

IDENTIFICATION

Owner:

.....

Address

..... Nº

City State

Machine Model

Serial Number

Manufacturing Year

Invoice Nº

Date / /

Authorized Distributor

┌

┐

└

┘

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

INDEX

1 - Introdução	04
2 - Apresentação	05
3 - Normas de Segurança	06
4 - Especificações Técnicas	08
5 - Composição do Produto	10
6 - Montagem do Produto	10
7 - Preparo para o Uso	11
7.1 - Preparo da maquina	11
7.1.1 - Pressão dos pneus	11
7.2 - Preparo do trator	12
7.3 - Engate da maquina ao trator	12
7.3.1 - Como ajustar o cardan	13
7.4 - Montagem do cardan	14
7.5 - Engate do eixo cardan	15
7.5.1 - Cardan lateral	15
8- Regulagens	16
8.1 - Nivelamento da maquina	16
8.2 - Regulagem da altura do corte	16
8.2.1 - JM TRIMAX - pneu	16
8.3 - Regulagem da posição de trabalho	17
8.4 - Regulagem da tensão da correia	18
9 - Operação	19
9.1 - Balanceamento dos eixos rotores	19
9.2 - Velocidade de trabalho	20
9.3 - Procedimento para troca de facas	20
9.4 - Desgastes das facas	21
10- Manutenção	22
10.1 - Cilindro hidraulico	22
10.2 - Substituição dos reparos	22
10.3 - Montagem da gazeta no embolo	22
10.4 - Montagem da gazeta guia	23
10.5 - Montagem da guia e embolo	23
10.6 - Montagem final	23
11 - lubrificação	24
11.1 - Objetivos da lubrificação	24
11.2 - Simbologia de lubrificação	24
11.3 - Tabela de lubrificantes	25
12 - Incidentes, possíveis causas e soluções	27
Catálogo de Peças	29

1 - INTRODUCTION

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.

Fone: +55(16) 3660-1061

Fax: +55(16) 3660-1116

WebSite: www.jumil.com.br

2 - PRODUCT PRESENTATION

The market has vineyard requesting, **JUMIL** researched with the farmers of the most varied areas, it developed and proudly it presents the new **TRIMAX CANA**.

It is specially a machine developed to assist the longings of the medium and big farmer, whose tractor is locates in the rate from 90HP.

In its development there were several concerns, in a way to assist the several requirements of the project:

The cutters and desintegrators **TRIMAX CANA**, is supplied with work width of 2.300mm, ideals to desintegrate the remains of cultures and stalks as the sugar cane.

Type of Razor: **STRAIGHT RAZOR**-it is equipped with propeller blade that work as fan, it is used for dry straws. **STRAIGHT RAZORS**- to be used in the cut of materials with a lot of fibers.

Our areas of Research and Development, Engineering of Product and of Processes, used the most modern techniques of project elaboration and bi and tri-dimensional structural analysis (2D and 3D), and the most advanced softwares of CAD and CAE.

After several tests accomplished in the most varied soil and conditions, we have sure that this equipment will assist all your needs.

In case of doubt, consult our TECHNICAL SERVICES through the telephone (16) 3660 1061 or by the Internet - www.jumil.com.br

3 - NORMS OF SAFETY

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

DO NOT DESTRICT THE UNVIERSAL BIOLOGICAL EQUILIBRIUM WITH INCORRECT AGRICULTUEAL WORKS.

NOR ALLOW THE MACHINE TO DESTRICT 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 **SLOW 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 of 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 TRANPOSRT OF ANY OTHER PERSON BEYOND THE OPEARTOR, AS ON THE TRACTOR AS 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 us 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 SAFTE 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 OPR SMOKING.

17.2) Do not throw rest of treated seeds and/or 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 LABLE 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 raise 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 read signal light.

ATTENTION

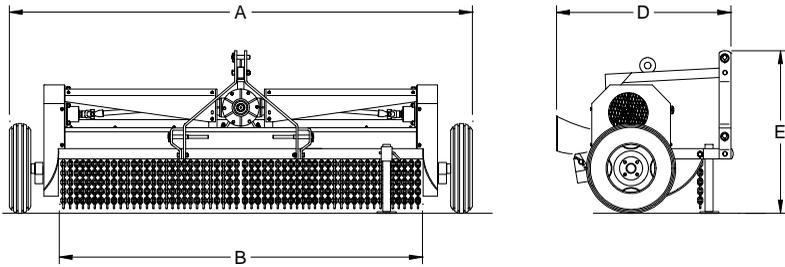
When receiving your JUMIL equipment, check attentively its components which are delivered with the equipment and read carefully the warranty certificate in the first page of instruction manual.

