

Customer
Ser. No.
Date
Model

CONAIR MARTIN/WORTEX

Part Of The Conair Group

OPERATIONS MANUAL

HD SERIES

GRANULATORS

 **WARNING - Reliance on this Manual Could Result in Severe Bodily Injury or Death!**

This manual is out-of-date and is provided only for its technical information, data and capacities. Portions of this manual detailing procedures or precautions in the operation, inspection, maintenance and repair of the product forming the subject matter of this manual may be inadequate, inaccurate, and/or incomplete and cannot be used, followed, or relied upon. Contact Conair at info@conairgroup.com or 1-800-654-6661 for more current information, warnings, and materials about more recent product manuals containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

INTRODUCTION

Section 1

CONAIR MARTIN WORTEX sincerely appreciates your choice of equipment and we assure performance to meet your need and, indeed, the equipment will surpass your expectations if normal recommended maintenance methods are observed.

As an owner, you can be proud of **CONAIR WORTEX's** granulating equipment. You have purchased the finest precision-engineered equipment available. Manufactured with superior workmanship, it will give you many years of efficient operation with the least amount of down time.

This manual provides you with a comprehensive introduction to your new **CONAIR WORTEX** equipment, along with specified maintenance suggestions. Please use this manual and keep it close at hand for easy reference.

SAFETY

Detailed safety procedures are included within this manual, and should be reviewed and understood thoroughly.

ASSISTANCE

When maintenance is required, and you do not find the necessary information in this manual, HELP is but a phone call away. Simply dial our service number listed below.

CONAIR WORTEX

Part Of The Conair Group

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WARRANTY INFORMATION

Section 2

MANUFACTURER'S GENERAL WARRANTY

CONAIR WORTEX warrants each new product of its own manufacture to be free from defects in material and workmanship, under normal use and service, to the original owner only, for a period of one (1) year (except on knives and screens), subject to the conditions outlined in the Manufacturer's Complete Warranty. Our obligation under this warranty is limited to repair or replacement with a genuine part, any part of the product of our manufacture which is **returned to us within 30 days after the discovery of the defect**, properly identified and transportation charges prepaid, and not more than (6) months after the purchase by the original user, provided that, in our judgement, the part is defective.

Manufacturer will furnish without charge, FOB point of manufacture, a similar genuine part to replace any part of a product of its manufacture which proves to be defective in normal use and service during this period.

NOTICE

For additional warranty information regarding exact obligations and limitations see complete manufacturer's warranty enclosed with packing documents.

INSTALLATION

Section 3

INSTRUCTION/INSTALLATION WARNING NOTICE

READ AND UNDERSTAND THE ENTIRE CONTENTS OF THIS MANUAL BEFORE INSTALLING, OPERATING, OR MAINTAINING THIS EQUIPMENT.

IMPORTANT NOTICE

**PLEASE READ BEFORE INSTALLATION
(DAMAGE OR INJURY COULD OCCUR)**

THESE GRANULATORS ARE VERY DIFFERENT COMPARED TO CONVENTIONAL GRANULATORS. PLEASE TAKE A MOMENT AND READ THIS MANUAL BEFORE INSTALLING YOUR CONAIR WORTEX GRANULATOR.

SAFE OPERATING PROCEDURES

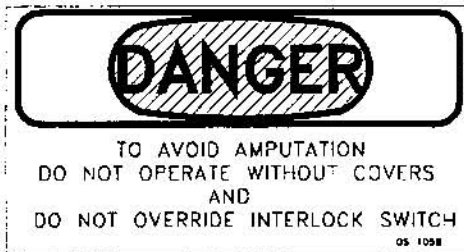
Equipment manufactured by **CONAIR WORTEX** is designed and constructed with "state of the art" precision and every possible safety provision has been incorporated at the time of manufacturing. However, no equipment can be designed for completely safe operation unless it is installed and operated as intended by the manufacturer, and unless it is protected from tampering or misuse by unauthorized personnel.

Those persons such as untrained operators or stray personnel who may be tempted to play with the controls or equipment are considered unauthorized personnel. Therefore, it is very important that the owner and/or operator take the following precautions regarding risks from mechanical components:

- 1) **All malfunctions or indications of improper operation** at any time during the life of the equipment should be reported to the owner to allow for immediate inspection and repair.
- 2) **No adjustments, modifications, alterations or repairs** should be made to the equipment by anyone other than qualified personnel.
- 3) **All individuals authorized to use the equipment** should be trained in the proper use of controls. All potential danger points should be specifically pointed out to the operators.
- 4) **It is suggested that a periodic review** of safety measures be conducted for all operators.
- 5) **No untrained personnel** should be allowed to operate the equipment at any time.
- 6) **Remember - safety of the operation depends on the owner and his operators.**

CONAIR WORTEX MAKES NO WARRANTIES REGARDING SAFETY OF THE EQUIPMENT UNLESS THESE SAFETY INSTRUCTIONS ARE OBSERVED.

SAFE OPERATING PROCEDURES

*figure 1**figure 2*

PRECAUTIONS

1. ALWAYS DISCONNECT POWER COMPLETELY BEFORE ATTEMPTING ANY SERVICE TO THE UNIT.
2. NEVER OPERATE THE UNIT WITH THE FEED THROAT FLAPS REMOVED OR IN POOR CONDITION.
3. NEVER OPERATE THE UNIT WITH THE GUARDS REMOVED.
4. DO NOT ATTEMPT TO OVER-RIDE SAFETY SWITCHES OR OVERLOADS.
5. NEVER ATTEMPT TO START THE GRANULATORS WITH MATERIAL IN THE CUTTING CHAMBER.
6. ALWAYS ALLOW THE UNIT TO "CLEAN OUT" BEFORE SHUTTING IT DOWN; AVOID FEEDING MATERIAL TO IT WHEN IT IS NOT OPERATING.
7. NEVER REACH INSIDE THE HOPPER WHEN FEEDING MATERIAL INTO THE MACHINE.
8. PREVENT ALL METAL AND OTHER FOREIGN MATERIAL FROM ENTERING THE HOPPER. THIS GRANULATOR IS INTENDED TO GRIND PLASTIC MATERIALS ONLY!

