DIXIE GRINDERS INC.

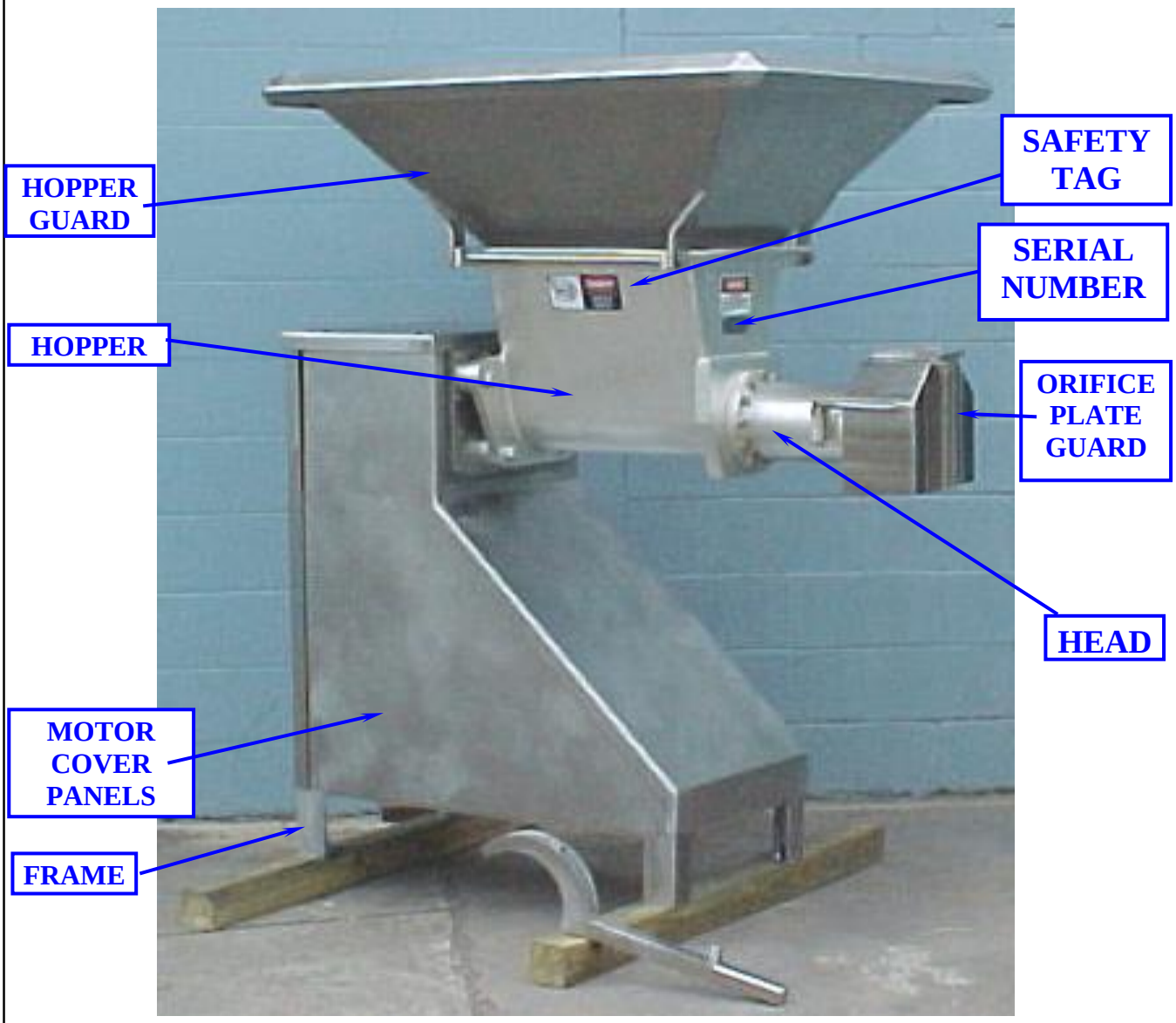
1324 RAILROAD AVENUE GUNTERSVILLE, AL 35976
(800) 745-0586 (256) 582-0477 FAX (256) 582-0478

MODEL 160MM GRINDER UNIT

CAUTION

THIS MANUAL MUST BE READ TO, OR BY EACH PERSON, BEFORE THAT PERSON OR DEPARTMENT UNCRATES, OPERATES, MAINTAINS, OR SUPERVISES USE OF THIS MACHINE IN ANY WAY.

SAFETY INSTALLATION OPERATION MAINTENANCE



TYPICAL DIXIE 160MM GRINDER

LISTED BELOW IS THE DEFINITION OF THE HAZARD LEVEL USED ON THE SAFETY STICKERS.

DANGER

IMMEDIATE HAZARDS WHICH WILL RESULT IN SEVERE PERSONAL INJURY

KNOW YOUR MACHINE

READ OPERATING & SERVICE INSTRUCTIONS BEFORE INSTALLING PARTS OR SERVICING MACHINE IN ANY MANNER, BE SURE THAT MACHINE IS STOPPED AND ALL POWER IS OFF AND LOCKED OUT. THIS INCLUDES ELECTRICAL, HYDRAULIC, AIR, STEAM, ETC. FAILURE TO FOLLOW THIS RULE, OR TO PRACTICE SAFE OPERATING PROCEDURES CAN RESULT IN SEVERE PHYSICAL INJURY.

INTRODUCTION

A Grinder Unit is a type of size reduction machine. Its primary purpose is to grind meat, meat by-products, and other similar products.

The primary grinding components are a plate retaining ring, orifice plate, plate bushing, knifeholder with knife inserts, centering pin, spring or springs, head, feedscrew, hopper, gearbox, and drive pulleys. In most instances an electric motor drives the grinder unit.

This unit is mounted on a undermount frame (as shown on cover) or sidemount frame.

Standard safety equipment includes a belt guard, a hopper guard, and a plate guard. If a transition funnel is used, the plate guard is not required.

It is important that your application, and/or installation does not render these guards ineffective. If for any reason you believe these guards are not adequate, do not use the machine and call Dixie Grinders Inc. at once. (256) 582-0477 OR (800) 745-0586.

This machine was sold for a specific application. If you are not familiar with the application that this unit was sold for, check with Dixie Grinders Inc. before using the machine.