4 - TECHNICAL SPECIFICATIONS

Model	JMTRC 2.500
<i>Cut width mm</i>	2300
<i>Cut Height</i>	25 - 235
<i>Required Power</i>	90
<i>Amount of knife</i>	76
<i>Efficiency hectare/hs</i>	1.85
<i>Approximate weight</i>	800

Note.: Cut height referring to **JM TRIMAX SUGAR CANE** and from 25 to 230 mm.

Types of Knives : straight



<i>Dimensions - Models</i>	<i>JM TRC 2.500</i>
A	3200
B	2300
C	1200
D	1300

5 - PRODUCT COMPOSITION

Check the following items that accompany your machine attentively:

DESCRIÇÃO	CÓDIGO	QTDE
<i>FRONT PTO SHAFT CC 5004/2</i>	<i>43.02.080</i>	<i>01</i>
<i>PARKING STAND</i>	<i>43.02.968</i>	<i>01</i>
<i>HITCHING PIN</i>	<i>43.03.267</i>	<i>02</i>
<i>LOCKING PIN WITH RING 7/16X1.3/4"</i>	<i>70.16.154</i>	<i>02</i>

6 - PRODUCT ASSEMBLY

The machine already leaves from factory assembled, for that there is just need to proceed to its preparation for use.

7 - PREPARATION FOR USE

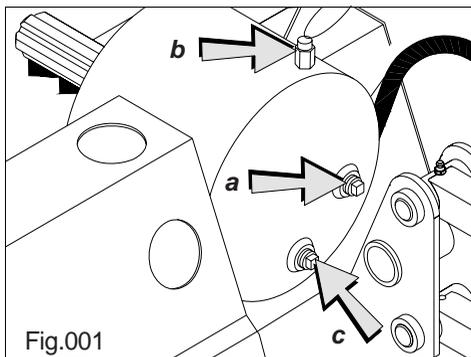
To place your **TRIMAX CANA** in operation, it is necessary to attempt to the following requirements:

7.1 - Preparation of the machine

a) To check the oil level

To check the oil level of the transmission box, remove the cover ("a" fig.001), in case the oil is below the suitable (cover), it is necessary to complete it, for that it is enough to remove the air exit ("b" fig. 001).

Specifications of the oil that should be used - **140 API-GL5 SAE OIL**



Ps: The change of the oil should be made with 500 worked hours .

⚠ ATTENTION

It is necessary to check the oil level approximately 100 working hours.

7.1.1 - Cares with the Tires

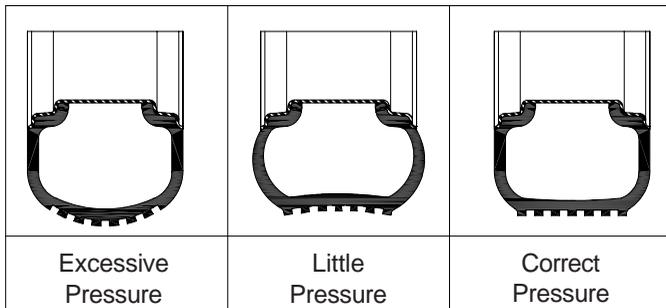
To assure the long life of the tires of your implement, the following cares should be taken:

The tires should be with the correct pressure. The lack or pressure excess provokes the premature waste of the tires and they alter the precision in the seed and fertilizer distribution.

Check if the pressure of the tires of your implement are accordingly indicated below in the chart.

Ps.: The conditions of the remains of cultures are important agents in the tire useful life, therefore avoid to leave stalks with a height that the same ones are resistant to the action of the tires during the planting.

Tyre Air Table			
Sizes	Ply Capacity	Max. Pressure	
		kg/cm²	lb/pol²
Pneu Diagonal T615 7.00 - 16 E	10	5,3	75



7.2 - Tractor preparation

Before coupling the machine to the tractor, it is of highest importance that it is made the revision of the hidraylic system of the three points of the tractor, so that the same is working appropriately to the commands and that the available adjustments are in perfect operation.

7.3 - Hitching of the machine to the tractor

The hydraulic system of the three points of the tracts makes possible that an alone person makes the coupling of the machine. For this, choice a plane place and come in the following way:

1- Previously align the tractor and the machine and in slow march, approach until that the arms of the hydraulic are aligned to the hitching pins that are located in the machine;

2- Fit the rotula of the left arm firstly of the tractor to the respective pin of the machine, locking it with the parallel pin;

3- Soon after, turn on the arm of the third point to the tower of the machine;

4- Correct the position of the machine until that the rotula of the tractor right arm is aligned to the respective pin of the machine, make the fitting and lock with the parallel pin. If necessary, ajust the height of the tractor right arm maneuvering the adjustment crank.

