USERGUIDE
MNL-00108

912C, LB, E AND K Granulator Series

⚠ **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This manual is out-of-date and is provided only for its technical information, data and capacities.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containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

OPERATORS MANUAL
Machine Models: 912C, LB, E, K

Machine Serial Number _____

Date of Delivery _____

Electrical Schematic _____

WARNING!

Before installation and operation of grinder, carefully read through this manual to familiarize yourself with the equipment being described.

TECHNICAL DATA

Number of rotating knives	4
Number of fixed knives	2
Screen size	1/4", 5/16", 3/8", 1/2", 5/8", 1"
Horsepower	5, 7.5, 10, 15
Drive motor rpm	1740, 875
Rotor rpm	370 (LB) 900 (C, K, E)

MACHINE INSTALLATION

Before operating of the machine, you must first clean the cutterhouse area and the screen to remove the rust preventative material that is used to protect it during shipment. Caution: Knives are sharp and rotor can turn without power being connected.

ELECTRICAL

Rapid machines, in most cases, are provided with an electrical starting system. This system may be either a standard or an optional package. Line and control voltages vary according to customer application. **ALWAYS** check the wiring diagram and the delivery papers to determine which system has been purchased. Rapid Granulators are provided with safety switches for your protection and **SHOULD NEVER BE BYPASSED!**

ALWAYS DISCONNECT AND LOCKOUT MAIN POWER TO GRANULATOR PRIOR TO ATTEMPTING ANY SERVICE.

INDEX

SAFETY INSTRUCTIONS

1. The granulator is equipped with two safety limit switches in order to protect against the accidental start of the machine when the rotor and knives are exposed to the operator. It is recommended and it is also the duty of a responsible supervisor to regularly inspect the safety limit switches and wiring to insure that they function in good working order and have not been bypassed.

2. Learn and obey your company's safety policy with regard to granulating equipment.

3. Work area should be clean and uncluttered. This allows for safe movement in the area of the granulator during periods of operation and the opening of the machine for service and clean out. This includes errant maintenance tools left on or about the granulator. Any such tools and metal objects which fall into the feed throat can cause severe damage to internal components in cutting and screen chamber.

4. OPERATOR SAFETY Safety glasses or face shield must always be worn when either servicing or operating the machine. The nature of granulation causes extreme turbulence of granulated material in the cutting chamber. Although our machines are designed for the maximum flyback control, caution must be used in the area of the feed throat against unexpected flyback. THE OPERATOR'S EYES MUST BE PROTECTED. Following periods of maintenance be certain that ALL safety guards and covers are in position and properly secured prior to operation. All fasteners must be in place and properly tightened firmly and ANY SHORTCUTS MAY RESULT IN INJURY TO PEOPLE AND EQUIPMENT. NEVER wear any loose fitting clothes, neckties or items such as dangling bracelets, wristwatches or rings. NO jewelry should be worn at all. Either tie back long hair or use a hairnet as required. NEVER lean or rest against a granulator when in operation or when opened for service.

5. All electrical equipment on the granulator must be grounded in accordance with all Local and National Electrical Codes.

IMPORTANT!

After installation, and **BEFORE OPERATION** of the machine the following items must be checked:

1. Familiarize yourself with the safety interlocks on the machine.

2. Check to make sure the rotating knife holding bolts are tightened with the correct amount of torque (145 ft. lbs.). (Fig. A on page 2.2) Use a torque wrench to do this, not a piece of pipe on the end of a hex wrench.

3. Check to make sure the rotating knife adjustment screws are in contact with the rear edge of the rotating knives. (Fig. F on page 2.2)

4. Check to make sure the fixed knife adjusting screws are in contact with the fixed knives and the locking screws are tightened. (Fig. D on page 2.2)

5. Check that there is the proper amount of clearance between the rotating and fixed knives (.0059-.0118) inches. See page 2.2.

6. Check to make sure the cutterhouse holding screws are at the correct torque (108 ft. lbs.). (Fig. B on page 2.2)

7. Before applying electrical power to the machine, make sure the area is clear of any tools or foreign material, and that all safety interlocks are in the closed position and are in working order.

8. Check to make sure that the rotation of the grinder is correct. If you have purchased an optional blower, check to make sure the rotation is correct on it.

9. Numbers 2-4 should be rechecked after two (2) hours of running.

10. When changing knives, it is important to clean and inspect all knife mounting surfaces. Remove all dirt and plastic debris.

11. The rotating knife bolts must be changed every fourth knife change or resharpening.

12. The machine should be inspected every shift to insure that hopper flaps or chains have not worked loose.

13. After the machine has been running for 24-48 hours, the tension of the V-belts should be checked. The belts should have a deflection of 3/8"-1/2" when measured with the pressure of one finger depressing the belt midway between the motor pulley and the rotor drive pulley. To maintain the granulator's cutting efficiency, the belt tension should periodically be checked.

