

Operating and Maintenance Manual

Mikro-Pulverizer® Model #44

*Carefully read this manual before attempting
to operate or service this equipment*

**Record the model and serial number of your equipment
and always refer to them when ordering replacement parts
or requesting service assistance.**

For replacement parts or service, call (800) 526-4491

FORWARD

The #44 Mikro-Pulverizer® hammermill is a high speed, close tolerance hammer mill with very high grinding efficiency and output.

The basic design of the #44 Mikro-Pulverizer® hammer mill can be adapted for a variety of applications. Record your machine MODEL TYPE and SERIAL NUMBER. Refer to them when ordering replacement parts.

IMPORTANT:

Before installing, operating or maintaining this equipment, carefully read this Manual and follow the Safety recommendations in Section II.



HOSOKAWA MICRON POWDER SYSTEMS

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Aftermarket Services

Thank you for choosing Hosokawa Micron Powder Systems as your supplier of powder processing equipment.

As a Hosokawa Micron Powder Systems customer, you receive much more than high quality equipment and spare parts. Your purchase is supported by our extensive resources and more than seventy years of applications experience, all of which are combined in our Aftermarket Services team.

We will work with your operators, engineers and managers to keep your powder processing lines up and running. When you're ready to automate, integrate, modernize or expand, call us -- we're ready to help.

Aftermarket Services

For technical assistance, please call us at (908) 273-6360. You may request to speak directly to the departments list below. Additional information about our services is available from the Aftermarket Services Department.

PROCESS TECHNOLOGY

Our Process Technology Department consists of engineers who are dedicated to providing state-of-the-art powder processing assistance.

- System optimization
- Process troubleshooting
- Technical seminars
- Installation consultation
- System upgrades

ELECTRICAL DESIGN/CONTROLS

Our Electrical Design/Controls Department designs all of our control systems, from basic relay logic to automated PLC-based systems.

- Electrical start-up assistance
- Electrical repair or troubleshooting
- Control System consultation
- Control System upgrades

MECHANICAL FIELD SERVICE

Our Mechanical Field Service Group had been through extensive training and has experience providing:

- Mechanical start-up
- Mechanical repair
- Maintenance seminars
- Mechanical inspections/evaluations

SPARE PARTS

Our Spare Parts Department works closely with our Procurement and Manufacturing personnel to ensure promptness of spare parts order deliveries.

- Blanket spare parts orders
- In-house factory repair
- In-house rebuilds/refurbishing
- Quantity discounts
- 24-hour delivery of stock items

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Grinding and pulverizing are processes in which materials are reduced in size as they are impacted by high speed rotating hammers. The term "pulverizing" is applied to fine grinding and derives from the work "polvo" (dust).

Hammer Mills are made in a number of different configurations, but consist essentially of a revolving shaft with either rigid or free swinging hammers. Hammers are designed in different sizes and shapes depending on the application. The shaft and rotor rotate in a housing which contains liners or breaker plate of various configurations. A screen enclosed the bottom of the rotor to regulate the size of discharged product.

The most important variables in the pulverizing operation are:

- The size, power, and configuration of the Hammer Mill.
- The tip speed of the hammers.
- The type of hammers used.
- The size and configuration of the screen.
- The condition of the grinding and impact surfaces.
- The characteristics of the material to be processed.

The size, power and configuration of the Pulverizer; along with the feed material size and required particle size of the finished product, determine the grinding capacity of the mill.

The speed of the hammers is a factor which affects the fineness of the product. The faster the speed, the finer the product.

The type of hammer selected is very important. Stirrup type hammers are recommended for fine grinding. Bar type hammers are used for coarser grinding or for producing a narrower particle size distribution.

The final item affecting the size of the finished product is the size and configuration of the screen holes. A smaller screen opening will deliver a finer product.

Generally, the process can be summarized as follows (Refer to Fig. 7):

The material is fed into a hopper mounted above the Feed Trough where it is gravity fed into the grinding chamber.

The hammers impact the material as it enters the grinding chamber propelling it toward the multiple deflector liner. This action fractures the material and is repeated until the particle size is small enough to allow the product to pass through the screen located at the bottom of the mill body.

There are adjustable vents on each side of the cover to allow air to enter the grinding chamber for purpose of cooling and also to reduce any vacuum at the feed inlet.

GENERAL

Note: Before installing, operating or maintaining this equipment, carefully read this manual and the following safety recommendations.

- Follow all plant Working Rules and use recommended Safety Equipment.
- Read the Owner's Manual.
- The area around the Mill is dusty. Use a suitable respirator per plant policy and OSHA recommendations.
- While working around the Mill, steel toed shoes and safety goggles or safety glasses with side shields must be worn at all times.
- The Mill produces a noise level somewhat higher than the acceptable limit of 85 dba at 1 meter from the noise source. OSHA approved ear protection must be worn while working around the Mill.
- Keep hands and clothing clear of the Feed Hopper, Mill openings, Air inlets or any moving parts.
- To eliminate the possibility of sparking occurring within the Mill, all metallic scrap must be separated from the feed material before it enters the grinding chamber.
- Be sure Mill is electrically grounded.
- The motors must be permanently wired to an approved NEMA enclosure, in accordance with all local codes and the National Electric Code.
- Before the Mill is opened for inspection or repairs, make sure the main power is disconnected and the switch is locked out.
- When operating the Mill, all safety guards must be in place.

- Should abnormal levels of vibration or noise develop, immediately shut off the equipment, investigate the problem and do not re-start the unit until the problem has been corrected. Contact the MPS Service Department for assistance.

Equipment Safety Features

The hammer mill incorporates the following safety features:

- **Fabrication:** Our Mills are designed and built with safety in mind. All materials used have been carefully selected. All our Mills are inspected by our Quality Control personnel during fabrication and assembly.
- **Housing Cover Limit Switch:** This switch is interlocked with the Main Drive so that the main motor cannot run if the Cover is not in place.
- **Electric Interlock Between Motors:** The Main Drive Motor and Feed Motor should be interlocked so that the Feed Motor cannot be started unless the Main Drive Motor is running. This is customer's responsibility.
- **V-Belt Guards:** All V-Belt Drives are protected with OSHA approved guards.
- **Moving Parts:** All moving parts are enclosed.

Warning Labels

Figure 3 identifies safety label arrangement for potential hazards.

Feed System

The Pulverizer FEED SYSTEM consists of the following items:

- Optional Hopper or Feed Device.

