ability of having its seal retaining ring removed and the top bearing assembly removed for easy access to the bearing area.



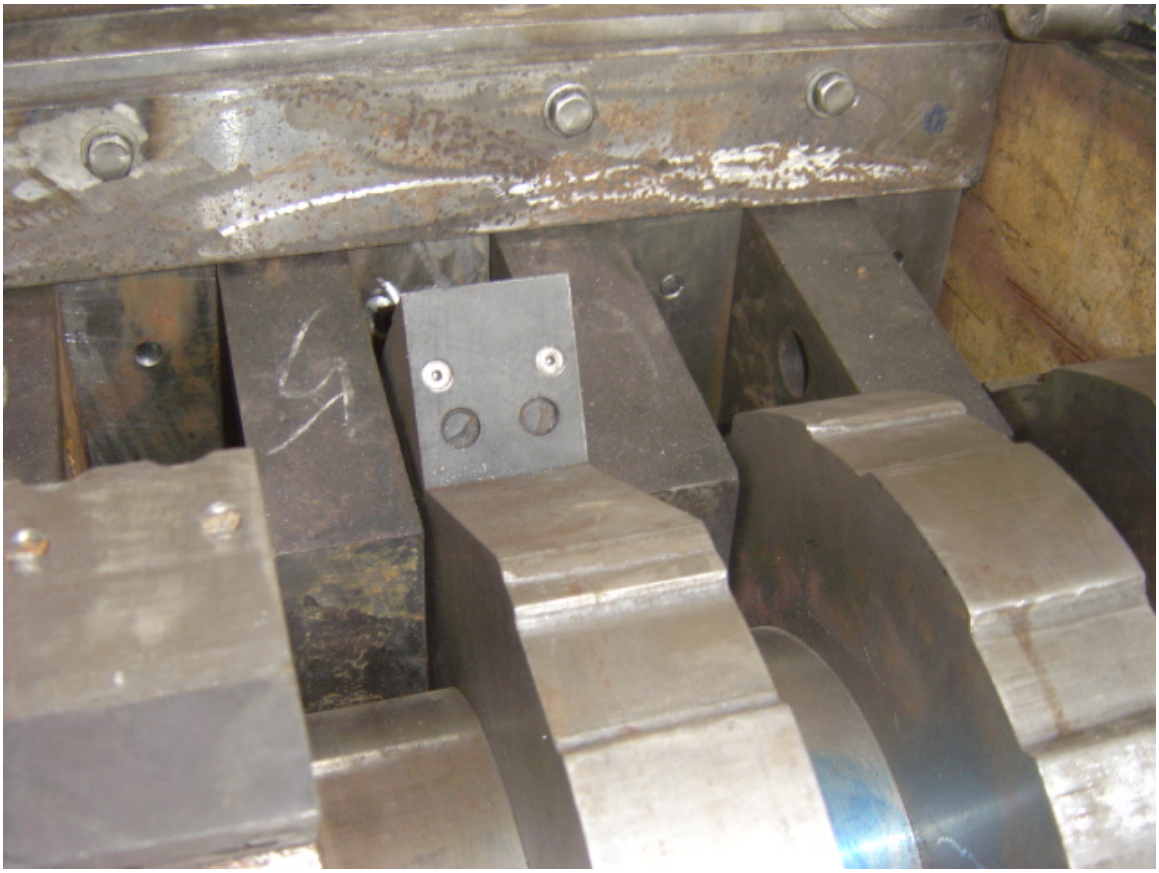
This is an end view of the bearing assemblies of the shredder so that you can visualize how our design allows for removal of the shafts in a number of ways. The Saddle that forms the shredding chamber inner sides is removed by pulling the assembly vertically from the unit after removing its mounting bolts.



This pictures shows on of the two interior end plates of the shredder that form the ends of the cutting chamber.

Also note on this machine that the cutters have a replaceable hook cap that allows for the changout of hooks in an application where this design is needed, such as dross shredding.

The cutters and spacers are seen in this photo and the cleaning fingers can be seen in the upper right of the picture between the cutters, to protect and strip material off of the spacers.



This is another view of the spacers and their top retaining bar which has been used on the Saturn and SSI designs for years.

The large bolts on the sidewall retain the cleaning fingers in place and with the addition of the cleaning finger top and bottom brackets they have full support and rigidity. The cleaning finger spacer bars that also provide integral support of the cleaning finger assemblies are held in place by the smaller bolts seen in this photo.

