

IDENTIFICATION

Owner:

.....

Adress

.....

City

Machine Model

Serial Number

Manufacturing Year

Invoice N°

Date / /

Authorized Dealer

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WARRANTY CERTIFICATE

1. JUSTINO DE MORAIS, IRMÃOS S/A – JUMIL, guarantees the agricultural equipments and its respective parts, of its manufacturing, hereinafter simply denominated PRODUCT, are free of workmanship defects, as in its construction as in the material quality.

2. The questions which are related to the Warranty Grant are ruled as per the following principles:

2.1. The constant warranty of this certificate will be valid:

a) By the 6 (six) months time counting from the date of the effective PRODUCT delivery to the agriculturist consumer;

b) Only for the PRODUCT that will be acquired, new, by the agriculturist consumer, directly from the Dealer or JUMIL'S Dealer, reserved and settled in the item 2.3.

2.2. Apart from the hypothesis in the sub-item, the Warranty to the consumer will be serviced by **JUMIL**'s dealer.

2.3. If the PRODUCT is sold to the farmer by a dealer who is not **JUMIL**'s, the right of Warranty will remain, but in this case, it must be made directly from **JUMIL**, in the terms of this Certificate.

2.4. The Warranty will not be granted if any damage to the PRODUCT or in its performance is caused by:

a) Negligence, imprudence or lack of operator's knowledge.

b) Non-observance of instructions and recommendations of use and maintenance cares, stated in this Instructions and Operator's Manual.

2.5. Likewise, the warranty shall not be granted if the PRODUCT undergoes suffer any transformation or modification after the sale, or if the purpose that destinies the product is altered.

2.6. The replaced or changed PRODUCT under this Warranty will be **JUMIL**'s Property, it must be returned to the customer after legal applicable requirements are fulfilled.

2.7. In the accomplishment of its constant evolution, **JUMIL** makes, permanently, to its products the improvements or modification, without having the obligation of making the same ones in products or models previously sold.

2.8- JUMIL will not be responsible by the indemnity of any harvest damage, due to inappropriate adjustment of Product devices, relative to the fertilizer or seed distribution

Congratulations, you have just purchased an equipment which is manufactured with the most modern process in technology and efficiency on the market, it is guaranteed by the well-known **JUMIL** Trade Mark.

This manual has the aim of instructing you in the correct use so that you can get the best performance and advantages the equipment has. For this reason, we recommend you to proceed with your attentive reading before working with the equipment.

Always keep it in a safe place in order to be easily checked whenever necessary.

JUMIL and its dealer network will always be at your service for information and technical explanations what is may be necessary for your product.

Phone: ++16 3660-1023

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INDEX

1 - INTRODUCTION	05
2 - SAFETY STANDARDS	06
3 - TECHNICAL SPECIFICATIONS	08
4 - OPTION	13
5 - Componentes que acompanham a maquina	13
6 - EQUIPMENT COMPOSITION	14
6.1 - Acessorios JM4000	14
6.2 - Acessorios JM4000 C	15
6.3 - Intake Spouts	16
6.4 - Screen	16
6.5 - Chassis B-80 with Clutch	16
6.6 - Rotor	17
7 - PRODUCT ASSEMBLING	17
7.1 - Spout Assembling	17
7.2 - Instruction for fixed installaton on the chassis	18
7.3 - Adaptation of JM4000 to the tractor	19
7.4 - Adaptation of Implement for Silage	20
7.5 - Assembling of Hammers on the flywheel set	20
8 - PREPARE FOR THE USE	21
8.1 - Re-tightening of Blades and Counter-Blades	21
8.2 - Prepare of the tractor	21
8.3 - Hitching the machine to the tractor	22
8.4 - How to Adjust the machine to the tractor	23
8.4.1 - Transmission Shaft Hitch	25
8.5 - Machine leveling	26
8.6 - Transmission Belts Adjustment	26
8.7 - Formula for pulley diameter calculations either motor or machine rpm	28
8.8 - Green forage preparation – sugar cane, pasture, manioc (cassava)	29
8.9 - Dry ration preparation	29
8.10 - Preparation for bran with integral maize JM4000C	31
9 - MAINTENANCE	31
9.1 - Cleaning	31
9.2 - Replacement and Sharpening of Blades	32
9.3 - Lubrication	33
9.3.1 - Lubrication Objectives	33
9.3.2 - Lubrication Symbols	33
9.3.3 - Lubricants Chart	34
9.3.4 - Lubrication Points	35
Parts Catalog	36

1 - INTRODUCTION

The **JM4000 JUMIL** chopper and disintegrator has been developed according to the customer's requirements and reaching many areas.

For a daily animal feeding with economy of time and of cost.

It makes possible the use of any type of products, green or dry.

It disintegrates, chops and grinds dry grains to become different types of flour, fine or coarse.

It chops green material, in separate or mixed, to produce the forage for a daily feeding.

It uses a great variety of plants and roots, which can be chopped together, it make the ration more balanced and nutritious by assuring even in the winter time (dry season), a plenty of feed, in the beef or milk productions.

For a better performance, the blades have got an appropriate cutting angle, they cut without smashing and they do not eliminate the nutritious plants sap. The drive can be made either by stationary motor or tractor with the three point hydraulic lifting system and power takeoff.

It is easy to be operated; it produces more and reduces the cost.

Some frequent uses of your equipment:

*Sugar cane, pasture, green maize, manioc, integral maize, maize without straw, coarse and fine maize flour.

Some other uses of your equipment:

*To produce flour of dry bread, bone autoclaved flour, to transform nylon foam into granules for stuffing of cushions and pillows, to grind algarroba, to grind manioc branches, to chop integral maize stalk (dry), to chop coconut leaves, etc.

2 - SAFETY STANDARDS

When **JUMIL** manufactures its Agricultural Machines and Implements has the main objective to help the Man to develop a better LIVING STANDARD. However, in the use of these machines some cares must be RESPECTED:

DO NOT DAMAGE THE UNIVERSAL BIOLOGICAL EQUILIBRIUM WITH INCORRECT AGRICULTURAL WORKS.

NOR ALLOW THE MACHINE TO DAMAGE IT. OBSERVE STRICTLY THE SAFETY STANDARDS. BE ATTENTIVE !

1) Always use the appropriate stairs and rails to get on or off the tractor.

2) When starting the motor, be correctly sat on tractor operator's seat and **ABSOLUTLY AWARE** of the complete knowledge of the use of tractor and equipment. Always use the tractor neutral gear, switch off the power takeoff and put the hydraulic command in a neutral position.

3) Do not use the tractor in closed rooms as the smoke from the exhaust pipes are toxic gases.

4) When maneuvering the tractor to be hitched to machine or implements, make sure there is enough room and there is nobody around, make the maneuvers in **LOW GEAR** and be prepared to brake it in an emergency.

5) When using equipments **DRIVEN BY THE POWER TAKEOFF** (to hitch, to unhitch or to adjust) **STOP THE POWER TAKEOFF, STOP THE MOTOR AND REMOVE THE KEY FROM THE IGNITION. BE ATTENTIVE !**

6) When using loose clothes, always take care, do not get closer to the moving parts, your clothes can touch them and cause accidents.

7) Do not make any adjustment when the machine is being operated.

8) When working with implements or machines. **IT IS STRICTLY FORBIDDEN THE TRANSPORT OF ANY OTHER PERSON THAN THE OPERATOR, OR ON THE TRACTOR EITHER ON THE IMPLEMENT**, in case there is a seat or appropriate platform for this finality.

9) When working in steep areas, work with a total attention, always keep the necessary stability, in case of a lack of equilibrium, reduce the acceleration and keep the equipment on the soil then turn the tractor wheels to a descendant position.

10) On down the hills, always keep the tractor in geared position, the same you would use to go up.

11) When transporting the machine hitched to the tractor or turning it at the crop corners, we recommend you to take care, by reducing the speed to prevent force on the toolbar or drawbar.