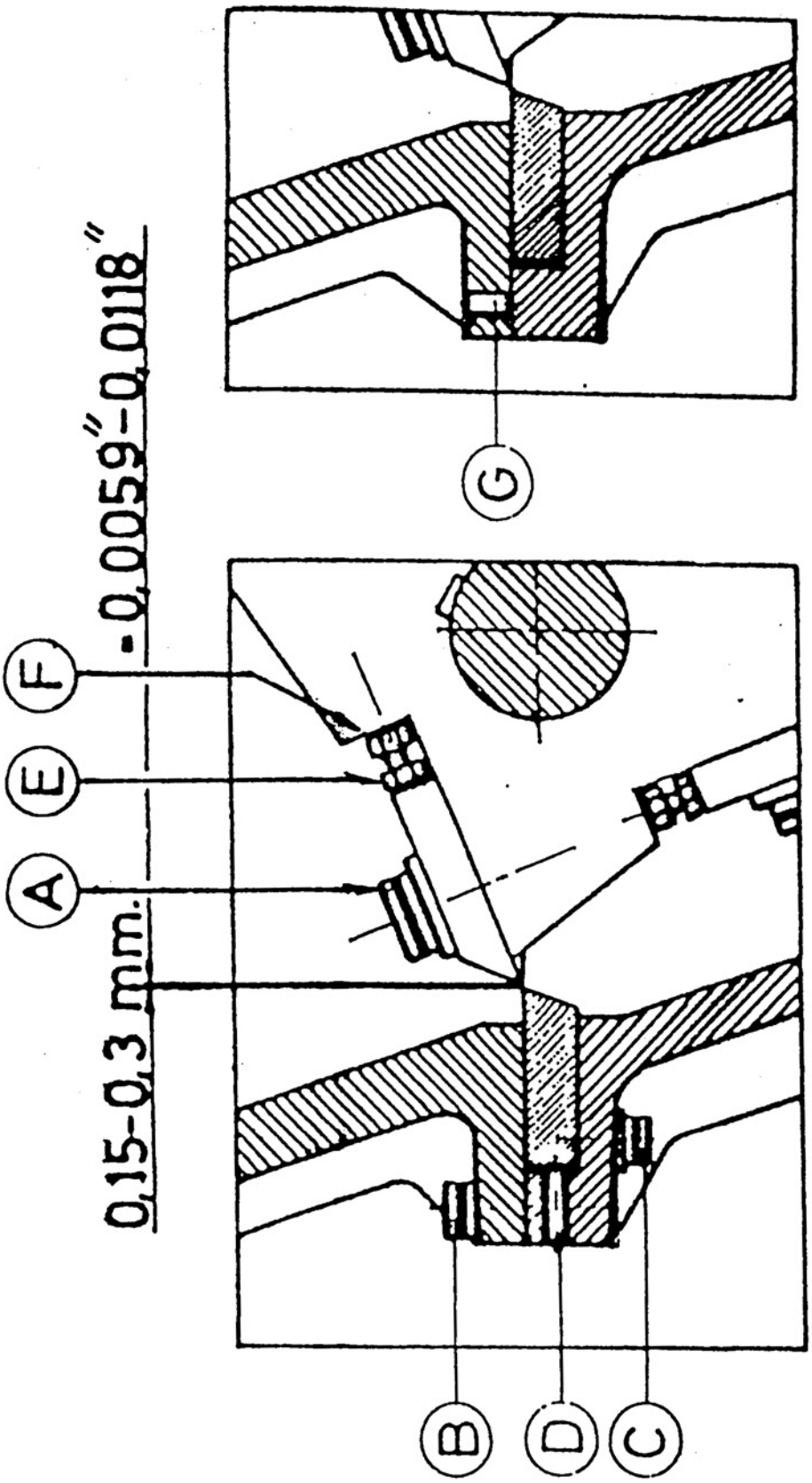


Fig. 2

WARNING! POWER MUST BE LOCKED OUT BEFORE PERFORMING MAINTENANCE ON THE GRANULATOR.

EXPANDABLE BUSHING

Conair models 912 C, E, K, and LB use an expandable bushing to secure the rotor drive pulley to the rotor shaft. After 15-20 hours of running time, the torque on this bushing must be checked. Screw A, is to have 72 ft. lbs. of torque applied to it. (See figure A on page 3.1.)
Use a torque wrench to check this.

REMOVAL OF ROTOR PULLEY AND EXPANDABLE BUSHING

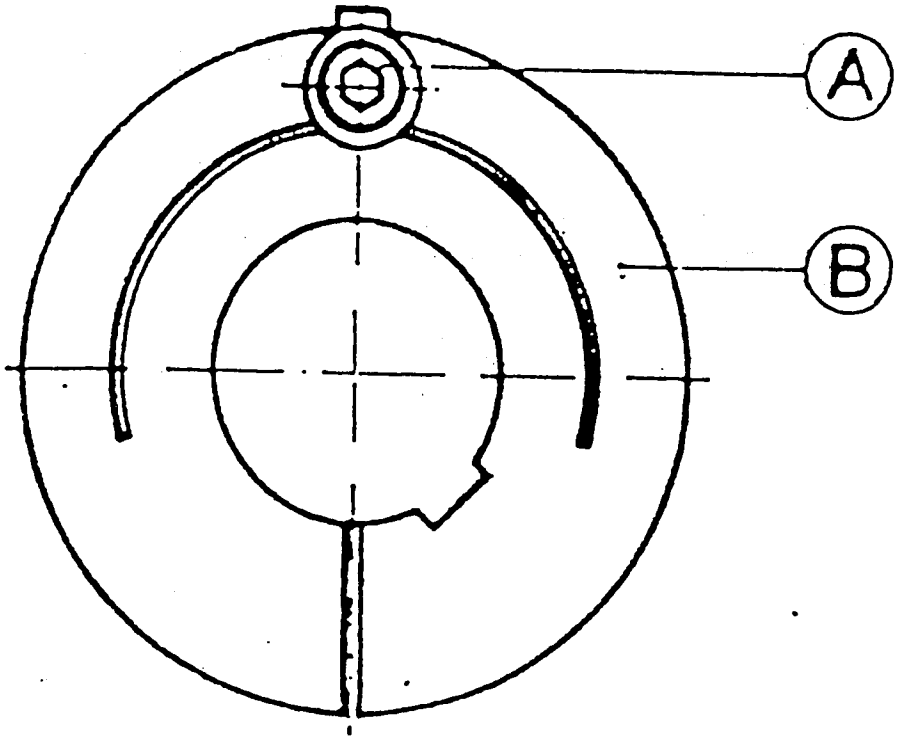
WARNING! SAFETY GLASSES MUST BE WORN DURING THIS PROCEDURE.

Should it become necessary to remove the rotor drive pulley, the following steps should be followed:

1. Loosen and remove screw A. (See figure A on page 3.1.)
2. Re-install screw A. It should be turned clockwise approximately three turns.
3. Screw A is then struck with a lead hammer, driving the wedge style holding key toward and against the outer bearing cover.
4. The rotor drive pulley may now be removed from the expandable bushing.
5. The expandable bushing is removed by carefully inserting a wedge type tool into the gap in the bushing opposite the wedge key. The expandable bushing may then be slid off the rotor shaft.

Use the following steps to re-install the expandable bushing and rotor drive pulley:

1. The expandable bushing is installed by carefully inserting a wedge type tool into the gap in the bushing opposite the wedge key. The expandable bushing may then be slid on the rotor shaft. The outer surface of the bushing should extend 1/2" outward, beyond the end of the rotor shaft.
2. The wedge key is placed against the outer bearing cover and the rotor drive pulley is then slid onto the expandable bushing.
3. Screw A is inserted and tightened with a torque of 72 ft. lbs.
4. A straight edge should be used to check pulley alignment after the belts have been tightened.
5. Replace belt guards before returning the granulator to service.


A
B

OPENING THE HOPPER

WARNING! DISCONNECT AND LOCK OUT POWER BEFORE OPENING GRANULATOR HOPPER.

The hopper, on the model 912 granulator is opened by first turning the safety switch actuator to its full counter-clockwise position. This will allow the cam type bracket which is mounted on the hopper to clear the safety mechanism when the hopper is opened. FAILURE TO FOLLOW THE ABOVE PROCEDURE WILL CAUSE DAMAGE TO THE ACTUATOR AND/OR CAM. Next, using the 13mm wrench (provided in the granulator tool kit) loosen the (2) locking nuts located on the hopper hold down clamp screws. Once the lock nuts have been loosened, the screws may be turned counter-clockwise allowing the spring assisted clamps to open. The hopper is then opened fully, allowing it to come to rest against the granulator base. After cleaning the mating surfaces on the hopper and cutterhouse, the hopper may be closed by reversing the above procedure. **CAUTION:** This is a pinch point; use care when closing the hopper.