5- Finally, couple the pto shaft through the pressure bottons in the extremities destineted to the tractor and to the machine.

ATTENTION

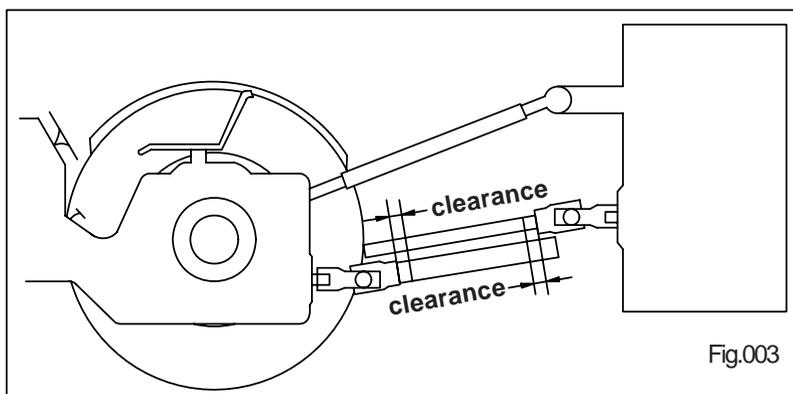
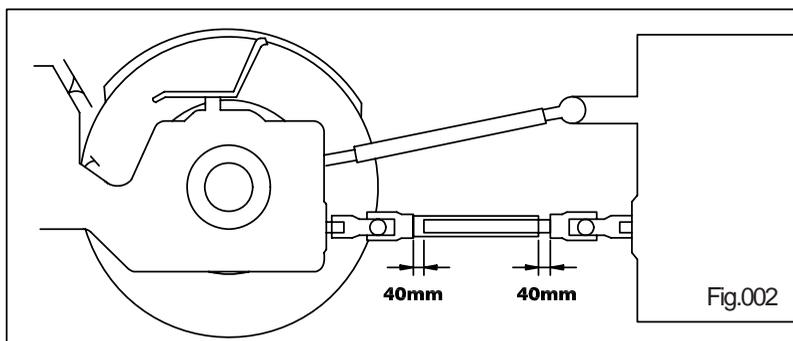
Before coupling the pto shaft between the tractor and the machine, make the necessary adjustments of the pto shaft.

7.3.1 - How to adjust the pto shaft to the tractor and to the machine.

For the pto shaft good operation, we recommended to follow the instructions below before beginning the work;

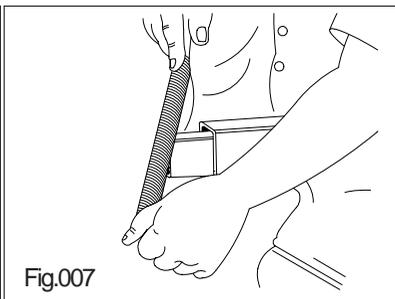
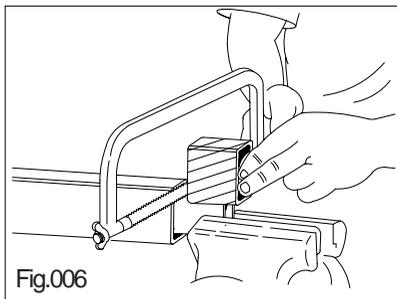
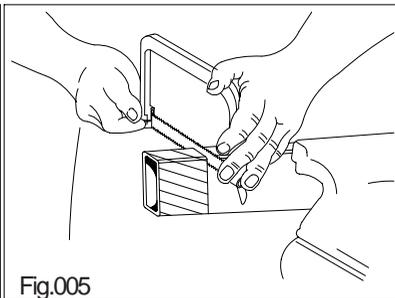
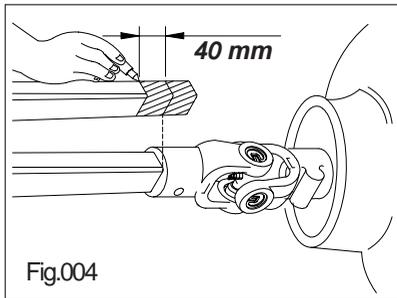
1- With the machine assembled in the tractor, disjoint the tube shaft of the pto shaft. Through the respective pressure buttons, arrest the correspondent points in the tractor and in the machine.