12) Unless in specific occasion, the brake pedals must be connected on another (not independently).

13) If after hitching the implement to the hydraulic three points lift, and you realize its front is too light and it can go up, add necessary weights on its front.

14) When leaving the tractor, put the gear in neutral position, lower the implements which are raised, put the hydraulic command system in a neutral position and action on the stop brake.

15) When the tractor is not used for a long period, besides the previous procedures, stop the tractor motor and use the first gear if you are on a steep road and rear gear if you are going down the hill.

16) ALWAYS FOLLOW CAREFULLY THE SAFETY STANDARDS MADE BY THE TRACTOR'S MANUFACTURER.

17) A MAXIMUM CARE WHEN USING SEEDS WITH CHEMICAL TREATMENT, YOU MAY ASK FOR AN AGRONOMIST ASSISTANCE. DO NOT MANIPULATE CHEMICAL TREATED SEED WITH BARED-HANDS.

17.1) ALWAYS WASH YOUR HANDS AND BODY EXPOSED PARTS WITH A LOT OF WATER AND SOAP, AT THE END OF EVERY WORK SHIFT, MAINLY BEFORE EATING, DRINKING OR SMOKING.

17.2) Do not throw rest of treated seeds and/nor pesticide next to drinkable water well, stream, river and lakes.

17.3) Do not re-use empty container and flasks.

17.4) Always keep the genuine package and always closed and in a dry, air place and of a difficult access to children, irresponsible people and animals.

17.5) Avoid contact with the skin.

17.6) Before using pesticides, READ THE LABEL AND FOLLOW INSTRUCTIONS.

18) when driving the machine on roads, observe the following additional instructions:

a) if the machine is equipped with row markers, the row marker arms must be raised and held with their corresponding disc to inside position.

b) The equipments with an inferior or over 3m width can be transported on roads since they have suitable signs.

c) The equipments which cover the tractor rear signing lights must have alternative rear signal light.

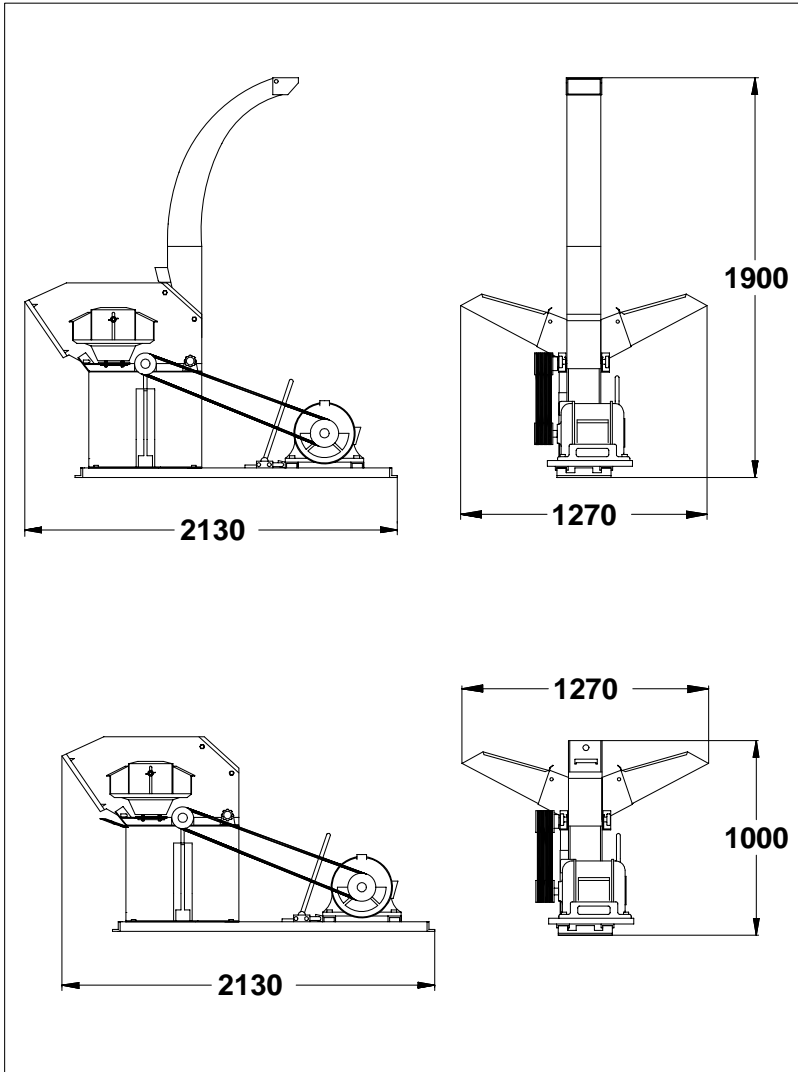
ATTENTION

When receiving your JUMIL equipment, check attentively its components which are delivered with the equipment and read carefully the warranty certificate in the first page of instruction manual.

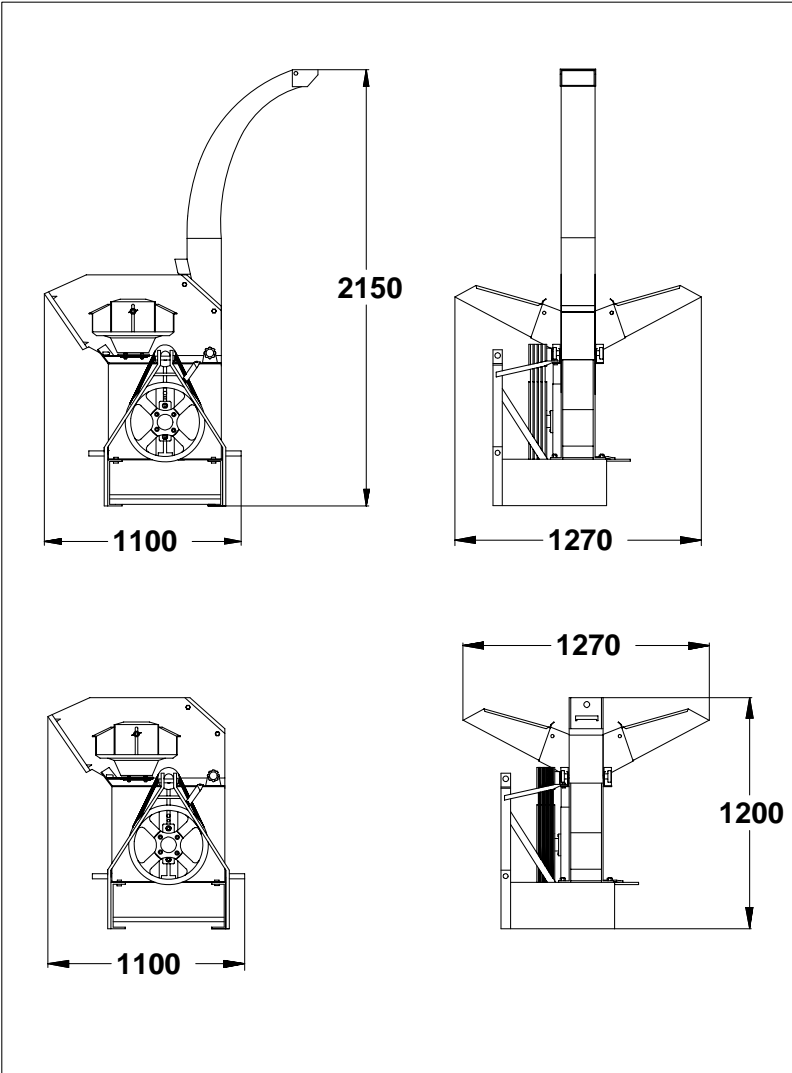
3 - TECHNICAL SPECIFICATIONS

Model	JM 4.000
RPM	1.900 to 2.200
Number of rotary blades	6
Counter blade	2
Counter blade adjustment	1 or 2mm from Rotor Blade
Nr. of movable hammers (for dry material)	18
PRODUCTION KG/H	
Sugar cane	4.000 to 6.000
Grass, sweet maize, manioc	2.000 to 3.000
Maize cob and straw	700 to 1.800
Maize without straw	800 to 1.200
Coarse maize flour	500 to 800
Fine maize flour	150 to 300
STATIONARY MOTOR BASE	
Elétric	15 to 20 HP
Gasoline / Diesel	20 to 25 HP
TRACTOR	
Required Power	30 HP
WEIGHT	
Basic machine	140 Kg
Machine with the tractor implement	180 Kg
Machine with B-80 chassi	170 Kg

