

# SLA Precision *Speed Box*

Séries 2500/ 3000



## Instruction Manual

 **Baldan**  
[www.baldan.com.br](http://www.baldan.com.br)





# Introduction

**W**e appreciate your purchase and congratulate you for the excellent choice you just made because you have purchased a product manufactured with technology from **BALDAN IMPLEMENTOS AGRÍCOLAS S/A.**

This instruction manual will guide you through the procedures that are necessary since its acquisition up to the operating procedures of use, security and maintenance.

**BALDAN** ensures that has delivered this farming implement to the dealer in perfect conditions.

The dealer is responsible for the custody and maintenance of this farming implement and also for the assemblage, retightening, lubrication and overhaul.

In the technical delivery, the dealer must advise the user on its maintenance, security, its obligations under any technical assistance, the strict observance of the guarantee and reading of the instruction manual.

Any request for technical assistance under warranty should be made to the dealer where it was purchased.

We reiterate the need for careful reading of the **Warranty Certificate** and observance of all items in this instruction manual, as doing so, the useful life of your farming implement will increase.



# ***Instruction Manual***



# Index

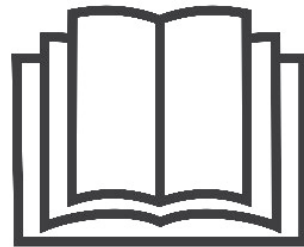
<b>01 - Safety rules</b> .....	<b>6 - 9</b>	<i>Limiting depth wheel oscillating</i> .....	<b>35</b>
<b>02 - Components</b> .....	<b>10</b>	<i>"V" compact wheel adjustment</i> .....	<b>35</b>
<b>03 - Technical specifications</b> .....	<b>11</b>	<i>Depth of pressure on fertilizer and seed rows</i> .....	<b>36</b>
<b>04 - Assembly</b> .....	<b>12</b>	<i>Adjustment of pressure spring planting for conventional</i> .....	<b>36</b>
<i>Head frame hitch</i> .....	12	<b>13 - Fixing system and articulation of wheels</b> .....	<b>37</b>
<i>Compact wheel assembly</i> .....	13	<i>Operations</i> .....	37
<i>Cart assembly of compact and depth wheel</i> .....	13	<b>14 - Maintenance</b>	
<i>Row marker assembly</i> .....	13	<i>Tires pressure</i> .....	38
<b>05 - Tractor hitch</b> .....	<b>14</b>	<i>Lubrication</i> .....	38
<i>Transporte da semeadora</i> .....	14	<i>Table of grease and equivalents</i> .....	38
<b>06 - Regulation and operation</b>		<i>Centralized lubrication system</i> .....	38
<i>Additional spaces</i> .....	15 - 16	<i>Lubricate each 10 hours of work</i> .....	39
<i>Erow units spacing</i> .....	17	<i>Lubricate each 10 hours of work</i> .....	40
<i>Spacing table</i> .....	17	<i>Lubricate each 30 hours of work</i> .....	40
<i>Wheel position</i> .....	18	<i>Lubricate each 60 hours of work</i> .....	40
<b>07 - Finishing</b>		<i>Lubricate each 200 hours of work</i> .....	41
<i>Without finishing system</i> .....	19	<i>Stretched oscillating</i> .....	41
<i>Wiyh finishing system</i> .....	21	<b>15 - Oil change (speed box)</b> .....	<b>41</b>
<i>Row mark regulation</i> .....	22	<b>16 - Maintenance</b> .....	<b>42</b>
<b>08 - Distributions seeder regulation</b> .....	<b>23</b>	<b>17 - Cleaning</b>	
<i>Seed discs for each crop</i> .....	24	<i>Fertilizer storage system metallic</i> .....	43
<i>Speed box</i> .....	25	<i>Fertilizer storage system of polyethylene</i> .....	44
<b>09 - Distribution seed adjustments</b> .....	<b>25</b>	<i>Seed system</i> .....	45
<i>Fertilizer distribution system metallic hooper</i> .....	28	<i>General cleaning</i> .....	45
<i>Fertilizer distribution system polyethylene hooper</i> .....	29	<b>18 - Optional equipments</b>	
<i>Speed box</i> .....	30	<i>Limiting depth wheel with angular adjustment</i> .....	46
<b>10 - Fertilizer distribution adjustments</b> .....	<b>30</b>	<b>19 - Linhas de plantio</b> .....	<b>47</b>
<b>11 - Practical calcule for seeds and fertilizer distribution</b> .....	<b>33</b>	<b>20 - Identification</b> .....	<b>48</b>
<i>Practical test for measuring the amount of distribution of fertilizers and seeds</i> .....	33	<i>Product identification</i> .....	48
<i>Adjustment disc marker</i> .....	33	<i>Notes</i> .....	48
<b>12 - Depht adjustment</b>			
<i>Opening groove and position of fertilizers in soil</i> .....	34		
<i>Adjust depth of cutting disc</i> .....	34		
<i>Furrower position</i> .....	34		
<i>Setting the double disc scraper</i> .....	34		
<i>Seed depth</i> .....	35		

**01 - SAFETY RULES**

*THIS ALERT SYMBOL INDICATES IMPORTANT SAFETY NOTES. WHENEVER YOU FIND IT IN THIS MANUAL, READ THE MESSAGE WITH ATTENTION TO AVOID ANY ACCIDENT.*

**! ATTENTION**

- *Read the instruction manual carefully, so you can learn the recommended safety practices.*

**! ATTENTION**

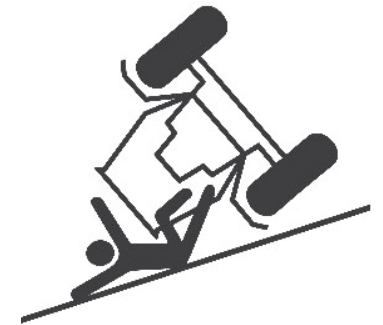
- *Do not operate the tractor if the front is light. With a tendency to rise, add weights on the front of the tractor or front wheels.*

**! ATTENTION**

- *Only begin operating the tractor when are properly accommodated and with the seat belt fastened.*

**! ATTENTION**

- *There are risks of serious injury by tumbling when working on slopes.*
- *Do not use excessive speed.*



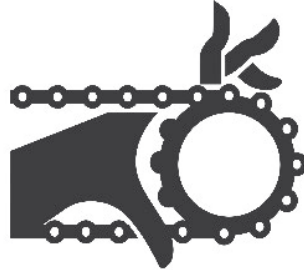
## **ATTENTION**

*Do not work the equipment if the gears protection wasn't properly placed.*

*Just take off the protections to proceed gears change, replace it immediately.*

*To do any service on gears machine, disable the turnstiles.*

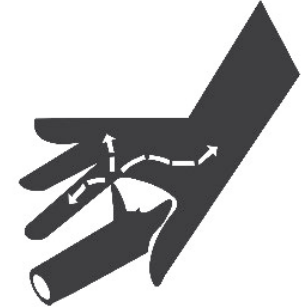
*Do not do any regulations with the equipment working.*



## **ATTENTION**

*The hydraulic oil works under pressure and can cause serious injury, if has any leak. always check the hoses condition. If has any leakage replace it.*

*Before connect and disconnect the hydraulic hoses release the pressure.*



## **ATTENTION**

*Keeps far from active elements (Discs),*

*They are sharp and can cause injury.*

*To proceed any service on discs use safety gloves.*



## **ATTENTION**

*It's forbidden operate the equipment if has people over it.*

*Do not stay over the platform with the equipment moving.*



**ALCOHOL OR DRUGS CAN GENERATE SOME LOSS OF REFLEXES AND CHANGE THE OPERATOR'S PHYSICAL CONDITIONS. SO, NEVER OPERATE THIS EQUIPMENT UNDER USE OF THESE SUBSTANCES.**

## ! ATTENTION

- Before performing any maintenance on your equipment, make sure it is turned off. Avoid getting hit.



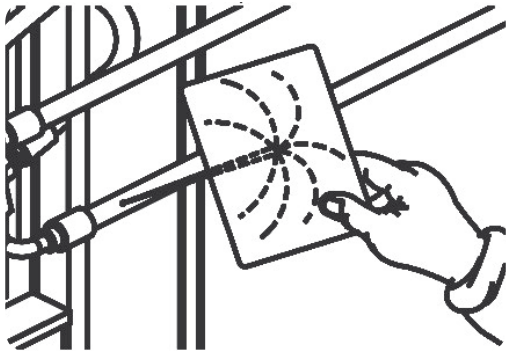
## ! ATTENTION

- Avoid accidents caused by intermittent action of rows mark
- Make sure if has anybody closer to the row mark.



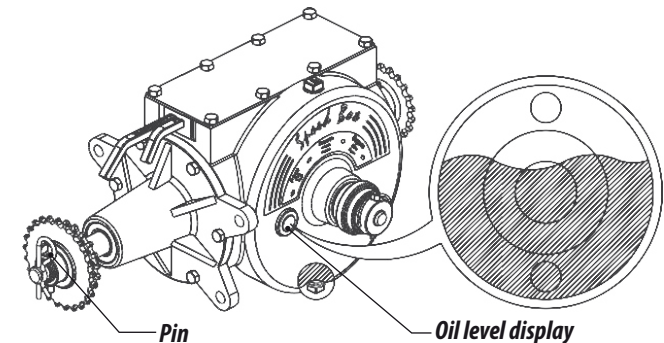
## ! ATTENTION

- When looking for a possible leak in the hoses, use a piece of cardboard or wood, never use your hands.
- Avoid the incision of fluid in the skin.



## ! ATTENTION

- Check the oil daily.
- Change the (Speed Box) oil after 30 hours of work, after that , each 1500 hours, using mineral oil ISO VG 150 a 40°C (oil quantity 1,8 liters).
- Only use original factory pin, because only one has the recommended hardness.



















ALCOHOL OR DRUGS CAN GENERATE SOME LOSS OF REFLEXES AND CHANGE THE OPERATOR'S PHYSICAL CONDITIONS. SO, NEVER OPERATE THIS EQUIPMENT UNDER USE OF THESE SUBSTANCES.



## WARNING

*The mismanagement of this equipment can result in serious or fatal accidents. Before placing equipment in operation, carefully read the instructions in this manual. Make sure that the person responsible for the operation is instructed on the proper handling, insurance if you have read and understood the instruction manual for this product.*

- 01-  Do not make adjustments to the implement at work.
- 02-  In making any service mounting and dismounting the disks use gloves in their hands.
- 03-  Before connecting or disconnecting hydraulic hoses, relieve the system pressure triggering the command with the tractor off.
- 04-  Periodically check the state of conservation of hoses. If there is evidence of oil leaks immediately replace the hose, because the oil works under high pressure and can cause serious injury.
- 05-  Do not use loose clothing as they can curl up on the equipment.
- 06-  By placing the tractor engine in operation, is properly seated in the operator's complete knowledge and aware of the correct and safe handling of both the tractor and the implement. Always put the shifter in neutral, turn off the command from the power supply and place the commands in the hydraulic neutral position.
- 07-  Do not run engine indoors without adequate ventilation, because the exhaust fumes are harmful to health.
- 08-  When maneuvering the tractor to the implement hitch, make sure that you have the space needed and that there are people very close, always do the maneuvers in low gear and be prepared to brake in an emergency.
- 09-  Do not make adjustments to the implement at work.
- 10-  By working inclined terrain, be careful trying to keep the necessary stability. In case of early imbalance reduces the acceleration, turn the wheels of the tractor to the side of the slope of the terrain.
- 11-  Always operate the tractor at speeds compatible with security, especially when working in rough terrain or slopes, always keep the tractor hooked.
- 12-  When driving the tractor on the roads, keep the brake pedals connected and use safety signs.
- 13-  Do not operate the tractor if the front is light. If there is a tendency to lift, add weights on the front or the front wheels.
- 14-  When leaving the tractor put the shifter in neutral and apply the parking brake.
- 15-  Alcoholic beverages and some medications can cause loss of reflexes and change the operator's physical conditions. Therefore, never operate this equipment under the influence of these substances.
- 16-  Read or explain all the procedures above to the operator who cannot read.

## SLA Precision Speed Box 2500 / 3000 - Lightweight Dragging Seed Drill

### 02 - COMPONENTS

- 1- Frame
- 2- Fertilizer Speed Box system
- 3- Seed hexagonal shaft
- 4- Hexagonal shaft turnstile
- 5- Head frame hitch
- 6- Head frame regulator
- 7- Rode
- 8- Jumel of hitch
- 9- Hydraulic hose
- 10- Seed Speed Box system
- 11- Handle hose
- 12- Holder support foot
- 13- Fertilizer hopper (Steel box)
- 14- Fertilizer hopper cover
- 15- Row marker
- 16- Rear platform
- 17- Seed hopper
- 18- Load ladder
- 19- "V" Compact wheel
- 20- Depth wheel
- 21- Seed double disc
- 22- Row marker cylinder
- 23- Fertilizer double disc (Plow)
- 24- Cut disc
- 25- Fertilizer lead hose
- 26- Chain cover

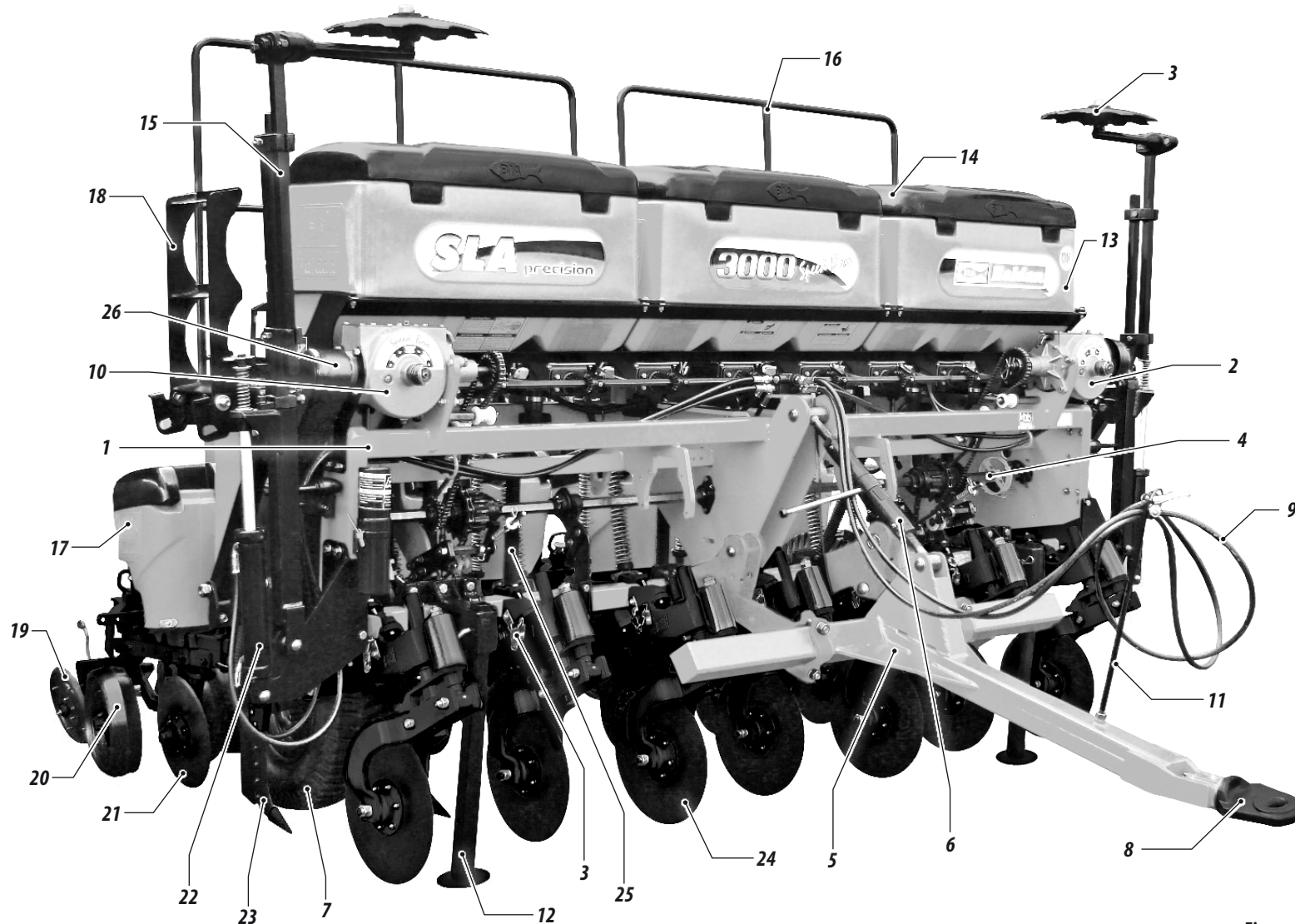


Figure 1

### 03 - TECHNICAL SPECIFICATIONS

Table 1

Model	Nr. of Rows	Working width (mm)	Useful width (mm)	Total width (mm)	Approx. weight (Kg)	Fertilizer Hopper Capacity (Metalic) Lts.	Fertilizer Hopper Capacity (Plastic) Lts.	Seed Hopper Capacity (Lts)	Fine Seed Hopper Capacity (Lts)	Nr. of Wheels	Approx. Tractor Power (HP)
SLA 2500	5	2250	1870	2600	2035	370	410	45	65	2	60 - 80
SLA 3000	7	3150	2770	3500	2650	570	615	45	65	2	75 - 90

**\* Work width and space, on page 14**

- Minimum row space (mm) ..... 415 mm
- Minimum space between rows on rode (mm) ..... 450 mm
- Work depth (mm) ..... 0 - 120 mm
- Total height (mm) ..... 1900 mm
- Rodeiro ..... Pneu Militar Agrícola 6.50 x 16 x 10 lonas
- Total length ..... 4000 mm

The BALDAN reserves the right to change specifications of this product without notice.

The technical specifications are approximate and reported in normal working conditions.



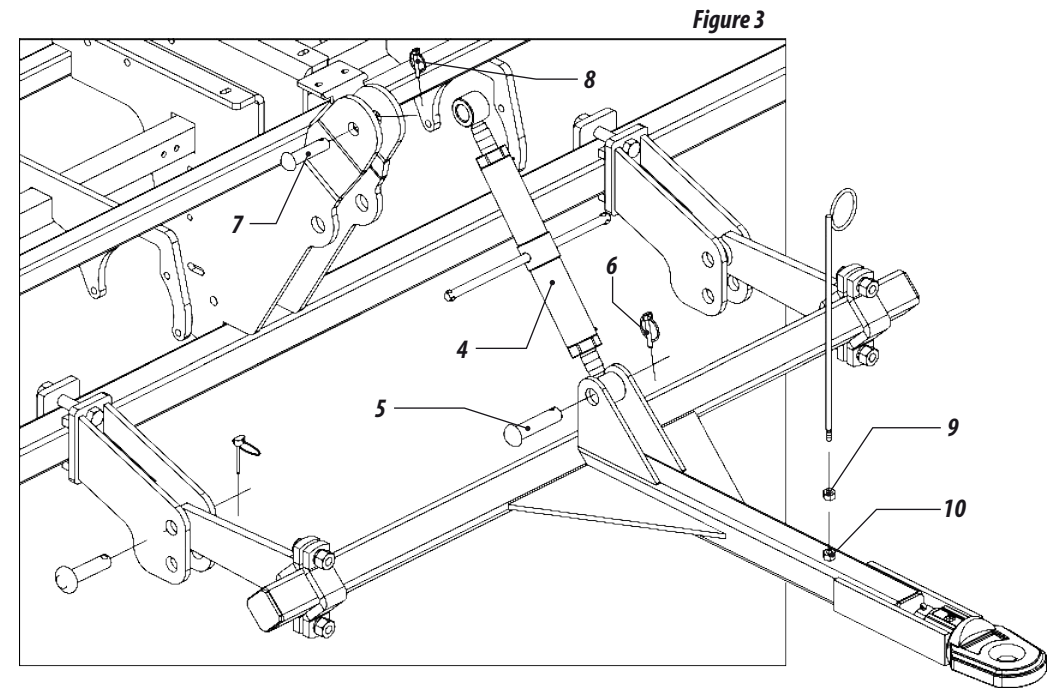
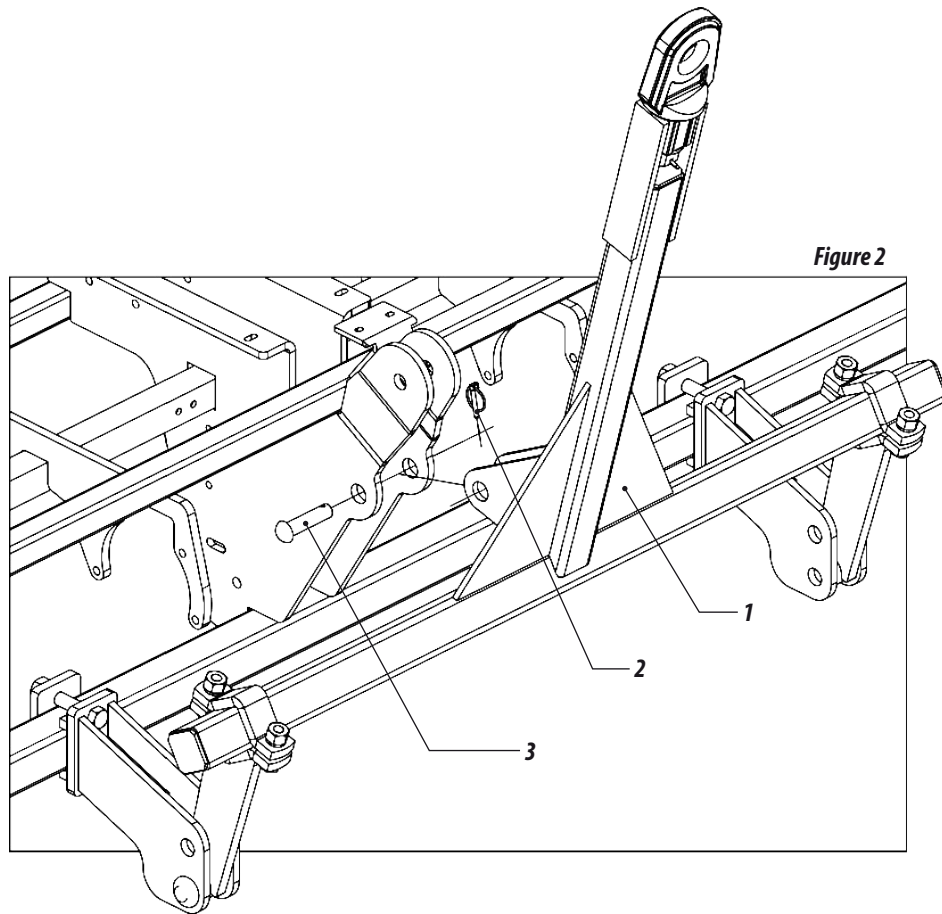
**04 - ASSEMBLY****HEAD FRAME HITCH**

• The seeder come from the factory semi-assembly, loosing the assembly of some components, which must be assembled according to directions below:

**01** - Place the header (1) in working position by removing the lock (2) and pin (3) that were placed for transportation. **Figure 02.**

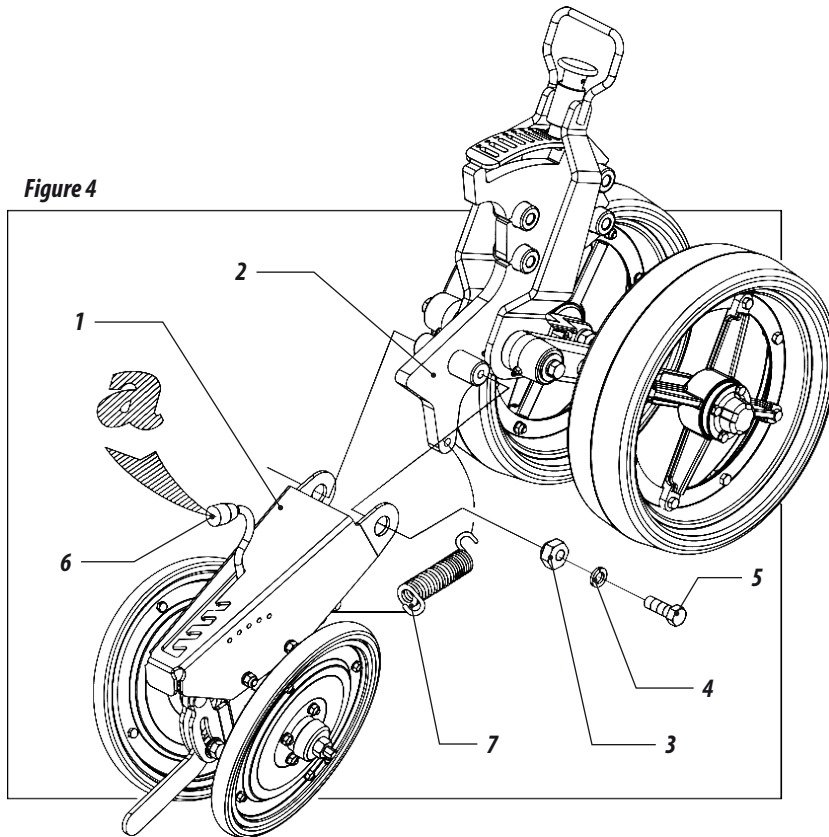
**02** - Enter the regulator (4) setting the header with pin (5) and lock (6) and with the pin (7) and lock (8) the amount of support.