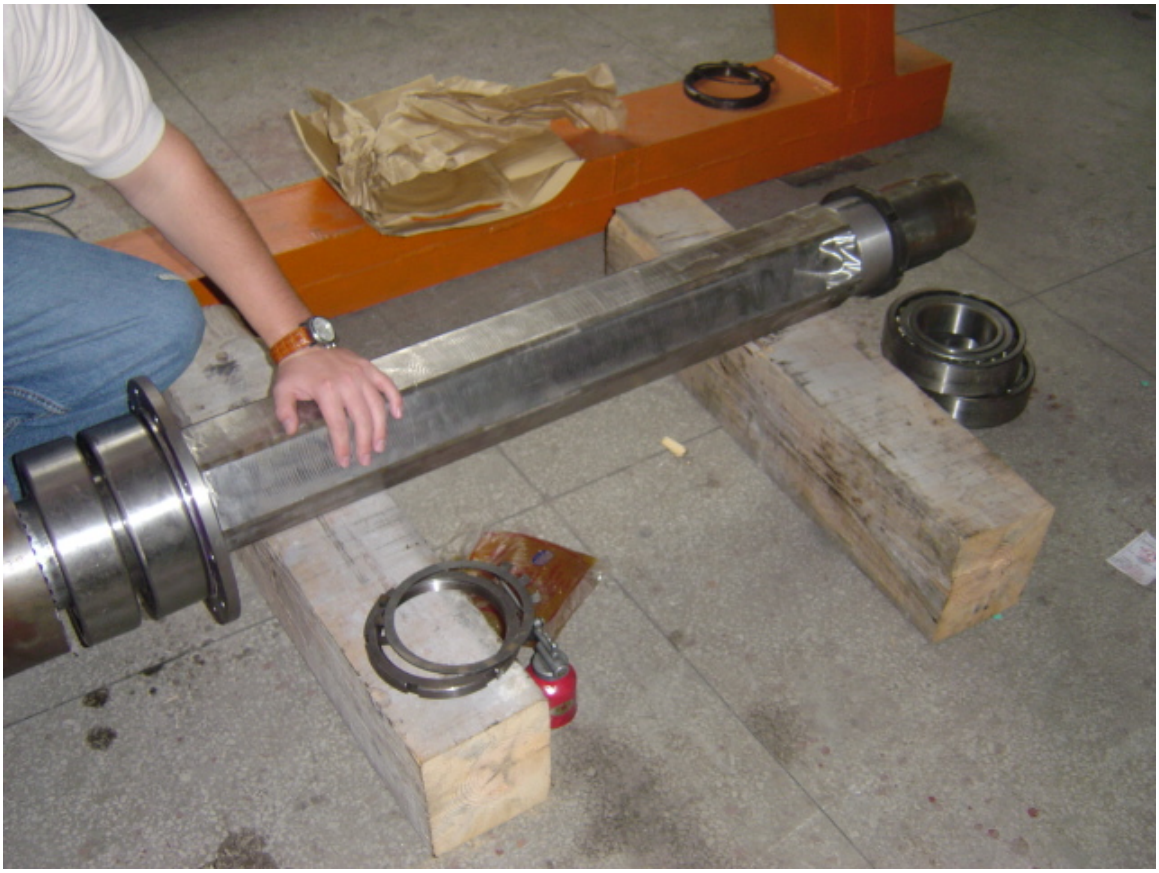
The cleaning finger brackets are held in place with drilled and tapped holes and associated hardware bolts that hold them in place and can be seen from the inside of the cutting chamber.

This photo shows the top bracket cleaning finger bolts.

The cutters on the shredder come in various designs and configurations for spirals and stacking…

This is a view of the cutters that have a single hook and a ribbed outside for grabbing and a hex shaft design. These are for the Model 3434 unit and in this photo are about 2.5” thick and about 17” in diameter. Also seen is the spacer between the cutters.

This is a photo of the cleaning fingers for a unit and some of the other parts associated with our new series of shredders. Lower left is the top cover of the bearing assembly. Lower right is one half of the torque coupling and its torque bolts. Note the splined shaft in the coupling for added strength.

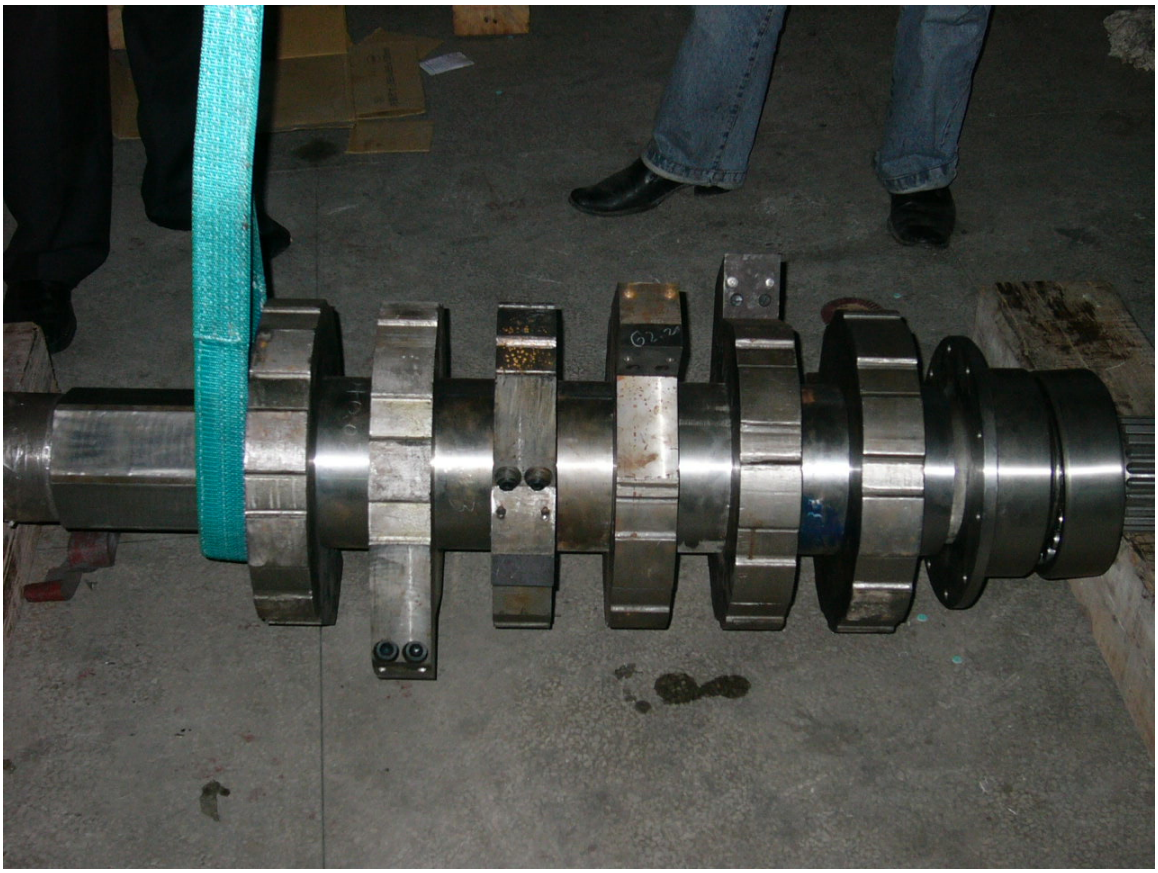


This is a photo of one of the main shafts in a 3434 series shredder that shows on the left end the two drive end bearings and on the floor to the right are the two end shaft bearings. Each shaft has four bearings for a dual backup on each end in the event of a bearing failure there is always a backup.