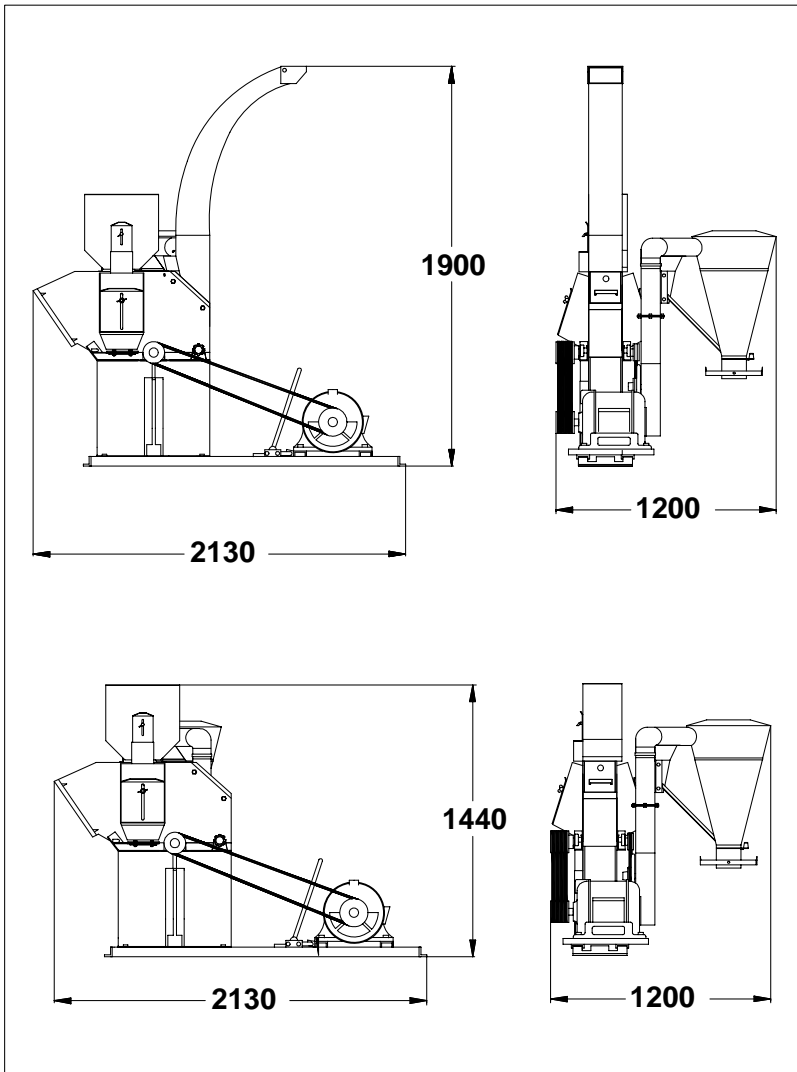
JM 4000 WITH BASE FOR MOTOR AND CLUTCH



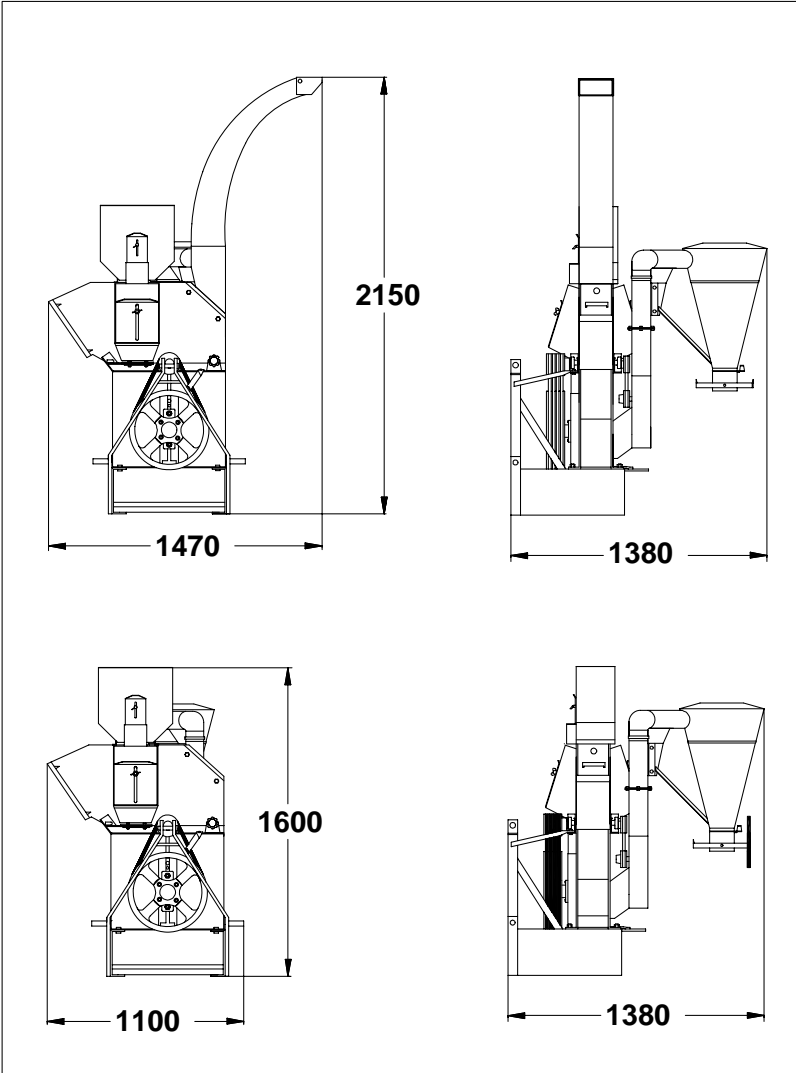
JM 4000 FOR TRACTOR USE AND SILAGE SPOUT



JM 4000 CYCLONE FOR MOTOR AND CLUTCH



JM 4000 CYCLONE FOR TRACTOR USE AND SILAGE SPOUT



4 - OPTION

MODELS	DESCRIPTION
<i>JM 4000</i>	BASIC MACHINE
<i>JM 4000B</i>	MACHINE WITH B-80 CHASSI
<i>JM 4000BS</i>	MACHINE WITH B-80 CHASSI AND SILAGE SPOUT
<i>JM 4000PT</i>	MACHINE WITH TRACTOR IMPLEMENT
<i>JM 4000PTS</i>	MACHINE WITH TRACTOR IMPLEMENT AND SILAGE SPOUT
<i>JM 4000S</i>	MACHINE WITH SILAGE SPOUT
<i>JM 4000C</i>	MACHINE WITH CYCLONE