SPECIFICATIONS

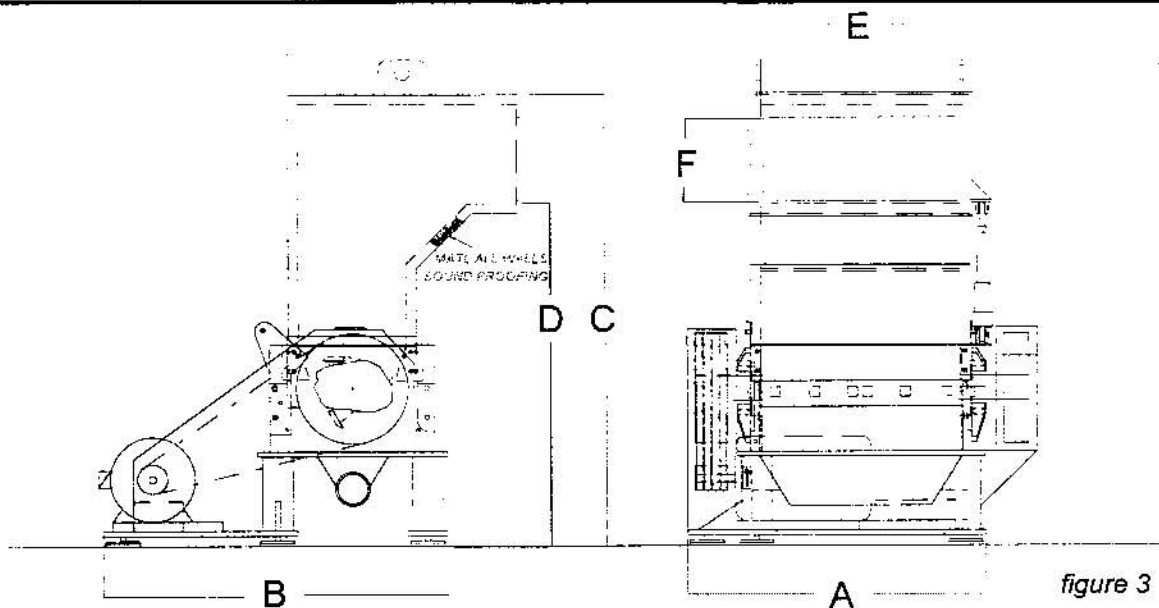


figure 3

MODEL	2020HD	2028HD	2040HD
Rotor Motor (Standard)	20hp 480v	50hp 480v	75hp 480v
Rotor Motor (Optional)	Up to 40hp	Up to 125hp	Up to 125hp
Rotor Type (Standard)	Open Type, Scissor Cut-(3) Blade Style		
Rotor Type (Optional)	(5 or 6) Blade Style		
Rotor Knives*	(3) @ 20"	(3) @ 28"	(6) @ 20"
Stationary Knives	(2) @ 20"	(2) @ 28"	(4) @ 20"
Cutting Circle	16.5" Diameter		
Flywheel	550lbs.		
Screen	3/8" Diameter holes (Standard)		
Rotor Bearings	5" Spherical Type		
Hopper Opening (E x F)	17" x 20"	17" x 20"	17" x 40"
Hopper Style (D)	Pelican Type; 72" Feed Height from Floor		
Granulating Capacity	1,200lbs./hr.	1,800lbs./hr.	2,500lbs./hr.
Discharge	Transition for blower hook-up w/6" O.D. tube		
Dimensions (A x B x C)	50" x 95" x 99"	58" x 95" 99"	70" x 95" 99"
Approx. Shipping Weight	4,600lbs.	8,300lbs.	12,000lbs.

* All knives are made of high carbon, high chrome D2 steel.

OPTIONS:

- Hopper for Conveyor Feed, Pipe Feed, and Special Applications
- Film or Sheet Feed Applications
- Blower Systems
- Cyclone Separators and Stands
- Optional Screen (1/4"-1-1/4" hole sizes)
- Overload Monitoring System
- Extra Flywheel

NOTES

Rotor shaft may be viewed by looking at the motor shaft and following the rotation arrow sticker affixed to the motor. Contact the Conair Service Department if you have any questions at 1-800- 458-1960

7. Upon completion of the electrical power installation, verify the direction of the rotor using the arrow label on the motor as a guide. The direction can be changed by switching any two fused wire leads at the disconnect switch.
8. With the granulator running, release the safety interlock switch and verify that it is working properly. The granulator should stop. If the granulator does not stop under this condition call the Conair service department.

NOTES

Make all power connections in compliance with local electrical codes and be sure the unit is properly grounded. The electrical supply should be sized for the equipment. Remember to take into account blower assembly motors when sizing.

If you have your own method of regrind removal, the rate of material throughput should never exceed the rate of removal, or jam-ups within the granulator will occur.

OPERATION GUIDELINES

Section 4

OPERATION GUIDELINES

1. Do not operate with foreign articles around the granulator.
2. Do not attempt to bypass safety interlocks.
3. Do not throw purgings or large lumps into the unit.
4. Only feed the unit with the proper **volume** that the granulator is sized for and is capable of granulating.
5. If the machine jams, disconnect and lock-out electric power supply. Open the hopper assembly and remove the parts.

NOTES

When removing the screen for whatever reason, you must clean thoroughly before installing. Failure to clean the screen could damage it.

6. Keep the knives sharp at all times
7. Grease the rotor shaft bearings every three months or as required. Don't over grease. This could result in damage to the bearing seals.
8. Allow the machine to finish grinding before switching off. Failure to do this could result in the machine not restarting.
9. Never allow the bin to overflow. This will cause excessive wear on moving parts and shorten the life of your screens and moving parts. We recommend a high level proximity switch to turn off granulation if overflow is a problem.
10. If granulating engineered materials, rotate the screen once a month to extend screen life. The screen will show washout on the holes on one side if this is not done.
11. To start the granulator, move the disconnect switch to the on position. Material removal equipment should be started at this time.
12. Press the START button. If there is any abnormality in the sound or operation of the unit, press the STOP button and refer to the Troubleshooting section.
13. With normal operation, material may now be fed carefully into the feed hopper.

MAINTENANCE

Section 5

MAINTENANCE

WARNING !

LOCKOUT AND TAG OUT THE MAIN ELECTRICAL POWER SUPPLY TO THE GRANULATOR BEFORE PERFORMING ANY MAINTENANCE.