This is the splined drive end of a shaft also showing the double bearing design of our shredders. Material is a heat treated 4140 allow steel.

This picture shows one of four solid steel castings for the bearing housings. They are split so to allow for removal of the bearings from the housing without using a pulling type design common to most shredders in the industry today. The old designs that we pioneered in the early 1970's

are outdated and too costly to maintain and repair. This new design of 2005 is a milestone in the innovative design of our group.



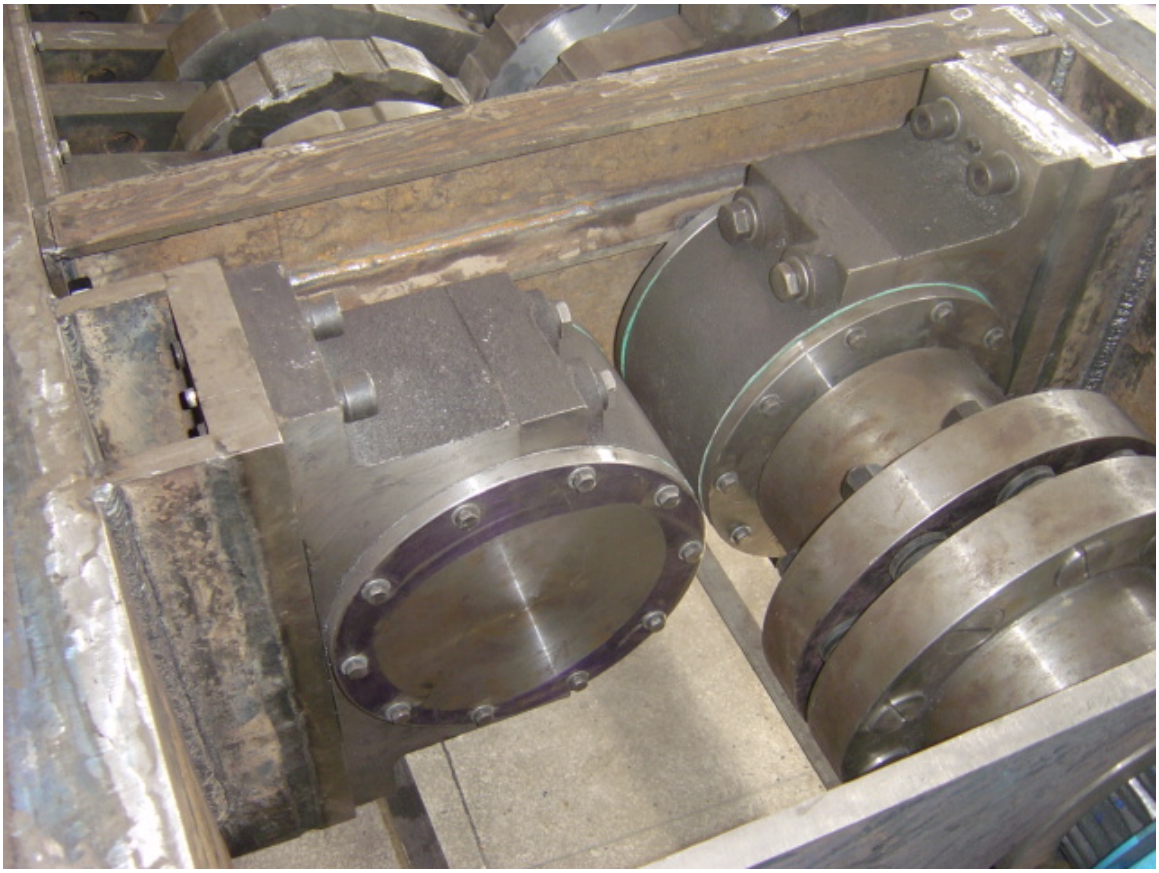
Stacking of the cutters and spacers on the main cutter shaft.

This ends the general maintenance and assembly data and pictures. If you have any questions please give us a call.

7. **Tables of Lubrication Data**

This data is for your review:

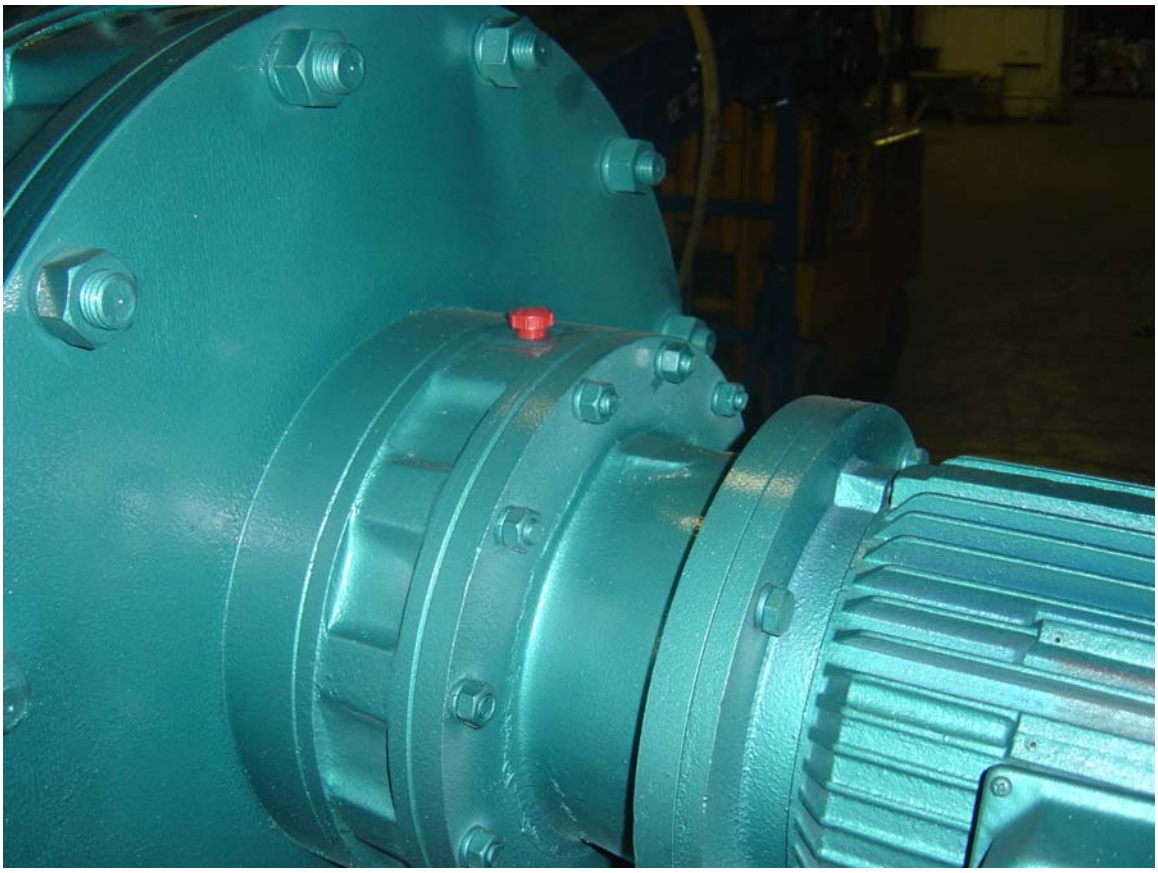
Standard Lithium Based Bearing Grease or any high quality Bearing Grease should be used each bearing on both end of each shaft.