2- Put upon one in the other and make in each one a mark that will delimit the surplus that should be cut. Besides this mark, should consider a clearance of 40mm (Fig.003). Do not still cut.



4- After the determination of the places where will be made the cuts, shorten the external and internal protection tubes equally. Shorten the external and internal sliding outlines.

Remove all the points and burrs, and grease the sliding outline.



7.4 - Pto Shaft Assembly

For the pto shaft assembly (tube and sliding outline), to observe that the internal and external forks should always be aligned in the same plan. Otherwise, the pto shaft will be subject to vibrations, provoking premature waste of the crosshead.

ATTENTION

If necessary the pto shaft size should be verified and/or adjusted, whenever change the model and/or mark tractor. The no execution can cause serious damages to the machine and/or to the pto shaft.

7.5 - Hitching of the pto shaft

To hitch the pto shaft in the tractor power socket (PTO), make the cleaning of the pto shaft firstly and grease the shaft of the implement.

7.5.1 - Lateral Pto shaft

Check the squeeze of the screw that fixes the glooves of the lateral pto shaft so that it does not come unfasted when the implement is in work ("A"fig.008).

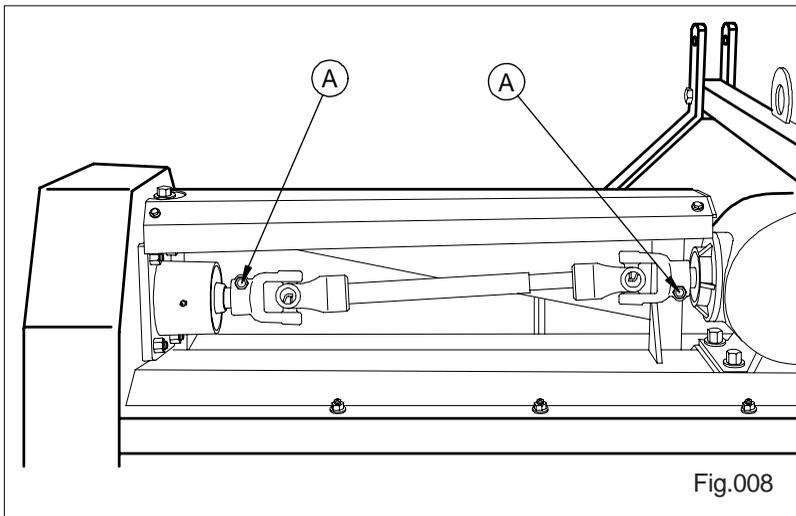


Fig.008

8 - ADJUSTMENTS

8.1 - Leveling of the Machine

For a good operation, it is necessary that the machine is even transverse and longitudinally leveled.

The transverse leveling (perpendicular to the tractor) is gotten by equaling the length of the two arms of the tractor hydraulic system. The left arm is fixed and the right possess an adjustment crank, normally with a marking indicating the point that the two arms are founded with the same length.

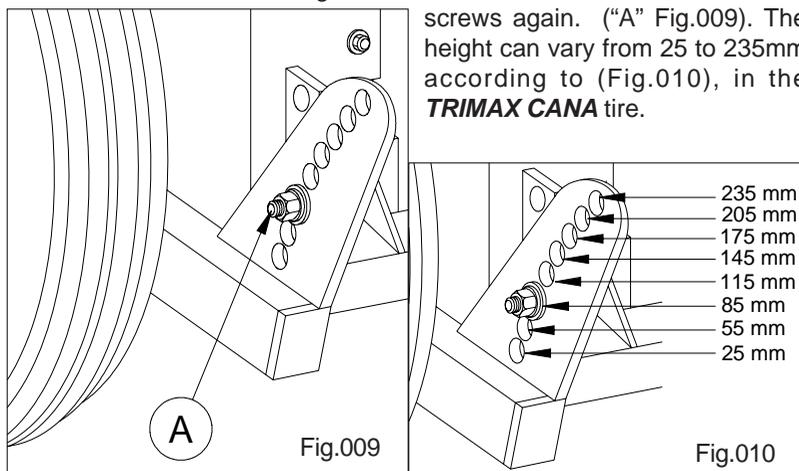
The longitudinal leveling (parallel to the tractor) is gotten by increasing or decreasing the arm length of the third point.

Finally, with the machine leveled, adjust the stabilizers for that the same stay with the lateral smaller slack that is possible in relation to the tractor. This adjustment should be made with the hydraulic system lifted.