DRIVE BELT TENSION**NOTES**

*After the granulator has been installed for 2 weeks,
tighten belts to proper tension.*

1. Verify that the power is OFF and locked out.
2. Remove the side cover from the granulator.

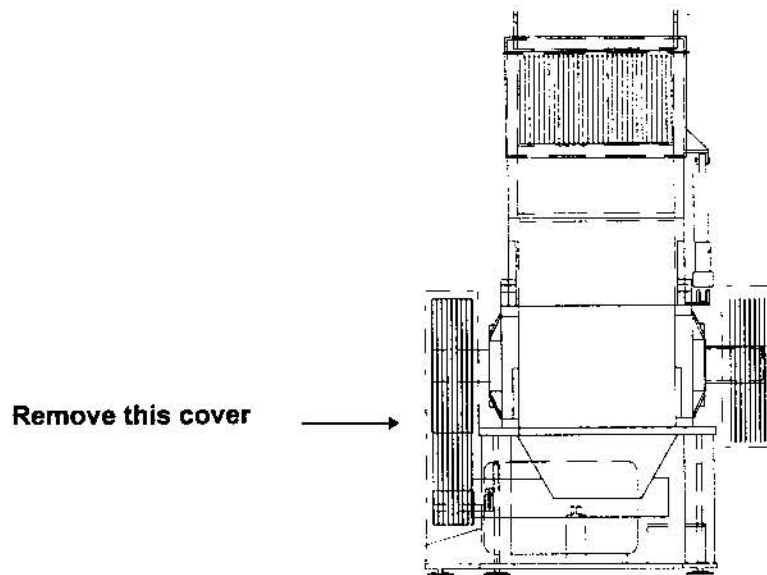


figure 5

3. Loosen the nuts holding the drive motor to its adjustable base.

- If the tension of the belt span is set properly, firm thumb pressure can depress the belts no more than 1/2" at the center.

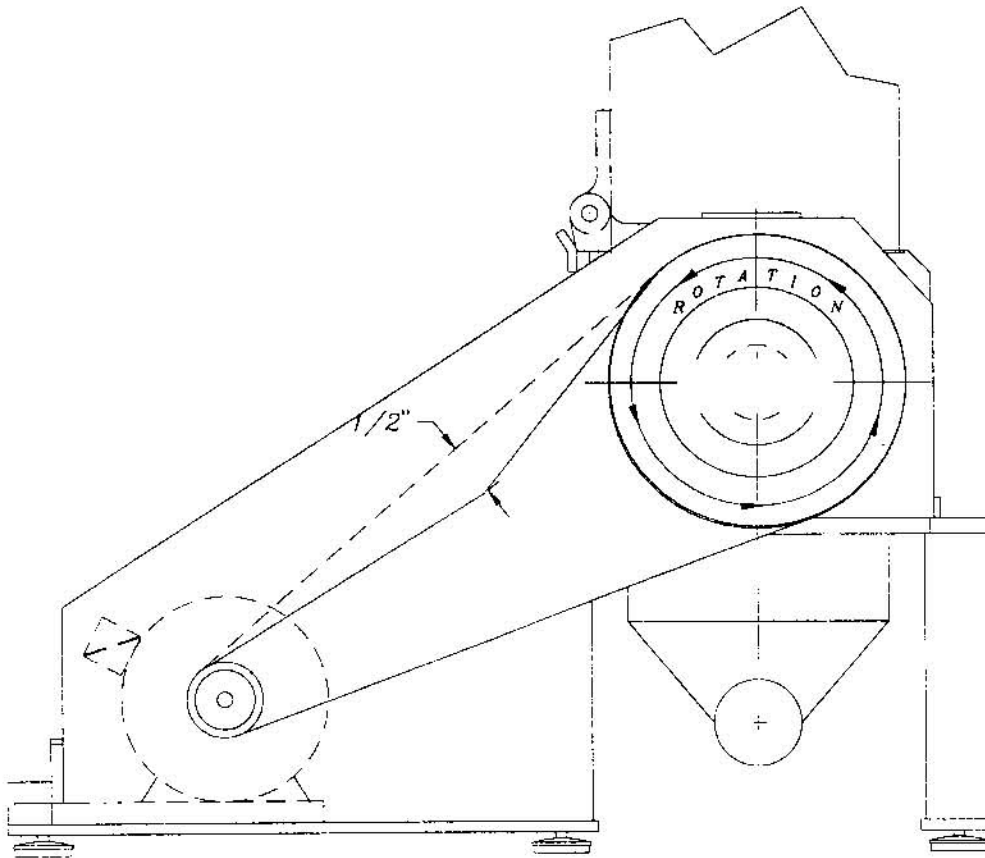


figure 6

- Turn the adjusting bolt mounted on the top of the mount counter-clockwise to increase belt tension and clockwise to decrease belt tension.
- Once proper belt tension has been achieved, tighten the motor mounting nuts. Check the pulley alignment to make sure the pulleys are in line. Misalignment may cause excessive belt wear.
- Install the side cover and return the unit to use.

NOTES

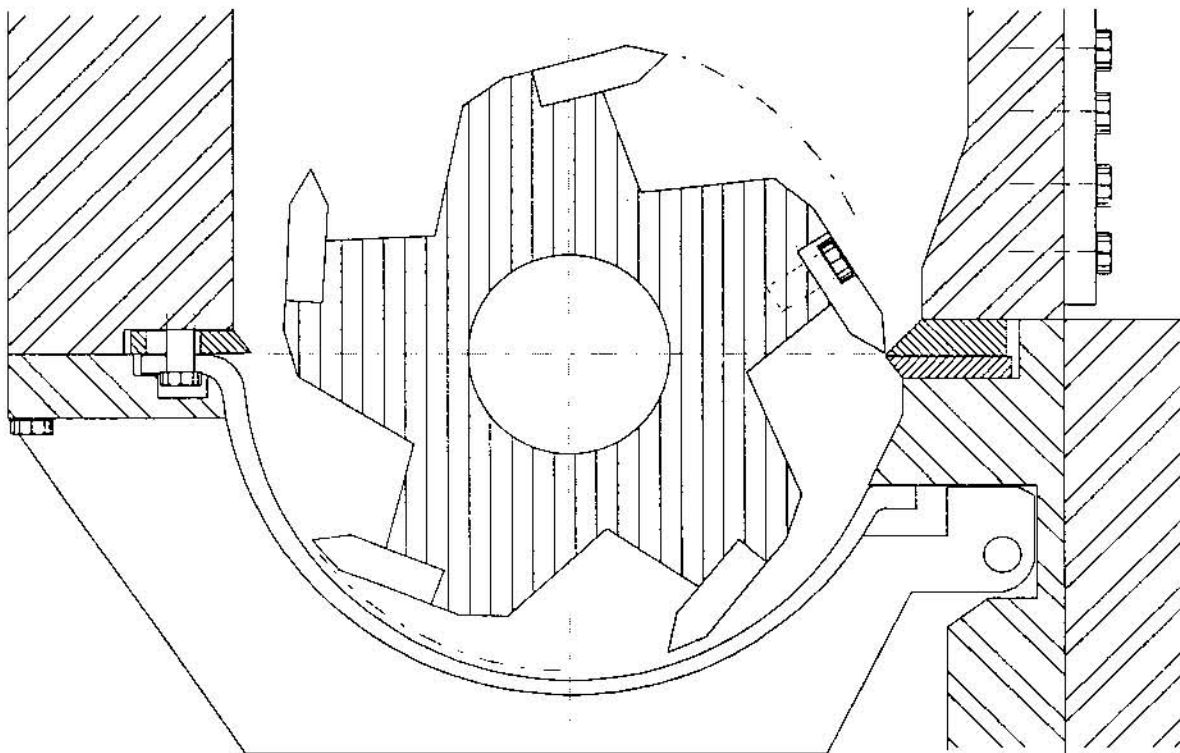
*NEVER USE BELT DRESSING.
CHECK THE BELTS PERIODICALLY FOR WEAR AND CLEANLINESS.
ALWAYS REPLACE THE BELTS AS A SET.*