Pulverizer

(Refer to Figure 2)

The Pulverizer itself consists of the following items:

- Pulverizer Assembly consists of a Main Body (B), a Rotor Assembly (C), Cover (F) Hammers (D) and Screen (E).

There are retaining grooves to locate and support the Screen (E) on the interior walls of the Main Body (B). Four Screen Tightening Cams (G) secure the Screen by pinching each corner of the screen between the cam and the inner radius of the retaining groove.

The bottom of Main Body is open to discharge the pulverized material into a container or pneumatic conveying system. A discharge transition is an available option or is customer supplied.

There are two Air Inlet Control Gates (H) one on each side of the Cover, with adjustable openings to let air in and to reduce any vacuum at the Feed Inlet caused by fan action of the Rotor (C).

The upper part of the Main Body (B) surface is machined and drilled to receive Cover (F); Pillow Blocks (I) and End Dust Seals (J).

Bolted to inside of Cover is a multiple deflector Liner (K), made of steel. End Dust Seals are rubber seals located at each end of Screen. The feed side end dust seal is held in place by the Feed Trough.

Pulverizer Drive

(Refer to Figure 2)

The Pulverizer Drive consists of the following items.

The Driven Sheave (L) is mounted on the Rotor Shaft (M). Driven Sheave is connected by V-Belt (N) to the Drive Sheave (O), which is mounted on Motor shaft. Motor (P) is mounted on Slide Rails to adjust tension of V-Belts. V-Belt Drive is covered by Safety Guard (R).

A safety switch is provided to prohibit the operation of the mill with the housing cover off.

Pulverizer Support

(Refer to Figure 2)

The Pulverizer Support consists of the following items:

- Structural Mill Base:

Main Body and main Drive is bolted to a common Base.

- Supporting Legs:

Base is bolted to four Stand Legs which support the mill. These legs should be anchored to suitable floor or foundation (See Section Four).

Electric Controls

Micron Powder Systems will supply the following controls for the standard #44 hammer mill as an option.

1. Push-buttons type starter for the main drive motor.
2. An ammeter for the main drive motor.

The main motor should be interlocked with the feed device so that the feed device cannot operate unless the main drive is running. The limit switch is provided to prevent the operation of the mill when the cover is not properly closed. The ammeter is provided to display the amperage drawn by the main drive motor. This reading gives the operator an indication of the main drive motor loading and should be used to adjust the feed rate appropriately.

Equipment Data

Design Data:

MAIN DRIVE	150 HP
ROTOR MAXIMUM SPEED	3450 RPM
ROTOR MINIMUM SPEED (LFS HAMMER)	1500 RPM
ROTOR DIAMETER	24"
APPROXIMATE STATIC PRESSURE	6.0" W.G.
ROTOR INERTIA	120.6 LBS-FT ²
POWER REQUIREMENTS	PER SPECIFICATIONS
WEIGHT (APPROX.)	3800 LBS
FLOOR AREA REQUIRED	72 SQ. FT. 12 FT. X 6 FT.)

Foundation Requirements

(For location of Supporting Legs, refer to the specific general arrangement drawing.)

The static load carried by the four Supporting Legs 3800 lbs. (Refer to Design Data)

The floor or foundations where the Pulverizer is to be located must be level. The floor must be at least 6" reinforced concrete on firm soil base. If concrete piers are used, they must be at least one foot square and not more than 6" high.

Clearance Requirements

There should be a minimum of six feet of clearance on all four sides of the mill once it is installed. Consideration must be given to the placement of the mill so that routine maintenance can be performed without difficulty. There must be enough headroom to permit installation of appropriate rigging to assist in routine maintenance.

Unloading Equipment**Crates and Equipment Inspection**

Inspect all crates visually before opening them to identify any damage during transportation.

Inspect the appearance of all painted items.

Check for hardware that may have loosened during transport. Tighten any loose hardware.

Unloading

Use a 2 1/2 ton (5,500 lb) capacity hoist for unloading and assembling the Pulverizer.

When handling the Pulverizer Assembly, (Figure 7), use nylon straps around shaft.

Notes: 1) Do not put slings or straps around the rotor or screen area, since this could result in damage to the screen. 2) Do not rest rotor assembly on floor. Assembly must be supported by the housings. 3) Do not bounce or hit assembly during lifting.

Assembly Instructions

Notes: For assembly instructions refer also to Section Three, "Equipment Description". The Pulverizer has been assembled at our factory and only the hopper (optional) and frame legs must be put together.

- Check Foundation level.
- Bolt four legs to Structural Mill Base Frame, Snug nuts.
- Lift Frame with legs and located over Foundation, using nylon straps around Frame. Make sure load is well balanced.
- Secure Legs to Floor or Foundation using 3/4" lag bolts.
- Level and square Pulverizer Frame.
- Tighten bolts of Legs to Frame.
- Rotate Rotor by hand to make sure it rotates freely. If Rotor is not free to rotate, refer to Section Six "Maintenance" for detailed assembly of Rotor.
- Adjust V-Belt tension by moving Motor on Slide Base. Proper V-Belt tension is a belt deflection of 5/8" when subjected to a 5 lb. load at the center between the sheaves.
- Tighten Motor bolts.
- Install V-Belt Safety Guard.
- Install Hopper over Feed Trough. Make sure both contacting surfaces are clean. Use gasket if necessary to get a good seal.

- Verify that the Safety Limit Switch operates properly. DO NOT verify the limit switch operation by running the mill, but check it according to the following procedure:

Lock out the main power to the mill. When the mill cover is properly closed, use a multimeter to measure continuity across the limit switch terminals located in the control box. Open the mill cover slightly and verify that you can no longer measure continuity across the terminals.

- Check all lubrication points for proper lubrication. Refer to Section Six, "Preventive Maintenance" for instructions and lubricant specifications.
- Make sure that the machine is clear of all foreign objects and that all the bolts are properly tightened.
- Restore main power to the mill.
- Jog Pulverizer to check direction of rotation (See Figure 4) Change Rotation, if it is not correct.
- Run Pulverizer empty for 1/2 hour to check bearing temperature and listen for an unusual noise or vibration.
- After the run-in periods, re-check all bolts and fasteners for tightness.
- Check belt tension after 24 hours and adjust to 1/64" deflection for every inch of belt span. Use a 5 lb. force.