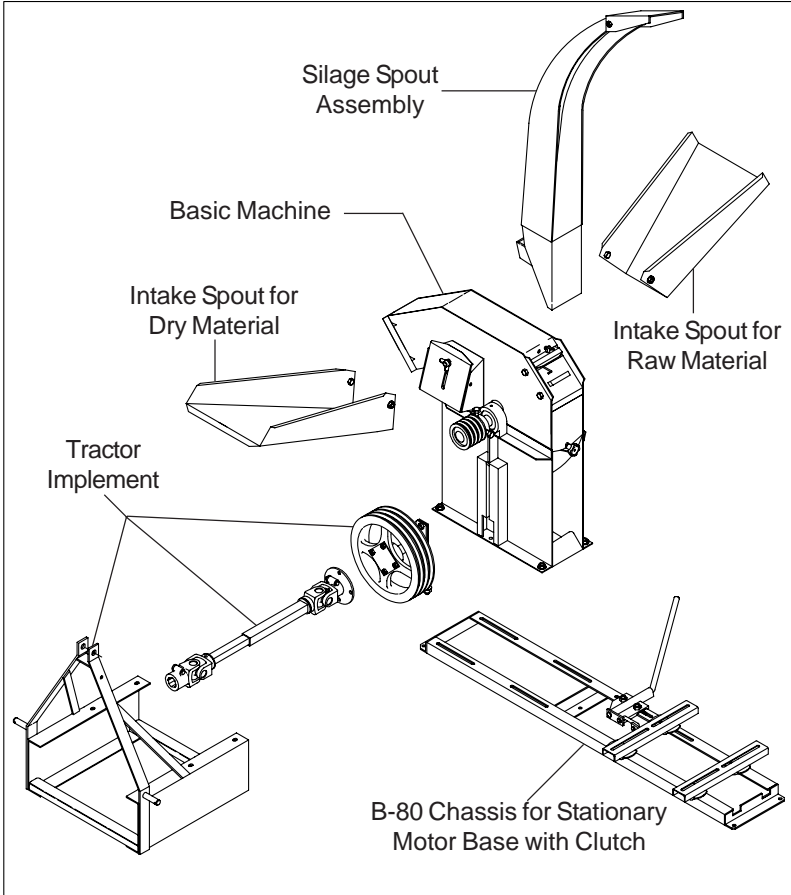
DESCRIPTION	PART NUMBER
SILAGE SPOUT	23.04.007
B-80 CHASSI FOR STATIONARY MOTOR BASE	23.01.011
CYCLONE	23.04.008
TRACTOR IMPLEMENT	23.04.009

5 - PRODUCT COMPOSITION

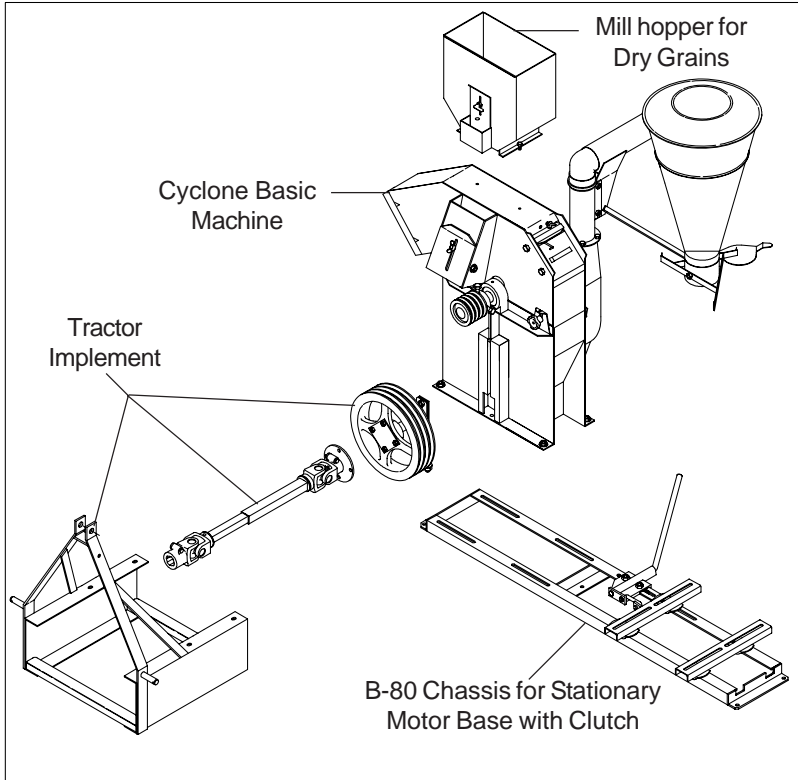
COMPONENTS		JM 4000 MODELS QUANTITY						
DESCRIPTION	PART NUMBER		B	BS	PT	PTS	S	C
B-80 CHASSI	23.04.011	-	1	1	-	-	-	1
SCREEN ASSEMBLY 1 MM HOLE	42.01.755	1	1	1	1	1	1	1
INTAKE SPOUT	42.01.760	2	2	2	2	2	2	2
SCREEN 6 MM (1/4") HOLE	42.01.761	1	1	1	1	1	1	1
SCREEN 10 MM (3/8") HOLE	42.01.762	1	1	1	1	1	1	1
SCREEN 3,8 MM (1/8") HOLE	42.01.763	1	1	1	1	1	1	1
SILAGE SPOUT CONDUCTOR ASSEMBLY	42.02.452	-	-	1	-	1	1	-
SILAGE SPOUT ASSEMBLY	42.02.453	-	-	1	-	1	1	-
SCREEN WITHOUT HOLES	42.02.454	-	-	1	-	1	1	1
PTO SHAFT 400 MM	42.07.229	-	-	-	1	1	-	-

6 - EQUIPMENT COMPOSITION

6.1 - JM4000 ACCESSORIES

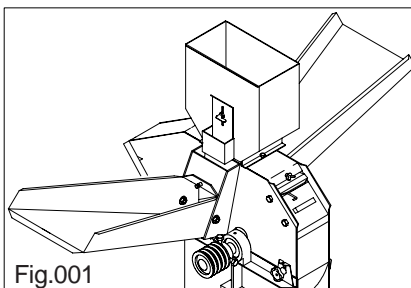


6.2 - JM4000 ACCESSORIES CYCLONE



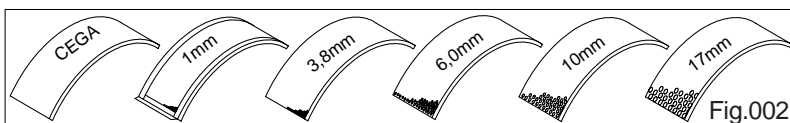
6.3 - Intake spouts

An intake spout for green material: sugar cane, green maize with leaves, pastures and leguminous of many species; manioc, pumpkin etc. Another spout for dry materials: maize in cobs with or without straw, dry manioc and other products. This machine can be operated with both spouts simultaneously and to produce an nutritive ration with dry or green materials (Fig. 001).

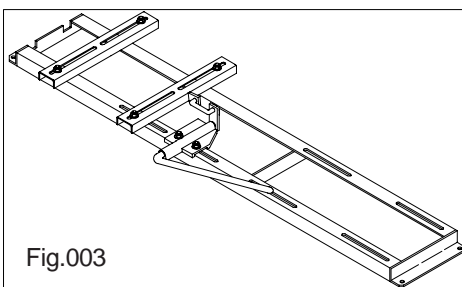


6.4 - Screen

- 1 with holes of 17,0 mm
- 1 with holes of 10,0mm for maize bran or maize crumbs
- 1 with holes of 6,0mm for maize bran
- 1 with holes of 3,8mm for a coarse maize flour
- 1 with holes of 1mm for fine maize flour (Fig. 002)



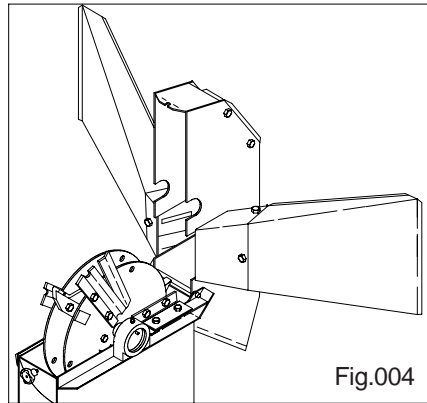
6.5 - Chassis B-80 with Clutch



Optional implement to be assembled to stationary motors. The clutch makes ease the start-up and softens the thrust of the machine and does not force any of them. If the motor is electric, it is not necessary the use of special tools (Fig. 003).