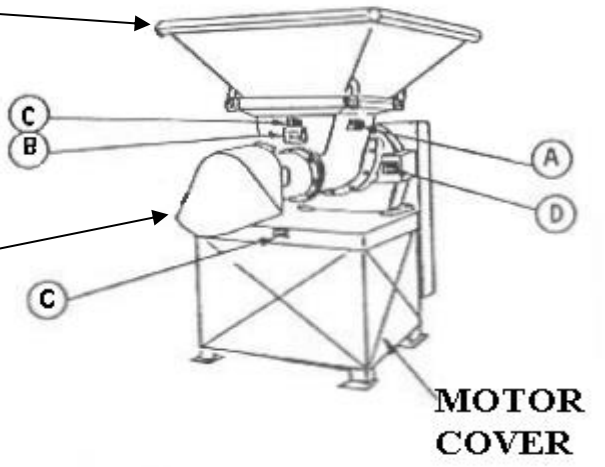
All operators and sanitation personnel should read this manual and understand it.

THE HOPPER GUARD AND PLATE GUARD MAY NOT BE ATTACHED FOR SHIPPING!

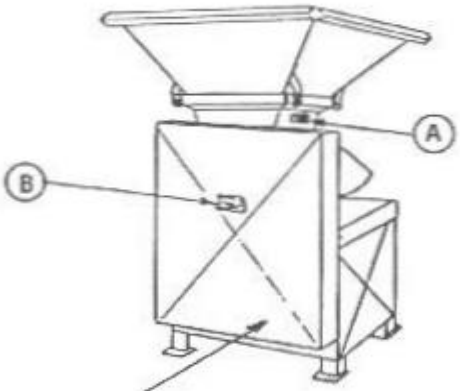
FAILURE TO USE GUARDS WHILE THE GRINDER UNIT IS IN OPERATION MAY RESULT IN SEVERE INJURY OR DEATH!

THE HOPPER GUARD IS PROVIDED TO RESTRICT ACCESS TO THE ROTATING FEEDSCREW!

THE PLATE GUARD IS PROVIDED TO RESTRICT ACCESS TO THE PLATE, THE KNIFEHOLDER, AND THE FRONT END OF THE FEEDSCREW!



REPLACE SAFETY TAGS WHEN NECESSARY! CALL DIXIE GRINDERS INC. FOR REPLACEMENT SAFETY TAGS.



TAG C 2 EA. (ON FRONT OF HOPPER AND FRONT OF FRAME)

THE BELT GUARD IS PROVIDED TO RESTRICT ACCESS TO THE V BELTS AND THE ROTATING PULLEYS!

TAG A 2 EA. (ON SIDES OF HOPPER)

TAG B 2 EA. (ON BELT GUARD AND ON HOPPER FRONT)

"THE GRINDER HAS ARRIVED"

LIFT EQUIPMENT REQUIRED:
We recommend using a 5,000 pound capacity fork lift with 48" or longer forks. Do not attempt to unload the grinder unit from a commercial van from ground level! Only authorized and properly trained equipment movers should attempt to unload the grinder unit. Remember to Work Safely!

PRE-UNLOADING INSPECTION:
Before the grinder unit is unloaded, inspect the unit for any damage before unloading. If the machine is damaged consult your management, the trucking company, and Dixie Grinders Inc. before unloading the machine!

UNLOADING GRINDER UNIT:
With the commercial van properly chocked and secured to the loading dock, and using only approved and adequate dock plates should any attempt be made to unload this machine. Lift only under the grinder frame, never attempt to pick up a grinder from the hopper or gearbox. The forks should be long enough to extend beyond the end of the frame a safe distance. Unload the grinder unit and all parts that have been shipped with the grinder unit. Consult the packing slip to insure that all pieces have been unloaded.

UNPACKING:
When the grinder has been properly unloaded it should be placed in a suitable location for unpacking. The belt guard protector and the shipping skids may be removed. Remove any spare parts that may have been shipped in the grinder hopper. Use appropriate equipment and appropriate personal safety equipment in this process. Remember to Work Safely!

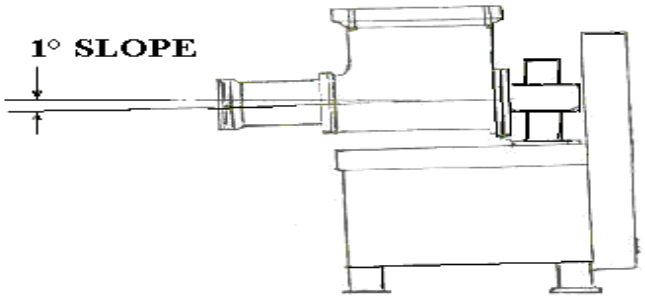
SITE CONSIDERATIONS:
It is important that the permanent position of the grinder unit provides clearance of several feet behind, to either side, and approximately eight feet or more in front of the grinder unit.

If the grinder is set on a stand, or leg extensions are attached, an adequate platform must be provided to provide safe access to the grinder unit. It will be necessary to have an approved platform or device to provide access so the unit can be properly sanitized, disassembled, assembled, and maintained. Consideration must be given to allow for complete service to the grinder unit.

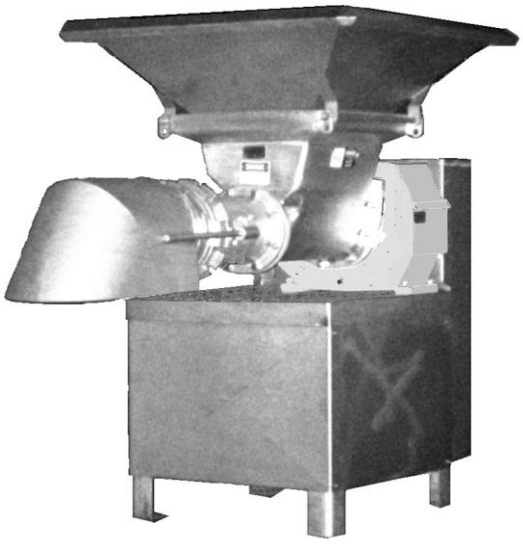
Platforms should be so designed not to make the hopper guard, or other guarding, ineffective. The hopper guard is not a hopper for holding a large amount of material, it is designed to keep the operator away from the feedscrew. If the location of this grinder unit compromises this feature, special guarding may be necessary. Consult your Safety Engineer, Plant Engineer, and O.S.H.A. for all regulations related to the guarding of this machine.

Only the feedscrew puller and ring lift can be attached to the grinder unit directly. Do not use the grinder frame to support other equipment without prior approval from Dixie Grinders Inc. The grinder frame is not to be used as a personal stand, and under no circumstances should anyone be allowed to climb on it or use it as a platform. Remember to Work Safely!