Zirc Fittings can be found on the bottom side of the Bearing Assemblies.

The Gearbox Oil for all Internal and External Gearboxes should be chosen for high quality and one recommendation is to use a Chevron NL 220 Gear Compound for Internal Gearboxes. Synthetic Oil is highly recommended for reducing wear.

This is one of two Oil Fill Air Breather Cap found on most gearboxes.



This is a picture of the second top fill port for the gearbox and it is best to start filling this back assembly first and see if the fluid level on the site gauge increases which confirms that it is connected to the main gearbox oil chamber.

The site gauge is on the side of the Gearbox and is filled to the lines on the plastic gauge. Fill from the two filler caps on the top of the gearbox. You can see the site gauge on the left bottom side of this gearbox. It is filled to the fill lines on the plastic tubing. Normally it's almost filled to the top. But may vary from machine to machine and the supplier of the gearbox.

Hydraulic Oil for all hydraulic systems must be at the proper temperature prior to startup. Chevron EP32 is a good hydraulic oil for most applications. Industrial Lubrication Groups should be consulted for their expertise in your local area. However these lubricants have been used for the last 30 years and appear to work well regardless of " expert " suggestions.

8. **Electrical System**

This data is for your review for the Y Panel Design:

The Y design electrical panel is setup so that the unit does have an overload mechanism that allows the shredder to stop and reverse and restart again automatically. However, when this occurs you should determine if it was an unusual event or that the materials were not fed properly in the machine.

Y panel that is a General Panel for most shredders.

It is best to operate the machine is to properly feed materials into the shredder so as to not make the machine reverse. You will hear many stories from many salesmen but since we started this industry we can tell

you what to expect from these shredders. They are a machine that can not normally self destruct when unshreddables are put into the chamber. However, the machine is not a cure all machine and all machines have limitations and duty cycles.

In the Y panel, the photo above shows the Y Panel from Asia. The left selector switch has three positions, Work, Stop and Test, and is shown as SB5 on the electrical schematic.

In the Y panel, the Next button to the right of the Selector Switch (second from left) is the green push button for starting the main motor or motors (single or dual drive system) and is (SB3) on the electrical schematic. When pushed the shredders of the Y variety starts in the forward mode. When pushed the shredders of the B variety starts in the reverse mode and then proceeds to go into the forward mode.

In the Y panel, the Next button to the Y panel to the right of the Motor Start Button (third from the left) is the red push button for the Motor Stop (SB2).

In the Y panel, the Next button on the Y panel on the Right of the Motor Start Button is the Emergency Reverse Button or Reverse Button, that is used in an emergency or manual mode when you want to manually Reverse the machine. It is also shown as SB5 on the electrical schematic.

In the Y panel, turn on Switch for Main Power in Panel Box (Q1) which will allow the Supply Voltage to be shown on the Display on the Left Top of the Panel. The Main Motor Current is shown on the Display on the Right Top of the Panel.