**03** - Then, place the hose holder (9) with nut (10) on header (1). **Figure 03.**



## COMPACT WHEEL ASSEMBLY

- 04 - Place the wheel support (1) in the cart wheel (2), fixing it with the buch (3), washer (4) and bolt (5). Place the lever (6) fully forward (position "A") and hook the spring (7) in support of the wheel (1).

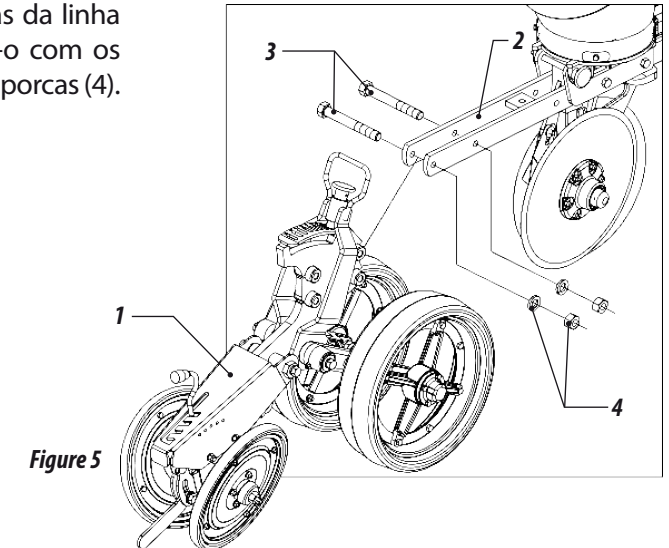


### IMPORTANT

When you finish the assembly, do an overhaul on the seeder, make sure that has no objects (nuts, bolts or other) within the deposits. Tighten all nuts and bolts, check all pins, cotter and locks, review all the hoses.

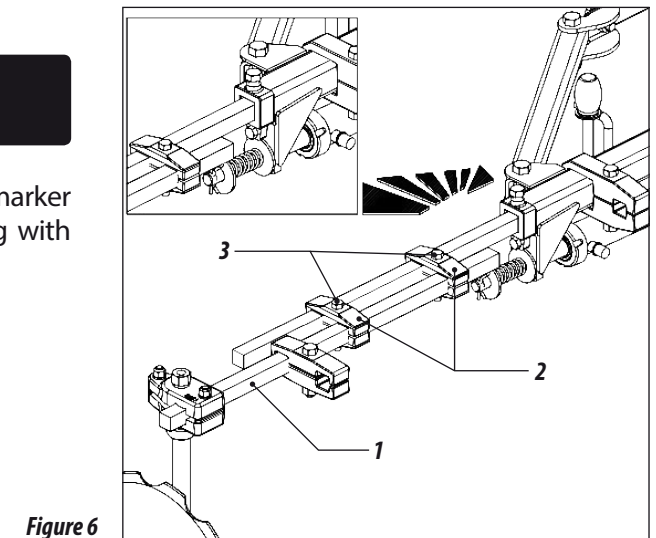
## CART ASSEMBLY OF COMPACT AND DEPTH WHEEL

- 05 - Introduza o carrinho completo da roda (1) entre as chapas da linha de plantio (2), fixando-o com os parafusos (3), arruelas e porcas (4).



## ROW MARKER ASSEMBLY

- 06 - Enter the square bar of marker (1) on support (2), fixing with bolts (3).



## 05 - TRACTOR HITCH

- 01 - Level the header of the seeder in relation to the hitch of the tractor through the regulator (1).
- 02 - Proceed seeder hitch to the tractor through the hitch pin (2) put the lock (4). **Figure 7.**
- 03 - Plug the hoses (3) on fast hitch of tractor.



### ATTENTION

To hitch the seeder find a safe place and easily accessible, always use low gear with low speed.



### ATTENTION

Before connecting or disconnecting hydraulic hoses, turn off the engine and relieve the pressure driving the hydraulic control levers fully. Make sure that, by relieving the pressure of the system, no one is near the area of movement of the equipment.

## TRANSPORTE DA SEMEADORA

- 04 - Collect the hold support (1). **Figure 08.**
- 05 - 7 -With the seeder down, make sure that is level in relation to the tractor, otherwise flush it through the regulator of the header (1), **Figure 07.**
- 06 - Lift the rows through the activation of the full stroke hydraulic cylinder. Place the lock (2) on the cylinder rod. **Figure 09.**



### IMPORTANT

Do not carry the seeder loaded, which could damage the equipment. We recommend only supply it in the workplace. If the machine is to remain in the field for any reason, we recommend covering it with a plastic waterproof to avoid the humidity.

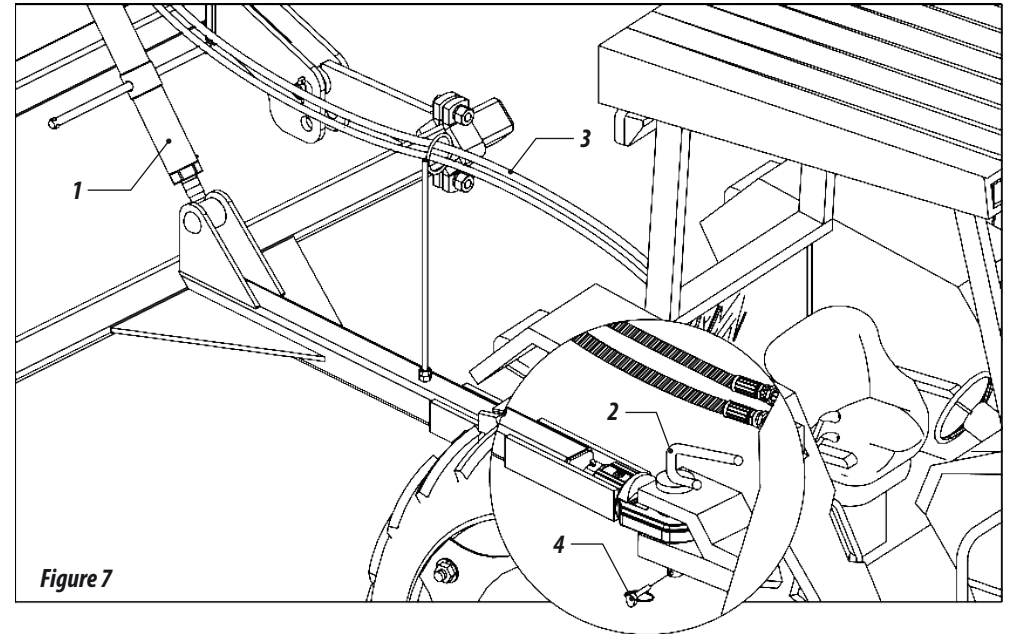


Figure 7

Figure 8

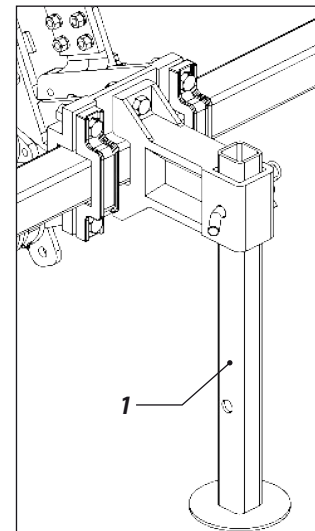
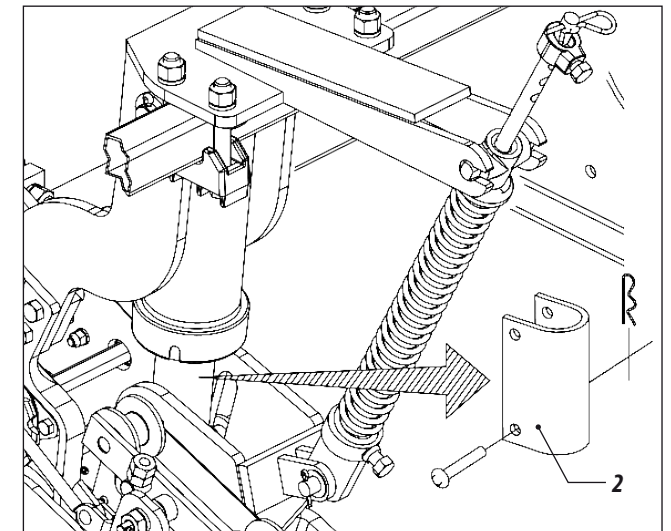


Figure 9



## 06 - REGULATION AND OPERATION

### ADDITIONAL SPACES

- 01 - To make additional spacing between the rows, lift the seeder by pushing the piston. Place the rear support bracket (1) lower the support bracket (2) locking with the pin (3). **Figure 10.**
- 02 - Turn back the hydraulic cylinder for the seeder rows remain lifted.
  - To make additional spacing, if necessary take off some row units to increase the spacing, proceed as follow: **Figure 11.**
- 03 - Remove the locks (4) of the shaft, loosen the bolts (5) that secure the drive gear (6), loosen the bolts (7) releasing the locks (8), then remove the hex shaft (9).
- 04 - Check the lines to be removed or displaced. Loosen the nuts on the support of the springs (10), remove the clamps (11) coupling the lines and also the spacer bars (12) through the bolt with bush, washer and nut (13);
- 05 - Finally remove the row units complete pull back;
- 06 - Replace the shaft (9) and the locks (4). Align the drive gear (6) and tighten the bolts (5);
- 07 - Slide the row units to the desired spacing. Tighten the clamp nuts (11);
- 08 - Replace the locks (8) at side and tighten the bolts (7);
- 09 - Replace the spacing bar (12), check if the space is the same of spring rod.

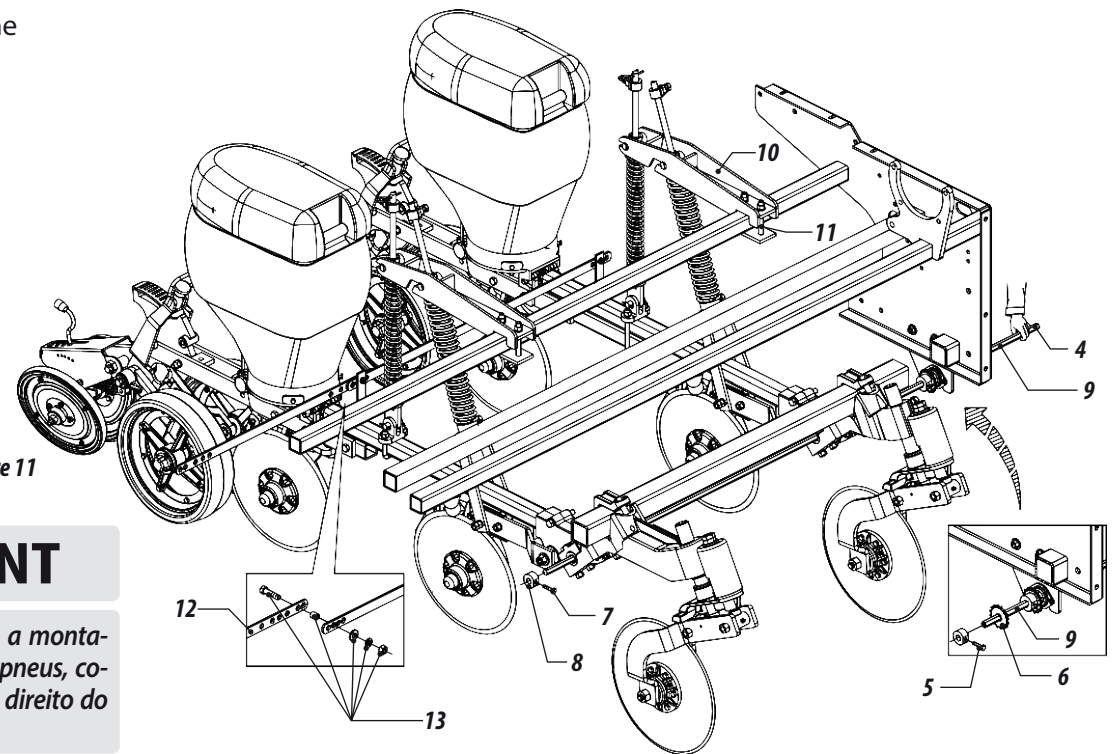
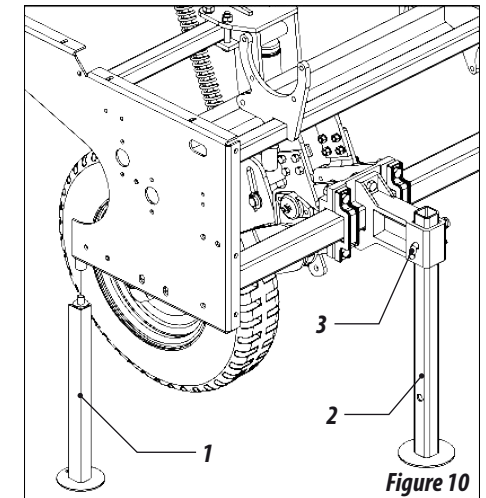
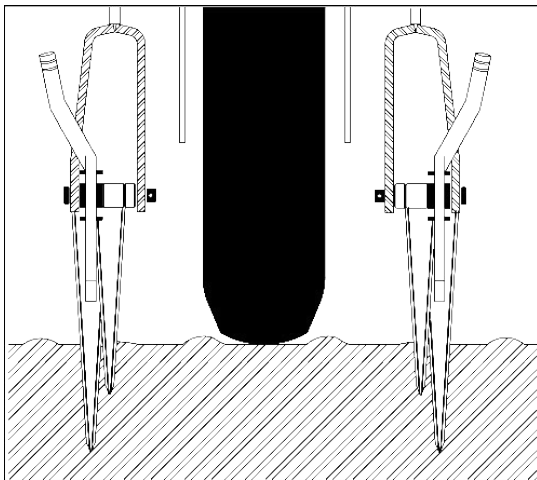


Figure 11



### IMPORTANT

*Ao reposicionar as linhas, observe a montagem das mesmas nas laterais dos pneus, colocando a linha esquerda no lado direito do mesmo, conforme detalhe abaixo.*



- 10- If there is the need to remove the axis of the seed (14), tighten the drive chain (15) through the turnbuckles (16). **Figure 12.**

## IMPORTANT

*Check the align between the gears.*

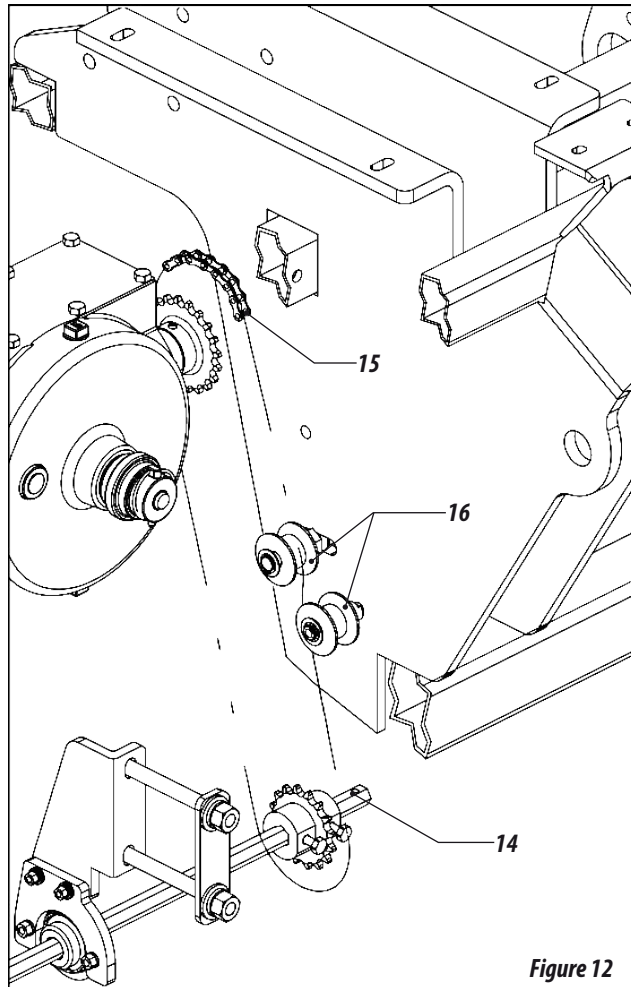


Figure 12

- 11- Remove the fertilizer lead hose (17) from the rows that has been removed, close the exit from the fertilizer tank with the plug (18).
- 12- Close the entrance of fertilizer into the tank placing the lid (19). **Figure 13.**

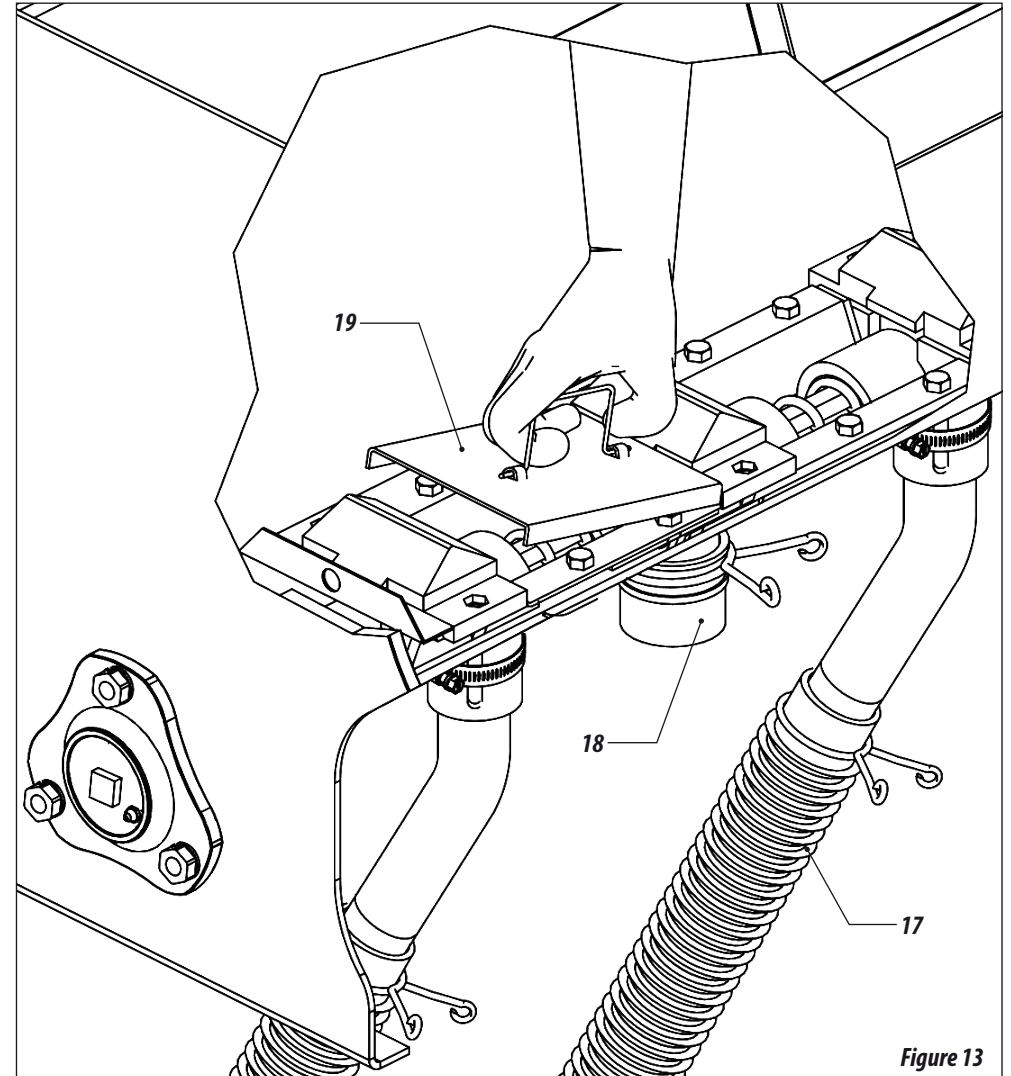


Figure 13

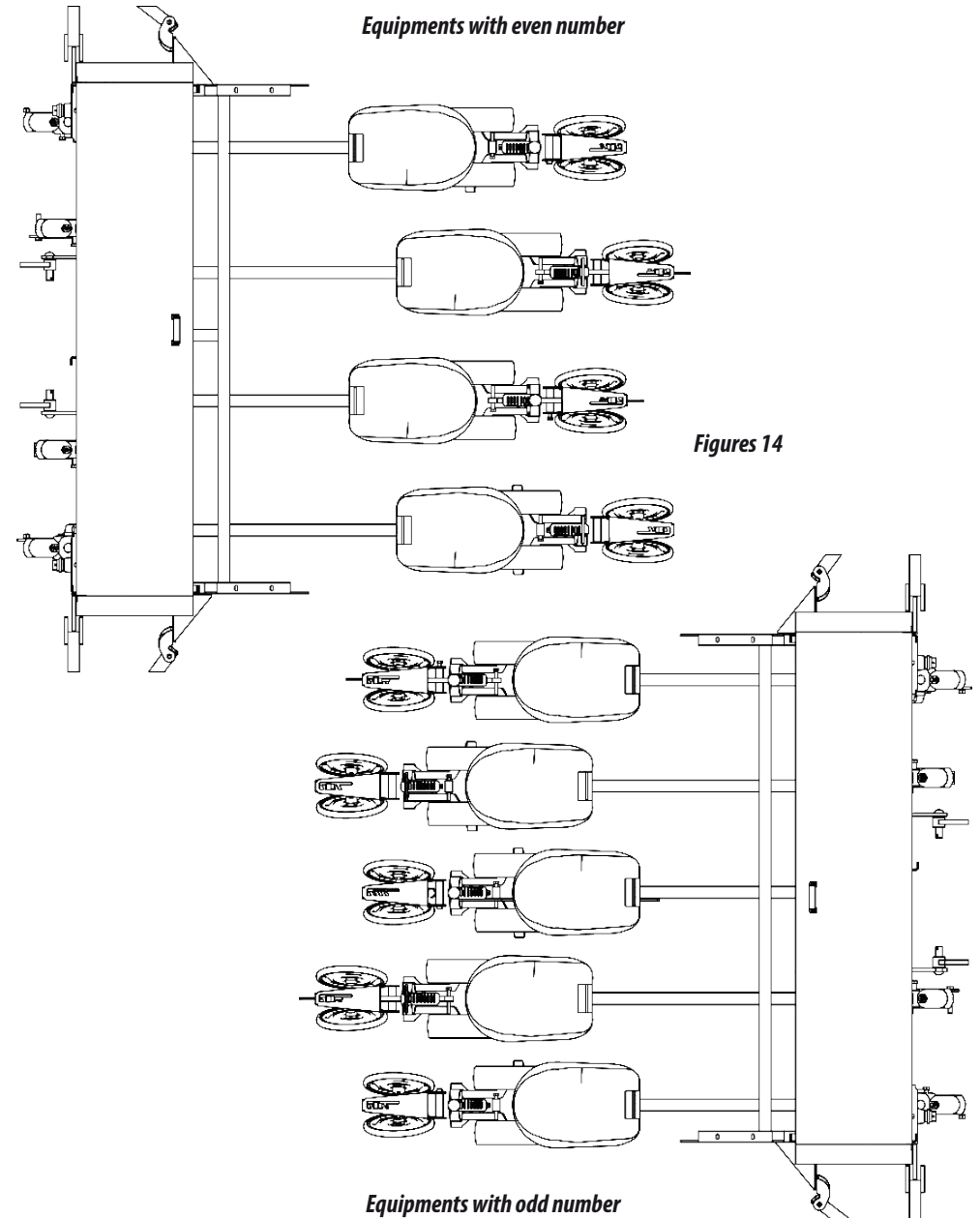
## EROW UNITS SPACING

- 13- The seeders come with the spacing according the number of rows requested, could be placed additional spacing according the crop.
- 14- Then make a new mark on the desired spacing on the bar where the rows will be set seed as Figure 14 next check and respecting the width of the bar and also the position of the wheel between the lines.