6.6 - Rotor

It is static and dynamic balanced through electronic process; it works without causing any vibration in the machine. It is equipped with 6 blades and 3 sets of 6 movable heat-treated steel hammers (heat and annealing) and highly resistant, total of 18 hammers for dry materials (Fig.004).



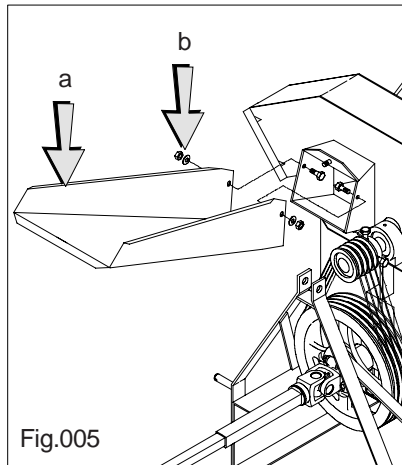
7 - PRODUCT ASSEMBLING

ATTENTION

The machine is delivered semi-knocked down. Check all machine components being delivered with the machine and follow carefully the assembling instructions and adjustments before making any operation.

7.1 - Spout Assembling

To make an assembling of it, just fit the intake spout ("a" Fig.005) on the support and tighten the fixing bolts ("b" Fig. 005).



7.2 - Instruction for fixed installation on the chassis

For the attachment of **JM4000** with stationary motor it is necessary the fixation of them on a chassis, **JUMIL** offers as an option the Chassis **B-80** (Fig.006) which fits best to your implement and to the motors, they can be electric, diesel or gasoline.

As to diesel motors or as to gasoline ones, it is necessary to put up on the chasse the clutch ("a" Fig.006), the clutch facilitates the startup of motor and machine. Firstly the motor is started and then clutch slowly the machine (follow the arrow direction) so that the machine starts slowly its operation and without thrusts, this chassis is optionally supplied and it comes with the holes and slots for machine assembling ("b" Fig.006) and the motor ("c" Fig.006), "V"-Belts measurement B78/ B80/ B81.

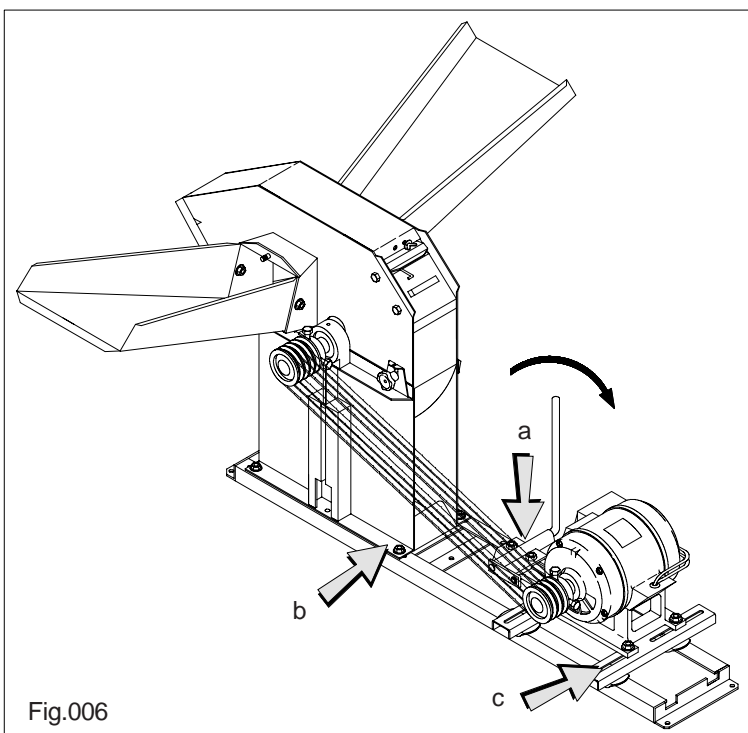


Fig.006

Note: it is recommended to use in the motor a pulley of high revolution in the machine shaft of 160mm (part # 42.05.311), and in the motor a low revolution pulley of 135mm (part # 42.07.946) 3 CTB.

Electric Motor

The electric line must be checked according the technical specifications required by the motor capacity. Examples: distance from the transformer to the motor less than 50 m, gauge of the wires of the electric line no. 8 and the electric switch to 150 amp. These observations are very important so that the machine does not suffer the consequences of a bad functioning of the motor.

Gasoline or Diesel Motor

Check the efficiency and the good functioning of the motor. Examples: ignition sparking plug, platinized points or injection pump and mainly to measure the cylinder compression, to make sure it corresponds to the indicated Hp.

7.3 - Adaptation of JM4000 to the tractor

To the tractor with the tractor implement attachment, firstly the pulley 100mm (4 grooves) must be assembled (Fig.007“a”) in the superior machine shaft, put the machine on the implement base and the tensioner on the lateral rail and the base in the pulley of 4 grooves (Fig.007“b”)and tighten the bolts and put the belts.

After attaching the implement for tractor in the machine, make the belts adjustment and put the third tractor point and the transmission shaft.

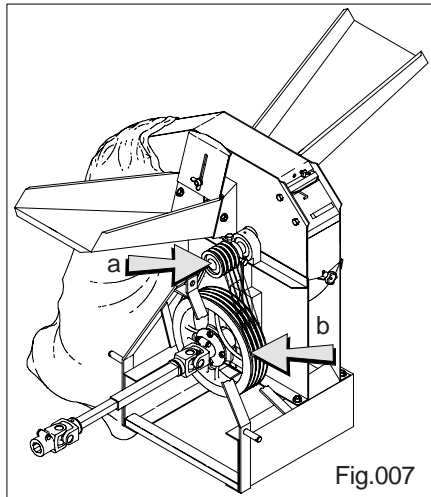


Fig.007

7.4 - Adaptation of Implement for Silage

The wing nut must be loosened and removed and then the cover with lock of the screens ("a" Fig.008) and place the screen no. 1 with no holes, also take the opening cover for the adaptation of the silage spout ("b" Fig.008), the silage spout is put up ("c" Fig.008) and the superior wing nut is also fixed ("a" Fig.008)

The indicated revolution per minute from a 1900 to 2200 rpm, which must be strictly followed.

Obs: for green material the silage spout is used and it is also recommended to use the fixed fan blades, which provide better ventilation. To grind dry material, it is recommended to use the hammers.

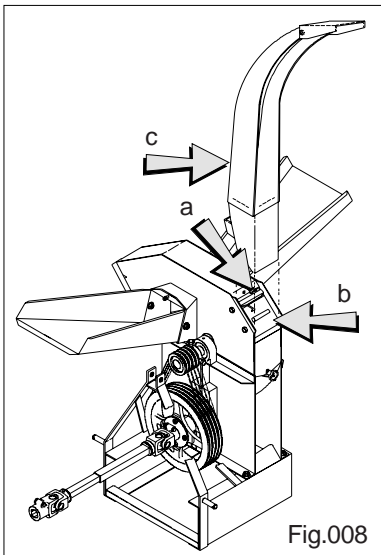


Fig.008

7.5 - Assembling of Hammers on the Flywheel Set

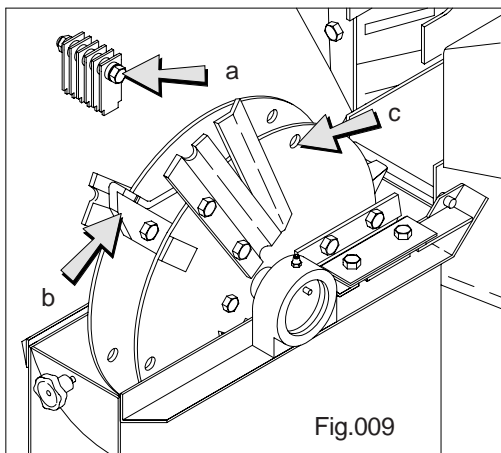


Fig.009

To assemble the hammers ("a" Fig.009) on the flywheel, the fan blades ("b" Fig.009) must be removed and then to replace the hammer in the holes ("c" Fig.009)