INSTALLATION:
The machine can be installed in its permanent position after the skidding has been removed. Use only adequate equipment and properly trained personnel to install the grinder in its permanent position. Use great care in moving this equipment, it is heavy and must not be tipped, tilted, jarred or jammed into position. We recommend a 1° slope to allow water to drain from the grinder unit.



UNIT CONTROLS.



Dixie Grinders Inc. does not supply motor controls, starters, stop/start stations, disconnects, or other related equipment that is required to control the function of the grinder unit.

We recommend serious consideration is given to the location of the start/stop station.

We strongly recommend that additional stop stations are located where deemed appropriate.

Disconnects that can be locked out should be so located that employees that have to operate, service, and sanitize the unit can lock the unit out. Each employee that has to work on this machine should be given a lock and key and trained in proper procedures for LOCK OUT/TAG OUT!

Please consult with your Safety Engineer, your Electrical Engineer, and O.S.H.A. for all regulations related to the controls and wiring for this machine.

We do not recommend the use of wye-delta or star delta starters. In some areas this is required. If your machine must be wired this way the operators must understand that they cannot begin to grind product until full power is supplied to the grinder feedscrew. If there is product in the grinder hopper before the unit is turned on, the grinder may not have enough torque to start grinding in the reduced torque condition.

Frequency controllers are very useful, but with the exception of a grinder connected directly to a pump unit or mechanical deboner, the use of a frequency controller on a grinder unit is usually not necessary. We do recommend a frequency controller or some form of speed control is used to feed the grinder, and often to take the product away from the grinder.

We do not recommend remote operation of any grinder unit unless special precautions are taken, and that all possibilities of employee injury are eliminated.

DISASSEMBLY TOOLS:
If the grinder is not located on floor level make no attempt to disassemble the grinder unit without an adequate platform or provisions provided by the installation contractor, plant engineer, or plant safety officer. The grinder has many parts that have square edges and cutting edges. Adequate safety equipment should be used at all times!

After the grinder has been installed in its permanent position, it can be disassembled.

The tools described below are for both disassembly and assembly of the grinder unit.

<u>Ring Wrench</u>
The Ring Wrench fits over the lugs of ring and is used to loosen the ring (counter clockwise), or tighten the ring (clockwise)

The end of the ring wrench fits into the end of the feedscrew and it can be used to engage the feedscrew to the drive spline.

Note:
Wear appropriate safety equipment and remember to always "Work Safely".

GRINDER UNIT DISASSEMBLY:

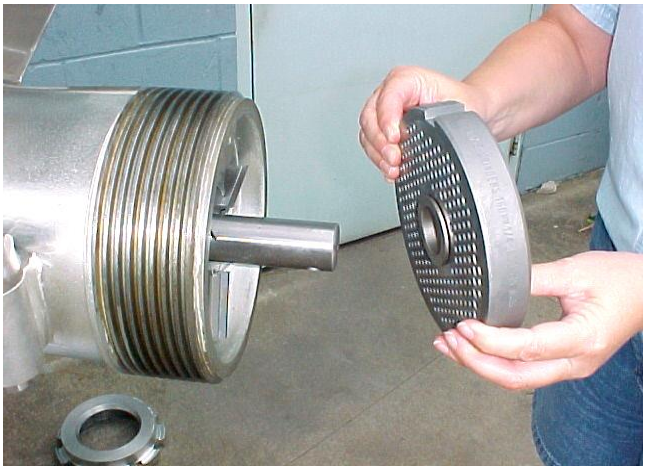
READ AND UNDERSTAND THE FOLLOWING TAG.

When the grinder unit has been properly secured, disassembly can begin.
<u>Step 1.</u> Using the ring wrench, loosen the ring by exerting downward pressure, as shown, turning the ring counter clockwise.

<u>Step 2.</u> When the ring has been loosened turn it off by hand, and remove it from the grinder.

Step 3. **PLATE REMOVAL:**
Grip firmly on the bushing, lifting and pulling outward to remove the grider plate.

POWER LOCKED OUT!

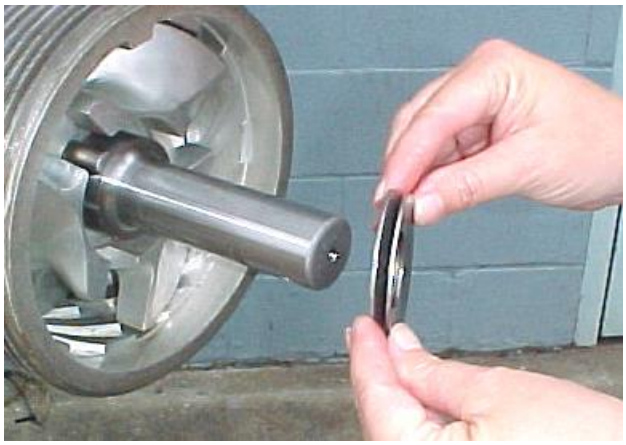


Sterp 4. Remove the bushing from the plate

POWER LOCKED OUT!

Step 5. **Remove Knifeholder**

Step 6. **Remove the Springs**



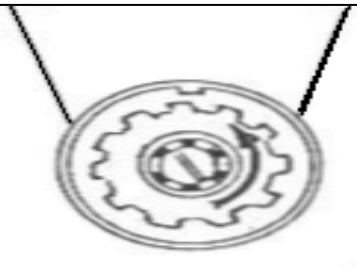
Step 7. **Remove the Centering Pin**

<u>Step 7, continued.</u> Remove the Centering Pin, don't loose the key!

<u>Step 8.</u> Remove the feedscrew. Get help if it is too heavy for you.

<u>Step 9.</u> Remove the excluder seal.

<u>Step 10.</u> Inspect the adjustment bolt



ROTATION: When the grinder unit has been disassembled, and then wired according to all applicable codes and regulations, rotation can be checked. Do not turn the unit on until you are positive that no one is in harms way! The grinder feedscrew should turn counterclockwise! After the rotation has been checked LOCK OUT THE POWER!

SANITATION: Appropriate clothing should be worn, and all safety precautions should be taken before cleaning any equipment. Typical grinder units have tin plated feedscrews, heads, rings, and often the grinder hopper is also tin plated. Before you begin to clean your machine, make sure any commercial cleaning agents are approved for cleaning tin plated surfaces. If no mention of tin is on the label but the cleaner is not recommended for aluminum do not use it unless you have contacted the cleaner manufacturer for their recommendations. Do not use high pressure streams of water to clean a grinder unit. It is possible to drive water past the oil seals and damage the gearbox.

Do not allow any cleaning agent to sit on the tin plated surfaces for an extended period of time. Apply the soap, and rinse it off immediately!