### SPACING TABLE

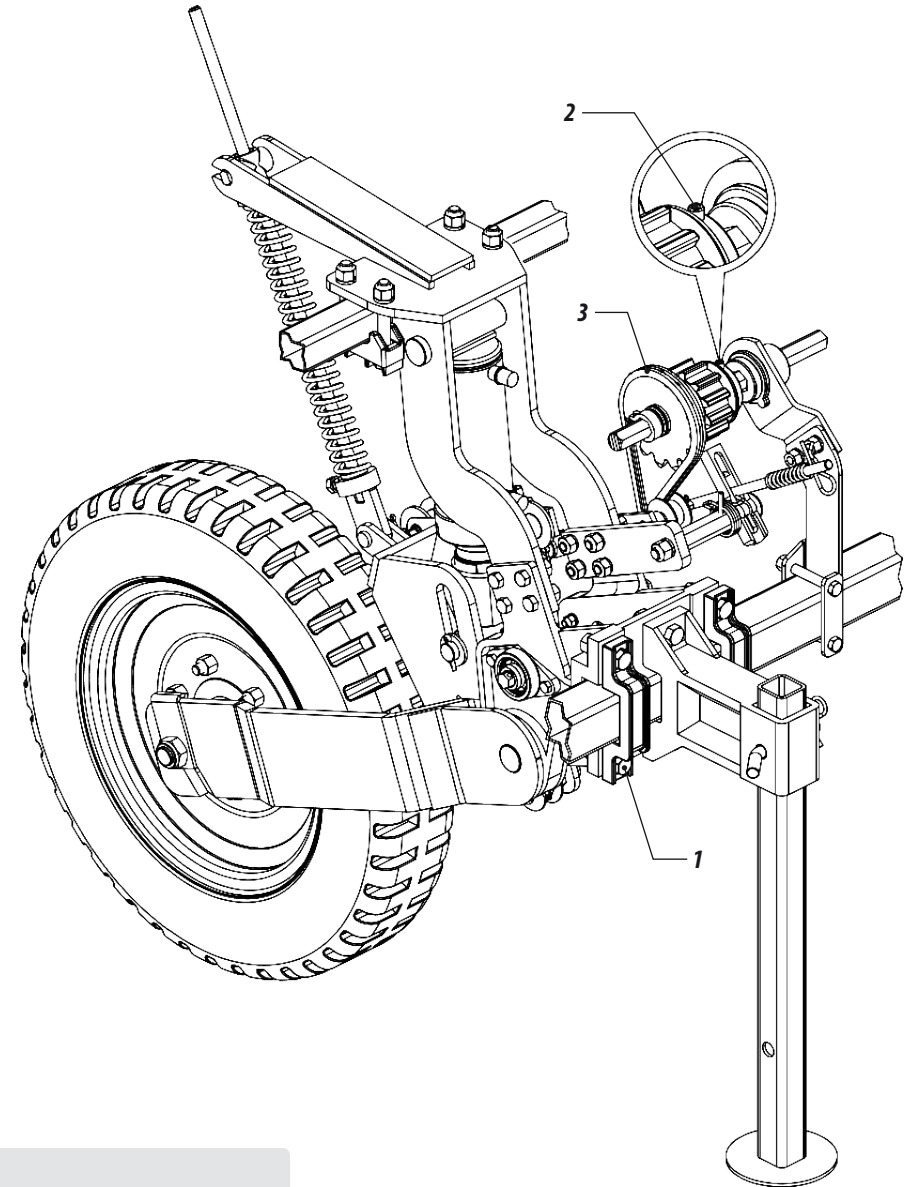
Model	Nr. of Rows	Maxx Spacing (mm)
SLA 2500	3	650 / 700 / 750 / 800 / 850 / 900
	4	450 / 500 / 550 / 600
	5	415 / 450
SLA 3000	4	700 / 750 / 800 / 850 / 900
	5	550 / 600 / 650 / 680
	6	450 / 500 / 550
	7	415 / 450

Table 2



**WHEEL POSITION**

- 15- To change the wheel position, loosen the nuts (1), from the lock support and the wheel clamp.
- 16- Loosen the turnstil trough the bolt (2), release the set to move it.
- 17- Slide the wheel set to the desired position, tighten the nuts (1) and lock it the turnstil with the bolt (2).
- 18- Check the align of gears from the wheel and turnstil, with the gear chain (3).

**IMPORTANTE**

The minimun spacing between the rows is 450 mm.

Figure 15

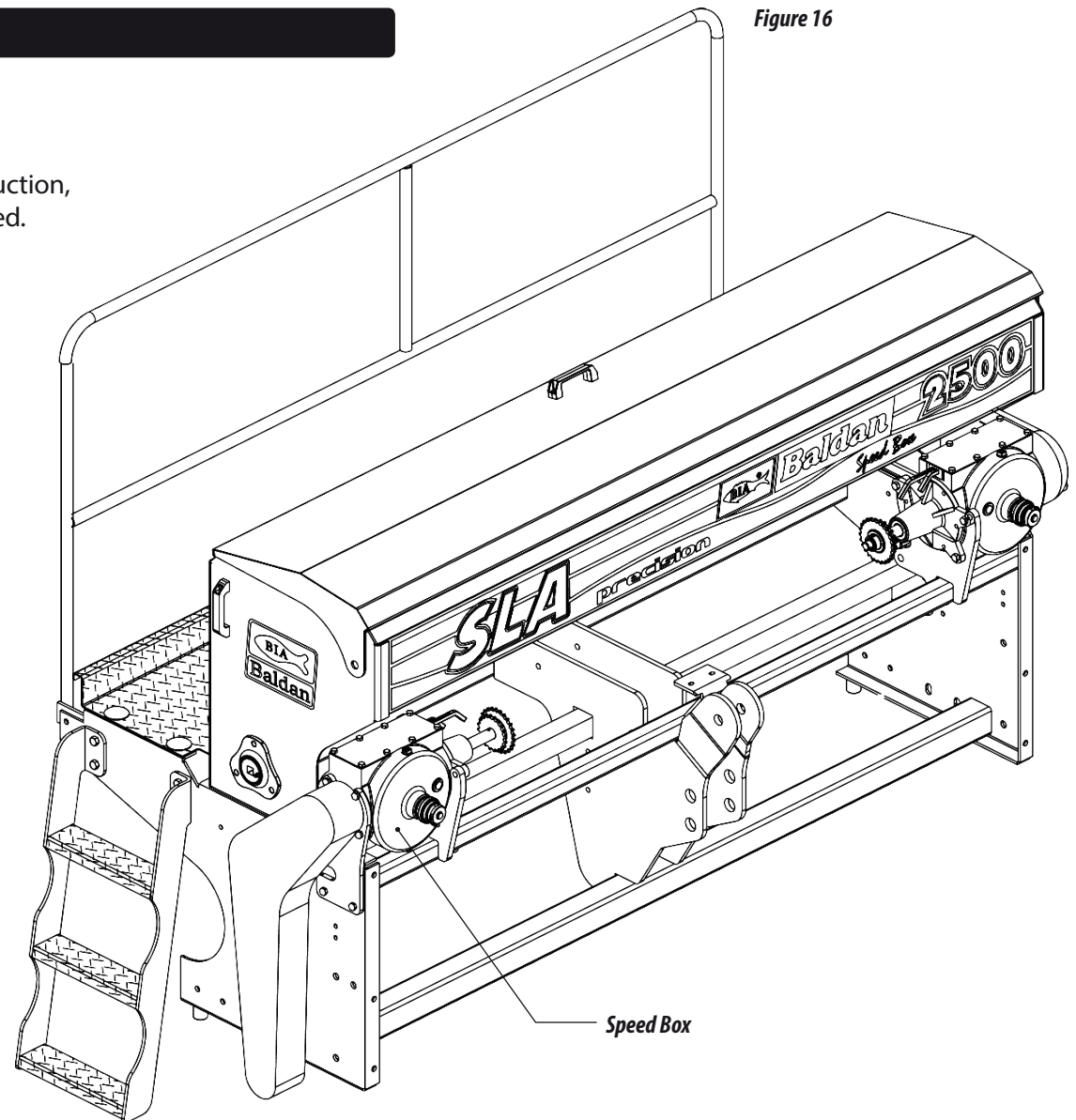
## 07 - FINISHING

### WITHOUT FINISHING SYSTEM

#### 01 - SLA precision Speed Box 2500 without finish. (Figures 16)

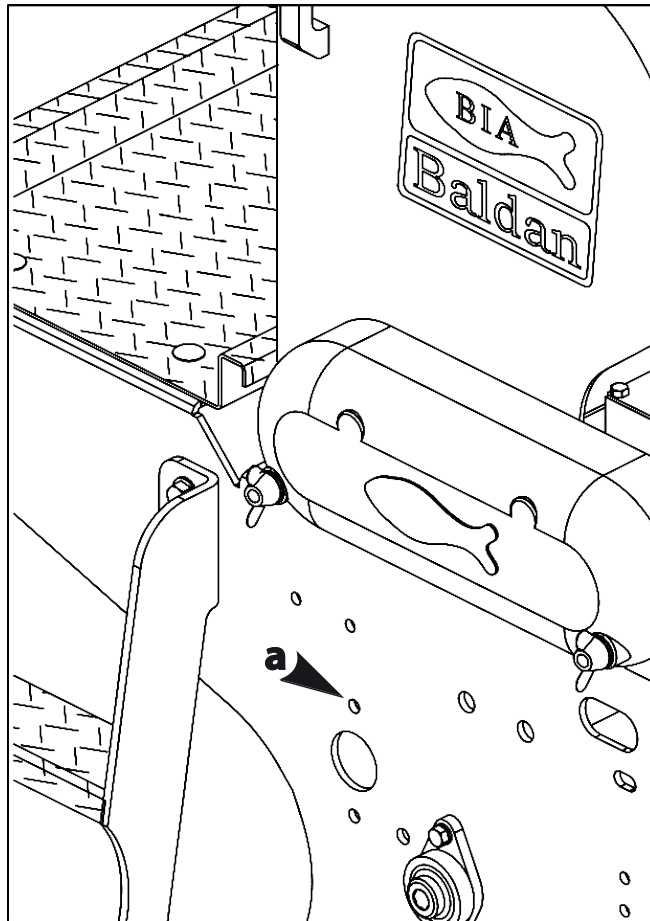
- The seeder comes without finish, as show follow;
- The transmittion system consists by axis to the fertilizer and seed distribution, which is driven by two Speed Box ,being one for fertilizer and other for seed.

Figure 16

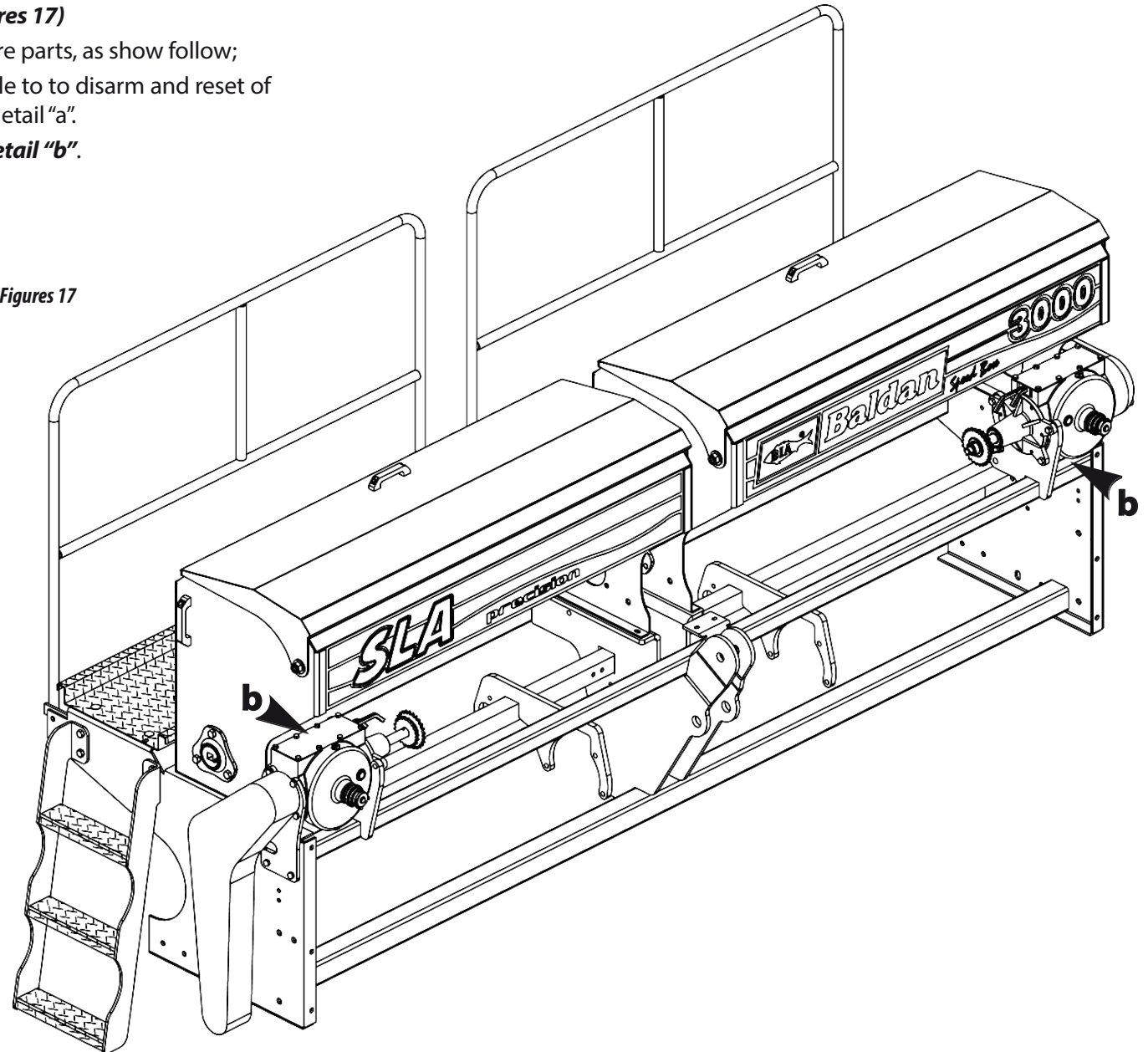


**02- SLA Precision Speed Box 3000 without finish. (Figures 17)**

- The seed without the finish system, has no some spare parts, as show follow;
- On the sides of the machine, check that has no handle to to disarm and reset of the turnstil, setting plate, compensators bearing. As detail "a".
- On the front has been removed two Speed Box **.As detail "b"**.



Figures 17

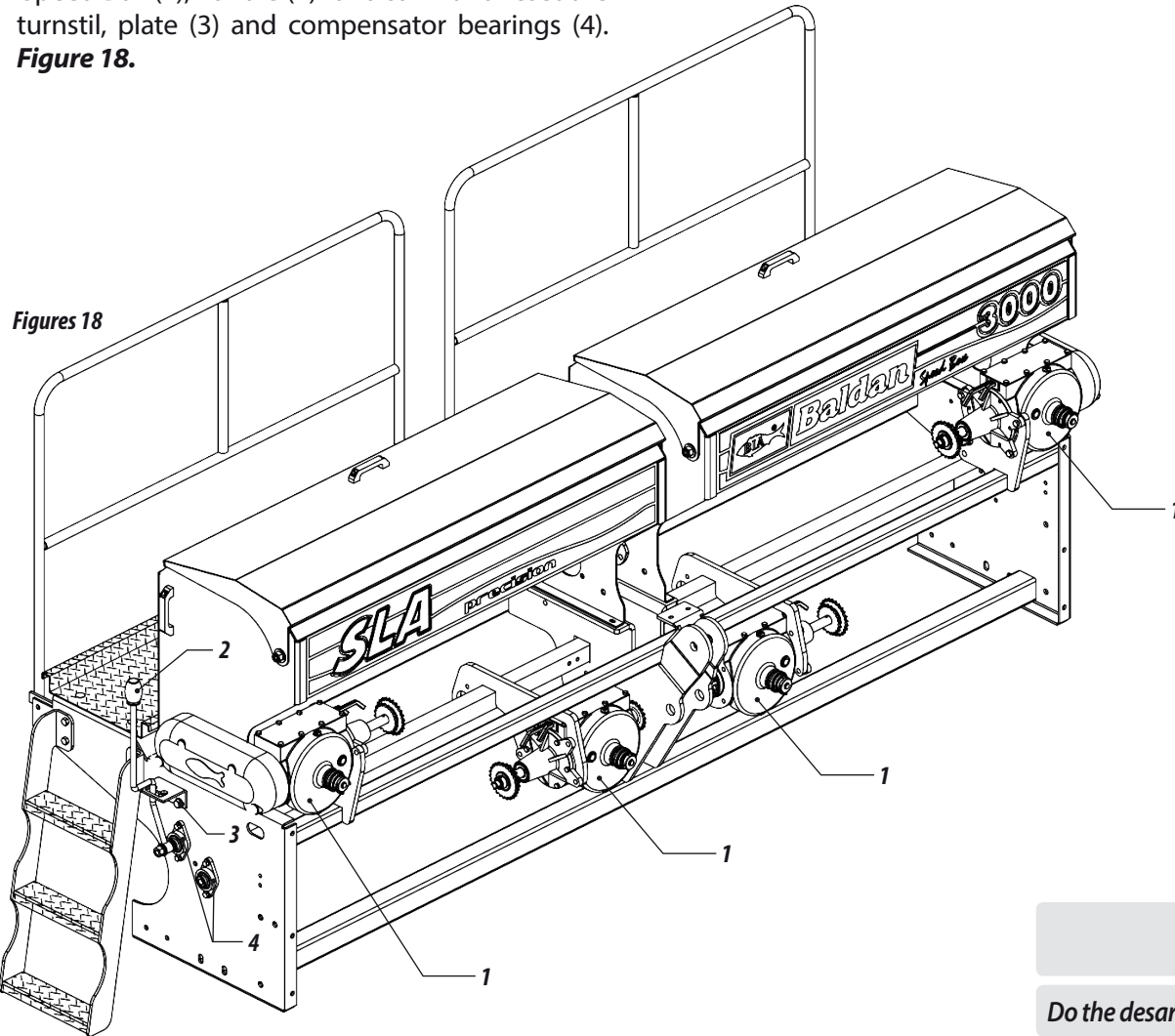


## WIYH FINISHING SYSTEM

### 03 - SLA precision Speed Box 3000 with finish.

- The seeder with finish system, comes with the partes eclosed, as show follow;
- Speed Box (1), handle (2) for disarm and reset the turnstil, plate (3) and compensator bearings (4).

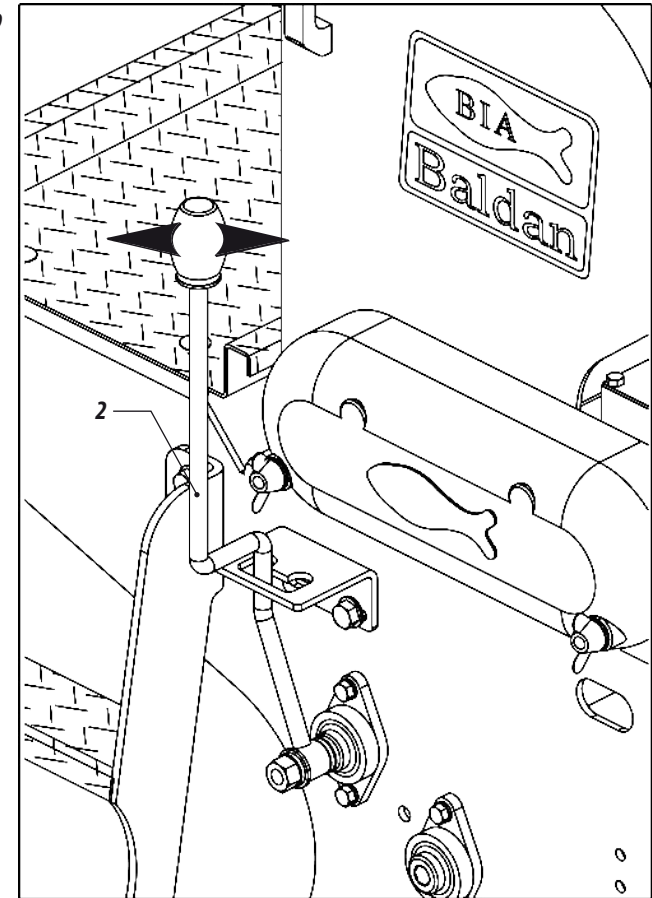
Figure 18.



Figures 18

- The handle (2), driven manually allow the plantation with the half of seeder.  
Figure 19.

Figures 19



**! ATTENTION**

Do the desarm and reset of turnstil, with the seeder stopped.

## ROW MARK REGULATION

- The regulation of row markers is important to obtain an evenly spaced planting, making that line the edge of the seeder spacing is at the same planted last line, facilitating future operations.
- To regulate the row markers, should know the spacing between rows, the number of rows to be used in the operation and the tractor front gauge.
- Use the formula below followed by an example.

**Fórmula:**

$$D = \frac{E \times (N + 1) - B}{2}$$

**Solve:**

$$D = \frac{0,45 \times 8 - 1,73}{2}$$

$$D = 0,935 \text{ metros}$$

**Where:**

- E** = Spacing between rows
- N** = Seeder rows number
- B** = Front gauge of tractor
- D** = Mark distance

**Example: For a planing with 7 rows on seeder, rear gauge spacing of 0,45 m and the front gauge of tractor with 1,73 m, so:**

- 01- Regulate the row mark with 0,935 m up to the center of first plantation row.
- 02- The row markers are alternatives, lower one after another, so during the planting before the end of the line there is a need to stop working, turn the piston so that the seeder up and down twice to continue working with the marker right side.