ACCESSING THE CUTTING CHAMBER

WARNING !

USE EXTREME CAUTION WHEN WORKING WITH THE KNIVES. THE KNIVES ARE SHARP. LOCKOUT AND TAG OUT THE MAIN ELECTRICAL SUPPLY TO THE GRANULATOR BEFORE PERFORMING ANY MAINTENANCE.

1. Both the rotor knives and the bed knife are accessible when deflector on each side of the cutting chamber is open. BEFORE opening, first verify that the power is OFF.
2. Loosen the upper cradle hold-down bolts and the cradle safety switch knob. Removal of the bolts will allow the granulator cradle to be lowered. The cradle may be pivoted into the open position for access to the cutting chamber and screen.



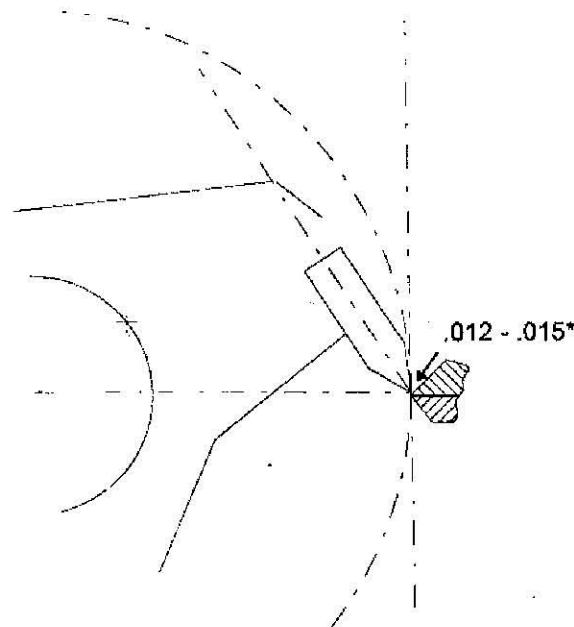
RESETTING THE CUTTING CLEARANCES

1. See the section on "Accessing the Cutting Chamber", section 5, page 3.
2. Rotate the rotor by hand until one knife on the rotor is in cutting position with one bed knife.
3. Insert a .012 - .015 feeler gauge at point closest to the rotor knife.

NOTE

This clearance level will vary among the many types of applications for this model of granulator. If you have any question regarding this clearance, please do not hesitate to call Conair 1-800-458-1960

4. Turn the bed knife adjusting bolt in until the feeler gauge is a tight fit between the rotor knife and the bed knife. Follow the same procedure along the full length of the bed knife.



*Please see note above below #3.

figure 8

5. Follow the same procedure on the opposite bed knife. It is important to check each rotor knife to be sure the proper clearance is maintained.
6. Tighten the bed knife bolts, adjustment screws and jam nuts.
7. Torque the bed knife bolts to 350 ft/lbs.
8. Make sure you recheck the clearance adjustment after torquing.

ROTOR KNIFE REPLACEMENT

1. Read the section on "Accessing the Cutting Chamber", section 5, page 3.
2. Remove the bolts holding the rotor blade to the rotor.
3. Remove the rotor blade.
4. Carefully and thoroughly clean the rotor knife seat and bolt holes.
5. Verify that the replacement knife is the same size as the removed knife.
6. Place the knife on the rotor seat and install clean dry bolts. Make sure the knife is fully seated . Should always replace bolts. Do not use old rotor bolts.

NOTES

Both rotor and bed knives are installed with grade 8 bolts. These bolts have been torqued and it is the recommendation of the bolt manufacturer they be replaced with new bolts each time the knives are replaced.

7. Torque the knife mounting bolts to 350 ft/lbs and then check the clearance between the rotor knife seat and the knife to verify that the blade is fully seated.
8. The rotor can be turned 180° to replace the other blade using the same procedure.
9. After replacement of the blades the cutting clearance must be set. See "Resetting the Cutting Clearances", section 5, page 4.

BED KNIFE REPLACEMENT

1. Read the section on "Accessing the Cutting Chamber", section 5, page 3.
2. Thoroughly clean the cutting chamber of all material.
3. Remove the bolts holding down the bed knife.
4. Loosen the adjusting bolts and unscrew them to the fully retracted position.
5. Remove the knife and thoroughly clean the bed knife seat.
6. Replace the knife and reset the clearance between the rotor blades and the bed knife; see "Resetting the Cutting Clearances".

NOTES

Both rotor and bed knives are installed with grade 8 bolts. These bolts have been torqued and it is the recommendation of the bolt manufacturer they be replaced with new bolts each time the knives are replaced.

7. After resetting the clearances, torque the mounting bolts to 350 ft/lbs.

SCREEN REMOVAL

1. Read the section "Accessing the Cutting Chamber", section 5, page 3.
2. Rotate the screen out of the granulator from the back of the cutting chamber on the hopper hinge side.
3. Thoroughly clean the screen tracks and screen.
4. The screen is reversible to extend its life.
5. Rotate the screen back into the cutting chamber.