8.2 - Adjustment of the Cut height

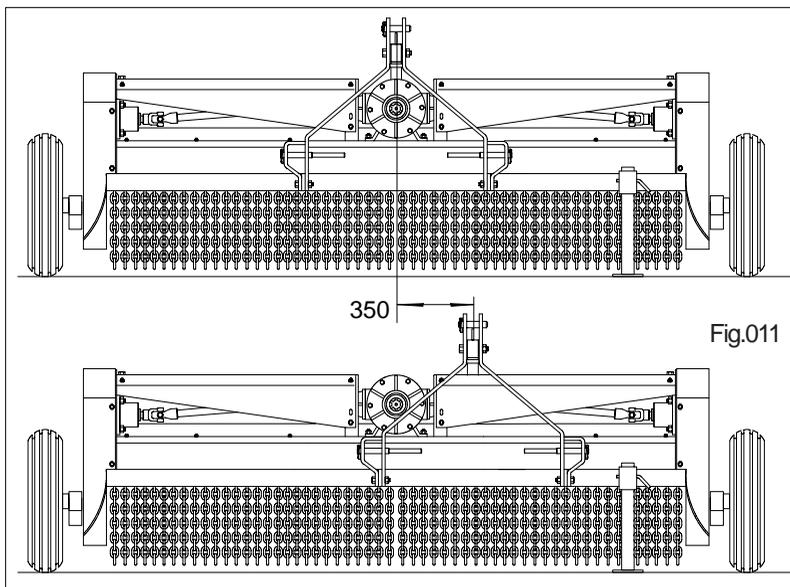
8.2.1 - JM TRIMAX - Tire

With the machine on the soil loosen the screw that arrests the adjustment ("A" Fig.009), to check the wanted height using the third point to move until the hole of the height of the wanted cut to coincide, to arrest the screws again. ("A" Fig.009). The height can vary from 25 to 235mm according to (Fig.010), in the **TRIMAX CANA** tire.



8.3 - Adjustment of the Work Position

According to your need , your implement can work central or lateral with displacement for the right of up to 350 mm, this is made with the driving of the cylinder that moves the drawbar (Fig011).

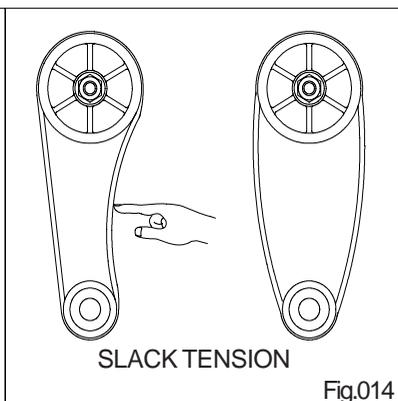
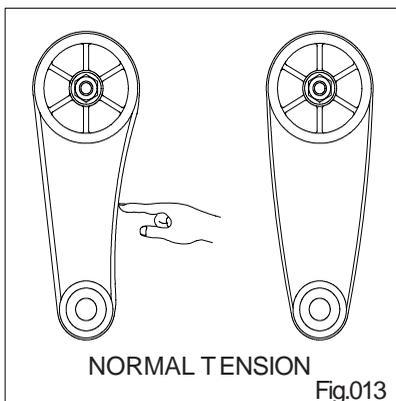
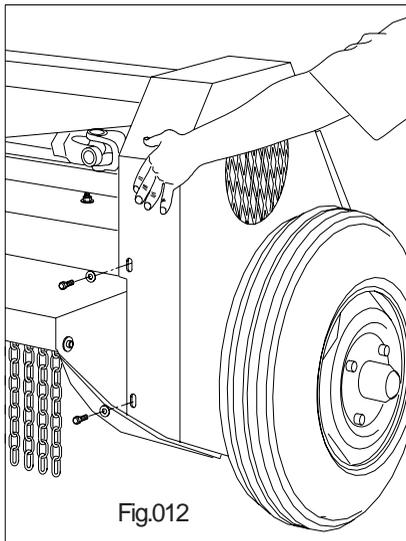