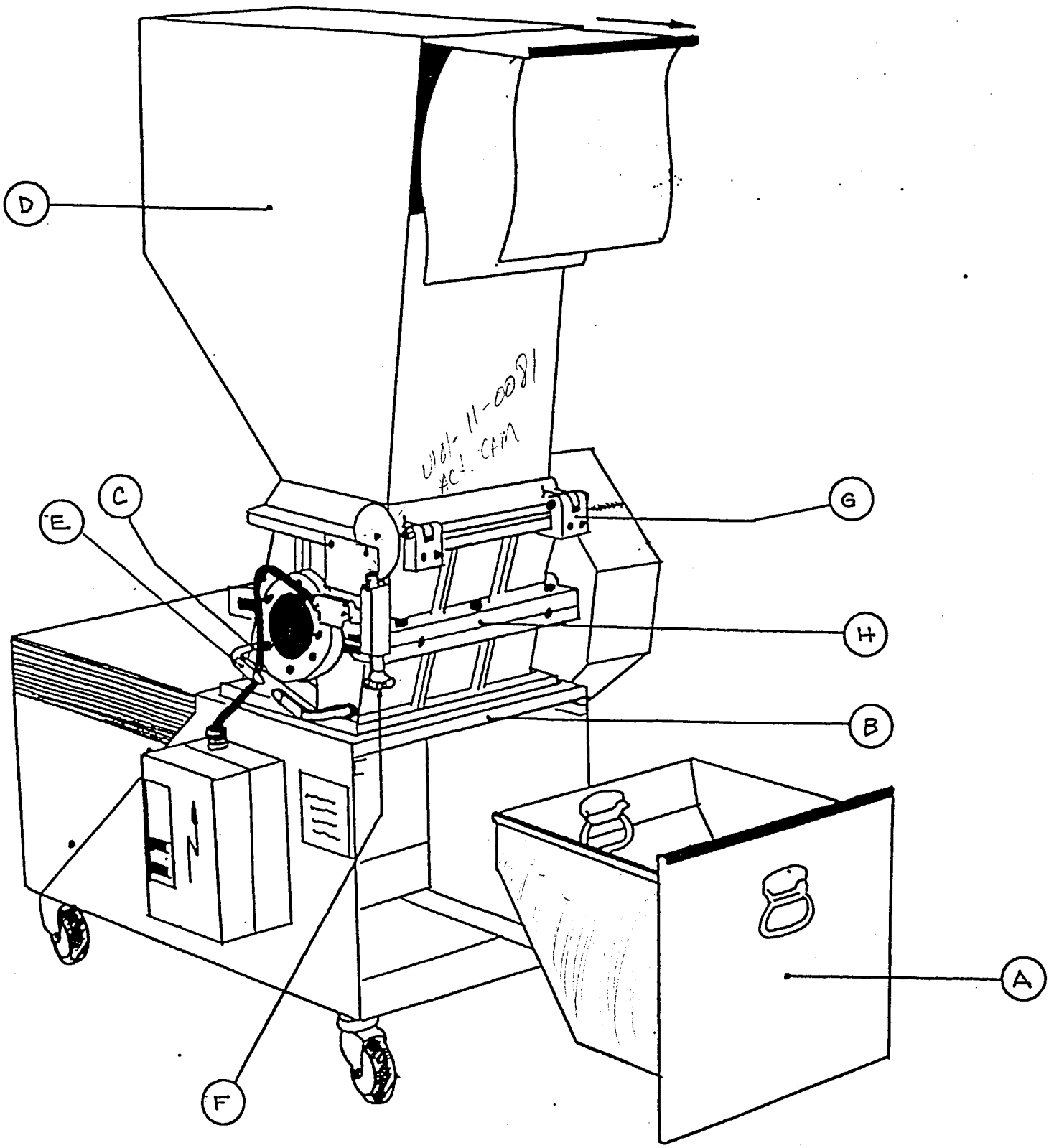
SCREEN REMOVAL

WARNING! POWER MUST BE DISCONNECTED AND LOCKED OUT BEFORE REMOVING THE SCREEN. HAND PROTECTION SHOULD BE WORN.

(See picture on page 4.1)

1. Disconnect and lock out electrical power.
2. Remove the collection drawer (A).
3. Remove the safety grate (B) by loosening and removing the thumb screw.
4. Remove the screen by placing one hand on the bottom of the screen, then using your free hand, lift the screen holding rods (C) from the holder (E). The screen holding rods (C) may now be pulled from the cutterhouse allowing the screen to drop into your hand and be removed from the granulator.

Before re-installing the screen, inspect the screen for damage and screen wear that may cause the screen to break under operating conditions. After doing this, reverse the above steps to return the granulator to operation.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LUBRICATION

The bearings are filled with grease before delivery. Under normal running conditions, grease should be added after approximately 1000 hours. Greasing should be continued after each 1000 hours of operation. Each bearing is equipped with a weep hole located between the outer and inner bearing cover. The rotor has only two grease points. A grease fitting is located in each outer bearing cover. The following is a list of lubricants suitable for use in the granulator:

Gulfcrown Grease FF2E
Texaco Regal AF82
Mobilux Grease
SKF 65B

Other brands of suitable lubricants with the same qualities may be used.

SCREEN

It is important that the screen be periodically checked for damage and/or wear.

BELTS

Belt tension should be checked after the granulator has processed material for 24-48 hours. The belts should have a deflection of 3/8"-1/2" when measured with the pressure of one finger depressing the belt midway between the motor pulley and the rotor drive pulley. To maintain the granulator's cutting efficiency, the belt tension should periodically be checked.

RECOMMENDED SPARE PARTS

(1) set of rotating and fixed knives	Part# U124-07-0001
(8) rotating knife holding screws	Part# S139-02-0011
(8) rotating knife holding washers	Part# S139-01-0012
(1) knife grinding fixture	Part# S134-01-0004
(1) torque wrench	Part# S111-02-0007

MATERIAL JAMS

WARNING! DISCONNECT AND LOCK OUT ELECTRICAL POWER. HAND AND EYE PROTECTION MUST BE WORN.

Due to the various types of material being granulated, it is impossible to write a procedure to clear these jams. EXTREME CAUTION MUST BE USED WHEN CLEARING A JAM. THE ROTOR MAY BECOME FREE AT ANY TIME DURING THE JAM CLEARING PROCESS AND MAY CAUSE SEVERE INJURY TO PERSON OR PERSONS INVOLVED IN THE CLEARING PROCESS!

The person clearing the jam must be familiar with the granulator, the type of cutting action utilized by the granulator, and the characteristics of the product being granulated.

KNIFE CHANGING PROCEDURES

WARNING! CAUTION MUST BE USED WHEN CHANGING KNIVES. POWER MUST BE LOCKED OUT. HAND AND EYE PROTECTION MUST BE WORN. KNIVES ARE SHARP AND WILL CAUSE SEVERE INJURY!

(When changing knives, refer to drawings on pages 7.3 & 7.4)

(Items 1-7 apply to picture on page 4.1)

1. Disconnect and lock out electrical power.

2. Read the maintenance manual and understand the procedures for changing knives.

3. Remove the collection drawer (A).

4. Remove the safety grate (B).

5. Remove the screen by placing one hand on the bottom of the screen, then using your free hand, lift the screen holding rods (C) from the holder (E). The screen holding rods (C) may now be pulled from the cutterhouse allowing the screen to be removed from the granulator.

6. The infeed hopper (D) may now be opened by first, turning the safety switch knob (F) to its full counter-clockwise position. After this has been accomplished, the two hopper hold down clamps are loosened and put into their open position. The hopper may now be opened.

7. Clean the cutterhouse (H) of any remaining product. The rotor and knives may become lodged if this is not clean.

8. **CAUTION! Before proceeding, ensure that the work area is free of processed material or other debris. Reaching into the knife area for balance may cause severe injury!**

9. See figure 2 on page 7.3, following this section for knife removal.

10. Remove the rotating knife bolts and washers (A) with wrench provided in tool kit (or) with torque wrench and proper socket. (The use of U.S. hex sizes will damage the bolt head.) This will allow the rotating knife to be removed. The three remaining rotating knives are removed following this same procedure.

11. The fixed knives are removed by first, loosening the six cutterhouse holding screws (B). Screw the "T" handle that is provided in the tool kit (supplied with the granulator) into the end of the fixed knife. Adjusting screws (D) are loosened by turning them counter-clockwise. It is not necessary to remove these screws. The knife holding screws (C) are then loosened and removed. Located in each corner of the cutterhouse are four jack screws (G), two for each fixed knife. These screws are turned clock-wise to separate the cutterhouse halves. Once the cutterhouse has been slightly separated, the fixed knife is pulled from its mounting position using the "T" handle. Repeat this procedure for the remaining fixed knife.

12. Ensure that the fixed knife mounting surfaces are free of foreign material before replacement knives are installed.

WARNING! Knives are sharp and can cause severe injury. Use caution when installing the replacement knives. Hand and eye protection must be worn! Do not quickly reach for dropped tools!