After cleaning, rinse the unit with large quantities of hot water. We strongly recommend drying the unit and applying a liberal amount of mineral oil to all tin plated surfaces. If the machine is not going to be used for an extended period, apply a coat of edible grease to all surfaces and wrap the grinder in plastic.

SANITIZERS: Iodine sanitizers. Iodine reacts with tin. If the Iodine is in sufficient strength and has been on the tin plated surfaces long enough it will turn anything that touches the surface deep purple. Other sanitizers also may react with tin plated or stainless steel surfaces. Check label instructions before using. If you notice that the tin plating is coming off of your grinder unit contact Dixie Grinders Inc.

UNIT ASSEMBLY: Please study all of the grinder parts shown on the exploded view before you attempt to assemble the grinder unit. The exploded view is at the rear of the maintenance instructions. (These instructions assume that the grinder unit has not been disassembled any further than the instructions already given.)

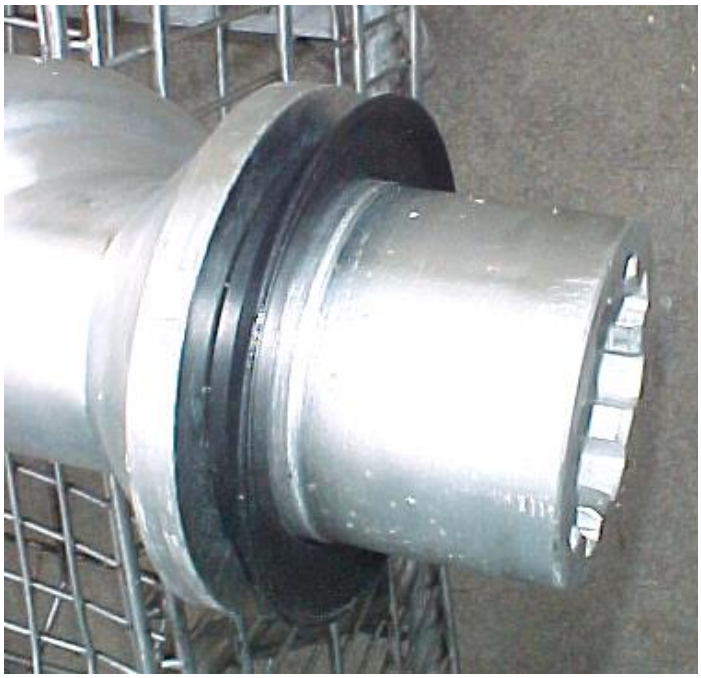
MAKE SURE THE POWER IS STILL LOCKED OUT BEFORE ASSEMBLY.

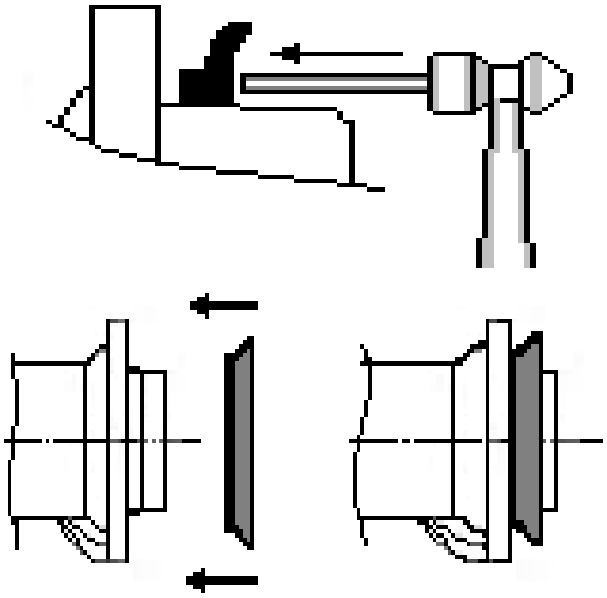
UNIT ASSEMBLY:

Please study all the grinder parts shown on the exploded view before you attempt to assemble the grinder unit. (The exploded view follows the Maintenance section.) **(These instructions assume that the grinder unit has not been disassembled any further than the instructions have already given.)**

<u>Step 1.</u> Inspect the excluder seal. It should be clean and free of nicks, cracks, or tears. If the excluder seal is damaged it should be replaced.

It may be necessary to tap the excluder seal in position. Use a rounded punch and soft taps to help it in its proper position. Do not use a screw driver or other pointed objects. Push only around the center of the seal, do not push on the soft lip. Apply force at the hub of the seal, as shown. The lip of the excluder seal faces out, and contacts the hopper flange.





Apply a small amount of edible grease, vegetable shortening, tallow, lard, chicken fat, bear fat, or some other lubricant to the face of the seal. **(Check with your Quality Control Dept. and your USDA representative for approved materia**

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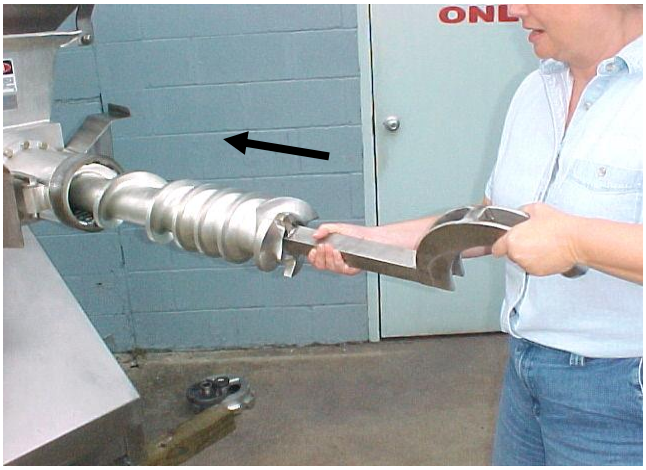
FAILURE TO FOLLOW THIS RULE, OR TO PRACTICE SAFE OPERATING PROCEDURES CAN RESULT IN SEVERE PHYSICAL INJURY.

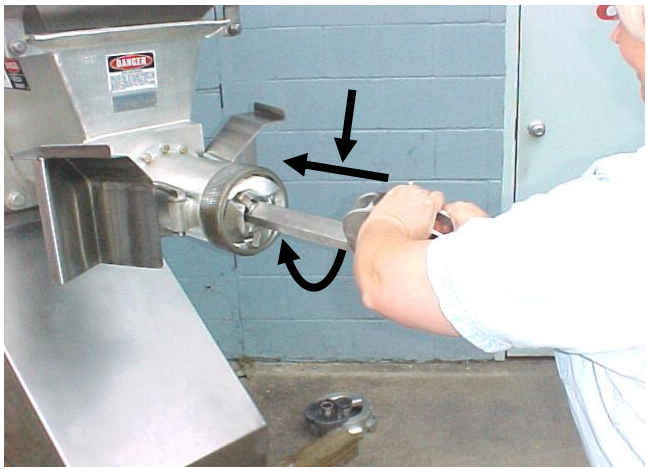
Apply a small amount of the same lubricant to the spline teeth.