Initial Lubrication

The equipment is fully lubricated prior to testing at the factory. However, after installation, the pillow blocks should be drained of residual oil and filled with an SAE 20 weight oil.

For oil and grease recommendations, see Section Six "Preventive Maintenance" of this manual.

Precautions Before Start-up

Before starting up after the Run-In period, make sure that:

- All bolts are properly tightened.
- The Housing Cover is properly closed and all hardware is secured.
- The Housing Cover Safety Switch works properly.
- Electrical interlock between Main Motor and the Feed Device (optional) works properly.
- The Screen is properly installed in the mill.
- Lubrication levels have been checked.
- The Air Inlet Control Gates are half open. (Adjust them as required during operation).
- No tools have been left around the machine and drives.
- The Safety Guards are in place.
- Operators are using all the safety equipment required and are following all plant safety rules and regulations. (See Section Two, "Safety", for required safety equipment).
- Operators have been properly trained in the operation of the Hammer Mill.

Start-up

The actual Start-up (and Operation) of the Pulverizer is very simple and requires normal attention by the operator.

To start a grinding cycle:

- Start the Pulverizer Motor by pushing START Push-button for Main Motor. Wait

until it maintains full operating speed before proceeding.

- Start the Feed Device (optional) and adjust it to operate at it's slowest speed.
- Feed raw material into the Hopper.
- Adjust feed rate according to Main Motor load (Ammeter reading at Control Panel), by changing Feed Device speed. Recommended maximum feed rate is determined by monitoring the Ammeter. Do not exceed 95% of maximum name plate amperage for main drive motor.
- Stop system as required to change Receiving Container. Follow Shut-Down Procedure.

Note: Once the rotor has stopped, any material that remains in the grinding chamber must be removed before the mill is restarted. Since the fan action of the rotor may also pull certain types of material past the feed screw, the hopper and feed trough should also be free of material before starting a grinding cycle.

Shut- Down

At the end of the grinding cycle or at any time during the operation, the Pulverizer can be stopped using the following procedure:

- Stop feeding the Pulverizer by pushing the STOP push-button of the Feed Device.
- Continue to run the Pulverizer until it is empty.
- When Main Motor Ammeter reads "idle load", stop Pulverizer by pushing the STOP push-button of the Main Motor.
- Make sure that the Pulverizer comes to a complete stop before attempting to do anything.
- After changing Container, the Pulverizer can be started again, by following the above start-up procedure (on previous page).

Emergency Shut-Down

In case of emergency push the STOP push-button at the Control Panel.

CAUTION

Before opening the Mill, make sure that the Main Power Switch is disconnected, properly tagged out and locked out.

When the emergency condition is over, open the Mill and clean the material in the Rotor area, to make sure the Rotor is free to rotate.

Power Failure

If there is a power failure while the Pulverizer is operating, the Main Motor will stop. Control Panels supplied by MPS will not restart themselves when the power is restored. Before attempting to re-start the Main Motor, the grinding chamber must be emptied.

CAUTION

Before opening the Mill, make sure that the Main Power Switch is disconnected, properly tagged out and locked out.

When the grinding chamber is empty, re-start the Pulverizer by following the Start-up procedure.

Preventive Maintenance

Maintenance of the Pulverizer is very simple and only requires a small amount of planned maintenance time.

Lubrication (Refer to Lubrication Chart in this section.)

- Pulverizer Drive Motor:

Follow recommendations of Motor Manufacturer.

- Pulverizer Pillow Blocks:

The Pillow Blocks are supplied with OIL CUPS that have spring hinged covers.

The oil level in the oil cup should be 1/8" from the top, when the machine is not running. When the Pulverizer is running, the oil level in the cup will lower as some of the oil is drawn into the bearing.

Oil should never be added while the unit is running. The proper oil level in the cup can only be determined when the machine is stopped.

The oil in the pillow blocks should be changed once a month. Drain the oil through the drain plug located at the base of the pillow block and refill through the fill plug located at the top of the pillow block.

Note that the oil level in the cup is the same as the oil level in the pillow block. Do not replace the oil cups with any type other than the type that is supplied with the mill. The reference for proper oil level will be lost if different oil cups are used. Also, note the location of the oil cups in relation to mill rotation. (See Figure 4).

Recommended oil: SAE-20 grade, non foaming, non detergent oil (See chart for industrial grade oils of equivalent viscosity). NOTE: For units operating at cryogenic temperatures, contact MICRON POWDER SYSTEMS Service Department for proper grade of lubricant.

Daily Preventive Maintenance

Check Rotor Pillow Blocks for any unusual temperature change. After the mill has

run for one hour under load, carefully touch the Pillow Block. If you cannot hold your hand to the pillow block, the bearing is too hot (over 140°F) and requires attention.

While the unit is running under load, listen for any unusual noise, (Do not remove your ear plugs). If you hear any unusual noise or vibration, notify your supervisor immediately.

Vibration

Vibration Limits

Following are Vibration Velocity Limits (in/sec), under no load conditions:

- 0.20 in/sec or less is NORMAL.
- 0.20 to 0.40 in/sec - Identify and correct source of vibration.
- Greater than 0.40 in/sec - Shut down Mill. DO NOT run until source of vibration is corrected.

SYSTEM: #44 Pulverizer

LUBRICATION CHART

Equipment Section	Parts to be Lubricated	Method of Application	Lubricant Selection	Frequency	
				Replenish	Change
Mill	Pillow Block	Fill Plug	Chevron AW Hydraulic #68	Every Week	Every Month
			Exxon Teresstic #68		
			Mobil Vactra Heavy Medium		
			Mobil DTE Heavy Medium		
			Sheet Tellus Oil #68		
			Sunoco Sunvis #831 or #931		
			Texaco Regal Oil R&O #46		

Assembly Instructions

Changing Screens

- Stop feeding the Pulverizer but keep the Mill running until the grinding chamber is empty.
- Stop Main Motor.
- Disconnect Main Power Switch, lock it out, and tag it out.
- Loosen and remove all bolts securing the housing cover.
- Remove the cover up and away from the Main Body. Using a suitable lifting device, DO NOT work on the mill while cover is suspended over head.
- Loosen the four Screen Cam Locks by using two wrenches; one to hold the cam and one to loosen the locknut.
- Remove End Dust Seal opposite to Feed End.
- Pull up on the Screen at the end opposite the Feed End while pushing down on the Screen at the Feed End to slide the Screen out of its retaining groove.
- Before installing a new Screen, clean the guide groove.
- Slide new Screen in the retaining grooves. If the grooves are clean, the screen will slide very easily, with little effort.
- Center the Screen in the retaining grooves and lock it in place with the Screen Cam Locks. Use two wrenches on each Cam Lock. One wrench should be used to turn the cam so that it pinches the Screen between the Cam and the inner radius of the retaining groove. Use a second wrench to snug the lock nut and secure the Cam in place.
- The two Cams on each end of the Screen should be snugged as a pair so that the Screen is not distorted.
- Once all the Cams have been snugged, check to insure that the Screen is not distorted and then tighten all four lock nuts. You must use two wrenches, one to hold the Cam in place and one to tighten the lock nut.
- Clean and check End Dust Seals. Replace the seals if the gasket material is worn.