TROUBLESHOOTING

Section 6

TROUBLESHOOTING

DIFFICULTY	PROBABLE CAUSE	CORRECTIVE ACTION
<p>1. Grinder will not start.</p>	<p>A. Power is not connected.</p> <p>B. Wrong supply voltage.</p> <p>C. Hopper not fully closed limit switch not engaged.</p> <p>D. Overload tripped / fuse blown.</p>	<p>Disconnect switch must be in ON position. Confirm voltage at your power source.</p> <p>Check serial number tag for proper voltage.</p> <p>Check for obstructions in the cutting chamber. Check limit switch.</p> <p>Examine reason for overload and reset or replace fuses.</p>
<p>2. Rotor will not turn.</p>	<p>A. Unit stopped too soon at previous shutdown - should allow to clean out before stopping.</p>	<p>Open granulator - remove pieces that block knife motion.</p>
<p>3. Clicking sound when empty.</p>	<p>A. Knives not adjusted properly.</p>	<p>Readjust the knives.</p>
<p>4. Grinder jams easily.</p>	<p>A. Knives are dull.</p> <p>B. Belts are slipping.</p>	<p>Sharpen or replace knives.</p> <p>Adjust belt tension.</p>

TROUBLESHOOTING

DIFFICULTY	PROBABLE CAUSE	CORRECTIVE ACTION
<p>5. Excessive fines or poor cut.</p>	<p>A. Knives are dull. B. Improper knife setting.</p>	<p>Sharpen or replace knives. Readjust knife clearance.</p>
<p>6. Slivers or longs in the granulator.</p>	<p>A. Screen not installed properly. B. Holes too big.</p>	<p>Reset screen - confirm fit. Replace screen with proper hole diameter.</p>

SPARE PARTS

Section 7

PARTS LIST

ITEM	DESCRIPTION	QTY	2028HD	QTY	2040HD
			PART #		PART #
	Hopper	1	2028-003-6003	1	HOP-00116
	End Plate LH	1	2000-6621	1	2000-6621
	End Plate RH	1	2000-6622	1	2000-6622
	Rotor	1	2028-5212	1	2040-5214
*	Rotor Bearing	2	2056-050-130	2	2056-050-130
	Rotor Driven Sheave	1	2000-5232	1	2000-5232
	Rotor Bushing	2	2056-264-500	2	2056-264-500
	Drive Sheave Bushing	1	2000-263-212	1	2000-263-287
*	Belt	1	2000-027-128	1	2000-027-128
	Rotor Motor	1	2000-028-050	1	2000-028-100
	Motor Sheave	1	2000-029-460	1	2000-029-460
	Adjustable Motor Base	1	2000-031-326	1	2000-031-404
	Base	1	2028-50	1	2040-6374-100
	Foot Pads	6	2000-036-102	6	2000-036-102
	Rotor Disc	2	2000-6383	2	2000-6383
*	Rotor Knives	6	2028-041-028	6	2000-041-020
*	Bed Knives	4	2028-042-028	4	2000-042-020
*	Screen	1	2028-044-375	1	2040-6479-4
	Bed Knife Adjusting Block	12	2000-6092	12	2000-6092
	Deflector	2	2028-6380	2	2040-6381
	Bed Knife Cover-Down Stroke Side	1	2028-4647-1	1	2040-4644-1
	Bed Knife Cover-Up Stroke Side	1	2028-4647-2	1	2040-4644-2
	Bed Knife Support	2	2028-6358	2	2040-6482
*	Sled Key	2	2000-6547	2	2000-6547
*	Knife Bolts	12	SCR-00785	24	SCR-00785
	Blower Discharge Transition 6"	1	2028-107A	1	2040-6629
	Deflector Door Hinge (LH)	2	2000-6173L	2	2000-6173L
	Deflector Door Hinge (RH)	2	2000-6173R	2	2000-6173R
	Screen Cradle Hinge Pin	1	2028-6522	1	2040-6522
	Rotor End Cap	1	2000-6362	1	2000-6362
	Rotor End Cap	1	2000-6363	1	2000-6363

* These items are recommended spare parts to be stocked at your facility.