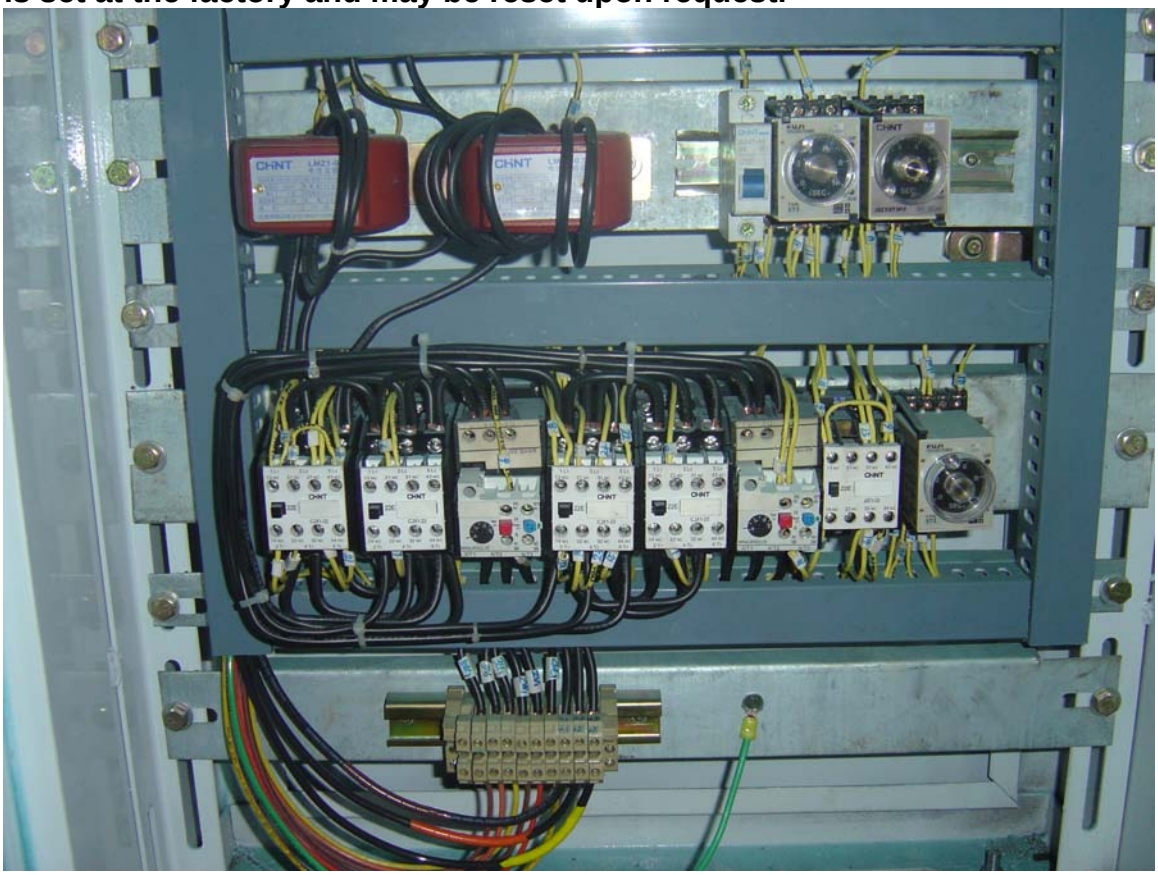
This photo shows a row of electronics. The item on the left is the main breaker for the motors, the item in the middle is the transformer to stepdown main power voltage to 220 or 110 control voltage. The item on the right is the Amperage Trip Sensor that is used to adjust the trip setting of the shredder, for setting the multiplier for the full load amperage setting for reversal. If set at 2.5 it will allow the shredder to reverse when 2.5 times the full load amperage is sensed on the electric motors.

In the Y panel, Turn on Switch for Panel Power in Panel Box (Q2) and the lights to the Panel Buttons will illuminate.

In the Y panel, Turn Selector Switch to the Test Mode (Left Selector Switch on Panel) and Press the Main Power Button for the Motors (SB3) and the contactors in M1 and KM3 will be activated. The two drive motors will now be on. On the Y machine you should check shaft rotation to ensure that the two shafts are driving inward toward the center of the shredder at startup and continue in that direction. In the B Panel which is manufactured by another group in Asia the machines starts in reverse and then proceeds forward during startup.

In the Y panel, the HL1 light illuminates with the motors on.

In the Y panel , the machine has an over current protection and trip current is set at the factory and may be reset upon request.