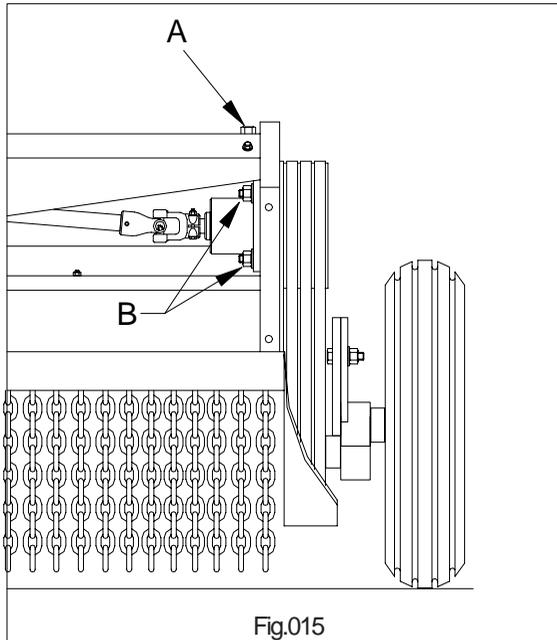
8.4 - Chain Tension Adjustment

IMPORTANT

Before the adjustment of the belt, be certified that the implement is not operating.

It is of extreme importance that after approximately 100 working hours the tension of the belts should be checked. For this, you should remove the cover that protects the belts. (Fig.012). If the tension of the belts is as the figure bellow (Fig.015), will be necessary to do the correction of the same, for this it is enough to loosen the screws that fix the bearing of the transmission ("B" Fig.015) and through the tensioning screw in agreement with the figure("A" Fig.015), make the adjustment of the belt in agreement with the figure (Fig.014).





⚠ ATTENTION

Check the tension of the belt periodically and maintain it very stretched.

9 - OPERATION

9.1 - Balancing of the rotor shafts

With elapsing of the work can happen accidents, causing breaks of knives. When this happens the work should be interrupted immediately, and to do the substitution of the same ones to maintain the balancing of the rotor shafts, because the break of the knife originates the unbalance of the rotor shaft, and could cart irreparable damages for your implement (fig. 016).

ATTENTION

When happens the break of the knives the work should be interrupted immediately.

9.2 - Work Speed

It is recommended that is used a work speed between 6 and 8 km/h, for not committing the useful life of the implement.

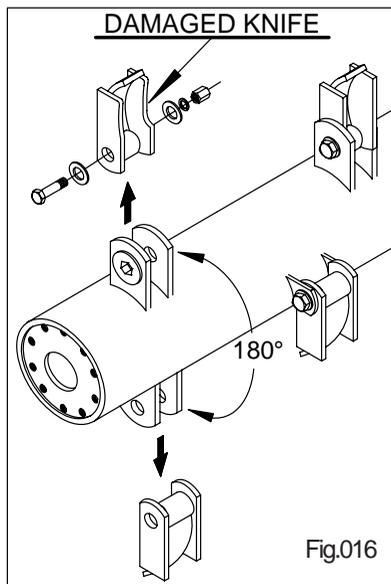
9.3 - Procedure for Change of Knives

- 1 - To locate the damaged knives.
- 2 - Finding them should remove the pair of knives, even if only one is damaged ("A" Fig.016).
- 3 - To remove the pair of knives immediately opposite (180°), according to ("B" Fig.016), even so the set of knives is not damaged.
- 4 -To replace the original knives.

When the pair of knives be assembled with propeller blade among knives, there is no need to change the propeller blades if there are damaged. And the same ones do not interfere in the balancing of the rotor shafts.

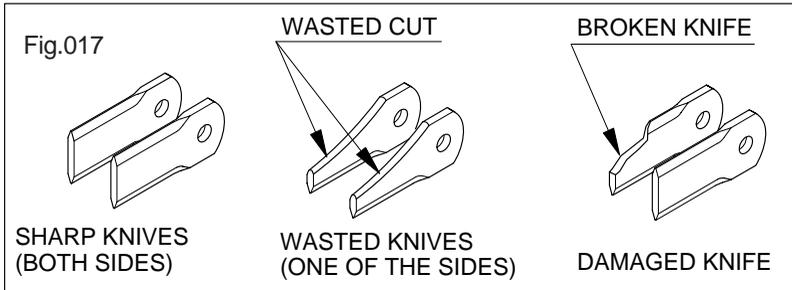
IMPORTANT

Make the change of the knives correctly to maintain the swinging of the rotor shaft.