ACTUATOR FOR CRADLE OR HOPPER P.L. ACT-00236

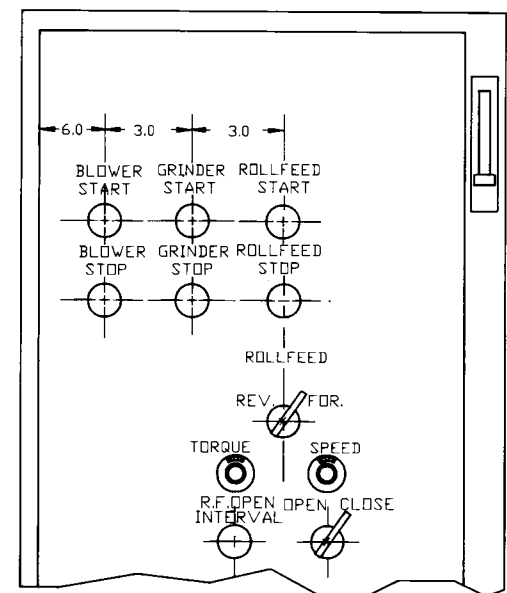
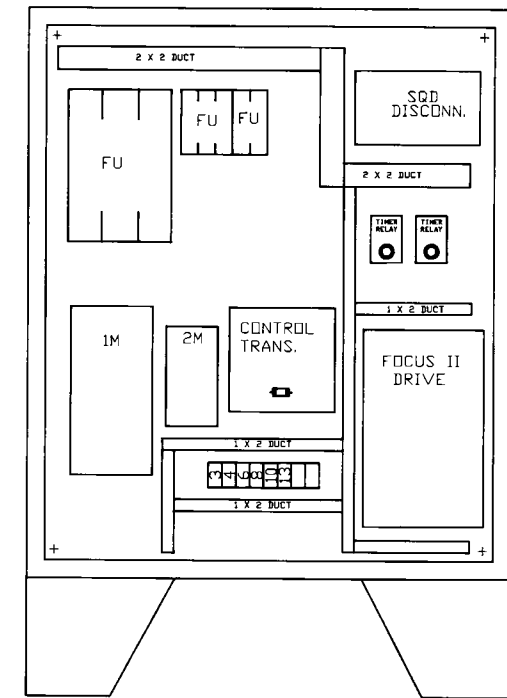
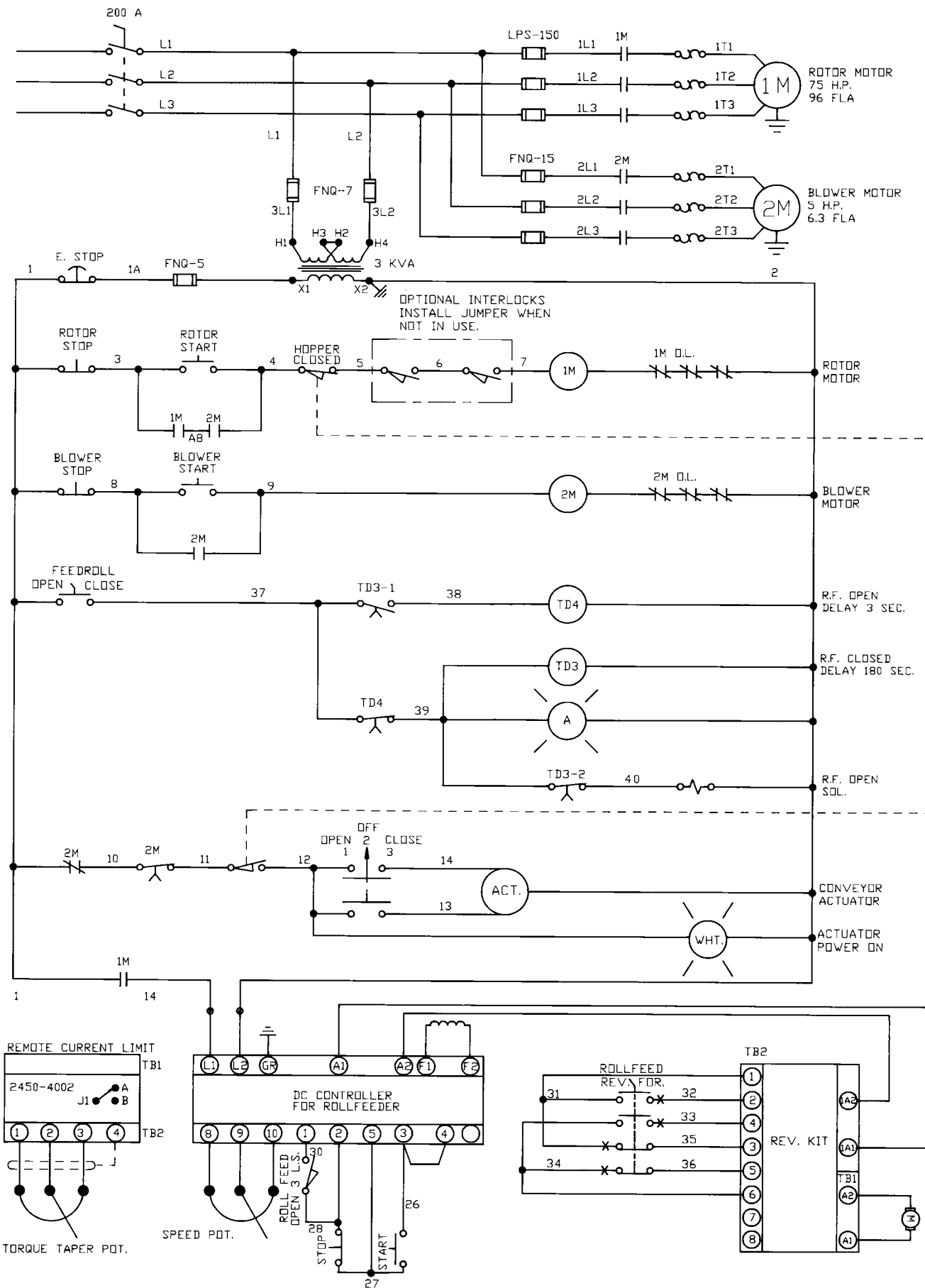
HINGE PIN - 4" LONG