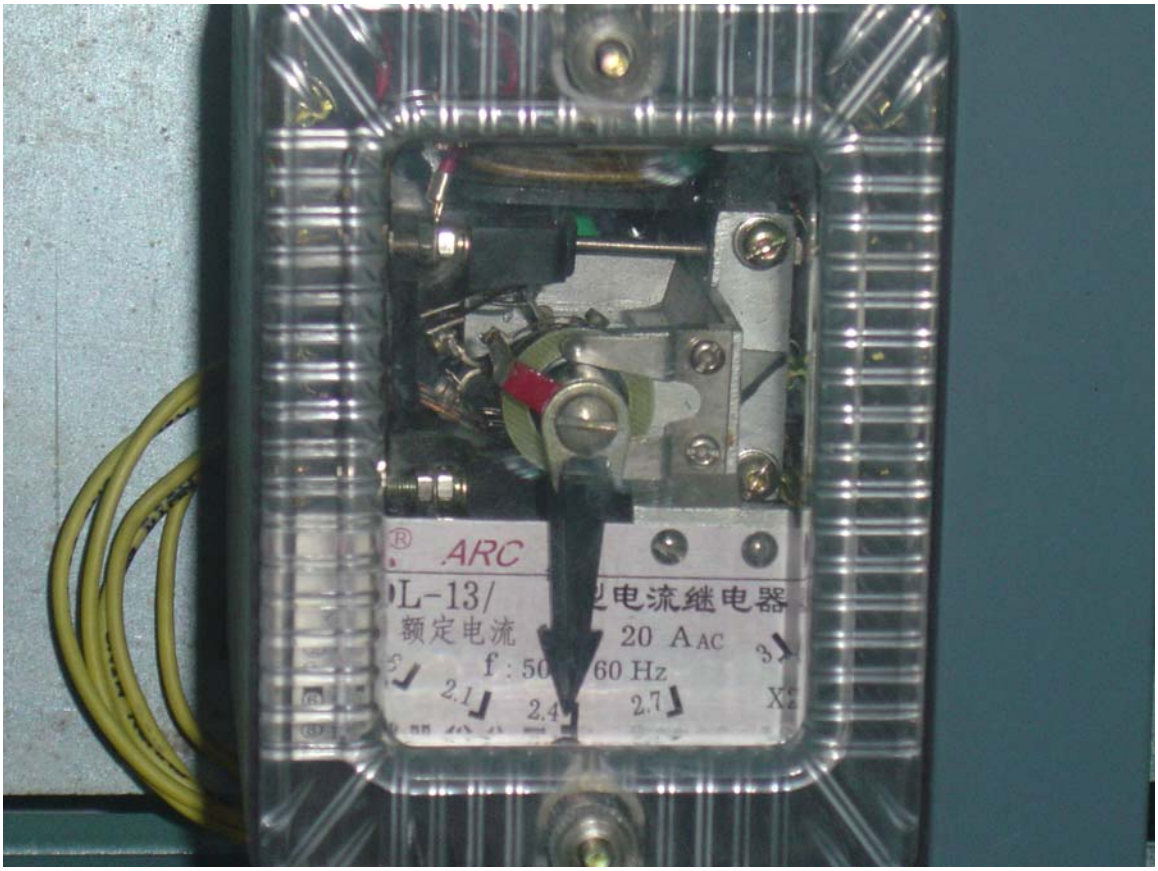


This photo shows two rows of electronics. The top row has the two current transformers, one which senses the motor amps for the trip or reversal sensing mechanisms and the other is for the amperage meter on the panel. In addition to this on the top row on the right is the panel circuit breaker and two timing relays. The next row has eight items. The first three items are the motor starter for one motor (the left item of the three is the forward mode and you can push and hold the black button on the front to actuate the motor in the forward mode. If you push and hold the black button on the middle item of the three you actuate the reverse of the electric motor and the third item or the item in the right is the thermal setting and by pressing the red button you trip the thermal relays and by pressing the blue button you reset the thermal relays. The adjustable round black knob sets the trip setting level. If you trip the thermals with the red button you must press to reset the blue button or the unit will not start.), the next three items are the motor starter for the other motor and the last item on the right in this row is a control relay for control of a reversal function and is a timing relay for control of the reversal functions

In the Y panel, KJ1 activated and the machine reverses if the Main Reverse Button is pressed.

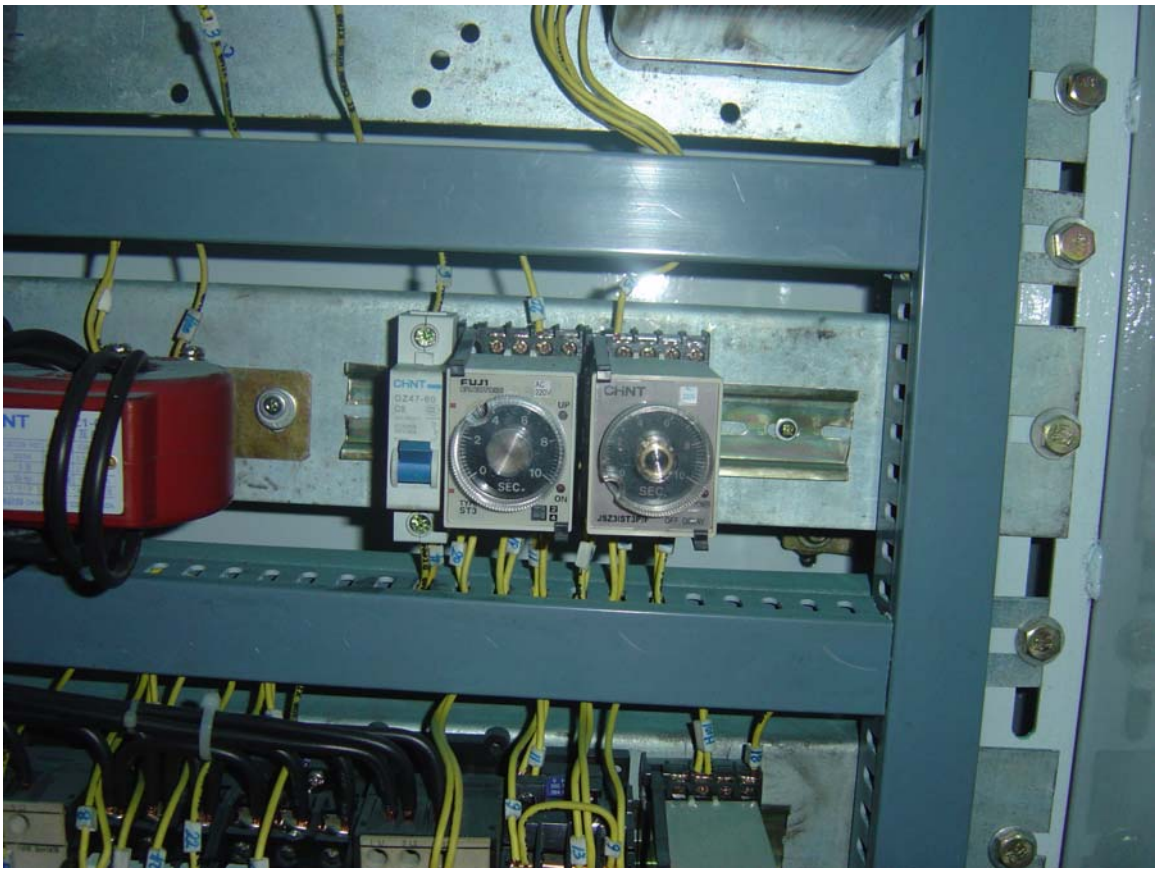
In the Y panel, when reversing KT1 switches and the machine will reverse a quarter of a revolution and may be adjusted inside the panel to increase the reversal time.

In the Y panel, The Amperage Trip Setting can also be changed inside the Y panel to allow for a higher amperage trip setting. Normal trip settings vary and can be full load amp ratings up to 2.5 of full load amperage ratings depending on the application and the machine design. Before increasing the trip setting on any machine you may want to contact our group to ask about this change and its effect on wear and durability on the machine and its gearboxes and shafts and cutters.