Make sure that the gasket is oriented so that it faces up to seal against the cover and 180° toward the center of the grinding chamber to seal against the Screen.

- Clean pads for the Cover. This surface MUST BE completely clean.
- Clean the Cover Mounting surface.
- Install the Cover. Check that all bolts are properly tightened.
- Rotate Rotor by hand to make sure it rotates freely.
- Connect Power and start the unit.

Changing Hammers and Rotor:

Note: Worn hammers can significantly reduce output capacity. A spare set of hammers should be kept on hand in the event an unscheduled replacement is required. The design of the rotor assembly allows for replacement of hammers without removing the rotor assembly.

- Stop feeding the Pulverizer but keep the Mill running until the grinding chamber is empty.
- Stop Main Motor.
- Disconnect Main Power Switch, lock it out, and tag it out.
- Loosen and remove all bolts securing the housing cover.
- Remove the cover up and away from the Main Body using a suitable lifting device. DO NOT work on the mill while cover is suspended over head.
- If Hammers are to be replaced, make sure that the balanced hammers are installed in the proper position. Each packaged set of new Hammers contains two equally weighted rows that must be installed 180° apart. Also, make sure that the gap between the hammers are staggered in such a way that the gap in one row is not in line with the gaps in the adjacent rows.
- To remove and replace the hammers, first remove the countersunk screws and nuts that prevent the rotation of the king pin retaining disc. The two 3/4" holes in the retaining disc allow the removal of the king pins. Line up the holes in the retaining disc with a pair of king pins located 180° apart. These two rows make up a hammer set and must be replaced at the same time with a packaged set of balanced hammers. The packaged sets contain two rows of left handed or right handed

hammers. Left and right handed hammers must be installed in alternate rows. The flat face of the hammer should impact the feed material as it enters the grinding chamber and propel it up toward the liner (See Fig. 1 and 2).

- Always rotate the king pin retaining disc in the same direction. Once all the hammers have been replaced, reinstall the countersunk screws and nuts on the retaining disc. Use locktite to prevent them from loosening.

Note: Never replace individual hammers. Always use complete sets that are properly balanced.

- Stop feeding the Pulverizer but keep the Mill running until the grinding chamber is empty.
- Stop Main motor.
- Disconnect Main Power Switch, lock it out, and tag it out.
- Loosen and remove all bolts securing the housing cover.
- "Remove" the Cover from the Main Body using a suitable lifting device. Do not work on the Mill while the cover is suspended above.
- Remove Pillow Block Bolts.
- Remove Rotor assembly using nylon slings at both ends of the shaft. DO NOT sling through hammer stirrups. Rest the Rotor Assembly on Pillow Blocks.
- Before reinstalling the Rotor in the mill, check that all components in the grinding chamber are serviceable (Screen, End Dust Seal, etc.).
- Before installing the Rotor Assembly, clean and inspect all machined surfaces. These surfaces must be completely clean.
- Install Rotor Assembly onto locating dowel pins and press both Pillow Blocks down to seat on the Main Body. **PILLOW BLOCKS ARE NOT TO BE SHIMMED.**
- Check for free rotation of the Rotor by hand ensuring that there is no interference with the Rotor.
- Secure the Cover to the Feed Trough and Main Body.

- Install the bolts holding down the Cover.
- Check the oil level in the pillow blocks. Fill if necessary. See Section Six.
- Install belts and belt guard.
- Jog the main motor to check again for interference of the Rotor Assembly.

Changing Bearings

- Stop feeding the Pulverizer but keep the Mill running until the grinding chamber is empty.
- Stop Main Motor.
- Disconnect Main Power Switch, lock it out, and tag it out. Follow Cover Removal instructions in this Section.
- Remove belt guard.
- Loosen motor mounting bolts and move motor to loosen and remove drive belts.
- Remove Drain Plugs from Pillow Block and Drain oil.
- Remove Pillow Block Bolts.
- Remove Rotor Assembly using nylon slings at both ends of the shaft. Rest the Rotor Assembly on Pillow Blocks.
- It is recommended that the hammers be removed prior to performing bearing removal and installation. (Follow the instructions on page 18) If the same hammers are to be used again, they must be marked and stored so that they can be replaced on the Rotor in their original locations and the Rotor will remain balanced.
- Loosen and remove the outboard Flinger.
- Loosen the four bolts securing the inboard end cover to the Pillow Block Housing. separate the end cover from the Pillow Block. If gasket is damaged, replace with new gasket.
- Remove the Pillow Block from the Bearing and shaft. Inspect the bore of the Pillow Block for indications of the bearing outer race spinning.

- Unlock lock-washer tab from locknut. Loosen and remove locknut and lock-washer.
- Use a bearing puller behind the inner race of the bearing to remove it. The shaft journal should be inspected to determine proper dimensions. Should the bearing become seized on the shaft, other methods of removal may be necessary. If this becomes necessary, the shaft journals should be inspected prior to installing new bearings. Contact the Service Department for assistance.
- Once the shaft journal has been determined to provide a proper fit, the new bearing should be installed using a bearing heater.
- Bearings should be evenly heated to 240°F on the inner race for proper installation on the shaft. Precautions should be taken to protect against burns.
- The shoulder on the shaft should make contact with the inner race of the bearing.
- Install lock-washer and locknut. Insure that lock-washer tab is bent into locknut slot.
- Apply a thin coat of oil to bore of the Pillow Block and slide Pillow Block over bearing evenly.
- Secure inboard end cover to Pillow Block with four bolts.
- Install and secure outboard Flinger. Flinger is not to make contact with Pillow Block Housing.
- Repeat above steps for opposite side. It is recommended that both bearings be changed during the same disassembly operation.
- Before installing the Rotor Assembly, clean all machined surfaces. These surfaces should also be free of nicks or peens.
- Complete the installation.