13. Before installing the replacement knives, ensure that all oil or sharpening coolant has been removed.

14. To replace the knives, first screw the "T" handle into the end of a fixed knife. The knife is then inserted into its mounting slot. It will only fit one way, as the cutterhouse is milled to the angle of the knife. Screws (C) are then installed in the knife. Do not tighten them at this time. The knife adjusting screws (D) are then turned clockwise until the knife contacts the milled stop in the cutterhouse. The knife holding screws (C) are now tightened with normal hand pressure. Repeat this procedure for the remaining knife. Turn the jack screws (G) counter-clockwise so that they are not in contact with the lower half of the cutterhouse. Failure to do this, may damage the knife or cause it to fracture under grinding conditions! Tighten the cutterhouse holding screws (B) with normal hand pressure.

15. Inspect the rotating knife holding screws and washers (A) for damage. The knife holding washers must be free of burrs! The holding screw threads must be clean and the screw heads of sufficient integrity to allow the proper amount of torque to be applied. The rotating knife holding screws should be replaced after they have been torqued down four times. <u>The rotating knife screws have a specific rating. Replacement with an inferior quality may cause severe machine damage and will void the warranty.</u>

16. Before installing the rotating knives, carefully check that the knife mounting surfaces on the rotor are free of foreign material and have not been damaged by foreign material entering the granulator.

17. Position a rotating knife on its mounting surface and install two holding screws and washers (A). At this point, the screws should be only finger tight. Adjust the rotating knife to the down stroke fixed knife first. A piece of shim stock, twelve inches long is inserted between the rotating and fixed knife as shown in figure 2. For most applications, a .0059 piece of shim stock is used. To achieve the desired clearance, the adjusting screws (F) are turned counter-clockwise. This moves the rotating knife closer to the fixed knife. As the rotating knife is moved closer to the fixed knife, the rotor is carefully moved by hand in an upward movement until it contacts the shim stock. Do not move the rotor in a cutting action against the fixed knife while adjustments are being made. Knife cutting edge damage may occur. Once the proper clearance is achieved, the rotating knife holding screws (A) are tightened with a torque of 160 ft. lbs. with a torque wrench and the adjusting screw lock nuts (E) are tightened against the rotor. A block should be used to prevent the rotor from turning during the torquing procedure. After torquing, the rotor with the rotating knife attached is turned towards the rear fixed knife to check the clearance. A downward motion should be used to check the clearance on the rear knife. If the correct clearance is not obtained, it is necessary to loosen the cutterhouse holding screws (B) at the rear knife. Screws (D) and (C) are loosened and the fixed knife is then moved to obtain the desired clearance. After achieving the desired clearance, these screws are again tightened. Install the remaining rotating knives following the above procedure. The fixed knives should not need to be moved again. After all the rotating knives have been installed, the torque on all holding screws (A) should again be checked to make sure that a holding screw was not missed. Clearance on all knives should once again be checked.

18. The granulator may now be returned to service by reversing steps one through six.

19. Torque on the rotating knife holding screws (A) should be checked after operating two hours.

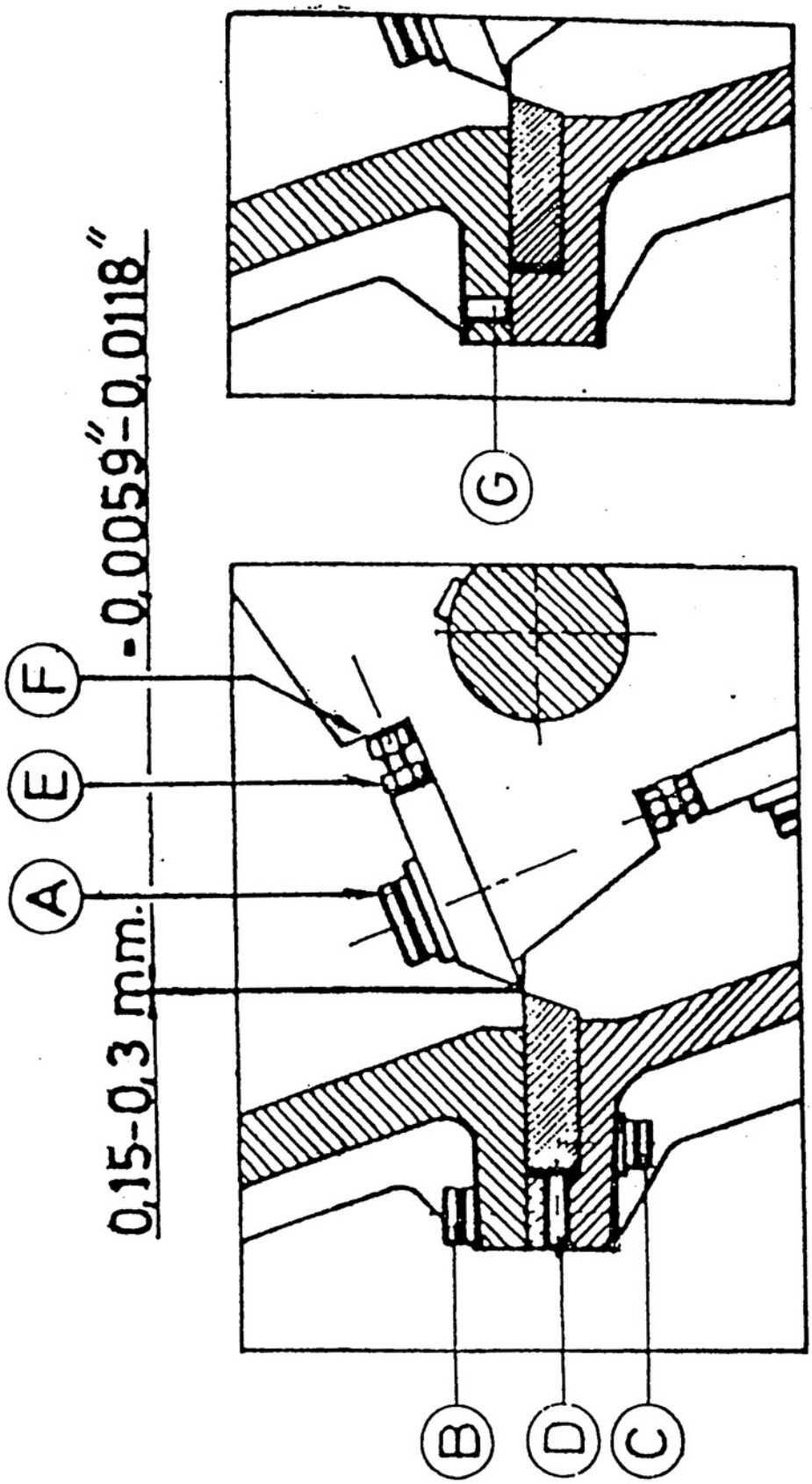
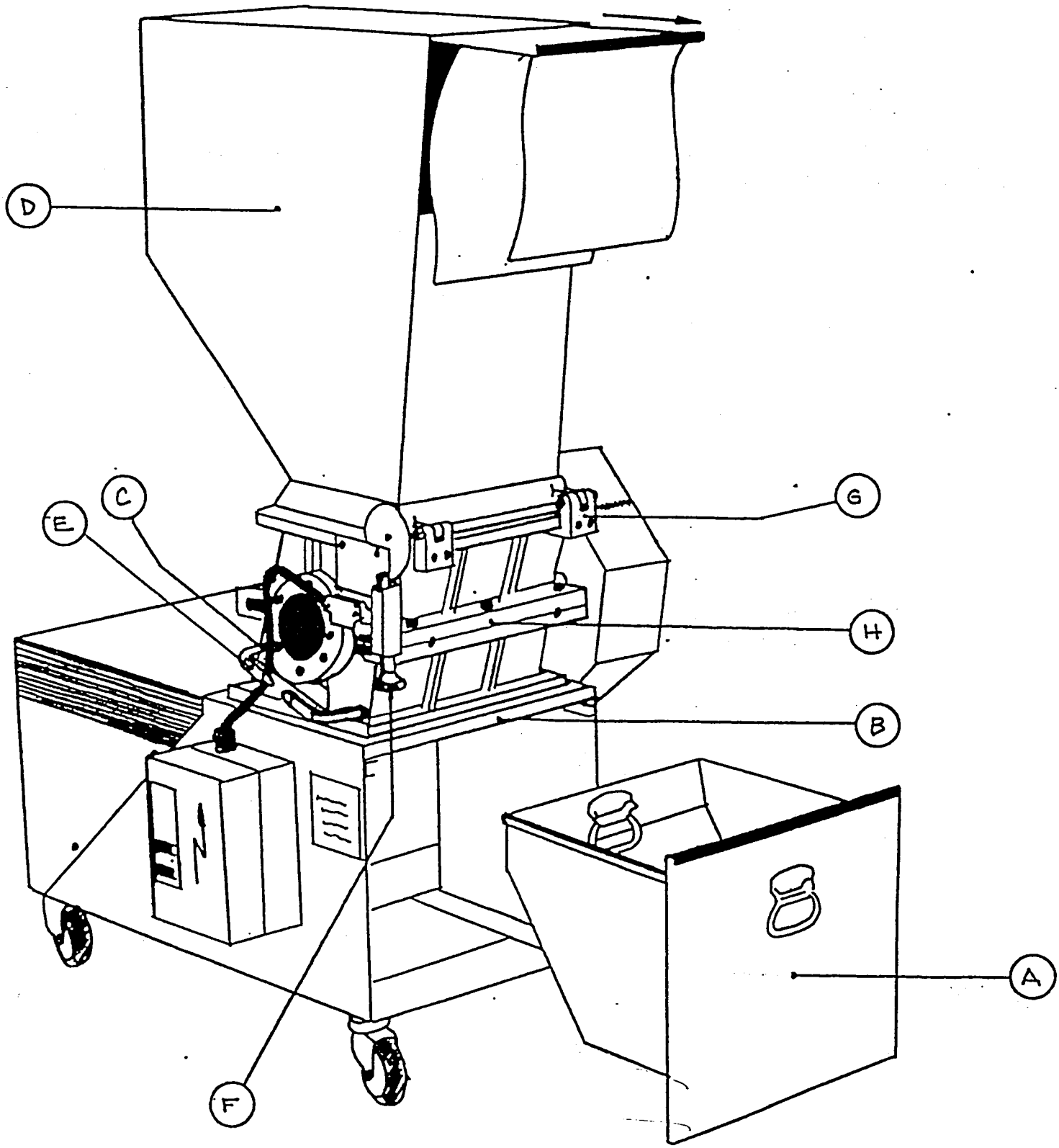