POWER LOCKED OUT!

Step 2. Place the feedscrew into the grinder head as shown. Using the end of the ring wrench, lift up, and push the feedscrew further into the unit.



Continue to push the feedscrew in while lifting up on the handle.

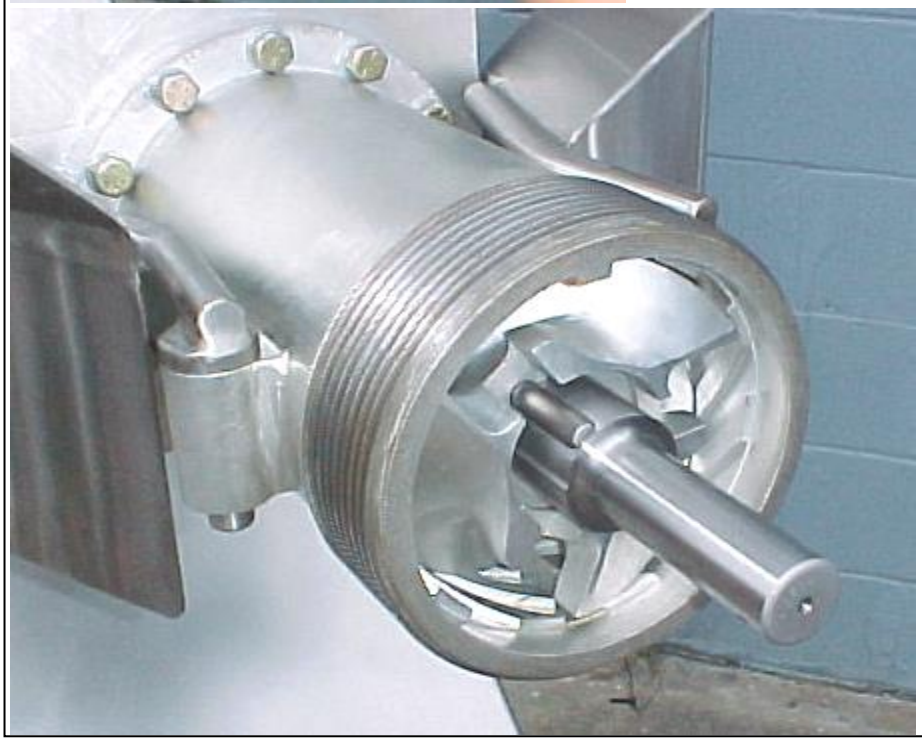


The feedscrew may stop before it is engaged on the drive spline. Push down, in, and turn the feedscrew. You will feel the feedscrew slide into place on the drive spline.

When the feedscrew is installed properly the feedscrew will be 3/4" (19mm) from the end of the head. If this distance varies, check the thrust screw, add or subtract washers to obtain the 3/4" dimension.

POWER LOCKED OUT!

<u>Step 3.</u> INSTALL CENTERING PIN. Inspect the pin to make sure it is clean and free of nicks and burrs. Replace the pin when it shows wear grooves, checks, or is worn.

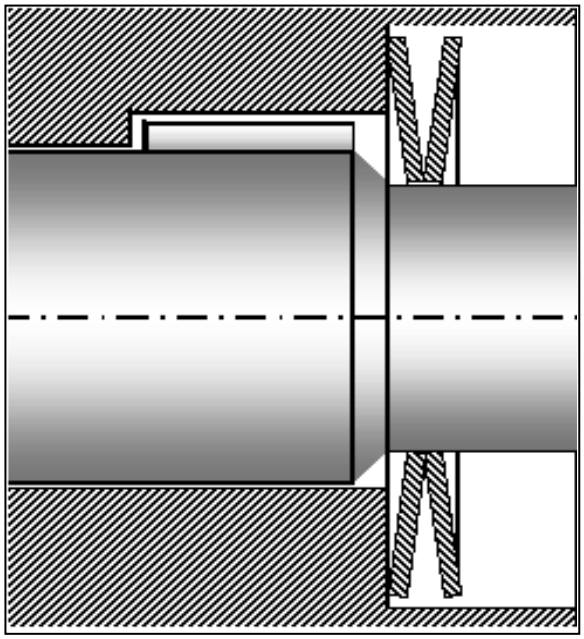


<u>Step 4.</u> Install the springs, they go in back to back.

Place the pin key into the slot in the centering pin.

The first spring cup is facing down, the second spring is cup facing out.

Do not tap the pin into place, it should slide in. The key may need to be tilted slightly so that it fits properly, but do not beat the pin into place with a hammer, it will be just about impossible to remove the pin if you do.

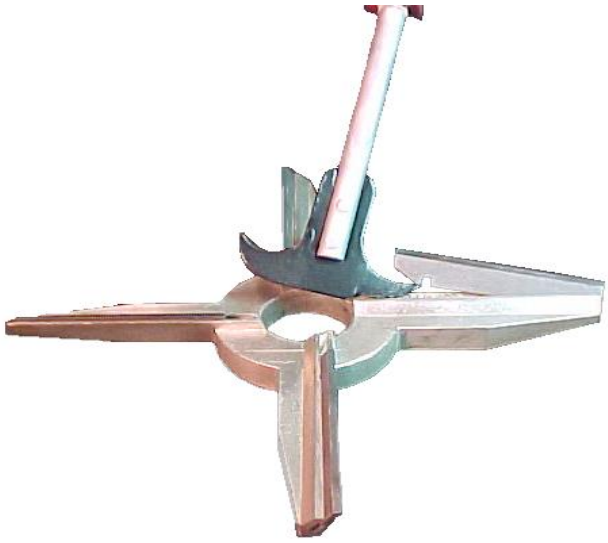


In the above illustration notice that the face at the outer diameter of the first spring is touching the counter bore in the face of the feedscrew. The second spring is opposite and will contact the knife in the same fashion. Do not stack the springs one on top of the other like dishes, this doubles the spring force and will provide too much force against the knife inserts. Do not use more than two springs.

The Belleville springs provide a better power curve than coil type springs, and are designed to provide near uniform power over the life of the knife inserts.