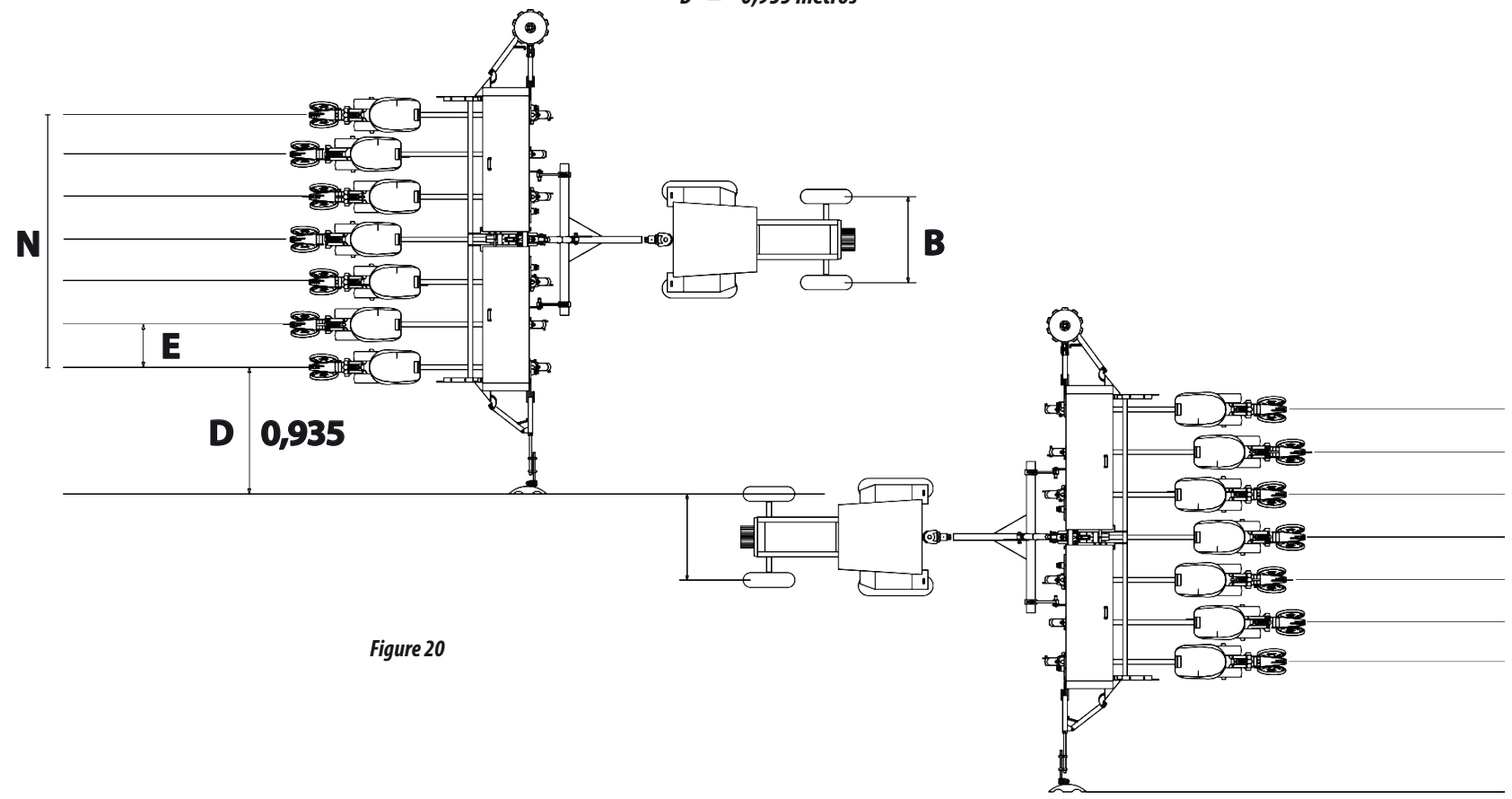
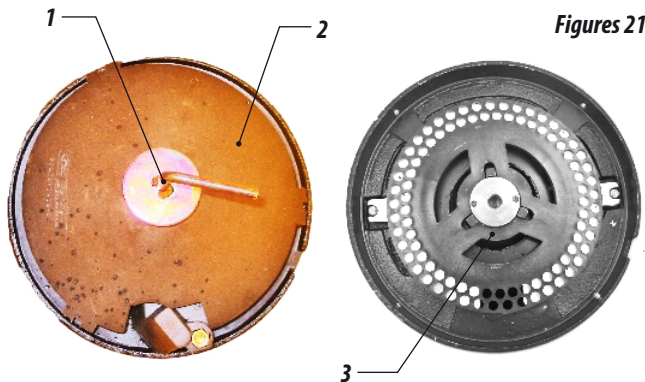


Figure 20

## 08 - DISTRIBUTIONS SEEDER REGULATION

### SEEDER REGULATION

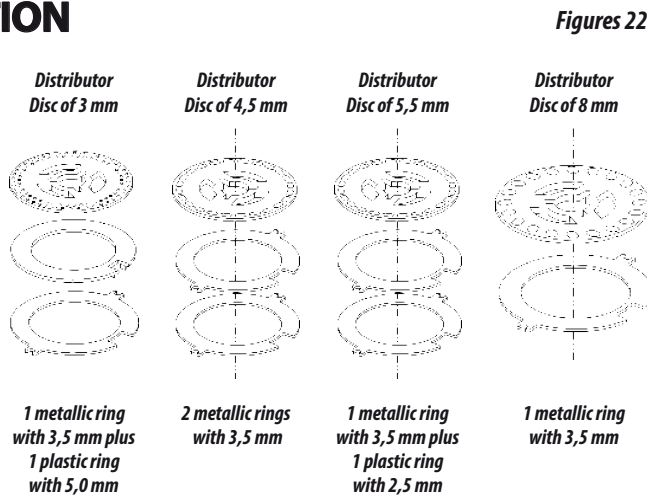
- To proceed the change or replacement of distribution discs, open the seeder box, remove the bolt (1), the upper support with deflector (2) and the distributor disc (3) that has been changed.



Figures 21

- Choose the desired distribution disc and proceed the assembly it on the seed box. Check the rings placing as the seed distribution disc as follow:

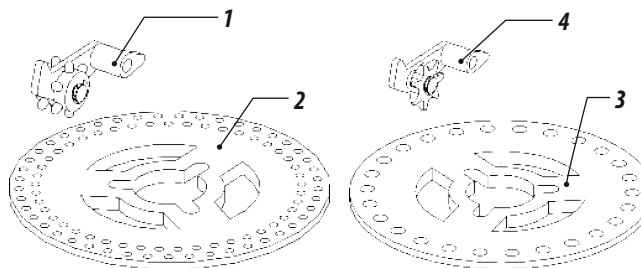
- 01 - To the 3 mm distribution disc use the plastic ring with 5 mm and a metallic ring with 3,5 mm.
- 02 - To the 4,5 mm distribution disc use two metallic rings with 3,5 mm.
- 03 - To the 5,5 mm distribution disc use a plastic ring with 2,5 mm and a metallic ring with 3,5 mm.
- 04 - To the 8 mm distribution ring use 1 metallic ring with 3,5 mm. Figure 22.



Figures 22

Obs: The sum of all the seed discs and rings must be equal to 11.5 mm.

### METERING SEED STAR

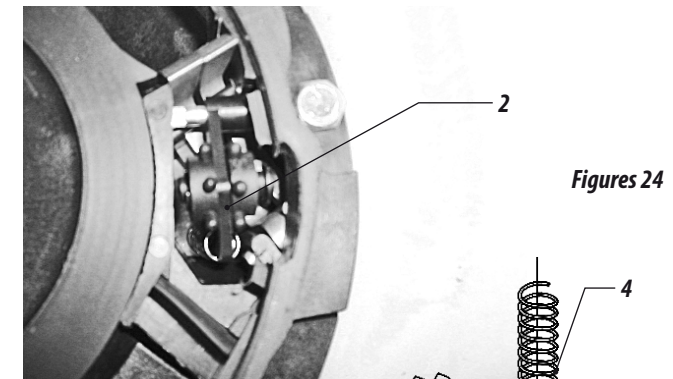


Figures 23

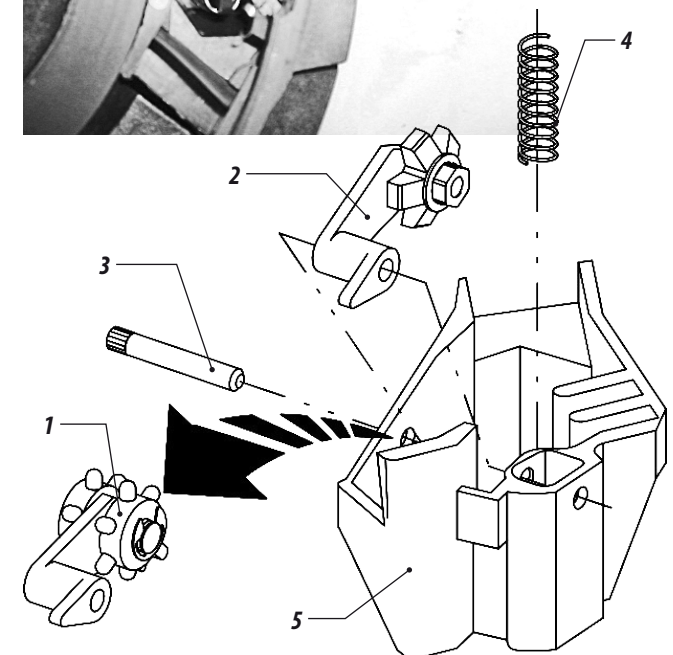
- 05 - The seed distributor comes factory fitted with trigger two stars in metering discs double row of holes (2).
- 06 - The single row of discs (3) uses a star trigger metering (4). To proceed the change see **Figures 23**.

### REPLACEMENT OF DOUBLE TRIGGER FOR SINGLE TRIGGER

- 07 - The distributor of seed leaves the factory with the trigger of two dosing stars (1) to disc double row of holes. To replace it with the trigger of a star (2), remove the pin (3), trigger (1), place the spring (4) in the slot, insert the trigger (2) box (5) and brake pin (3).



Figures 24



## SEED DISCS FOR EACH CROP

08 - The machine comes standard with 7 different sets of discs (standard disc) can be purchased loose or optional drives combine the 7 sets of discs as the customer needs.

Crop	Standard Discs	
Soybean	90 Holes (8,5 x 9,0 mm)	x 4,5 mm
	40 Holes (8,0 x 15,0 mm)	x 8,0 mm
	40 Holes (7,5 x 15,0 mm)	x 8,0 mm
Maiz* / Rice	26 Holes (13,5 mm)	x 4,5 mm
	26 Holes (13,0 mm)	x 4,5 mm
	26 Holes (11,0 mm)	x 4,5 mm
Bean	72 Holes (7,0 x 12,0 mm)	x 5,5 mm

Table 3

## \*MAIZ CROP

09 - The ideal choice of maiz seed distribution, you must collect a sample batch of seed to be planted and see if it settles perfectly into the hole of the disc. The seed must pass through the hole without suffering attrition or breakage (caused by the use of discs with small holes).

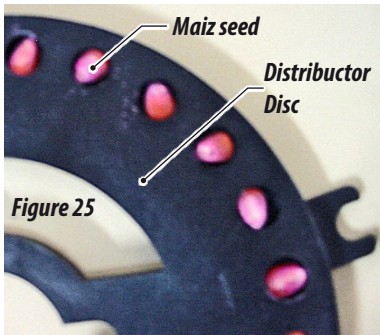


Figure 25

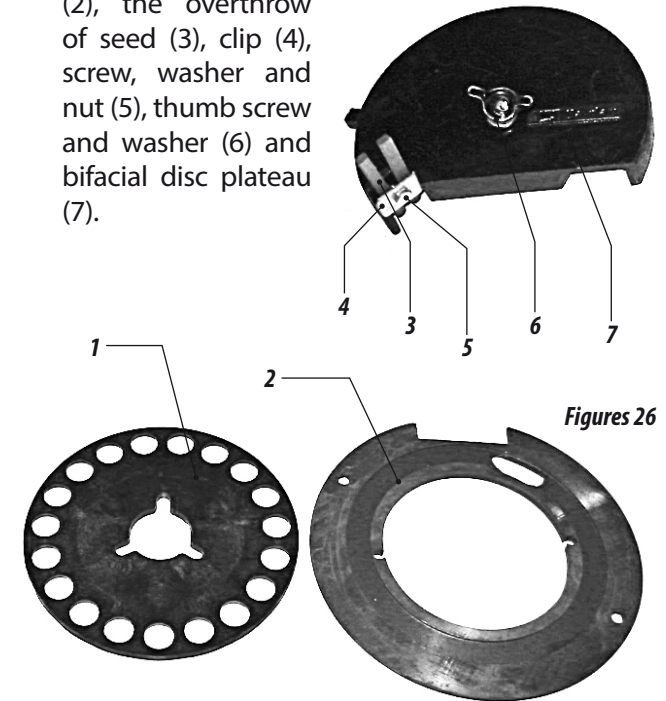
10 - For large holes, the housing may occur two or more seeds per hole, causing the distribution in duplicate.

Crop	Standard Discs	
Soybean	38 Holes (7,5 x 18,0 mm)	x 4,5 mm
	38 Holes (8,0 x 18,0 mm)	x 4,5 mm
	62 Holes (8,5 x 9,0 mm)	x 4,5 mm
Maiz*	24 Holes (9,0 x 14,0 mm)	x 4,5 mm
	24 Holes (10,0 x 15,0 mm)	x 4,5 mm
	24 Holes (11,0 x 15,0 mm)	x 4,5 mm
	48 Holes (9/32")	x 4,5 mm
Sorghun	50 Holes (4,8 mm)	x 3,0 mm
	90 Holes (5 x 5,5 mm)	x 3,0 mm
Bean	64 Holes (8,0 x 12,0 mm)	x 5,5 mm
Peanut**	19 Holes (19,0 mm)	x 6,0 mm
Sunflower	20 Holes (7,0 x 16,0 mm)	x 4,5 mm
Cotton no Linter	30 Holes (5,5 x 11,0 mm)	x 4,5 mm
	40 Holes (7,5 x 12,5 mm)	x 4,5 mm
Other	17 Holes (9/32")	x 3,0 mm
	18 Holes (9/32")	x 3,0 mm
	30 Holes (8,5 x 12,0 mm)	x 4,5 mm
	30 Holes (9,0 x 13,5 mm)	x 4,5 mm
	30 Holes (10,0 x 14,5 mm)	x 4,5 mm
	30 Holes (11,0 x 15,5 mm)	x 4,5 mm
	40 Holes (8,0 x 13,5 mm)	x 4,5 mm
	90 Holes (5,0 x 5,5 mm)	x 3,0 mm
	90 Holes (7,0 x 7,5 mm)	x 4,5 mm
	Blind discs for special holes	

Table 4

## \*\*CULTURA DE AMENDOIM

11 - For peanut crop is used the kit that consists of distributor disc holes 19 3 / 4 "x 6 mm (1), internal flow regulator (2), the overthrow of seed (3), clip (4), screw, washer and nut (5), thumb screw and washer (6) and bifacial disc plateau (7).



Figures 26

## NOTE

The distributor disc set must have a total thickness of 11.5 mm for a perfect fit of the system. So when the disc distributor has different thickness of 4.5 mm or 8.0 mm, as in sorghum and bean crops, using special ring as shown on page 20. (Standard thickness of the rings: 3.5 mm each)

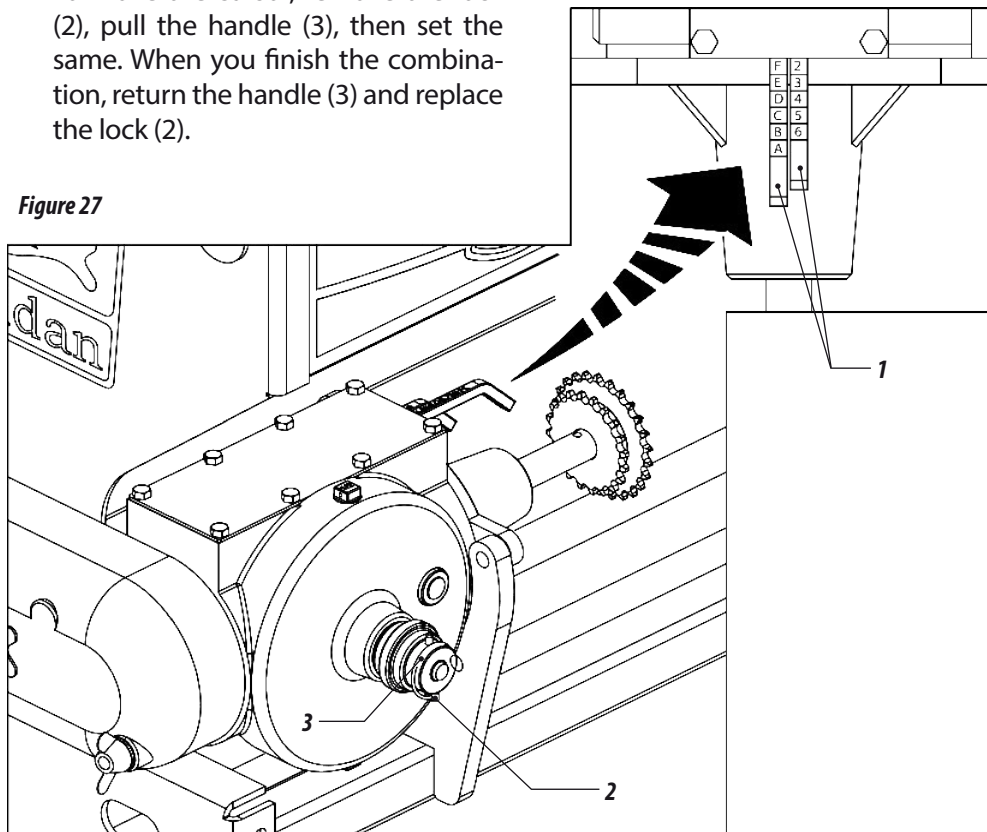
## SPEED BOX

- 12- The seeders come with Speed Box system, that triggers the distribution system with simple adjustments, ensuring exchange of quick rotations
- 13- For regulation of seed, select the desired quantity in the tables and check the corresponding combination of cursors (1).

• **Example: F 2 position, indicates that the cursor should be in the letters "F" and the cursor should be in position number "2" to detail in Figure 27.**

- 14- To move the cursor, remove the lock (2), pull the handle (3), then set the same. When you finish the combination, return the handle (3) and replace the lock (2).

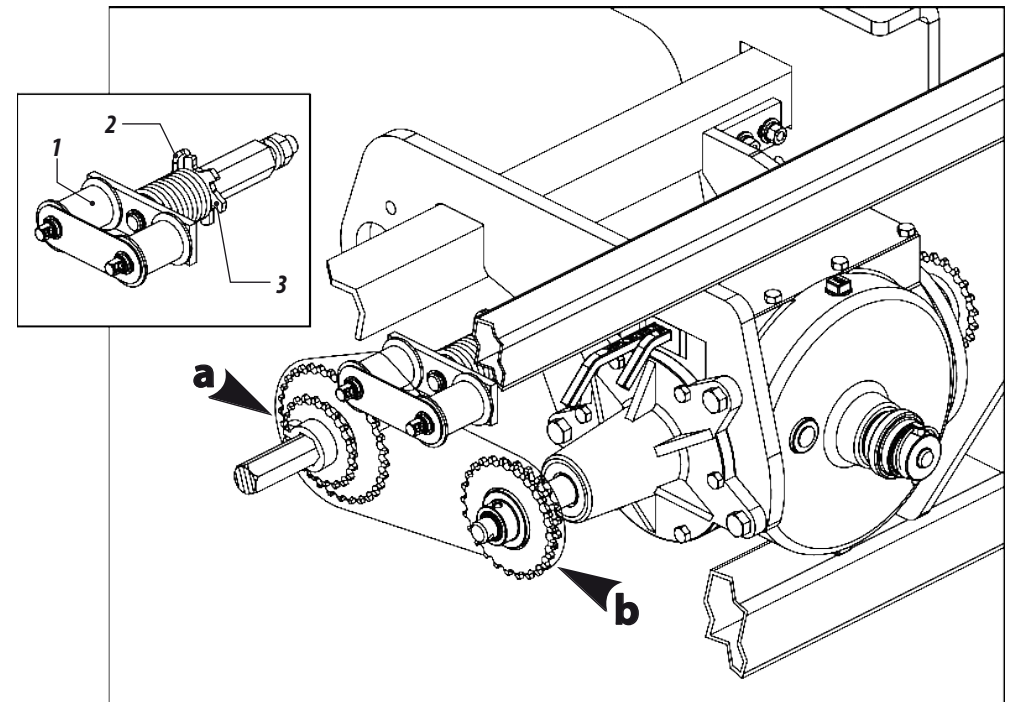
Figure 27



## 09 - DISTRIBUTION SEED ADJUSTMENTS

- 01- The seed adjustment done through the Speed Box. More adjustments to reposition the current in the motor gears "a" and moved "b". 5
- 02- After repositioning to proceed, check the chain tension.
- 03- The 6-stretcher (1) is endowed with torsion spring for even greater flexibility, greater pressure is needed on the stretcher, turn the rosette (2) through the engagement of the spring (3) for the other tooth of the rosette.

Figure 28



Distribution seed table by linear meter - SLA Precision 2500 / 3000 Speed Box

Table 5

Gear output shat of turnstile				20	Gear input of Speed Box										25
Hole number on discs															
Combination	17	18	19	20	24	26	30	38	40	48	50	62	64	72	90
F-1	1,4	1,5	1,6	1,6	2,0	2,1	2,5	3,1	3,3	3,9	4,1	5,1	5,2	5,9	7,4
F-2	1,6	1,7	1,8	1,8	2,2	2,4	2,8	3,5	3,7	4,4	4,6	5,7	5,9	6,6	8,3
E-1	1,7	1,8	1,9	2,0	2,5	2,7	3,1	3,9	4,1	4,9	5,1	6,4	6,6	7,4	9,2
F-3	1,8	1,9	2,0	2,1	2,5	2,7	3,2	4,0	4,2	5,1	5,3	6,5	6,7	7,6	9,5
E-2	2,0	2,1	2,2	2,3	2,8	3,0	3,5	4,4	4,6	5,5	5,8	7,1	7,4	8,3	10,4
D-1	2,1	2,2	2,3	2,5	3,0	3,2	3,7	4,7	4,9	5,9	6,1	7,6	7,9	8,9	11,1
F-4	2,1	2,2	2,3	2,5	3,0	3,2	3,7	4,7	4,9	5,9	6,1	7,6	7,9	8,9	11,1
E-3	2,2	2,4	2,5	2,6	3,2	3,4	4,0	5,0	5,3	6,3	6,6	8,2	8,4	9,5	11,9
D-2	2,4	2,5	2,6	2,8	3,3	3,6	4,1	5,3	5,5	6,6	6,9	8,6	8,9	10,0	12,4
C-1	2,4	2,6	2,7	2,9	3,4	3,7	4,3	5,5	5,7	6,9	7,2	8,9	9,2	10,3	12,9
F-5	2,5	2,7	2,8	3,0	3,5	3,8	4,4	5,6	5,9	7,1	7,4	9,1	9,4	10,6	13,3
E-4	2,6	2,8	2,9	3,1	3,7	4,0	4,6	5,8	6,1	7,4	7,7	9,5	9,8	11,1	13,8
D-3	2,7	2,8	3,0	3,2	3,8	4,1	4,7	6,0	6,3	7,6	7,9	9,8	10,1	11,4	14,2
C-2	2,7	2,9	3,1	3,2	3,9	4,2	4,8	6,1	6,5	7,7	8,1	10,0	10,3	11,6	14,5
B-1	2,8	3,0	3,1	3,3	3,9	4,3	4,9	6,2	6,6	7,9	8,2	10,2	10,5	11,8	14,8
A-1	3,1	3,3	3,5	3,7	4,4	4,8	5,5	7,0	7,4	8,9	9,2	11,4	11,8	13,3	16,6
A-2	3,5	3,7	3,9	4,1	5,0	5,4	6,2	7,9	8,3	10,0	10,4	12,9	13,3	14,9	18,7
B-3	3,6	3,8	4,0	4,2	5,1	5,5	6,3	8,0	8,4	10,1	10,5	13,1	13,5	15,2	19,0
C-4	3,7	3,9	4,1	4,3	5,2	5,6	6,5	8,2	8,6	10,3	10,8	13,3	13,8	15,5	19,4
D-5	3,8	4,0	4,2	4,4	5,3	5,8	6,6	8,4	8,9	10,6	11,1	13,7	14,2	15,9	19,9
E-6	3,9	4,1	4,4	4,6	5,5	6,0	6,9	8,8	9,2	11,1	11,5	14,3	14,8	16,6	20,7
A-3	4,0	4,3	4,5	4,7	5,7	6,2	7,1	9,0	9,5	11,4	11,9	14,7	15,2	17,1	21,3
B-4	4,2	4,4	4,7	4,9	5,9	6,4	7,4	9,3	9,8	11,8	12,3	15,2	15,7	17,7	22,1
C-5	4,4	4,6	4,9	5,2	6,2	6,7	7,7	9,8	10,3	12,4	12,9	16,0	16,5	18,6	23,2
D-6	4,7	5,0	5,3	5,5	6,6	7,2	8,3	10,5	11,1	13,3	13,8	17,2	17,7	19,9	24,9
A-4	4,7	5,0	5,3	5,5	6,6	7,2	8,3	10,5	11,1	13,3	13,8	17,2	17,7	19,9	24,9
B-5	5,0	5,3	5,6	5,9	7,1	7,7	8,9	11,2	11,8	14,2	14,8	18,3	18,9	21,2	26,6
C-6	5,5	5,8	6,1	6,5	7,7	8,4	9,7	12,3	12,9	15,5	16,1	20,0	20,7	23,2	29,0
A-5	5,6	6,0	6,3	6,6	8,0	8,6	10,0	12,6	13,3	15,9	16,6	20,6	21,2	23,9	29,9
B-6	6,3	6,6	7,0	7,4	8,9	9,6	11,1	14,0	14,8	17,7	18,4	22,9	23,6	26,6	33,2
A-6	7,1	7,5	7,9	8,3	10,0	10,8	12,4	15,8	16,6	19,9	20,7	25,7	26,6	29,9	37,3