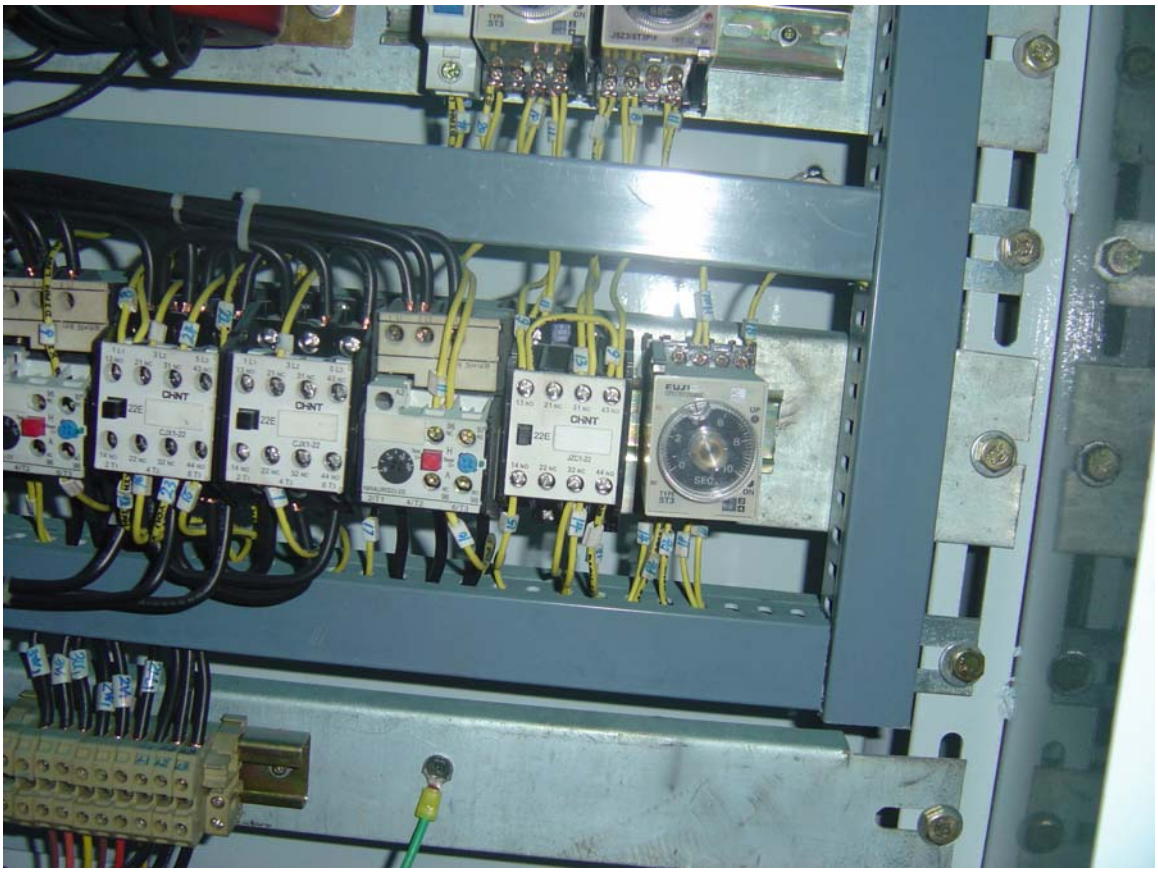
This is Item KA1 which is an Ammeter Relay that allows trip setting of reversal from 1.6, 2.1, 2.4, 2.7 and 3.1 times the full load amperage settings of the electric motors.

In the Y panel, KT1 and KJ1 are involved in the reversing sequence. You can set KT1 and KT2 to adjust the reversal time and trip settings.



This picture shows a circuit breaker (with blue reset switch) and two timing relays, the Timing Relay on the Left is a Fuji and the one on the Right is a CHNT. The Fuji Timer controls Xx and the CHNT timer controls Xx.

In the Y panel, Pressing SB2 button stops the electric motors. But if you want to reverse the shredder you can depress the SB5 button.



This picture shows a row of electronics and on the far right is a timing relay which is a Fuji and is used to control Xx.

Electrical Parts for Y panel:

Item 1 is Q1 and is a Circuit Breaker with Qty of 1 and Product Code NM1-63S/33102 with Current Rating of 50 amps at 480 Volt, 3 Phase Power, 60 Hz Power

Item 2 is KM1-4 and is an A.C. Contactor with Qty of 4 and Product Code CJX1-22-22A AC220V, with Current Rating of xx amps at 220 Volt, 1 Phase Power, 60 Hz Power

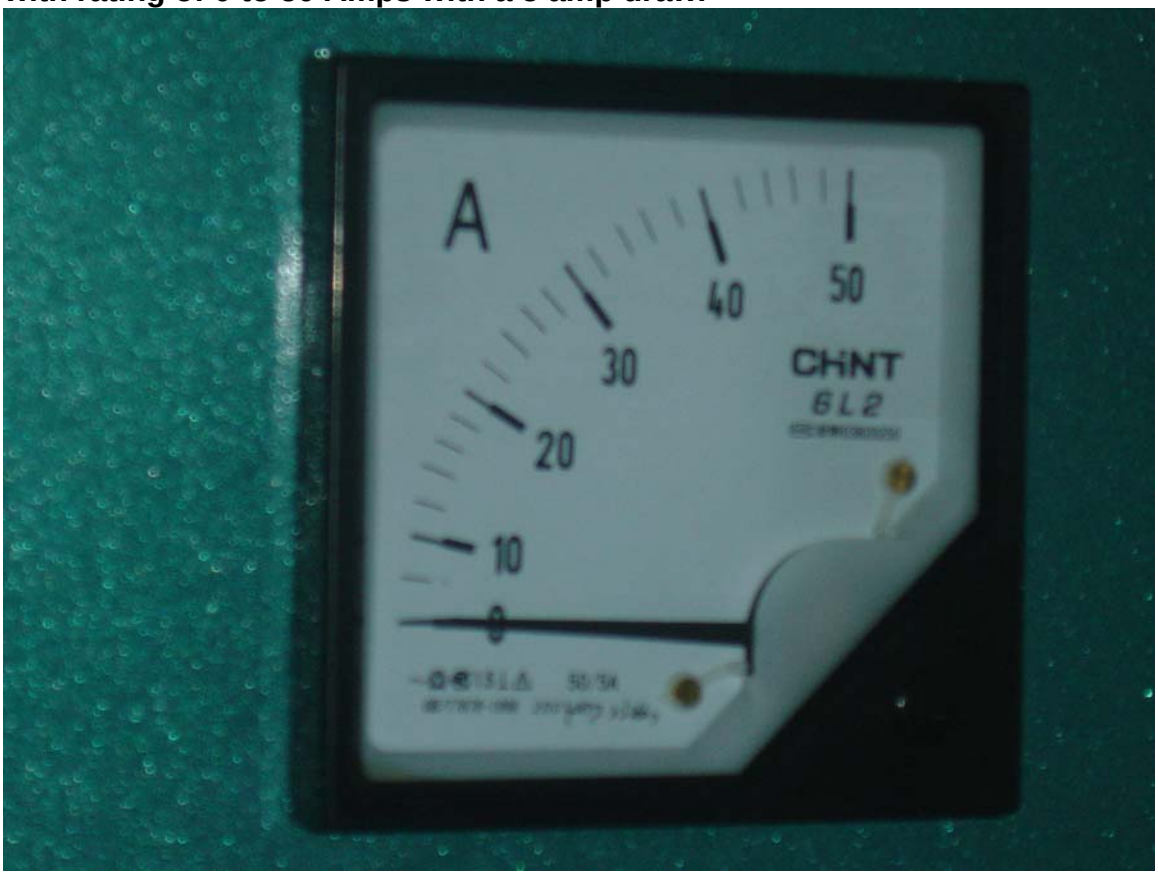
Item 3 is Q2 and is a Circuit Breaker with Qty of 1 and Product Code dz47-6 6A with Current Rating of 6 amps at 220 Volt, 1 Phase Power 60 Hz Power