Changing V-Belts

- Stop feeding the Pulverizer but keep the Mill running until the grinding chamber is empty.
- Stop Main Motor.

- Disconnect Main Power Switch, lock it out, and tag it out.
- Remove V-Belt Guard.
- Loosen Belts by sliding Main Motor on rails.
- Remove Belts and install a new matched set.
- Adjust Belt tension (Follow instructions in Section Four).
- Install Guard.

<u>Equipment Section</u>	<u>Symptoms</u>	<u>Possible Cause</u>	<u>Remedy</u>
Mill	Mill stops - Starter heaters overload	a.-Feeding too fast b.-Rotating backwards	Slow Feeder Reverse rotation
		c.-Foreign object jamming rotor d.-Screen is blinding	Remove object See following symptom
		Material stays on screen	
	Screen is blinding	a.-Material is too sticky b.-Material is melting	Reduce stickiness of feed material Cool material and/or air
	Material is blowing out of the mill	a.-Air inlet and/or exhaust are closed b.-Cover not tight c.-Incorrect rotation d.-Screen has blinded condition e.-Discharge chute is full or plugged	Open intake and/or exhaust Clear obstruction and secure cover. Reverse rotation See above symptom Turn off machine and empty chute/hopper. Determine loss of conveying air at discharge.

Equipment Section	Symptoms	Possible Cause	Remedy
Mill	Premature bearing failure	a.-Improper lubrication b.-Incorrect lubrication level	Provide specified oil Keep oil to specified level
		c.- Wrong bearing	Procure correct bearing
		d.-Rotor imbalance	Balance rotor
		e.-Improper hammer installation	Install hammers per instructions
		f.-Heavy and/or inconsistent feeding material	Adjust feed mechanism to deliver material at a slower rate
	Change in product particle size	a.-Feed material has changed (in composition or size)	Adjust feed or change screen to compensate
		b.-Worn or damaged screen	Replace screen
	Variation in Mill Moto load (amperage)	a.-V-belts slipping	Adjust belt tension
		b.-Feed rate varying	1. Check feed supply 2. Check feeder operation
		c.-Inconsistent feed material	Adjust preparation of feed material

Equipment Section	Symptoms	Possible Cause	Remedy
Mill	Reduced capacity	a.- Worn hammers b.- Worn liner	Replace with new set Replace with new liner
		c.- Reduced rotor speed	Check drive for worn or loose V-belts. Replace belts with matched set. For direct drive, check coupling installation
Note: For any problems not identified here, please contact MPS Service Department			

#44 Pulverizer Mill Types

#44 Pulverizer Rotor Types

Bill of Materials

Spare Parts List

Equip. Sec.	Assem. Type	Ref. #	Part Description/Name	Qty. Req.	Stock No.
Mill	#44 (Fig. 5)	1	Main Body		
		2	Screen Tightening Cam	4	
		3	Spacer Spools, 2" OD x 1" ID x 1" Wide - CRS		
		4	Fibre Washer, 1 3/4" OD x 1" ID x 1/16" Wide		
		5	Fibre Washer, 2 1/8" OD x 1" ID x 1/16" Wide		
		6	1" Hex Nut		
		9	Main Body Screen End Dust Seal Assemblies	2	
		10	Screen End Dust Seal Ledge Angle		
		11	Screen End Dust Seal - Neoprene		
		12	Mill Housing Cover Assembly		
		13	Mill Housing Cover		
		14	Multiple Deflector Liner		
		15	Air Inlet Control Gate, Right Hand		
		16	Air Inlet Control Gate, Left Hand		
		17	Mill Housing Cover Lift Bracket	2	
		18	Feed Trough Assembly		

Bill of Material

SYSTEM: #44 Pulverizer

Equip. Sec.	Assem. Type	Ref. #	Part Description/Name	Qty. Req.	Stock No.
Rotor	#44 Pillow block (Fig. 6)	20	Pillow Block Housing (Opp. Drive Side) - CI		
		21	Pillow Block End Cap (Opp. Drive Side) - CI		
		22	Pillow Block Housing (Drive Side) - CI		
		23	Pillow Block End Cap (Drive Side) -CI		
		24	Flinger Bore -CI		
		25	Flinger Bore -CI		
		26	Gasket-Vellumoid		
		25	Oil Cup (not shown)		
		27	1/4" Pipe Plug		
		28	Bearing		
		29	Lock Nut		
		30	Lock Washer		
Rotor	#44 LFS (Refer to Fig. 7)	31	Rotor Shaft and Disc Assembly, Bare		
		32	LFS Hammers with King Pins		

SYSTEM: #44 Pulverizer

Spare Parts

Equip Sec.	Drawing No.	Ref. No.	Part Description/Name	Qty. Req'd	Cost	Lead Time	Stock Number
Mill			Hammers				
			Liners				
			Screens				
			Rotor Bearings				
			King Pins				