Distribution seed table by linear meter - SLA Precision 2500 / 3000 Speed Box

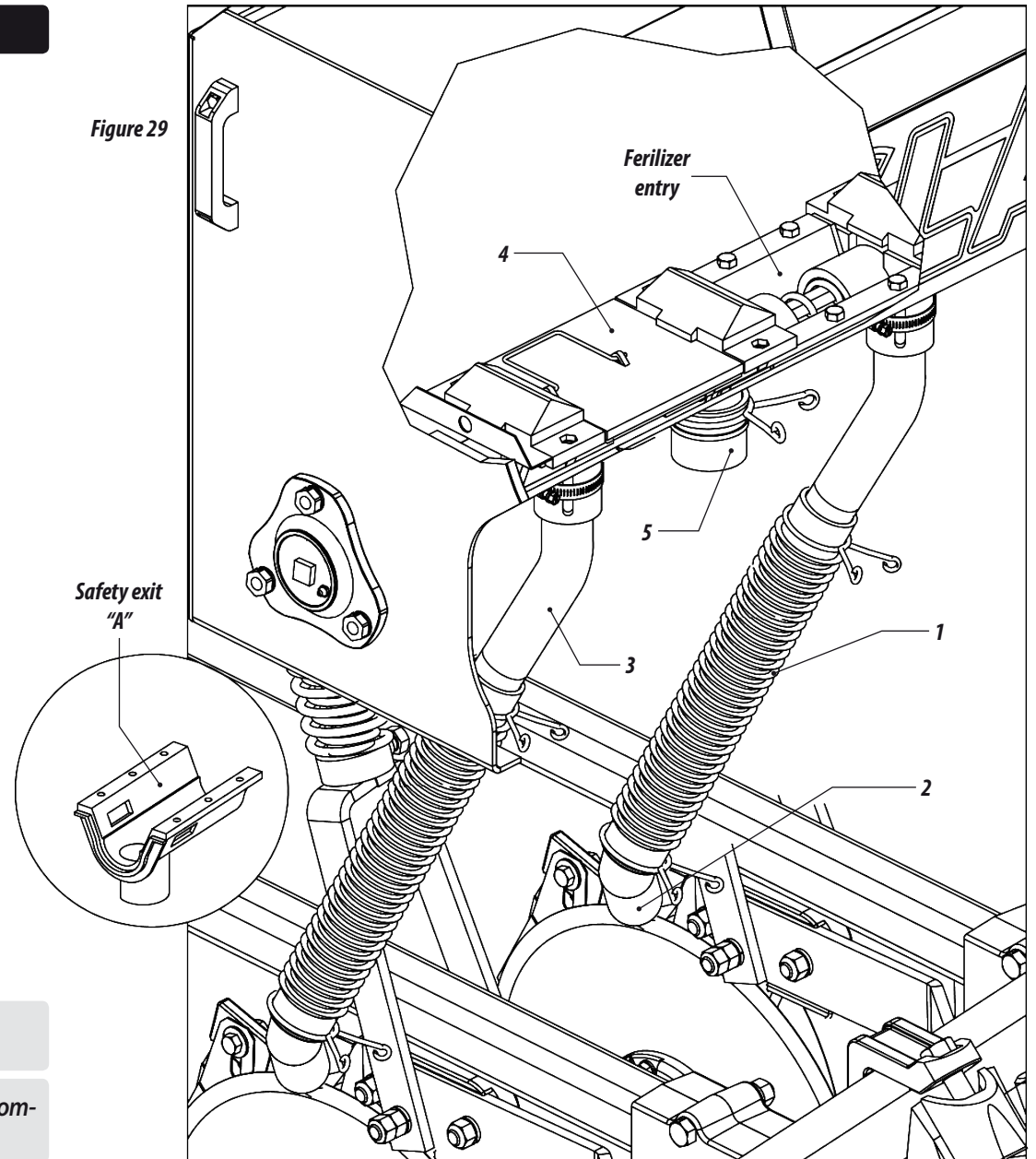
Table 6

Gear output shat of turnstile				25	Gear input of Speed Box										20
Hole number on discs															
Combination	17	18	19	20	24	26	30	38	40	48	50	62	64	72	90
F-1	2,2	2,3	2,4	2,6	3,1	3,3	3,8	4,9	5,1	6,1	6,4	7,9	8,2	9,2	11,5
F-2	2,4	2,6	2,7	2,9	3,5	3,7	4,3	5,5	5,8	6,9	7,2	8,9	9,2	10,4	13,0
E-1	2,7	2,9	3,0	3,2	3,8	4,2	4,8	6,1	6,4	7,7	8,0	9,9	10,2	11,5	14,4
F-3	2,8	3,0	3,1	3,3	4,0	4,3	4,9	6,3	6,6	7,9	8,2	10,2	10,5	11,9	14,8
E-2	3,1	3,2	3,4	3,6	4,3	4,7	5,4	6,8	7,2	8,6	9,0	11,2	11,5	13,0	16,2
D-1	3,3	3,5	3,7	3,8	4,6	5,0	5,8	7,3	7,7	9,2	9,6	11,9	12,3	13,8	17,3
F-4	3,3	3,5	3,7	3,8	4,6	5,0	5,8	7,3	7,7	9,2	9,6	11,9	12,3	13,8	17,3
E-3	3,5	3,7	3,9	4,1	4,9	5,4	6,2	7,8	8,2	9,9	10,3	12,8	13,2	14,8	18,5
D-2	3,7	3,9	4,1	4,3	5,2	5,6	6,5	8,2	8,6	10,4	10,8	13,4	13,8	15,6	19,5
C-1	3,8	4,0	4,3	4,5	5,4	5,8	6,7	8,5	9,0	10,8	11,2	13,9	14,3	16,1	20,2
F-5	3,9	4,1	4,4	4,6	5,5	6,0	6,9	8,8	9,2	11,1	11,5	14,3	14,8	16,6	20,7
E-4	4,1	4,3	4,6	4,8	5,8	6,2	7,2	9,1	9,6	11,5	12,0	14,9	15,4	17,3	21,6
D-3	4,2	4,4	4,7	4,9	5,9	6,4	7,4	9,4	9,9	11,9	12,4	15,3	15,8	17,8	22,2
C-2	4,3	4,5	4,8	5,0	6,1	6,6	7,6	9,6	10,1	12,1	12,6	15,6	16,1	18,2	22,7
B-1	4,4	4,6	4,9	5,1	6,1	6,7	7,7	9,7	10,2	12,3	12,8	15,9	16,4	18,4	23,1
A-1	4,9	5,2	5,5	5,8	6,9	7,5	8,6	11,0	11,5	13,8	14,4	17,9	18,4	20,7	25,9
A-2	5,5	5,8	6,2	6,5	7,8	8,4	9,7	12,3	13,0	15,6	16,2	20,1	20,7	23,3	29,2
B-3	5,6	5,9	6,3	6,6	7,9	8,6	9,9	12,5	13,2	15,8	16,5	20,4	21,1	23,7	29,6
C-4	5,7	6,1	6,4	6,7	8,1	8,7	10,1	12,8	13,4	16,1	16,8	20,8	21,5	24,2	30,3
D-5	5,9	6,2	6,6	6,9	8,3	9,0	10,4	13,1	13,8	16,6	17,3	21,4	22,1	24,9	31,1
E-6	6,1	6,5	6,8	7,2	8,6	9,4	10,8	13,7	14,4	17,3	18,0	22,3	23,1	25,9	32,4
A-3	6,3	6,7	7,0	7,4	8,9	9,6	11,1	14,1	14,8	17,8	18,5	23,0	23,7	26,7	33,3
B-4	6,5	6,9	7,3	7,7	9,2	10,0	11,5	14,6	15,4	18,4	19,2	23,8	24,6	27,7	34,6
C-5	6,9	7,3	7,7	8,1	9,7	10,5	12,1	15,3	16,1	19,4	20,2	25,0	25,8	29,0	36,3
D-6	7,3	7,8	8,2	8,6	10,4	11,2	13,0	16,4	17,3	20,7	21,6	26,8	27,7	31,1	38,9
A-4	7,3	7,8	8,2	8,6	10,4	11,2	13,0	16,4	17,3	20,7	21,6	26,8	27,7	31,1	38,9
B-5	7,8	8,3	8,8	9,2	11,1	12,0	13,8	17,5	18,4	22,1	23,1	28,6	29,5	33,2	41,5
C-6	8,6	9,1	9,6	10,1	12,1	13,1	15,1	19,2	20,2	24,2	25,2	31,3	32,3	36,3	45,4
A-5	8,8	9,3	9,9	10,4	12,4	13,5	15,6	19,7	20,7	24,9	25,9	32,2	33,2	37,3	46,7
B-6	9,8	10,4	11,0	11,5	13,8	15,0	17,3	21,9	23,1	27,7	28,8	35,7	36,9	41,5	51,9
A-6	11,0	11,7	12,3	13,0	15,6	16,9	19,5	24,6	25,9	31,1	32,4	40,2	41,5	46,7	58,4

## FERTILIZER DISTRIBUTION SYSTEM METALIC HOOPER

- 04 - The system of fertilizer distribution of floating spiral consists of a shaft provided at the bottom of the deposit of manure, that when you start turning, the compost surrounding the shaft, carried him to the exits, eliminating intermediate bearings.
- 05 - In determining the number of rows and spacing desired, attach the hose (1) in the fertilizer spout (2), making the connection of the hoses that are closer to the lines, preventing them become folded or folded. To better align the hose if necessary use the spout with a degree (3), as shown in **Figure 29**.
- 06 - The output will not be used, should be closed with lids (4) inside the container and the cap (5) in the external outputs, this will prevent fine particles of fertilizer to fall on the seeder.
- 07 - The dispenser system of manure floating spiral, has a number of safety outputs, that upon entering the feeder and some fertilizer on the output is blocked, begin to leak the safety outputs "A", ensuring the functioning of the system without damage it. If this occurs, do the injector cleaning up the spout located in the double disk or pipe plow, because the blockage may occur for roots, pieces of plastic and other objects.

Figure 29



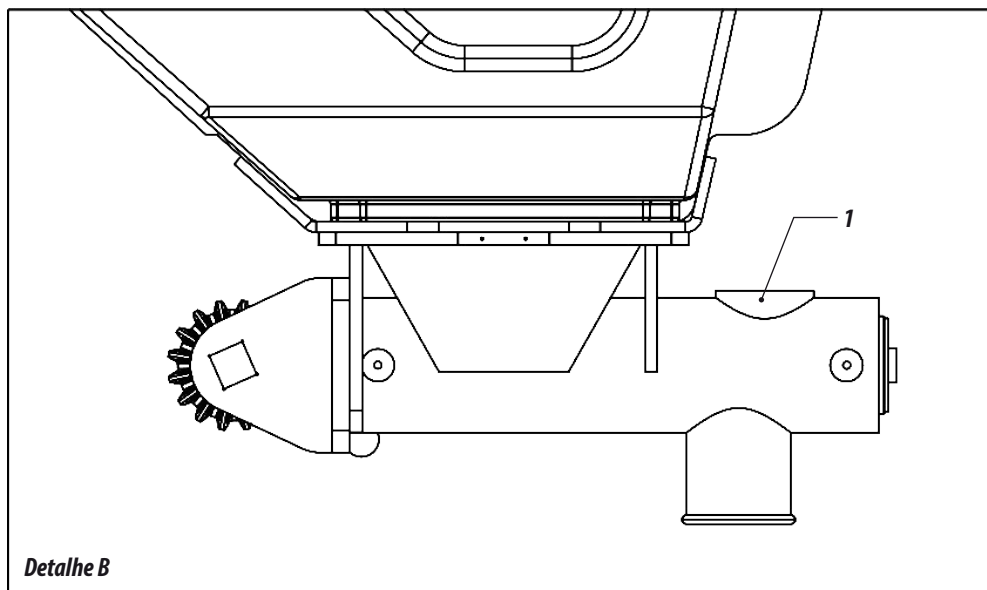
### IMPORTANT

Periodically remove the plus (5) and proceed to clean the outputs of the same. When the compost is damp or has impurities, do the cleaning more often.

## FERTILIZER DISTRIBUTION SYSTEM POLYETHYLENE HOOPER

### • Independent System

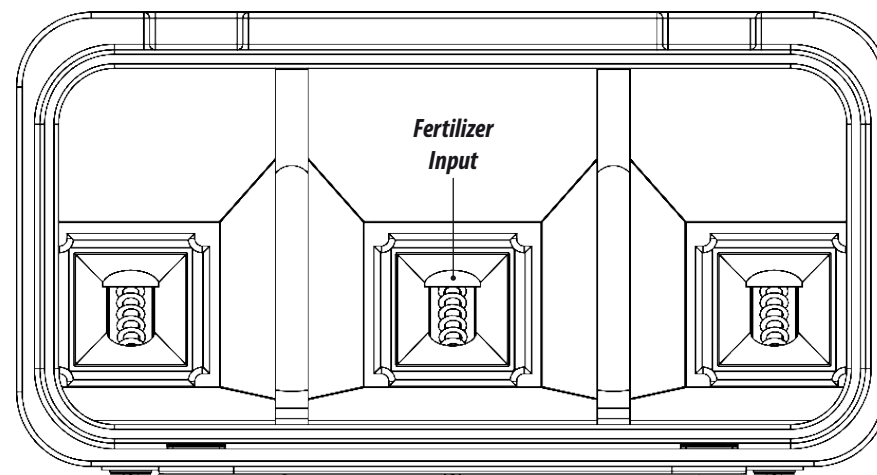
- 08 - To conduct the fertilizer distributor to the ground, attach the hose (1) the distribution taps (2) of fertilizer, preventing them become crossed or folded, **Figure 30**.
- 09 - The individual system of distribution, has an safety exit detail "B" that upon entering the manure and the feeder hose is clogged, it will start to leak this fertilizer output, and ensure the functioning of the system without damaging it. If this occurs, proceed to clean the dispenser until the end of the hose near the stem or double disc plow, because the system may be clogged by roots, pieces of plastic and other objects.



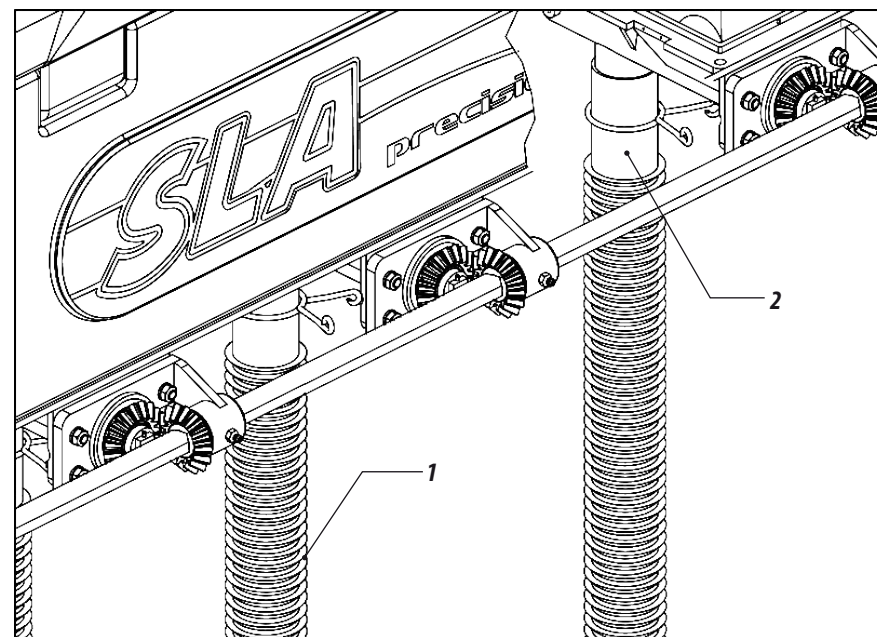
Detalhe B

### ⓘ IMPORTANT

Check daily distributors and, if necessary hoses and do the cleaning in the same outputs.



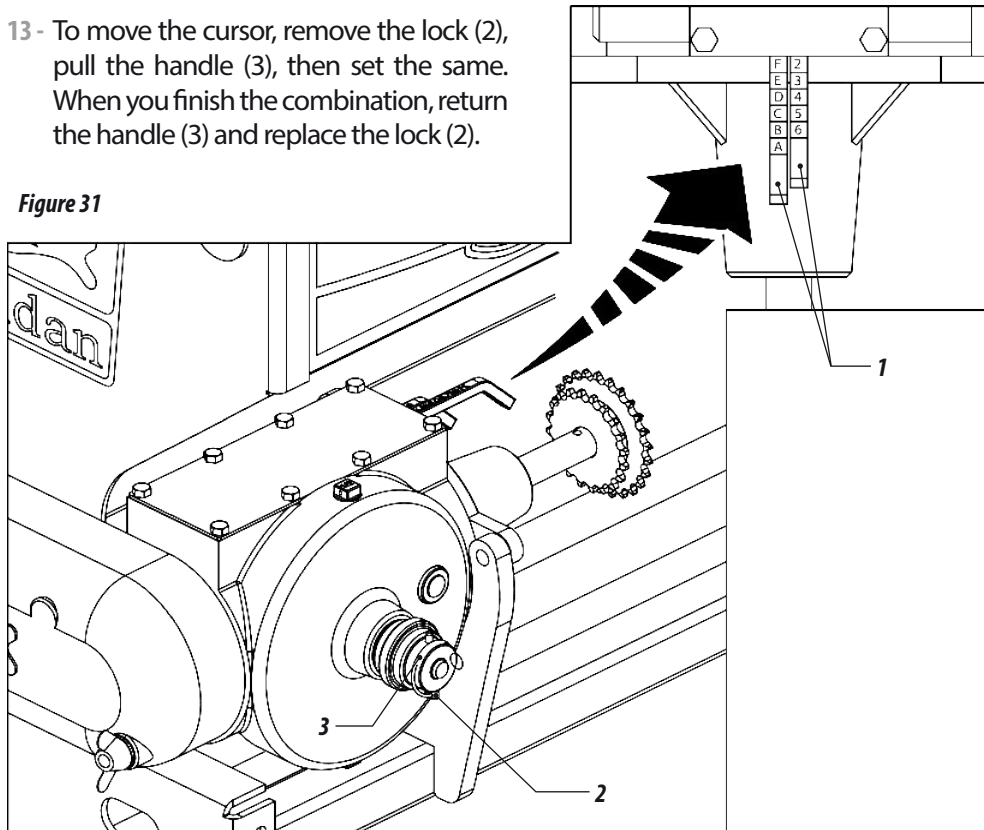
Figures 30



## SPEED BOX

- 10 - The seeders come with Speed Box, that triggers the distribution system, with simple adjustments, ensuring exchange of practical and fast speed.
- 11 - For adjustments of fertilizer, select the desired quantity in the tables and check the corresponding combination of cursors (1).
- 12 - **Example: F 2 position, indicates that the cursor should be in the letters "F" and the cursor should be in position number "2" as shown in Figure 31.**
- 13 - To move the cursor, remove the lock (2), pull the handle (3), then set the same. When you finish the combination, return the handle (3) and replace the lock (2).

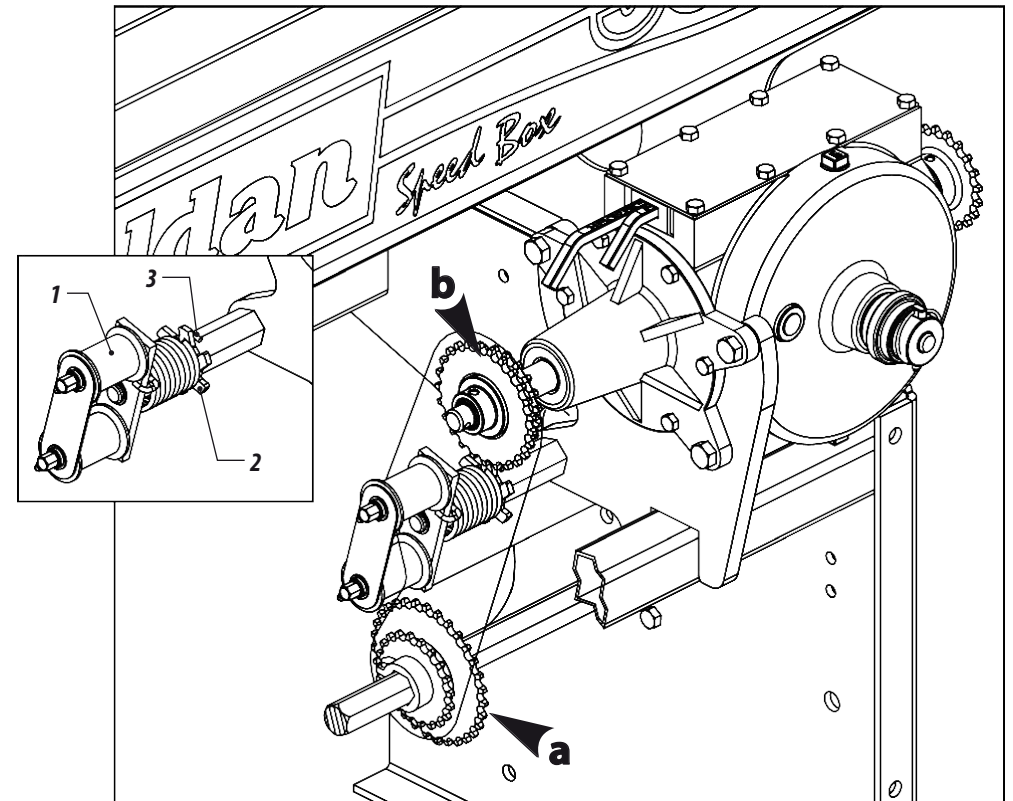
Figure 31



## 10 - FERTILIZER DISTRIBUTION ADJUSTMENTS

- 01 - The fertilizer adjustment is made through Speed Box. More adjustments to reposition the current in the motor gears "a" and moved "b".
- 02 - After the repositioning of the gears, check the chain tension.
- 03 - The 6-stretcher (1) is endowed with torsion spring for even greater flexibility, greater pressure is needed on the stretcher, turn the rosette (2) through the engagement of the spring (3) for the other tooth of the rosette

Figure 32



**Distribution fertilizer table by linear meter - SLA Precision 2500 / 3000 Speed Box**

Combination	Grams / 50m	Gear output shat of turnstile						Gear input of Speed Box					
		Rows spacing (mm)											
		20	20	20	20	20	20	31	31	31	31	31	31
		415	430	450	500	550	600	650	700	750	800	850	900
F-1	332	160	154	148	133	121	111	102	95	89	83	78	74
F-2	374	180	174	166	149	136	125	115	107	100	93	88	83
E-1	415	200	193	184	166	151	138	128	119	111	104	98	92
F-3	427	206	199	190	171	155	142	131	122	114	107	100	95
E-2	467	225	217	208	187	170	156	144	133	125	117	110	104
D-1	498	240	232	221	199	181	166	153	142	133	125	117	111
F-4	498	240	232	221	199	181	166	153	142	133	125	117	111
E-3	534	257	248	237	213	194	178	164	152	142	133	126	119
D-2	560	270	261	249	224	204	187	172	160	149	140	132	125
C-1	581	280	270	258	232	211	194	179	166	155	145	137	129
F-5	598	288	278	266	239	217	199	184	171	159	149	141	133
E-4	623	300	290	277	249	226	208	192	178	166	156	147	138
D-3	640	309	298	285	256	233	213	197	183	171	160	151	142
C-2	654	315	304	291	262	238	218	201	187	174	163	154	145
B-1	664	320	309	295	266	242	221	204	190	177	166	156	148
A-1	747	360	348	332	299	272	249	230	213	199	187	176	166
A-2	841	405	391	374	336	306	280	259	240	224	210	198	187
B-3	854	412	397	380	342	311	285	263	244	228	213	201	190
C-4	872	420	405	387	349	317	291	268	249	232	218	205	194
D-5	897	432	417	399	359	326	299	276	256	239	224	211	199
E-6	934	450	434	415	374	340	311	287	267	249	234	220	208
A-3	961	463	447	427	384	349	320	296	274	256	240	226	213
B-4	996	480	463	443	399	362	332	307	285	266	249	234	221
C-5	1046	504	487	465	418	380	349	322	299	279	262	246	232
D-6	1121	540	521	498	448	408	374	345	320	299	280	264	249
A-4	1121	540	521	498	448	408	374	345	320	299	280	264	249
B-5	1196	576	556	531	478	435	399	368	342	319	299	281	266
C-6	1308	630	608	581	523	475	436	402	374	349	327	308	291
A-5	1345	648	626	598	538	489	448	414	384	359	336	316	299
B-6	1494	720	695	664	598	543	498	460	427	399	374	352	332
A-6	1681	810	782	747	672	611	560	517	480	448	420	396	374

Referências : Tabela elaborada utilizando mola passo de 2" para distribuição de adubo.