P.L. 2000-6620-01

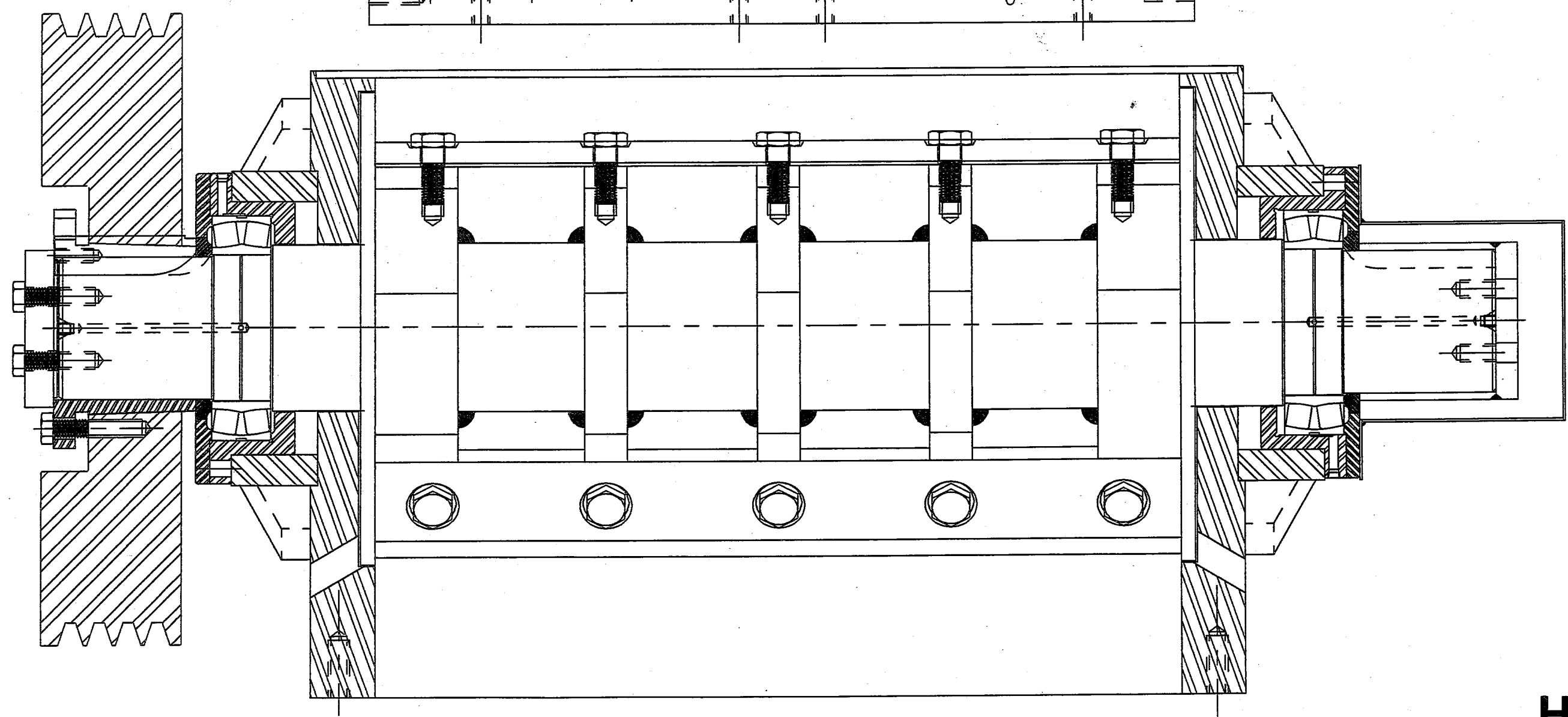
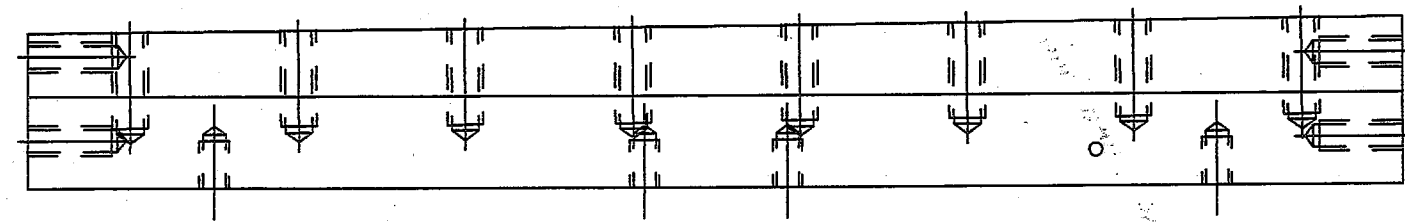
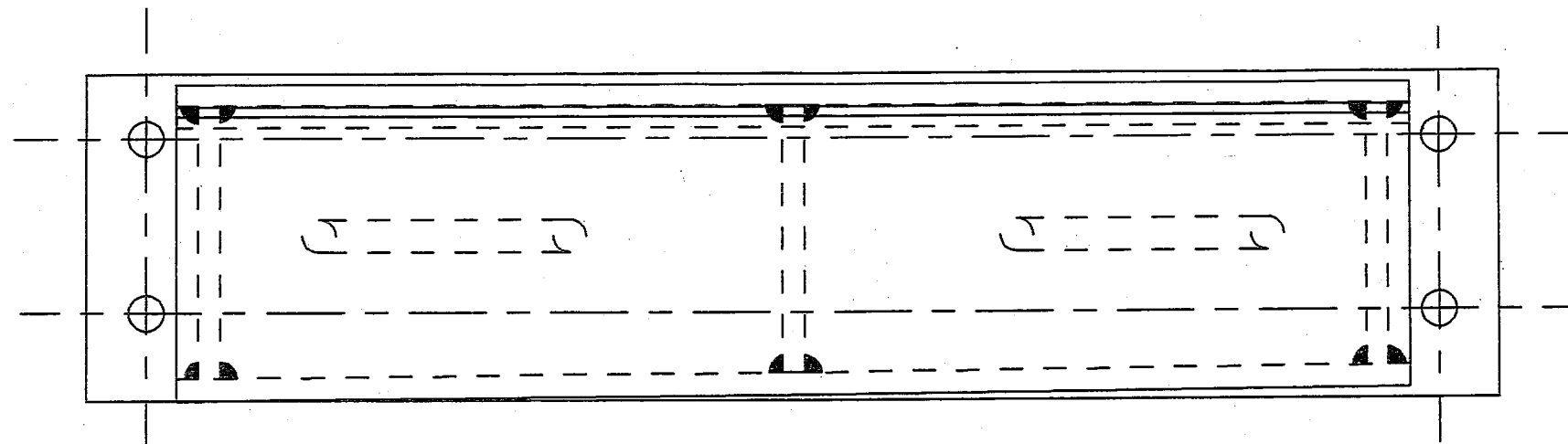
HOG ROTOR 2028H - 008-5528 - CD 5528