8 - PREPARE FOR THE USE

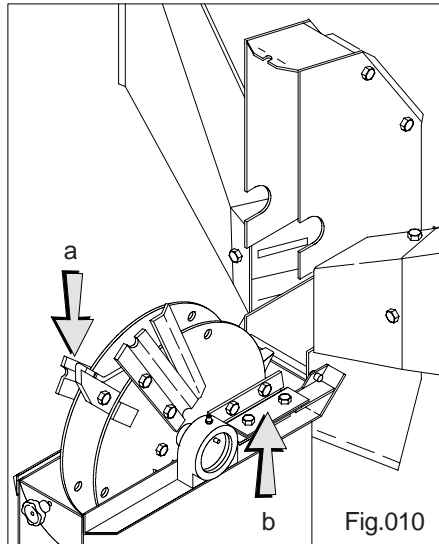
8.1 - Re-tightening of Blades and Counter-Blades

Loosen the locking handle and raise the screen box to open the machine (Fig. 010).

Check if the rotation blades are fixed; if necessary tighten them again ("a" Fig. 010).

Adjust the counter blade at 1 to 2 mm from the fan blades and flywheel and tighten them as well ("b" Fig. 010).

These tightening must be made periodically.



ATTENTION

These re-tightening are fully necessary before starting the machine.

A check must be always made when starting the machine as a strange object can be inside the machine.

8.2 - Prepare of the tractor

The conservation of the tractor is of great importance for a perfect performance of the machine, once the hitching system – used on the hydraulic three points – will be integrant part of it.

This way, before hitching there is the necessity of proceeding with its revision where and besides its usual maintenance, a special attention on the hydraulic three points must be taken, in a such way to respond with accuracy to the commands, as well as the vertical arms and the third point can be easily changed in its dimensions without the necessity of using tools.

ATTENTION

This machine must always work with a tractor with independent power takeoff or double clutch.

1 – ALWAYS start the power takeoff of the tractor with the motor in a slow gear and LATER accelerate up to the working speed at 540 rpm in the Pto.

2 – BEFORE switching the tractor Pto off, REDUCE the acceleration of the motor to slow gear.

If these instructions are not followed severe damages to the transmission, pulley and belts can happen.

8.3 - Hitching the machine to the tractor

Now, you have the tractor and machine prepared, proceed with its hitching. The three hydraulic three points needs only one person to hitch it. For this purpose, choose a flat area and proceed with the following way:

Previously align the tractor and the machine in a slow gear, get closer to the machine, rear gear, until the hydraulic arms, in a low position, be as aligned as possible from the machine. Fit the left arm eye of the tractor to the machine hitching pin and put the locking pin; then connect the third arm to the machine top hitching frame; it may be necessary to adjust the tractor third arm length, to make this adjustment, just turn the central part of it and not only the eye side closer to the machine.

Once this arm is connected and its length changed (usually reduced), the machine can be moved until its right pin be in the direction of the tractor right arm eye. Generally its height does not coincide, being so it is necessary to change the arm height, which is possible through a lever exiting on the right tractor arm – for this reason, this is the last hitching to be made.

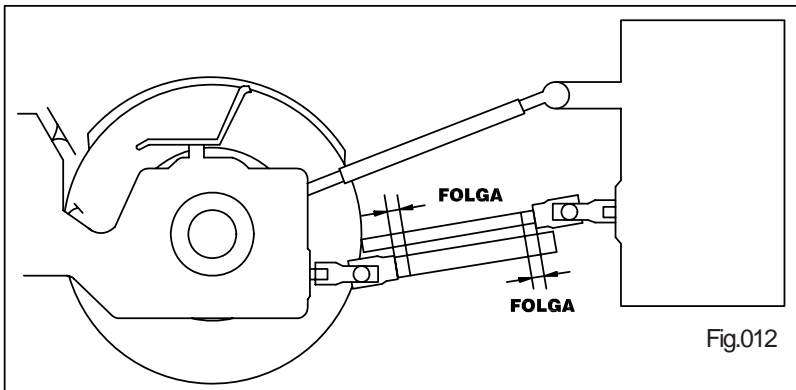
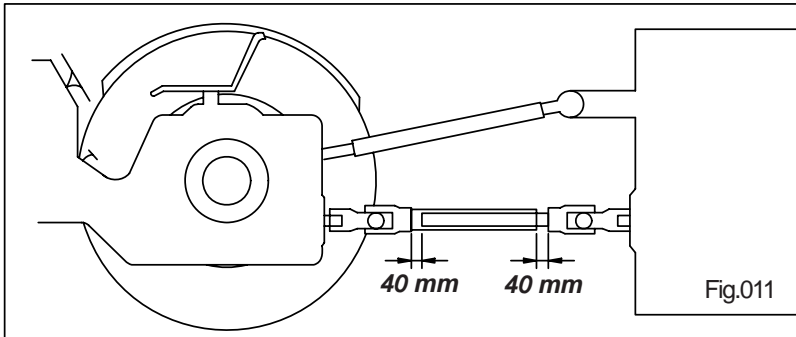
Next step is to connect the pto transmission shaft by the pressure buttons on its ends for the tractor and machine.

8.4 - HOW TO ADJUST THE MACHINE TO THE TRACTOR

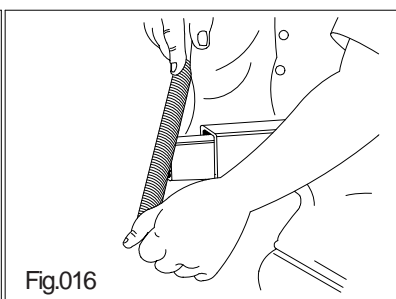
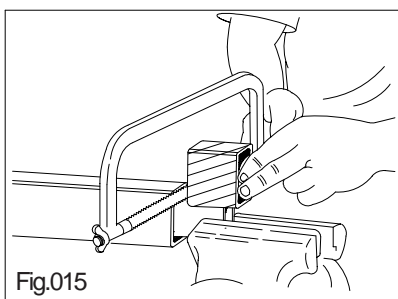
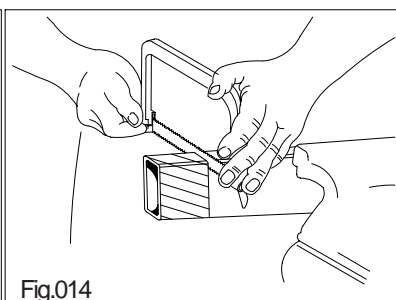
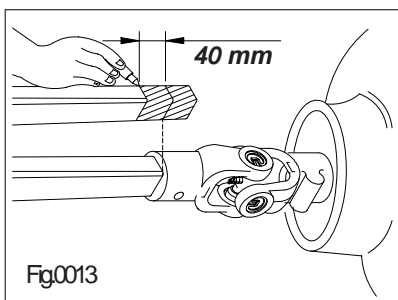
For a good performance of the transmission shaft, we recommend you to follow the instructions below before starting to work.

1 - With the machine hitched to the tractor, remove the shaft from the shaft tube, through the use of pressure buttons, hold the corresponding shaft ends to the tractor and machine.

2 - Overlap one on another and mark each on where the exceeding part must be cut off, besides this mark, a free space of 40mm must be considered (Fig.011).



3 - After the marks being determined where the excess is going to be cut off, shorten the inner and outer protecting tubes in the same lengths. Shorten the inner and outer sliding bars in the same dimension of protecting tubes. Remove all sharp points and ends, grease the sliding tubes.



⚠ ATTENTION

The transmission shaft dimension must be checked and/or adjusted if necessary, every time the tractor model and/or type is changed.

Without following this procedure, the implement or the transmission shaft will suffer severe damages.