Distribution fertilizer table by linear meter - SLA Precision 2500 / 3000 Speed Box

Combination	Grams / 50m	Gear output shat of turnstile						Gear input of Speed Box					
		Rows spacing (mm)											
		31	415	430	450	500	550	600	650	700	750	800	850
F-1	798	385	371	355	319	290	266	245	228	213	199	188	177
F-2	898	433	417	399	359	326	299	276	256	239	224	211	199
E-1	997	481	464	443	399	363	332	307	285	266	249	235	222
F-3	1026	494	477	456	410	373	342	316	293	274	256	241	228
E-2	1122	541	522	499	449	408	374	345	321	299	280	264	249
D-1	1197	577	557	532	479	435	399	368	342	319	299	282	266
F-4	1197	577	557	532	479	435	399	368	342	319	299	282	266
E-3	1282	618	596	570	513	466	427	395	366	342	321	302	285
D-2	1346	649	626	598	539	490	449	414	385	359	337	317	299
C-1	1396	673	649	621	558	508	465	430	399	372	349	329	310
F-5	1436	692	668	638	574	522	479	442	410	383	359	338	319
E-4	1496	721	696	665	598	544	499	460	427	399	374	352	332
D-3	1539	742	716	684	615	560	513	473	440	410	385	362	342
C-2	1571	757	731	698	628	571	524	483	449	419	393	370	349
B-1	1596	769	742	709	638	580	532	491	456	426	399	375	355
A-1	1795	865	835	798	718	653	598	552	513	479	449	422	399
A-2	2020	973	939	898	808	734	673	621	577	539	505	475	449
B-3	2052	989	954	912	821	746	684	631	586	547	513	483	456
C-4	2094	1009	974	931	838	762	698	644	598	558	524	493	465
D-5	2154	1038	1002	957	862	783	718	663	615	574	539	507	479
E-6	2244	1081	1044	997	898	816	748	690	641	598	561	528	499
A-3	2308	1112	1074	1026	923	839	769	710	659	615	577	543	513
B-4	2394	1154	1113	1064	957	870	798	736	684	638	598	563	532
C-5	2513	1211	1169	1117	1005	914	838	773	718	670	628	591	558
D-6	2693	1298	1252	1197	1077	979	898	829	769	718	673	634	598
A-4	2693	1298	1252	1197	1077	979	898	829	769	718	673	634	598
B-5	2872	1384	1336	1277	1149	1044	957	884	821	766	718	676	638
C-6	3142	1514	1461	1396	1257	1142	1047	967	898	838	785	739	698
A-5	3231	1557	1503	1436	1293	1175	1077	994	923	862	808	760	718
B-6	3590	1730	1670	1596	1436	1306	1197	1105	1026	957	898	845	798
A-6	4039	1947	1879	1795	1616	1469	1346	1243	1154	1077	1010	950	898

Referências : Tabela elaborada utilizando mola passo de 2" para distribuição de adubo.

## 11 - PRACTICAL CALCULE FOR SEEDS AND FERTILIZER DISTRIBUTION

01 - Determine the spacing and amount of fertilizer to be distributed by Bushel (Aa) or Hectare (Ha).

• **Example: Seeder with spacing of 450 mm, to distribute 500 kilograms of fertilizer per hectare, use the formula below:**

**Fórmula:**

$$D = \frac{Ex Q}{A} \times D$$

**Solve:**

$$D = \frac{450 \times 500}{10.000} \times 50$$

$$X = 22,50 \times 50 = 1125$$

$$X = 1125 \text{ grams in 50 meters per row}$$

**Data from the formula:**

**E = Row spacing (mm)**

**Q = Quantity of fertilizer to be distributed (kg)**

**A = Area to be fertilized (m<sup>2</sup>)**

**D = Distance of 50 meters (test)**

**X = Grams of fertilizer in 50 meters**

### PRACTICAL TEST FOR MEASURING THE AMOUNT OF DISTRIBUTION OF FERTILIZERS AND SEEDS

02 - To more accurately both the distribution of fertilizer and seed, test the amount to be distributed on-site planting, because there is a field for each condition.

03 - Make and keep the tires in the calibration of the seeder with 70 lb / in<sup>2</sup> each.

04 - Check the distance to the test table, we opted for 50 meters.

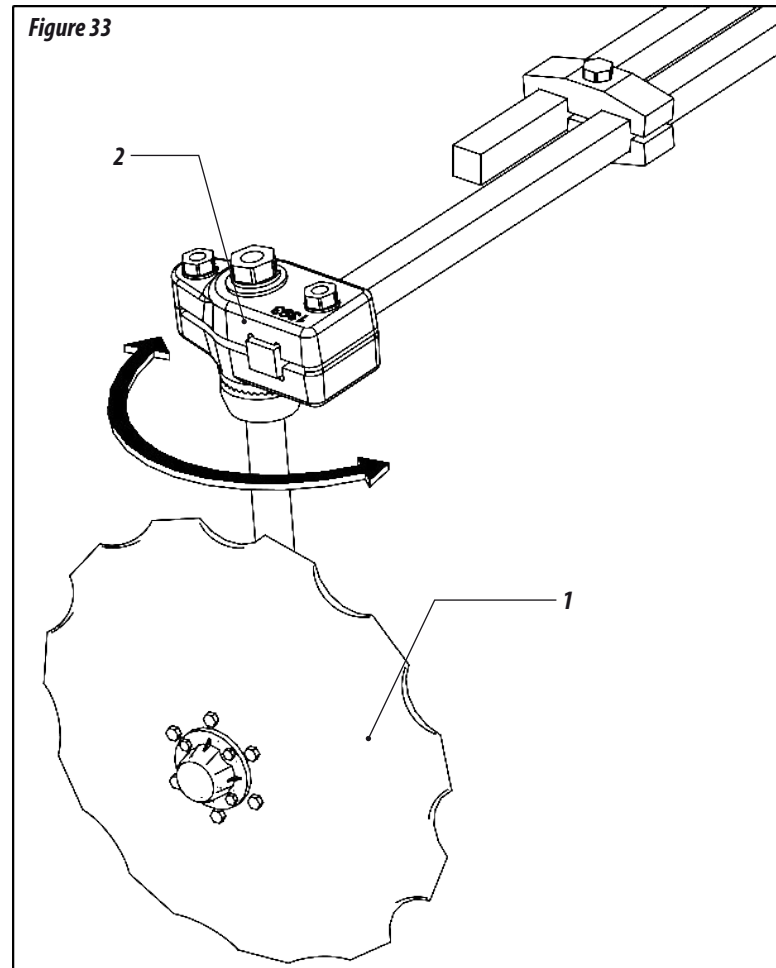
05 - Fill the planter deposits at least halfway. Scroll down a few yards outside the area of testing for the seeds and fertilizer fill the feeders.

06 - Look at the output taps of the seed and place in containers for collection of manure output. Move the tractor in the recessed area, always at the same speed that will grow.

07 - After walking along the demarcated area table (fertilizer) in column (grams per line in 50 meters), remove the seal of the spout of the seed and collect them for counting and then weighing the collected manure. If necessary, increase or decrease fertilizer and seed proceed through the box Speed Box.

### ADJUSTMENT DISC MARKER

08 - The marker (1) has angular adjustment to facilitate the work of ground markings. For this adjustment, loosen the nut (2) and rotate the dial to the desired position.

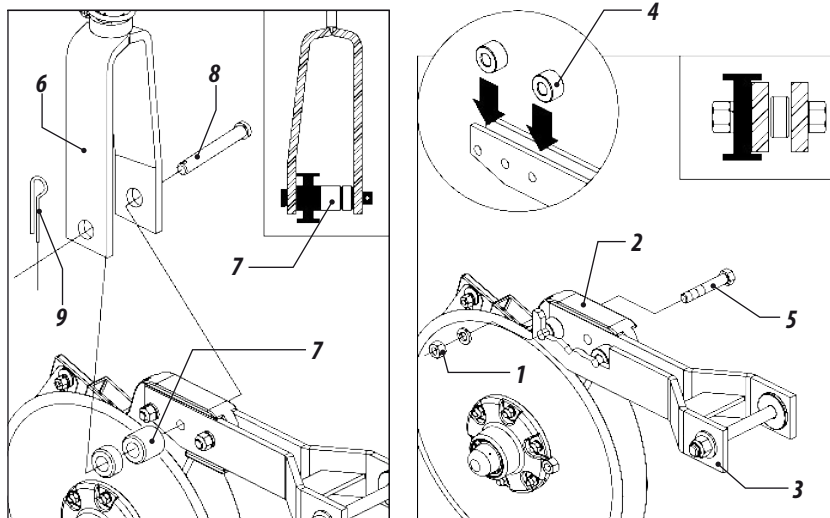


## 12- DEPTH ADJUSTMENT

### OPENING GROOVE AND POSITION OF FERTILIZERS IN SOIL

- The opening of the groove in the soil to which the fertilizer is deposited is done by double disc furrow openers, or the following systems:
- 01** - Fertilization side and below the seed.
- 02** - Fertilization on the same line and below the seed.
- 03** - To regulate the distance of the line of fertilizer over the row of seed, remove the man in the spring (6), loosen the nuts (1), remove the housing (2) which is among the plates of the fork (3), pass it to one side of that fork, place the bushings (4) between the plates of the fork and secure with screws (5) washers and nuts (1), as detailed in **Figures 34**, then replace the rod spring (6), placing the bushings (7) on the same side where the carcass was gone, with the fixing pin (8) and lock (9).
- 04** - Note the section view in detail in **Figures 34**.

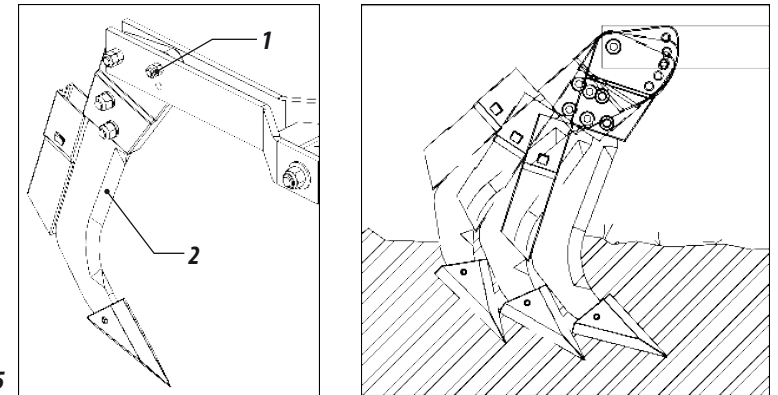
Figures 34



## FURROWER POSITION

- 05** - The forrower has two working positions. To remove this setting screw (1), encompassing the plow (2) until the bottom hole and replace the screw (1).

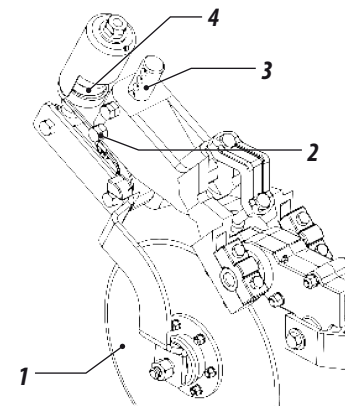
Figures 35



## ADJUST DEPTH OF CUTTING DISC

- 06** - To adjust the depth of the cutting disc (1), loosen the screws (2) and move the shaft (3) to the desired setting. Then tighten the screws (2).
- 07** - Spring (4) leaves the factory with the pressure regulated, do not give more pressure on it to not void the joint action of the blade.

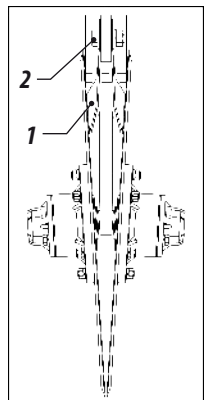
Figure 36



## SETTING THE DOUBLE DISC SCRAPER

- 08** - The double disc scrapers have (1) that are flexible and adjustable through screws (2), to remove the soil that adheres to the discs.

Figure 37



## SEED DEPTH

- 09- The depth of the seed is individually made by the wheels limiting depth. For this setting pull the locking pin (1) through the handle (2) and move the wheel (3) until the desired depth of hole.

## LIMITING DEPTH WHEEL OSCILLATING

- 10- Wheels limiting deep swing, have one point of support that allows the swing of it, should any obstacle in the course of one or irregularities in the ground, it rises to cross it, returning immediately to the starting position without raise the double disc of his position.

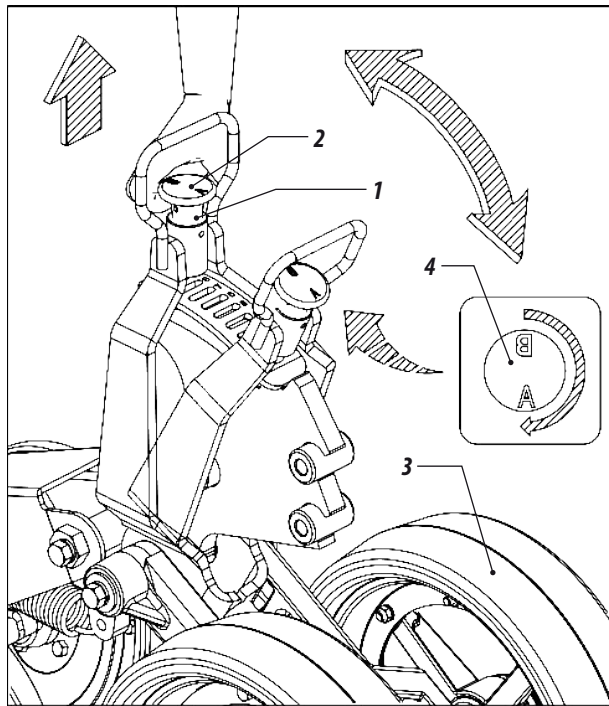
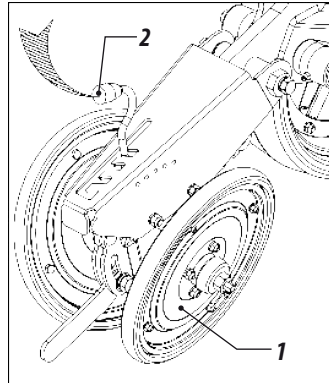
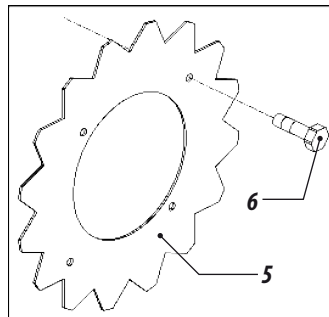


Figure 38



Detail "C"

Hard cut to cover the seed



### NOTE

The adjustments "A" and "B" (4), points adjustments and offer 18 9 9 A and B, merged.

## "V" COMPACT WHEEL ADJUSTMENT

- 11- The press wheel "V" is intended to press the groove laterally causing the soil is immediately placed on the seed, avoiding a lot of compression, facilitating germination and plant development.
- 12- The pressure of the wheel (1) is made through the lever (2), who moved back to give more pressure on the wheels.
- 13- The wheels can be tilted by the lever (3). For this adjustment loosen the screw (4) and move the lever observing the position of the wheel and their use:
- 14- **Position "A" (closed), put the seed on less land.**
- 15- **Position "B" (open), place more soil over the seed.**
- 16- **To facilitate the return of land on the seed in compacted soils, cropped to put the hard cover (5) through the screw (6) in press wheel "V" (1). Detail "C".**

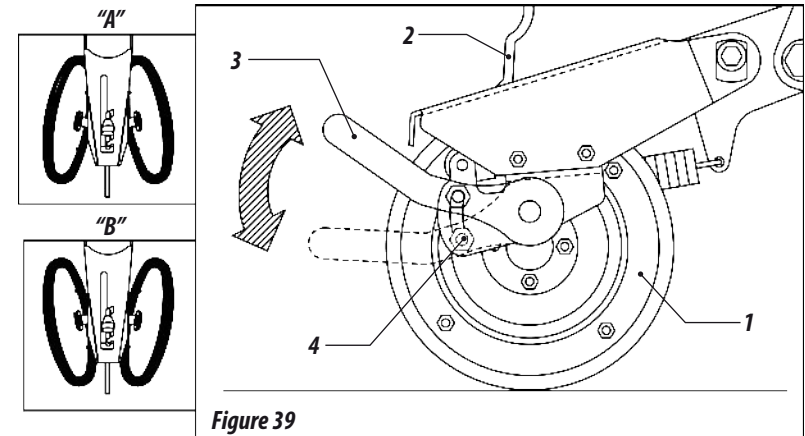


Figure 39

### IMPORTANT

Make the same adjustment for all the press wheel and consider the type of soil, seed and planting depth, not to affect the free emergence.

17- For horizontal displacement of the wheels, they were developed with eccentric bushings (1), for this adjustment loosen the screws (2) rotate the said bushing (1), with a key to performance and alignment of the wheels with the same groove, placing greater or lesser amount of soil the seed side. **Figure 40.**

18- This adjustment must be made according to soil type and culture.

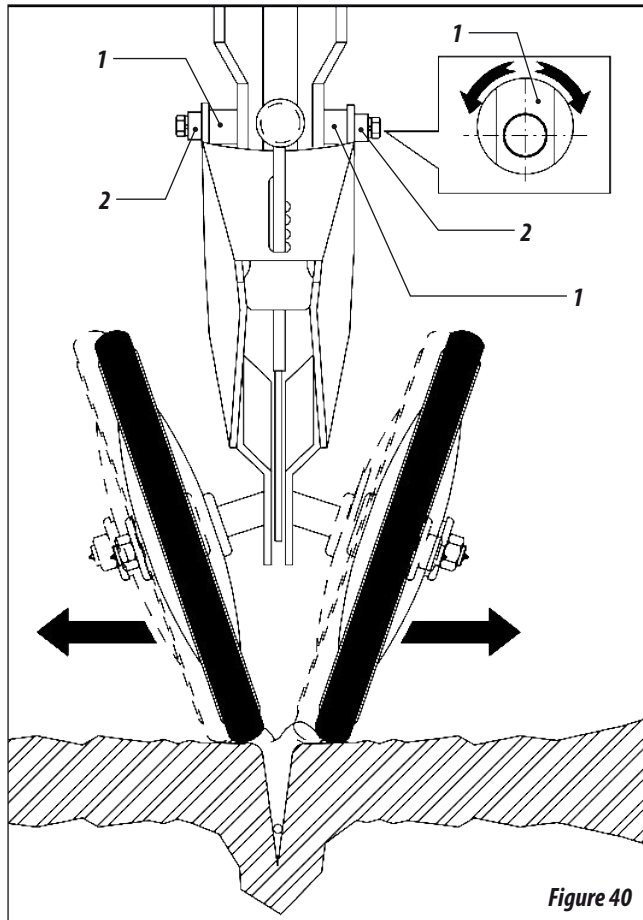


Figure 40

## DEPTH OF PRESSURE ON FERTILIZER AND SEED ROWS

19- The depth adjustment of the fertilizer is made through the spring pressure exerted on the rows. This adjustment is done through the bushes, as follows:

20- To increase the depth, loosen the screw (1) and put the bushing (2) up:

21- To decrease depth, place the bushing (2) down.

22- To give more pressure in the spring, loosen the screw (3) and put the bushing (4), up.

23- Always leave a space between the upper bushing (2) and support rod (5), to swing the line.

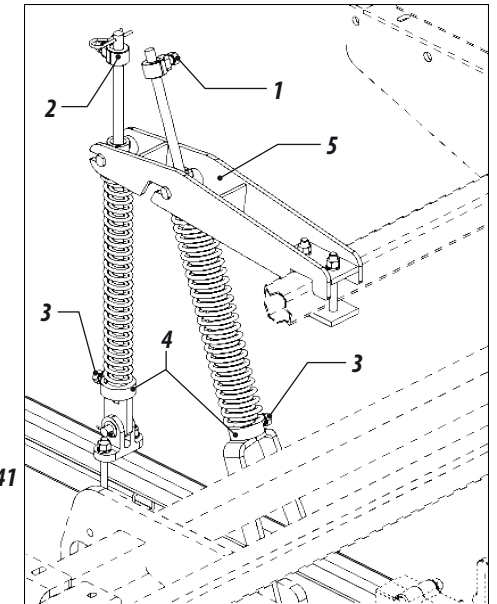


Figure 41

## IMPORTANT

*All lines must have the same regulation.*

## ADJUSTMENT OF PRESSURE SPRING PLANTING FOR CONVENTIONAL

24- For conventional tillage remove the spring pressure and load limiters rings (1) the piston rod (2).

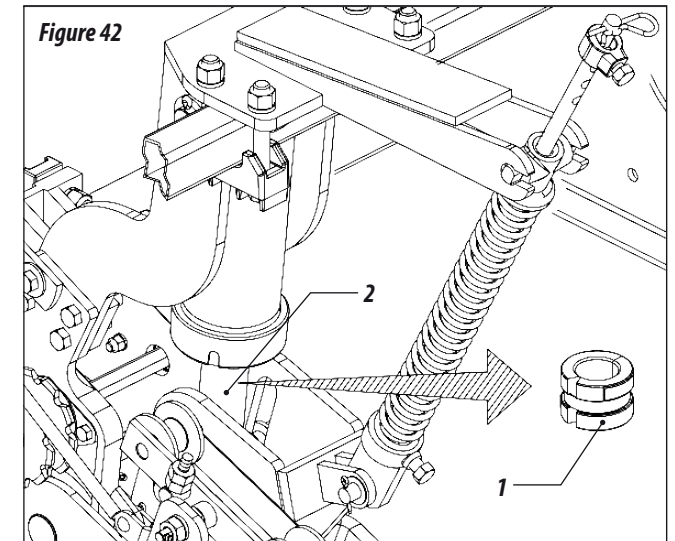
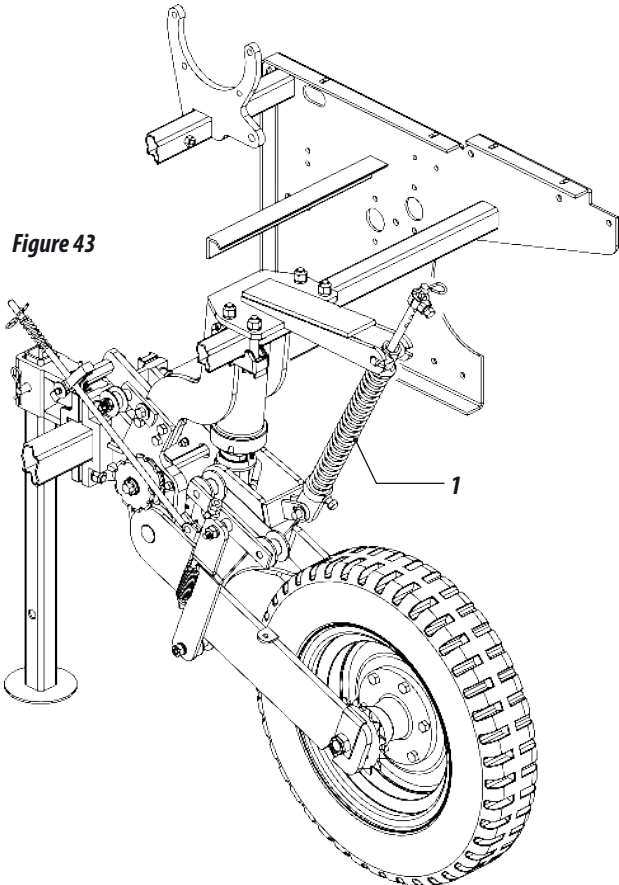


Figure 42

## 13 - FIXING SYSTEM AND ARTICULATION OF WHEELS

- 01 - The articulation system of the tires make the same is free of spring pressure on the ground, allowing the swing and follow uneven ground, causing the distribution of fertilizer and seed are not disrupted.
- 02 - To operate till the wheels free and if necessary put 3/4" of water in the tires.
- 03 - For better grip on the railway wheels are fitted with compression springs (1). Do not operate the drill without them.