Fig. 2


D
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KNIFE SHARPENING

The knives are to be ground per the dimensions and angles specified in Fig. 4. (on page 8.1) An optional grinding fixture is available from Conair to achieve the correct grinding angles. (see Fig. 5) This fixture is suitable for mounting to a magnetic table.

The fixed knife is locked into the fixture to achieve the correct cutting angle.

On the rotating knives, the secondary angle is ground first at 40°. The rod (A) is placed under the knife so that the lower part of the knife will rest against it. The knife is then locked into position for grinding. After grinding the secondary angle, loosen the knife and remove rod (A). The knife should then be locked into position and the primary angle of 35° ground. It is important that knives be ground only on the surfaces indicated in Fig. 4, otherwise the integrity of the knife will be lost, and in the case of the fixed knives, it will destroy the ability of this knife to be held in place.

When grinding the rotating knives, it is important that all knives are ground equally so no imbalance will occur when they are mounted on the rotor. Normally, it is not necessary to grind out all of the nicks that may develop in a knife. It is important however, to have a keen cutting edge along the entire length of the knife. Discretion should be used when deciding to sharpen a knife that has large areas missing. The integrity of the knife could be compromised and may result in damage to the machine.

When grinding, the knife must be **ABUNDANTLY WATER COOLED AT ALL TIMES** and must not be burnt or tempered on the edge. If this happens, the knife will lose its durability and wearability. Once this occurs, the knife cannot be repaired by further grinding.

KNIFE SHARPENING SHOULD ONLY BE DONE BY AN EXPERT!

Fig. 4

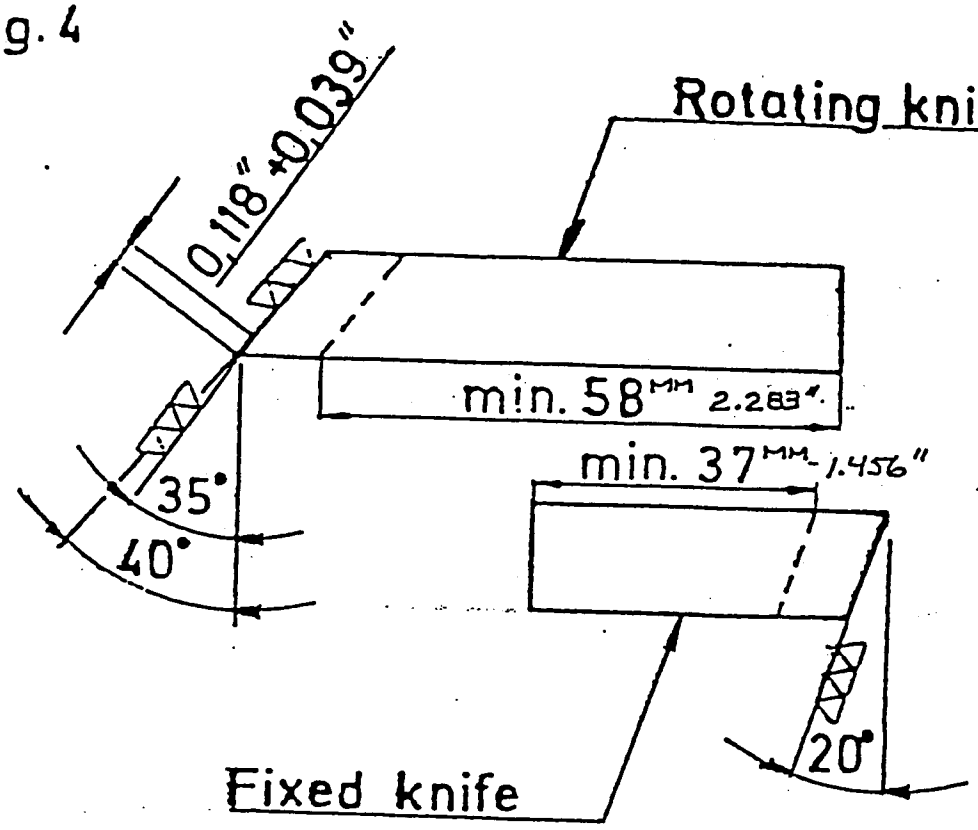
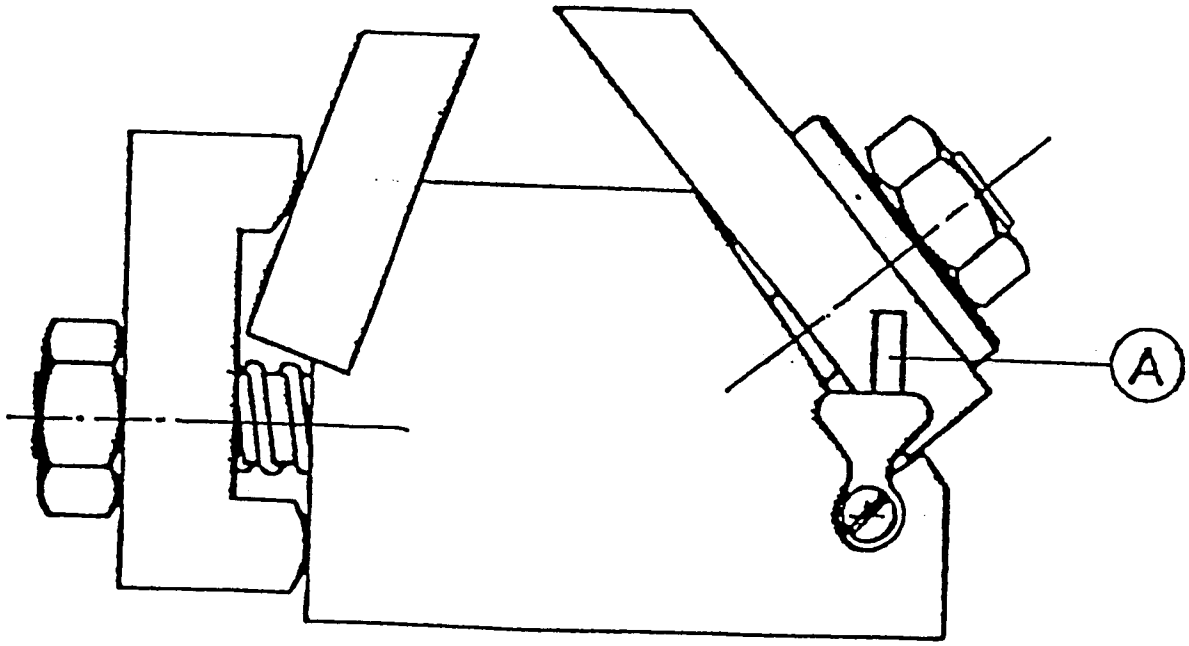