POWER LOCKED OUT!

Step 5. REPLACE INSERTS



Inserting the pointed end of our insert remover into the slot of the knifeholder provides a quick and easy way to remove the knife inserts. Removing them in this manner minimizes damage to the insert locating pins found in the bottom of the insert slots in the knifeholder. We recommend starting with fresh inserts at every plate change! This includes when turning the plate around.

Step 6. INSTALL KNIFEHOLDER.

The knifeholder with fresh inserts simply slides over the pin and contacts the spring. The inserts face out! Be careful, the inserts are sharp.

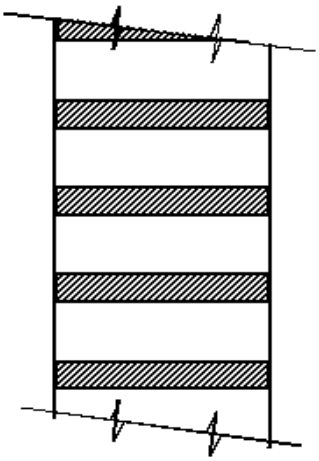
We recommend that a fresh plate surface should be used every 8 hours of operation. Operations that run empty or with hard to grind materials may have to change plate surfaces every 4 hours.

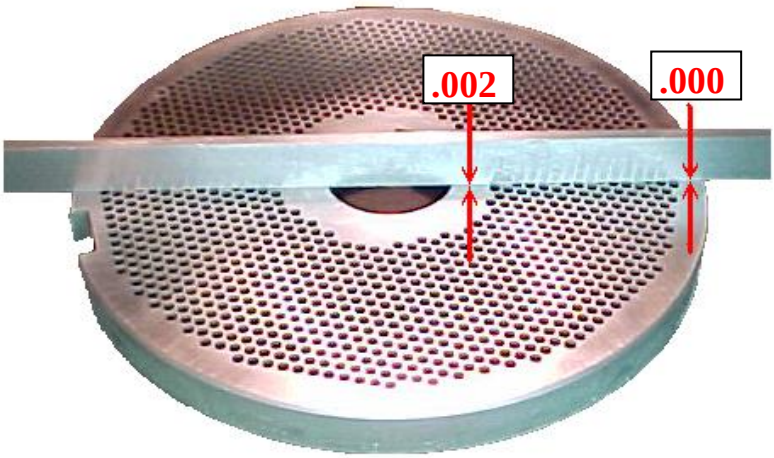
Grinder Plates should be sharpened with a vertical type surface grinder, typically called a "Blanchard Type". With this type of surface grinder the plate should be placed directly over the center of the table. We do not recommend sharpening the plates when they are placed out on the table, not directly over the center of the table.

We recommend using our grinding wheels to sharpen the plate. These specialized grinding wheels produce the correct surface finish to provide clean, cool, cutting. Plates that are not sharpened correctly will not grind even the softest of meats. The plates must be flooded with coolant when they are ground. The horsepower rating of your surface grinder will determine feed rate. The plate should be sharpened enough to restore the edge of the hole, and remove any discoloration from running empty (see Maintenance Instructions, Grinder Plates). Nicks and gouges should be ground out.

The plates should be ground perfectly flat, or slightly concave, .002 per side max.

<u>Step 7.</u> INSPECT THE ORIFICE PLATE: (This inspection is performed with the plate out of the machine.)
Sharp plates may cut you, be careful!
MIMIMUM RECOMMEND PLATE THICKNESS IS 3/4".
Inspect the plate before each use.
Inspect the edge of the holes, they should form sharp corners.
The plate should be clean.
Check for discolored plates, do not use a plate with a deep blue coloring between the holes.
Check for cracks, especially between the holes. If cracks are present, do not use the plate.
Check for grooves, broken holes, and any other defect.
Do not use defective orifice plates.





Step 8 INSPECT THE PLATE BUSHING.
The plate bushing should be clean, and free of nicks and burrs. Inspect the inside diameter, it is common to show wear because the bushing supports the weight of the feedscrew. Replace the bushing when there is .025 wear, or the inside diameter measures 1.280.
Apply a generous portion of edible grease, vegetable shortening, tallow, lard, chicken fat, or some other lubricant to the inside diameter of the bushing. (Check with your Quality Control Dept. and your USDA representative for approved materials.)

Step 9. INSTALL PLATE BUSHING.
Install plate bushing into orifice plate. Then lubricate the inside surface of the grinder plate. (The side that will be in contact with the knife inserts).

Step 10. INSTALL PLATE AND BUSHING INTO GRINDER UNIT.

Cover the inside of the plate with bear grease and slide the orifice plate with the plate bushing installed over the end of the grinder pin.

Give the plate a litte push up, while lifting on the pin and the plate should slide right into the machine.

Step 11. Install the Ring.
Apply a few dabs of bear grease to the threads on the head or ring. Screw the ring on, remember, righy tighty, lefty loosey.

Beleta is shown backing the ring up!

Tighten the ring by hand. Using the ring wrench, fully tighten ring, there is no need to pound on the wrench! Do not tip the machine over while tightening the ring. Back the ring up about one distance of one of the plate lugs. That's it, just back it up a little.

<u>Step 13.</u> Swing the plate guard closed and set the tab.

PRE-OPERATING INSTRUCTIONS.

Before operating, make sure that nothing has fallen into the grinder during the assembly process. This should be done while the power is still locked out. If the hopper is empty, proceed. If there is something in the hopper do not reach inside the hopper with your hand, use a long hook, or some other tool to extract the object.

When the grinder has been fully assembled, checked to make sure nothing is in the hopper, all operators are out of the way, and all guards are in place, the power can be unlocked.

OPERATING INSTRUCTIONS.

The grinder unit should never be left unattended while running. If you have to be away from your work station, turn the grinder off. If for any reason the grinder has to be taken apart, the POWER SHOULD BE LOCKED OUT! We recommend a strict policy that states *"Touching the grinder while the power is not locked out will result in immediate termination!"* This includes a plate change, or even removing the plate guard.

The grinder unit should be turned on only when product begins to fall into the grinder hopper. Do not turn the grinder on, then drive around the plant looking for a combo of meat to grind. When the product is ready to be ground, and has traveled up the screw conveyor, or the dumper has been raised, turn the grinder on just before product falls into the grinder hopper.

The grinder should be turned off when product stops coming out of the grinder. If the grinder is left running without product, the knife inserts will rapidly dull and generate undesirable heat. The heat generated by the inserts will damage the plate. The pin and bushing rely on the product to supply lubrication and cooling. If the grinder is left running without product, the pin and bushing will also heat up and in some instances they weld together.