## OPERATIONS

- 1 - After the first day of work with the drill, tighten all nuts and bolts. Check the condition of the pins, cotter and locks.
- 2 - Always keep the tires with the same sized (70 lbs / square inch) to prevent wear and maintain uniformity of planting.
- 3 - Note the lubrication intervals.
- 4 - When loading the deposit check for objects within them, such as nuts, bolts, etc.. Always use seeds and fertilizers free of impurities.
- 5 - Always observe the functioning of mechanisms distributors of seeds, fertilizer and also the settings established at the beginning of the planting.
- 6 - Keep the drill level when moving the drawbar of the tractor must remain fixed and working speed should remain constant.
- 7 - Always check the depth of seed, fertilizer and the pressure of the press wheel.
- 8 - Note the position of the fertilizer in relation to seed in the soil.
- 9 - The line markers should be regulated according to the spacing of the crop to be planted.

## 14 - MAINTENANCE

### TIRES PRESSURE

- 01 - Tires should always be properly calibrated to avoid premature wear due to excess or lack of pressure and ensuring accuracy in distribution.
- 02 - The tire pressure of the drill should be 70 lb/in<sup>2</sup> for each one.

### LUBRIFICATION

- 03 - Lubrication is essential for good performance and durability of moving parts of the sower, helping to reduce maintenance costs.
- 04 - Before starting the operation, lubricate all grease fittings carefully observing always lubrication intervals on the following pages. Make sure the lubricant quality and avoid using products contaminated by water, land and other agents.

### TABLE OF GREASE AND EQUIVALENTS

BRAND	RECOMENDED GREASE
Petrobrás	Lubrax GMA 2
Atlantic	Litholine MP 2
Ipiranga	Super Graxa Ipiranga Ipiranga Super Graxa 2 Ipixflex 2
Castrol	LM 2
Mobil	Mobilgrease MP 77
Texaco	Marfak 2 Agrotex 2
Shell	Retinax A Alvania EP 2
Esso	Multipurpose grease H Litholine MP 2
Bardahl	Maxlub APG 2 EP

Table 9



*If other lubricants and / or equivalent grease marks not included in this table, consult the manufacturer's technical manual.*

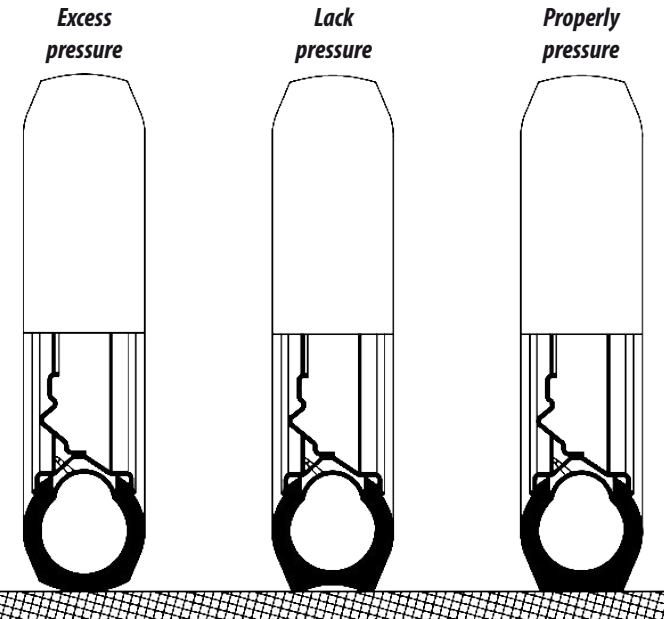


Figure 44

### CENTRALIZED LUBRICATION SYSTEM

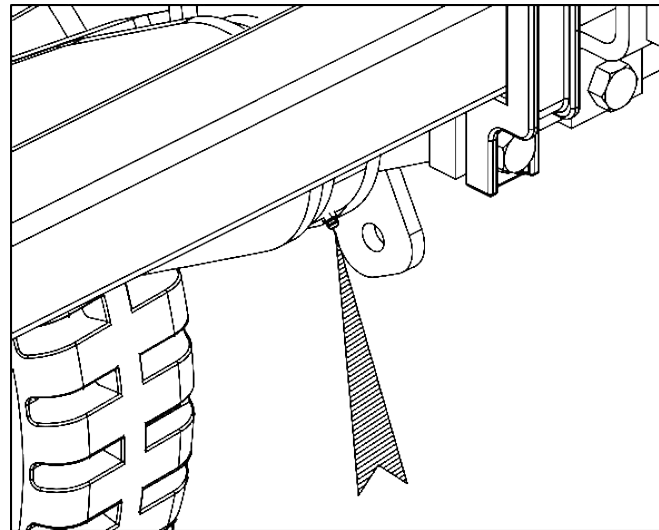
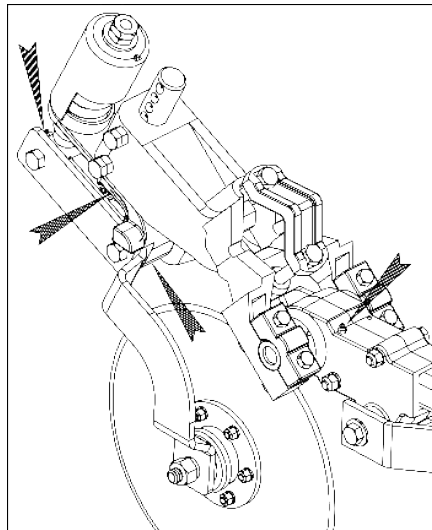
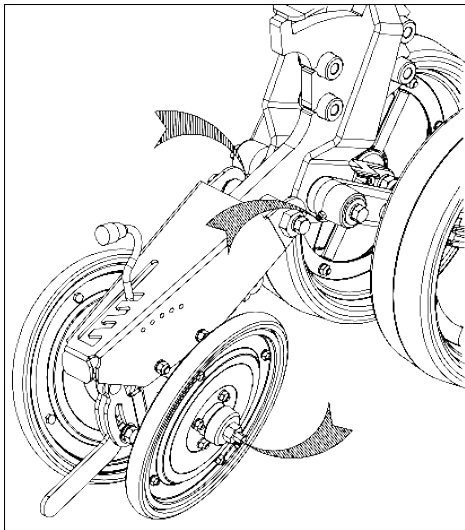
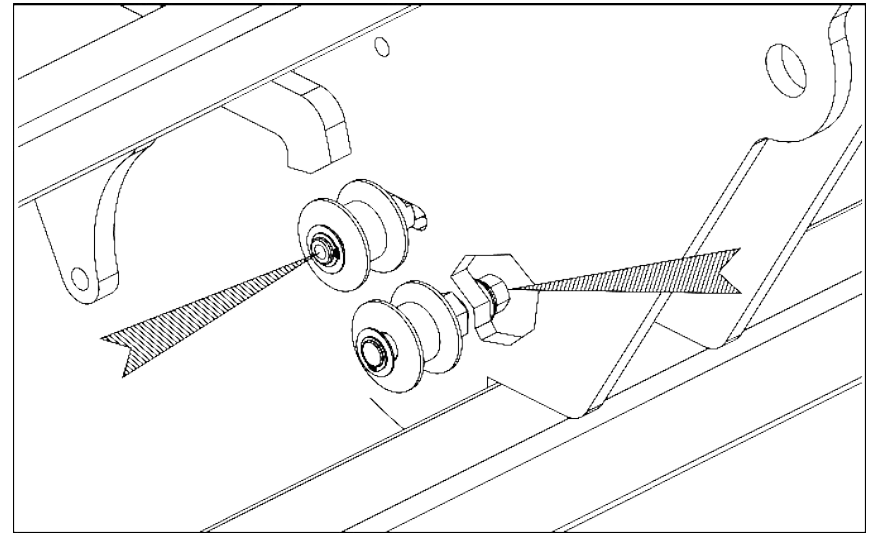
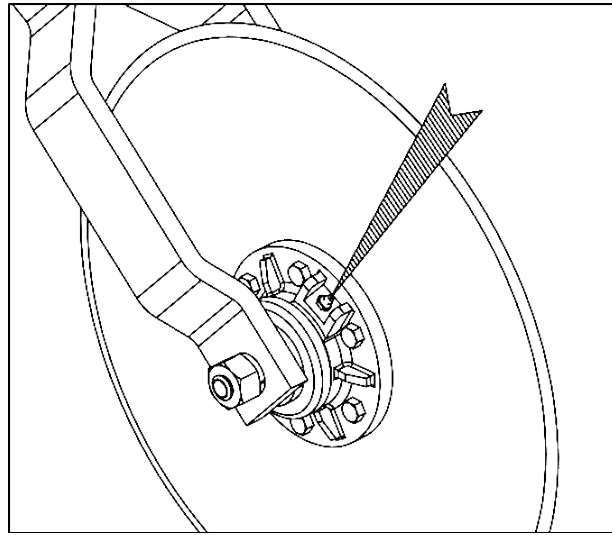
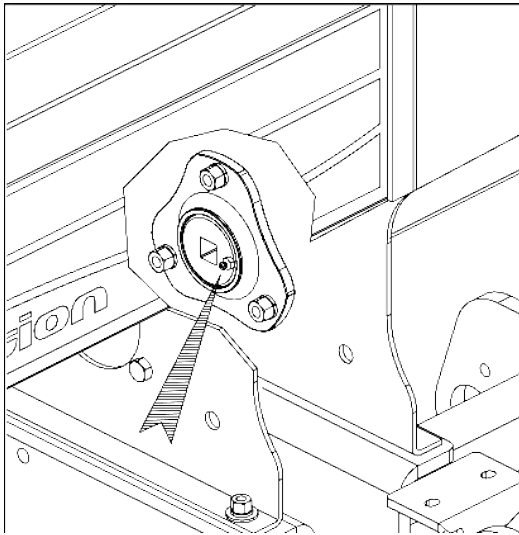
- 05 - The centralized lubrication system makes it faster and easier to maintain, allowing lubricate all points on each side and center on the machine.
- 06 - Before starting the lubrication clean all grease fittings with a soft, lint-free cloth and replace the damaged ones.
- 07 - Lubricate all grease fittings each of the centralized system 10 hours of service.



Figure 45

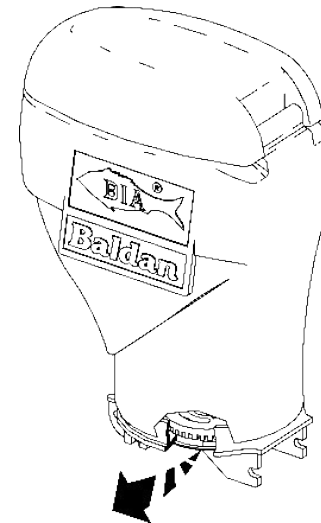
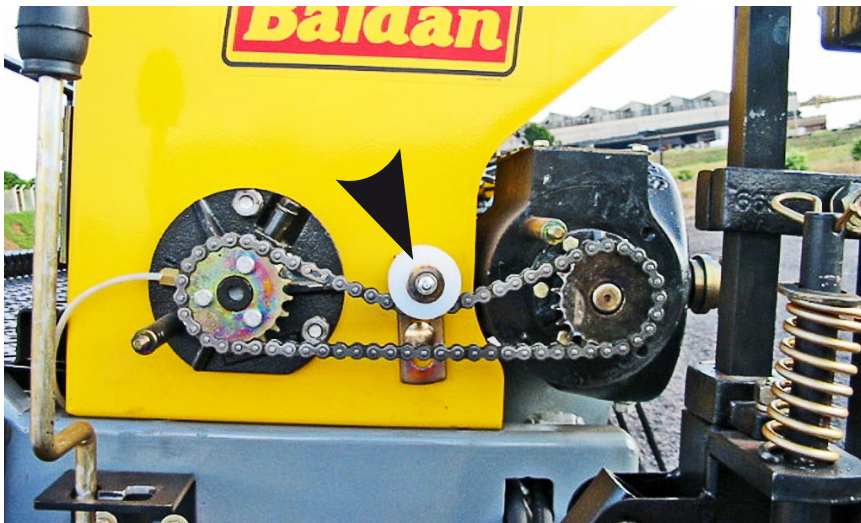
**LUBRICATE EACH 10 HOURS OF WORK**

Figures 46



## LUBRICATE EACH 10 HOURS OF WORK

Figures 47

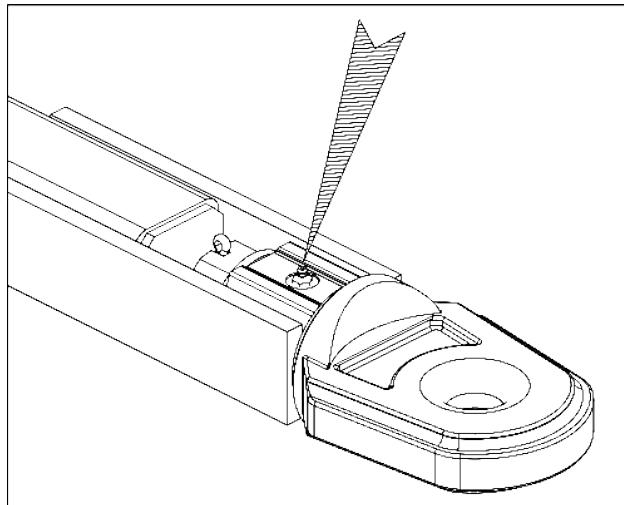
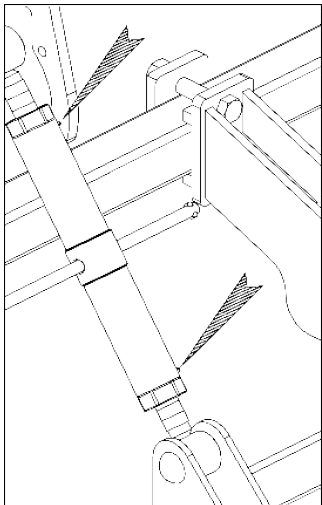


### IMPORTANT

*Do not put too much grease in the crown of seed distributor "A", that may clog the driver of seeds.*

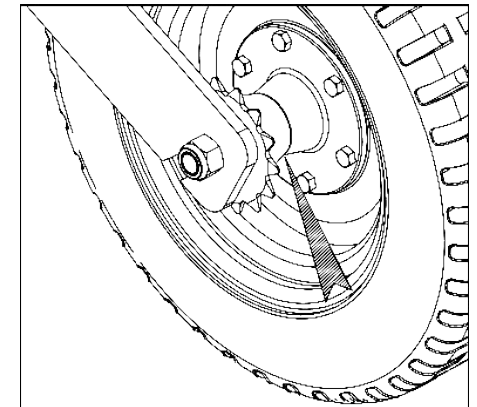
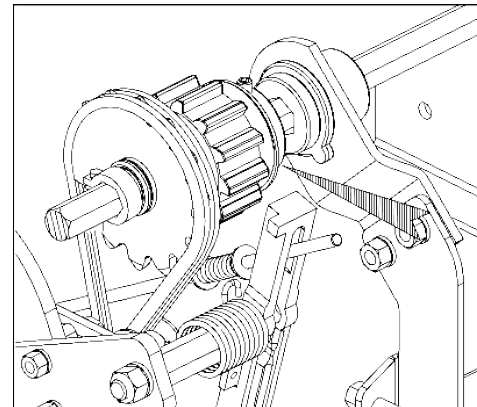
## LUBRICATE EACH 30 HOURS OF WORK

Figures 48



## LUBRICATE EACH 60 HOURS OF WORK

Figures 49

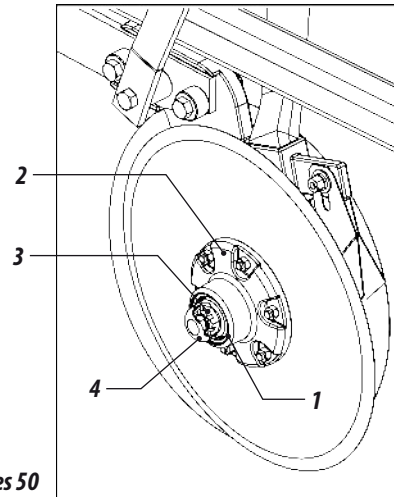


*Do not put too much grease on the ratchet, to respect the range of 60 hours lubrication.*

## LUBRICATE EACH 200 HOURS OF WORK

- Periodically lubricate the hubs of the discs and wheels deep double approximately every 200 hours and at the end of each crop, as follows:

- Remove the retaining ring (1) cube (2).
- Examine the bearings if there is slack, adjust through the castle nut (3).
- Enter new grease in the cap (4).
- Replace the cap on the hub and secure with the retaining ring (1).

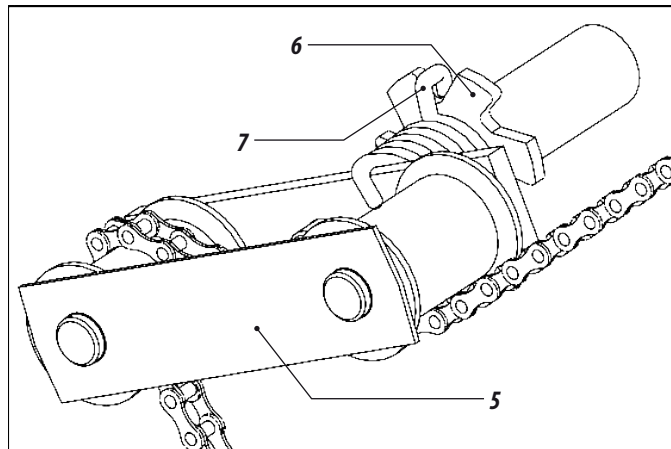


Figures 50

## STRETCHED OSCILLATING

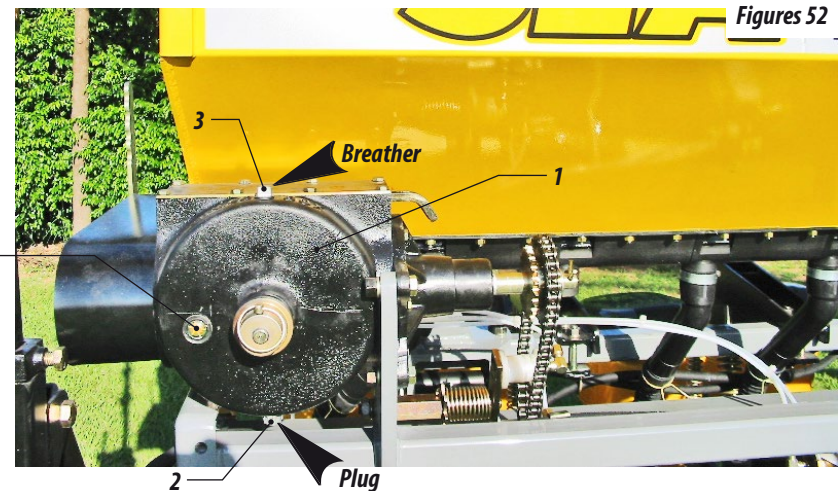
Figures 51

- The stretchers (5) is endowed with torsion spring for even greater flexibility, if necessary more pressure on the stretcher, turn the rosette (6) through the engagement of the spring (7) for the other tooth of the rosette.



## 15 - OIL CHANGE (SPEED BOX)

- Perform oil change gearbox Speed Box (1) after the first 30 hours, then every 1500 hours.
- The reservoir capacity is 1.8 liters. It is recommended to use mineral oil ISO VG 150 to 40 °C.
- To make the exhaustion of oil must be removed the plug (2) at the bottom of the gearbox to drain.
- For the replacement of the oil, remove the vent (3), replace the plug (2) put the oil and check through the viewfinder (4) is achieved the desired level. Check the oil level every day through the viewfinder (4).



Figures 52



Use only oil recommended by the manufacturer.

## NOTE

When changing oil, follow the initial positions of the vent plugs and exhaustion, so they can be reassembled correctly. Make sure you are well sealed and that no leaks.