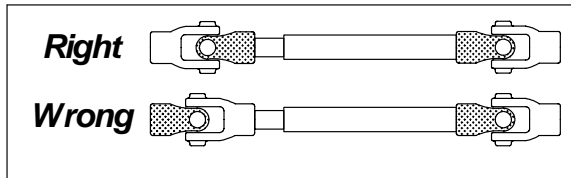
⚠ ATTENTION

Always keep tightened bolts between the chassis and structure.

8.4 - Transmission Shaft Hitch

Attach the transmission shaft and make sure the quick locking pins are perfect fitted (locked).

For the attachment of both parts, observe the inner and outer yokes are always in-line in the same plan, otherwise the transmission shaft will be subjected to vibrations, what may cause premature cross worn-out.



When changing the implement to another tractor model, check again the previous instructions.

ATTENTION

I – ALWAYS start the Tractor Pto revolution in slow gear, and **LATER** increase slowly up to reach the usual working revolution.

II – BEFORE stopping the Tractor Pto, **REDUCE** the engine acceleration up to the slow gear movement.

If these procedures are not followed, the transmission may have several damages.

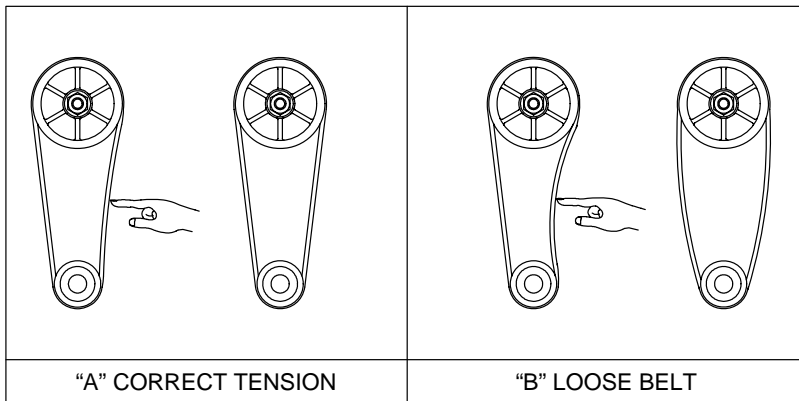
8.5 - MACHINE LEVELING

For a good operation, it is necessary the machine be leveled in both senses (transversal and longitudinal). The leveling in a transversal way is made by acting on both tractor hydraulic arms in a way they are in the same length. The left arm is fixed and the right one can have its length changed by the use of a lever. Usually, this arm has a mark to indicate it is in the same dimension that the fixed arm. Once the machine is transversally leveled, make the longitudinal leveling, with the use of third arm hitching, by reducing or increasing its length until it is visually, through the hitching arm, the machine is leveled, this check is made when the machine is in working position, the pulleys are at 90° to the horizontal line.

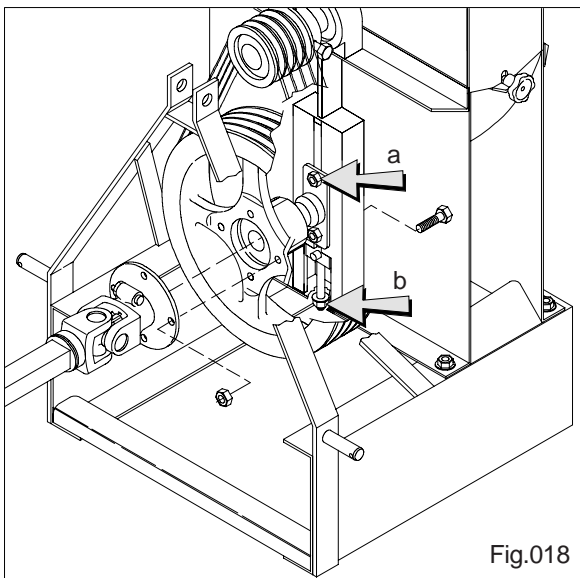
After having made the above described operations and the machine is finally leveled, the lateral tensioners are used to leave the machine in center in relation to the tractor shaft and with the least possible play.

8.6 - Transmission Belts Adjustment

It is extremely important that after 10 first working hours approximately and later every 50 hours, to check the belts tension. If the belt tension is according to the ("B" Fig.17), it will be necessary to make its corrections according to ("A" Fig. 017).



To stretch the belts of the power take-off pulley, loosen the bolts, which fix the tensioner bracket ("a" Fig. 018) and by the tensioner bolt as per Fig. ("b" Fig. 018), make the belt adjustment as shown in ("A" Fig. 017).



⚠ IMPORTANT

Before belt adjustment make sure the equipment is not working

8.7 - Formula for pulley diameter calculations either motor or machine RPM

For a perfect functioning of machinery, we give below formula for calculation with accuracy the pulley diameter either motor or machine rpm. This calculation is necessary so that the machine can work perfectly according to the rpm, which indicate on it.

Symbols for the formula: **PMA** - Machine Pulley Diameter
PMO - Motor Pulley Diameter
RMA - Machine RPM
RMO - Motor RPM

1ST Formula

For machine pulley diameter calculation (**PMA**)

$$PMA = \frac{RMO \times PMO}{RMA}$$

2ND Formula

For motor pulley diameter calculation (**PMO**)

$$PMO = \frac{PMA \times RMA}{RMO}$$

3RD Formula

For machine RPM (**RMA**)

$$RMA = \frac{PMO \times RMO}{PMA}$$

4TH Formula

For motor RPM (**RMO**)

$$RMO = \frac{PMA \times RMA}{PMO}$$

Example:

Motor High - 3550 RPM

Motor Low - 1750 RPM

Obs:

Pulley in the machine 160mm. Motor pulley high 100mm.

Pulley in the machine 135mm. Motor pulley low 160mm.

8.8- Green forage preparation – sugar cane, pasture, manioc (cassava)

The screen case must be closed and locked by the handle.

Open totally the entry door for green material ("a" Fig. 019). Start the machine and feed it continuously with the material to be transformed into pasture.

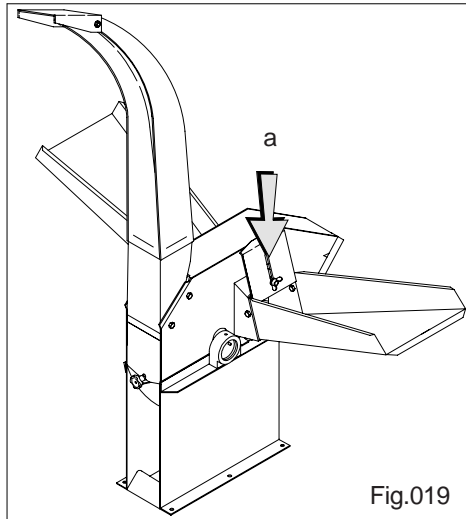


Fig.019

8.9 - Dry ration preparation – fine maize flour, coarse maize flour, bean bran with integral maize

Before dry ration preparation, assemble the set of hammer, which is delivered with the machine.

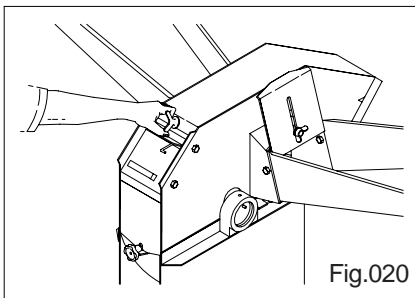


Fig.020

The maize to be used must be dry or with a moisture value of 20% maximum. Close the entry door for green material and open the entry door for dry material. Loosen the central wing nut and also remove the cover with lock of screen (Fig. 020), to put the desired screen.

With holes of 1mm for fine maize flour, shelled maize.

With holes of 3,8mm for coarse maize flour, shelled maize.

With holes of 6,0mm for bran, maize in cobs and without straw.

With holes of 10,0mm for maize in cobs with straw.

With holes of 17,0mm optional.