Fig. 5



8.1

Grinding fixture

PARTS LIST FOR MODEL 912C, LB, E and K

IMPORTANT! During manufacture, only the highest quality parts are used. RAPID offers these same high quality parts at competitive prices to keep your RAPID granulator performing like new. Machine warranty is voided by using other than RAPID replacement parts.

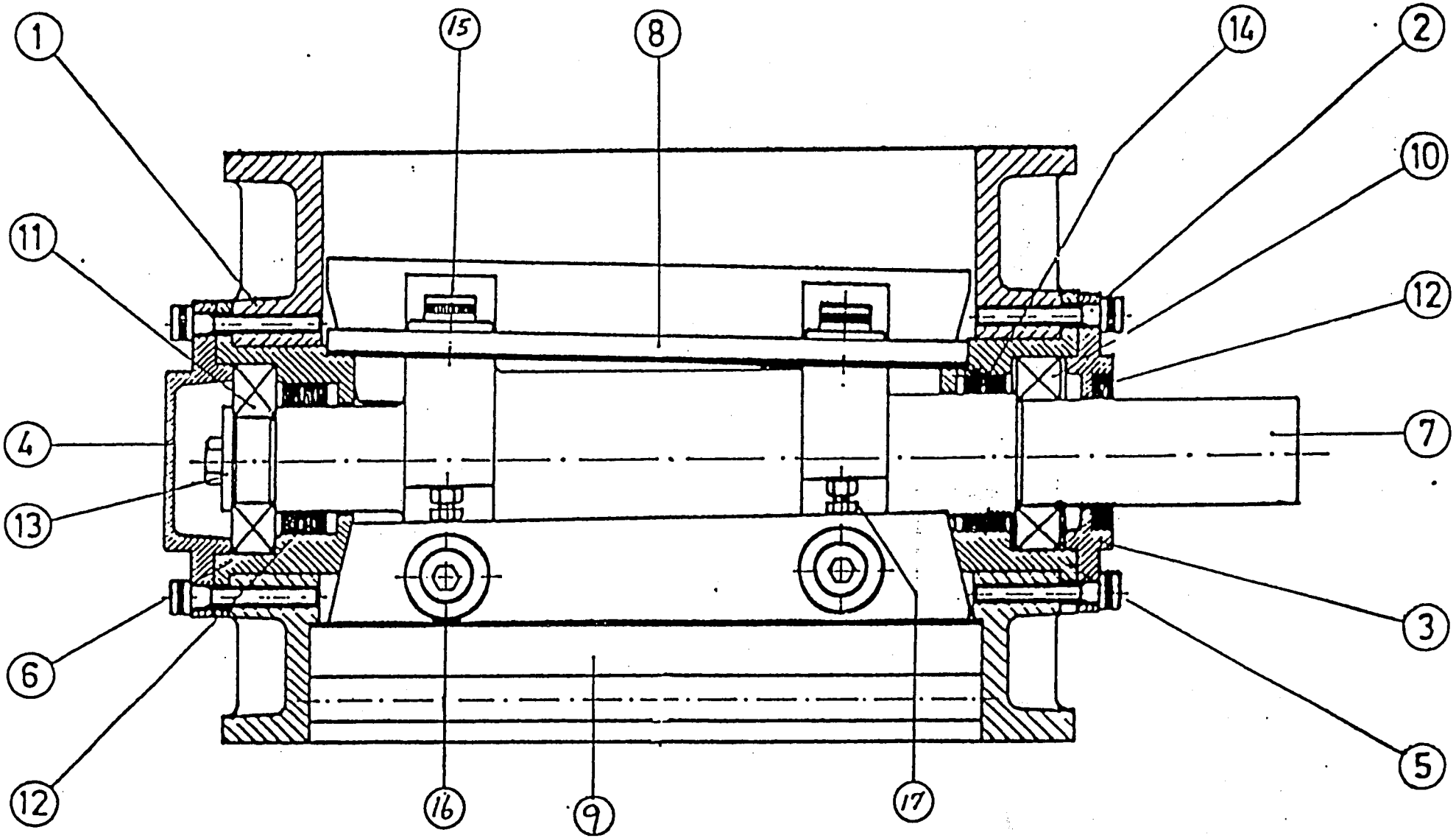
When ordering, please state the serial number of the granulator the parts are being ordered for.

ITEM#	QUAN	PART#	DESCRIPTION
1.	1	S135-01-0004	Cutterhouse
2.	12	S139-07-0013	Outer bearing cover screw
3.	1	S128-02-0011	Outer bearing cover, drive side
4.	1	S128-02-0010	Outer bearing cover, non driven side
5.	1	S128-03-0002	Inner bearing cover, drive side
6.	1	S128-03-0001	Inner bearing cover, non driven side
7.	1	S131-01-0006	Rotor parcel complete
8.	4	U124-03-0016	Rotating knife
9.	2	U124-03-0018	Fixed knife
	1	U124-07-0001	4 + 2 complete knife set
10.	1	S128-01-0003	Bearing, drive side
11.	1	S128-01-0002	Bearing, non drive side
12.	3	S139-04-0007	Grease retention seal
13.	1	S139-01-0002	Bearing washer
14.	2	S139-04-0004	Grease retention seal
15.	8	S139-02-0011	Rotating knife screw
16.	8	S139-01-0012	Rotating knife washer
17.	8	S139-07-0009	Rotating knife adj. screw w/nut
18.	4	S139-07-0016	Holding screw, fixed knife
19.	4	S139-07-0018	Adjusting set screw, fixed knife
20.	6	S139-07-0013	Screw, cutterhouse
21.	1	S136-09-0001	Screen, hole size 1/8"-4mm
		S136-09-0002	Screen, hole size 1/4"-6mm
		S136-09-0003	Screen, hole size 5/16"-8mm
		S136-09-0004	Screen, hole size 3/8"-10mm
		S136-09-0005	Screen, hole size 1/2"-12mm
		S136-09-0006	Screen, hole size 5/8"-17mm
		S136-09-0007	Screen, hole size 1"-25mm