## 16 - MAINTENANCE

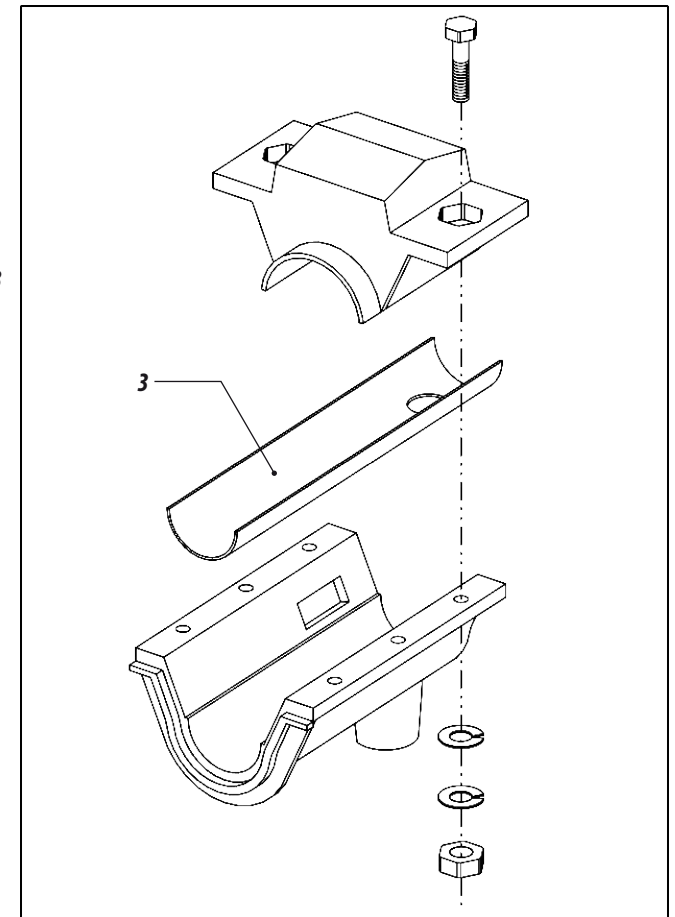
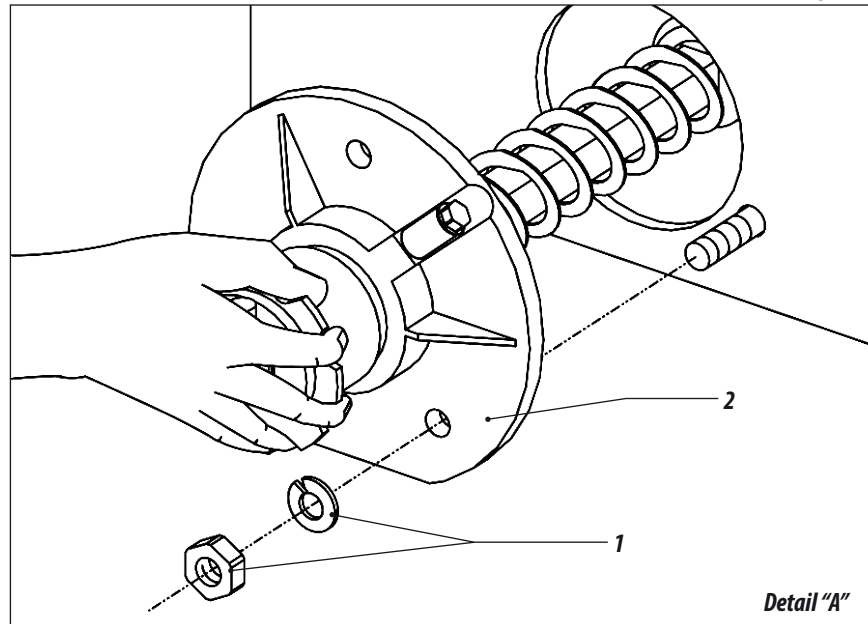
PROBLEM	PROBABLE CAUSES	SOLUTION
<i>During the planting begins to leak fertilizer the safety outputs.</i>	<i>Hose blocked or pieces of plastic in spirals of conducting fertilizer.</i>	<i>Unclog hoses compost or remove the channel that gives access to higher spiral, turn the shaft as opposed to leaving the foreign body that is enrroscado.</i>
<i>Hub axle does not turn the fertilizer.</i>	<i>Spiral blocked with wet manure or compost over the line closed.</i>	<i>Clearing the coils, check if you have loose gutter and the manure is coming from the sides of the same.</i>
<i>Unable to make the coupling of quick couplers of hoses on the tractor.</i>	<i>The hoses were released by pressure or is supporting the weight of the hydraulic drill.</i>	<i>Drain hoses or place the planter on the feet and finally relieve the pressure.</i>
<i>A line of planting depth is less than the other.</i>	<i>Different settings of pressure in the wheel limiting depth of the line or the springs.</i>	<i>Adjust all wheels and the pressure of the deep springs of the lines evenly.</i>
<i>The groove is open too much during the planting.</i>	<i>Sticky soil and sticks to the discs or excessive speed work.</i>	<i>Decrease the work speed.</i>
<i>Pistons stop operating, and then raises the sower does not lower.</i>	<i>Different quick coupler, male and female type ball type needle.</i>	<i>The exchange of quick, placing them both the same type.</i>
<i>Strange noise when operating or riding with the seeder charged.</i>	<i>Loose wheel or hub.</i>	<i>Wrap up the lug nuts. Adjust the wheel hub bearings.</i>
<i>The seeder-row leaves, sometimes one side, now another.</i>	<i>Tractor Drawbar loose.</i>	<i>Use the pin that came with the drill. Attach the drawbar of the tractor in the center hole.</i>
<i>Seeds broken.</i>	<i>Planting high-speed.</i>	<i>Decrease speed.</i>
	<i>Inadequate thickness of the disk.</i>	<i>Use adequate disk (thickness and diameter of the holes).</i>
	<i>Disc misplaced. The screen of the seed is not suitable for hard use.</i>	<i>Place the disc properly (see the phrase: THIS SIDE DOWN).</i>
	<i>Be using seed moist.</i>	<i>Use dry seeds.</i>

## 17 - CLEANING

### FERTILIZER STORAGE SYSTEM METALLIC

- 01- After planting be sure the fertilizer deposits. Do the same cleaning as follows way:
- 02- Loosen the nuts and washers (1) only the outside of the drill, pull the hub with the axis Full (2), rotating it for easy removal detail "A". Check gutters pvc (3), if present wear, replace them. **Figure 53.**
- 03- Make cleaning deposits and also on track and then wash them under running water.
- 04- Reassemble the axes by observing the proper assembly of the entire channel, as holes in both the manure channel should match the spout as shown in **Figure 53.**
- 05- If you hold the drill, make a clean sweep and wash it.
- 06- Make sure the paint to wear off, if so, give an overall coat, pass oil protector and fully lubricate the drill.
- 07- Also remove the drivers of fertilizer hoses, wash with mild soap and water then replace.
- 08- Remove the chains of transmission and keep them bathed in oil until the next planting season.
- 09- Lubricate the machine completely.

Figures 53



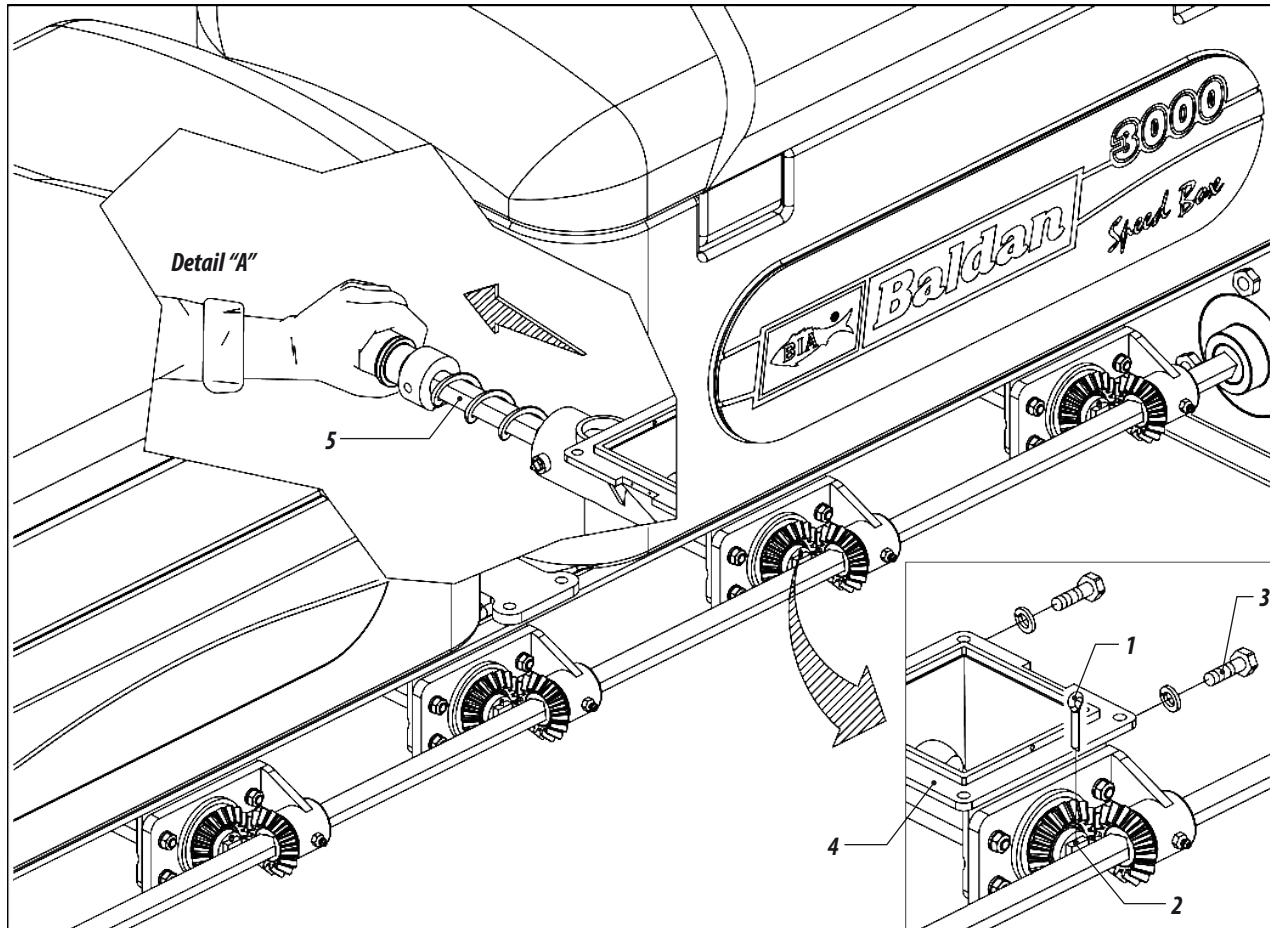
### IMPORTANT

Do not use chemical cleaners to clean the drill, this will damage the paint of the same.

## FERTILIZER STORAGE SYSTEM OF POLYETHYLENE

- After planting be sure fertilizer in the tank, do the cleaning as follows:
- 10- Loosen the cotter pin (1) axis (2) and screws (3) of the gun dealer (4). after pull the axis (5) backwards as detail "A". Figure 54. Reassemble the axes observed Vando the correct assembly of the fertilizer distribution system detail "A".

Figure 54



### NOTE

- Fill the tank of fertilizer always at work.
- Avoid any kind of impurity in the tank of fertilizer.
- Make measurement of daily dosing.

### ATTENTION

Do not insert fingers or objects into holes: inside the tank, because the conductive worm compost can result in injury of serious proportions.

### IMPORTANT

Do not use chemical cleaners to clean the drill, this will damage the paint.

## SEED SYSTEM

- 11 - At the end of each working day, drain the tanks recommend seed, remove the disc distributors (1) and clean them, observe the operation of the seed feeder (2), verifying the spring pressure of the triggers, thus ensuring maximum precision in the distribution of seed.

## GENERAL CLEANING

- 12 - When storing the drill, make a clean sweep and wash it. Make sure the paint to wear off, if so, give an overall coat, pass protective oil completely and lubricate the drill.
- 13 - Remove the chains of transmission, and keep them bathed in oil until the next planting.
- 14 - Lubricate the machine completely. Check all moving parts of the drill, if for wear and clearances make the necessary adjustment or replacement of parts, leaving the machine ready for the next planting. Use only original parts Baldan.
- 15 - After all the care and maintenance, drill your store in a covered and dry properly supported. Avoid a disc becomes in direct contact with the soil.
- 16 - We recommend washing machine at the beginning of the new planting.

TABLE OF SPEED OF WORK RECOMMENDED  
FOR MAJOR CROPS

Crop	Speed
Corn	4.5 À 6.0 Km / h
Soybean	6.0 À 7.0 Km / h
Bean	5.5 À 6.5 Km / h
Sorghun	6.0 À 7.0 Km / h

Table 10

### NOTE

When using products for seed treatment (inoculants, graphite, etc.). To clear the system twice a day.

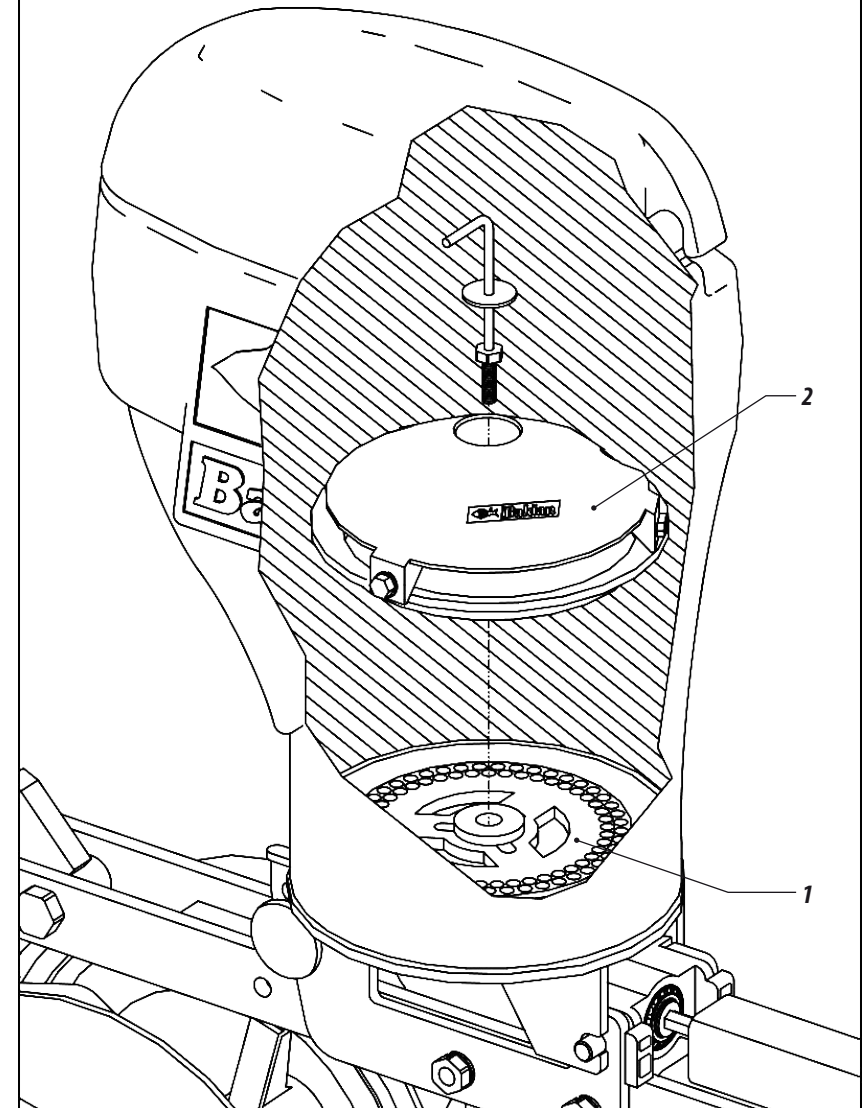
### IMPORTANTE

Use graphite talc industrial or during the planting menuseio, thus avoiding friction seed with the system (disc).

### IMPORTANT

Do not use chemical cleaners to clean the drill, this will damage the paint of the same.

Figure 55



## 18 - OPTIONAL EQUIPMENTS

### LIMITING DEPTH WHEEL WITH ANGULAR ADJUSTMENT

- The control of depth of seed is regulated by individual press wheel convex (1) through the screw (2).
- The wheels are fixed on an axis with the ends in degree (3), specially designed to allow compression, depth control and bury the seed. For these adjustments on the wheel, release the Nut (4) and rotate the shaft (3), watching the movements of the wheel:

- 01 - Parallel Inclined To compress the soil without accumulating on the ground seed (dry land).
- 02 - Inclined closed: To take the land, preventing more land falls on the seed.
- 03 - The wheel, are governed by the pin (5). For higher pressure, pull the pin out and lock it with the counter-pin (6).

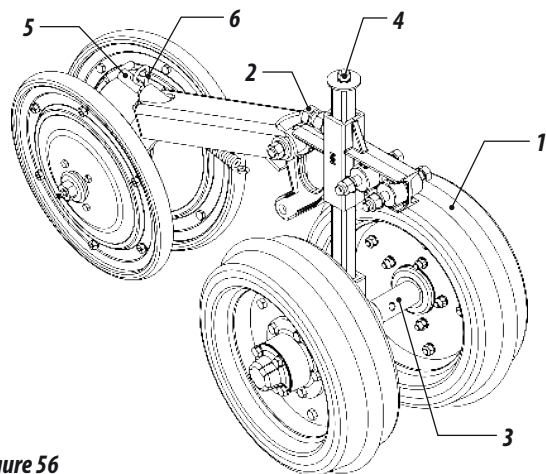
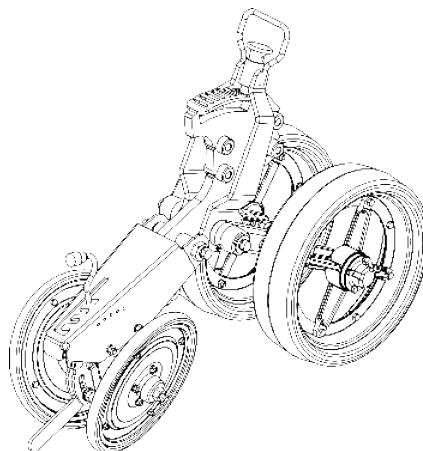
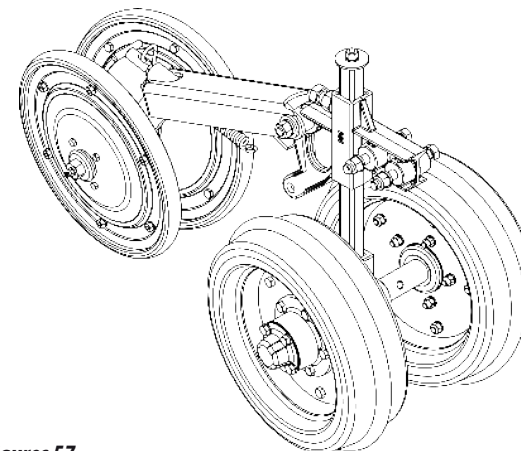


Figure 56

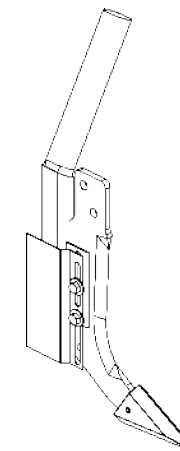
Wheel cart with "V" wheel and deep oscillating



Cart with wheel and wheel fixed depth "V"

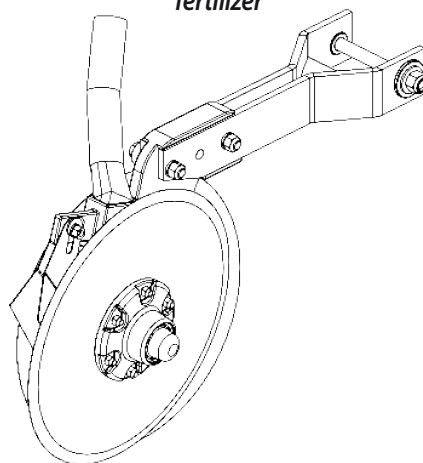


Furrower of fertilizer with deflector

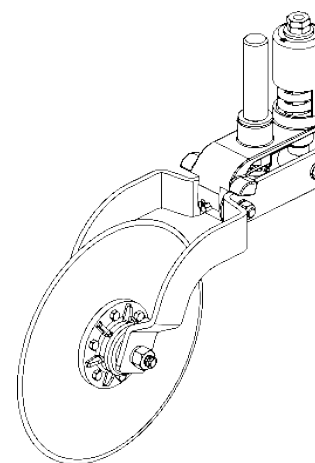


Figures 57

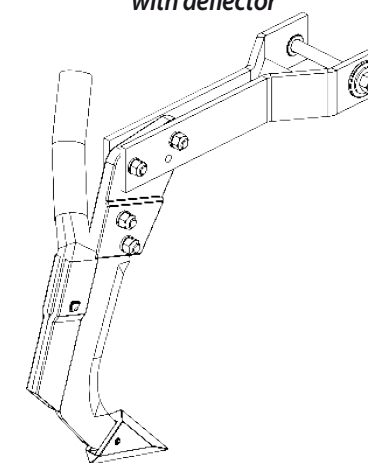
Double disc support of fertilizer



Disc cutting cart



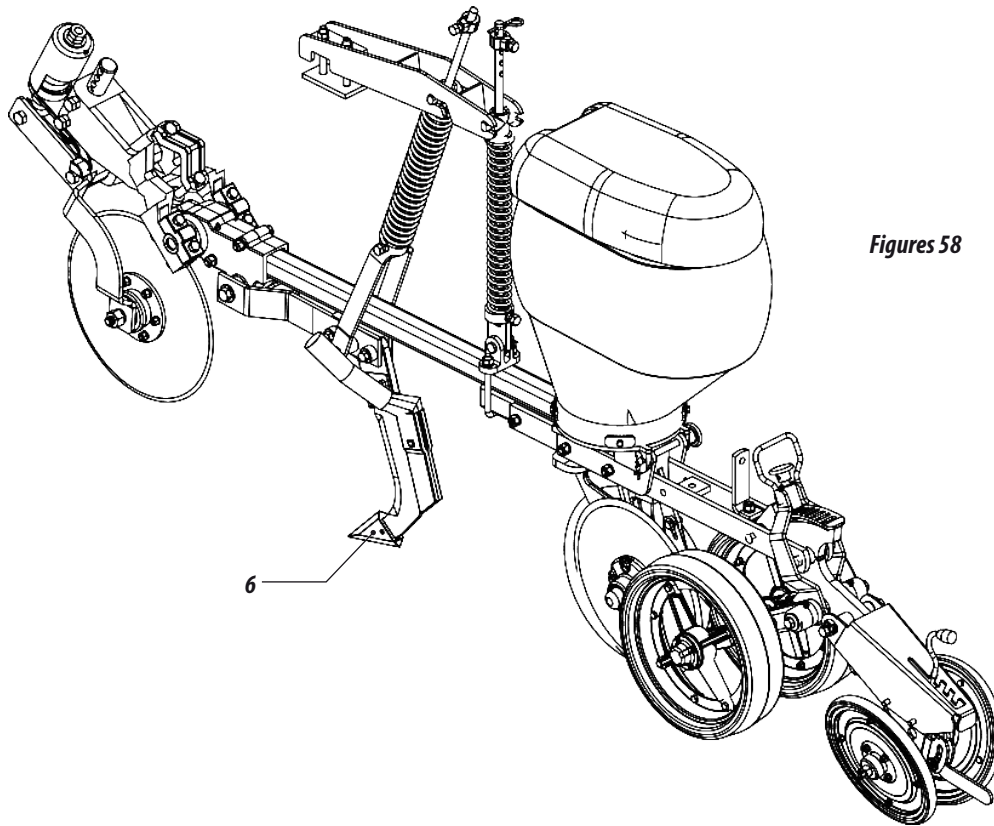
Furrower of fertilizer with deflector



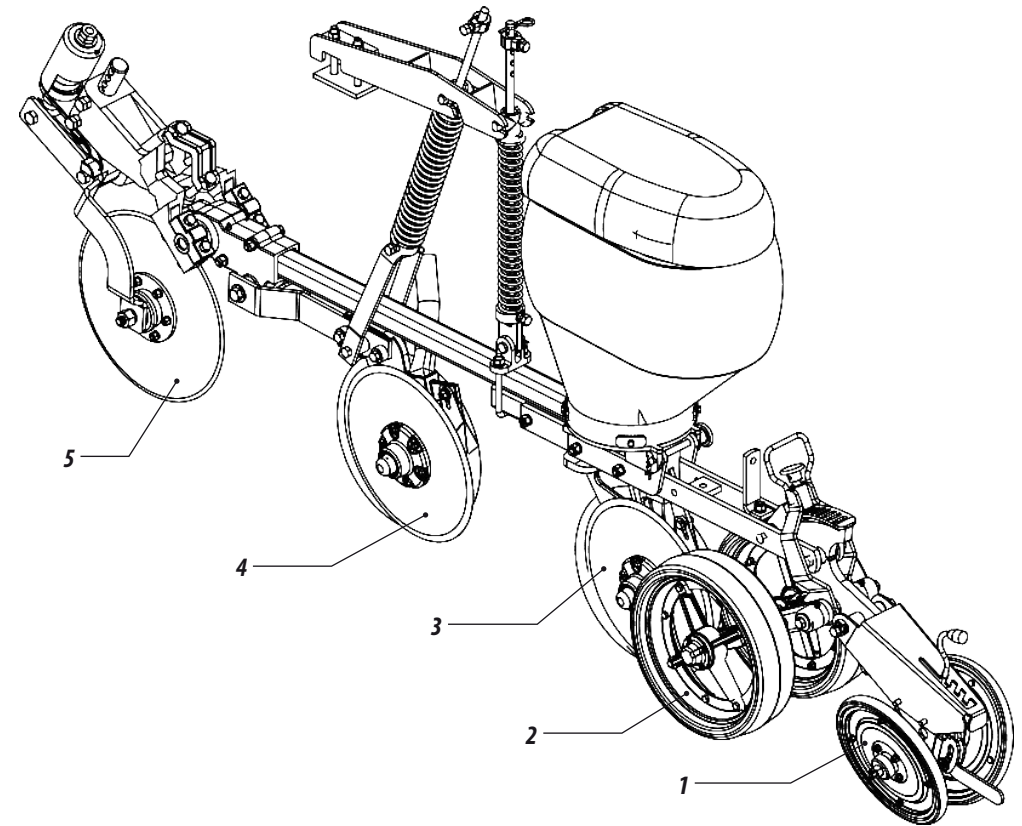
## 19 - LINHAS DE PLANTIO

- 01 - The planting line was developed in parallel or disparate systems, can be mounted with various options, such as:
- 02 - Wheel compression (1) with adjustable angle, pressure and alignment;
- 03 - Wheel limiting depth swing (2), with a single point of support;
- 04 - Hard mismatched double (3) to seed with individual cleaners;
- 05 - Hard mismatched double for fertilizer (4) with individual cleaners and internal scraper;
- 06 - Mower 16" (5) spring independent and individual depth adjustment;
- 07 - Furrower sharp, mismatched with removable nozzle (6).

**ROW FOR FERTILIZER AND FURROWER MOWER**



**ROW WITH DOUBLE DISC FOR FERTILIZER AND CUTTING DISC**



*Figures 58*







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