Put the cover with lock again and tighten the wing nut.

The receptor of material is placed at the outlet spout ("a" Fig. 022) and the shelled maize at the dry material spout.

Start the machine and adjust the air vent to dry material ("b" Fig. 022) and keep feeding the intake spout. For maize flour, the air vent must be closed, as the maize grain go through the movable vent holes or if desired, open the vent in a way the machine makes the maize flour without stacking it during operation.

For bran, the air vent must be adjusted with necessary opening to avoid stacking.

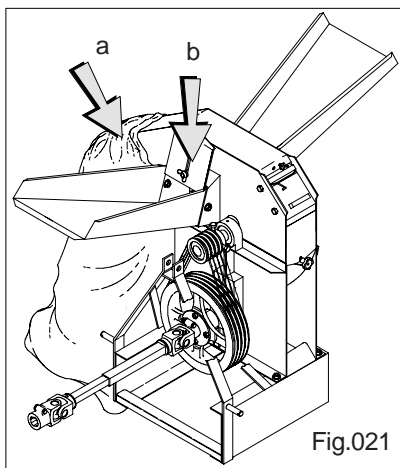


Fig.021

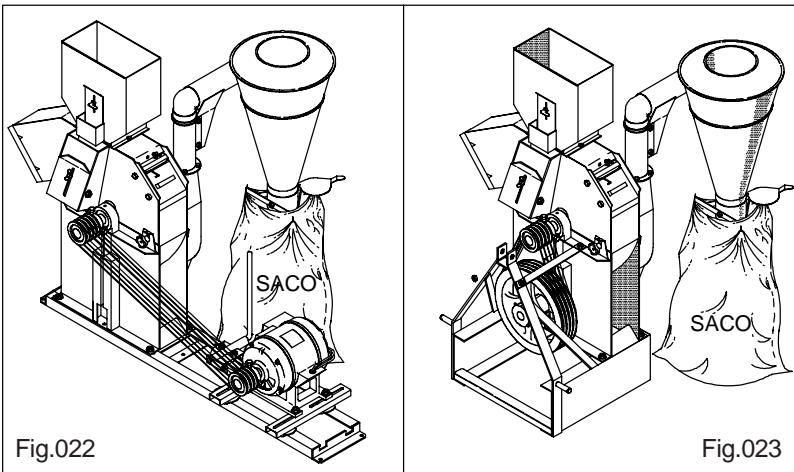
For bran with integral maize (straw, maize and sorghum) the air vent must be totally opened and the spout to be fed continuously.

The screen change can be made without stopping the machine, just remove the screens cover, to proceed with the replacement and put the cover again.

8.10 - Preparation for bran with integral maize (straw, maize, cob) JM 4000C

The maize must be dry or with a maximum moisture degree of 20%. The machine drive is made in the same way of the previously described, only the screen must be with the holes of 10mm and maize cobs will be put into the spout for dry material and not in the grain deposit.

This spout is only for dry material, it avoids the early blades worn-out, what is only for green material.



9 - MAINTENANCE

9.1 - Cleaning

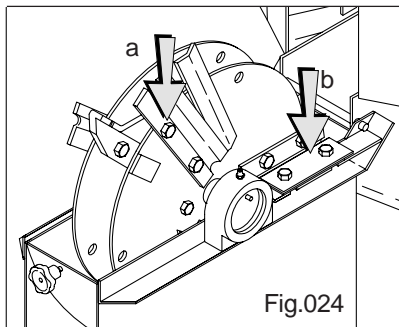
Always keep the machine clean, avoid the remaining of rest of green material what can cause rust. Open the screen case and wash inside, check for not leaving any dirty material behind, after making the cleaning, spray the **JM4000** with conservative oil, just observe for **not using burned oil**.

After making all the maintenance work, keep the **JM4000** in an appropriate place, far from weather action.

9.2 - Replacement and Sharpening of Blades

a) Remove the blades by loosening the bolts and replacing them, if necessary. ("a" Fig. 024) When they are ground or replaced, there is the necessity of adjusting the blades again to keep 1 or 2 mm away from the rotor blades ("b" Fig. 024). In the replacement, use a complete set to keep the rotor balance.

b) The blades must always be ground and this must only be made on the steep side. The sharpening on both sides leaves the cutting edge in "y"-shape can causes prejudice to the functioning of the machine. The counter blade must be sharpened in a straight angle and leaving a fine edge.



9.3 - LUBRICATION

9.3.1 - LUBRICATION OBJECTIVES

The lubrication is the best guarantee of a good functioning and performance of the equipment. This procedure extends its lifetime of the movable parts and helps in the economy of maintenance costs.

Before starting the work, make sure the equipment is correctly lubricated; always follow the “Lubrication Plan”.

In this lubrication plan, we are considering that the equipment is working in normal conditions. For severe working conditions, we recommend you to reduce the lubrication intervals.

ATTENTION

Before starting the lubrication, clean the greaser points and replace the damaged ones.

9.3.2 - LUBRICATION SYMBOLS



Lubricate with grease containing lithium soap, NLGI-2 consistence in intervals of recommended hours.

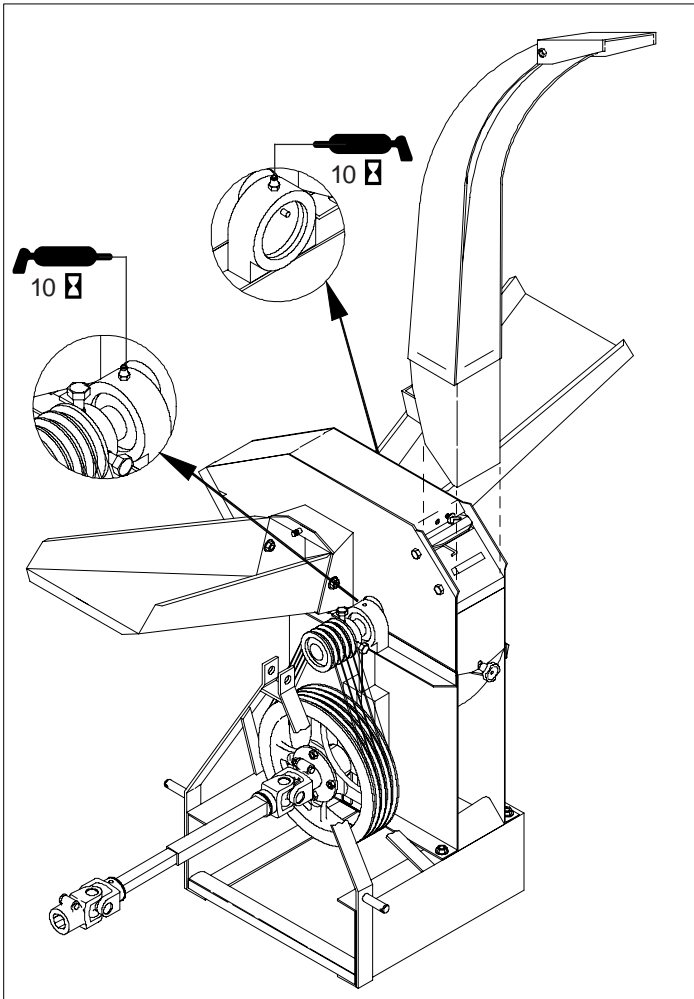


Intervals of lubrication in working hours.

9.3.3 - Lubricants Chart

RECOMMENDED LUBRICATION	EQUIVALENCE							
	PETROBRÁS	CASTROL	SHELL	TEXACO	IPIRANGA	BARDAHL	ESSO	MOBIL OIL
GREASE CONTAINING LITHIUM SOAP NLGI-2	LUBRAX GMA-2	LM-2	ALVANIA EP-2	MARFAK MP-2	ISAFLEX 2	MAXLUB APG-2EP	ESSO MULTI 2	MOBIL GREASE TT

9.3.4 - Lubrication Points



ANNOTATIONS