Item 4 is SB4 and is a Push Button with Qty of 1 and Product Code LAY37-A2/11 and is rated for 220 Volt, 1 Phase, 60 Hz Power.

Item 5, is SB3 and SB5 and is a Push Button with Qty of 2 and Product Code LAY37-E2/11 AC 220 Volt Rating for use with 220 Volt, 1 Phase, 60 Hz Power.

Item 6 is KE and is a Thermal Relay with Qty of 2 and Product Code JRS2-25Z Setting of 1- to 16 amps at 220 Volt, 1 Phase 60 Hz Power.
Item 7 is TC and is a Transformer with Qty of 1 and Product Code BK-100 480V/220V 100VA Rating. To transform 480 Volt, 3 Phase, 60 Hz power to 220Volt 1 Phase, 60 Hz Power.

Item 8 is PA and is an A.C. Ammeter with Qty of 1 and Product Code 6L2-A with rating of 0 to 50 Amps with a 5 amp draw.



This is the Ammeter that allows you to see the amperage draw on the electric motors during operation.

Item 9 is PV and is an A.C. Voltmeter with Qty of 1 and Product Code 6L2-V with rating of 0 to 600 Volts

This is the AC Volt Meter that allows you to see that there is 480 Volt 3 Phase power connected to the motors and to the panel.

Item 10 is TH and is a Current Transformer with Qty of 2 and Product Code LMZ1-0.5 50A / 5 A

Item 11 is SB1 and is a Two Position Switch with Qty of 1 and Product Code LAY37-D2/40 with Alternate Type Settings

Item 12 is KA1 and is an Ammeter Relay with Qty of 1 and Product Code DL-13 6A Setting 1.5 to 6 amps internally with an exernal setting switch allowing for trip settings for reversal to be set …from

Item 13is KT1 and KT4 and are Timing Relays with Qty of 2 and Product Code ST3PA-A 0.05 to 3 minute at AC220 Volt, 1 Phase, 60 Hz . The Name brand should be Fuji with a 0 to 10 second setting knob on the front. KT1 and KT2 (and until known maybe KT4) are involved with the reversing sequence of the shredder.

Item 14is KJ1 and is an Intermediate Relay with Qty of 1 and Product Code JZC1-22 AC220 Volt, 1 Phase, 60 Hz

Item 15is KT2 and is a Time Relay with Qty of 1 and Product Code ST3PF 1-10S AC220V Cut Off Relay. The Name brand should be CHNT with a 0 to 10 second setting knob on the front. KT1 and KT2 (and until known maybe KT4) are involved with the reversing sequence of the shredder.

End of Y Panel Data, Drawing 330D-0100

9. Drawings

This data is for your review:

General Layout Drawing
General Foot Pad Drawing
General Electrical Drawing
General Electrical Panel Parts Drawing

See the Drawings attached.

Sincerely,

_____Dan Burda, President Global Development

Original Owner and Inventor of the Saturn Shredder and SSI International Shredder Lines. Secondary Owner/Supplier of Eidal Vertical and Shear Shredder Lines, Duerr Wood Chipper, Tool Barn Wood Chipper, Techwood Wood Chipper, Cougar Wood Chipper and Machete Wood Chipper Lines. Engineering, Parts and Service for all waste processing type shredding and processing equipment.

Worldwide Manufacturing and Consultation, Turnkey Manufacturing Systems, Industrial Equipment, Environmental and Recycling Equipment, OEM/OE Production Systems and Parts, Contract Engineering Design and Consultation, Domestic and Worldwide Sales and Marketing Services, Domestic and International OEM/OE Manufacturing Services, Import and Export Consultation and Coordination Services, and Strategic Planning, Appraisal Services, Equipment Location Services, Acquisition and Liquidation Services, Product Liability Evaluation Services, Product Design Evaluation Services.

The statements included in this data concerning predictions of economic performance and management's plans and objectives constitute forward- looking statements made pursuant to the safe harbor provisions of Section 21E of the Securities Exchange Act of 1934, as amended, and Section 27A of the Securities Act of 1934, as amended. These statements involve risks and uncertainties that could cause actual results to differ materially from the forward-looking statements. Factors which could cause or contribute to such differences include, but are not limited to, factors detailed in the Securities and Exchange Commission filings of the company, economic downturns affecting the operations of the company or any of its business operations, the continued availability of financing to fund the company's operations, and the ability of the company or its investment banker to successfully identify and reach an agreement on the sale of the company or its operating units. The forward-

looking statements contained in this press release speak only as of the date hereof and the company disclaims any intent or obligation to update these forward-looking statements.