22.	3	S106-03-0014	Drive belt, C, LB and K models
	4	S106-03-0014	Drive belt,15hp motors only
	3	U106-03-0057	Drive belt, 5hp C and K models
23.	1	S106-01-0092	Rotor drive pulley
24.	1	S106-02-0020	Expandable bushing
25.	1	S106-00-0010	Rotor shaft key
26.	1	U133-02-0079	Standard hopper
		U133-02-0073	"LB" style hopper
		U133-02-0079B	"K" style hopper
	2	S139-03-0002	Hopper clamp
	2	S139-15-0004	Hopper clamp spring
	2	S139-07-0060	Hopper clamp screw
	2	S139-08-0003	Nut, hopper clamp screw
27.	1	U133-08-0020	Hopper flap assembly
	1	U133-08-0017	Flap assembly, "LB" style hopper
	1	U133-08-0020	Flap assembly, "K" style hopper
28.	1	S136-17-0006	Holding bar lock assembly
29.	2	S136-17-0007	Screen holding bar
30.	2	S133-07-0003	Hopper hinge
31.	1	U106-06-0015	Upper belt guard
	1	U106-06-0016	Lower belt guard
32.	1	U136-23-0013	Safety screen
33.	1	U137-04-0029	Standard materials bin
	1	U137-04-0031	Optional pneu-vey (state outlet size)
34.	4	U109-03-0034	Caster
35.	1	S101-11-0088	Hopper safety switch assembly
	1	S139-07-0090	Actuator screw, only
	1	S139-18-0010	Knob for actuator screw, only
	1	S101-11-0056	Switch only
	1	U101-11-0087	Screen safety switch
		U101-11-0081	Actuator CAM
		DRIVE MOTORS	
	1	U101-13-0102	5hp, 900RPM 230/460/3/60
	1	U106-01-0050	Pulley
	1	U106-02-0010	Bushing
	1	U101-33-0002	Motor mount
	1	U101-13-0089	5hp, 1800 RPM 230/460/3/60
	1	U106-01-0051	Pulley
	1	U106-02-0033	Bushing
	1	U101-33-0009	Motor mount

DRIVE MOTORS

1	U101-13-0077	7 1/2hp, 1800 RPM 230/460/3/60
1	U106-01-0051	Pulley
1	U106-02-0015	Bushing
1	U101-33-0010	Motor mount
1	U101-13-0073	10hp, 1800 RPM 230/460/3/60
1	U106-01-0051	Pulley
1	U106-02-0015	Bushing
1	U101-33-0011	Motor mount
1	U101-13-0078	15hp, 1800 RPM 230/460/3/60
1	U106-01-0065	Pulley
1	U106-02-0010	Bushing
1	U101-33-0002	Motor mount