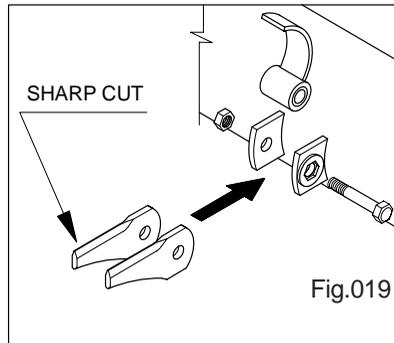
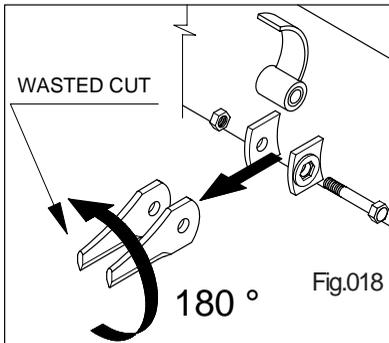


9.4 - Wastage of the knives

The knives of this implement are interchangeable, possessing a double cut (Fig.017), and in slaping of the work it happens the natural waste with the consequent loss of the cut (fig. 018). When this happens it should be made the inversion beside cut, make this knife per knife (set, pair) (Fig.019), maintaining it in the same support (Fig.019).



- 1 - Disassemble the wastage knives and invert the side of the cut.
- 2 - Assembly again in the same support.



10 - MAINTENANCE

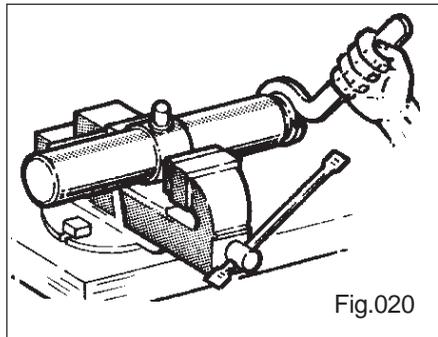
10.1 - Hydraulic Cylinder

10.2 - Substitution of the repairs

a) Fasten the cylinder in a vise and dismantle the guide nut with special key, removing the rod guide with piston and dismantling it.

b-) Remove the obstructed repairs of the piston and of the rod guide

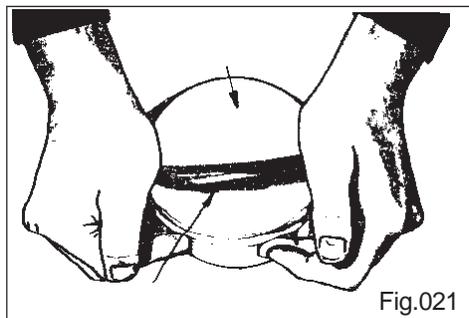
c-) Make the general cleaning of the parts with gasoline, with the help of a paintbrush. (avoid the use of oakum).



10.3 - Assembly of the gasket in the piston

a) Lubricate the border and the piston loading slightly and put the gasket. For this assembly, see the Fig. 021.

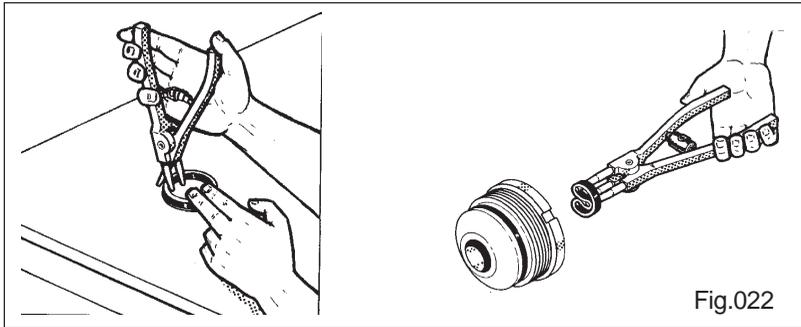
Ps: never use screwdriver or tools that can damage them.



10.4 - Gasket assembly in the rod guide.

a) For the assembly of the gasket use the special pliers lubricating the points of the same ones, to facilitate your extraction. Put the gasket with the lips down on the table and the pliers until that the gasket stay in assembly position, after introduce in the drilling of the guide until the loading height and loosen the gasket accommodating it in the place, after place the scraper and the o'ring manually.

10.5 - Guide and Piston Assembly in the Rod



⚠ ATTENTION

To assembly, first put the rod guide passing by the side of the piston loading , never pass by the bigger thread side , where fatefully would damage the gasket. Then put the piston and the fixation nut.

10.6 - Final Assembly

Before the assembly look at the cylinder – jacket and introduce the rod with the piston until that there are conditions to twist the guide nut, tighting it with the special key.

11 - LUBRIFICATION

11.1 - Lubrication Aims

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 beginning the lubrication, clean the greaser points and replace the damaged ones.

11.2 - Symbology of lubrication



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



Lubricate with SAE 30 API-CD oil in intervals of recommended hours.