HOG KNIVES 2000 - 041-007

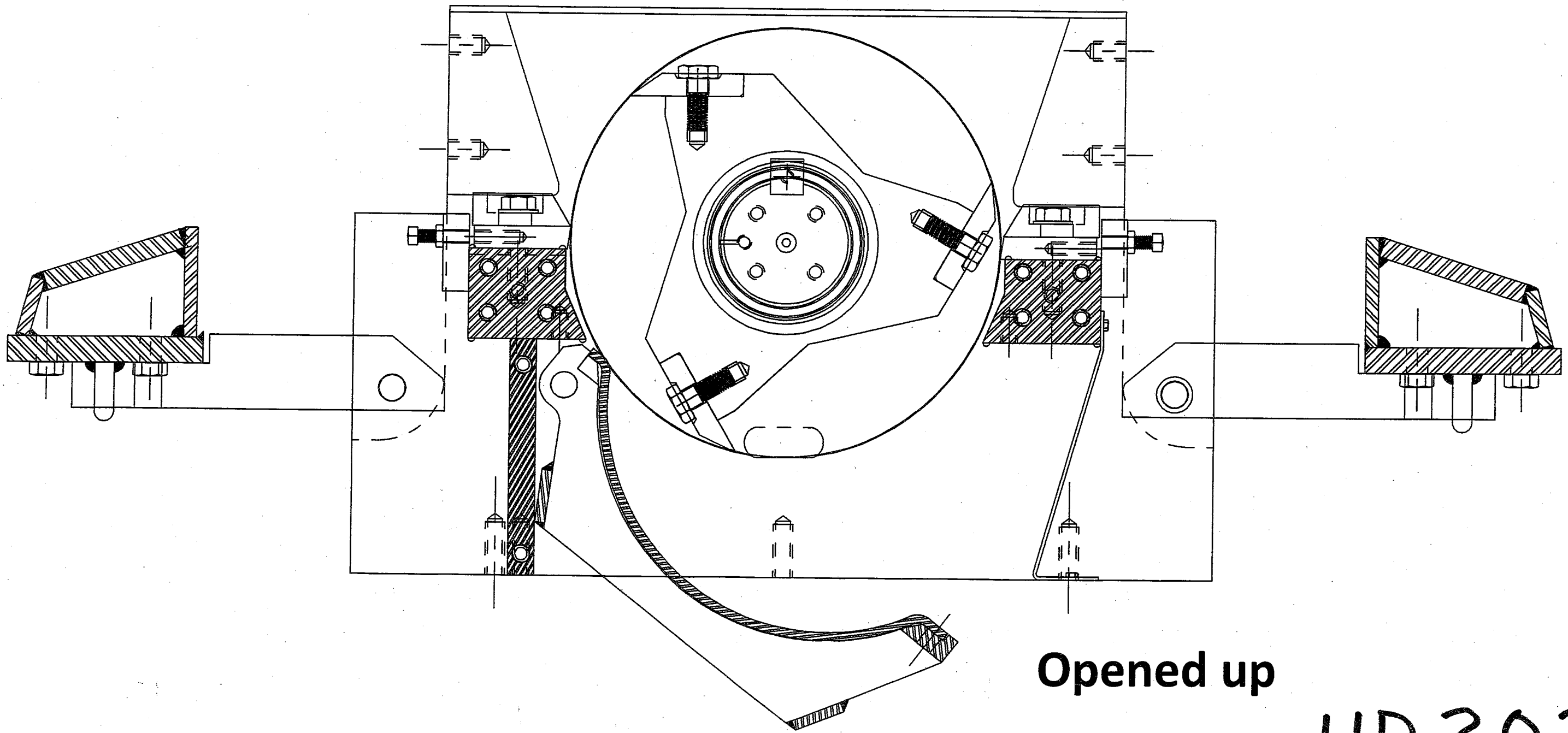
BOLTS FOR HOG KNIVES SCR-00785



ITEM	QTY.	MATERIAL	DESCRIPTION	PART NUMBER
CONAIR WORTEX PART OF THE CONAIR GROUP				
			400 HARRY S. TRUMAN PARKWAY BAY CITY, MI 48706 PHONE 517-686-6600 FAX 517-686-4444	THIS DRAWING IS THE PROPERTY OF CONAIR INC. AND MUST BE RETURNED UPON REQUEST. THE INFORMATION THEREON MAY NOT BE REPRODUCED WITHOUT THE WRITTEN PERMISSION FROM CONAIR INC.
FINISH (UNS) & TYPE		TOLERANCES		BREAK ALL CORNERS DO NOT
UNLESS OTHERWISE SPECIFIED		MACHINING SURFACES ±0.02		SCALE
FINISHED MACHINE		MOLD SURFACES ±0.01		DESIGNED BY 4JW
DIE CAST SURFACES ±0.01		TORN SURFACES ±0.01		DRAWN BY 3/22/93
GRIND SURFACES ±0.005		TYPICAL SURFACES ±0.01		CHECKED BY
SMOOTH MACHINE		HOLE ±0.005 OR FINISHED SURFACES		APPROVED BY
MACHINE		HD2020		NO. REV.
TITLE		W/ BLOWER & ROLLFEED		SCALE NONE
				PART NO. SHOWN IN OFFICE CD6395

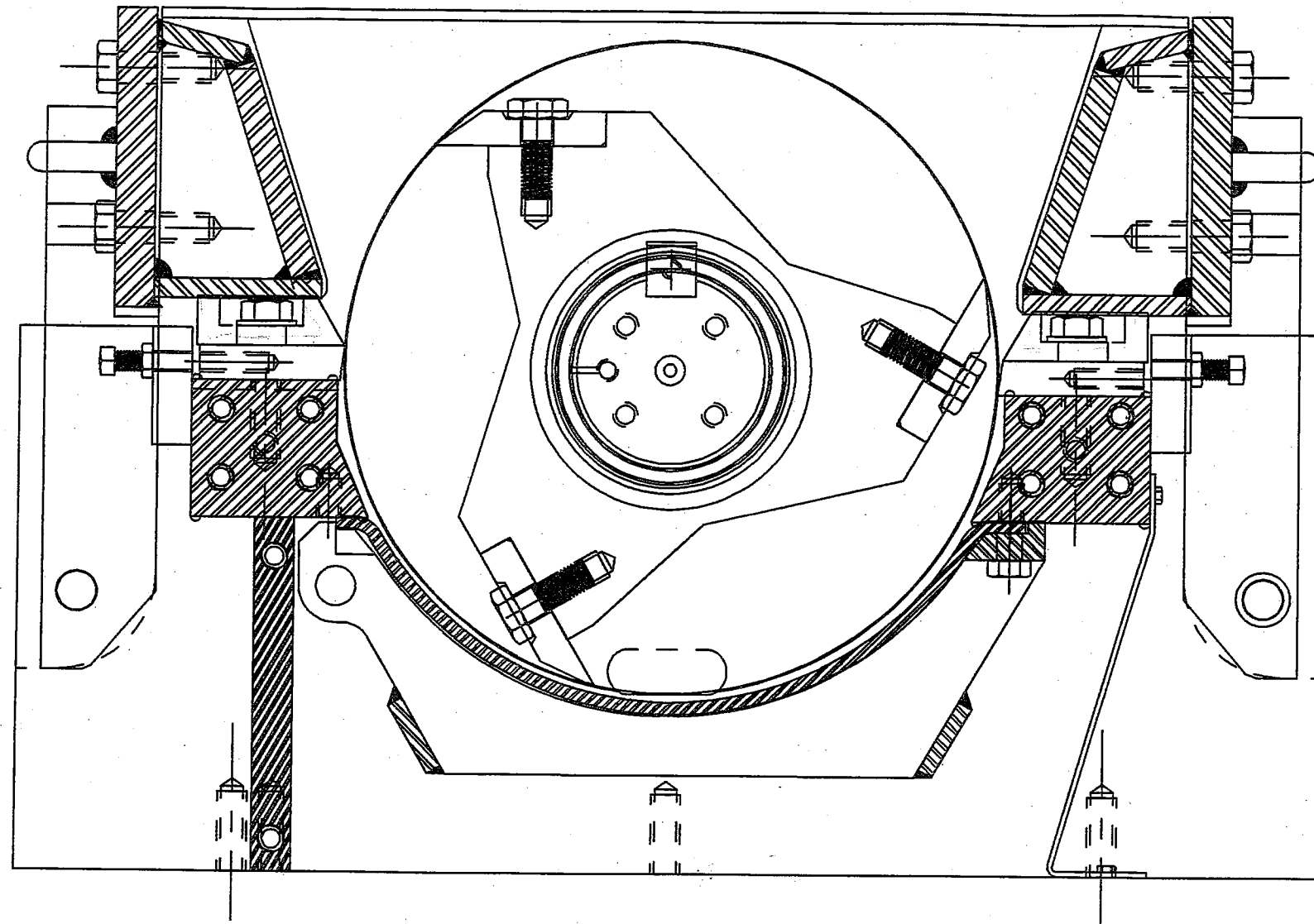


HD2028



Opened up

HD 2028



Closed up

HD2028