Figure 1

#44 Mikro-Pulverizer

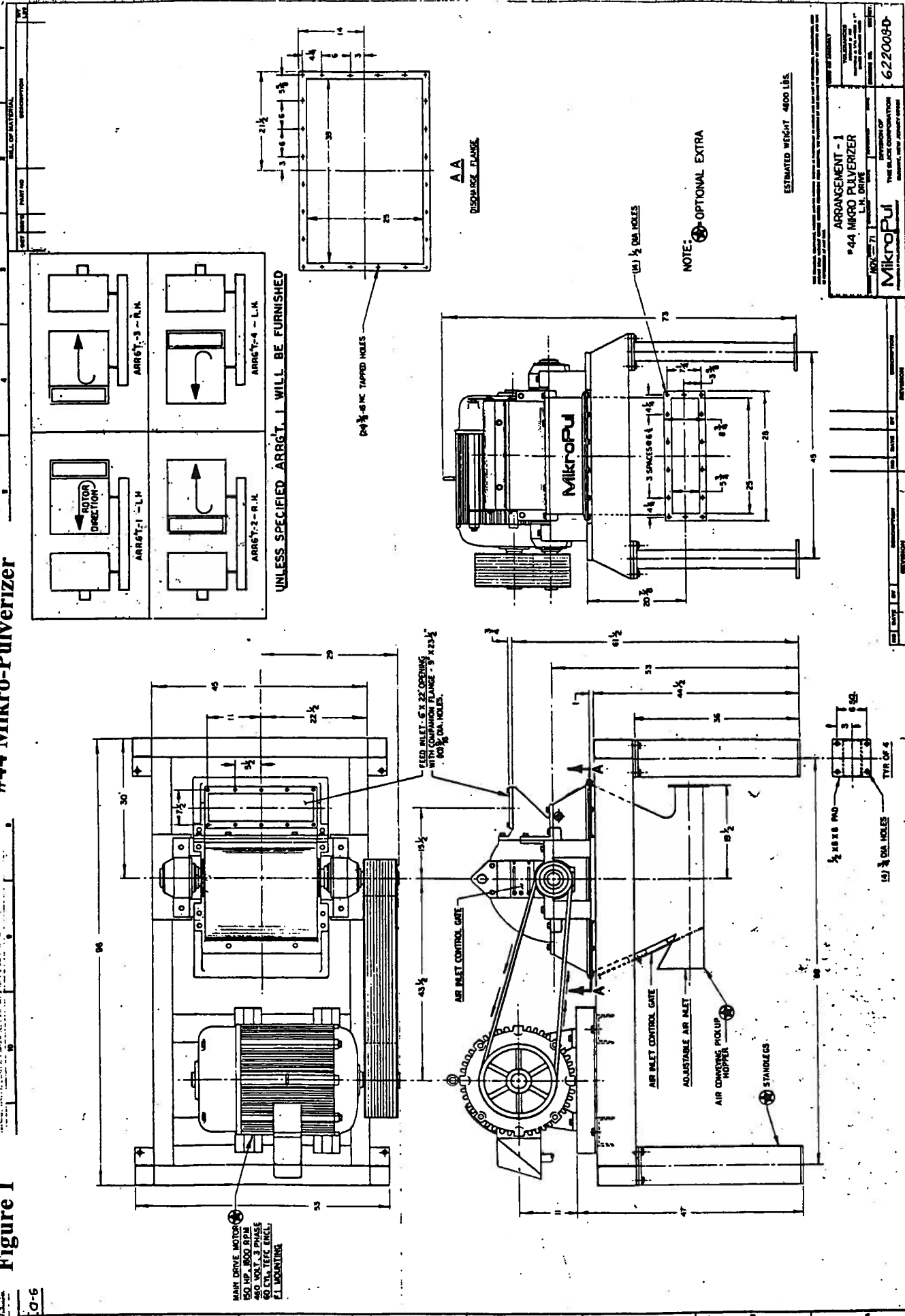


Figure 2

#44 Mikro-Pulverizer

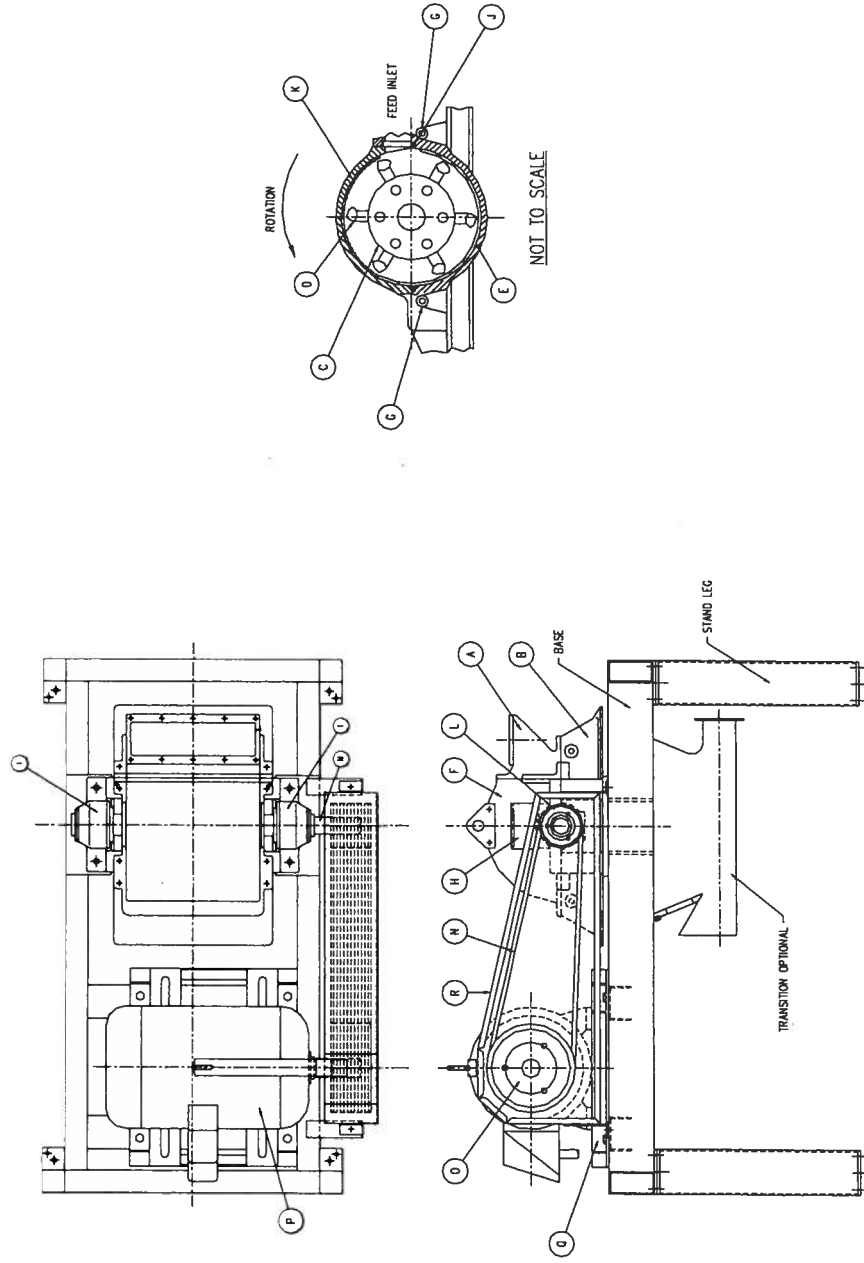


Figure 4