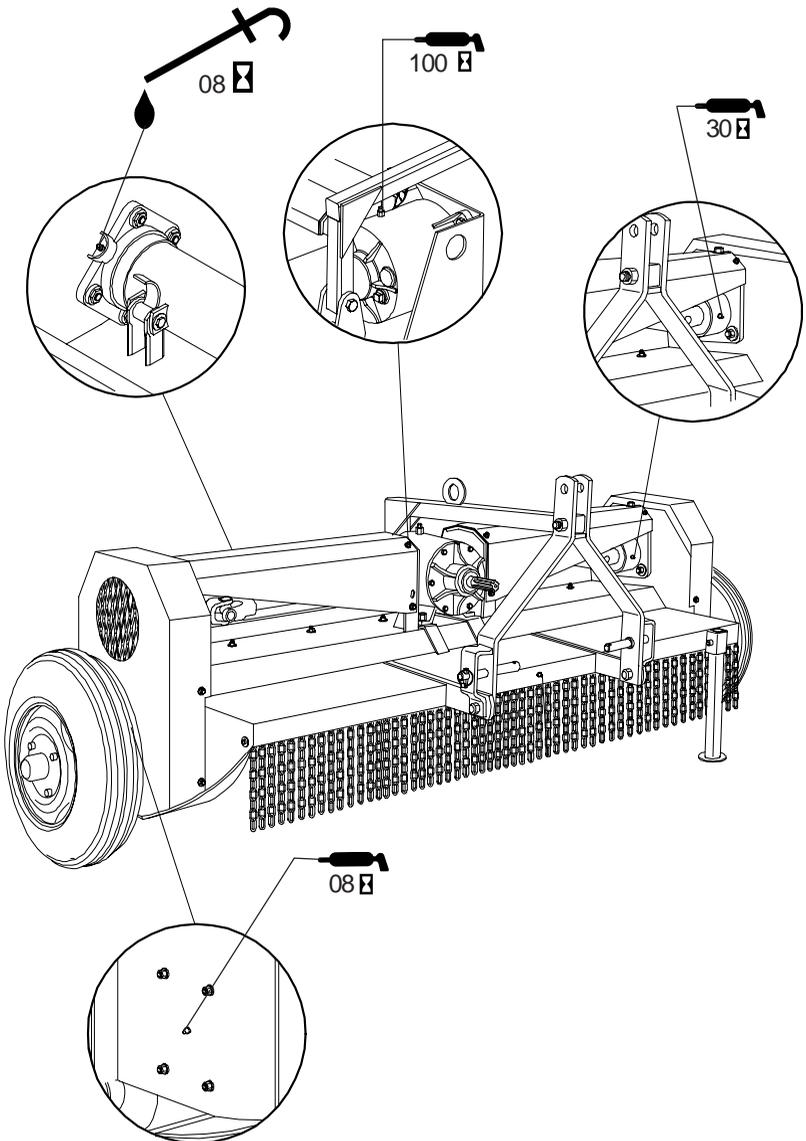
Cleaning with brush.



Intervals of lubrication in worked hours.

11.3 - Chart of lubricants

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 AFG-2EP	ESSO MULTI 2	MOBIL GREASE TT
SAE 140 API-GL5 OIL	LUBRAX TRM-5 SAE-140	HYPOYDE B/EP-140	SPIRAX HD-140	MULTIGEAR EP SAE 140	PIRGEROL SP-140	MAXLUB MA-135 EP	ESSO GX 140	MOBILUBE HD-140
SAE30 API-CD OIL	LUBRAX MD-400 SAE-30	TROPICAL SUPER-30	RIMULA C+30	URSA OIL LA-3 SAE-30	ULTRAMO TURBO SAE 30	MAXLUB NO 03	BRINDILLA D3-30	MOBIL DELVAC 1330



12 - INCIDENTS, POSSIBLE CAUSES AND SOLUTIONS **ATTENTION**

Before requesting the technical services check the following items:

<i>THE ROTOR SHAFT IT IS NOT OPERATING</i>	
<i>POSSIBLE CAUSES</i>	<i>SOLUTIONS</i>
1 - Damaged box transmission 2 - Inadequate chain tension 3 - Break of roller bearing of the rotor shaft.	1 - To substitute the damaged transmission box 2 - To adjust the chain tension 3 - To substitute the roller bearing of the rotor shaft.

<i>IT IS NOT OPERATING THE LATERAL DISPLACEMENT</i>	
<i>POSSIBLE CAUSES</i>	<i>SOLUTIONS</i>
1 - Damaged hydraulic hose 2 - The hydraulic cylinder it is not driven.	1 - To substitute the damaged hydraulic hose. 2 - To substitute the piston or repair of the hydraulic cylinder.

NOTES