Do not grind products that were not intended for this machine. All grinder units are designed for a specific purpose. A fresh meat pre grinder may not perform satisfactory on regrind, and may not be able to grind frozen meat at all.
If you are unsure of what product this grinder was designed for, please call Dixie Grinders Inc. at (800) 745-0586 or (256) 582-0477.

OPERATING INSTRUCTIONS continued. The hopper guard is a guard, not a large capacity chute or storage bin. Large pieces of fresh meat do not bridge as easily as pre-ground material, but the grinder cuts the cleanest when only the feedscrew is covered with product.

Because of the aggressive nature of this type of meat grinder, excessive amounts of product in the grinder hopper will roll. The feedscrews are made this aggressive to insure that the head is 100% full, thus maximum capacity can be achieved. The draw back to this design is that over feeding in the hopper will result in damage to the finished product. Feedscrew designs exist with lesser pitches in the hopper to reduce the rolling. We also have special hopper designs that all but eliminate product rolling.

If the grinder becomes bridged, do not attempt to free the bridge while the grinder is running. Shut the grinder off, and from a safe distance using a long fork or hook free the bridge. DO NOT FOR ANY REASON ATTEMPT TO BREAK A BRIDGE BY HAND.

If an object falls into the grinder unit that requires manual removal, the grinder must be shut off then the

POWER LOCKED OUT!

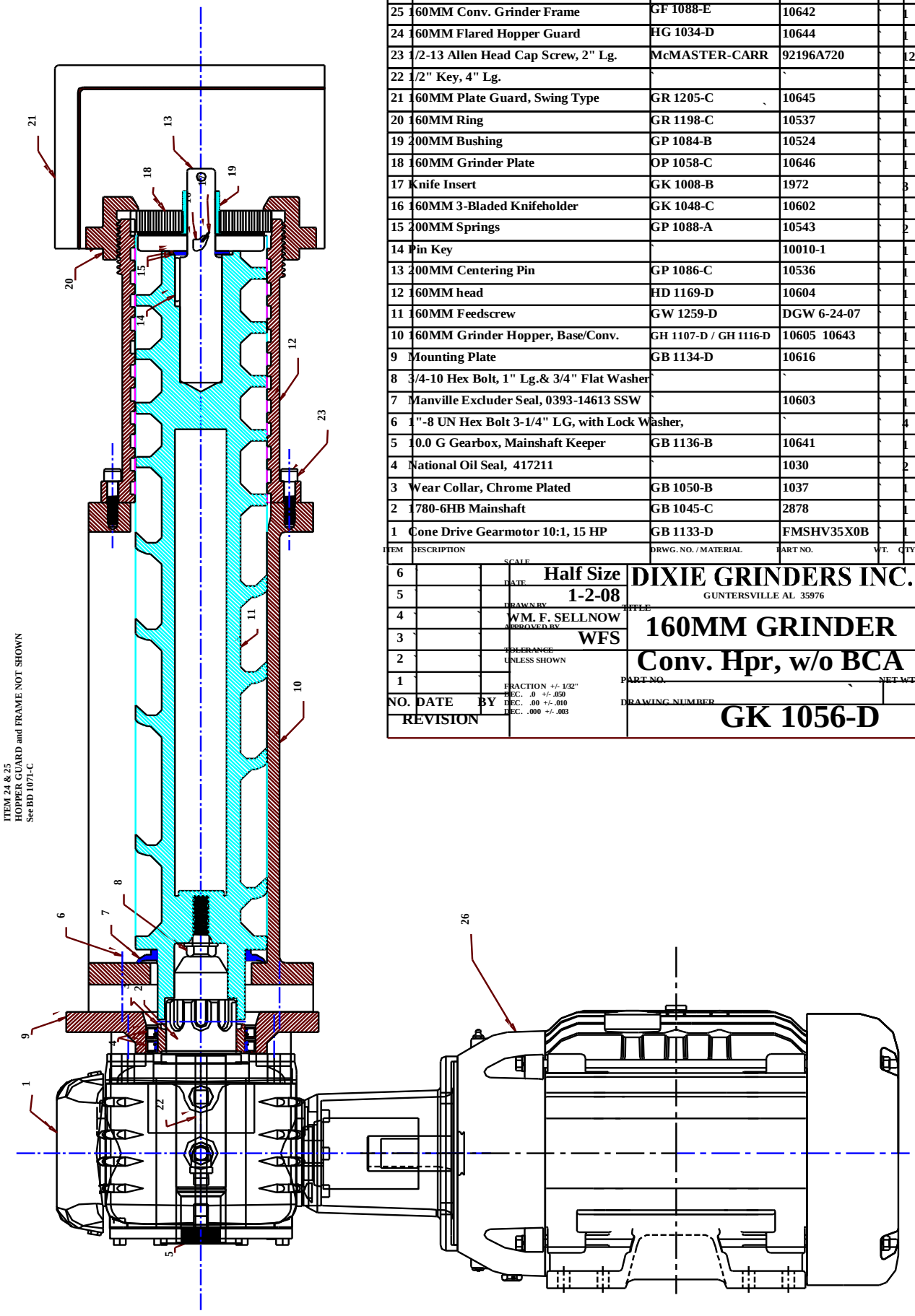
With the key to the lock in your teeth you may attempt to remove the foreign item. If you are unsure of how to lock out this machine, or you do not have a lock, see your supervisor, plant safety officer, or the plant manager and get one. THIS MACHINE MUST NEVER BE TOUCHED WITH THE POWER LIVE! This machine does not know the difference between humans, beef, pork, or fowl, so be careful.

Never operate a grinder unit while under the influence of alcohol or drugs.

Do not place your hands under the plate guard for any reason.

Do not shut the grinder off when full of product unless it is an emergency. If the grinder is full of frozen product you may damage the unit by attempting to start it when full.

Never turn the grinder on to push the plate out when taking the grinder apart! The grinder must have the power locked out and it must stay locked out during the entire disassembly process.