#44 Mikro-Pulverizer

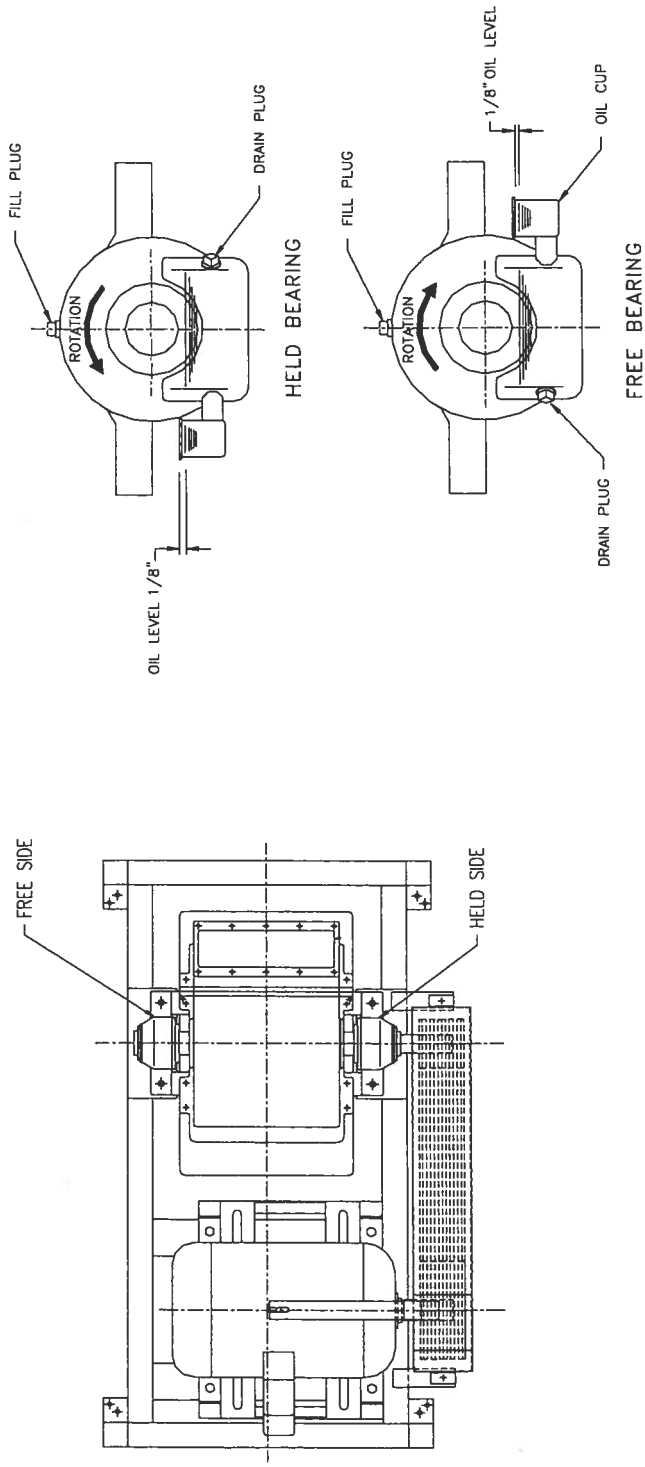


Figure 5

#44 Mikro-Pulverizer

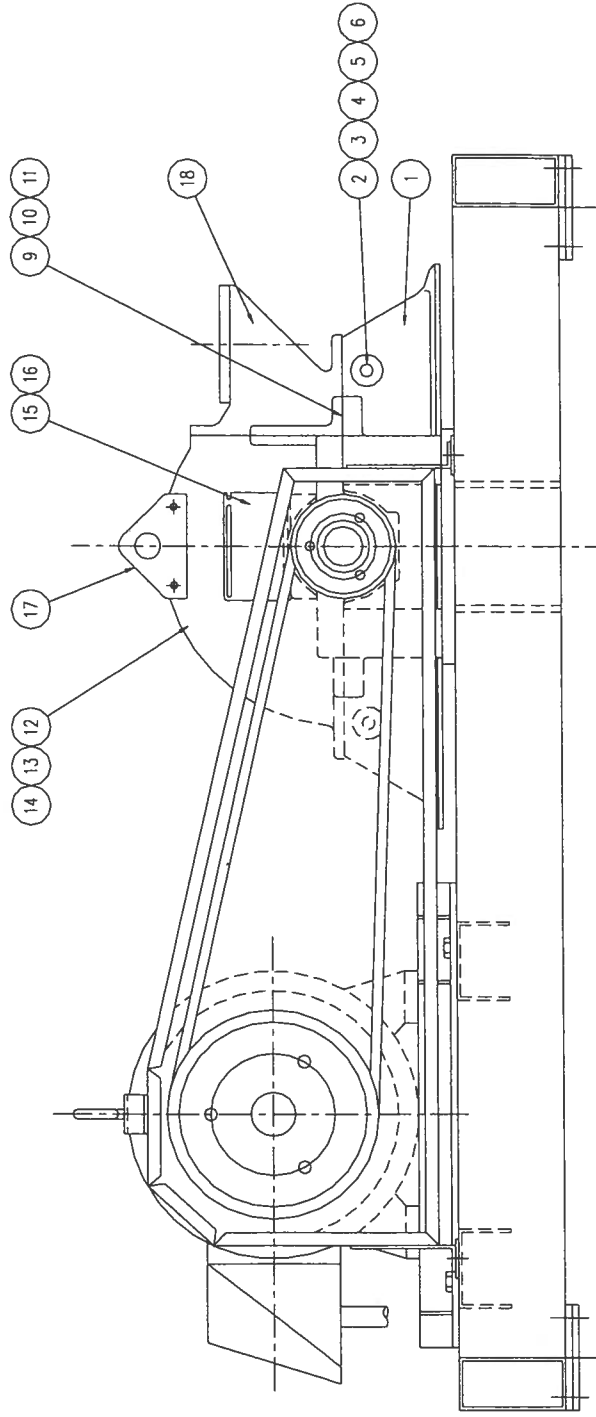


Figure 6