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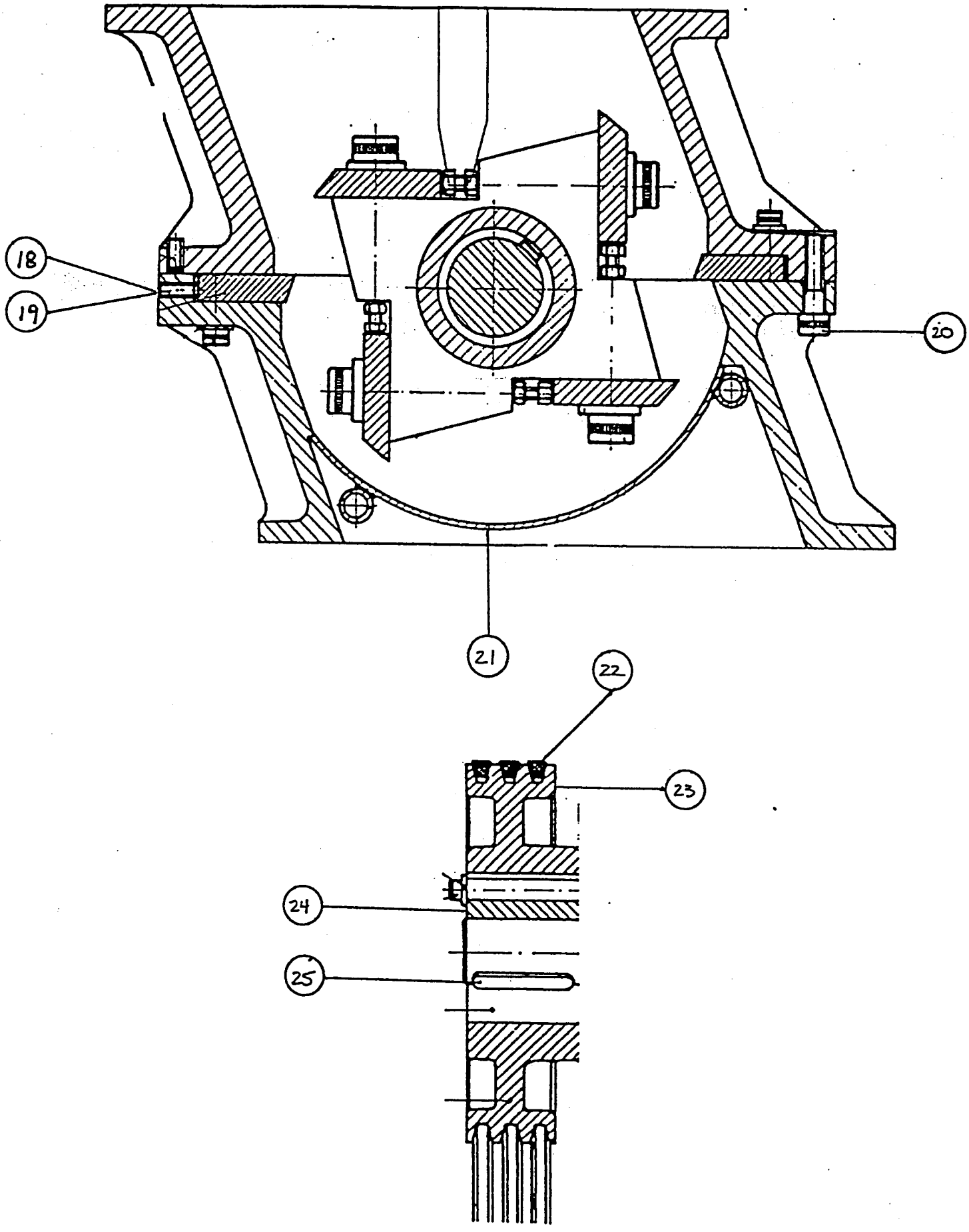
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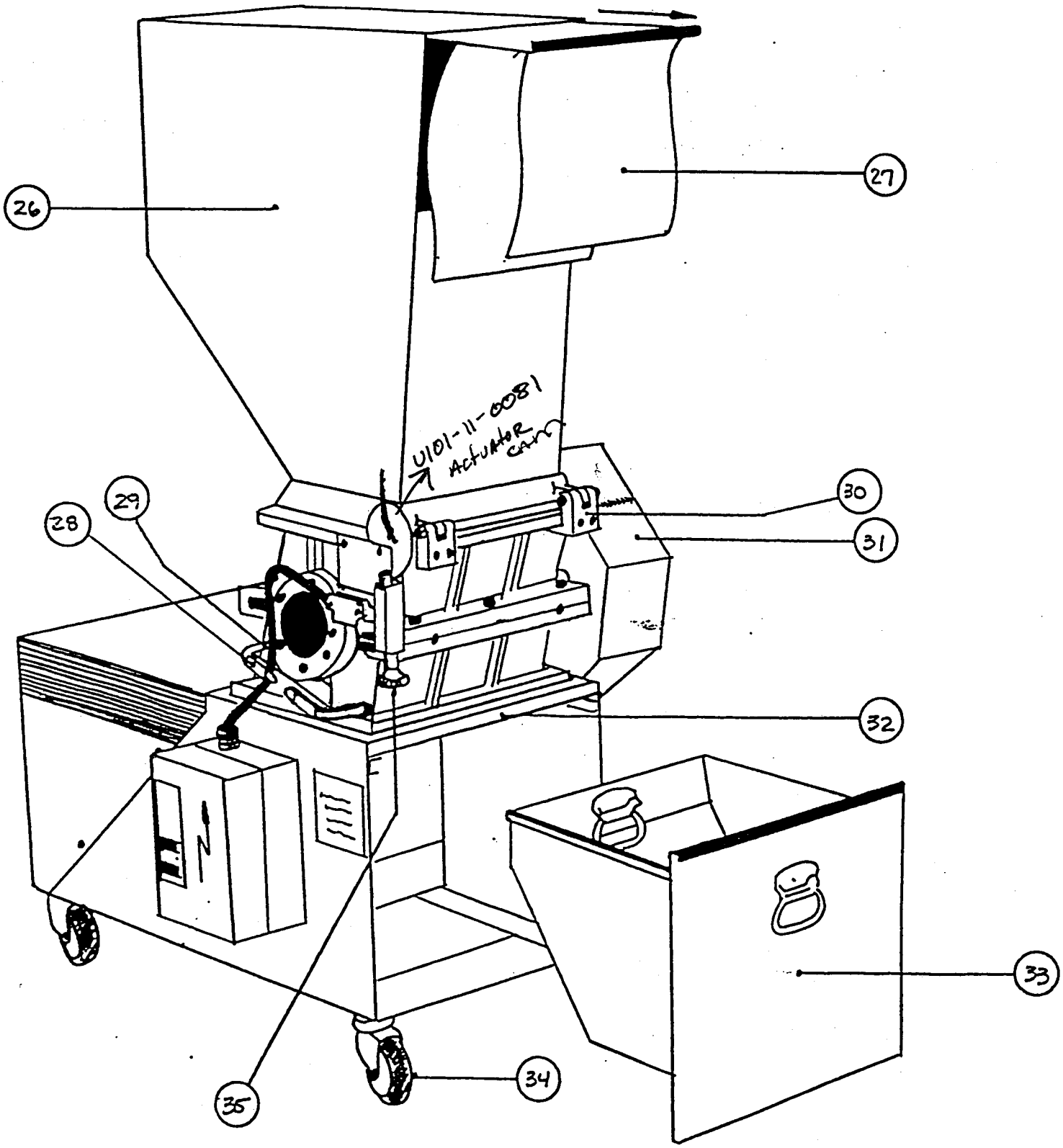
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U101-11-0081
ACTUATOR
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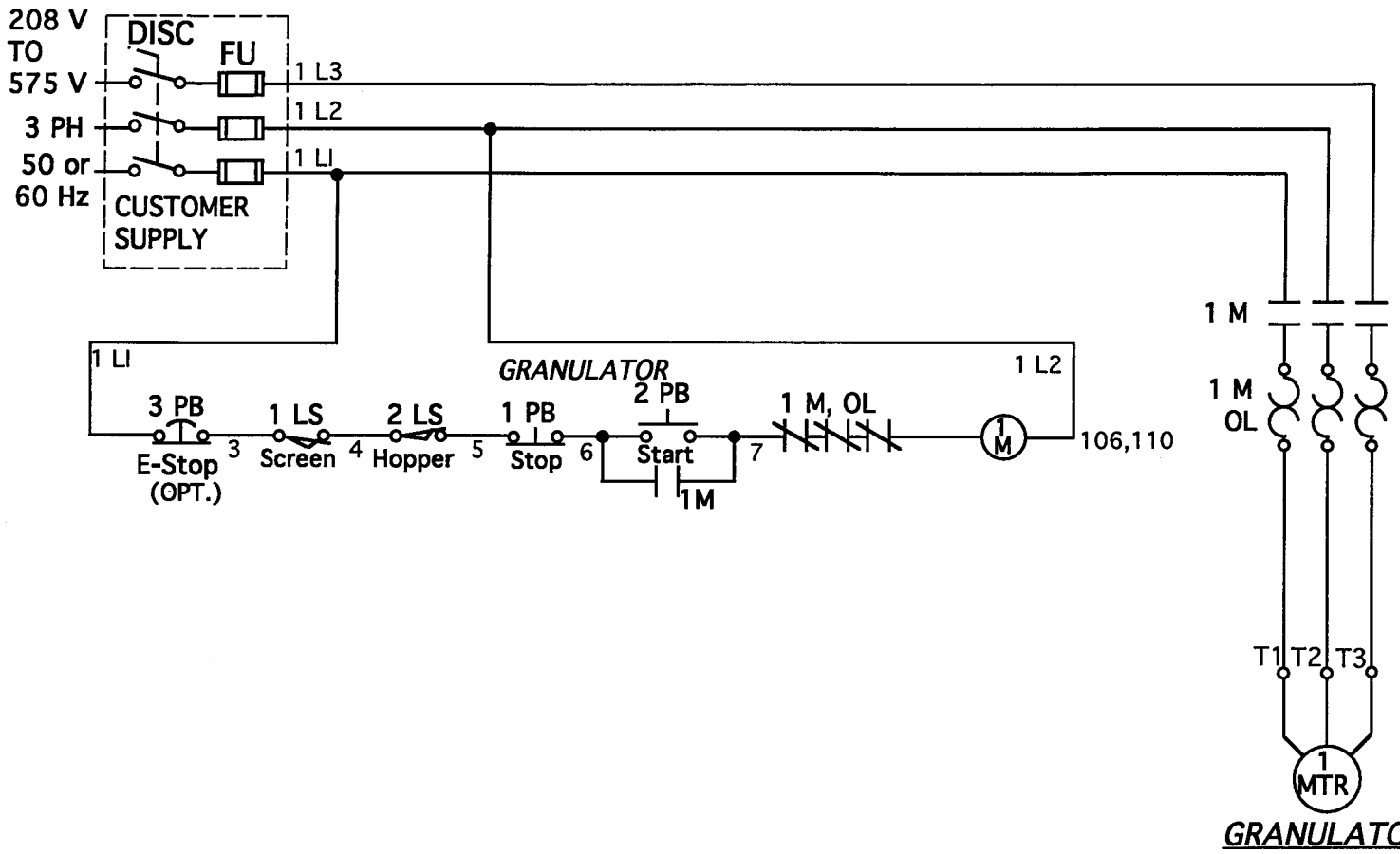

REV NO.	LET.	DESCRIPTION	BY	DATE

CONAIR MARTIN
Part of The Conair Group

NAME: ELEC. SCHEMATIC

1 MTR, 208 Thru 575V, STD

MACHINE SIZE: CE-912

DR. BY	DATE	CHK. BY	SCALE
H.O.	01-11-94		NONE

DWG NO. C-201-00-0694 | A | SHT. 1 OF 1