ITEM	DESCRIPTION	DRWG. NO. / MATERIAL	PART NO.	WT.	QTY.
27					
26	15HP TEFC MOTOR, 254TC				1
25	160MM Conv. Grinder Frame	GF 1088-E	10642		1
24	160MM Flared Hopper Guard	HG 1034-D	10644		1
23	1/2-13 Allen Head Cap Screw, 2" Lg.	McMASTER-CARR	92196A720		12
22	1/2" Key, 4" Lg.				1
21	160MM Plate Guard, Swing Type	GR 1205-C	10645		1
20	160MM Ring	GR 1198-C	10537		1
19	200MM Bushing	GP 1084-B	10524		1
18	160MM Grinder Plate	OP 1058-C	10646		1
17	Knife Insert	GK 1008-B	1972		3
16	160MM 3-Bladed Knifeholder	GK 1048-C	10602		1
15	200MM Springs	GP 1088-A	10543		2
14	Pin Key		10010-1		1
13	200MM Centering Pin	GP 1086-C	10536		1
12	160MM head	HD 1169-D	10604		1
11	160MM Feedscrew	GW 1259-D	DGW 6-24-07		1
10	160MM Grinder Hopper, Base/Conv.	GH 1107-D / GH 1116-D	10605 10643		1
9	Mounting Plate	GB 1134-D	10616		1
8	3/4-10 Hex Bolt, 1" Lg.& 3/4" Flat Washer				1
7	Manville Excluder Seal, 0393-14613 SSW		10603		1
6	1"-8 UN Hex Bolt 3-1/4" LG, with Lock Washer,				4
5	10.0 G Gearbox, Mainshaft Keeper	GB 1136-B	10641		1
4	National Oil Seal, 417211		1030		2
3	Wear Collar, Chrome Plated	GB 1050-B	1037		1
2	1780-6HB Mainshaft	GB 1045-C	2878		1
1	Cone Drive Gearmotor 10:1, 15 HP	GB 1133-D	FMSHV35X0B		1

NO.	DATE	BY	REVISION
6			
5			
4			
3			
2			
1			

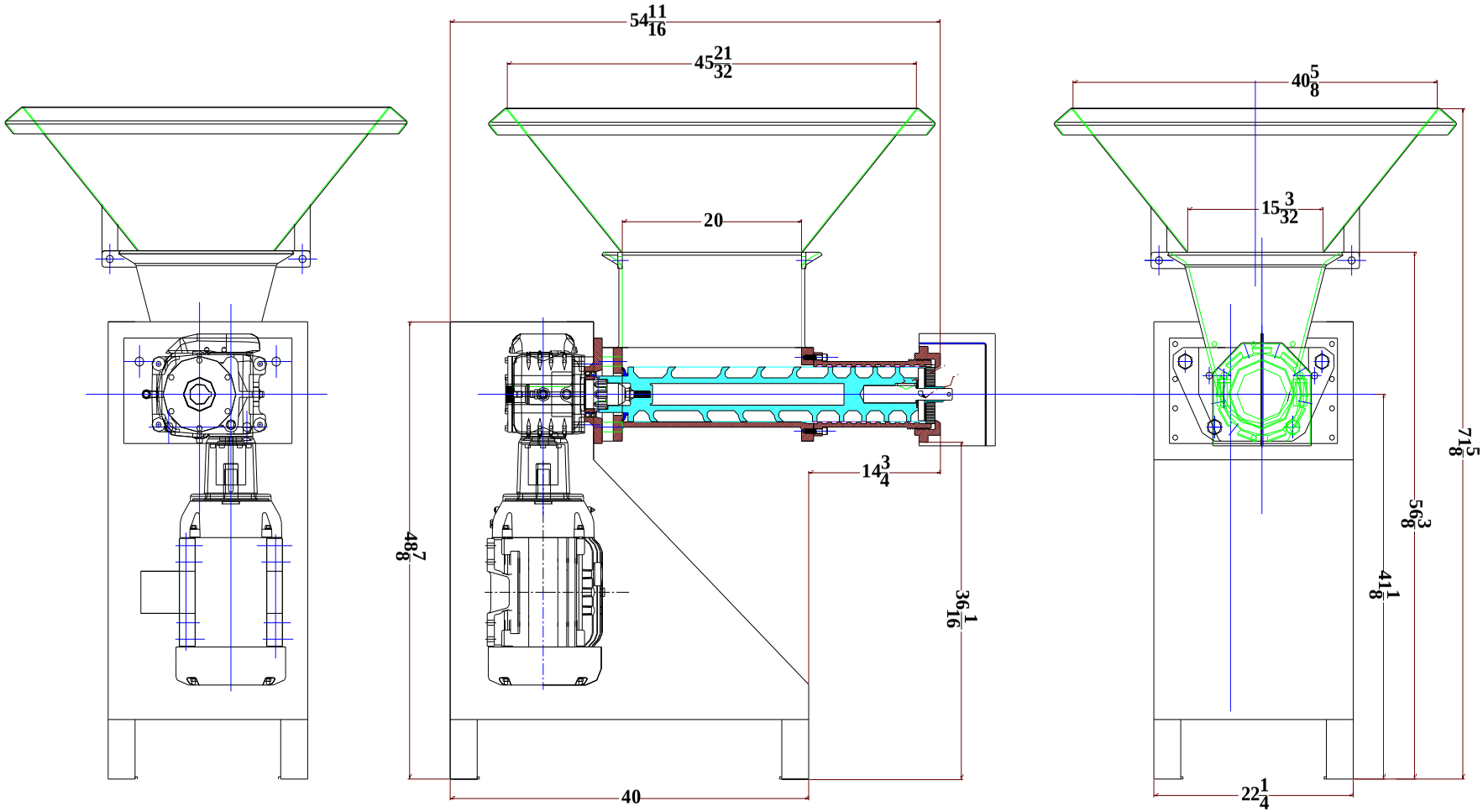
SCALE: Half Size
DATE: 1-2-08
DRAWN BY: WM. F. SELLNOW
APPROVED BY: WFS
TOLERANCE UNLESS SHOWN
FRACTION +/- 1/32"
DEC. .0 +/- .050
DEC. .00 +/- .010
DEC. .000 +/- .003

DIXIE GRINDERS INC.
GUNTERSVILLE AL 35976

TITLE
160MM GRINDER
Conv. Hpr, w/o BCA

PART NO. | NET WT.

DRAWING NUMBER
GK 1056-D



NO	DATE	BY	REVISION
6	`	`	
5	`	`	
4	`	`	
3	`	`	
2	`	`	
1	`	`	

SCALE: Eighth Size
DATE: 7-9-08
DRAWN BY: WM. F. SELLNOW
APPROVED BY: WFS
TOLERANCE UNLESS SHOWN
FRACTION +/- 1/32"
DEC. .0 +/- .050
DEC. .00 +/- .010
DEC. .000 +/- .003

DIXIE GRINDERS INC.
GUNTERSVILLE AL 35976

TITLE
160MM Grinder Unit (Conventional Hopper)

PART NO. ` NET WT.

DRAWING NUMBER
BD 1071-C