#44 Mikro-Pulverizer

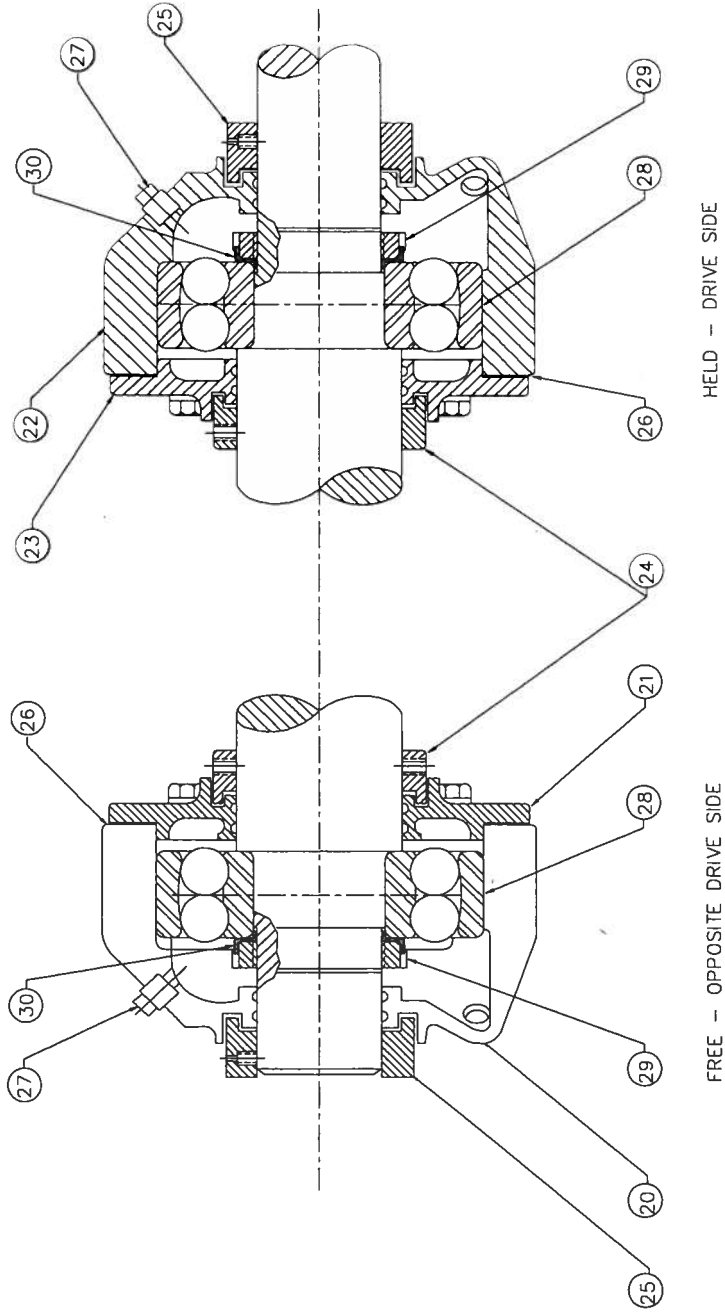
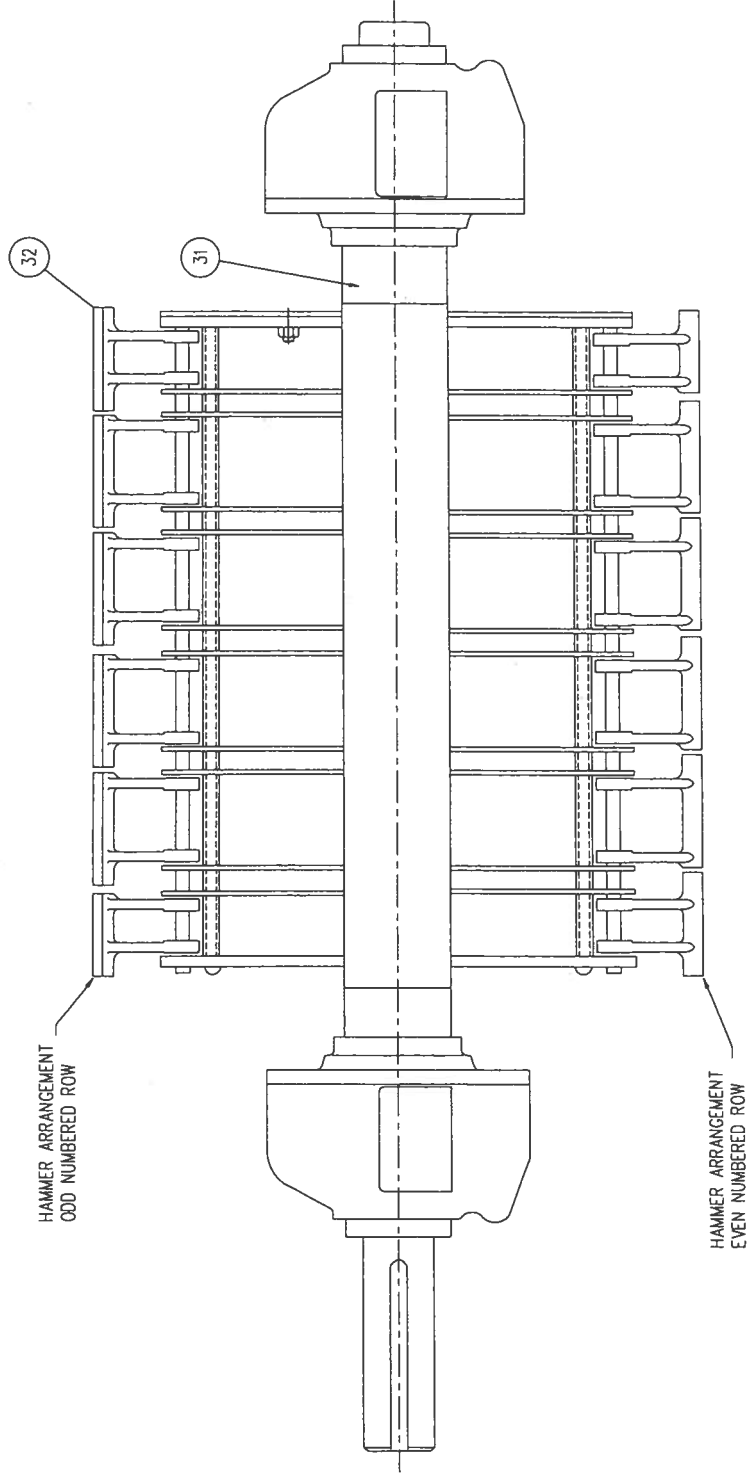


Figure 7

#44 Mikro-Pulverizer



LIGHT FORGED STIRRUP HAMMER